

Canal Area Transportation Study (CATS)

Public Review Meetings
January 19, 2011

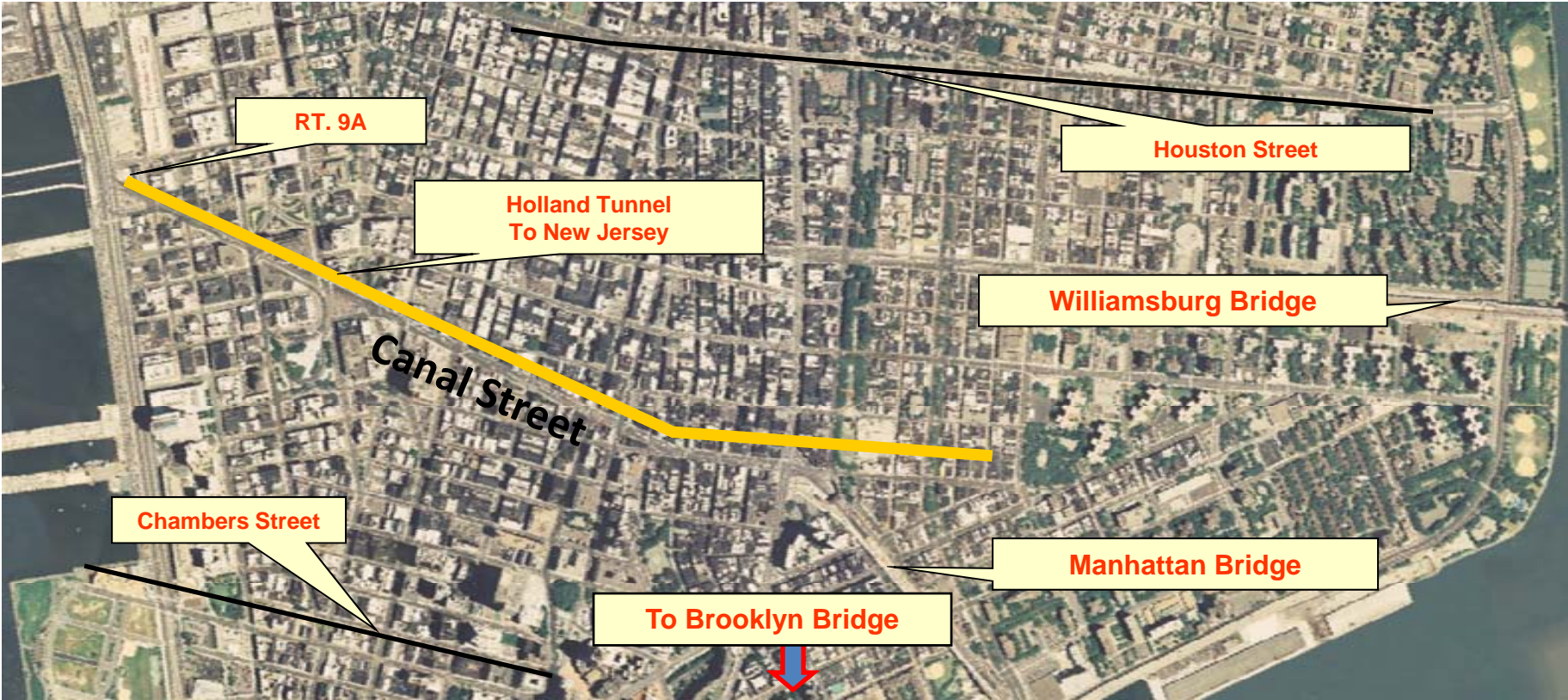


Study Context

- Unique role of Canal Street as a regional link and a community “main street.”
- Community proposal to use CMAQ funding to address congestion.
- Planned Canal Street reconstruction.



Study Area



Why CATS?

- Address traffic and pedestrian congestion in the study area, particularly along Canal Street, and
- Identify and propose measures to address significant transportation-related safety issues in the study area, particularly along Canal Street.



CATS Components

- 2003 through 2004 – Track 1
 - Informal, focused on short-term improvements
 - Community workshops
 - Short-term agenda for agency implementation
- 2005 through 2007 -- Track 2
- 2008 through 2010 – Supplemental work
- November/December 2010 – public review of draft final recommendations

CATS Track 1: Key Aspects

- Identify short-term measures to improve safety, infrastructure and mobility in the study area, and particularly along Canal Street.
- Use community outreach and agency involvement to develop a short-term action agenda.



CATS Track 2: Key Aspects

- Longer-term regional, multimodal transportation study.
- Identify and develop medium- and long-term improvements and an “urban design” framework.
- Goal of reducing or diverting traffic from the Canal Street corridor.



CATS Supplemental Work: Key Aspects

- Micro-simulation of selected alternatives:
 - One-way pair alternative
 - Adjusted two-way alternative
- Detailed parking and traffic analyses.
- Provided results for individual links, intersections and block faces.



Medium-Term Recommendations

- Adjusted two-way alternative is the preferred alternative for the Canal Street Reconstruction Project, in conjunction with:
 - Manhattan Bridge HOV lane (in operation)
 - Traffic management measures to encourage more optimal use of water crossings
 - Urban Design Framework Plan and Parking Management Plan
 - Continuation of current limitations on allowable truck types at Holland Tunnel



Direct Short-Term Accomplishments

- Canal Street repaving and high visibility cross walks
- Signal retiming
- Streetlight repair and cleaning and pedestrian-scale enhanced lighting
- Holland Tunnel and Manhattan Bridge signage
- Enforcement discussions
- Transportation elements of triangle park near Varick Street
- Allen Street short-term improvements
- Pedestrian crossing signage for Canal Street



Peripheral Short-Term Developments

- Street vendor task force
- Chinatown Partnership LDC
 - Clean Street Team
- Information kiosk at the Baxter triangle
- Pilot Muni-Meter installations
- Intercity bus and commuter van – stop locations
- Holland Tunnel bus routing discussions
- Holland Tunnel large truck prohibitions



Open Short-Term Recommendations

- Pedestrian underpass demo at “A, C, E” subway station (Canal & Ave of Americas)
- Red light cameras for Canal Street at Greenwich Street and/or Hudson Street (pending program expansion)



Short-Term Recommendations Requiring LDC or BID Involvement

- Instituting any street closures for vendor spaces
- Implementing a neighborhood shuttle



CATS Track 2 Approach

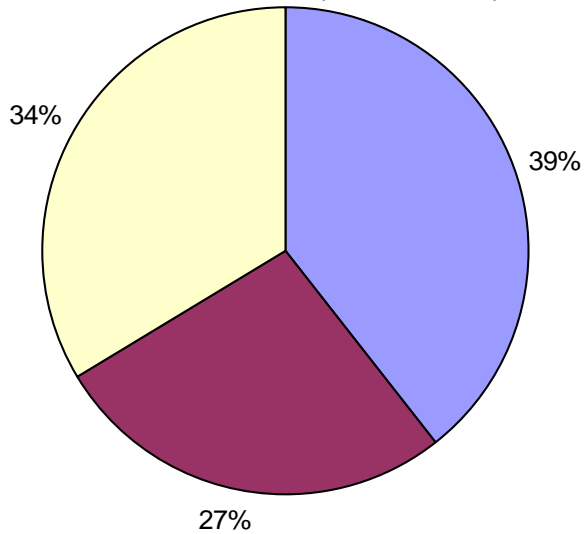
- In-depth data collection and analysis
- Anticipated future land uses
- Guiding Principles:
 - Quality of Life
 - Accessibility
 - Mobility
 - Safety
 - Implementable by NYMTC member agencies
- On-going community involvement

CATS Data Collection

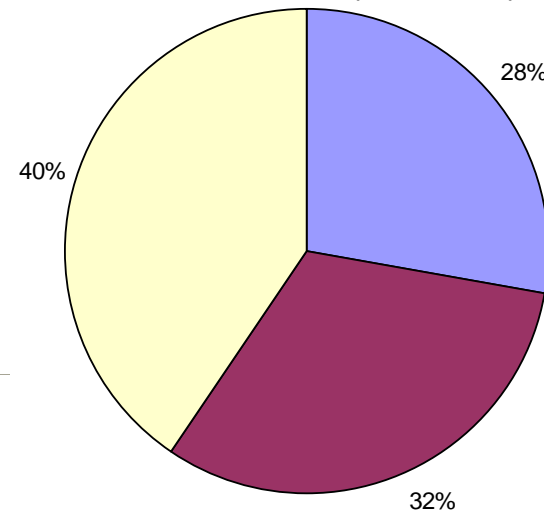
- Extensive data collection
 - Parking survey
 - Origin-destination (O-D) survey
 - Vehicular and pedestrian counts

Travel Patterns in the Canal Street Corridor

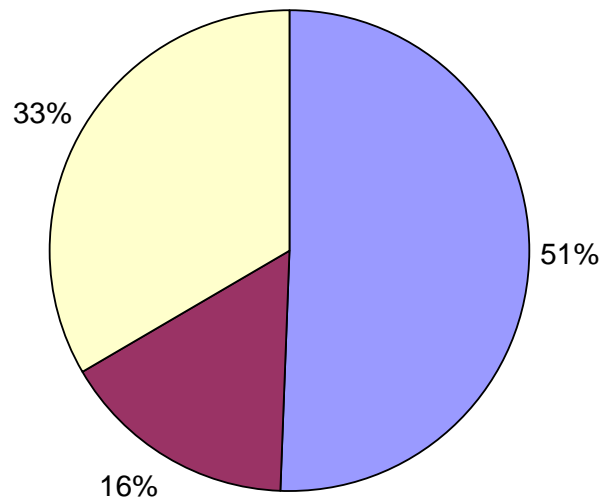
AM Peak Period (6:30-10:30)



PM Peak Period (3:00-7:00)



Sunday Peak Period (2:00-6:00 PM)



- Local Origin and/or Destination
- Manhattan Origin and/or Destination Outside of Study Area
- Through Manhattan

CATS II

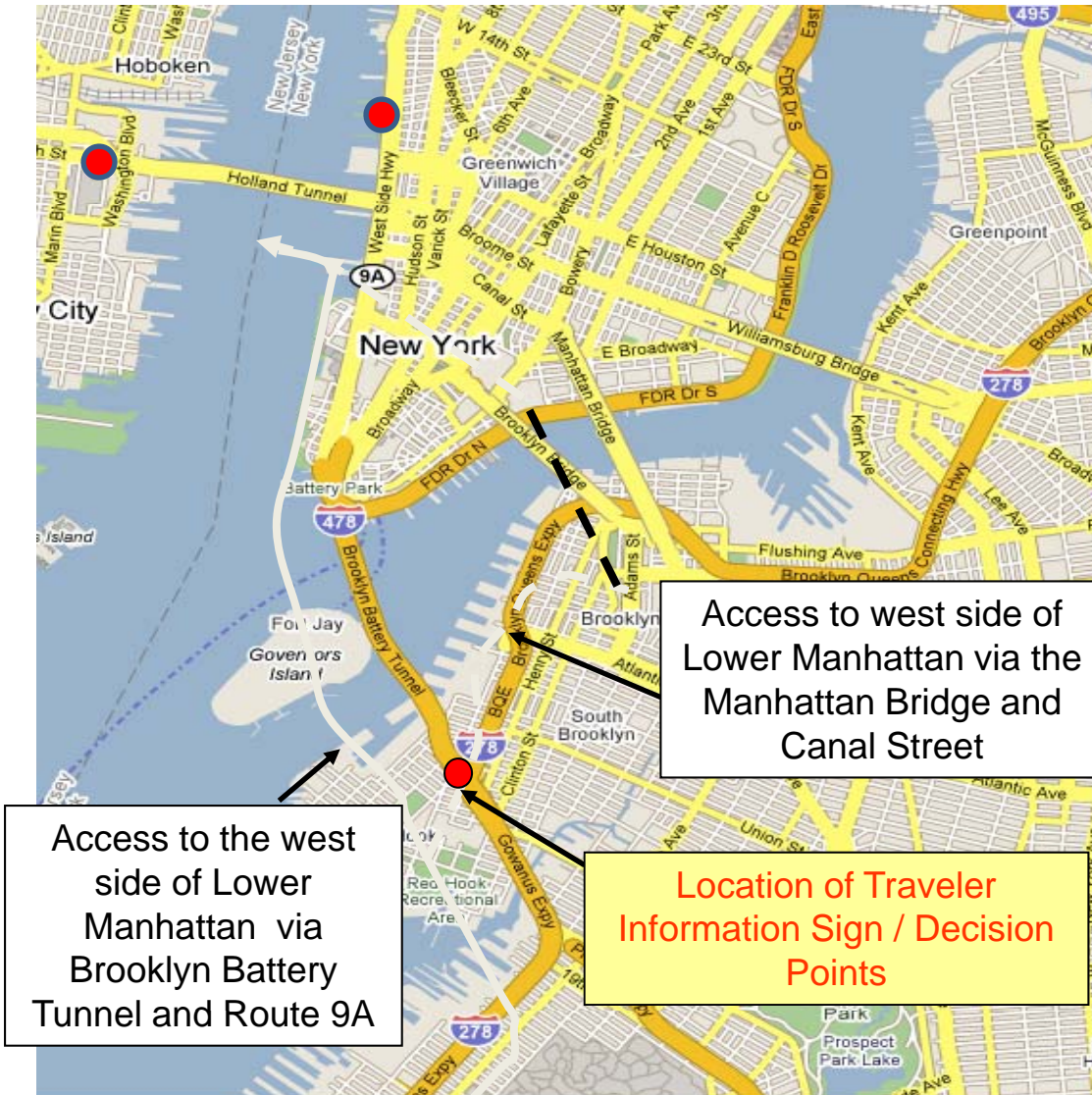
Traffic Reduction/Diversion Scenarios

- Management techniques that can be implemented under the authority of the NYMTC member agencies whose jurisdictions include the CATS study area
 - Built using the input received from the study committees and through the Community Involvement Program
 - Reduced or diverted traffic could provide flexibility in identifying potential pedestrian, operational, and safety improvements

Level One Scenarios

- Diversion to the Brooklyn Battery Tunnel
- Holland Tunnel AM HOV3+ Priority Lane Inbound, PM HOV 3+ Priority Access Plan Outbound
- Manhattan Bridge AM HOV2+ Lower Level Inbound
- One-way Pair (Canal St EB, Grand St WB)

Diversion to the Brooklyn-Battery Tunnel



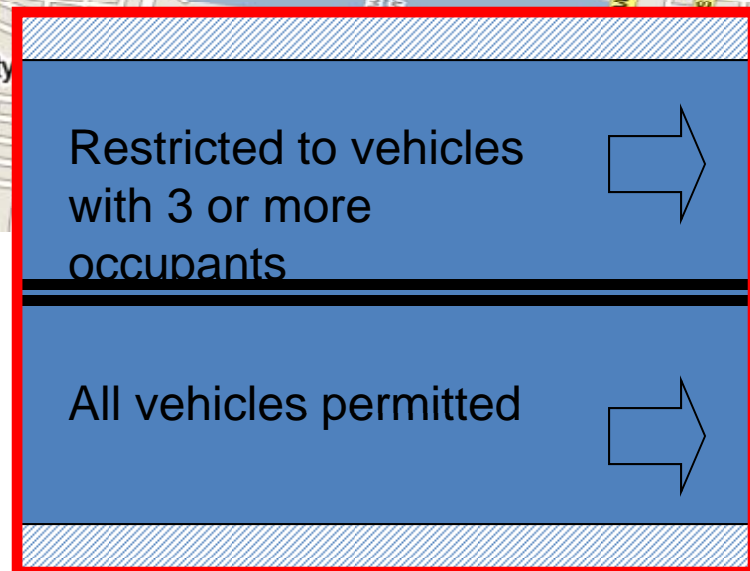
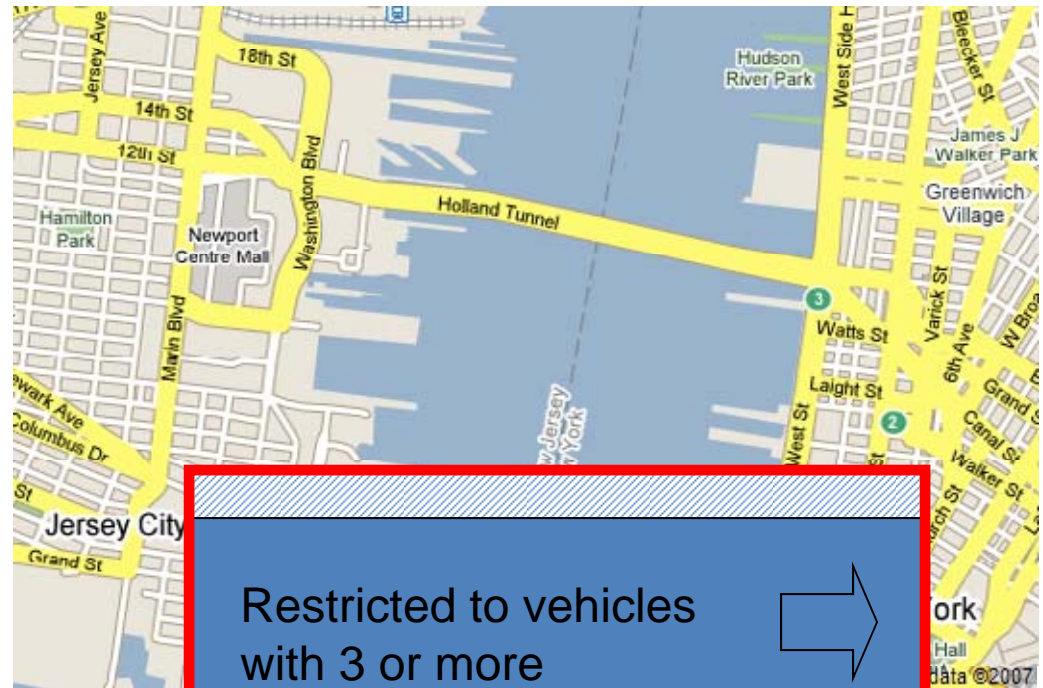
- Traveler Information Sign located on the Gowanus Expressway displaying travel times to the Holland Tunnel
- Other locations could include the approach to the Holland Tunnel in New Jersey and Route 9 north of Canal Street in Manhattan

Possible Traveler Information Sign Design

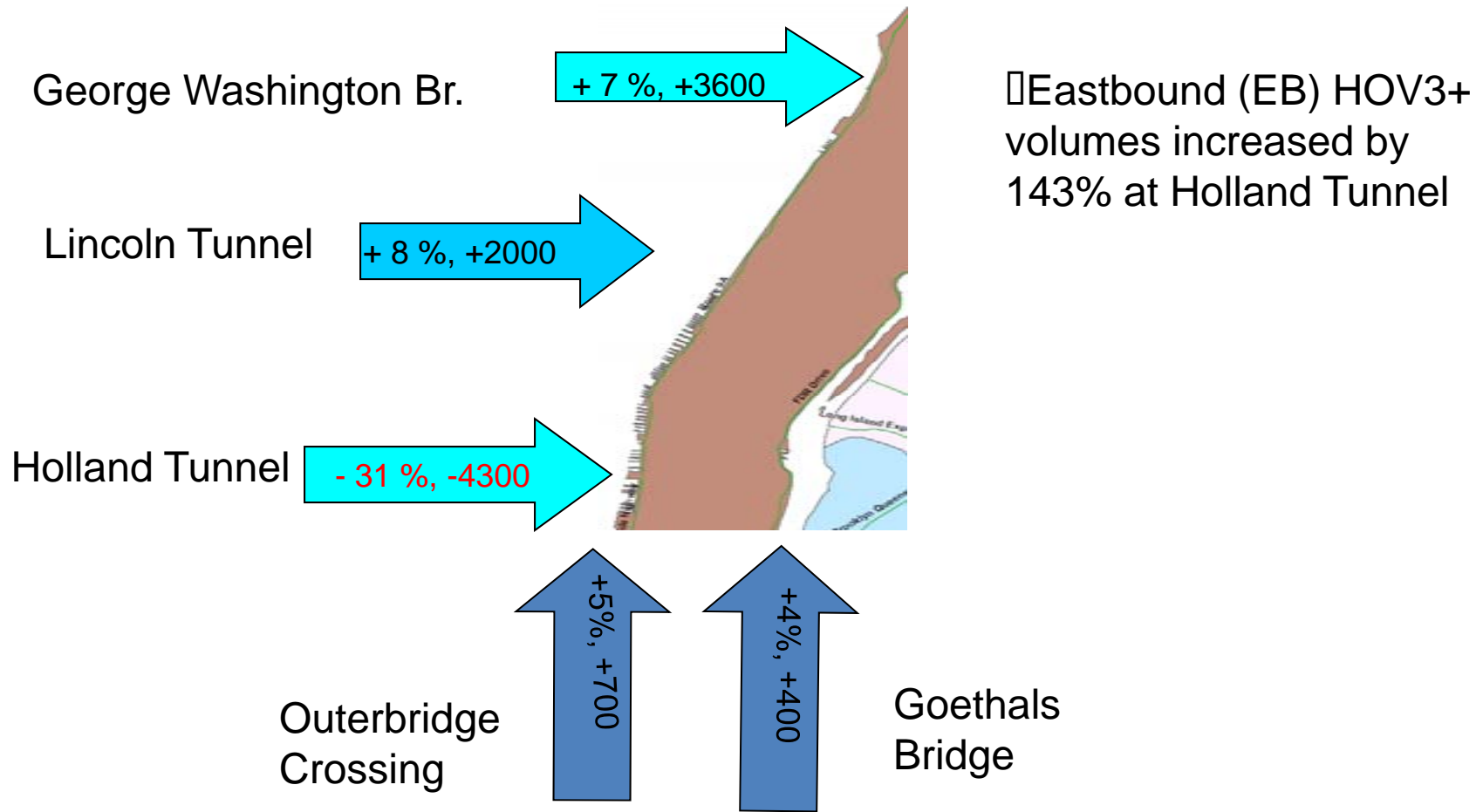


CATS Track II Level One Analysis: Holland Tunnel HOV3+ Restrictions

- Eastbound morning priority lane for vehicles with three occupants or more
- Westbound afternoon priority tunnel access for vehicles with three occupants or more



Analysis Results: Volume Changes at Crossings from New Jersey (EB AM)



***Volume changes in comparison to 2030 No-Build traffic volumes 6AM to 10AM*

Analysis Results: Holland Tunnel HOV3+ Lane

- Eastbound (EB) HOV3+ volumes increased by 143% (2,000 vehicles) at Holland Tunnel
- Causes significant diversions to other trans-Hudson crossings such as the Lincoln Tunnel and George Washington Bridge as well as the Staten Island crossings.
- Congestion relief near Holland Tunnel in Manhattan mostly offset by excess traffic shifting from other streets nearby

RESULT: Could not be considered as a stand-alone corridor strategy given regional impacts

CATS Track II Level One Analysis: Manhattan Bridge HOV2+ Restrictions

- Westbound AM priority for vehicles with two occupants or more on the bridge's lower level



←	Upper Level to Manhattan	All vehicles permitted	
←	Lower Level to Manhattan	Restricted to vehicles with 2 or more occupants	
	Upper Level to Brooklyn	All vehicles permitted	→
			→

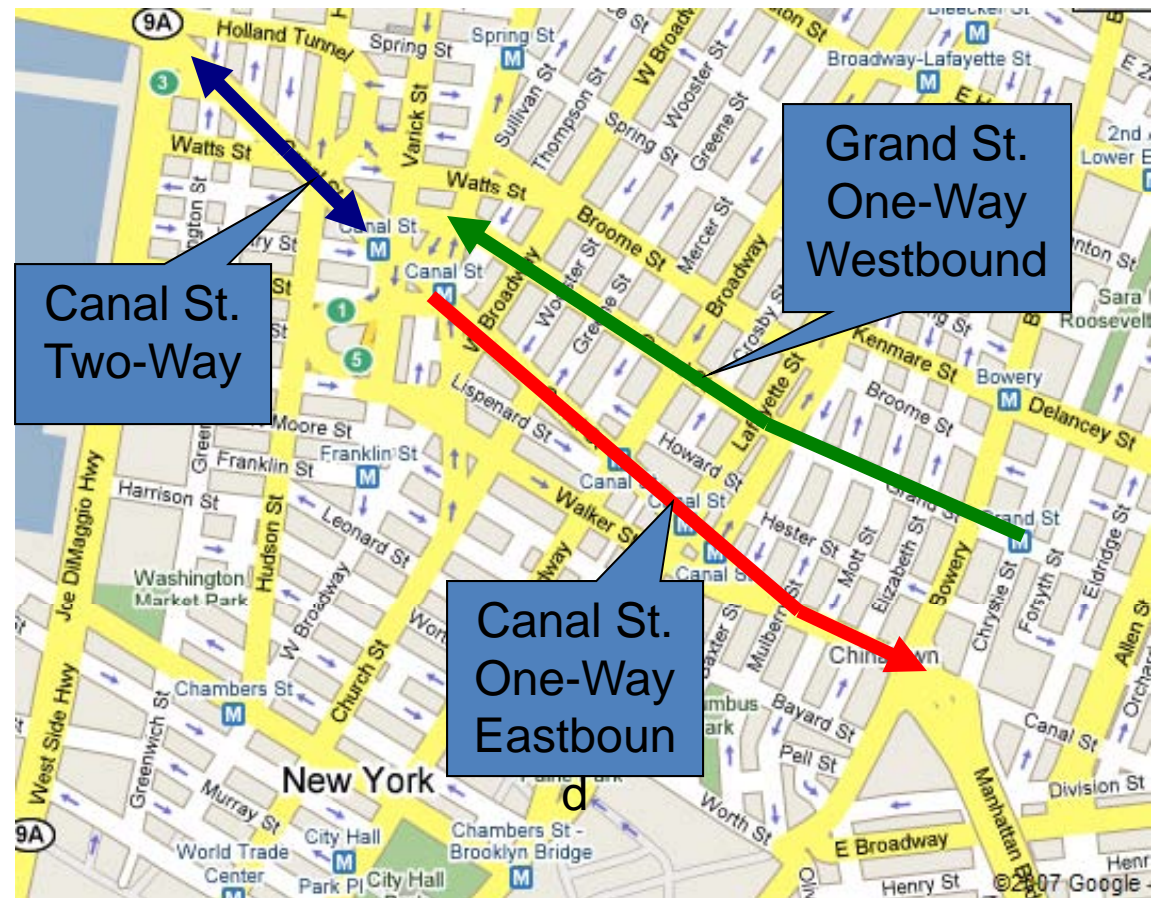
Status: Manhattan Bridge HOV2+ Restrictions

HOV lane on the Manhattan-bound upper-level of the Manhattan Bridge implemented on *October 1, 2007*



CATS Track II Level One Analysis: Canal Street/Grand Street One-Way Pair

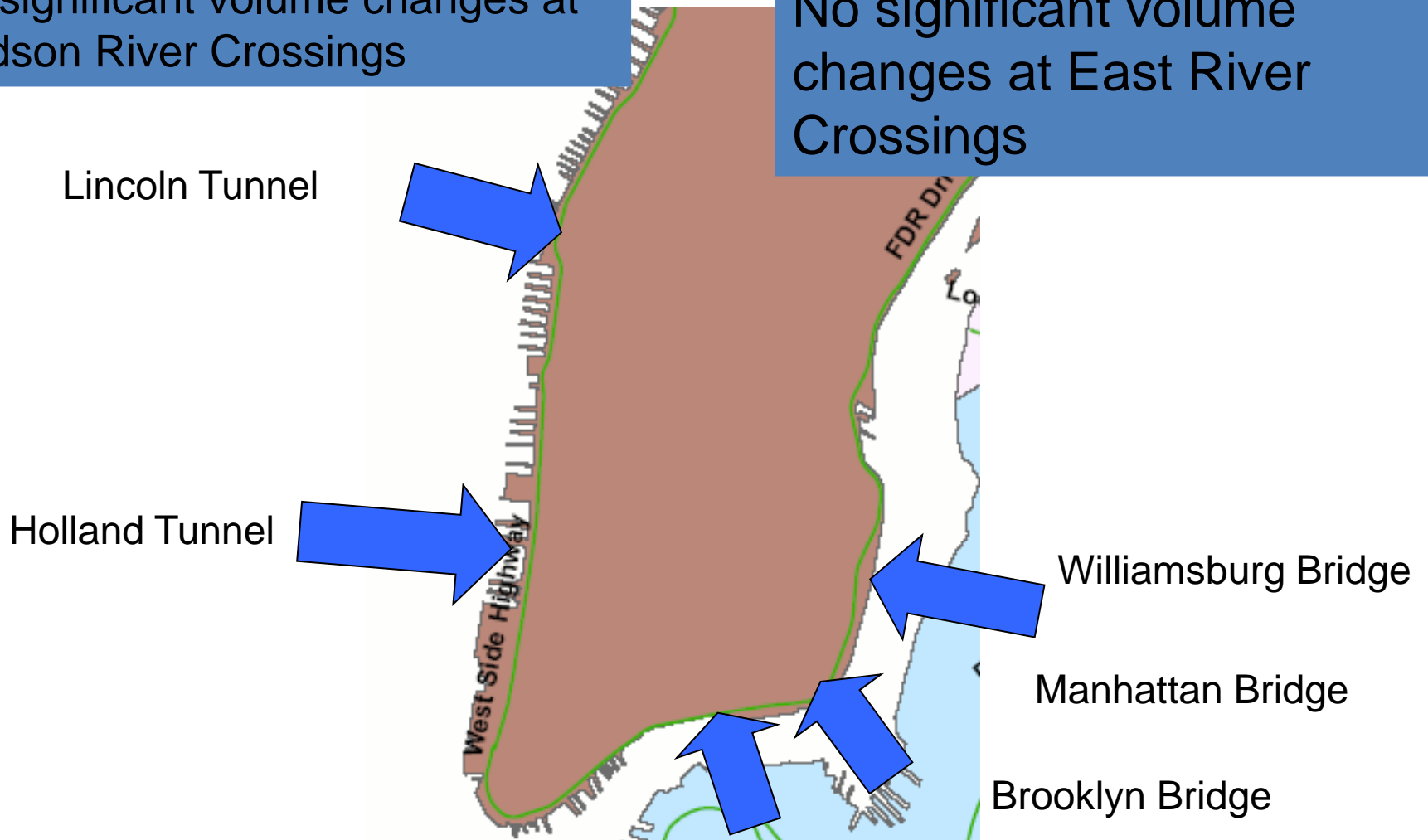
- Canal Street one-way eastbound (Avenue of the Americas to the Bowery)
- Grand Street one-way westbound (Chrystie Street to Avenue of the Americas)



Analysis Results: Volume Changes at East and Hudson River Crossings

No significant volume changes at Hudson River Crossings

No significant volume changes at East River Crossings

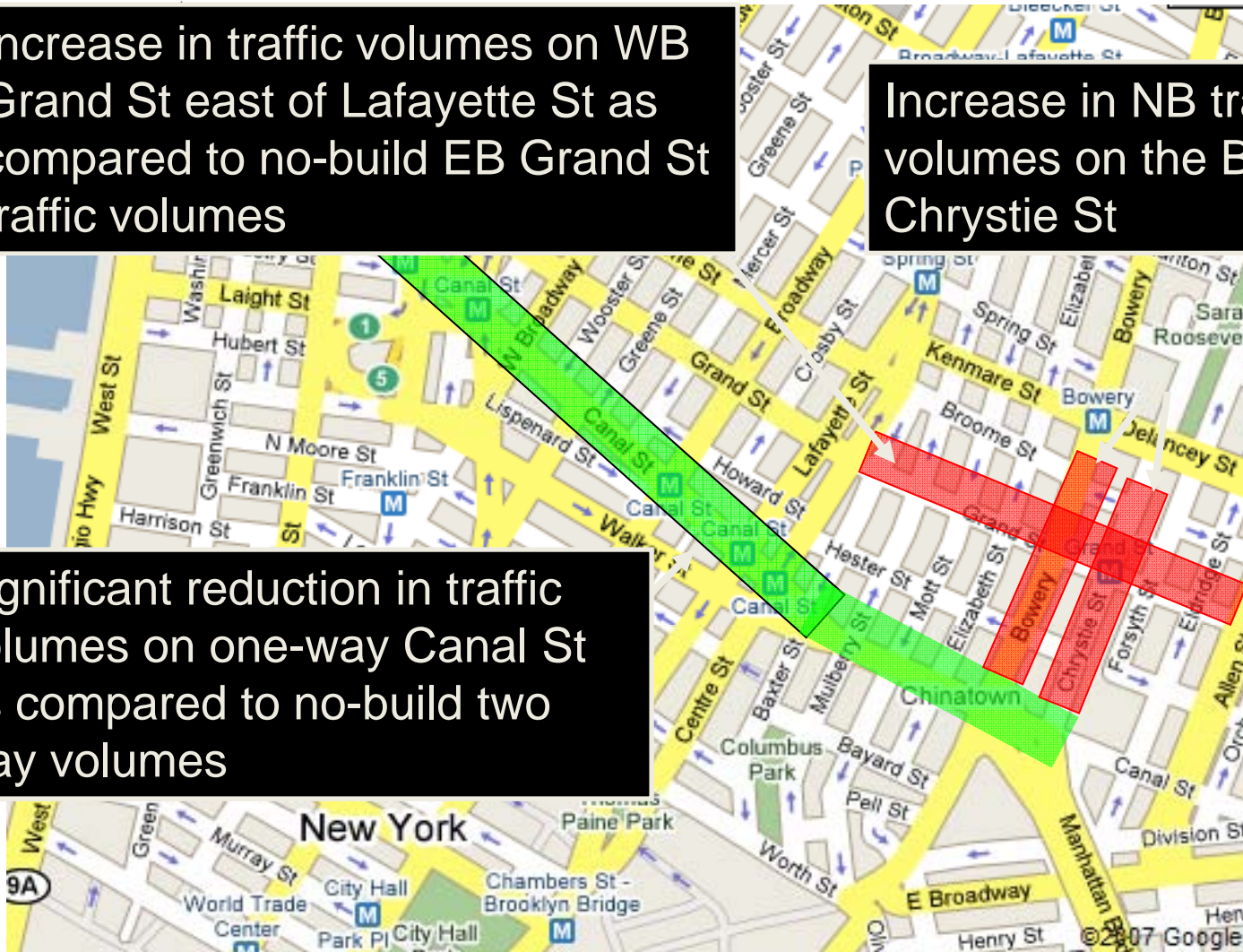


Analysis Results: Volume Changes on Study Area Roadways (AM)

Increase in traffic volumes on WB Grand St east of Lafayette St as compared to no-build EB Grand St traffic volumes

Increase in NB traffic volumes on the Bowery and Chrystie St

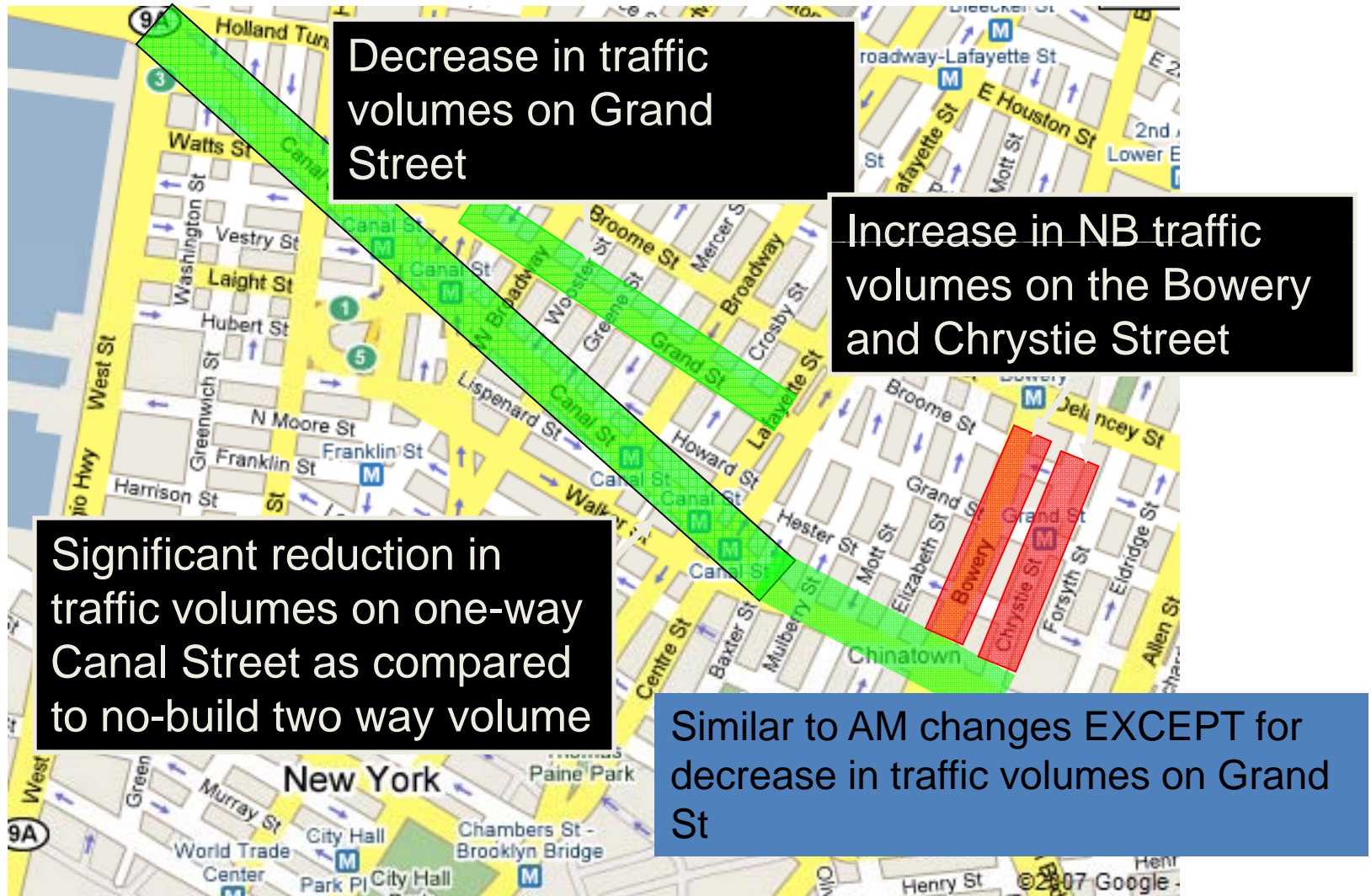
Significant reduction in traffic volumes on one-way Canal St as compared to no-build two way volumes



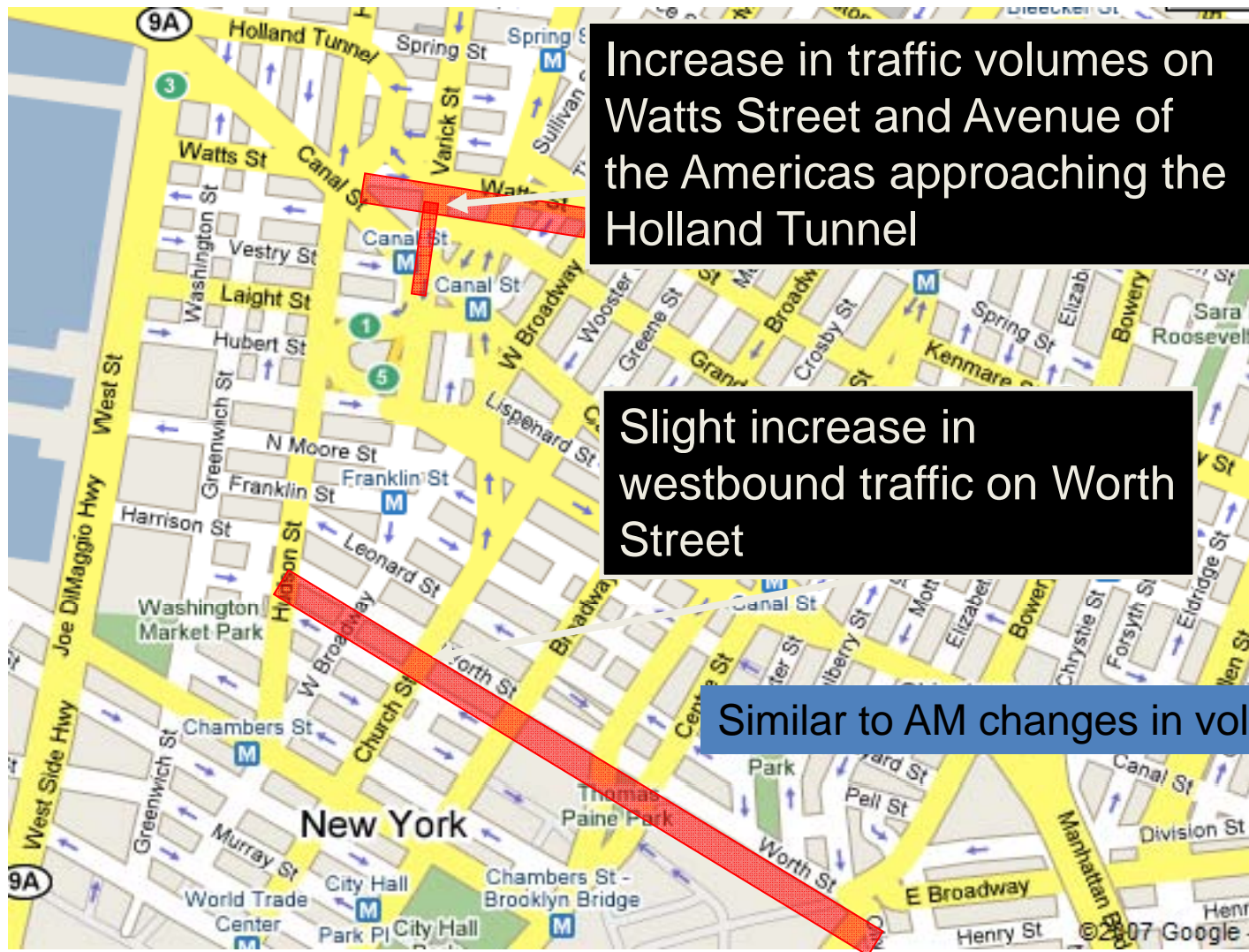
Analysis Results: Volume Changes on Study Area Roadways (AM)



Analysis Results: Volume Changes on Study Area Roadways (PM)



Analysis Results: Volume Changes on Study Area Roadways (PM)



Increase in traffic volumes on Watts Street and Avenue of the Americas approaching the Holland Tunnel

Slight increase in westbound traffic on Worth Street

Similar to AM changes in volume

Analysis Results: Canal Street/Grand Street One-Way Pair

- No significant changes at either the Hudson River or East River crossings.
- Volumes significantly decrease on Canal Street AM and PM
 - Would allow for wider sidewalks
 - Would allow for other operational and safety improvements
- Volumes increase on Grand Street in the AM, decrease in PM
 - AM volume increase may cause impacts that require mitigation
 - PM tunnel queue would affect Grand St

RESULT: Testing with traffic simulation needed for complete assessment

CATS Track II Level Two Analysis

- Scenarios were tested in combination to identify synergy and compatibility:
 - Holland Tunnel HOV analyzed in combination with Canal Street-Grand Street one way pair
 - Manhattan Bridge HOV analyzed in combination with Canal Street-Grand Street one way pair
 - Both HOV concepts analyzed in combination with the one-way pair

Congestion Pricing and CATS II

- Proposed in 2007
- Congestion Pricing alternatives were examined by the Congestion Mitigation Commission (CMC)
- In 2008, the NYS State Legislature chose not to act on the recommendation of the CMC to implement Congestion Pricing
- CATS moved forward without Congestion Pricing as an option
- Congestion pricing in place at PA crossings weekday & weekends

Alternatives Advanced to Micro-Simulation

- No Build
 - One-Way Pair Alternative
- Adjusted Two-Way Alternative

Micro-Simulation Model

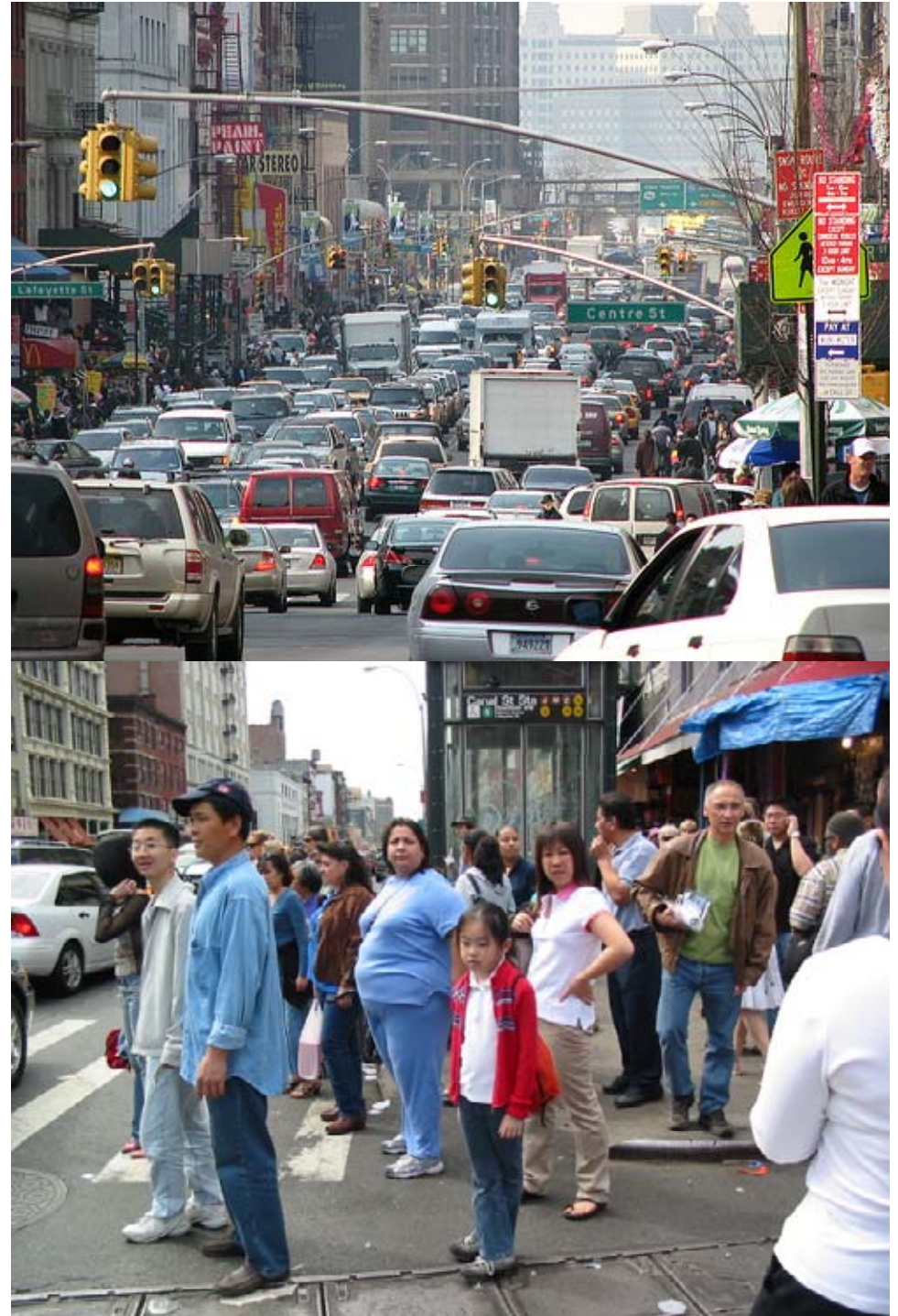
- Analysis Year 2030
- Modeling undertaken based on the results of regional model (NYMTC Best Practice Model)
- Provided results for individual links, intersections and movements

Micro-Simulation Model Coverage Area



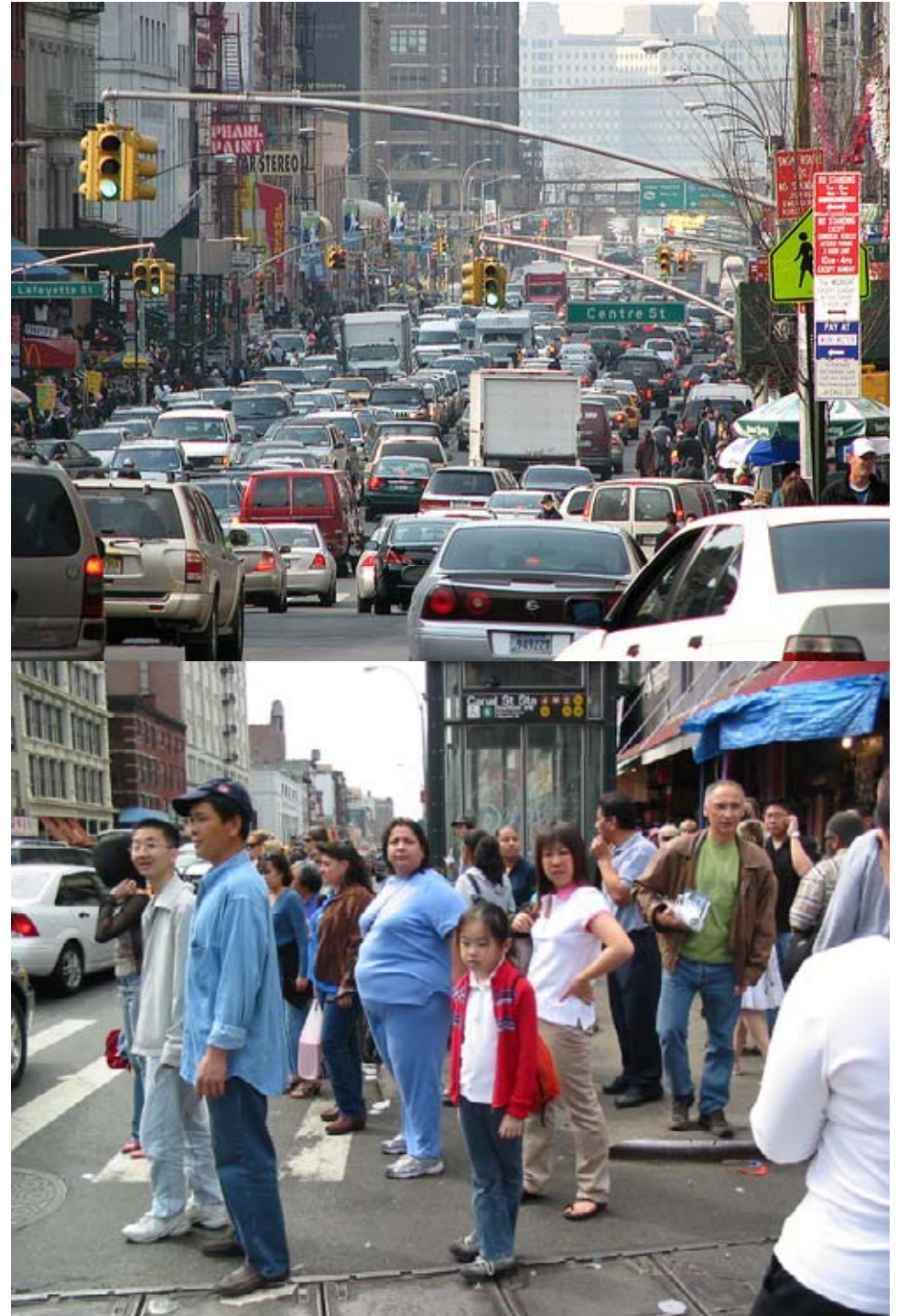
No-Build Conditions

Projected growth in
traffic volumes based
on NYMTC Best
Practice Model
projections



Findings: No-Build Conditions

- Existing transportation conditions worsen generally, but particularly:
 - On Canal St
 - At the Manhattan entrance to the Holland Tunnel
- Average vehicle speeds at or below 10 mph during peak periods.
- No improvement for pedestrian and traffic safety



One-Way Pair Alternative

- Canal Street one-way eastbound (Avenue of the Americas to the Bowery)
- Grand Street one-way westbound (Chrystie Street to Varick Street)

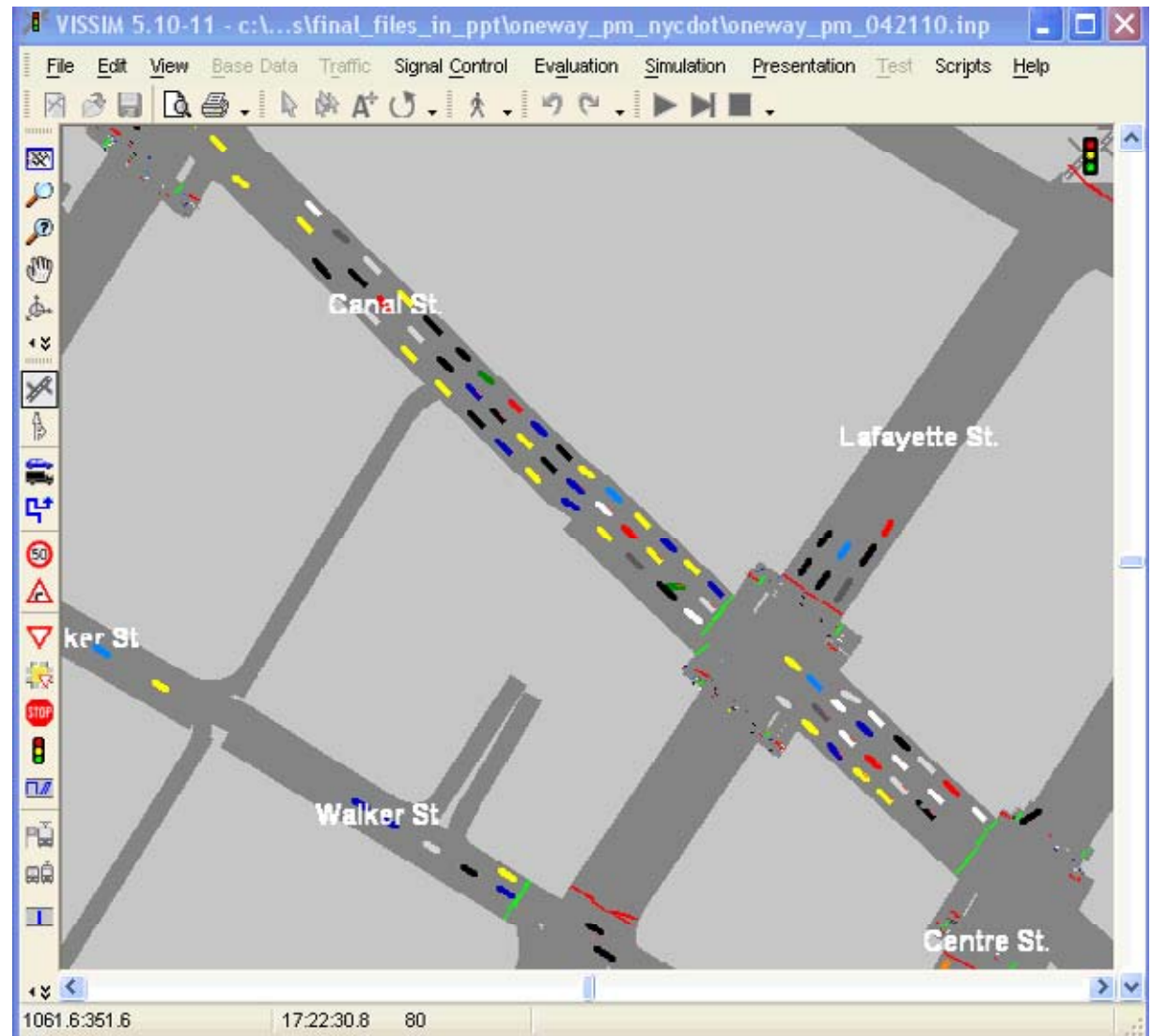


Details of the One-Way Pair Alternative

- Three-lane minimum section on eastbound Canal Street
- Sidewalk extensions on northern and southern sidewalks along Canal Street
- Parking restrictions on Grand Street to provide three travel lanes
- Provision of left-turn lane and signal phase for northbound left from Bowery onto Grand Street
- Pedestrian and traffic improvements at the Bowery

Findings: One-Way Alternative

- Insufficient eastbound capacity
- Provides opportunities for selected sidewalk widening
- Traffic issue on Canal Street during PM peak
- Traffic issue on Spring Street during PM and Sunday peaks



Adjusted Two-Way Alternative

- Left-turn restrictions:
 - Canal Street between Elizabeth and Lafayette Streets
 - Eastbound Canal Street at West Broadway and at Greene Street
 - Westbound Canal Street at Broadway

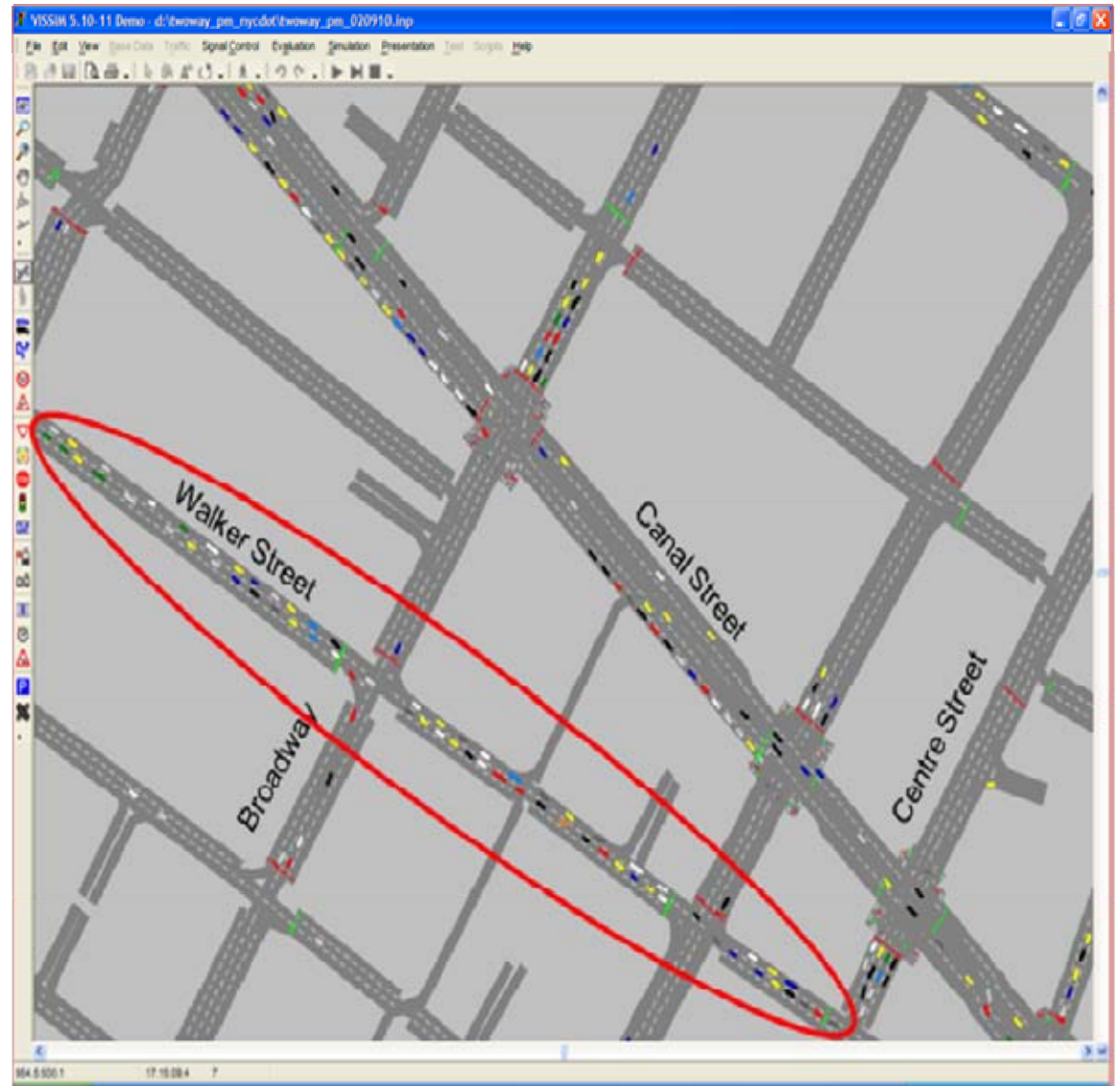


Details of the Adjusted Two-Way Alternative

- Left-turn restrictions:
 - Canal Street between Elizabeth and Lafayette Streets
 - Eastbound Canal Street at West Broadway and at Greene Street
 - Westbound Canal Street at Broadway
- Curb extensions at selected intersections along the northern and southern sides of Canal Street
- Modification of Canal Street cross section between Broadway and Avenue of the Americas
- Pedestrian and traffic improvements at the Bowery

Findings: Two-Way Alternative

- Maintains or improves projected traffic conditions
- Provides opportunities for selected sidewalk widening
- Potential traffic issue on Walker Street during PM peak



Conclusions of Canal Street Micro-Simulation Analysis

- No-Build Conditions: existing transportation conditions worsen with no improvement for pedestrian and traffic safety.
- Adjusted Two-Way Alternative: appears to balance vehicular and pedestrian needs.
- One-Way Pair Alternative: results in issues with eastbound capacity.

Actions Advanced During Track II and Supplemental Phase

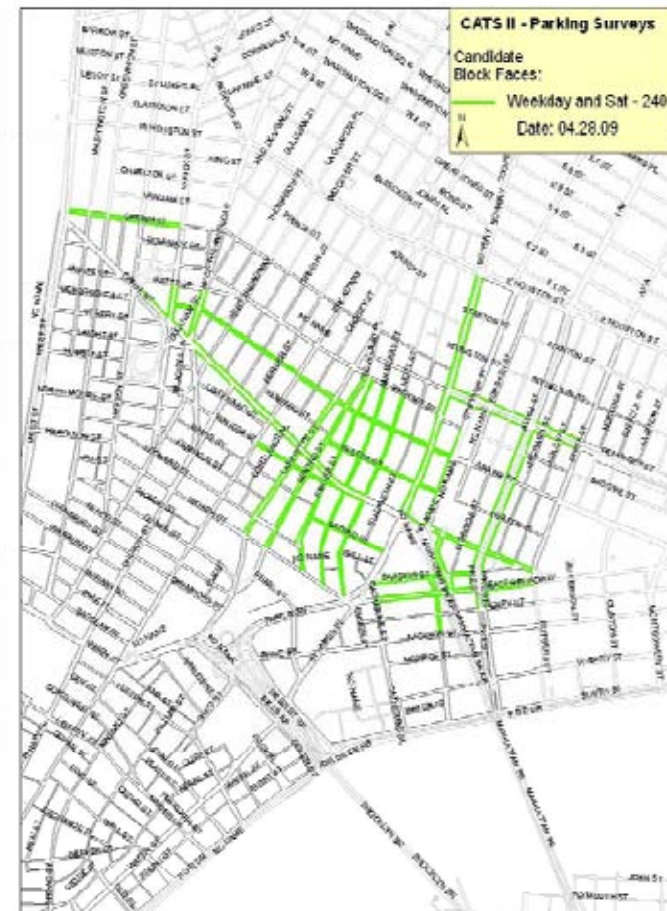
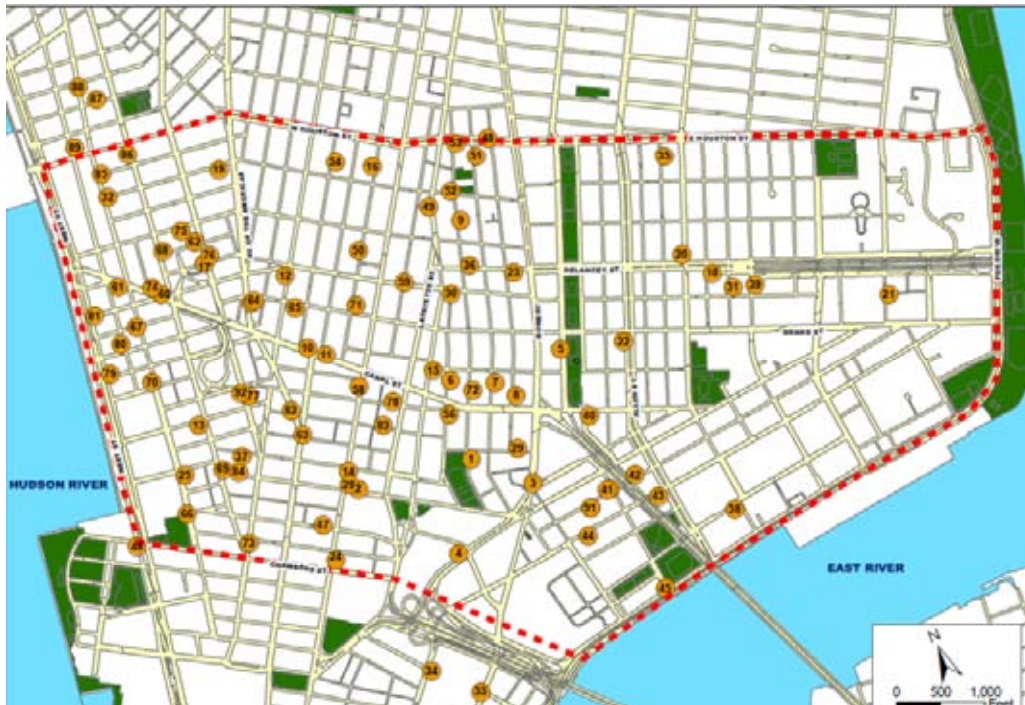
- Implemented by Member Agencies
 - Manhattan Bridge HOV Lane
 - Midblock crossing on East Broadway and bulb-outs
 - Traffic signal at Worth Street and Baxter Street
 - Muni-meters
 - Canal Street pedestrian lighting
 - Holland Tunnel trucks: Only single unit, 2 -3 axle, both ways
- Programmed by Member Agencies
 - Bowery median (Canal St to East Broadway)
 - James Madison Park improvements
 - Park Row pedestrian improvements

Parking Management Plan & Urban Design Framework Plan

- **Parking Management Plan**: Provides goals, objectives & strategies to enhance parking management in the study area.
- **Urban Design Framework Plan**: Illustrates opportunities to improve safety & pedestrian flow and enhance the streetscape.

Parking Management

- On-street and off-street parking data collection
- Parking Management Plan



Parking Management Plan

- Demand
- Location
- Time
- Price
- Supply

Data collected for CATS II will be used in developing the details of the parking plan



CATS II Urban Design Framework Plan for Canal Street

- Identifies typical street section conditions along Canal Street based on alternatives and illustrates opportunities for improving pedestrian flow and streetscape.
- Identifies urban design elements that could be improved and new elements introduced along the Canal Street corridor.
- Uses guidance from the NYCDOT Street Design Manual and World Class Streets Report

Urban Design Concepts



■ EXISTING CONDITION



■ ILLUSTRATION OF IMPROVEMENT WITH CURB EXTENSION

Next Steps

- Release of full final report and public review meeting
- Presentations requested by community boards
- On-going coordination among the implementing agencies to address the range of functions that Canal Street serves
- Progressing the preferred alternative as part of the reconstruction of Canal Street
- Continuing efforts to manage traffic in the vicinity of the Holland Tunnel