New York City Truck Route Management and Community Impact Reduction Study

Technical Memorandum 3
Truck Signage Program

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New York City Department of Transportation
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1. Introduction

For over 80 years, the New York City Department of Transportation (NYCDOT) and the New York City Police Department (NYPD) have regulated the movement of trucks and commercial vehicles in the City of New York. Through regulatory mechanisms, primarily the New York City Vehicle and Traffic Rules, regulatory constraints have been in place for the movement and parking of commercial vehicles and trucks on City streets. Since the completion of the previous Truck Route Studies in 1982, this has been done through the establishment of a comprehensive truck route network of arterial roadways that directs the through and local movement of trucks on city roadways. Collectively, these routes comprise just under 1,000 miles of city roadways (675 miles of Local Truck Routes and 265 miles of Through Truck Routes). While all the truck route regulations and designated roadways are specified in the City's Vehicle and Traffic Rules (Section 4-13), signage is the primary mechanism by which road users are made aware of the route system and advised of restrictions and regulations.

Therefore, effective signage becomes one of the most critical components in the management of the Truck Route Network and is one of the primary issues addressed in the *Truck Route Management and Community Impact Reduction Study*. The purpose of this technical memorandum is to formulate an improved truck route network signage program that is modernized and able to meet the needs of all relevant users, while providing the clearest and most pertinent information to drivers. The primary components of this program include the identification and design of route markings, directional signs and regulatory signs to enforce restrictions on city roadways.

In order to improve the truck route network signage, it is important to understand the primary purpose of traffic signs. Effective signage is meant to guide, warn, and regulate the flow of traffic including motor vehicles, bicycles, pedestrians, and other travelers on or along the road. According to the federal Manual on Uniform Traffic Control Devices (MUTCD), signs must meet five fundamental requirements to be effective:

- Fulfill a need
- Command attention
- Convey a clear simple meaning
- Command respect from travelers
- Give adequate time for proper response

Each type of signage used to manage truck traffic on city streets should direct and guide truck traffic on all roadways as well as effectively regulate truck traffic movement within the five boroughs.

This report includes the identification of the existing truck signing conditions, the assessment of the existing sign design, and the development of new sign standards guidance for sign placement. Other issues that are addressed are: signage uniformity, identification of key intersections to be signed, sign placement consistency and locations with traffic information overload.

The major objectives of the signing program developed in the *Truck Route Management and Community Impact Reduction Study* are to simplify signage to facilitate truck driver and public understanding and to support enforcement of the regulations. While signs

are not required to enforce the truck route regulations, the complexity of the regulations in some of the boroughs support the need for posting signs that convey the necessary information to truckers so that they can better comply with the law. In addition, since only a small percentage of streets and arterials are designated truck routes, the need for a comprehensive signage system that is permissive, rather than restrictive should be deployed to designate the routes trucks are obligated to travel on. A permissive sign system is much more cost effective, easily conveys the message to drivers, and prevents the proliferation of restrictive signage on all roadways which are not truck routes.

Throughout the City, there are two distinct types of truck routes (with the exception of Staten Island, which has a limited number of roadways designated as Limited Local Routes) that trucks are required to follow until reaching the intersections closest to their destination – Local Truck Routes and Through Truck Routes. Local Routes are defined as roadways that trucks must follow if the truck trip has an origin and/or destination within the borough for the purpose of delivery, loading or servicing. Through Truck Routes, which comprise of the Interstate system and some of the City's primary arterials such as Atlantic Avenue, are for truck trips that have neither an origin nor destination within the borough and are passing through the borough. A complete listing of the designated roadways can be found in Section 4-13 of the New York City Traffic Rules and Regulations.

For the purpose of the regulations included in Section 4-13, the traffic rules stipulate that all vehicles with two axles and six tires, or three or more axles shall be classified as trucks and are required to travel on designated truck routes until reaching the intersection closest to their destination. Truck drivers must proceed to their destination by the most direct route and return to the Truck Route Network by the most direct route after completing their delivery. The penalty for truckers failing to follow the designated truck routes is $250 (for first time offenders). Subsequent repeat offenses can result in fines doubling in cost with the possibility of points being added to their license and/or imprisonment up to 90 days.

However, compliance and understanding of the Truck Route Network is not an easy task for truck drivers. Throughout the City, various signs restrict truck operations by time of day, length of vehicle, weight of vehicle, and nature of movement (i.e. through versus local). In addition, there are some inconsistencies as to the size, color, lettering, wording or illustrative symbols on the posted signs. Combined with the dense urban environment and additional signage on city streets, there are numerous challenges for Truck Route Network signage to effectively assist truck drivers in navigating the Truck Route system and ensure that the routes themselves are as self-enforcing as possible. However, it still remains the driver's responsibility to follow the regulations set forth in the traffic rules and not utilize streets and arterials in a non- complying manner.

2. History of Truck Route Signage in New York City

Between 1974 and 1982, the New York City Department of Transportation conducted a series of individual truck route studies for each of the boroughs. These studies sought to identified problems and develop solutions relating to the movement of trucks and commercial vehicles within New York City. Prior to these studies, there were numerous deficiencies with the existing regulations, as well as issues relating to signage and enforcement. For the most part, these studies identified that there was no uniform signing program to complement the existing regulations at the time. Furthermore, truck route and prohibitive signage had been placed at numerous locations with no consistency. This problem was exacerbated by different approaches to signing in each of the boroughs. These signs primarily restricted truck operations based upon a less stringent truck definition that only encompassed vehicles over 33 feet. In addition, there was no uniformity as to size, color, lettering, wording or the use of illustrative symbols on the posted signs. These studies concluded that the absence of a uniform truck-signing program was a problem that contributed to the use of residential streets by truck drivers, as well as contributing to enforcement difficulties on the part of the NYPD.

Each of these studies recommended that uniform signs be developed and placed at specific locations as indicated in each of the studies. The primary reasoning for this program was that while a truck route or prohibition sign is not required for enforcement of the truck route regulations, a comprehensive signing program would provide invaluable assistance both to truck drivers as well as to enforcement officers.

The resulting Truck Route Signing Plan was intended to complement the proposed regulations by delineating the designated truck routes and highlighting restrictions on commercial travel, and lead to uniform signage being developed and placed at the following locations:

- River crossing points
- Intersection of truck routes
- Entrances to limited truck zones
- Along truck routes, at regular intervals
- Along truck restricted streets
- Along truck-free roadways
- At special locations, as necessary

Under this program, it is believed that over 7000 signs were installed throughout the City over the course of nine years under the following schedule:

Borough	Date of Final Installation	Quantity
Queens	8/77	1322
Staten Island	1/82	1352
Manhattan	8/85	1476
Brooklyn	12/86	1885
Bronx	12/86	1225
Total		**7260**

These signs were mainly "positive" in nature and were designed to reduce the proliferation of restrictive signing throughout each of the boroughs. For the most part, the design, placement standards and locations of the signs installed under this program have remained consistent for the past 25 years, and many of the signs posted are a vestige of the last comprehensive truck study. In addition, there has not been a program to comprehensively update and address truck routes and the associated signage. Any modification to the posting of signage has been done in accordance with the overall evolution of street signage at specific locations or in response to community concerns or requests or engineering judgment by the NYCDOT.

In addition, while the last study outlined a program for the design and placement of signage, there has not been a program to update/address the design of the truck route sign, trailblazer sign, and reassurance sign, the general or preferred mounting height, posting, or spacing, nor has there been a comprehensive update to overall system. The details and history of all these signs will be detailed in later sections.

In addition, while there was support for the implementation of the signing program in each of the boroughs, budgetary constraints over time required the City to prioritize how resources were spent. For signage that was installed, there have been numerous challenges in maintaining and updating these signs, as well as evolving land use and street use changes that have taken place over time. Part of the challenge in maintaining these signs was the fact that the original Truck Route Signage Plan was created prior to the computerized inventory of all signage citywide. The original citywide signage plan was laid out by hand on Mylar sheets, which were then supposed to be updated accordingly as signage was replaced or changed. As new signage was posted, these sheets may or not have been updated accordingly. Overall this has led to discrepancies in the locations and number of signs that have been posted, the sign assemblies for each of these locations, and their presence in the NYCDOT's signing inventory system, STATUS.

Common problems affecting the maintenance of these signs over this time period include issues relating to truck signage existing only on the maps and not in STATUS, the removal of signage, fading or vandalized signs, and general maintenance issues. In addition, varying standards and sign designs have gradually been applied over the past 20 years, leading to inconsistent messages and different sign designs. This report will also detail these changes and their impacts.

3. Traffic Sign Standards

The proliferation of traffic signs during the early years of the automobile increased awareness with local and state officials for a need to develop traffic sign standards. The development and application of traffic sign standards by each state led to establishing a national group that developed national traffic sign standards.

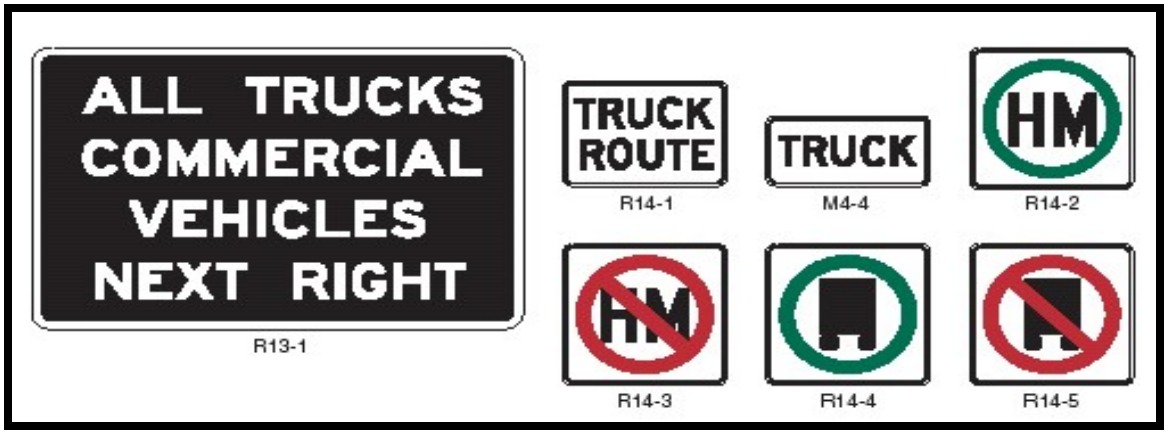
Standards in traffic signs relate to uniformity in the shape, size, color, content, lateral placement, mounting height and spacing. Signing uniformity provides signs that are easy to locate, to understand and to identify. Signing uniformity also creates driver expectations to the shape, color, content, placement and spacing of the signs.

A. National Standards

The federal Manual on Uniform Traffic Control Devices (MUTCD) is recognized as the national standard for all traffic signs and traffic control devices installed on any public travel way. The MUTCD, administered by the Federal Highway Administration (FHWA), specifies the shape, sizes, color, symbols and content of traffic signs. The traffic sign standard shapes are diamond, rectangular, pentagon, pennant, trapezoidal, octagonal, triangular and round. The MUTCD specifies that the standard regulatory signs shall be rectangular in shape with a white field, black and red legend inside a black border. Guide signs shall have a white message and border on a green field. Warning signs shall be diamond-shaped with a black legend and border on a yellow field. The truck signs in the MUTCD are illustrated in Figure 1.

Figure 1

MUTCD Truck Signs



The federal MUTCD specifies a limited set of sign standards for truck route signage. The signs indicated in Figure 1 are used for a variety of purposes. The R14-1 sign is considered the standard for delineating and signing a truck route. Typical applications include the posting of a stand alone sign or the attachment of directional arrows to the sign to indicate direction. The M4-4 is commonly used to supplement a route assignment, such as for a state highway. The R14-2 and R14-3 are regulatory signs for

the allowance or prohibition of trucks with hazardous materials. Finally, the R14-4 and R14-5 signs are to be used for the optional signing of the National Network highways, indicating the allowance or restriction of these vehicles.

On a national level, while the MUTCD specified truck signs, mainly the R14-1 and M4-4 are the most widely used truck signs, research indicates that different municipalities across the country have utilized different design standards for the signing of truck routes. As indicated by the MUTCD guidelines, most of these signs are regulatory in nature, as they are meant to enforce ordinances or local laws relating to the movement of trucks.

Additional standards include signage for restrictive or prohibitive signage. These signs are typically meant to restrict truck and/or commercial traffic from a specific street segment. Typically, these signs utilize a black truck silhouette surrounded by a red circle. Additional messages such as “except local deliveries” or specific weight restrictions are also commonly used, mainly based upon the way trucks are defined in local ordinances.

B. State - New York State

The New York State Department of Transportation (NYSDOT), like many other states, had established its own MUTCD guide. This guide, known as the Official Compilation of Codes, Rules and Regulations of the State of New York (NYCRR) Volume 17B, Uniform Traffic Control Devices, is commonly referred to as the NYS MUTCD. This document regulated the standards for traffic control devices that are applied to public roadways throughout the State. In relation to trucks, most municipalities establish their own truck routes in conjunction with the NYSDOT. The truck route signs and truck prohibition signs in the NYCRR are either identical or similar to the MUTCD established truck signs. Typically, truck routes throughout the State utilize the standard sign design to delineate their truck routes, as these may encompass only a small portion of their roadways. Within New York City, the complexity of the street network, reliance upon trucks and volume of truck traffic makes the use of these signs much more challenging.

It should be noted that the New York State Traffic Rules state New York City “shall conform to the State manual and specification only insofar as such local authority in its discretion deems practical” (V&T Law 1680(c)). Accordingly, the City is permitted to deviate from the standards. However, this may entail funding issues relating to compliance.

In 2006, the New York State Department of Transportation moved to revise 17 NYCRR Chapter V (commonly known as the New York State Manual of Uniform Traffic Control Devices, or New York State MUTCD). This upcoming rulemaking will repeal the entire New York State MUTCD, and replace 17 NYCRR Chapter V with a document known as the New York State Supplement. Together, the National Manual on Uniform Traffic Control Devices for Streets and Highways - 2003 Edition (National MUTCD) and the New York State Supplement will constitute the “uniform system of traffic control devices” required by Section 1680 of the New York State Vehicle and Traffic Law.

The creation of the New York State Supplement is necessitated by the September 13, 2006 changes to Section 1680 of the New York State Vehicle and Traffic Law, wherein the National MUTCD will be adopted on September 13, 2007. On that day, the National MUTCD will replace the current State MUTCD as New York’s standard governing the

use of traffic control devices on any street, highway or bicycle path open to public travel. The New York State Supplement will serve to modify the National MUTCD by: adding devices currently used in New York that are not in the National MUTCD (e.g., the YIELD TO THE BLIND sign); modifying National MUTCD standards to meet stricter New York standards (e.g., New York does not allow for the creation of new traffic control devices without Department approval); adding/deleting devices as necessary in order to remain in conformance with New York State law (e.g., legal bridge clearances); and modifying National MUTCD guidance to reflect the unique needs of New York (e.g., general service symbol signs are subject to different rules of use). The New York State Supplement will modify approximately 175 of the National MUTCD's 1000 sections, and add about 50 new sections of material brought forward from the existing New York State MUTCD.

C. Local – New York City

The City of New York generally follows the traffic signing standards and practices set nationally and in the State of New York. With one of the longest designated municipal truck route system in the country, the City of New York has established a distinct set of signs to manage truck traffic. As mentioned above, New York City does at times deviate from national standards in its sign design.

In their current application, the guide signs, route markers and reassurance signs for the New York City Truck Route Network utilize many of the primary components of the national and statewide truck signs. This includes both the text and truck silhouette that is common for truck route messages truck advisory signage. The truck prohibition signs are also similar to the national and statewide signs. The signing standards set at the City level are regulated by Title 34, Rules of the City of New York, Chapter 4 of the New York City Traffic Rules and Regulations.

4. Assessment of the Current Truck Route Network Signage

While the previous Truck Route studies provided a general plan that identified selected intersections that should be posted with truck route signs, as well as general guidelines for signage placement, the current Truck Route Network lacks a comprehensive program for signing that details the application and design of all relevant truck management signage. This includes route markers, directional and advance signage, negative or prohibitive signage, and other regulatory or advisory messages directed at truck traffic and commercial vehicles.

The New York City Department of Transportation currently classifies its truck route signage system into two distinct categories: "Positive" and "Negative" signage. Although the Institute of Transportation Engineers (ITE) and the Manual on Uniform Traffic Control Devices do not classify any of their signs as "positive" or "negative" signs, the NYCDOT generally refers to this standard for the system of Truck Route signage that has been in place for the past 25 years. Most of the positive signage are regulatory in nature and are used to both delineate the route system as well as enforce the rules and regulations pertaining to the movement of trucks in the City. The primary positive signs used to delineate the Truck Route Network include:

- Directional or "Intersection" signs;
- Route designation signs; and
- Trailblazers, Advance Advisory and Guide signs.

Negative or prohibitive signage generally reinforces a prohibition on either truck movements or access, and is used to reinforce restrictions on the movement of a type of vehicle on a selected portion of the roadway. The most common application of prohibitive or "negative" signage in New York City is the use of the "No Trucks Except Local Deliveries" signage which is used as a protective device to discourage truck traffic on a particular street segment. Additional applications of negative signage include turning restrictions for trucks, size restrictions and other general regulatory signage. Typically, these signs are regulatory by nature and are therefore enforceable.

Based upon general field observations the myriad of signs that are posted citywide as part of the current Truck Route Network, may at times, feature inconsistencies in placement, as well as lack uniformity in size, type, and content. With several different applications for a single type of sign, it can be difficult for truck drivers to effectively follow the route system alone, although it is expected that drivers are knowledgeable of the route system and the pertinent regulations applying to the operation of their vehicles. While local drivers may be familiar with the general sign design and word messages currently used by the NYCDOT as part of the Truck Route signage system, the City of New York is unique in that it employs sign designs which are distinctive to New York City roadways. In addition, the definition of a truck in New York City is different than in surrounding municipalities. A two-axle, four-tire box truck, commonly referred to as a "panel van", which although over 10,000 lbs. would not be considered a truck, but a commercial vehicle. These types of vehicles are not bound to the Truck Route Network or truck regulations. In surrounding municipalities, trucks are generally classified based upon designated weights, not number of axles. Accordingly, restrictive signage is usually employed in these municipalities based upon a weight restriction (i.e. over 8000 lbs).

The following section provides an analysis of the current system of both positive and negative signage currently in use by the Department of Transportation and other transportation agencies in New York City, as well as the issues relating to their current application and usage.

A. Positive Truck Route Signage

According to the federal Manual on Uniform Traffic Control Devices (MUTCD), regulatory signs are used to inform road users of selected traffic laws or regulations and indicate the applicability of the legal requirement. Regulatory signs are required to be retro-reflective or illuminated to show the same shape and similar color both day and night. With exceptions to STOP signs and YIELD signs, regulatory signs are rectangular in shape with a white field and black letters.

The primary sign used in New York City to mark the Truck Route Network is designed as a regulatory sign. This sign, coded as SI-184G, serves as the basic element for most of the positive signage system in use in New York City. This sign is illustrated in Figure 2. It is rectangular in shape with a white field containing a silhouette of a two axle truck and the text "TRUCK ROUTE" in black. These signs are 24 inches in height by 36 inches in width and are typically supplemented by additional sign assemblies to indicate various regulations. The design of this sign with a truck silhouette and the "Truck Route" message is specific to use in New York City and is not in use in other municipalities, although basic elements are similar to other specialized signs that may be in use in other locations.

Figure 2 – NYCDOT Sign SI-184G

In total, there are three primary sign assemblies that are used to delineate the Truck Route Network and provide drivers with the visual information necessary to effectively navigate the entire network. These include:

- Directional or "Intersection" signs;
- On-Route or Reassurance signs; and
- Trailblazer and Guide signs.

The following provides a description of the current application of these signs, and issues related to their usage.

i. Directional or Intersection Signage

As indicated, the SI-184G sign design has been the standard truck route sign design employed by the NYCDOT over the past twenty years. This design was developed to be the universal design for the designation of the routes as well as for decision making. For Directional or Intersection signage, the Si-184G is modified with an additional panel with a message indicating the type of route designation and directional arrows. Examples of these signs are depicted in Figures 3 and 4. These signs serve as the most integral component of the Truck Route Network and Truck Route signage system because they are the primary means of notifying drivers of changes in the roadway assignment of the designated route, as well as locations where two truck routes intersect with each other. By visually providing this information, drivers can utilize the signed route assignments to make routing choices, while maintaining their status on the Truck Route Network in reaching the intersection closest to their destination.

Figure 3

Citywide, it is estimated that there are 1,138 intersections where truck routes intersect. These are broken down by borough:

Borough	Intersections
• Bronx	228 Intersections
• Brooklyn	223 Intersections
• Manhattan	285 Intersections
• Queens	206 Intersections
• Staten Island	196 Intersections
Total	1,138 Intersections

Figure 4

Truck drivers use these signs as the primary tool to understand the continuity and designation of the route system. They are also integral element in advising drivers of changes in the route designation, and should be posted to be in accordance with all potential legal truck movements at a specific intersection or decision point. This may necessitate as little as one sign for the entire intersection (i.e. slip ramp on roadway) to a total of four approaches at the intersection of two major two-way arterials. This systematic approach to signing the Truck Route Network was one of the primary recommendations of the Truck Study that was completed in the early 1980's.

Under this system, drivers were to be notified of intersecting routes only at the primary decision point where the routes intersected. It was inferred that drivers would have a general knowledge of the street network and truck route system and would utilize the appropriate combination of truck routes and local streets that provided the most reasonable access to get to and from their points of origin or destination.

According to the New York City Vehicle and Traffic Rules, trucks used for the purpose of delivery, loading or servicing are restricted to street segments designated as truck routes, except that an operator may use a non-designated route for the purpose of leaving their origin or arriving at their destination (Section 4-13). This is to be accomplished by leaving the designated truck route at an intersection that provides the most direct route to their destination, consistent with existing street direction and turn restrictions, proceeding by the most direct route, and then returning to the designated truck route by the most direct route. If an operator has additional destinations in the immediate vicinity, they may proceed by the most direct route to the next destination without returning to the designated truck route, provided that the next destination does not require the operator to cross a designate truck route. Accordingly, truck drivers are to continue to follow the signed routes until they reach an intersection that provides them with the most direct and reasonable route to their destination.

The most common issue that relates to the current application of intersection or directional signs are incomplete sign assemblies or missing signage on some of the approaches at an intersection. Based upon general field surveys, there are numerous locations citywide where there are designated routes that intersect that are not clearly signed on the roadway network. This may include incomplete intersection signage orders where all permitted or designated truck movements at the intersection are not indicated on the sign or one or more of the approaches was omitted. In addition, truck drivers may not always be aware of the end or changes in route directions or the applicability of continuing on the designated roadway due to missing signage. There are also locations where portions of the sign are missing or there are incomplete assemblies. While the NYCDOT quickly refurbishes or replaces any worn, faded, or missing sign, it is often dependent upon citizens to report deficient or damaged signs via 311 to be quickly fixed or replaced.

Figure 5

Although not as commonplace, there are other inconsistencies in this application of Truck Route signage. These include applications where signage intended to be used as reassurance or wayfinding signage is used in the place of the standard intersection signage application. Examples of these are either white on green signs which are advisory in nature or black on white signs missing the truck silhouette and have only the word message “Truck Route” and a directional arrow. An example of the black on white (regulatory) sign is depicted in Figure 5. An example of the white on green (advisory) sign is depicted in Figure 6.

There are also instances where assemblies utilize a sign other than the standard SI-184G as the primary sign, as indicated in Figure 7. In this instance, the general on-route sign “Local Truck Route” has been supplemented with a directional assembly. In most of these instances, although the general message is clear, motorists and enforcement personnel have indicated some confusion of the intent of this signage or the differences between it and the standard regulatory sign. .

Figure 6

There may also be locations where there is additional signage which may display a conflicting message to the intended message in the truck route sign. An example of this is illustrated in Figure 8, where there is signage indicating that truck turns are limited to local deliveries while there is a standard directional designation accompanying the sign assembly. Such signage, while not common, may be confusing to drivers unaccustomed to the City’s signage system. This may also occur in instances when assemblies are struck by vehicles and the messages may be facing the wrong direction. Once again, NYCDOT will replace or refurbish these instances; however it is often dependent upon public notification to identify these locations.

Figure 7

Drivers may also be referring to maps which indicate conflicting routing information as opposed to directional signage posted in the field. Examples may include locations where there are turning restrictions or one way streets, whereby the driver is either not able to make the desired turn and is not provided any additional signage to direct them accordingly. Numerous city avenues where truck routes intersect lack truck route signage for this reason.

Figure 8

Finally, one of the major issues pertaining to this type of signage relates to the inventory and NYCDOT accountability for the existing truck related signs. Although this a general problem that plagues the entire Truck Route signage program, there are numerous signs which are not accounted for in NYCDOT’s computerized sign inventory system, STATUS. This is because the original truck signage program laid out the system on a set of Mylar maps, which in a majority of cases has not been entered into the STATUS system. It is

estimated that up to two-thirds of the existing signs are not contained in STATUS. This is problematic when refurbishing or replacing signs, as the record of sign placement or message cannot be easily obtained.

ii *Truck Route "On-Route" (Reassurance) Signs*

The secondary sign used in New York City for delineating the Truck Route Network is commonly referred to as the "On-Route" or Reassurance Truck Route sign. Reassurance signs, as described in the Manual on Uniform Traffic Control Devices (MUTCD) and the New York Codes, Rules and Regulations (NYCRR), consist of a cardinal direction auxiliary sign and a route sign or route marker. Reassurance signs are generally posted along a roadway primarily to assure road users that entered a numbered or designated route that they are continuing to travel on the same numbered or designated route. The design and placement criteria for these signs was part of the overall signage plan in the last truck route study.

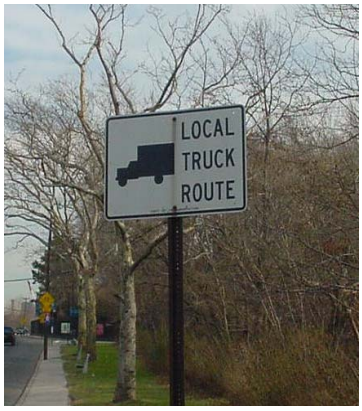


Figure 9

These signs are most common outside of Manhattan, especially on some of the longer truck routes. In Manhattan, due the shorter distance between truck routes and the grid network, the directional signs at the intersections provide a similar function as on-route signs with directional arrows indicating the presence of being on a truck route.

Figure 10

Figures 9, 10, and 11 illustrate the three most common applications of the "on-route" signs currently in use on City streets. All three signs portray similar messages however the word messages and information are displayed in different manners.

Existing "on-route" signs along the Truck Route Network are typically mounted on traffic signal posts, on street light poles and on stand-alone channel posts throughout the network based upon available mounting options. These signs are placed at varying heights and in various schemes on the roadways. In some cases, their placement on center medians or on crowded poles at corners decreases their visibility to drivers.

Figure11

In the instance of Figure 9, this sign indicates the presence of a Local Truck Route and serves as a reassurance to truck drivers that they are on a designated route. This sign happens to be mounted on a channel post which may not be as conspicuous as other signs. However in this setting it does not compete with other street signs and is visible to motorists.

Figure 10 demonstrates another application of the "on-route" signage. In this application, a standard SI-184G is posted with no additional information designating the type of route designation. This is the most common application used throughout the City. The limitations of this sign are the lack of associated information on the route designation

The third type of signage that is used is a variation of the image depicted in Figure 11, but provides a supplemental message indicating the type of route designation (Local or Thru) only or the designated route and a 12 o'clock arrow. This sign is pictured midblock however it is may also be posted at intersections. These signs have also been posted on streets where high truck volumes may be entering the designated truck route or to discourage drivers from utilizing a roadway that may appear to be a truck route.

Placement of these signs appears to have been guided by the previous Truck Route studies which specified that these signs be posted at sporadic intervals along the route system. There were varying criteria based upon the borough. In Manhattan, it was anticipated that the Central Business District (north of 60th Street), these signs would be posted at half-mile intervals, while south of 60th Street, they were to be at one-quarter mile intervals or every five blocks. In the remaining four boroughs, signs were generally planned to be placed at one-half to one-mile intervals. Therefore, placement was a component of distance, rather than specified need or vehicle travel characteristics on a specific corridor. The final placement and posting of these signs may not have been totally accurate in terms of distance or location as specified on the Mylar maps and has led to some inconsistent or incomplete series of postings of signs along certain corridors. In addition, they were not posted based upon a needs assessment, so drivers in high truck traffic locations may not have encountered or viewed these types of signs to assist them in their routing decisions.

Due to the complexity of the urban environment and street network, these types of reassurance signs are a necessity to inform drivers of the presence of the routes and the trucks relationship to the entire Truck Route Network. These signs are the primary mechanism to inform a driver of the presence of a designated route. It is inevitable that trucks leave the route system to make local deliveries; therefore the ability to effectively pick up the route system and return to it becomes an important component of a self-enforcing Truck Route Network.

Outside of Manhattan, this is critical as it may be necessary for truck drivers to travel a significant distance (up to 1 mile in some cases) to access an intersecting truck route. Unless the truck driver is knowledgeable of the route system or is in possession of a truck route map, it is possible for a driver to travel on a designated route for a considerable distance without knowing the presence of the route. This is also true in the case where drivers may mistakenly identify a wide street or commercial corridor as a truck route, as no positive or negative signage is posted to indicate otherwise.

Currently, the application and posting of these signs in most corridors in the Truck Route Network is inconsistent. In some cases, there may be no reassurance signs posted along an entire corridor, especially on some of the shorter or connecting routes that make up the Truck Route Network. In Manhattan, due to the close proximity of intersecting routes, these signs are typically posted on north-south avenues. Because of the grid system, these signs may not be entirely necessary as directional truck route signs are spaced fairly close together.

For all boroughs other than Manhattan, where the truck routes are typically longer, these signs were envisioned to be posted at regular intervals. On a corridor such as Northern Boulevard or Union Turnpike in Queens, these signs are more common in residential corridors and at regular intervals of about one half to one mile. This is partially attributed to the fact that signs overall are not as prolific on these corridors and more space is available to post them. However, it should be noted that because these signs are not as conspicuous as other street signs and are utilized by distinct set of roadway users, missing or faded reassurance signs may not be reported as readily as other signage for replacement or refurbishment.

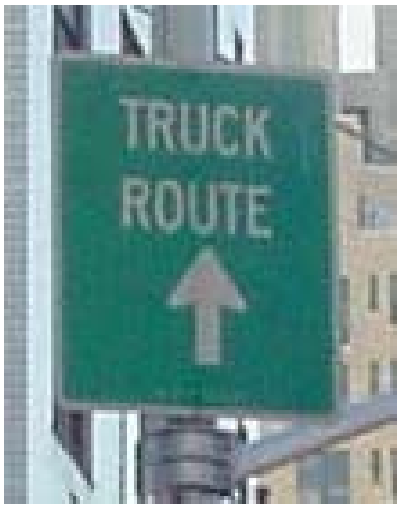


Figure 12

Over the past 25 years, DOT has implemented varying designs and standards for these signs, as was indicated in Figures 9, 10 and 11. A common instance of improper application of a sign relates to the use of the green sign with white lettering as depicted in Figure 12. This sign, which has the word message "Truck Route" accompanied by a 12 o'clock arrow is frequently used as an alternative to the standard applications described above. This sign design is among the most commonly misused signs in use throughout the city, and is commonly confused with the Wayfinding signs. In addition, these signs are not considered regulatory signs, due to the color scheme utilized on the sign. These may also be mistaken by drivers as guide signs and drivers may be unsure if they are actually on the designated route or being directed to a truck route. Additional variations of this concept include signs in a variety of sizes and with varying word messages and color combinations. Also, on certain corridors, there may be a wide range of sign standards in use, confusing the driver on the intent of the sign and decreasing drivers' confidence in the integrity and meaning of the signs.

Reassurance signs also have the same recordkeeping issues as the directional or on-route signs in regard to the STATUS. In addition, because of the evolving nature of these signs and their placement, many of these signs may not be found on standard intersection or street segment orders, complicating issues relating to placement.

iii. Truck Route Trailblazer Signs

The third type of signage commonly in use in New York City to regulate truck traffic is the Truck Route "Trailblazer" sign. According to the MUTCD, trailblazer or advance signs provide directional guidance to a particular road facility from other highways or roadways in the area. Trailblazer assemblies are installed at strategic locations to indicate the direction to the nearest or most convenient point of access and to direct motorists who are unfamiliar with a route. According to NYCDOT standards, trailblazer signs also direct the motoring public to the location of major transportation facilities and various cultural and recreational facilities. The MUTCD application typically consist of a "TO" auxiliary sign, the route sign itself, and a single headed arrow pointing in the direction leading to the route. In New York City, the NYCDOT generally consolidates the sign into a single panel design rather than using an auxiliary sign.

While this type of sign is the least common of the positive signage, a variety of trailblazer sign designs are currently in use on city arterials. As such, the placement, design and application of these signs vary throughout the City.

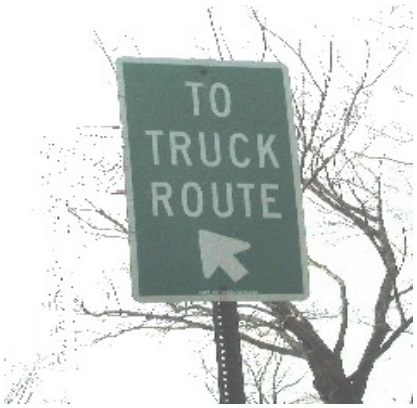


Figure 13

Figure 13 illustrates the most common trailblazer sign in use in New York City. It is highlighted by white text on a green background and is typically posted to direct vehicles from a location or roadway that is either a major truck route or truck generator location to the presence of another intersecting or designated truck route. Among the most common use is on an exit ramp of an expressway directing vehicles on the service road or ramp to the approaching intersection where there is a designated route. In some cases, the posted street is several intersections away from the actual ramp and trucks are discouraged to utilize non-designated roadways.

These signs may also be posted on streets where street direction and access to a designated route may be unclear to the driver on how to best route themselves to access the designated routes.

Figure 14

A variant of this sign is depicted in Figure 14, which has the same language and design, yet takes on a regulatory component with the black text on a white background. This sign is commonly used by the New York State DOT or other transportation agencies. However, there are locations where this application is used on local streets by NYCDOT. These signs may also be posted where drivers may inadvertently think an outlet will take them to a certain roadway.

In addition, truck related signage which has been posted for other purposes such as directional or reassurance signage may be mistakenly interpreted as a trailblazer sign. This is common with both the black on white signs and white on green signs that indicate “Truck Route” with a directional arrow, as depicted in Figure 15. With a green field and white letters, the sign has the color and shape of a guide sign and contains information similar to a trailblazer sign or a truck route directional sign. The sign conveys at least two different meanings. It may be providing direction to the truck route or informing that the roadway is a truck route. With black lettering on a white background, the sign is regulatory in nature, although it may not be placed on a designated route. As depicted in Figure 15, this sign is being used to identify a Through Route although not specified,

Figure 15

while the same sign is used incorrectly (depicted directly behind the street name sign) with a 12 o'clock arrow on the designated Through Truck Route.

iv. Additional Positive Signage Used in New York City

There are several other types of signs that are positive in nature that are currently in use in New York City. One of the more common signs, referenced previously, is the guide sign which contain the message "Truck Route" on a green or white background. With the green background, as indicated in Figure 16, the sign has the color and shape of a guide sign and contains information that is similar to both a trailblazer sign and a truck route directional sign. To a truck driver, this green sign is perceived to be a guide sign, and as per MUTCD standards, guide signs are used to direct road users along roadways. Guide signs provide information about intersecting routes, direct road users to cities, town, villages and other important destinations; identify rivers, streams, parks forests and historical sites. Generally, guide signs provide information that will help road users along their way in the most simple and direct manner possible. A guide sign is rectangular in shape with a green field and white letter. Therefore the meaning is ambiguous to the driver who may be unsure if the sign in informing operators of the direction towards the truck route or that the roadway itself is a designated truck route. In addition, there is no differentiation of local or through routes on these signs.

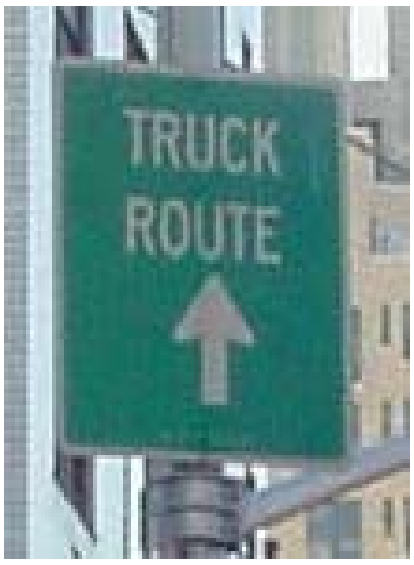


Figure 16

There are a variety of reasons this sign has been installed on City roadways. However, it is considered one of the most confusing signs for drivers, and is the most common sign that is posted inappropriately at both intersections and along routes. It has also been highlighted as problematic by the enforcement community as the sign does not carry a regulatory or enforceable message.

As indicated previously, there are also applications of the black on white signs with the same language used for similar purposes. These carry a regulatory message and are enforceable, although the intent of the sign is to serve as a guide.

Additional signage, mainly in Manhattan, is posted to direct trucks to a preferred roadway or route, as illustrated in Figure 17. This sign contains text only information and is missing the truck silhouette or directional arrows that may be expected of a directional sign or the primary Truck Route Network sign. In addition, the location and placement of these signs may

Figure 17

not be in close proximity to a referenced corridor, leaving only a limited number of drivers using that approach to be aware of the message. Finally, given that the network has both Local and Through Truck Routes, it is unclear if this is indicating if this street is a Through Truck Route or is directed at vehicles not making local deliveries and are just traversing "through" the area. This sign is typical on approaches to the six limited truck restriction zones in Manhattan, where through traffic is limited to certain designated truck routes and roadways. However, they are only posted at a few limited approaches and roadways.

v. Signs in use by Other Transportation Providers

There are also several other agencies citywide that post truck related signage, such as the Port Authority of New York and New Jersey, the Metropolitan Transportation Authority - Bridges and Tunnels and the New York State Department of Transportation. Typically, these agencies post signs, adjacent to the transportation facilities they maintain, informing truck operators of relevant access or regulatory issues relating to the use of their facilities. Overall, these signs are different in design and language from the primary Truck Route Network signs posted by the NYCDOT. The example illustrated in Figure 18 is a PANYNJ sign that directs trucks to the appropriate approach to the Holland Tunnel. The sign has an upper panel that contains information for car operators and a lower panel that contains information for truck operators. At times, these informational messages may conflict with existing routing signage that is posted by NYCDOT or offer different routing options available to drivers. There are also signs used on bridge approaches to limit truck access which may provide differing language or messages than those commonly found on NYCDOT arterials.

Figure 18

Overall, there is no standardized format or design for these signs, as each is unique to the facility and implied message. NYCDOT works with each of the transportation agencies to best ensure that these messages are coordinated with the existing signage on the street network

One of the more notable differences in truck route signs between agencies is the way the New York State Department of Transportation posts signs for truck routes along the interstate system. These signs vary in design and have various text messages. One instance of the sign utilizes an identical truck silhouette to the one used by NYCDOT. This sign is accompanied by text that indicates the route designation (Local or Thru) of the intersecting truck route in proximity to the ramp. This sign is supplemented with the street names of the routes. These types of signs, commonly found on the Interstate system in the Bronx and portions of the Brooklyn Queens Expressway and Long Island Expressway are typically posted on the side of the roadway on the exit signage as well as in proximity to the final approach and exit ramp.

On interstate roadways, especially in Queens, a variation of this sign provides a truck silhouette that is slightly different than the one used by NYCDOT accompanied by just

Figure 19

the name of the truck route. These signs may be posted on both the advance gantry signs, as well as on mountings on the side of the roadway and on the exit ramp. Compared to the other standard of sign, these signs are vary in size, typically smaller than the other sign design. An example of two different signs being displayed for the same exit ramp is shown in Figure 19. Note these signs do not reflect the Local Route designation for Union Turnpike. In addition, the sign on the left does not utilize the standard truck silhouette.

While these signs are usually placed near the final approach and exit ramp, they may not always correspond to the actual exiting roadway, but the closest intersecting truck route to the exit ramp. Additional wayfinding signage may or may not be present to guide drivers to the route itself. In some cases, drivers may not be informed if the exit does not have a designated route within proximity, leading the driver to be unsure of the designated route system. At certain locations on the Interstate system, this type of signage may not be posted for a truck route that is not in the general vicinity or intersecting with the exit or service road, such as a parallel route to the highway.

Additional issues for consideration include the size of the signs, as trucks moving on the Interstates may be moving at a considerable rate of speed, necessitating the need for larger signage. Another consideration includes trucks leaving the designated interstates due to traffic and/or congestion. The interstate system comprises the bulk of the Through Truck Route Network. At times, trucks may wish to use the local designated Truck Route Network to bypass congestion, unaware of the local designation of the service road. This problem has been identified in Brooklyn on the BQE, in the Bronx on the Cross Bronx Expressway, and in Queens in the Long Island Expressway. All three roadways have service roads and/or segments which parallel the routes.

B. Negative Truck Route Signage

As indicated previously, the Department of Transportation traditionally refers to restrictive truck route signage as “negative” or “protective” signage. These signs are placed at locations to prohibit or restrict the movement of trucks and/or commercial vehicles from a designated or marked roadway. In addition, the criteria for the placement of negative signage are referred to in the NYCDOT’s Borough Engineers **T**raffic **O**perations **M**anual (TOM), which establishes general guidelines that the Department should follow in determining the placement of such signage.

Varying types of truck restriction and prohibition signs are posted throughout the City. Overall, these signs vary in shape, legend, color and placement. The most common of these restrictive signs is referred to as protective or “negative” signage. This sign is rectangular in shape and consists of a truck silhouette under a prohibitive symbol. The prohibitive symbol is a red circle with a diagonal bar across the symbol representing the object that is restricted. In New York City, this sign is typically accompanied with a restriction limiting trucks traffic to either local deliveries or deliveries this block.

Citywide, there are a limited number of corridors where there are outright prohibitions on truck travel, including parkway system and various bridges citywide. At these locations, the standard graphical “No Truck” signs are posted to restrict trucks and commercial vehicles, although that message may not always be clear.

Additional instances of negative signage that is posted on city arterials are typically location specific, as they indicate restrictions on turning movements, time of day restrictions, and dimensional restrictions such as vehicle length, height or weight.

i. No Trucks Except Local Deliveries

Figure 20

As discussed previously, the most common truck prohibition signs are those that restrict truck traffic except for local delivery. These locations are typically denoted by the signs depicted in Figures 20 and 21. Although not legally required, these signs generally restrict travel onto the signed corridor unless the vehicle is making a local delivery in the general vicinity of the corridor. These signs are always posted at the entrance to a street. The current NYCDOT Borough Engineer's Traffic Operations Manual provides a basic guideline for determining the applicability of these signs; however, there are no definitive standards for the placement and number of signs required on a selected corridor. In some cases, there may be only one sign posted, while in other cases, signage is posted on both approaches, as well as sometimes being supplemented by restrictions for turning trucks (discussed in the next section). In addition, in areas where there is limited space for signage, the NYCDOT will angle the sign to allow visibility of the sign for both oncoming and turning vehicles. The sign depicted in Figure 21 is a design that is currently being phased out as signs are replaced. These signs are less prominent than the standardized sign with the prohibitive symbol and not as easily identified by drivers. These signs may also be less visible as they typically posted at the top of a mast arm, where the smaller text and sight distances make them less identifiable.

Figure 21

Furthermore, due to changes in borough engineering personnel and different interpretations of the NYCDOT's policy, the placement of these types of signs citywide has not been consistent. While the original truck route study identified locations that qualified for protective signage, there has not been a comprehensive update to identify corridors or locations in need of protective signage. Most of the signs that have been placed over the past 30 years have been in response to complaints raised by communities, elected officials and input from enforcement agencies. In addition, turning restrictions or other types of negative signage may have been installed to improve roadway performance, limit vehicle conflicts or address structural or geometric constraints on a segment of roadway.

It has always been the NYCDOT's policy to limit the proliferation of restrictive or negative signage. Signage need not be present to enforce the truck routes, and given the thousands of miles of roadways in the City's arterial system it would be impossible to effectively sign every corridor which was not a designated truck route. It is also the NYCDOT's experience that on adjacent streets where restrictive signs are not installed can be interpreted by truck drivers as streets they are permitted to travel on which would necessitate installation of additional negative signing. Therefore, the posting of such

signage is based upon the judgment of the NYCDOT to maximize the intent of this message and improve the overall management of the Truck Route Network. This principle was incorporated into the previous truck study, as much of the existing signage at the time was restrictive in nature, rather than providing positive reinforcing guidance on the applicable routes. Positive signage provides the controls for governing truck movements, while negative signs are used to reinforce these controls.

One interesting characteristic of the current universe of negative signs is that many of the restrictive signs that are currently posted already existed prior to the completion of the previous truck route studies in the early 1980's. A significant number of the posted signs and sign locations were retained and not given a high priority for replacement or refurbishment under that sign program. Over time, some of these corridors have experienced dramatic changes in land use and general traffic, making the use of the some these corridors necessary for local truck traffic. In addition, there may be a substantial number of signs that are not included in the NYCDOT's STATUS system. Accordingly, these signs may not be accounted for or are not as readily replaced when periodic inspections are done.

While the NYCDOT has guidelines for the applicability of these types of signs at a selected location, there is no concise system for the placement of these negative signs. Throughout the five boroughs, there are varying sign designs, standards and placement schemes in use. In some cases, there may be up to eight negative signs to indicate the restriction. At other location, only one sign may be posted, and all roadway approaches may not be properly signed. The placement of these signs also varies, generally based upon the intersection controls and street furniture. At signalized intersections where there are mast arms and signals, these signs are posted at the top of the pole, where they can be difficult to see. In other instances, the signs are posted on poles or driverails where they are at the driver's height, making them easier to identify.

In addition, the general language of the signs can be confusing. Given the fact that there are a limited number of outright prohibitions, the intent of the sign is not always clear. The term "Local Delivery" is not defined in the NYC Vehicle and Traffic Rules (VTL) or the State Vehicle and Traffic Laws. However, the term local delivery may be derived from the truck route regulations specified in Section 4-13 of the VTL, whereby trucks must use the designated truck route to the intersection closest to their destination, and proceed by the most direct route to and from their destination. If pulled over, the driver is required to present a "bill of lading" or manifest indicating the intended destination and origin of the trip. If not, they are liable to be issued a violation for being off a truck route.

Therefore, a "local delivery" would encompass a trip that is within proximity to the designated route and could not reasonably be reached by a designated route that is closer to the destination. There are also varying interpretations as to what constitutes a "reasonable" distance, but street direction, land use and roadway characteristics should be considered. Land uses and residential development play critical roles in determining the applicability of such signage. Requests for signage by the general public may not always meet the criteria specified, or may be isolated issues that are better managed by physical enforcement. Such signage is generally more beneficial and useful at locations directly adjacent to the truck routes to discourage illegal truck traffic from using the roadway segment, rather than off-route or at isolated intersections. Additional messages may utilize the language "This Block" which is generally used to indicate geometric constraints downstream or limitations for trucks traveling past the block.

Another common message is “No Thru Truck Traffic”, as depicted in Figure 22. This message is used to indicate that trucks should not utilize the roadway as a connecting route, similar to the use of “No Thru Traffic” for general traffic. These signs are typically posted only at one intersection and approach and may not be easily identified by truck drivers. They are primarily posted on residential streets that drivers may typically use for shortcuts between two parallel truck routes or on residential corridors where there may be a high volume of through truck traffic that should be using other routes. Outside of Manhattan, these signs are important, as drivers may need to travel over one-half mile before they reach an intersecting truck route.

Figure 22

ii. Turning Restrictions for Trucks

At many locations throughout the City, the NYCDOT has installed signage indicating turning restrictions that are specifically for trucks. These signs, as depicted in Figure 23, 24, and 25, may or may not be accompanied by "No Truck Except Local Deliveries" signage on one or more of the approaches. The primary purpose of these signs is twofold. Typically, the signs are posted along designated truck routes at locations where there may be frequent illegal truck activity or trucks looking for a through route between two corridors, and to discourage drivers to utilize these routes. Secondly, these signs are posted on roadways which are major thoroughfares, but not designated truck routes. These routes may appear to be geometrically capable of accommodating large trucks or are commercial in nature. Reasons for posting this particular signage may include predominantly residential land uses, geometric constraints on the roadway or other factors which would create either a quality of life or safety concern. In some cases, entire corridors may be signed with these signs at intersecting truck routes while others may have localized applications of these signs. In Figure 20, there are two such signs posted, however visibility is compromised by the positioning of street furniture and other signage. It should be noted while there are four such signs for one approach at this intersection, only one sign is posted for the opposite approach.

Figure 23

Figure 24

The sign design illustrated in Figure 25 while prominent in its appearance and language, is not as widely used. These signs are relatively new in application and posting, and are more visible in their message and intent. These signs are used to indicate a turning movement restriction for trucks. However, since these signs are larger their application at intersections may be problematic. The type of sign indicated in Figure 24 allows has more placement options. It is however, integral that signage be posted where it is clearly visible.

Figure 25

There are also locations throughout the City that limit trucks based upon size limits. Most of these locations are within the Manhattan Central Business District where truck traffic is limited to trucks no longer than 33 feet. Within these areas, the restrictions are based upon time of day and are signed accordingly; although there are some provisions for vehicles destined to off-street parking facilities or terminals. In other areas, this signage is posted to advise drivers that geometric constraints would preclude any vehicle larger than a single unit truck (33 feet)

from safely maneuvering on that street. It should be noted that the 33 foot restriction has been in place for over 30 years, even though the regulations in New York City allow single-unit trucks up to 35 feet.

iii. No Commercial Traffic Sign

"No Commercial Traffic" signs are posted at selected locations to prohibit commercial traffic from entering a transportation facility. The sign is rectangular in shape with a white field, black line border and black text.

As indicated in Technical Memorandum 1: Traffic Policies and Regulations, there are varying definitions for commercial vehicles and trucks. For the purpose of other than parking, stopping or standing, a vehicle designed, maintained, or used primarily for the transportation of property, or for the provision of commercial services and bearing commercial plates shall be deemed a commercial vehicle. However, vehicles bearing commercial or equivalent registration plates from other states or countries shall not be deemed trucks or commercial vehicles unless they are permanently altered and marked as required.

Figure 26

Accordingly, there are two major instances where "No Commercial Traffic" signage is traditionally posted. The primary instance is at entrances to the limited access parkway system, as illustrated in Figure 26. Due to geometric constraints and design standards on these roadways, commercial vehicles are prohibited from using these roadways outright. This prohibition extends to the entire parkway system in New York State, as most of these roadways were not built to standards to safely accommodate commercial traffic and were originally intended for leisure travel. For most parkways, the single largest factor in prohibiting truck or commercial traffic is low bridges, as noted in Figure 26.

These signs may also be accompanied by prohibitive truck signage as indicated in the left corner of Figure 26 indicating that trucks are outright prohibited on these roadways. Although not common, some of these sign assemblies have height restrictions for structures that are in close proximity to the entrance ramp, whereby vehicles would not have an opportunity to avoid the restriction. However, for the most part these sign assemblies do not indicate the lowest structure on the roadway.

It should be noted that the New York City and New York State Departments of Transportation are in the process of replacing these signs with signs that indicate "Passenger Cars Only". This terminology is more restrictive and direct in indicating the vehicle restrictions on the applicable roadway.

The second instance of the use of the "No Commercial Traffic" sign is in regard to the restrictions in place on some of the City's local arterials. Examples of roadways that prohibit commercial traffic include Park Avenue, West End Avenue and Fifth Avenue in Manhattan and Ocean Parkway, Bushwick Avenue and Eastern Parkway in Brooklyn. These restrictions have been instituted for a number of reasons. On certain roadways, such as Eastern, Ocean and Pelham Parkways, while not Parkways in the traditional sense, these roadways were designed as grand boulevards that are almost entirely residential in nature. As such, through trucks and commercial vehicles were discouraged to use these roadways. In general, trucks were to use the roadways service roads or were instructed to travel on parallel roadways which provided similar origins and destinations.

Figure 27

These corridors may also have restrictions in place due to land uses and roadway configurations, both historical and current. Current examples include portions of Central Park West, West End Avenue as depicted in Figure 27, Park Avenue and Fifth Avenue. All these roadways are predominantly residential, have little to no commercial activity, and do not serve as connector routes that trucks or commercial traffic would use as through routes to conduct deliveries. In general, it is expected that trucks have limited access to these roadways for the purpose of making a delivery, loading or servicing on the roadway. The driver is expected to enter (leave) the truck restricted street via the closest available street leading from (to) a designated truck route in the desired direction. These roadways are typically signed with the message "No Commercial Vehicles" and are posted at the entry points to the roadway, and at selected intersections where there may be higher vehicle volumes. However, not all intersecting truck routes to these streets have these messages posted to indicate the exclusion of such vehicles, as this definition of commercial vehicles is more restrictive than that of a truck. Community complaints frequently indicate that truckers may be violating these rules and using the routes due to the fact that they may have less congestion than parallel routes or may be using the route to access a destination. There is no specific language that addresses the rules on these "restricted" streets in the Vehicle and Traffic Law, as this language is reserved for the Parkway system only.

In the instance of Park Avenue, engineering constraints and weight limitations restrict commercial traffic due to the buried Metro-North Rail Road viaduct directly underneath the roadbed. Although this roadway is one of the primary two-way arterials on the east side of Manhattan, there are parallel routes directly adjacent to this roadway that do not have the same constraints and carry most of the commercial traffic.

For truck drivers, there is also some confusion about the intent and meaning of the signage indicating "No Thru Truck Traffic". Also, these signs may also conflict with posted signage. This sign, as indicated in Figure 28, only utilizes a text message and is unclear its meaning and application as compared to a "No Trucks Except Local Deliveries" or "No Commercial Vehicles" sign or the roadways relationship to the designated Through Truck Route Network. This sign is typically posted to discourage trucks from utilizing a roadway as a connector, however it is commonly misconstrued as referring to the Through Truck Route Network. Drivers have also indicated they may perceive this sign as permitting local truck deliveries while enforcement personnel views it as restrictive to all commercial vehicles and trucks. Placement of these signs is a vestige of the previous Truck Route Studies. Commercial and residential development has changed the boundaries of many of the areas where such signage was appropriate or posted, and is not effective in indicating the appropriate routes for all vehicles.

Figure 28

iv. Dimensional Clearance Warning Signs

Information on low clearances, narrow lanes, and the limited load capacity of a roadway is conveyed to road users via warning signs. According to the MUTCD, warning signs are posted to call attention to unexpected conditions on or adjacent to a roadway and to situations that may not be readily apparent to road users. Warning signs are posted to alert road users to conditions that might call for a reduction of speed or an action to the interest of safety and efficient traffic operations. Warning signs are diamond shape (square with one diagonal vertical) with a black legend and border on a yellow background. In addition the New York State Vehicle and Traffic Law (Section 1640.22(d)) requires posting when the measured overhead clearance is less that 14 feet and specifies that the legal clearance shall be one foot less than the measured clearance.

Figure 29

Figure 30

These signs take on added importance in New York City due to the age of the infrastructure and the various structures that span over the City's roadways. These

constraints are not limited to only truck routes, and represent a common problem on many of the City's arterials. Structures such as elevated subway tracks, railroad viaducts, older bridges and other obstructions make it challenging for larger vehicles to traverse the City's streets. In addition, several portions of the interstate system have some constraints, such as on the Brooklyn Queens Expressway. On other structures, such as the Queensboro Bridge, the Queens Midtown Tunnel and the Brooklyn Battery Tunnel, height limitations limit trucks to certain roadways and approaches, further constraining capacity and accessibility on these roadways.

In New York City, the most common dimensional clearance signs are depicted in Figures 29 and 30. Both the diamond shaped warning sign and the actual posted sign on the bridge advise vehicles of the vertical restriction. The sign depicted in Figure 29 is typically posted immediately in advance of the bridge or elevated structure. Overhead mounting directly over the roadbed on the restricted structure is preferred as it provides the most visibility and demands attention from the driver, especially on multi-lane approaches.

Figure 31

In most cases, the advance warning sign (Figures 29 and 30) is posted on the direct approach to the restricted corridor as shown above, although they are not always posted at the previous intersection which may provide a bypass option. This can be problematic as drivers must make an immediate decision and must use a route that is either off the Truck Route Network or is not designed to accommodate the larger vehicles.

In many instances throughout the city, these signs have been supplemented by an additional advisory sign that informs drivers of the specified vehicle dimensions that are required to use alternate routing and turn away from the location of low clearance. Although not posted at every location where there is a height restriction, they are more prevalent on truck routes. These signs may be placed at the last opportunity to divert from the obstruction and direct vehicles in whatever direction is possible without full consideration to the type of neighborhood or roadway they are being sent to. However, once they access the new routing system, there is no additional guidance on how or where to bypass the obstruction. In addition, these signs are not explicit where the obstruction is actually located or what routes can be taken to avoid the obstruction. This sign is depicted in Figure 31.

Figure 32

However, there are some applications citywide where the height restriction signage is supplemented with additional Truck Route information. In case of Figure 32, this sign is accompanied by a "No Trucks except Local Deliveries" sign, and it is unclear for the driver which sign is being featured or the meaning of the sign.

It is clear that trucks do commonly use this roadway and therefore this is not an effective pairing of these signs.

Overall, one of the major issues facing height restrictions is the accuracy of the signs and the availability of information for drivers to identify obstructions. The New York City Vehicle and Traffic Rules currently limit this information to the Truck Routes, and not all height restrictions on truck routes are indicated in rules. In some cases, resurfacing, settling of the roadway or structures may impact the actual height restriction at the specified obstruction. While the NYSDOT Bridge Inspection Program ensures that these structures are inspected, and subsequently measured every two years, many of the railroad and subway viaducts are not part of this inspection program and therefore may be prone to inaccuracies. The NYCDOT frequently adjusts these signs throughout the City, especially when there has been frequent bridge or structure strikes. In addition, signage may be entirely absent or inconspicuous on a bridge structure due to placement of advertisements or other obstructions. An example of this is depicted in Figure 33.

Finally, there is also a misconception about the actual and posted heights. In New York City, and throughout New York State, municipalities are required to sign a structure if it is less than 14 feet. However, this law also provides for the posting height to be one foot below the actual height. While there is typically a twelve inch buffer, the settling of the roadway or street improvements may alter these height restrictions. These structures are inspected every two years, and a bridge flag will be issued should there be a difference in the measured height. It is also common for drivers to try to pass under a structure thinking they have the full twelve inches. Additional factors which may impact heights include speed, loads and signs hanging from the structure. There are some locations citywide which are endemic to bridge strikes such as the Westchester Avenue Bridge on the Hutchinson River Parkway where trucks are prohibited. Elevated subway underpasses are also problematic for trucks as they act like a wall along certain corridors. In addition, it may not always be clear where the height restriction exists. On roadways which travel under arched bridges, vehicles may be able to travel under a portion of the roadway, but the signed vertical restriction is from the lowest point that is in the roadbed. At times, drivers mistakenly travel under these assumptions, or may operate their vehicle in an unsafe manner to bypass the vertical restriction.

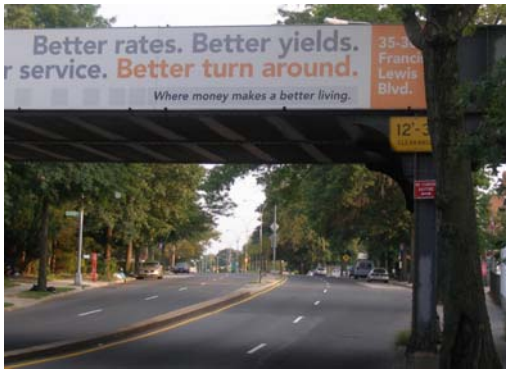


Figure 33

Figure 34

v. Weight Related Signage

At many locations throughout the city, signage exists directing overweight trucks or indicating load restrictions. Unlike other municipalities, the City of New York does not limit truck traffic based upon weight

limits, except on some parkways like the FDR Drive where there is an 8000 lbs weight limit on a portion of the roadway. While most of these signs are positive in nature (as they indicate the message, "Trucks with Overweight Permits" supplemented by a directional arrow), they are restrictive in their message and intent. These signs are designed as regulatory signs to direct truck operators with overweight truck permits to use designated roadways. An example of this sign is depicted in Figure 34. These signs are typically supplemented at locations where there is a weight restriction with signage indicating "No Trucks with Overweight Permits". These signs are typically placed on viaducts or structures where there is a bridge weight restriction, and would prohibit the safe movement of vehicles over the Department's overall 73,280 lbs. weight limit. Both of these signs are typically placed at intersections to provide the driver advanced warning of the restriction or regulation.

In addition, there are limited applications of additional weight or height restrictions on City roadways. These typically are in word messages and are structure specific. They would indicate restrictions for a specific structure and indicate both dimensional restrictions and any other regulations which would preclude certain types of vehicles.

vi. Gateway Signage

During the mid 1980's, after the completion of the Truck Route Studies and following the last comprehensive installation of the Truck Route Signs, the NYCDOT installed informational signs at several gateways into New York City. These signs were predominantly placed on local arterials in Queens and the Bronx where truck routes crossed into an adjoining county. However, some signage was posted at approaches to certain transportation facilities such as the Williamsburg Bridge. An example of one of these signs is depicted in Figure 35. Drivers traveling on the interstate system and on many of the limited access roadways do not receive this message, nor is it consistently posted on bridge structures or on streets within the City. In addition, it summarizes the basic elements of the truck regulations into a single sign for drivers unaware of the route system.

Figure 35

For drivers of fast moving vehicles, the amount of text on this sign may make it difficult to read. Also, this sign is typically accompanied by a substantial amount of additional gateway signage at the county lines including restrictions relating to speed limits, right turn or red, and other regulations in place. It is easy to go unnoticed by drivers.

C. General Truck Route Signage Issues

While it is evident that signage is one of the most critical tools for effective management of the Truck Route Network, the previous discussion highlights the underlying problems that characterize the current signage program.

- Importance of consistency
  - The most critical sign program issue is the need for better consistency in both signage design and placement. Standardization is necessary for truck operators to be able to easily follow the City's signage.

- Need for additional signage
  - There are locations where new or additional signage is needed, as well as locations where missing or damaged signs must be replaced.

- Signage clutter

  Sign placement and design becomes even more important given the complexity of the urban environment and in particular the additional signage competing for vehicle operators' attention.

- Uncertainty regarding regulations

  Issues with signage can be compounded by truck operators' lack of understanding regarding New York City regulations including length restrictions and route designations (Local and Through).

5. Recommendations

Overall, the primary recommendation set forth in this document is the development of a comprehensive and updated signage program that will improve the identified issues and deficiencies that currently characterize the Truck Route Network and foster a signage system that provides the maximum information to truck drivers, improves signage recognition, provides drivers with adequate time to respond, and most importantly, commands their attention and respect. Central to the program is a positive sign that is designed for easy recognition and consistency, with a single standardized design, size, shape, color and content. Although these signs are not as critical to drivers as traffic control designs, to the extent feasible, reserving a typical placement for the Truck Route signs at an intersection or setting a typical spacing between signs along a corridor will cultivate awareness and driver expectations for the Truck Route Network and the associate designs and serve as a self-enforcing mechanism to regulate truck traffic.

Similarly, the current Truck Route prohibition signs vary in design and text message. Establishing a single design and criteria for placement will simplify identification of the sign and serve as a strong deterrent for illegal truck traffic.

Based upon these factors, the Department of Transportation is encouraged to undertake a comprehensive Truck Route Signage program that includes the following components:

- The upgrade, refurbishment and implementation of the new Truck Route sign standards
- Implementation of a new approach for addressing negative truck traffic, including new criteria for the application of negative signage.

Central to this sign plan is that these signs meet the standards accepted by State and Federal agencies. These recommendations and signage designs are meant to serve as a guideline of the types of signs and designs the New York City Department of Transportation should propose to implement. Given the complex nature of the roadway system and the challenges in managing truck traffic, this signage program should serve as a guideline for an improved signage environment that provides truck drivers with the resources they need to effectively follow the Truck Route Network.

A. Truck Route Sign Design

The purpose of the truck route sign is to identify the designated truck routes, facilitate truck travel and minimize truck violations. Modifications to the existing truck route sign shape, background color, message and symbol were evaluated in attempts to improve the effectiveness of the truck route signs. Results generally contained a minor variation of the truck symbol, a word message or both.

The two most critical features necessary to identify and sign Truck Routes already exists in the current sign design. This includes a clear word message, in this case, "TRUCK ROUTE" and a truck symbol for easy identification. These signs attract attention and convey a clear and simple meaning. The design of the existing truck route sign is aimed at meeting two of the five requirements to be an effective sign. The other three requirements are concerned with the need for the sign, the sign placement and uniformity.

Accordingly, it is recommended that the NYCDOT establish a primary Truck Route sign to be used for positive signing situations, similar to the intent of the existing SI-184G sign currently in use by the NYCDOT. This recommended truck route sign contains the identical word message and truck symbol as the previous sign, but introduces a green circle around the truck silhouette. This sign incorporates components of the Manual of Uniform Traffic Control Devices (MUTCD) standards for truck route signing by providing a reinforcing message that trucks are permitted on the signed roadway, which is reinforced by the introduction of the green color. In addition, the green circle surrounding an image is a well recognized symbol and should be easily understood by all drivers, including drivers from North American Free Trade Agreement (NAFTA) countries who are familiar with Canadian and Mexican signs. These signs also allow the sign to stand out from other regulatory signage that is posted on the road network, making the sign easier to distinguish in the urban environment. The use of standard symbols, such as the truck silhouette and the green circle, are effective in conveying the proper information to drivers who may not read English.

The proposed design, as illustrated in Figure 36, is identical in size to the existing sign (24 inches high by 36 inches high) and provides optimal flexibility in application with an alteration to the word messages and riders that can be utilized with this sign. Therefore this standard ***should*** be used as the standard for all positive truck signage including the intersection directional sign, the "advance" truck route sign, as well as the on-route reassurance sign. This is accomplished through the use various panels which utilize various word messages or directional symbols. With the application of a directional arrow/arrows and a route designation of "LOCAL" or "THRU" the message becomes an intersection truck route sign. A simple application of either "LOCAL" or "THRU" creates a reassurance sign.

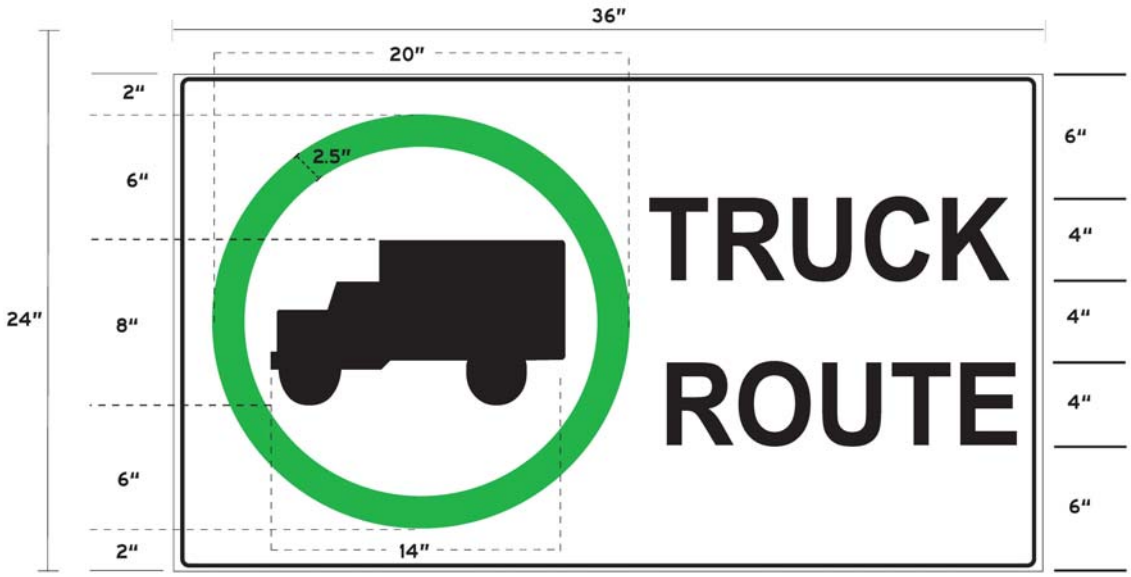


Figure 36 - Proposed Truck Route Sign Panel

This multi-function application of the truck route sign will:

1. Minimize the number of different signs that will be posted along the Truck Route Network
2. Provide a uniform truck route sign already familiar to truckers, and
3. Simplify the truck route signing maintenance and replacement procedures

The use of this sign will create a single design standard for all Truck Route signs and a continuous design for all roadways that are designated as truck routes. In addition, the use of this standard would supersede all locations that currently utilize different sign designs, especially the white on green signs which are commonly misused throughout the City. All locations with these signs should have them removed and replaced with the appropriate signage display for the type of intersection or intended message. In addition, the removal of these signs and the use of a single white regulatory sign will remove any ambiguity about the regulatory nature of the truck route signs by both enforcement personnel and truck drivers themselves.

The existing use of the white on green signs ***should be discontinued*** and removed from the entire Truck Route Network as these do not serve as regulatory signs and may be confusing to truck drivers. A new design will replace these signs and serve as trailblazers for the Truck Route Network, which will be discussed later in this section.

In addition, the proper placement of these sign displays will allow drivers the opportunity to sufficiently position themselves on roadway approaches and make inform decisions about routing both before reaching the intersection as well at the decision point. As indicate previously, this would also held develop driver expectations and respect for the truck route signs.

Space for traffic signs in an urban environment is usually very limited due to existing signs, parked vehicles and overcrowding with other street appurtenances. Most major intersections are visually busy with traffic signs and surrounding street furniture. Space

for new signs along these roadways is also limited. Buildings, utility poles, and tree placement may also impact spaces that and limit preferred sign placements. Therefore, at preferred Truck Route sign locations, it is recommended that signs be placed on the basis of engineering judgment and at standardized heights and configurations.

The reflectivity of Truck Route signage should be standardized. It is anticipated that the NYCDOT would use super engineer grade or ASTM Type II or better sheeting for the truck route signs. The Truck Route reflective sheeting for supplementary and trailblazer signs will also be of similar material with corresponding shape and text size or with the appropriate color.

Currently, the MUTCD does not have minimum retro-reflectivity standards for roadway signs. However, Federal Highway Administration (FHWA) has published a proposed amendment to the MUTCD that will set a standard for minimum sign retro-reflectivity. The FHWA is presently soliciting comments for the proposed amendment. The proposed amendment includes a seven year target compliance date for ground mounted signs and ten years for overhead signs. According to the FHWA Office of Safety Design, the ASTM Type II retro-reflective sheeting will meet the minimum retro-reflectivity requirements of a shoulder mounted guide signs and shoulder mounted signs with a white background. The proposed minimum retro-reflectivity standard for overhead signs with a green background is at least ASTM III or better.

B. Positive Truck Route Sign Design and Standards

Truck Route Directional Signs

As discussed previously, the purpose of the intersection directional sign is to inform drivers of the roadway designation and the Truck Route direction at the intersection of two truck routes and other select intersections. This sign design incorporates the new standard truck route sign as the primary sign and utilizes supplemental panels that identify the designated roadway as a Local or Through Truck Route with the appropriate directional arrows. Examples of various configurations of these signs are indicated in Figure 37.

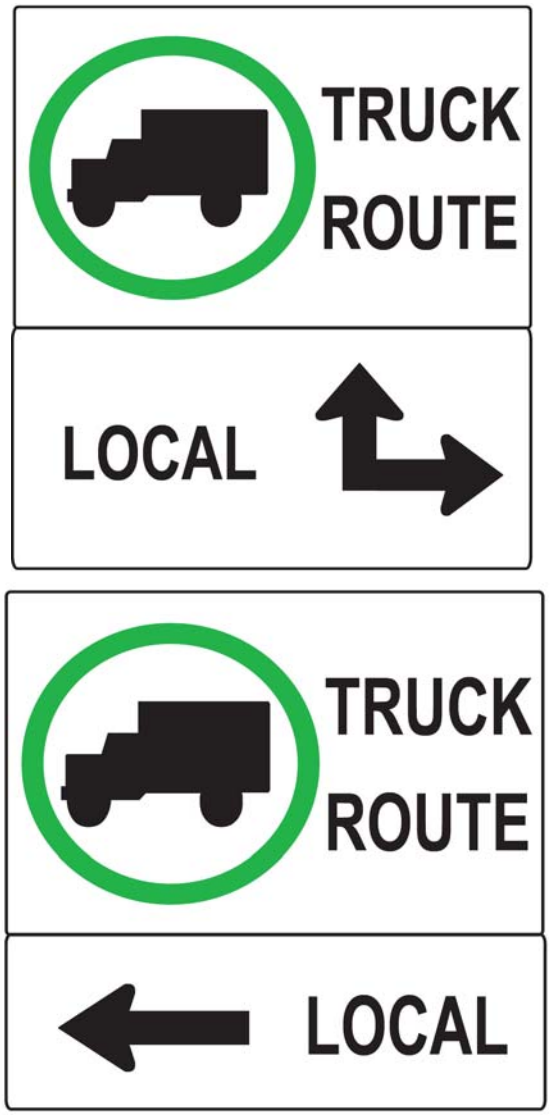


Figure 37 – Examples of Proposed Truck Route Sign

The Truck Route directional signs, including the supplementary signs, should be mounted at a minimum of seven feet above the roadway or sidewalk. The preferred height of these signs is twelve feet, which would place the signs above existing traffic signs, and provide greater visibility to truck drivers who are on an elevated seat, as well as above the general reach of individuals considering theft and vandalism. However, it should be noted that this placement scheme may not always be feasible at every location.

It is expected that most of the Truck Route signs would be mounted to existing street light poles, traffic signal poles, wooden utility poles and driverails. Depending on the configuration and street directions, these signs should be posted to allow maximum exposure and visibility. When possible, efforts should be made to post the signs on both sides of an intersection to extend sight distance to the sign and preferably on the upstream side of the intersection. However, this may not always be entirely possible on all approaches as there may be limited space to post signage. The final number of signs and actual placement of signs would be dependent upon the specific configuration of the intersection and available mounting options.

A twelve foot mounting height should provide the lateral clearance needed for the signs to be out of a truck's path. On roadways that lack existing traffic appurtenances, the truck route signs should be posted at least seven feet above the roadway or sidewalk with a two foot lateral clearance from the edge of the curb or travel way to keep the signs from being damaged by passing vehicles.

The recommended typical placement of the Truck Route intersection directional signs is illustrated in Figure 38. Supplementing these signs on the roadway is a set of advanced signage which is identical to the posted signage at the intersection and serves to advise drivers of the approaching intersection and route choices. This will help drivers make decisions prior to reaching the intersection while allowing truck operators to adjust into the proper travel lane to either proceed through the intersection or make a turn.

The advance truck route signs should be posted approximately 150 feet upstream from the intersecting truck route or directional change. This standard is applicable for both two way and one way roadways and is also depicted in Figure 38.

Figure 38

Recommended Directional and Advance Sign Placement At An Intersection

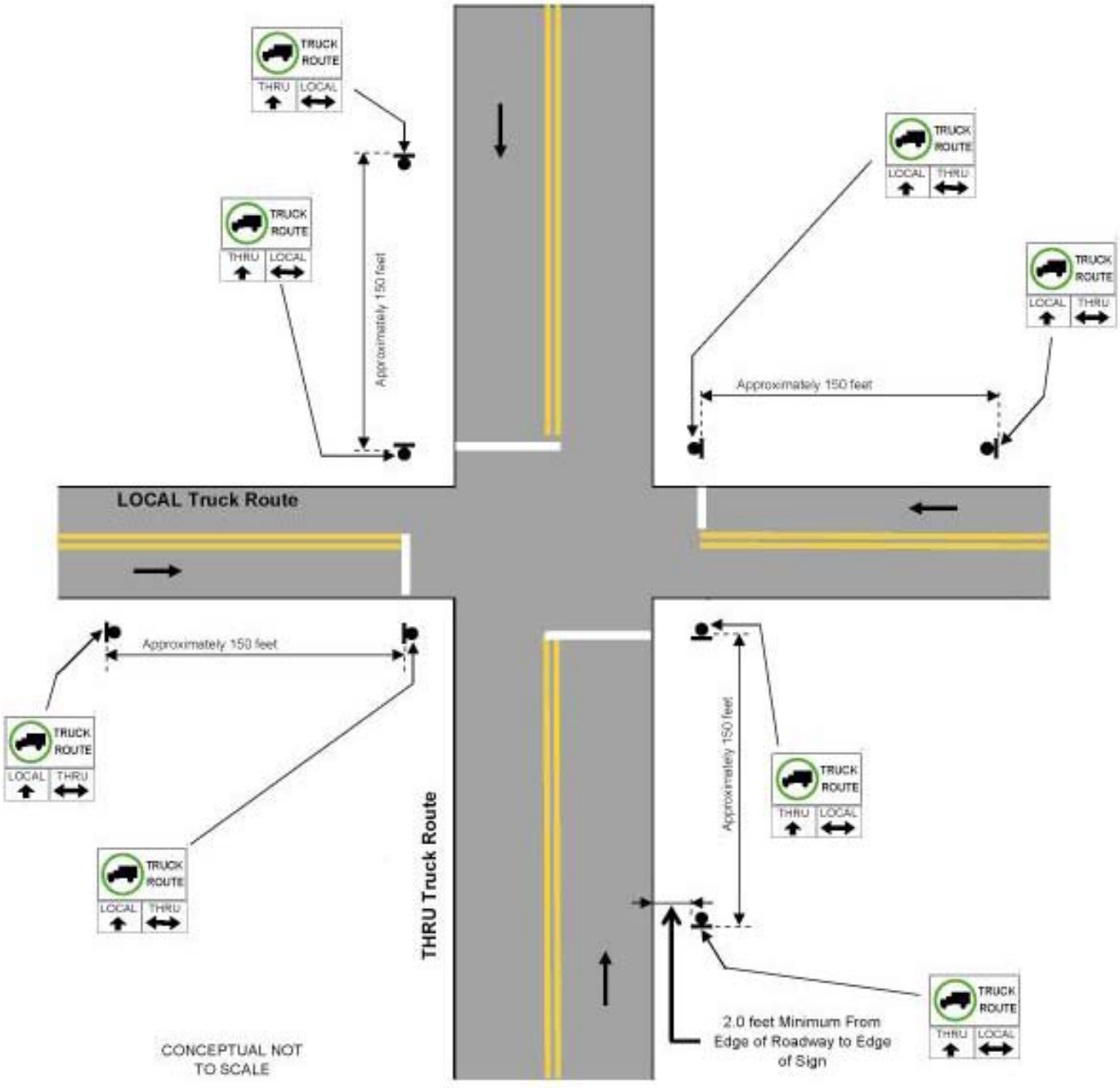


Figure provided by HAKS Engineers and Land Surveyors

C. Trailblazer Signs

Trailblazer signs provide directional guidance to a particular roadway or destination from other roadways in the vicinity. Trailblazer assemblies usually consist of a "TO" auxiliary sign, a route sign or a special road facility symbol, and a single headed Directional Arrow auxiliary sign pointing in the direction leading to the route.

The Truck Route trailblazer signs are posted to inform drivers of the direction to a designated truck route. Figure 39 represents the new standard recommended to be utilized by the New York City Department of Transportation for Truck Route trailblazer's. This is an entirely new design which incorporates new elements to solidify the meaning and intent of the sign, and should replace all existing wayfinding signs currently in use, as well as at new locations and in new applications.

This trailblazer sign features a truck route sign in the middle, a directional arrow at the bottom and the text "TO" at the top that are all overlaid on a green sheet. The sign will have a white border at the edge of the green background typical of a roadway guide sign. The Truck Route sign is bordered by a black trim and has a design dimension of 30 inches high and 30 inches wide.

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Figure 39
Truck Route Trailblazer Sign
NYCDOT Sign Panel Layout

A recommended supplemental design for the new Truck Route trailblazers is the use of the regular proposed truck route sign with the standard "TO" rider attached to the top of the sign. However, this sign and the text would make it difficult to identify the "TO" message given the large size of the signs and does not command the attention of motorists This application and type of mounting typically works well for smaller signs. An example of this type of sign is depicted in Figure 40.

The two primary locations for placement of these signs is on roadways that link the Interstate Highway System and National Highway System Intermodal Routes to the New York City Truck Route Network and on roadways that serve as truck generator sites that are detached from the Truck Route Network.

On the roadways that are adjacent to the Interstate system, these signs would typically be placed on exit ramps and service roads to guide drivers to the closest truck route from the ramp. This would minimize drivers from utilizing shortcuts or leaving the roadway prior to reaching a connecting truck route as well as providing information to truck drivers unfamiliar with the Truck Route Network.

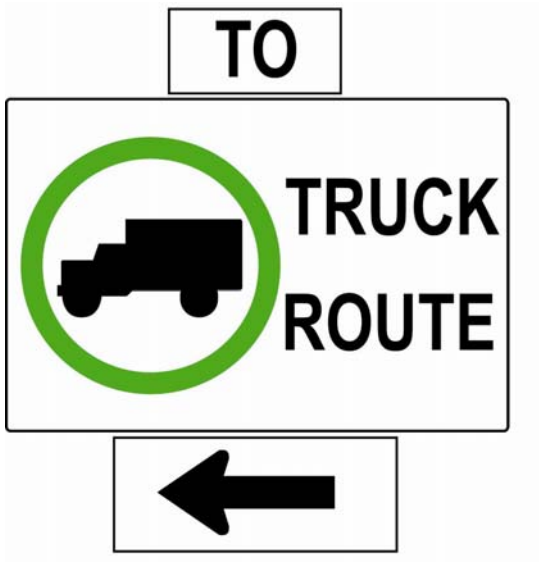

Figure 40
Proposed Trailblazer Panel

On roadways where there are major truck generator sites located away from the Truck Route Network, these signs will serve as the primary routing device to get trucks to the closest Truck Route. For example, trucks leaving a major generator site may utilize a variety of roadways to access the Truck Route Network. The use of this sign on the appropriate route, which can factor street widths, roadway direction and other engineering and community concerns, can serve as an effective tool to mitigate wayward trucks and impacts on residential communities directly abutting these areas.

Placement of these signs should be posted at decision points such as intersections. Depending upon street direction, signage may be placed on either side of the roadway, however on multi-lane approaches, it may be necessary to post signage on both sides of the roadway if there is available space.

It should be noted that the New York State Department of Transportation has recently posted trailblazer signs for the New York City Truck Routes on some expressway exit ramps. The installation of these types of signs should be further expanded.

D. On-Route Reassurance Signs

The New York City Department of Transportation refers to MUTCD reassurance signs as "on-route signs." The on-route signs are posted to keep drivers informed of their routes. The new standard for this sign will replace the various types of signs that were previously used to indicate that a truck was on route and consolidate them into a single general design.

The new standard for the on-route reassurance signs will utilize the general Truck Route sign panel, which will be supplemented with the addition of the route designation on the supplemental panel, indicating the presence of a Local or Through Route. An example of this sign is depicted in Figure 41. These signs are clear, concise in their intent and message and are easily identifiable. The uniformity of these signs with the directional signs should allow for easy recognition of the information in the message window or windows.

Figure 41

Proposed On-Route Reassurance Sign Panel – Version A

A secondary sign design which should also be considered for use as an on-route reassurance sign is a design that streamlines the information into a smaller sign with less text. These signs, depicted in Figure 42, are smaller in size, and retain the new recommended truck silhouette and green circle and add either the Local or Through designation to the sign. These signs are easily identifiable, consist of a single panel and can be easily placed or fit onto a variety of mounting options. Route messages can easily be placed on the sign to allow standardization.

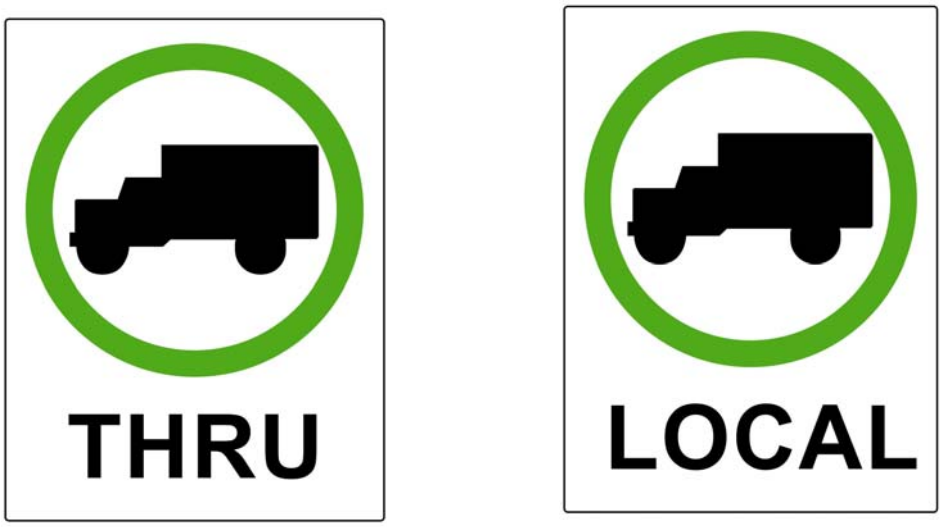

Figure 42 – Proposed On-Route Reassurance Sign Panel
Version B

The on-route signs should be posted approximately every half-mile, as illustrated in Figure 43, unless intersection directional signs are posted within a half-mile of the upstream truck route signs. Preference should be given to points immediately downstream of a major intersection. Signs posted downstream of an intersection will serve a secondary function as a confirmation sign.

Additional consideration should be made to post these signs at infill locations where significant truck traffic may be entering onto the Truck Route Network to reinforce the presence of the route. This can be especially effective at locations where negative signage is requested or trucks are mistakenly using non-designated streets as routes. The posting of such signage reinforces the presence of the existing route and the fact that the intersecting route is not designated as a route and therefore should only be used for local deliveries or to access a destination.

Figure 43

Recommended On-Route Sign Placement

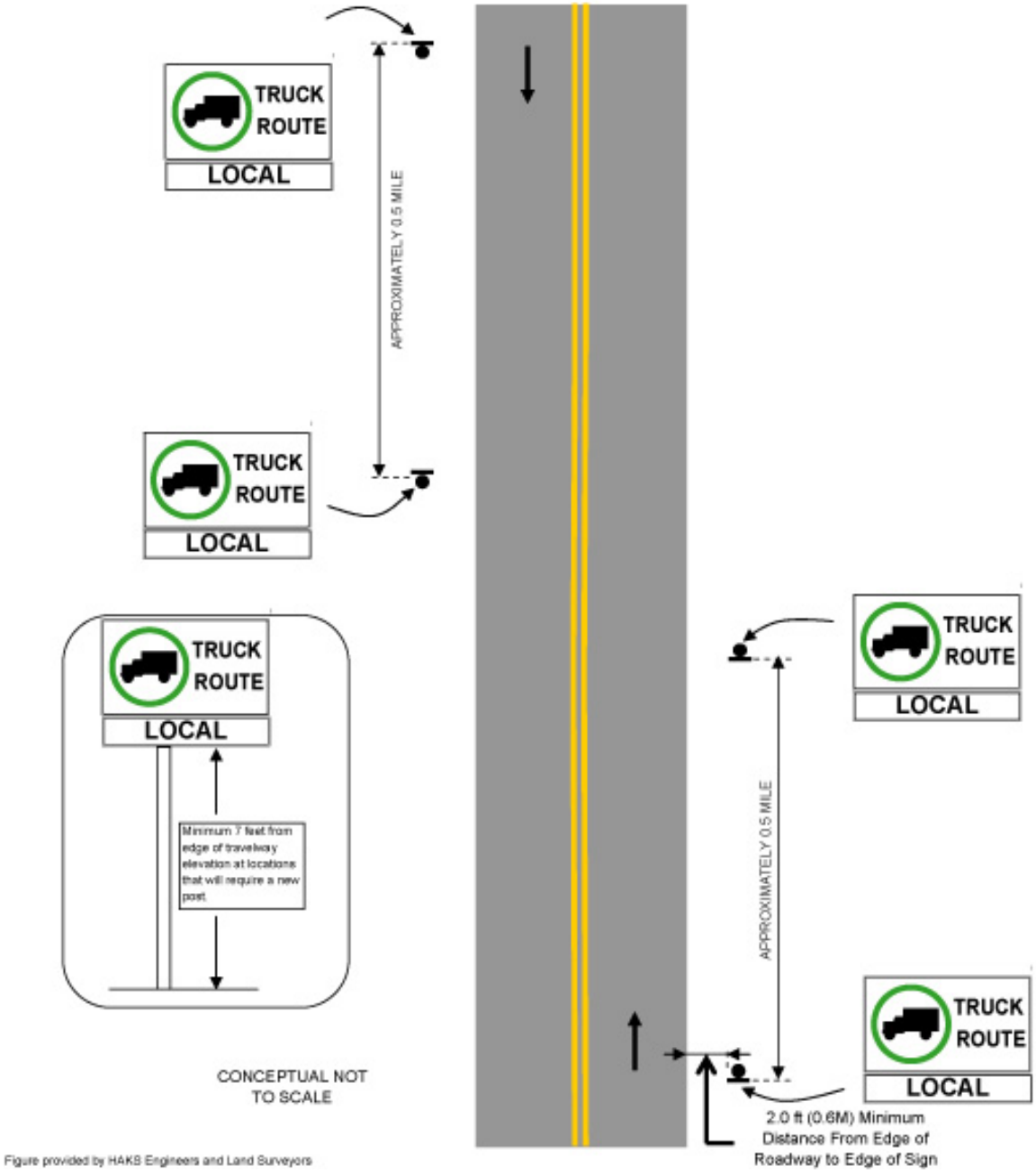

Figure provided by HAKS Engineers and Land Surveyors

E. Gateway Signs

As indicated in this document and reinforced in other Technical Memoranda, truck drivers operating in New York City may not be well informed of the Truck Route Network and the regulations that govern truck travel in the City. During the 1980's, the NYCDOT tried to implement a system of signage at entrances to the City informing drivers of the rules pertaining to truck travel on New York City streets. These signs were intended to be placed on local arterials entering the City, mainly on the Queens/Nassau County border and the Bronx/Westchester border. These signs are large in size and have significant amount of information on them.

However, it is proposed that this type of sign be revised whereby the message is retained and the intent of the truck rules is reinforced. Figure 44 illustrates the recommended sign design. This would apply to all roadways, including the expressways, to inform truck operators entering New York City on truck routes that they must travel only on designated truck routes. This message and signage can also be extended to intra-borough locations on routes to reinforce the truck route system and the relevant regulations.

It is also recommended that consideration be made for a variation of this sign design that introduces the Truck Route symbol with the green circle. Given that this symbol identifies the Truck Route Network, it would stand to reason that the application of this symbol would be appropriate for consistency and identification. This would alert and familiarize the truck operator as to what signs can be expected within the city limits. Size of this sign would be dependent upon application. The alternative sign is depicted in Figure 45.

This three-line message will also fit within a 15 character variable message sign. As such, this message should be cycled on all relevant roadways both within and approaching New York City advising drivers of the presence of the Truck Route System

Figure 44
Recommended Truck Route Gateway Sign
Without Truck Symbol

Figure 45
Recommended Alternate Gateway Truck Route Sign
With Truck Symbol

F. Commercial Traffic Prohibition Signs

New York State and New York City prohibit all trucks and commercial vehicle traffic from the "parkways" and other select roadways, which can only accommodate passenger cars due to either roadway load or dimensional limitations or roadway design. Currently, roadways with commercial vehicle prohibitions are posted with either "No Commercial Traffic" or "Passenger Car Only" signs.

As indicated previously, the NYCDOT is working to standardize this signage system. Currently, the NYCDOT is in the midst of completing a project to change all entrances to parkways to "PASSENGER CARS ONLY". Additional components to these signs may include the addition of a truck prohibition sign and in some cases, a height restriction sign or warning of low bridges if there is a vertical restriction within the vicinity of the ramp.

An additional longer term recommendation is to include signage that conveys height restrictions on the entire portion of the parkway from point of entrance. Although trucks and commercial vehicles are prohibited on the parkway system, it is essential to post height clearance signs on the roadways. One recommendation is to post an auxiliary sign on entrances to the parkway system which indicate the maximum height for vehicle on the entire corridor. These signs are gradually being phased in on parkways in the surrounding counties around New York City, especially in Nassau and Suffolk Counties.

G. No Commercial Traffic Signage on Local Arterials

On the local arterial network, it is recommended that the NYCDOT maintain the current standards and language for signing. The use of the "Passenger Cars Only" sign on these types of corridors would be confusing to truck drivers and general traffic. However, it is recommended that at major cross streets, the NYCDOT should ensure that signage is posted to highlight the restrictive nature of these roadways. Only major cross streets with high vehicle traffic should be prioritized for these types of signs, as it would be unfeasible to sign every single approach with these types of signs.

H. Dimensional Clearance Warning Signs

Clearance warning signs are posted upstream of a height, width and weight restricted Truck Route segment to inform drivers of the dimensional limit to the roadway. Appropriate locations for this sign allow drivers of vehicles that exceed the clearance limit to travel over another designated truck route.

Sites that will necessitate a truck driver to perform a u-turn or a backing maneuver are inappropriate locations for the clearance warning signs. The sign should be posted at a site that will provide truck operators with an adequate alternate route. The primary purpose of the clearance warning sign is to inform truck drivers, preferably at the last intersecting roadway, of the restriction ahead and that they should seek another route.

It is recommended that the NYCDOT expand their current signage standards and application to ensure that advanced height signage is provided, especially on Truck Routes. The recommended sign design for this program is identical to the existing height clearance signs, and is therefore fully consistent with MUTCD standards. This sign is indicated by the message "Vehicles Over __' – __"" (height clearance in feet and inches). It should be noted that the NYCDOT already provides advance signing at approaches to low clearance overpasses. However, it is recommended that this current application, in which signage is posted perpendicular to the affected roadway advising vehicles over a certain height, be expanded where appropriate, primarily in corridors that have truck and/or commercial traffic.

Additional word messages can be attached to the standard advance height restriction sign to indicate the actual location and distance to the obstruction. This may be useful for trucks to utilize Truck Routes as bypass routes, as opposed to non-designated or local roadways.

Figure 46
Recommended Height Clearance Signs

Regular Advance Signage

Advance Directional Signage

Advance Approach Signage

Intersection Signage

I. Truck Prohibition Signs

The purpose of the Truck Route Network is to establish controls for governing truck movements throughout the City, and to provide law enforcement agencies with an effective means to issue summonses to those vehicles which violate these laws. In addition to having a route system that is compatible with residential and commercial needs, the regulations classify trucks in order to prohibit a greater number of these vehicles from using roadways not identified within the Truck Route Network. It should be noted that the signage system should not be the primary basis of enforcement. In many instances, summonses are written for "failure to obey a sign". It should be emphasized to all stakeholders that the Truck Route system is enforceable with or without posted signage.

In the past, it has been the general policy of the NYCDOT to avoid the installation of restrictive signage, especially signs such as "No Thru Trucks" for several reasons. As indicated above, the presence of positive signage and regulations which encompass a large number of these vehicles provides the regulatory framework by which trucks must abide. From a signage standpoint, the wide-scale application of truck prohibition signs would creates ambiguity as to the status of unmarked roadways. Unmarked streets adjacent to a roadway with a posted truck prohibition sign could be interpreted to be an exempt roadway. Therefore a driver may use the unmarked street, thus creating the necessity for the installation of additional negative signing. This would lead to sign proliferation as a substantial portion of the streets in New York City are not designated Truck Routes. In addition, such signage would be costly to install as well as maintain.

While the excessive use of this signage should be avoided, this type of sign plays an important role in the proposed Comprehensive Truck Route Signing Plan. As indicated previously, this proposed program relies on frequent and reinforcing positive Truck Route signage, which will reduce the need for frequent truck prohibition signage.

Under the proposed new policy, it is recommended the NYCDOT revise the criteria by which it determines the placement and applicability of negative signage. Under this recommended program, the NYCDOT would establish a negative signage policy that is more consistent in its application and ensures the proper placement and mix of signs to reinforce the truck route regulations.

The recommended truck prohibition sign is identical to the existing sign in use. This is the existing standard used throughout the country and is easily identifiable by drivers. This sign contains a prohibition sign superimposed on a silhouette of a truck as illustrated in Figure 47. These negative or prohibitive signs should contain the word message "Except Local Delivery" as a regular element of the sign. The word message "Except Local Delivery This Block" that is currently contained on some prohibition signs should be eliminated to simplify the information on the sign. Regardless, it is inherent in the traffic rules that drivers must return to the Truck Route Network upon completing their delivery or if they are making additional deliveries, proceed by the most direct route to their next destination. Should there be geometric constraints or other reasons why trucks would be limited to a single block, additional signage should be posted to advise the driver of these restrictions (i.e. height restriction, geometric constraints, etc).

Unless absolutely necessary, no street should have a complete truck prohibition sign unless it is classified as a parkway or serves a unique and immediate need. These signs would prohibit the use of all trucks regardless of local deliveries or destinations.

Figure 47
Truck Prohibition Sign

Improved Standards for Application

It has been noted that the NYCDOT has employed varying standards in determining the applicability and placement of negative signs in the past. Changes in staffing, borough specific applications and criteria, and other factors established varying standards for the approval of such signage. Accordingly, it is proposed that the NYCDOT adopt an expanded and consistent criteria citywide for determining the applicability and placement of negative signage. Vital to this process are expanded investigation procedures for establishing the need and applicability of the requested signage, including consideration of positive, reinforcing signage opportunities to properly delineate the route system. Central to this system is the expectation that drivers possess the knowledge that any street that is unsigned or not part of the Truck Route shall be deemed a non-designated route and only allow local traffic.

It is proposed that the newly created Office of Freight Mobility play an active role in the process in conjunction with the Borough Commissioners and Borough Engineers. The use of the resources and knowledge of this office will assist in understanding the nature of the problem, land use and developmental issues and issues regarding community complaints and enforcement. Final determination will continue to rest with the respective Borough Commissioner.

The following is the proposed amendment to the negative sign policy currently employed by the NYCDOT:

Department Policy

Requests for negative signage should be investigated by the Borough Engineer's Office, in association with the Freight Mobility Coordinator. There are two distinct categories for evaluating the applicability of negative signage at a location: 1) street segments that are directly adjacent to existing Truck Routes, and; 2) street segments that are off-Truck Routes.

For Street Segments Located Directly Adjacent to a Truck Route:

For these types of requests, the applicability of positive or "reinforcing signage" should be considered as the primary response to requests. Prohibitive or negative truck signage should be considered only in cases where warranted as described below. In addition, signs should be placed on segments either directly on or abutting street segments that are predominantly residential in nature and should meet one or more of the following criteria:

- Adjacent to industrial/warehouse land uses
- Provides direct access to or from limited access roadways or is used as a connecting road between major arterial roadways
- Provides a direct connection between two parallel truck routes
- Roadway is of considerable width and/or serves as a primary route for general passenger traffic
- Provides direct access to or from a major truck trip generator
- Has a documented history of structural damage due to use by heavy trucks
- Has a documented history of continuous use by large trucks
- The street has a physical barrier and or geometric constraints for truck traffic

There are several types of signs that may be used in this situation, dependent upon engineering judgment. As indicated above, in efforts to reduce negative sign proliferation, the use of positive reinforcing signage should be considered as the primary strategy. However, two types of signage may be used, as applicable "No Trucks Except Local Deliveries" and "No (Right or Left) Turns By Trucks Except Local Deliveries". The use of "Except Deliveries This Block" shall be discontinued. Negative or protective signage should only be posted at the primary intersection where observed non-compliant activity is occurring and should not be repeated at more than two successive intersections.

In addition, consideration should be made for the placement of appropriate wayfinding "To Truck Route" signage to direct vehicles to designated truck routes.

Investigative Procedures

Investigators should:

- Locate all nearby truck routes within one mile from location
- Identify all potential truck trip generators based on land use and/or observed commercial activity in the general vicinity of the identified intersection.

- Identify time and frequency of infractions and/or non-complying truck activity
- Identify travel patterns and/or similarities in type/classification/volume of truck trips.
- Identify street geometry, traffic directions and any restrictive movements on nearby streets

Should there be a high volume of legal truck traffic utilizing a single non-designated route, regular positive signage may be posted to indicate the designation of the intersecting truck route and deter drivers from continuing along the street segment. This determination should be based upon an inspector's judgment.

For Street Segments Located Off-Truck Routes:

In order to qualify for protective signing, a street segment should be predominantly residential in nature and should meet the same standards as indicated above. Efforts should be made to identify the primary type of vehicles that are utilizing the street segment to assist in determining appropriate response. However, should protective signage be warranted, signage should be posted at the primary intersection where observed non-compliant truck activity is occurring or entering the specified corridor in order to be most effective In general, signage should not be placed at successive intersections as it diminished the effectiveness of these signs. Efforts should also be made to improve enforcement in addition to consideration of signage.

Investigative Procedures

Investigators should:

- Locate all nearby truck routes within one mile from location.
- Identify all potential truck trip generators based on land use and/or observed commercial activity. Identify time and frequency of infractions and/or non-complying truck activity.
- Identify travel patterns and/or similarities in type/classification/volume of truck trips.
- Identify street geometry, traffic directions and any restrictive movements on nearby streets.
- If possible, locate primary intersection where vehicles are non-compliant and post signage accordingly.

J. Truck Turning Movement Related Signage

Throughout the City, there are numerous locations where there are turning restrictions for trucks. Typically, these signs are posted on designated Truck Routes at locations where there trucks or commercial vehicles may be using a roadway as a shortcut or if the roadway appears to a primary roadway connecting two major routes. This may be due to the street widths, driver knowledge or information gathered from maps such as road atlases.

It is recommended that the NYCDOT maintain the two sign designs it currently employs to designate these restrictions, as well as the criteria for placement. However, greater emphasis should be made on ensuring the consistent placement of these signs and on all relevant approaches. The primary sign used at these intersections, which functions in a similar fashion to the “No Trucks Except Local Deliveries” signage, is the sign standard “No Turns for Trucks Except Local Deliveries”. These signs are regulatory in nature. The version that is all text is rectangular and can be placed within the mast arm of most signals. The more descriptive sign, featuring a directional arrow with a specified directional turning restriction is much larger in size and introduces more descriptive text and messages.

Emphasis should be made to avoid posting these signs, especially the smaller rectangular sign, inconspicuously at intersections. Typically, these signs are posted on the top or a mast arm pole and may be difficult to see. Greater emphasis should be placed on providing improved visibility and placement of these signs, as well as possible advanced signage advising trucks of the upcoming restriction ahead.

In instances where there are specific turning movements are restricted, the current sign standard is effective in providing the driver with the applicable truck restriction. These signs are typically placed to advise a truck of either routing or geometric constraints that the vehicle may encounter or at locations where a truck route may come to a terminus.

An additional recommendation for NYCDOT consideration is the use of directional or wayfinding signage in conjunction with these signs, especially on corridors which may have turn restrictions indicating that turns are only permitted for local deliveries. Appropriate signage directing the driver back to the designated truck route will enable vehicles to safely return to the truck route while ensuring the quality of life components that this sign is reinforcing

K. Proposed Nighttime Truck Restriction Signage

One of the proposals recommended by this Truck Route Study is the opportunity to implement nighttime truck restrictions on certain Truck Routes. These routes would only allow truck traffic for local deliveries, minimizing the movement of trucks on these corridors during the evening hours. This sign design would be similar to an existing truck route sign but would have the hours of operation that the Truck Route was in operation. The posting of negative signage with the time of restriction, would be difficult due to both positive and negative signage being present along the same corridor. Sign designs will be developed accordingly for the implementation of a pilot project to gauge its effectiveness.

L. Truck Route Signs on the Interstates

The Interstate system in New York City is the lifeline for goods movement in New York City. Although constrained by congestion, these routes are the primary access routes throughout the City for trucks, especially for long haul and regional goods movement. Currently, there are differing standards for Truck Route signage on these roadways than on New York City Truck Routes. It is recommended that a single design standard (as indicated in Figure 48) be utilized throughout the entire Interstate system within the City. This sign provides both the name of the roadway as well as its route classification. This information can provide drivers unfamiliar with the road network with both the route name and type to aid in their routing decisions. In addition, it is recommended that these signs be placed on gantry signs indicating the next exit. This will allow drivers to make appropriate decisions before the exit ramp, as well as indicate an intersecting Truck Route. It is recommended these signs also be installed in conjunction with appropriate wayfinding signage to guide trucks to the closest Truck Route once they exit.

Figure 48
Recommended Interstate Truck Route Sign Design

6. Estimated Cost of the Sign Program Implementation

The fabrication and installation of the positive Truck Route Signage system across the City of New York is estimated to cost a total of slightly over $2.88 million. While the assumption is that every intersection approach will have two Truck Route signs per approach (one in the general vicinity of the intersection and one on the approach to the intersection approximately 150 feet prior to the intersection), actual street layouts may not permit the full deployment of signage at each intersection. However, at a minimum, one sign at the intersection, and an advance sign should be posted. At certain high traffic or complex intersections, opportunities to post additional signage should be examined. It should be noted that the cost associated with Negative Signage is not included in this estimate, due to the site specific nature of these requests.

The cost per sign is based on a 24 inch vertical by 36 inch horizontal sign mounted on a standard double post, and includes the cost of additional riders for information which are all 36 inches in width but vary from 12 inches to 18 inches in height depending upon message indicated and type of sign. The average cost of these signs is anticipated to be approximately $303 per sign which includes fabrication and installation. The on–route signs were estimated to be slightly less expensive assuming they will be of a slightly smaller overall square footage than the directional and advance signs. These signs were estimated to be approximately $285 per sign including fabrication and installation. Actual sizes of each sign may have to be reviewed during final design taking into account the actual type of mounting. If single post mounting is required, a special post would have to be used, which could be more expensive than the standard double post. The decision, during final design, to mount poles on light posts will also affect the size of the sign panel that can be installed. The cost summary is listed in Table 1.

Table 1
Total Cost Estimate

Borough	Number of Signs			Cost of Signs		
	Directional	Advance	On-Route	Directional	Advance	On-Route
Bronx	822	731	172	$249,066	$221,493	$49,020
Brooklyn	835	807	200	$253,005	$244,521	$57,000
Manhattan	901	865	128	$273,003	$262,095	$36,480
Queens	798	702	240	$241,794	$212,706	$68,400
Staten Island	672	639	194	$203,616	$193,617	$55,290
Total	**4,028**	**3,744**	**934**	**$1,220,484**	**$1,134,432**	**$266,190**

The estimated maximum cost for installation of the Truck Route sign system throughout the entire City is $2.88 million. This estimate is based on an estimated average cost of $303 for the directional and advance signs and $285 for the on-route signage due their

smaller size. In addition a 10% contingency is factored in. It also assumes that the majority of the signs are mounted on existing poles or posts.

Truck Route Directional Signs	$1,220,484
Advance Truck Route Signs	$1,134,432
Truck Route On-Route Signs	$266,190
Total	**$2,621,106**
Contingency 10% of total	$262,110
Total Estimated Cost	**$2,883,216**

The estimate also assumes that most of the signs will be mounted on existing traffic signal poles or street light poles. The description of the methodology used to estimate the number of signs required to sign the Truck Route Network is detailed in Appendix A.

APPENDIX A

ESTIMATED COSTS OF THE SIGN PROGRAM IMPLEMENTATION

The section describes the methodology that was used to estimate the number of signs required to sign the Truck Route Network. The signing program consists of three types of signs: directional, advance, and reassurance.

Directional Truck Route Signs

Directional signs would be used at intersections and key decision points in the Truck Route Network. These signs would be posted at the following locations.

1. All at-grade intersections of intersecting truck route streets (Table A1)
2. Key decision points where a local or through truck route turns left or right at an intersection with a non-truck route street.
3. At the base of all exit ramps from expressways and freeways (Table A2)
4. At exits from bridges and tunnels (not included in item 3) to the local streets (Table A3)

The intersections were broken down into categories based on the number of approaches at each intersection by borough. Two signs would be posted at each approach at an intersection. An estimate of the number of directional truck route signs is shown in Table A1**.**

Table A1
Number of Directional Truck Route Signs at Intersections by Borough

Borough	Number of Intersections				Total Number of Signs
	2 – 2way[a]	2way–1way[b]	Other[c]	Total	
Bronx	102	71	55	228	731
Brooklyn	148	65	10	223	807
Manhattan	79	137	69	285	865
Queens	96	98	12	206	702
Staten Island	55	137	4	196	639
Total	**480**	**508**	**150**	**1138**	**3744**

[a] 1 signs per approach x 4 approaches = 4 signs per intersection
[b] 1 signs per approach x 3 approaches = 3 signs per intersection
[c] 1 signs per approach x 2 approaches = 2 signs per intersection

Actual street layouts, available space for signage and other factors could significantly impact the number of signs that can be posted at an intersection. In some cases, more than the specified number of signs may be posted, especially on one way streets where there is the ability to post on both sides of the roadway. However, it is imperative that at least one sign is installed at every intersecting truck route, as well as one advance sign on the approach.

Directional Truck Route signs would also be required at the end of exit ramps from the freeways and at exits from the City's tunnels and bridges to the local streets. The estimated number of directional signs in each category is shown in Tables A2 and A3, respectively.

Table A2
Truck Signs at End of Exit Ramps from Expressways/Interstates by Borough

NYC Expressways	*Number of Exit Ramps*					Total
	Bronx	Brooklyn	Manhattan	Queens	Staten Island	
BQE	-	16	-	12	-	**28**
Prospect Expwy	-	4	-	-	-	**4**
LIE	-	-	-	28	-	**28**
Van Wyck Expwy	-	-	-	22	-	**22**
Whitestone Expwy	-	-	-	6	-	**6**
Clearview Expwy	-	-	-	20	-	**20**
Bruckner Expwy	12	-	-	-	-	**12**
Throgs Neck Expwy	4	-	-		-	**4**
Sheridan Expwy	4	-	-	-	-	**4**
Major Deegan Expwy	24	-	-	-	-	**24**
Hutchinson River Pkwy	4	-		-	-	**4**
New England Thruway	5	-		-	-	**5**
Cross Bronx Expwy	23	-	-	-	-	**23**
TransManhattan Expwy	-	-	6	-	-	**6**
Staten Island Expwy	-	-	-	-	18	**18**
West Shore Expwy	-	-	-	-	9	**9**
Route 440	-	-	-	-	6	**6**
Total	**76**	**20**	**6**	**88**	**33**	**223**

Table A3
Truck Signs for Exits from Tunnels and Bridges by Borough

Crossing	i. Number of Locations					ii. Total
	Bronx	Brooklyn	Manhattan	Queens	Staten Island	
Lincoln Tunnel	-	-	2	-	-	**2**
Holland Tunnel	-	-	2	-	-	**2**
Brooklyn Battery Tunnel	-	1	2		-	**3**
Queens Midtown Tunnel	-	-	2	1	-	**3**
Manhattan Bridge	-	4	4	-	-	**8**
Williamsburg Bridge	-	2	2	-	-	**4**
Queensboro Bridge	-	-	4	4	-	**8**
Marine Pkwy Bridge	-	-	-	1	-	**1**
Triborough Bridge	2	-	2	2	-	**6**
Roosevelt Island Bridge	-	-	1	1	-	**2**
Willis Avenue Bridge	2		2			**4**
Third Avenue Bridge	2		1		-	**3**
Madison Avenue Bridge	2	-	1	-	-	**3**
145th Street Bridge	2	-	1	-	-	**3**
MaCombs Dam Bridge	2	-	1	-	-	**3**
Washington Bridge	1	-	1	-	-	**2**
University Hts Bridge	1	-	1	-	-	**2**
Broadway Bridge	1		1		-	**2**
Total	**15**	**8**	**30**	**8**	**0**	**59**

Advance Advisory Truck Route Signs

Advance signs would be posted upstream of an intersection where there are multiple lanes on the approach to the intersection and the truck driver may have to switch lanes to turn onto the intersecting truck route. These also allow for the driver to make routing decisions prior to reaching the intersection. For estimating purposes the following assumptions were made:

1. Signs would be placed 150 feet in advance of intersection.
2. Only one advance sign would be posted on an approach.
3. No signs would be would posted on the freeways.

An estimate of the number of advance truck route signs is shown in Table A4**.**

Table A4
Number of Advance Truck Route Signs by Borough

Borough	Number of Intersections				Total Number of Signs
	2 – 2way[a]	2way–1way[b]	Other[c]	Total	
Bronx	102	71	55	228	731
Brooklyn	148	65	10	223	807
Manhattan	79	137	69	285	865
Queens	96	98	12	206	702
Staten Island	55	137	4	196	639
Total	480	508	150	1138	3744

[a] 1 signs per approach x 4 approaches = 4 signs per intersection
[b] 1 signs per approach x 3 approaches = 3 signs per intersection
[c] 1 signs per approach x 2 approaches = 2 signs per intersection

These signs should be installed in connection with the "Directional" signage at each location. However, this application may not be feasible at every location. Location specific factors such as street geometries, block lengths, mounting options, etc. could factor into the actual number of locations where the sign can be placed. Overall, this could also lead to significant reduction in the number of these types of signs that are posted.

On-Route Signs

Reassurance signs are used to provide confirmation to the truck driver that the street is part of the Truck Route Network. These should be placed on all truck routes at intervals of ½ mile apart, however, proximity to existing truck route signage should be taken into account. For estimating purposes the following assumptions were made:

Based on these assumptions, the estimated number of On-Route signs is 934.

Table A5
Number of Truck Route On-Route Signs by Borough

Borough	Total Truck Route Miles		Truck Route Miles to be Signed		Total Number of Signs
	Local	Through	Local	Through	
Bronx	132	40	66	20	172
Brooklyn	149	50	75	25	200
Manhattan	113	17	56	8	128
Queens	111	134	55	65	240
Staten Island	170	24	85	12	194
Total	**675**	**265**	**337**	**130**	**934**

APPENDIX B

SIGNING STANDARDS

Standards in traffic signs relate to uniformity in the shape, size, color, content, lateral placement, mounting height and sign spacing. Signing uniformity increases the sign's effectiveness. A list of truck related signs are provided in the tables.

National Traffic Sign Standards

The federal Manual on Uniform Traffic Control Devices (MUTCD) is recognized as the national standard for all traffic signs and traffic control devices installed on any public roadway. The MUTCD is administered by the Federal Highway Administration (FHWA). The MUTCD defines the standards for the shape, sizes, color, symbols, and contents of traffic signs and all traffic devices that are utilized to regulate, warn, or guide traffic. A list of truck-related signs in the MUTCD is provided in Table 1C.

Table B1
MUTCD Signs for Trucks
Sign Identification Code

Sign Type	Code
Truck Speed Limit	R2-2
Trucks Use Right Lane	R4-5
Truck Lane XX Meters (XX Feet)	R4-6
No trucks	R5-2, 2a
Commercial Vehicles Excluded	R5-4
Weight Limit Signs	R12-1 – R12-5
Weigh Station Signs	R13-1
Truck Route	R14-1
National Network	R14-4, 5
Truck Rollover	W1-13
Trucks Use Low Gear, x% Grade	W7-2, W7-3
Truck Escape Ramp	W7-4, W7-4a
Truck Crossing	W8-6
Truck Auxiliary Sign	M4-4

The MUTCD specifies the shapes, colors and sizes for all signs. Table B2 provides the sign code, classification, shape and colors of all truck related signs, while Table B3 provides details as to the size of truck related signs by road type.

Any change or modification from the existing standard signs must first be evaluated and approved by the FHWA. The FHWA evaluation and approval process is generally a lengthy procedure.

Table B2
MUTCD Truck Sign
Code, Classification, Shape and Colors

Code	Classification	Shape	Colors						
			Legend				Background		
			Black	Green	Red	White	Black	White	Yellow
R2-2	Regulatory	Square	X					X	
R4-5	Regulatory	Rectangular	X					X	
R4-6	Regulatory	Rectangular	X					X	
R5-2 R5-2a	Regulatory	Square	X		X			X	
R5-4	Regulatory	Rectangular	X					X	
R12-1 R12-5	Regulatory	Rectangular	X					X	
R13-1	Regulatory	Rectangular				X	X		
R14-1	Regulatory	Rectangular	X					X	
R14-4 R14-5	Regulatory	Square	X	X				X	
W1-13	Warning	Diamond	X						X
W7-2 W7-3	Warning	Square	X						X
W7-4 W7-4a	Warning	Rectangular	X						X
W8-6	Warning	Diamond	X						X
M4-4	Guide	Rectangular	X					X	

Table B3
MUTCD Truck Sign Sizes by Road Type

Code	Conventional Road	Expressway	Freeway	Minimum	Oversized
R2-2	600 x 600 (24 x 24)	900 x 900 (36 x 36)	1200 x 1200 (48 x 48)	—	—
R4-5	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	1200 x 1500 (48 x 60)	—	—
R4-6	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	1200 x 1500 (48 x 60)	—	—
R5-2, R5-2a	600 x 600 (24 x 24)	750 x 750 (30 x 30)	900 x 900 (36 x 36)	—	1200 x 1200 (48 x 48)
R5-4	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	1200 x 1500 (48 x 60)	—	—
R12-1, R12-5	600 x 750 (24 x 30)	900 x 1200 (36 x 48)	—	—	900 x 1200 (36 x 48)
R13-1	1800 x 1200 (72 x 48)	2400 x 1650 (96 x 66)	3000 x 1100 (120 x 84)	—	—
R14-1	600 x 450 (24 x 18)	—	—	—	—
R14-4, R14-5	600 x 600 (24 x 24)	750 x 750 (30 x 30)	900 x 900 (36 x 36)	—	1050 x 1050 (42 x 42)
W1-13	750 x 750 (30 x 30)	900 x 900 (36 x 36)	1200 x 1200 (48 x 48)	600 x 600 (24 x 24)	—
W7-2, W7-3	750 x 750 (30 x 30)	900 x 900 (36 x 36)	1200 x 1200 (48 x 48)	600 x 600 (24 x 24)	—
W7-4, W7-4a	1950 x 1200 (78 x 48)	1950 x 1200 (78 x 48)	1950 x 1200 (78 x 48)	—	—
W8-6	750 x 750 (30 x 30)	900 x 900 (36 x 36)	1200 x 1200 (48 x 48)	600 x 600 (24 x 24)	—
M4-4	—	—	—	—	—

New York State Traffic Sign Standards

The Department of State of New York publishes the Official Compilation of Codes, Rules and Regulations of the State of New York (NYCRR). NYCRR, Title 17, Subtitle B, Chapter V: Uniform Traffic Control Devices defines the state standard that sets forth the basic principles governing design, use, installation, and operation of all traffic control devices. The standards specified apply to all highways throughout the State of New York that are open to public travel, regardless of type or the governmental agency having jurisdiction for that highway. The NYCRR truck related signs are similar or identical to the MUTCD signs. Table B4 provides a list of all New York State truck-related signs.

Table B4
NYCRR Truck Related Signs

Sign	Code
Trucks Use Right Lane	R4-16
No Trucks Buses Trailers Left Lane	R4-17
Weight Limit 10 Tons	R5-1
Axle Weight Limit 5 Tons	R5-2
Weight Limit 2 Tons Per Axle 10 Tons Gross	R5-3
No Trucks (symbol)	R5-10
Commercial Vehicles Excluded	R5-11
Trucks Over 5 Tons Use Truck Routes	R5-15
Truck Route	R5-16
Truck (Supplementary sign)	R7-1
5 Ton Bridge	W3-19
10 Ton Weight Limit	W3-30
No R Permit Trucks	W3-31
Weigh Station Ahead	W7-2
Trucks Must Stop	W7-3

Although the NYCRR specifies shapes, colors and sizes for traffic signs, it is in substantial conformance to the federal MUTCD. Table B5 provides details as to the classification, shape and colors of all truck related signs, while Table B6 provides details as to the size and codes of all truck related signs.

Table B5
NYCRR Truck Signs Classification, Shape and Colors

Code	Classification	Shape	Colors			
			Legend		Background	
			Black	Red	White	Yellow
R4-16	Regulatory	Rectangular	X		X	
R4-17	Regulatory	Rectangular	X		X	
R5-1	Regulatory	Rectangular	X		X	
R5-2	Regulatory	Rectangular	X		X	
R5-3	Regulatory	Rectangular	X		X	
R5-10	Regulatory	Square	X	X	X	
R5-11	Regulatory	Rectangular	X		X	
R5-15	Regulatory	Rectangular	X		X	
R5-16	Regulatory	Rectangular	X		X	
R7-1	Regulatory	Rectangular	X		X	
W3-19	Warning	Diamond	X			X
W3-30	Warning	Diamond	X			X
W3-31	Warning	Diamond	X			X
W7-2	Warning	Diamond	X			X
W7-3	Warning	Diamond	X			X

Table B6
NYCRR Truck Signs Sizes by Road

Code	Conventional Highways (Two-lanes)	Conventional Highways (Two-lanes)	Conventional Highways (> Two-lanes), Expressways and Parkways	Freeways
R4-16	—	24”x 30”	36”x 48”	48”x 60”
R4-17	—	—	—	48”x 60”
R5-1	—	24”x 30”	30”x 36”	36”x 48”
R5-2	—	24”x 30”	30”x 36”	36”x 48”
R5-3	—	36”x 24”	—	—
R5-10	24”x 24”	30”x 30”	36”x 36”	48”x 48”
R5-11	18”x 24”	24”x 30”	36”x 48”	48”x 60”
R5-15	24”x 36”	36”x 48”	—	—
R5-16	24”x 18”	—	—	—
R7-1	24”x 8”	30”x 10”	36”x 12”	48”x 16”
W3-19	24”x 24”	30”x 30”	36”x 36”	48”x 48”
W3-30	24”x 24”	30”x 30”	36”x 36”	48”x 48”
W3-31	24”x 24”	30”x 30”	36”x 36”	48”x 48”
W7-2	—	24”x 24”	36”x 36”	48”x 48”
W7-3	—	24”x 24”	36”x 36”	48”x 48”

New York City Traffic Sign Standards

The New York City Department of Transportation (NYCDOT) follows the New York City Traffic Rules and Regulations. Title 34 - Rules of the City of New York, Chapter 4 Traffic Rules and Regulations specifes the rules and regulations on traffic control devices, roadway travel, parking, stopping, standing, overdimensional limitations, and lists roadways designated as a truck route.

The Traffic Rules and Regulations Section 4-13 (Truck Routes) provides a list of streets that comprise the Truck Route Network across the City of New York. The truck routes are identified by boroughs and by local or through route designation. Truck related traffic signs in New York City are listed in Table B7. A number of signs are site specific.

Table B7 – Part 1 of 5
NYCDOT Signs Codes and Sizes

Code	Size	Legend
SR-881	192 X 36	12'-0" CLEARANCE NO TRUCKS
SR-83, SR-86, SR-110, SR-112, SR-619	Various	ALL COMMERCIAL TRAFFIC
SC-25	72 X 42	ALL COMMERCIAL TRAFFIC & VEHICLES WITH 8 PASSENGER CAPACITY MUST EXIT
SR-68	42 X 42	ALL COMMERCIAL TRAFFIC (1 O'CLOCK ARROW)
SR-6	42 X 36	ALL COMMERCIAL TRAFFIC < ----------
SR-5	42 X 36	ALL COMMERCIAL TRAFFIC ---------->
SR-15	120 X 78	ALL COMMERCIAL TRAFFIC EXIT 1/4 MI
SR-14, SR-24	Various	ALL COMMERCIAL TRAFFIC EXIT W/ 1 O'CLOCK ARROW
SR-1172	60 X 54	ALL COMMERCIAL TRAFFIC MUST USE EXIT X
SR-703M	42 X 42	ALL COMMERCIAL TRAFFIC MUST USE SERVICE ROAD
SI-287M	144 X 30	ALL COMMERCIAL TRAFFIC USE 20 - 23 STREETS EXIT
SI-286M	144 X 30	ALL COMMERCIAL TRAFFIC USE SOUTH STREET EXIT
SR-694	42 X 42	ALL COMMERCIAL TRAFFIC W/60 DEGREE LEFT ARROW
SR-704	42 X 48	ALL NORTHBOUND COMMERCIAL TRAFFIC MUST USE SERVICE ROAD
SI-23R	48 X 48	ALTERNATE TRUCK ROUTE OUTERBRIDGE CROSSING (1 O'CLOCK ARROW)
SI-245Q	36 X 36	ASTORIA BLVD COMMERCIAL TRAFFIC (2 O'CLOCK ARROW)
SR-412	48 X 54	AUTHORIZED BUSES LEFT LANE NO TRUCKS IN LEFT LANE (FLDG)
SR-177	48 X 54	AUTHORIZED BUSES LEFT LANE NO TRUCKS OR BUSES IN LEFT LANE

Table B7 – Part 2 of 5
NYCDOT Signs Codes and Sizes

Code	Size	Legend
SR-1502	144 X 96	BATTERY TUNNEL (PICTORIAL DIAMOND) HOV 3+ LANE AHEAD VEHICLES WITH 3 OR MORE PERSONS & E-ZPASS 6AM-10AM MON-FRI W/ 6 O'CLOCK ARROW NO TRUCKS
SR-1498, SR-1500	Various	BATTERY TUNNEL (PICTORIAL DIAMOND) HOV 3+ LANE VEHICLES WITH 3 OR MORE PERSONS & E-ZPASS 6AM-10AM MON-FRI W/ 45 DEG LEFT ARROW NO TRUCKS
SI-645K	156 X 84	BROOKLYN BR/W 12 O'CLOCK ARROW CLEARANCE 11' - 0" NO COMMERCIAL TRAFFIC
SR-40	90 X 36	COMMERCIAL TRAFFIC MUST EXIT
SI-280M	42 X 36	COMMERCIAL TRAFFIC USE 23 STREET EXIT
SI-593M, SI-594M	Various	DO NOT ENTER PARK DR CLOSED PARK DR SOUTH (12 O'CLOCK ARROW) NO COMMERCIAL TRAFFIC
SI-601M	36 X 48	DO NOT ENTER PARK DR CLOSED PARK DR SOUTH (3 O'CLOCK ARROW) NO COMMERCIAL TRAFFIC
SI-596M	42 X 48	DO NOT ENTER PARK DR CLOSED/WEST 72 ST - PARK DR (12 O'CLOCK ARROW NO COMMERCIAL TRAFFIC
SI-595M	42 X 48	DO NOT ENTER PARK DR CLOSED/WEST 72 ST - PARK DR (3 O'CLOCK ARROW NO COMMERCIAL TRAFFIC
SI-610K	42 X 42	FLUSHING AVENUE (TUCK SYMBOL) TRUCK ROUTE < ----------
SI-181G	48 X 48	HIGHWAY TRUCK ROUTE SIGN (SYMBOL)
SR-1539	162 X 102	HOV 3+ 7AM -10AM MON-FRI W/ 60 DEG LEFT ARROW NO TRUCKS
SI-641B	192 X 72	HUNTS POINT MARKET & INDUSTRIAL PARK WITH TWO 6 O'CLOCK ARROWS TRUCK ROUTE
SI-1258Q	96 X 66	LAST LOCAL TRUCK ROUTE BEFORE TOLL EXT 15
SI-215G	48 X 48	LOCAL TRUCK ROUTE WITH TRUCK SYMBOL (HIGHWAY)
SI-216G	36 X 24	LOCAL TRUCK ROUTE 2 AXLES ONLY WITH TRUCK SYMBOL
SR-1323	78 X 96	LOCAL TRUCK ROUTE EXIT 2
SI-185G	36X 24	LOCAL TRUCK ROUTE WITH TRUCK SYMBOL
SR-1012, SR-1013	Various	LOW BRIDGE W/W (LOW BRIDGE SYMBOLS) NO COMMERCIAL TRAFFIC
R5-2B, SR-44, SR-113, SR-137, SR-356, SR-702, SR-707, SR-858, SR-910, SR-1100, SR-1101,SR-1373	Various	NO COMMERCIAL TRAFFIC
SC-26	36 X 24	NO COMMERCIAL TRAFFIC NO VEHICLES WITH OVER 8 PASSG CAPACITY ON FDR NORTHBOUND

Table B7 – Part 3 of 5
NYCDOT Signs Codes and Sizes

Code	Size	Legend
SI-597M, SI-600M	Various	NO LEFT TURN PARK DR CLOSED (9 O'CLOCK ARROW) PARK DR NORTH NO COMMERCIAL TRAFFIC
SI-598M, SI-599M	Various	NO RIGHT TURN PARK DR CLOSED PARK DR SOUTH (3 O'CLOCK ARROW) NO COMMERCIAL TRAFFIC
SR-17	48 X 66	NO THRU COMMERCIAL TRAFFIC NO COMMERCIAL TRAFFIC 3:30PM TO 7PM MON THRU FRI
SR-125, SR-1110, SR-1111, SR-1112	Various	NO TRUCKS
SR-48	30 X 24	NO TRUCKS OVER 33 FEET 8-10AM NOON -6PM MON THRU FRI EXECEPT TO OFF-STREET BERTHS
R5-2, SR-492, SR-493	Various	NO TRUCKS (SYMBOL)
SR-635	30 X 42	NO TRUCKS (SYMBOL) 9AM-5PM MON THRU FRI EXCEPT LOCAL DELIVERIES
SR-578	30 X 42	NO TRUCKS (SYMBOL) EXCEPT DELIVERIES THIS BLOCK
SR-511	30 X 42	NO TRUCKS (SYMBOL) EXCEPT LOCAL DELIVERIES
SR-760	30 X 42	NO TRUCKS (SYMBOL) WITH OVERWEIGHT PERMIT
SR-895	48 X 60	NO TRUCKS BUSES LEFT LANE
SI-509K	48 X 60	NO TRUCKS BUSES OR VANS ON MANHATTAN BR ALT ROUTE BATTERY TUNNEL EXIT 26
SI-514K	48 X 60	NO TRUCKS BUSES OR VANS ON MANHATTAN BR ALT ROUTE USE WILLIAMSBURG BR <--------
SI-513K	48 X 60	NO TRUCKS BUSES OR VANS ON MANHATTAN BR ALT ROUTE USE WILLIAMSBURG BR --------->
SI-512K	48 X 60	NO TRUCKS BUSES OR VANS ON MANHATTAN BR ALT ROUTE USE WILLIMSBURG BR W/ 12 O'CLOCK ARROW
SI-507K, SI-511K	Various	NO TRUCKS BUSES OR VANS ON MANHATTAN BR USE WILLIAMSBURG BR
SR-1415	192 X 36	NO TRUCKS BUSES TRAILERS IN LEFT LANE
SR-1476	42 X 36	NO TRUCKS EAST OF BROADWAY
SR-225	78 X 66	NO TRUCKS IN LEFT LANE
SR-973	42 X 60	NO TRUCKS LEFT LANE
SR-709, SR-896, SR-1170, SR-1171	Various	NO TRUCKS OR BUSES
SR-117, SR-147, SR-161	Various	NO TRUCKS OR BUSES IN LEFT LANE
SW-387	48 X 54	NO TRUCKS OR BUSES ON MANHATTAN BRIDGE LOWER RDWY
SR-336	180 X 48	NO TRUCKS OVER 3 TONS USE 2 AVENUE ENTRANCE
R5-4, SR-141, SR-142, SR-143, SR-151, SR-152, SR-153, SR-154	Various	NO TRUCKS OVER 33 FEET

Table B7 – Part 4 of 5
NYCDOT Signs Codes and Sizes

Code	Size	Legend
SR-29, SR-46	Various	NO TRUCKS OVER 33 FEET AT CURB NOON TO 6PM MON THRU FRI
R5-6	24 X 30	NO TRUCKS OVER X TONS MAX GR WT (REVISED 2-18-2000)
SR-1477	48 X 30	NO TRUCKS SOUTH OF CHAMBERS STREET
SR-827	48 X 48	NO TRUCKS SOUTH OF EAST 23 STREET EXCEPT LOCAL DELIVERIES
SR-661	30 X 42	NO TRUCKS WITH OVERWEIGHT PERMIT
SR-252	132 X 48	NO TRUCKS IN LEFT LANE
SR-924	48 X 54	NO TRUCKS OR BUSES VANS
SI-1486Q	180 X 60	OUTER RDWY BRIDGES ACCESS NO CAR SYMBOL, BIKE & PED SYMBOLS, BIKES & PEDS ONLY, NO TRUCKS SYMBOL
SI-510G	48 X 60	PASSENGER CARS ONLY ON MANHATAN BRIDGE ALT TRUCK ROUTE BATTERY TUNNEL EXIT 26
SI-1395Q	96 X 54	QUEENSBORO BR OUTER (CAR) SYMBOL 3PM -7PM MON THRU FRI ALL OTHER TIMES (PESDETRIAN & BIKE SYMBOLS) 8' -5" CLEARANCE W/ TWO (NO TRUCKS SYMBOLS)
SR-600	36 X 48	RESTRICTED AREA (NO TRUCKS SYMBOL) 33FT & OVER 11AM-2PM MON THRU FRI EXCEPT FOR LOADING & UNLOADING.
SR-603	36 X 48	RESTRICTED AREA (NO TRUCKS SYMBOL) 33 FT & OVER 12 NOON-6PM MON THRU FRI EXCEPT FOR OFF STREET PARKING
SI-602M	36 X 48	TAVERN ON THE GREEN (3 O'CLOCK ARROW)/PARK DR SOUTH (3 O'CLOCK ARROW) NO COMMERCIAL TRAFFIC
SI-603M	36 X 48	TAVERN ON THE GREEN (9 O'CLOCK ARROW) PARK DR CLOSED/ PARK DR SOUTH (9 O'CLOCK ARROW) NO COMMERCIAL TRAFFIC
SI-214G	48 X 48	THRU TRUCK ROUTE WITH TRUCK SYMBOL
SR-402	24 X 36	TO TRUCK ROUTE (12 O'CLOCK ARROW)
SR-368	24 X 36	TO TRUCK ROUTE (3 O'CLOCK ARROW)
SR-369	24 X 36	TO TRUCK ROUTE (9 O'CLOCK ARROW)
SI-277G	36 X 24	TO TRUCK ROUTE (PICTORIAL)
SI-340G	24 X 36	TO TRUCK ROUTE WITH 11 O'CLOCK ARROW
SI-339G	48 X 30	TRUCK ROUTE RIDER (STREET NAME TO BE SPECIFIED)
SR-627, SR-780	Various	TRUCK RESTRICTION / USE ONLY DESIGNATED TRUCK ROUTES EXIT ONLY AT POINT CLOSET TO DESTINATION
SI-102G	30 X 18	TRUCK ROUTE
SR-89	30 X 30	TRUCK ROUTE ---->

Table B7 – Part 5 of 5
NYCDOT Signs Codes and Sizes

Code	Size	Legend
SI-69K, SI-81	Various	TRUCK ROUTE (12 O'CLOCK ARROW)
SI-68K	30 X 30	TRUCK ROUTE (9 O'CLOCK ARROW & 3 O'CLOCK ARROW)
SI-70K	30 X 30	TRUCK ROUTE (9 O'CLOCK ARROW)
SR-82	30 X 30	TRUCK ROUTE < ---- >
SI-817B	42 X 48	TRUCK ROUTE HUNTS POINT MARKET AND INDUSTRIAL PARK <----------
SI-816B	42 X 48	TRUCK ROUTE HUNTS POINT MARKET AND INDUSTRIAL PARK ---------- >
SI-643B	42 X 48	TRUCK ROUTE HUNTS POINT MARKET AND INDUSTRIAL PARK WITH 12 O'CLOCK ARROW
SI-182G, SI-183G, SI-188G, SI-189G, SI-190G	Various	TRUCK ROUTE RIDER (STREET NAME TO BE SPECIFIED)
SI-687B	168 X 126	TRUCK ROUTE TO (INTERSTATE SHIELD) SOUTH WHITESTONE BRIDGE USE EXIT 6A
R5-5L	24 X 30	TRUCK ROUTE TRUCKS OVER 33 FEET WITH LEFT ARROW
R5-5R	24 X 30	TRUCK ROUTE TRUCKS OVER 33 FEET WITH RIGHT ARROW
R5-5S	24 X 30	TRUCK ROUTE TRUCKS OVER 33 FEET WITH VERTICAL ARROW
SI-96G	24 X 30	TRUCK ROUTE W/1 O' CLOCK ARROW
SI-184G	36 X 24	TRUCK ROUTE WITH TRUCK SYMBOL
SR-176	48 X 66	TRUCKS & BUSES RIGHT LANE ONLY NO TRUCKS OR BUSES IN LEFT LANE
SR-1074	48 X 48	TRUCKS KEEP LEFT FOR 7 AVE TRUCK ROUTE
SR-976, SR-977	Various	XX' -XX" CLEARANCE NO COMMERCIAL TRAFFIC