

# Route 440/Routes 1&9T Multi-Use Urban Boulevard and Through Truck Diversion Concept Development Study Abstract and Executive Summary

Prepared for:



**The City of  
Jersey City**

Prepared by:  
**Jacobs Engineering Group Inc.**

In association with:  
**The RBA Group, Inc.**

**Malick & Scherer, P.C.**

**Hunter Research, Inc.**

**A. Strauss-Wieder, Inc.**

**SkyComp, Inc.**

**TechniQuest, Inc.**

**Cooper Aerial, Inc.**



May 2011

This document was prepared under contract with the New Jersey Department of Transportation, with funding from the U.S. Department of Transportation, Federal Highway Administration. The New Jersey Department of Transportation and the United States Government assume no liability for its contents or its use thereof.



**Route 440/Routes 1&9T Multi-Use Urban Boulevard and Through Truck Diversion  
Concept Development Study**

---

(This Page Left Intentionally Blank)

---



## ACKNOWLEDGEMENTS

### City of Jersey City

Jerramiah T. Healy, Mayor



#### City Council

Peter Brennan, Council President  
Kalimah Ahmad, Councilwoman-at-Large  
Ray Velazquez, Jr, Councilman-at-Large  
Michael Sottolano, Ward A Councilman  
David Donnelly, Ward B Councilman  
Nidia Lopez, Ward C Councilwoman  
William Gaughan, Ward D Councilman  
Steven Fulop, Ward E Councilman  
Viola Richardson, Ward F Councilwoman

#### Planning Board

Michael Ryan, Chairman  
Leon Yost, Vice Chairman  
Nidia Lopez, Councilwoman  
Larry Eccleston  
Michael Jenner  
Karen McIntyre  
Franklyn Perez  
Roseanna Petruzzelli  
Madeline Romano  
Michael Sims

#### Chief of Staff

Rosemary McFadden

#### Director of Housing, Economic Development and Commerce

Carl Czaplicki

#### Planning Director

Robert D. Cotter, AICP/PP

---



**PROJECT TEAM**

**City of Jersey City, Project Lead**

**Project Director**

Douglas J. Greenfeld, AICP/PP

**Deputy Project Manager**

Naomi Hsu, AICP/PP

**Intern**

Grace Bogdan

**Consultant Team**

**Jacobs Engineering Group Inc., Consultant Lead**

Scott J. Parker, P.E.

**The RBA Group, Inc.**

Bettina Zimny, P.P., A.I.C.P.

**Malick & Scherer, Inc.**

Michael McAlpin, P.L.S.

**Hunter Research, Inc.**

Richard Hunter

**A.Strauss-Wieder, Inc.**

Anne Strauss-Wieder

**SkyComp, Inc.**

Greg Jordan

**TechniQuest, Inc.**

Haseeb Ahson

**Cooper Aerial, Inc.**

Philip Gershkovich

---



**TECHNICAL ADVISORY COMMITTEE**

**Jersey City Division of City Planning**

Robert D. Cotter, AICP/PP

Maryann Bucci-Carter, AICP/PP

Claire Davis, AICP/PP

Tanya Marione-Stanton, AICP

Kristin Russell, AICP/PP

Sandra Sung

Jeffrey Wenger, AICP

Dan Wrieden

**Jersey City Division of Engineering**

Chuck Lee, P.E.

Joao D'Souza

Carl Rossi, P.E.

Lichuan Wang, P.E.

**Jersey City Redevelopment Agency**

Mark Van Wagner

Chris Fiore

**Jersey City Housing Authority**

Brian Loughlin, AIA

**Jersey City Municipal Council**

Michael Sottolano

**Hudson County Division of Engineering**

John Lane

**Hudson County Division of Planning**

Stephen Marks, P.P., A.I.C.P., C.F.M., LEED-GA

**Hudson County Improvement Authority**

James Greller

**Hudson Transportation Management**

**Association**

Jay DiDomenico

**New Jersey Meadowlands Commission**

Hong Yuan, P.E., P.T.O.E.

**New Jersey Department of Transportation**

Tineen Howard

Andrew Ludasi, P.E.

Paul Cohn

John Micikas, P.E.

**North Jersey Transportation Planning Authority**

Ted Matthews

Jakub Rowinski

Christine Mittman, LEED AP

Brian Fineman, PhD

**New Jersey Turnpike Authority**

Richard Brundage, P.E.

Stephen M. Buente, P.E.

**NJ Transit**

Jeremy Colangelo-Bryan

Tom Marchwinski

**Port Authority of New York & New Jersey**

Vincent Mantero, AICP

David Caruth, P.E.

Rizwan Baig, P.E.

John Paradiso

**Bayfront, LLC**

William Hague, P.E., Honeywell International, Inc.

Richard Johnson, Matrix Development Group

Lawrence Lockwood, P.E., Mactec

Joe Clifford, P.E., Mactec

Michael Comba, Hoboken Strategy Group

The project team thanks the elected officials, appointed officials and staffers from various municipal governments and from Hudson County government, numerous subject matter experts from the New Jersey Department of Transportation, and the many stakeholders who provided feedback and input throughout the study process.

---



**Route 440/Routes 1&9T Multi-Use Urban Boulevard and Through Truck Diversion  
Concept Development Study**

---

(This Page Left Intentionally Blank)

---



## **ABSTRACT**

The purpose of the Route 440/Routes 1&9T Multi-Use Urban Boulevard and Through Truck Diversion Concept Development Study is to improve existing and future safety, traffic operations, multi-modal mobility, and accessibility; to support and interconnect growth areas and livable communities along both sides of the corridor; and to support local and regional economic development. The study applies the full intent of the New Jersey Department of Transportation's Complete Streets Policy.

The primary Route 440 / Routes 1&9T study corridor is 3.6 miles long, runs from the border with the City of Bayonne in the south to NJ Route 7 in the north. The study also examines wider secondary and tertiary areas. The study comprehensively collects and examines data on existing constraints, anticipated local and regional development, current and anticipated future local and regional travel patterns for years 2020, 2035 and 2050, existing major sewer and water infrastructure, and all of the needs of all future transportation users of the primary study corridor.

The study identifies and evaluates numerous alternatives for the corridor and for diverting through trucks away from the corridor. The study identifies a boulevard and complete street concept as the Locally Preferred Alternative for reconstruction of the Route 440/Routes 1&9T corridor that will resolve current traffic congestion, and support the purpose and need statement and the goals of the Circulation Element of the Jersey City Master Plan, and facilitate transformation of a significant portion of the Western Waterfront of Jersey City from auto dominated uses to new urbanist neighborhoods. The study also identifies four potential through truck diversion alternatives for further study.

The study examines environmental justice impacts, economic feasibility and benefits, and begins to examine potential environmental impacts of the boulevard and complete street locally preferred alternative. A new local street network concept plan within the Western Waterfront was developed, as well as a set of urban design guidelines for the boulevard and complete street.

Extensive stakeholder outreach was implemented throughout the study process.

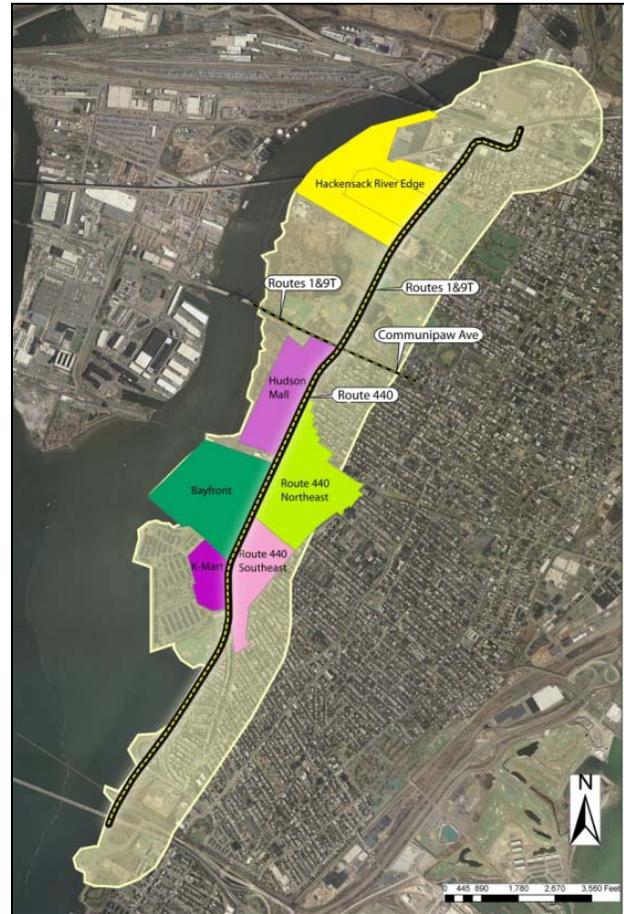


(This Page Left Intentionally Blank)



## EXECUTIVE SUMMARY

The purpose of the Route 440/Routes 1&9T Multi-Use Urban Boulevard and Through Truck Diversion Concept Development Study (hereinafter referred to as the “Study”) is to improve existing and future safety, traffic operations, multi-modal mobility, and accessibility; to support and interconnect growth areas and livable communities along both sides of the corridor; and to support local and regional economic development. The primary Route 440 / Routes 1&9T study corridor is 3.6 miles long, runs from the border with the City of Bayonne in the south to NJ Route 7 in the north. The study also examines wider secondary and tertiary areas.



Significant growth is anticipated to occur over the next 40 years along both sides of the Route 440 / Routes 1&9T corridor in the Western Waterfront area of Jersey City, New

Jersey, as well as in neighboring municipalities and at nearby seaports in Hudson, Essex and Union Counties. The development vision for the Western Waterfront anticipates new livable, mixed use, transit and pedestrian oriented, neighborhoods with traffic calmed streets and complete streets that accommodate goods delivery, motorists, mass transit, bicyclists and pedestrians.

This study identifies a locally preferred alternative (LPA) for Route 440 and Routes 1&9T that resolves current traffic congestion, and transforms the highway into a boulevard and complete street in the middle section, and into a complete street at the north and south ends. The boulevard and complete street will serve as the main street of the Western Waterfront, provide an attractive and vibrant public realm in support of new buildings that abut and face it, and interconnect a series of existing and new parks along the corridor with safe and attractive bicycle and pedestrian facilities. The boulevard and complete street will also accommodate the



vehicular travel demands in the short, medium and long term that will be placed upon it by local and regional growth.

The New Jersey Department of Transportation defines a complete street as a means to provide safe access for all users by designing and operating a comprehensive, integrated, connected multi-modal network of transportation options<sup>1</sup>. This study is the first in New Jersey to apply the full intent of the New Jersey Department of Transportation's Complete Streets Policy as adopted in December 2009. The policy represents a shift in the transportation planning process, requiring that roadway design and function be directly linked to the character of the communities and neighborhoods that are served. Application of the Complete Streets policy involves careful consideration of the future environment the roadway is intended to serve, and development of a physical space that accommodates all modes of transportation and that is supportive of a vibrant and attractive public realm.

According to the NJ DOT policy, the benefits of complete streets are many and varied:

- Complete Streets improve safety for pedestrians, bicyclists, children, older citizens, non-drivers and the mobility challenges as well as those that cannot afford a car or choose to live car free.
- Provide connections to bicycling and walking trip generators such as employment, education, residential, recreation, retail centers and public facilities.
- Promote healthy lifestyles
- Create more livable communities
- Reduce traffic congestion and reliance on carbon fuels thereby reducing greenhouse gas emissions.
- Complete Streets make fiscal sense by incorporating sidewalks, bike lanes, safe crossings and transit amenities into the initial design of a project, thus sparing the expense of retrofits later.

This study also finds that the anticipated growth in heavy through trucks (heavy trucks with neither an origin nor destination within the Western Waterfront) will be partially offset by a number of transportation infrastructure projects that are already in the works elsewhere in the

---

<sup>1</sup> New Jersey Department of Transportation Policy Number 703, Complete Streets, dated December 3, 2009.



region that will divert some through trucks away from the Western Waterfront. Additionally, this study identifies four potentially preferred through truck diversion alternatives that would further reduce the number of heavy through trucks within the Western Waterfront.

The Route 440/Routes 1&9T corridor currently experiences recurring traffic congestion and unacceptable traffic operations on a regular basis at multiple locations. In its current configuration, the Route 440/Routes 1&9T corridor is not capable of supporting the increase in travel demand that will be placed upon it by growth anticipated in the Western Waterfront and elsewhere. In addition there is a lack of safe, dedicated bicycle and pedestrian facilities for travel along and across the corridor, and limited public transit services.

The Study examines existing traffic conditions, anticipated local and regional development growth, future local and regional travel patterns, major infrastructure and environmental constraints, and all of the needs of all future users of the transportation corridor. Planning for the corridor extends beyond the corridor itself, incorporating a new network of local streets that will be needed to support the redevelopment in the Western Waterfront over the next 40 years. The boulevard and complete street LPA and the four potential preferred through truck diversion alternatives were identified after a rigorous screening of a broad range of alternative improvement concepts that were developed during the study process. The boulevard and complete street LPA as a standalone project improves existing and future safety, traffic operations, multi-modal mobility, and accessibility; supports and interconnects growth areas and livable communities along both sides of the corridor; and supports local and regional economic development. Each of the potential preferred through truck diversion alternatives would further improve existing and future safety, traffic operations, multi-modal mobility, and accessibility along the boulevard and complete street; further support and interconnect growth areas and livable communities along both sides of the corridor; and further support local and regional economic development.

**Smart Transportation** – “NJDOT and PennDOT cannot always solve congestion by building more, wider and faster state roadways. There will never be enough financial resources to supply the endless demand for capacity. Further, both states realize that the “wider and faster” approach to road construction cannot ultimately solve the problem. Sprawling land uses are creating congestion faster than roadway capacity can be increased. Smart Transportation proposes to manage capacity by better integrating land use and transportation planning. The desire to go “through” a place must be balanced with the desire to go “to” a place. Roadways have many purposes, including providing local and regional mobility, offering access to homes and businesses, and supporting economic growth.”

*NJDOT and PennDOT Smart Transportation  
Guidebook, March, 2008*



**An Open and Involved Study Process** - A key component of the study was the development and execution of an outreach plan to ensure that all interested and potentially affected parties had the opportunity to provide input on the study process and products. The outreach plan was multi-faceted and included a Technical Advisory Committee, a Stakeholder Working Group, Public Information Centers, and meetings with interested parties.

A Technical Advisory Committee (TAC) largely comprised of city, county and state agencies was formed to provide technical expertise and agency perspective to the study process. The TAC met regularly to guide the study and played an integral role in the development of key work products. Major tasks of the TAC included the selection of the consultant team, assistance with data collection, identification of potential alternatives, and the development and weighting of evaluation criteria. Meetings with individual TAC member agencies were held to discuss agency-specific issues, as needed.

A Stakeholder Working Group (SWG) was also assembled at the onset of the study that included owners of property adjacent to the Route 440/Routes 1&9T corridor; neighborhood groups; freight industry groups; local, County and State agencies; and local elected officials. The purpose of the SWG was to facilitate a dialog between the project team and individuals and organizations that may be significantly impacted by the outcome of the study. Two SWG meetings were held over the course of the study. The first SWG meeting was held early in the study process to inform the SWG of the study purpose and goals; at the second meeting, the project team provided an update of the study progress and presented draft materials. In addition to formal meetings of the SWG, the project team met with individual stakeholders, as needed.

Throughout the study process, the project team met with decision makers and elected officials in Jersey City and surrounding jurisdictions to provide briefings on study progress, gain input, and share key findings and deliverables.

Two Public Information Centers (PICs) were held to engage the public at large. Newspaper advertising for the PICs was conducted in English and Spanish. These informational meetings were conducted in an open-house format where Jersey City staff and key members of the project team were available to have informal conversations with members of the public. At the PICs, short, formal presentations were made at scheduled times, and an extensive array of project materials was available for review. Spanish language translation was available. Both PICs were followed by public comment periods. While Jersey City as a whole is considered an



environmental justice community, extra effort was made to reach out to specific organizations within particularly low income, high minority areas of the City that could potentially experience either positive or negative impacts from this project.

A project-specific website (<http://www.440study.com>) was developed early in the study process and updated frequently. Its content included meeting announcements and materials, contact information for the project team, a description of the study background, and draft work products. It incorporated a translator button that permitted users to convert certain web page content to one of 26 languages.

**Existing Conditions - Data Collection** - Extensive data was assembled and analyzed to define existing conditions along the corridor and develop an understanding of existing deficiencies and constraints to implementation of improvements. Traffic volume data included historic traffic counts conducted for other studies and traffic counts conducted as part of this study. Additionally, a vehicle origin and destination (O-D) survey was conducted to develop understanding of the origins and destinations of vehicles traveling along and across the corridor. This survey utilized multiple airplanes and ground-mounted cameras at key locations along the corridor to photograph vehicles and track their movements through the study area roadway network. The data were utilized in the calibration of the regional roadway network model developed for this study.

A detailed inventory of existing environmental constraints was prepared as a baseline for preliminary evaluation of the potential effects of alternatives on the environment. Inventoried constraints included hazardous materials, flood zones, wetlands, cultural and historic resources, and other sensitive land uses such as residential properties, cemeteries, and parks and open space that are encumbered by Green Acres statutes.

Physical constraints and considerations were also inventoried within the study area including major subsurface utilities and geotechnical conditions.

**Future Travel Demand Forecasts and Modeling** - Two traffic assignment and operational analysis models were developed to allow quantitative evaluation of alternative improvement concepts. The North Jersey Regional Transportation Model – Enhanced (NJRTM-E), developed by the North Jersey Transportation Planning Authority (NJTPA), was utilized as the base upon which the project-specific travel demand model was built. This regional travel demand model covers a wide geographic area to account for the effects of regional travel demands and future changes to the roadway network outside of the study area. The modeled subarea covers approximately 150 square miles, generally extending from the Goethals Bridge



in the south, Tenafly in the north, the Hudson River in the east and Garden State Parkway in the west.

The network model was calibrated based on the results of the aerial vehicle origin-destination survey, with additional local detail added to the model within and proximate to the study area. The calibrated model was applied in the projection of future condition traffic flows to, from and through the study area for the 2020, 2035 and 2050 analysis years, incorporating anticipated local and regional development growth, and known transportation improvement projects that are planned around the region. Local growth within the Western Waterfront and throughout Jersey City was integrated into the model based upon anticipated development densities articulated in the Circulation Element of the Jersey City Master Plan. Regional socio-demographic projections maintained by the NJTPA were incorporated into the model for areas outside of Jersey City. Additional anticipated growth in certain specific locations within adjoining municipalities such as the Port Support Zones within the City of Newark and the former Military Ocean Terminal – Bayonne (MOTBY), as well as anticipated growth in activity at the area maritime ports was also incorporated into the roadway network model.

The projection of future traffic volumes within the Western Waterfront assumes that several factors integral to the Western Waterfront growth vision are implemented and thereby reduce dependence on the automobile for travel to, from and within the Western Waterfront. First, the growth in the Western Waterfront consists of walkable communities that include an attractive public realm, a dense mix of residential, commercial, educational and recreational uses within walking distance of each other, an interconnected grid of local streets, sidewalks on both sides of every street, short block lengths, and building entrances that abut and face the street. Second, a rich mass transit environment is provided that includes both a light rail extension along an east-west axis, and a new bus rapid transit system along a north-south axis, as well as adequate local bus service and feeder shuttles to a new light rail station. Third, development of an extensive network of bike lanes, bike parking, and other amenities encourages and supports bicycling as a mode of travel.

The second model – a Paramics microsimulation model - was developed to evaluate the operational efficiency within the Western Waterfront of the concept improvement alternatives that were developed for the primary study corridor. All microsimulation modeling of the corridor alternatives assumed that there is no implementation of any of the through truck diversion alternatives.



**A Range of Improvement Alternatives** – The selection of the boulevard and complete street as the locally preferred alternative, and four through truck diversion options as potentially preferred alternatives, was conducted in compliance with the National Environmental Policy Act (NEPA), which requires consideration of a range of alternatives and potential effects on the environment. The study undertook a detailed evaluation of a broad range of alternatives to determine which best meet the project purpose and need and avoid detrimental impacts. Three categories of alternatives were developed: through truck diversion alternatives; Route 440/Routes 1&9T corridor alternatives and gateway intersection (Route 440 at Communipaw Avenue) alternatives. The through truck diversion alternatives were comprised of potential infrastructure improvements within the region that would attract heavy through trucks to alternate roadways or travel modes away from the Western Waterfront. Corridor alternatives were comprised of potential improvements to the Route 440/Routes 1&9T roadway from Bayonne to NJ Route 7, as well as potential alternative alignments. The gateway intersection alternatives were comprised of various intersection designs. The concepts were evaluated to determine the extent to which they support efficient traffic operations while meeting the project purpose and need and objectives established for this study.

**Alternative Evaluation, Ranking and Identification of Locally Preferred Alternative (LPA)** – Potential alternatives within each category of through truck diversion, corridor and gateway intersection were analyzed in detail via a two tiered screening process. The first tier eliminated alternatives that resulted in detrimental outcomes or outcomes that were not supportive of the project purpose and need. The second tier compared the efficacy of the remaining alternatives within each category across a range of indicators that were based on the project purpose and need.

The evaluation process resulted in identification of two closely ranking alternatives for the corridor, a single alternative for the gateway intersection comprised of an elevated circle with clockwise traffic flow above an at-grade signalized intersection, and four through truck diversion alternatives. The boulevard and complete street alternative was deemed the locally preferred alternative over a closely ranked tunnel alternative for the corridor due to cost considerations. The four through truck diversion potentially preferred alternatives require additional conceptual design and further analysis.

The first phase of the evaluation, Tier I – Supportive and Not Detrimental Outcome Screening, was designed to eliminate from further consideration any alternative that does not meet the defined project purpose and need, results in significant environmental impacts or is not



technically feasible to construct. The second phase of the evaluation, Tier II – Detailed Evaluation and Alternative Scoring, was designed to rank the remaining alternatives within each of the three categories based upon a range of quantifiable performance measures, and were categorized as follows:

- Regional and Local Traffic Flow
- Through Truck Diversion Efficacy
- Complete Streets
- Pedestrian and Bicycle Safety
- Environmental Impacts
- Environmental Justice
- Support for Livability
- Public Transit Implications
- Leveraging / Building Upon Other Planned Improvements
- Constructability

Of the twenty five corridor alternatives identified, the evaluation process culminated in the identification of a Locally Preferred Alternative (LPA) for reconstruction of the Route 440/Routes 1&9T corridor within the City of Jersey City from the Bayonne border to NJ Route 7 as a boulevard and complete street.



The boulevard portion runs from south of Society Hill Drive to North of Communpaw Avenue, and incorporates a widened corridor with dedicated through travel lanes, local travel lanes, dedicated Bus Rapid Transit (BRT) lanes, bicycle paths, wide sidewalks and extensive landscaping. While constructed at grade, the elevation of the roadway is increased to remove the travelway from the flood zone, to bring the sidewalk surface to an elevation to match future building entrances, and to provide resiliency against the potential for elevated flood zones due to global climate change. To the north and south, the corridor is reconfigured as a complete street, with the addition of sidewalks, bike lanes, pedestrian crossings, bus rapid transit (BRT) stations, an additional dedicated BRT lane northbound between Duncan and Sip



Avenues, and a waterfront walkway between Society Hill in Jersey City and Richard A. Rutkowski Park in Bayonne.

Of the twelve gateway intersection alternatives for the intersection of Route 440 with Communipaw Avenue, the study identified an LPA of an elevated traffic circle with clockwise traffic flow above an at-grade traffic signal controlled intersection. The at-grade intersection accommodates all through movements and right turns, while the elevated traffic circle accommodated all left turn movements. The 1.6 acre area within the center of the circle is a bicycle, pedestrian and ADA accessible public space on a decked platform over the intersection. The LPA provides an attractive gateway, efficient traffic flow operations, safe and easy pedestrian and bicycle crossings, and provides an attractive public realm to support redevelopment of adjoining lands.



The boulevard and complete street is designed to accommodate future travel demand through the year 2050, by which time it is anticipated that build out of the Western Waterfront of Jersey City will be achieved. Key features and benefits of the combined corridor and gateway intersection LPA include:

- The LPA significantly improves traffic operations and safety along the length of the corridor over existing and future No-Build conditions. The boulevard and complete street is designed to accommodate heavy trucks traveling along and across the corridor. Even if heavy through trucks are diverted to other travel paths, there will still be a need for heavy trucks to access local destinations within the Western Waterfront.



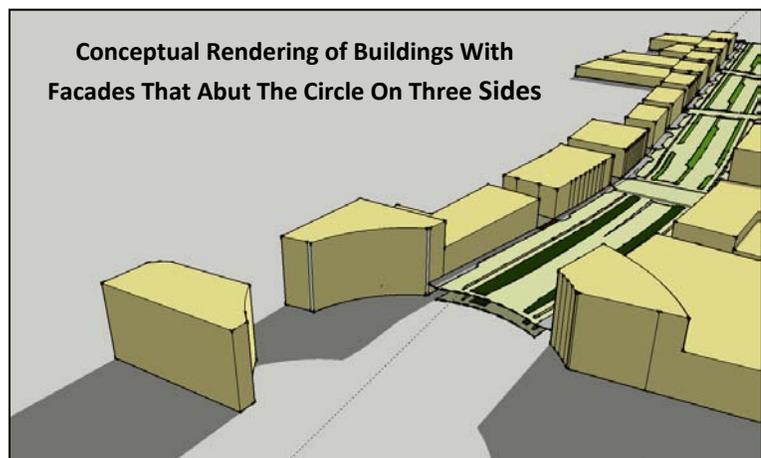
- Segregated through-travel lanes between Danforth Avenue and Communipaw Avenue separate through traffic from local traffic, and create a calm environment along the edges of the boulevard. The calm environment supports an attractive public realm, vibrant street life, and livability in the existing and future neighborhoods along the corridor.
- Local travel lanes are provided within the central boulevard to accommodate neighborhood access and circulation. Local neighborhood and boulevard circulation are supported by a network of local parallel and cross-streets, which also travel demand on Route 440.
- Public transit infrastructure consisting of BRT service and an extension of the HBLR are incorporated into the boulevard and complete street to further reduce dependence on the automobile for travel to, from and within the Western Waterfront, which reduces travel demand on Route 440 and Routes 1&9T.
- The boulevard and complete street improve traffic operations and reduce congestion along the length of the corridor. All approaches to all intersections along the corridor operate at acceptable levels of service during the peak travel demand periods through the year 2050. The analysis is based on the assumption that new development occurs within the density that is anticipated by the Circulation Element of the Jersey City Master Plan, as adopted in April 2009, and certain modal split assumptions for that new development. The modal split assumptions are dependent upon both the construction of BRT dedicated lanes within the boulevard and complete street and the extension of HBLR to Bayfront.
- On-street parking is provided along the length of the local lanes, accommodating short-term parking needs while providing a buffer between the local travel lane and the sidewalk, helping to reduce noise and enhance public safety.
- The entire corridor is posted with a speed limit of 30 mph. This reduced speed limit reduces road noise and supports a calm traffic environment that encourages bicycle and pedestrian





activity. The 30 mph speed limit coupled with the spacing of the traffic signal controlled intersections supports a coordinated traffic signal timing plan that minimizes vehicle stopped delay time along the corridor, reducing congestion of vehicle emissions that degrade air quality. The signal timing plan accommodates safe bicycle and pedestrian crossings of all legs of all signalized intersections along the boulevard and complete street.

- An attractive and safe network of sidewalks provides access to all neighborhoods and existing and future parks along the corridor, as well as access to public transit stations. These sidewalks provide pedestrian accommodation both along and across the boulevard, and include space for pedestrian amenities such as sidewalk cafés, kiosks, benches, street trees, etc.
- A comprehensive network of bicycle paths provides access to all neighborhoods and existing and future parks along the corridor, as well as access to public transit opportunities. This network of bicycle paths along and across the boulevard provides a recreational amenity for bicyclists and connections to the existing and future parks along the corridor as well as the East Coast Greenway and the Hackensack River Waterfront Walkway.
- Safe crossing of the corridor by bicyclist and pedestrians is accommodated at all traffic signal controlled intersections with the exception of the at-grade intersection under the Gateway Circle. Bicyclists and pedestrian crossings of Communipaw Avenue are accommodated on the Gateway Circle above the intersection.
- Landscaping along a majority of the corridor is placed in continuous 20" high raised planters. The height of the planters combined with the dense landscaping within mitigates road noise and deters mid-block crossing of the corridor by bicyclists and pedestrians.
- Extensive landscaping is provided throughout the corridor creating a visually appealing environment and reducing impervious cover and enhancing sustainability.
- An elevated traffic circle with clockwise traffic flow above an at-grade traffic signal controlled intersection is provided at the intersection of Route 440 and Communipaw Avenue. The at-grade intersection accommodates all through



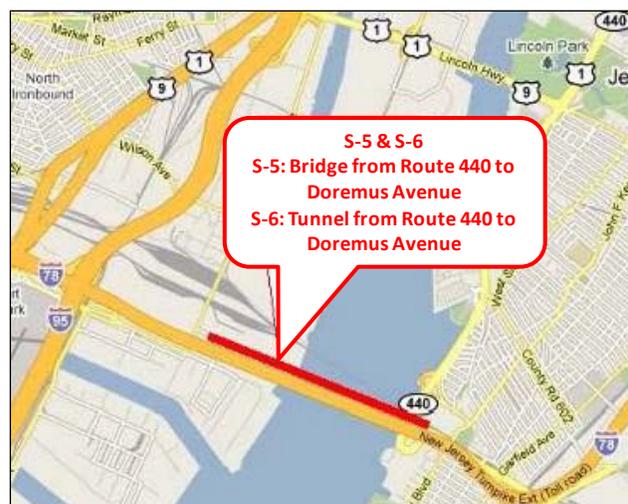


movements and right turns, while the elevated traffic circle accommodated all left turn movements. Buildings will abut the circle on three sides integrating the circle into the adjacent neighborhood. The 1.65± acre area within the center of the circle is a bicycle, pedestrian and ADA accessible public space on a decked platform over the intersection. The design creates an attractive gateway, efficient traffic flow operations, safe and easy pedestrian and bicycle crossings, and provides an attractive public realm to support redevelopment of adjoining lands.

The study recommends advancement of the combined corridor and intersection LPA through finalization of the concept development phase, as well as the preliminary engineering and final design phases of the NJDOT project delivery process, with construction of the first phase of the improvement to be completed by the year 2020.

Of the twenty four heavy through truck diversion alternatives identified and evaluated, four were determined to provide sufficient benefit and support of the project purpose and need to warrant advancement into detailed evaluation and design. These alternatives create new and expanded roadway and bridge infrastructure to attract heavy through truck trips away from the Route 440/Route 1&9T corridor in Jersey City. These through truck diversion alternatives provide a range of benefits, enhancing regional truck mobility while reducing the volume of heavy through trucks traveling along the boulevard and complete street, and are recommended for detailed concept development analysis. However, the boulevard and complete street LPA was designed to accommodate heavy trucks in the event that none of the through truck diversion alternatives are constructed.

Two of these alternatives (S-5 and S-6) provide a direct connection from Route 440 in the City of Bayonne to Doremus Avenue in the City of Newark. Alternative S-5 constructs a new bridge over Newark Bay north of and parallel to the New Jersey Turnpike Extension Casciano Bridge. The bridge does not connect with the NJ Turnpike, but creates a new roadway connection that links the port activities in Jersey City and Bayonne (Global Marine Terminal and MOTBY) with the





Newark/Elizabeth seaport complex. Alternative S-6 creates the identical connection as Alternative S-5, but constructs a tunnel beneath Newark Bay instead of a bridge.

The remaining two alternatives (W-4 and W-5) build upon replacement of the Wittpenn Bridge, the Charlotte Circle elimination and the replacement of the St. Paul's Avenue Viaduct in enhancing truck mobility between points north and points west of Jersey City. Alternative W-4 constructs a new bridge parallel to the NJTPK mainline connecting Doremus Avenue from its northern terminus near NJTPK Interchange 15-E to Route 508/Harrison Avenue/Newark Turnpike.



This bridge does not directly connect with the NJ Turnpike, but provides a new crossing of the Passaic River for trucks and general traffic. The northern end of the new bridge connects to Harrison Avenue east of the connections to NJ Turnpike Interchange 15-W. Route 508/Harrison Avenue/Newark Turnpike provides a connection between the northern end of the bridge to NJ Route 7 and the western end of the new Wittpenn Bridge. Minor improvements are made to the Route 508/Harrison Avenue/Newark Turnpike corridor to improve the efficiency of traffic flow, but no additional travel lanes are constructed.

Alternative W-5 utilizes existing infrastructure to create an enhanced connection between the western end of the new Wittpenn Bridge and Routes 1/9T in the Town of Kearny. Improvements along this travel path are already under investigation by the NJDOT as part of the Portway program, and are currently included as one of the Liberty Corridor Phase I Improvements projects. The improvements being advanced under these programs consist of elimination of geometric design deficiencies and do not add new travel lanes or create roadway connections that do not exist in some for today. Alternative W-5 provides additional travel lanes along Fish House Road and Pennsylvania Avenue, increasing capacity and providing an improved routing to attract heavy trucks away from the Route 440/Routes 1/9T corridor.



**Corridor Traffic Operations and Phased Boulevard Implementation** - Growth in the Western Waterfront is anticipated to occur incrementally, with full build-out occurring by the year 2050. Improvements to discrete portions of the corridor will be required as regional and port growth and Western Waterfront redevelopment projects advance. The LPA was identified in part by analysis of traffic operating conditions in the year 2050. In addition, two (2) interim time periods were selected for evaluation to determine which portions of the overall LPA would be needed based upon travel demand in the near term (by the year 2020) and mid-term (year 2035) to efficiently accommodate traffic flow and livability as development continues.

Along the eastern side of Route 440, the NJCU West Campus redevelopment is expected to be complete by the year 2020. This mixed use development is to include approximately 200,000 square feet of retail space, 142 market rate residential dwelling units, 90 units of student housing, new academic buildings and 15,600 square feet of facility space. In addition, the initial phase of the Bayfront Development along the western side of Route 440 is anticipated to be complete, including 2,160 new residential dwelling units, 87,500 square feet of retail and restaurant space and 175,000 square feet of office space. A significant number of intersections along the corridor currently operate at a LOS F during one or more peak travel demand periods. Even with the extension of the HBLR to Bayfront, local redevelopment activity will exacerbate these failing conditions. Improvement of the Route 440/Routes 1&9T corridor is necessary. Localized, low-cost intersection improvements were considered as a near term solution to improve existing traffic operations and allow the initial phases of redevelopment to advance. However, a review of the existing traffic operations on conflicting movements at key intersections revealed that easily implementable solutions such as traffic signal upgrades and retiming would be ineffective.

The 2020 interim year improvement plan includes construction of the full Boulevard and Complete Street LPA from the intersection of Society Hill Drive to the intersection of Culver Avenue, and from the intersection with Williams Avenue to north of the intersection with Sip Avenue, inclusive of the elevated circle at the intersection of Route 440/Routes 1&9T with Communipaw Avenue. From the intersection of Culver Avenue to Williams Avenue, the 2020 improvements include the through travel lanes, but may exclude construction of the local lanes except where redevelopment may occur. Construction of the local lanes along this section should occur as redevelopment plans for the properties adjacent to this section are developed.

By the year 2035, significant additional development is expected to be complete throughout Jersey City, and in particular within the Western Waterfront. Within the central boulevard section, the LPA improvements will have been constructed as part of the 2020 interim improvements with the exception of the local lanes and public areas between Culver Avenue





Urban Design Guidelines were developed as a companion to this study, providing an overview of the design concepts and envisioned palette of material types and styles that are critical to achieving the vision for the Route 440/Routes 1&9T Urban Boulevard.

**Sustainability** – The concept of “Green Highways” is a relatively recent concept for the planning and design of roadways that integrate both functionality and ecological sustainability. A “Green Highway” may be defined as a roadway that is planned, designed and constructed following a process that integrates and achieves the required transportation functionality along with a high level of environmental sustainability. This process fosters implementation of transportation infrastructure improvements that serve the intended mobility purpose, incorporating features, systems and amenities that reduce environmental impacts, lower life cycle costs and offer societal benefits in support of livability.

Planning and design of transportation infrastructure must consider the potential social and environmental impacts of the final product. Road construction not only requires extensive use of materials, but the finished product often takes up significant space, the occupation and use of which may result in impact to the environment. By considering sustainability throughout the planning, design and construction process, roadways can be made to serve their primary mobility purpose while protecting natural systems.

This ecologically conscious approach was applied in this study in development and evaluation of alternatives and identification of the LPA. The process begins with the identification of alternative roadway horizontal alignments that avoid or eliminate impacts to sensitive civic and environmental constraints and cultural resources. The vertical elevation of road surface is established to provide resilience against the impacts of global climate change and the effect of potentially increased flood elevations in the future.

Specific features are incorporated into the alternatives for the purpose of providing options that reduce dependency on the automobile for local and regional transportation. These features integrated into the LPA include extension of the HBLR to the west side of Route 440, creation of dedicated BRT lanes along the corridor providing public transit access to Journal Square, and integration of a network of sidewalks and bicycle paths connecting existing and future neighborhoods throughout the Western Waterfront and the region.

Integration of these elements into the LPA serves to minimize the number of automobiles on the roadways, reducing congestion, vehicle emissions and greenhouse gases. Reduction in



these harmful vehicle emissions promotes and supports livability through improved air quality and reduced noise levels. Additional features such as the incorporation of extensive landscaping and raised planted medians along the boulevard and complete street serve to further reduce noise levels in the neighborhoods along the corridor. In addition to providing enhanced visual aesthetics, the extensive landscaping minimizes the amount of impervious cover in the Western Waterfront reducing stormwater runoff and enhancing groundwater recharge.

**Economic Feasibility** – An economic impact assessment of the anticipated growth within the Western Waterfront that will be supported by the construction of the boulevard and complete street was prepared to quantify the economic value and job creation that will accrue. A customized version of the Rutgers University 517-sector RECON input-output model was employed in this assessment, and applied to growth areas were identified by the Circulation Element of the Jersey City Master Plan. The model quantified the increases in direct and total employment as well as the monetary value of growth in terms of personal income, increased business activity, and increased local, state and federal tax revenues. The permanent benefits attributable to the envisioned growth of the Western Waterfront by the year 2050 include:

- Nearly 8,200 new direct full-time jobs in New Jersey, with over 7,700 of these jobs created in Hudson County.
- Nearly 12,300 total full-time jobs in New Jersey (including the direct full-time jobs), with over 9,400 of these jobs created in Hudson County. The total employment impact includes the direct, indirect and induced impacts.
- \$414 million in annual personal income is supported in Hudson County and \$524 million across New Jersey.
- Over \$1 billion in annual business income is generated in Hudson County and nearly \$1.37 billion in new business income across New Jersey.
- \$127 million in new annual Federal, State and local tax revenues in Hudson County and a total of \$202 million in new tax revenues throughout the State.

Additionally, total cost of design and construction of the boulevard and complete street for the full 3.6 mile length of the corridor, including the gateway intersection was estimated to be \$367.9 million in 2010 dollars. The cost estimate excludes consideration of offsets from contractual agreements or in exchange for density bonuses through zoning. The cost estimate incorporates all major items and cost categories including:



- Right of Way Acquisition
- Site Clearing and Earthwork
- Pavement
- Bridges/Structures (Gateway Circle)
- Utilities
- Drainage
- Curbing
- Landscape & Bikeways
- Retaining Walls
- Traffic Signals
- Lighting, Traffic Stripes, Signs and Delineators
- Preliminary Engineering
- Final Design
- Construction Engineering/Inspection
- Maintenance of Traffic During Construction
- Contingencies

Funding preliminary engineering, final design and construction of the LPA will likely prove challenging, particularly in the existing economic climate. Presently, no single funding program has been identified that could provide the necessary funding to cover all multi-model categories in the necessary amounts projected to complete the project. Additionally, the nationwide and statewide demands for capital investment funds are highly competitive.

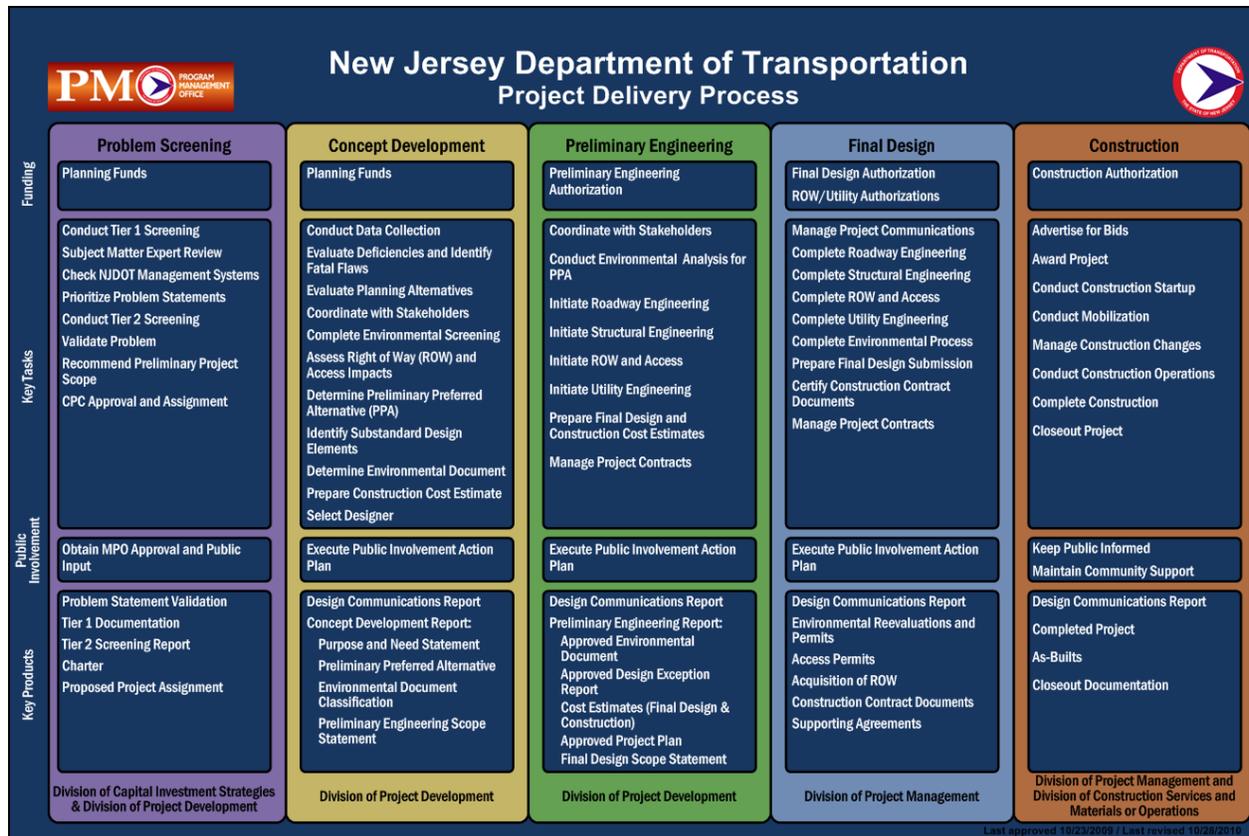
It is therefore likely that funding will come from multiple sources at various levels, multiple funding programs, both public and private sources, and in multiple year allocations. The implementation strategy must be flexible to accommodate funding program requirements and availability, and include a phased construction schedule that allows project elements to proceed in the order that funding becomes available.

While the initial investment in the LPA is significant, the annual return on this investment is highly positive, and will continue year after year, long after the initial investment is complete.

**Next Steps** - This study identified and evaluated a range of alternatives in conformance with the requirements of the National Environmental Policy Act (NEPA), culminating in the identification and recommendation of a Locally Preferred Alternative. The development and analysis of the alternatives and recommendation of the LPA was based upon detailed investigation of the efficiency of future traffic operations and safety, enhancements to multimodal mobility, impacts to the environment and environmental justice communities, and support for livable communities and local and regional economic development. A number of additional actions are required to advance the LPA through implementation.



**Concept Development Phase II** - Subsequent to initiation of this study, the NJDOT revised the project delivery process, eliminating the previously required Feasibility Assessment phase and adding new items to the Concept Development phase of project development. Accordingly, while the preliminary environmental screening and alternatives assessment was conducted, additional effort is needed to complete the Concept Development phase in accordance with the new NJDOT project delivery process, prior to advancement of the LPA into the preliminary engineering phase.



**Adoption of Set-Back Lines and Density Bonuses** - Along various sections of the corridor, the recommended LPA improvements will be constructed wholly within the existing right of way, while significant widening will be required along other sections. Establishment and formal adoption of a right of way reservation area will be critical in preserving the ability to construct the LPA improvements. Building setback lines defined as the outer edges of the boulevard and complete street LPA should be established by the City of Jersey City through amendment of the Jersey City Land Development Ordinance (JC LDO). The ordinance should incorporate requirements that the facades of new buildings along the boulevard and complete street within the redevelopment areas be constructed to the setback lines. It is further recommended that



the Circulation Element of the Jersey City Master Plan be amended to incorporate the specific concept design and alignment of the boulevard and complete street and gateway intersection LPA, as well as the specific concept plan of new local streets that was developed by this study.

Construction of the LPA requires dedication of privately-owned land outside of the existing roadway's corridor right-of-way. It is recommended that a policy of providing density bonuses in exchange for contribution of land that is needed for the boulevard and complete street LPA right-of-way be codified through adoption by the JC LDO and/or redevelopment plan ordinances. The rational nexus between the density bonus and the land donation is the need to provide the transportation infrastructure capacity required to support higher density development. The aggregate development densities for each growth area may not exceed the anticipated density for each growth area articulated in the 2009 circulation element of the Jersey City Master Plan, as excess development has not been tested by the corridor operations modeling that was conducted by this study. These density bonuses would apply to all areas along the corridor except the Bayfront redevelopment area and the NJCU West Campus redevelopment area as density bonuses in exchange for land contributions have already been codified for these redevelopment areas.

**Adoption of Urban Design Guidelines** - The Jersey City Route 440/Routes 1 & 9T Multi-Use Urban Boulevard Concept Development Study provides the overall concept plan for the transformation of the roadway. The Urban Design Guidelines developed as a companion to this study provide an overview of the design concepts and envisioned palette of material types and styles that are critical to achieving the vision for the Route 440/Routes 1&9T Urban Boulevard.

It is recommended that the Urban Design Guidelines be further refined and formally established as adopted requirements of the JC LDO. The ordinance should require that all redevelopment along the boulevard and complete street be designed and constructed in conformance with the Urban Design Guidelines to ensure uniformity in the selection and application of materials and construction along the length of the corridor. Establishment and formal adoption of the Urban Design Guidelines through zoning will ensure consistency in the visual and operational characteristics of the various segments of the corridor as they move through the design and implementation process as redevelopment advances in the Western Waterfront.

**Establishment of a Special Improvement District** - Maintenance and upkeep of the boulevard and complete street is critical in maintaining livability of the neighborhoods that abut the



## **Route 440/Routes 1&9T Multi-Use Urban Boulevard and Through Truck Diversion Concept Development Study**

---

corridor. The LPA includes landscaped medians within the existing NJDOT right of way, with additional landscaped areas located outside of the existing NJDOT right of way. Establishment of a Special Improvement District (SID) to provide adequate upkeep of all aspects of the boulevard and complete street landscaping will ensure continued aesthetic and support of livable communities in the Western Waterfront.



(This Page Left Intentionally Blank)