Street Direction Conversion Process and Considerations

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Introduction

The New York City Department of Transportation (NYC DOT) designs, operates, and manages a complex system of over 6,000 miles of roadways throughout the five boroughs of the Bronx, Brooklyn, Manhattan, Queens, and Staten Island. Street direction conversions are investigated by NYC DOT throughout New York City as part of the agency's overall efforts to enhance safety, alleviate traffic congestion, facilitate freight movement and emergency response, encourage multi-modal travel through the development of "complete streets" that serve all users, and to be responsive to community needs and requests for such conversions. Directional street conversions include:

- Conversions of one-way streets to two-way streets;
- Conversions of two-way streets to one-way streets (often a "pair" of one-way streets, where each street accommodates traffic flowing in a separate direction); and
- Reversals of one-way street directions (e.g., from one-way eastbound to one-way westbound traffic flow).

Direction Conversion Process

Investigations of street direction conversion proposals are generally initiated by NYC DOT in response to a request from a local Community Board (CB), but may also result from requests from other City agencies and other NYC DOT units. All other requests (i.e., from citizens) are referred to the local CB for a letter of support to conduct the street direction change investigation. NYC DOT investigates the requested segment(s) by conducting all, or some, of the following tasks, as appropriate:

- Conducting field visits to observe prevailing traffic circulation patterns during peak and off-peak time periods
- Preparing a detailed inventory of all pertinent physical characteristics of the street(s) (e.g., street widths, lane configurations, traffic control devices, on-street parking supply and posted parking regulations, etc.)
- Collecting and analyzing crash data
- Identifying major traffic generators and land uses
- Conducting outreach (formally and/or informally) with residents and other local stakeholders and affected organizations
- Conducting outreach to FDNY, NYPD and/or other affected emergency service providers
- Identifying accessibility needs for key land uses (e.g., schools, hospitals, industrial areas, etc.);
- Collecting data on motor vehicle, walking and bicycling volumes; vehicle speed; transit and bicycling routes; freight movement; parking use; and trip origins and destinations
- Preparing intersection capacity analyses for existing and proposed conditions
- Assessing and analyzing projected traffic re-routing patterns associated with the proposed street direction conversion to ensure safety and operations maintained

Upon completion of the investigation above, NYC DOT then approves or denies the proposed conversion, or recommends one or more alternative conversion proposals. NYC DOT then sends a letter to the local CB stating the results of the investigation, and describing any recommended alternative proposals. The

CB should then independently consider NYC DOT's findings and consult with NYC DOT as necessary. If the CB agrees with the findings, they should convey their support in writing to NYC DOT. Written CB support for proposed street direction changes is desirable. However, NYC DOT reserves the right to change street directions in the interest of ensuring safe and efficient operations for the traveling public.

Following a decision to change a street's direction, NYC DOT then prepares work orders to implement the proposed changes and schedules an implementation date. Work orders include, but are not limited to, changes to signage, markings, and signal infrastructure. NYC DOT then notifies the CB and other affected agencies (i.e., NYPD, FDNY, DSNY, etc.) of the scheduled implementation date. The majority of implementations occur between spring and fall to minimize disturbances to traffic circulation patterns during the school year and avoid inclement weather.

Following implementation, NYC DOT updates the City's digital map to reflect the newly-implemented direction changes. Other entities (i.e., Google) may be notified so that mapping applications commonly used by the traveling public (i.e., Google Maps) can be updated if necessary.

It should be noted that, following completion of NYC DOT's investigation into a requested street direction change, NYC DOT will not reexamine the need for further street direction changes on that street for 18 months.

Street Directional Change Considerations

Because of the continuing evolution of New York City's streets and land use patterns over many decades, there is no "one-size-fits-all" approach to the design of City streets. Each street has its own unique functions, demands, and traveler behavioral patterns. The street design—including the direction of vehicle flows—should be tailored accordingly to meet these needs. Thus, it should be noted that the following factors represent a range of *considerations* that NYC DOT evaluates when considering street direction changes, rather than strict *criteria*:

- ***Street Width*** – In order to accommodate one lane of traffic in each direction, plus on-street parking on both sides of the street, a curb-to-curb street width of 40 feet is desirable. Streets with widths less than 40 feet, particularly high-volume streets, are potential candidates for one-way conversions, since narrower streets in certain contexts may increase the potential for head-on and sideswipe crashes with two-way operation. It should be noted that many low-volume local streets in NYC operate safely with curb-to-curb widths less than 40 feet due to low frequencies of opposing traffic movements or low operating speed.

- ***Safety*** – Intersections involving the convergence of multiple two-way streets and multiple one-way streets can both be designed to operate safely. Roadway design and signalization techniques can be implemented to separate conflicting motor vehicle, bicycling and walking streams either physically (e.g., dedicated turning-only lanes) or in time (e.g., separate phases at traffic signals). However, there are fewer vehicle-vehicle and vehicle-pedestrian conflicts at intersections where the intersecting traffic flows move in only one direction. This can help improve intersection operations and safety by reducing the need for complex traffic signal phases, provide greater signal time and/or protection to crosswalks, and reducing traffic signal cycle lengths to improve compliance and convenience.

- ***Opportunities for Multi-Modal Improvements*** – By eliminating traffic flow in one direction, street conversions from two-way to one-way often create opportunities for enhancing the streetscape and incorporating multi-modal improvements (e.g., restoration of on-street parking

spaces, curb extensions, bicycle lanes, increased walking circulation spaces, etc.). Conversely, conversion of low volume roads from one-way to two-way operation may provide traffic calming and improve overall safety.

- ***Avoidance of Head-On Conditions –*** At intersections where two one-way streets meet in opposing directions or where a two-way street intersects opposite a one-way street entering the intersection, a "head-on condition" exists. Under these circumstances, at least one direction of traffic flow approaching the intersection cannot continue straight and instead must turn left or right. Because of the potential for introducing wrong-way head-on crashes under these circumstances, NYC DOT seeks to avoid these head-on conditions when opportunities to do so arise. However, due to other considerations, head-on conditions are sometimes unavoidable. "DO NOT ENTER" signs are required to discourage wrong-way travel at such intersections.

- ***Special Land Uses*** – Schools, day care centers, senior facilities, houses of worship, and other similar land uses that routinely have the need for curbside drop-off/pick-up or busing activity benefit from "right-side" curb access, whereby the passenger side doors open directly onto the sidewalk, rather than into the street (where passengers are exposed to moving traffic in the adjacent travel lane). This consideration often governs the direction of traffic flow on a one-way street, and may also require that an existing two-way street remain two-way to accommodate the drop-off/pick-up needs of user groups accessing such land uses. Land uses providing critical emergency services (e.g., hospitals, fire houses) may benefit from two-way traffic flow on abutting streets in order to reduce response times.

- ***Functional Classification*** – The function of each street within the overall transportation network is also considered. Streets with higher functional classifications (e.g., Expressways, Arterials) provide a higher mobility function within the transportation network than streets of lower functional classification (e.g., Collectors, Local Streets). As such, they are of critical importance to maintaining regional and neighborhood connectivity. Therefore, it is important that these streets maintain two-way traffic flow (or, alternatively, are "paired" with another parallel street of a similar classification that can accommodate travel in the opposite direction; see "*Traffic Circulation Patterns*" below).

- ***Access Needs for Abutting Properties*** – Most streets serve both a "property access" function and a "through-traffic mobility" function, with the balance between these two functions determined by the street's functional classification (i.e., Expressway, Arterial, Collector, Local Street). Two-way streets offer those operating motor vehicles and bicycling a greater degree of flexibility for access to and from abutting properties, since property access is allowed from both directions, rather than only one direction. However, where curb cuts exist to provide vehicular access to/from abutting properties, a greater number of turning conflicts exist on a two-way street as compared to a one-way street.

- ***Traffic Circulation Patterns*** – Street conversions from two-way to one-way result in changes to traffic circulation patterns, since it may require some operating motor vehicles and bicycling to take longer and/or more circuitous routes to reach the same destination under the one-way configuration. Thus, a one-way street configuration may incrementally increase travel distances (i.e., "vehicle-miles-traveled" or VMT) and associated travel times. For this reason, NYC DOT often seeks to "pair" two one-way streets located in close proximity—or establish an alternating directional pattern for an entire network (e.g., the Midtown Manhattan grid)—to help minimize these negative effects and maintain accessibility within the street network without requiring significant out-of-direction travel.

- ***Bus Routes*** **–** Proposed street direction changes must account for the presence of, and potential effects on, existing and planned bus routes. This mainly includes city buses and routes operated by MTA Bus/NYC Transit, but may also include school bus, intercity bus, and tourist bus routes. Under these circumstances, accommodations are made to ensure transit service and connectivity is maintained. NYC DOT coordinates closely with MTA Bus/NYC Transit and local schools to understand their busing services, facilities and needs. MTA Bus/NYC Transit must support proposed street direction conversions on streets along their routes. If bus service cannot be modified or adjusted to their satisfaction, a street direction conversion will usually not be pursued.

- ***Truck Routes*** **–** NYC DOT's designated Truck Route Network comprises a system of "local" and "through" truck routes that have been established to meet the needs of local and regional goods movement, while seeking to minimize the impact of excessive truck traffic on residential neighborhoods. As such, street direction conversions that involve designated Local and Through truck routes are carefully considered by NYC DOT to minimize potentially negative consequences on goods movement, as well as impacts on residential neighborhoods and other sensitive local land uses. Truck routes may be modified accordingly.