TIGER 2016 Capital Grant Application:
April 29, 2016

Downtown Crossing, Full Build
New Haven, Connecticut

NEW HAVEN IT ALL HAPPENS HERE

CITY OF NEW HAVEN
ECONOMIC DEVELOPMENT

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All Appendices can be found at the project website:
http://downtowncrossingnewhaven.com/info_center/

1. Project Description

The City of New Haven is requesting $40 million in TIGER 2016 funding as part of the Downtown Crossing – Full Build project, a $73.5 million reconstruction of the limited access route 34 by-pass. The goal of the Downtown Crossing Full Build project is to develop a livable, walkable downtown by transforming this highway stub into a city street network that creates opportunities for new development and repopulates the center of town. These city streets will bridge the sizable gap created by the highway cut between New Haven's Downtown (its business, government, arts and entertainment, and education centers) and its Medical District, Hill neighborhood and Union Station transit hub. Streets will be designed at a scale suitable and safe for pedestrians, bikes, public transit, and vehicles.

The project improves infrastructure to prevent chronic flooding, a problem that plagues the corridor and negatively affects the local economy. By removing the highway, the Downtown Crossing Full Build creates 10 acres of new land suitable for high-density residential, retail, health care, and research facility development.

The Full Build Project will continue to build upon the initial success of Phase 1 of Downtown Crossing. Phase 1 was funded with a $16 million TIGER 2 grant award and helped to generate $200 million in private investment at a new development parcel created at 100 College Street, which is now the new world headquarters of Alexion Pharmaceuticals. Phase 1 of Downtown crossing has brought 1,200 permanent jobs into the center city in bio-medical and life science research and over 2,000 construction jobs.

THE FULL BUILD PROJECT ELEMENTS

A. The creation of a new gateway entrance into New Haven to slow down traffic, and significantly improve perception of the City and encourage growth and investment

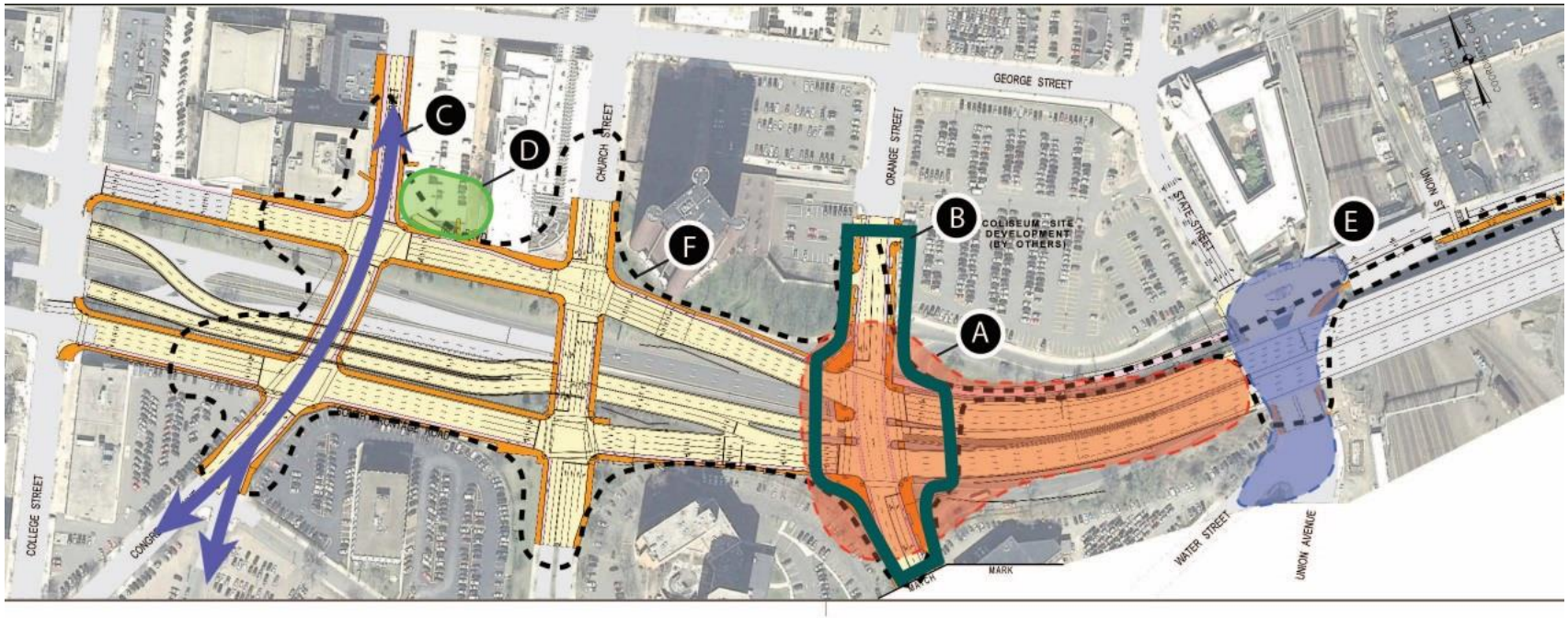
B. Reconnection of South Orange Street with an at grade intersection, creating new public pedestrian plazas and a direct connection between downtown New Haven and Union Station

C. Reconnection of Temple Street with park and open space opportunities and frontage for two new large development sites, connecting the Medical District with downtown

D. Safety and mobility improvements with relocation of Temple Street Garage exit

E. The reconstruction of Union-State-Water Street intersection to introduce new art installations and enhance mobility and safety for pedestrians and bicycles

F. Bike and pedestrian improvements along South Orange Street, MLK Boulevard, South Frontage Road, Church Street, College Street, and Temple Street



A - Gateway entrance
B - South Orange Street intersection
C - Reconnection of Temple Street
D - Temple Street garage improvements
E - Union-State-Water Street intersection improvements
F - Bicycle and pedestrian improvements

Figure 1: Downtown Crossing Full Build Project Context

Figure 2: Downtown Crossing Project Context

Full Build infrastructure improvements are enabling a $400 million new private investment at the former Coliseum site, a proposed one million square foot mixed use and mixed-income development.

This project will help to re-establish the historic Union Station as a centerpiece of a new transit-oriented business node for the City of New Haven, strengthening its prominence as a key link along the Northeast corridor. Re-establishing the street grid and unifying disparate neighborhoods will create pedestrian spaces and connections, will fill in the missing pieces of an extensive bikeway network, and create a livable and walkable downtown district within a City that is looking to bring residences and businesses back into its downtown. All elements of the project are designed to New Haven Complete Streets standards and support the economic development of Connecticut's growing health sciences industry. All infrastructure improvements envisioned in this project have independent utility. The project will relieve congestion, promote direct and indirect economic development, solve for local flooding, improve traffic flow, enhance livability, and dramatically improve safety for vehicles, pedestrians, and bicyclists.

The application website for this submission and all associated materials, including the benefit-cost analysis (BCA) technical memorandum for this site can be found at the following location: http://downtowncrossingnewhaven.com/info_center

Project Background

The Oak Street Connector (Route 34), built in 1959, was the first major piece of an urban renewal plan that was never fully realized and resulted in the destruction of one of New Haven's most distinct communities. The Oak Street neighborhood (Figure 3) was one of the densest, most vibrant and poorest neighborhoods in New Haven; a diverse and thriving community of African American, Italian, Irish and Jewish families reminiscent of New York's Lower East Side. Its removal for a new highway speaks of an era when automobile mobility was

Figure 3: Oak Street neighborhood prior to demolition and construction of Route 34

Figure 4: Route 34 Corridor today

prioritized over neighborhood cohesion. As opposed to looking for ways to improve living conditions in this largely immigrant community, the area was instead cleared out to make way for this 1.1 mile extension, relocating 881 households and clearing 350 businesses to construct a connection from interstate's I-91 and I-95. A plan to extend this spur even further west was never realized (plans were officially abandoned in the 1970's) and this suddenly isolated community began a long slow economic decline. The communities, especially those that were isolated to the south of the new connector have never fully recovered.

Today, the Route 34 Corridor (Figure 4) presents an intimidating physical and visual barrier isolating downtown and the Yale Central Campus from Union Station, the Hill neighborhood and the Medical District. This once dense and organized network of blocks that made up a cohesive community has been replaced by mishmash of large footprint developments, acres of parking lots, a few residential towers, a housing project, and some single story office buildings that largely turn their backs to the street network.

The Downtown Crossing Full Build will convert the by-pass from a highway that separates community into a gateway that unites community. It will transition vehicles from highway speed to urban neighborhood speed, create a strong and inviting sense of entry into New Haven, significantly improving pedestrian and bicycle safety, creating new inviting open space, while planning for future traffic needs associated with envisioned development. This investment in transportation infrastructure leverages basic economic development opportunities in the emerging medical sciences industry and restores livability in the inner city.

PHASE ONE PROJECT ELEMENTS

- Rebuilding College Street Bridge across Route 34 to allow for the development of 100 College Street, a new office building formed over the former highway open cut.
- Reconfiguring the highway to end at Church Street, removing the need for exits at College Street and York Street in the eastbound direction.
- Removing the hairpin turn to get from Route 34 to Union and creating a temporary exit eastbound onto South Orange (which will be replaced by the South Orange Street intersection)
- New sidewalks, bike lanes, landscaping and wayfinding signs.

Figure 5: Rendering of Downtown Crossing Full Build

Beginning in 2002, the City of New Haven has worked with State and Federal officials to plan for redevelopment of the land and removal of the highway. The Downtown Crossing Project kicked off in 2010 with Phase 1 construction breaking ground in March 2013. Phase 1 of Downtown Crossing began the process of eliminating the separated highway from the rest of the City's street network, and replacing it with complete streets.

Statement of Work

Full Build Project improvements are depicted in Figure 5. Each improvement contributes to the larger objectives of the Downtown Crossing project and the financial viability of the development of the Coliseum site and the two new development sites that will straddle Temple Street.

These infrastructure improvements have, from a transportation perspective, independent utility and are essential to improve safety for vehicular, pedestrian and bicycle access in order to relieve congestion and improve traffic flow.

South Orange Street Intersection

Bringing Route 34 to grade to connect to South Orange Street reclaims the Route 34 corridor as urban space and enables the redevelopment of the former New Haven Coliseum site by LiveWorkLearnPlay. This at-grade intersection creates a new gateway to the city and a prominent corner for the new hotel that will be the cornerstone of the $400 million former Coliseum site redevelopment. The Full Build will convert what is currently a highway standard condition and an exit ramp, into an urban at-grade intersection and a standard City street design. This connection will improve access to Union Station from the Downtown District.

Figure 6: Rendering of Orange Street Intersection

South Orange Street (Figure 6) will be reconnected across the Route 34 corridor and to intersect with MLK Boulevard, South Frontage Road, and Downtown Crossing Service Drives. Four new pedestrian plazas will be created at each end of the intersection, with mid-block refuge areas for the north-south crossing. A bike protected intersection is being designed that will allow for full mobility for pedestrians and bicycles through this intersection in all directions, completing a missing link in the larger pedestrian and bicycle network.

Reconnection of Temple Street

A new Temple Street connection will be constructed over the former Route 34 highway cut. The new connection will be a new bridge that allows access to the Yale New Haven Hospital parking garage, the 55 Park Street Medical Sciences Building,

the Air Rights Garage, and 100 College Street. The new connection at Temple Street will create opportunity for access for two new development sites within the former open cut that houses the former Route 34. Immediately following completion of these improvements, these sites will be ready for new development. The new design fills the void, creating new destination development, restitching the street grid and repairing the density needed to rebuild the neighborhood to its former urban context. Temple Street will include bike and pedestrian connections and the creation of a new public plaza space at the point where Temple Street crosses over the former open cut.

Safety and mobility improvements at Temple Street Garage

The current exit for the Temple Street Garage discharges onto the intersection of Temple Street and MLK Boulevard. Elimination of Route 34 exit ramps west of the garage has temporarily led to an increase in traffic volume passing the garage exit. During peak traffic periods, the wait time for vehicles to exit the garage is significant and drivers are forced to cross three lanes of traffic in a short distance to access Route 34 eastbound and Interstates 91 and 95. Alternatively, vehicles may exit and travel eastward on George Street and circle the block to enter MLK Boulevard at the signalized intersection with Church Street. Additionally, the effects of stop and go traffic and merging vehicles exiting the garage creates a safely issue.

Construction of the Temple Street crossing will result in an increase in the elevation of MLK Boulevard at the Temple Street intersection. This, when coupled with the previously described traffic and safety issue make relocation of the existing exit a necessity. The garage will be modified and a new exit will be constructed on Temple Street.

Bike and pedestrian improvements throughout the area

New Haven boasts some of the highest bike ridership levels in all of New England. The City adopted a Complete Streets Manual in 2010, which seeks to enable safe and convenient user access and more choices for transportation modes, and rethinks the physical design of streets to make New Haven livable and appealing to all residents. The City of New Haven continues to implement bike facilities, amenities, and accommodations as part of the routine capital investment plan.

The Full Build project will provide the missing link connection from the Downtown Crossing project to the Regional Bike network along Water Street. The scope of this improvement will extend a buffered bike lane facility approximately 1,000 feet from the current terminus of the regional bike system at Water Street to the South Orange Street at MLK Boulevard intersection. This extension would provide a direct connection to the LiveWorkLearnPlay development as well as opportunities for cyclists to access Downtown and Union Station area destinations.

Union Avenue is the most direct path from Union Station to the LiveWorkLearnPlay development and Downtown. However, the Union Avenue intersection with Water Street, which sits

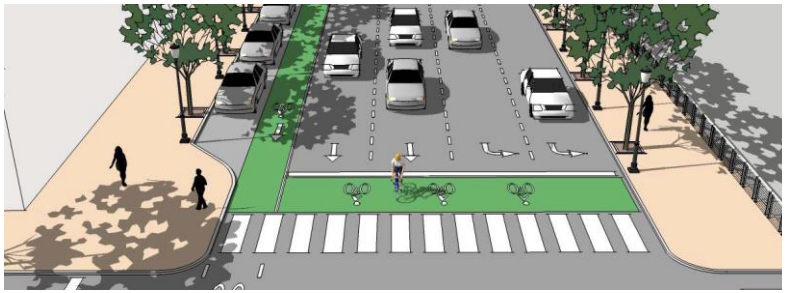


Figure 7: Rendering of bike path treatment in Downtown Crossing

below the Route 34 Bridge is uninviting, poorly aligned for pedestrian use and currently provides no striped bicycle passage through the area. Pedestrian improvements along the route are necessary to improve its safety and make it a more inviting environment. The scope of work at this location would provide improved street lighting, public art, and sidewalk surface reconstruction in order to create an inviting path for bicycles and pedestrians to access the train station from the LiveWorkLearnPlay development and other destinations along State Street and Water Street north of Route 34. The improvements will include new 12-foot concrete sidewalks on both sides of the road; a dedicated 8-foot wide bike lane with a 4-foot buffer northbound; and improved signing and striping for bike sharrows southbound. This will greatly improve pedestrian and bicycle safety consistent with State and City Complete Streets design policy guidance.

A pedestrian path is planned to parallel planned bike route improvements along MLK Boulevard. New crosswalks will be installed on all legs of the intersection. Crosswalks traversing Route 34/MLK Boulevard and South Frontage Road will include islands to serve as areas of refuge for pedestrians unable to complete the crossing in one cycle. New pedestrian plazas and sitting walls will be constructed throughout the intersection to improve the pedestrian experience.

2. Project Location

New Haven, Connecticut is Connecticut's second largest city with a population of 129,779, and is a fully developed city of 18.9 sq. miles. New Haven is located on the northern shore of Long Island Sound and positioned between the major market areas of New York City and Boston, MA. New Haven is the social and economic center of south central Connecticut and is among the fastest growing cities in all of New England in terms of both population and economic significance. Economic drivers in education, the life sciences, advanced manufacturing, IT/Digital Media, and supporting service industries are supporting new job growth. New Haven's job base grew 2% in 2011 (twice the state average) and there are now 80,000 jobs in the City.

In 2012, the City's resident unemployment rate was 11.2% well above the State (7.8%) and United States (7.6%). The City is ranked the 15th most distressed municipality (out of 169 in Connecticut) due to low per capita income, high poverty and other factors affecting the quality of life in the City's inner city neighborhoods. As of 2016, New Haven's resident unemployment rate is 9.0%, a decrease in the unemployment rate of over 2%.

The Hill neighborhood, which was cut off from Downtown New Haven with the construction of Route 34, has a population of 16,277 residents, approximately 12.5% of New Haven's total population. 43% of the residents in the Hill neighborhood fall below the poverty rate, and 69% fall in the low-income rate. Downtown Crossing therefore is a key part of the City's efforts to reconnect the residents of the Hill and other neighborhoods with the downtown/medical district employment centers.

For the first time since 1991, there are over 80,000 jobs in the City, making up approximately a quarter of the jobs in the New Haven MSA. Economic drivers in higher education, the life sciences, advanced manufacturing, IT, and supporting service industries are catalyzing new job growth. The knowledge-based economy, furthermore, is concentrating in the City and elevating our profile nationally and globally. In New Haven, Yale-New Haven Health System (YNHHS) and Yale University are also

national leaders in their respective sectors and both have major operations abutting the Downtown Crossing corridor.

In recent years, there has been a profound trend in growth to the south and west of Downtown and at a higher density. This trend is due in part to significant growth in passenger rail and transit oriented development. From a transit perspective, New Haven is among the Northeast's busiest cities for commuter and regional rail. Downtown Crossing actually separates the two New Haven stations: Union Station and State Street Station, which serve over 4.2 million passengers annually. There is a very high demand for parking at Union Station, in part due to the inability to access the station by walking from downtown without walking significantly to the south and traversing the dangerous Union-State-Water intersection. Union Station is a downtown station that is disconnected from its downtown.

The reconstruction of Route 34 into the Downtown Crossing will dramatically change that dynamic. This becomes a much more important priority with the significant expansion of service in 2017 along the Hartford line and with the possibility of Northeast Corridor service considering New Haven as Connecticut hub. Union Station is increasingly becoming an important origin point for service east, west and north as well as a destination point for multiple levels of regional and local service. However, without supporting local connectivity, the opportunity to realize the neighborhood surrounding Union Station as a Transit-Oriented Development is significantly reduced. With much of the City built out, the largest potential for growth in a City that views itself as the next great northeast location; the city sorely needs to build around its transit infrastructure.

The reconstruction of Route 34 creates the requisite connections the Hill District, the Medical District and downtown and creates new space proximate to the station for development. Moreover, it improves local accessibility, which reduces automobile dependency, allowing for mixed-use development and increased density without the dedication of much of the available development space to parking. Creating the foundation for a more livable City that will attract millennials who are searching for urban living opportunities where auto ownership is not a prerequisite.

3. Project Parties

The City of New Haven is joined by its several partners as financial supporters of Downtown Crossing.

City of New Haven – The City of New Haven ($12 million non-federal contribution) will oversee the design and construction of the project. The City will be the grant recipient and will be responsible for administering the grant. The City is a Community Development Block Grant (CDBG) entitlement community and has a professional staff responsible for federal grant administration and reporting procedures.

Connecticut Department of Economic and Community Development (DECD) - The Connecticut Department of Economic and Community Development, the project's primary partner, is making a $21.5 million non-federal contribution on the economic development aspects of the project.

LiveWorkLearnPlay Inc. – LiveWorkLearnPlay Inc. is the developer of the City's former Coliseum site with extensive experience resolving, repurposing, and repositioning neighborhoods, projects and assets in order to deal with the realities of the challenging real estate marketplace. They plan to invest $400 million in private funds to accomplish a mixed-use, mixed-income project on the site.

The critical factor in the success of Downtown Crossing has been extensive collaboration with the many stakeholders, and the regulatory agencies involved. The demolition and removal of a highway is no small undertaking and the City has emphasized outreach, engagement, and communication from the very beginning. The technical challenges have been overcome through persistence and dedication by experts at all levels (Federal, State, and Local) as well as the contributions of the neighborhoods, business owners, and major employers in New Haven.

The City has received unequivocal support for the project from many community leaders and regional agencies including (See Appendix A for support letters):

- Economic Development Corporation of New Haven
- Greater New Haven Chamber of Commerce
- Town Green Special Services District
- Winstanley Enterprises
- LiveWorkLearnPlay
- Yale-New Haven Hospital
- Yale University

4. Grant Funds, Sources, and Uses of Project Funds

The City of New Haven is proposing to submit an application for funding under the USDOT TIGER 2016 funding source for the Full Build of the Downtown Crossing Project. Following is the cost and funding allocation of each proposed improvement:

Table 1: Project Funding per Scope Element

Scope Element	Total Cost (millions)	TIGER 2016 (millions)	Non-Federal (millions)
Intersection of S. Orange Street	$31.48	$17.13	$14.35
Intersection of Temple Street	$36.85	$20.05	$16.8
Temple Street Garage	$2.50	$1.36	$1.14
Bike and Pedestrian Connection Improvements	$2.67	$1.46	$1.21
Total	**$73.5**	**$40**	**$33.5**
Percentage	**100%**	**54.4%**	**45.6%**

The cost estimate was prepared by WSP | Parsons Brinckerhoff, based on Connecticut Department of Transportation cost estimating guidance and includes all clearing and grubbing; maintenance and protection of traffic; mobilization; construction staking; escalation; contingencies; incidentals; survey, design, construction administration; and rights of way.

The City has secured funding commitments totaling 45.6% of the Full Build project cost. The City of New Haven is requesting $40 million in TIGER 2016 funding, which includes roadway, stormwater and bike and pedestrian infrastructure improvements at a total cost of $73.5 million. The Full Build infrastructure improvements enable $400 million of private investment at the former Coliseum site, which is proposed to be one million square feet of mixed-use development.

5. Selection Criteria

The City of New Haven has identified that the Full Build improvements to the Downtown Crossing will generate immediate and long-term benefits to safety, state of good repair and environmental sustainability. The project will also significantly enhance economic competitiveness. This project enables the City to realize its potential as an urban center with a world-class transit center connected to its downtown. The Downtown Crossing project provides important quality-of-life

Figure 8: View of project with new development around Temple Street and in the Hill District

improvements to communities that have experienced economic decline since the advent of the original Oak Street Connector and to the larger communities surrounding this context sensitive redevelopment who will gain opportunity from increased connectivity, enhanced mobility, and access to transit and a stronger economic foundation.

Primary Selection Criteria

More than 75,000 vehicles use Route 34 every day, with more than 35,000 students, faculty, and staff located at Yale University and Gateway Community College. The downtown is seeing a resurgence in residential living, with residents living within walking distance of Route 34. With planned development like the LiveWorkLearnPlay mixed-use center and the additional envisioned development within the corridor fostered by the connection to Temple Street, the number of residents living and working in the corridor will continue to grow. Downtown Crossing is needed to recreate this place as a walkable and livable downtown able to support substantial growth.

Safety

Traffic Calming Strategy

Autos exiting the highway onto Route 34 enter the City at high speed before merging abruptly with slower moving local traffic. With the development of the first phase, the removal of two exits improved safety by reducing merges and decision points within this congested area. The Full Build Improvements will introduce traffic calming measures to further reduce speeds along the corridor. Through a combination of traffic calming tools, the driver will be provided cues that they are leaving a highway environment and entering an urban network. The calming starts right after the exit where with a dense grove of trees in the center

Figure 9: The Hug Arrival Zone

triangle to close the field of vision for the driver. This approach is re-introduced just to the West of the bridge with side tree canopies and median columnar light poles to frame the driver's point of reference.

Approaching the intersection, the natural canopy opens up to frame the intersection, introduce an urban setting with pedestrian plazas, large pedestrian crossings with refuges, and protected bike lanes. The entire experience is punctuated with a gateway element in the center of the field of view that illustrates to the driver that the road separates into two urban boulevards and that they have arrived Downtown New Haven.

These gateway elements are supported by a reduction in lane widths from 12' to 11', a reduction in shoulder width down to 2' and pavement markings noting the reduced speed, creating safe travel patterns at the four intersections that will cross the path of MLK Boulevard and South Frontage Road. Clarified turning movements and increased connectivity to major activity centers provide for more understandable and regular travel patterns.

Service drives remove a considerable number of vehicles from the urban boulevards, including heavy truck traffic destined for Yale-New Haven Hospital, 100 College Street and new developments will be channeled down into the cut along single lane roads dedicated to these buildings, reducing truck traffic in the neighborhood.

Safety and mobility improvements at Temple St Garage

The current exit for the Temple Street Garage discharges onto the intersection of Temple Street and MLK Boulevard. Elimination of exit ramps west of the garage has led to a temporary increase in traffic volume in front of the garage exit. During peak periods, vehicle garage exit wait time is significant and drivers are forced to cross three lanes of traffic in a short distance to access Route 34 eastbound for the interstates. With the Temple Street crossing, a new exit onto Temple Street will be constructed to remove the dangerous multi-lane crossing and reduce queueing.

Improve Safety for Pedestrians and Bicycles

Safety for pedestrians and bicycles is paramount. The new crossings at South Orange Street and Temple Street create direct paths for pedestrians accessing Union Station from downtown and the Medical District from Yale Central Campus. In the past, pedestrians had to walk extra blocks to cross at Church Street along undersized sidewalks in disrepair. New direct routes, large pedestrian crossings, new plazas, new parks, new sidewalks and refuges will greatly reduce the dominance of the automobile that currently exists and create an environment for pedestrians to travel safely and to linger and activate new downtown open space. Traffic calming measures include intersections with wider sidewalks and crosswalks, improved traffic signals with a pedestrian crossing cycle, and curb extensions that reduce pedestrian crossing distances. These improvements are expected to reduce both the number and severity of accidents. The project also fixes the currently dangerous pedestrian conditions at the Union-State-Water Street intersection, a key link from State Street to Union Station.

Significant safety improvements will be provided to the bicycling community. The project area represents a large hole in the bicycle network. Once completed, new bicycle pathways will be completed along both MLK Boulevard and South Frontage through all four intersections with a major new bicycle crossing in a protected lane configuration at South Orange Street (first of its kind in Connecticut). The bicycle path will be extended in both directions between South Orange Street and the Union-Water-State Street intersection via an off-road path that continues as a cycle track along Water Street, completing the downtown bicycle network and providing access to Union Station, the Medical District, and Vision Trail.

State of Good Repair

Downtown Crossing will catalyze roadway improvements that will bring transportation infrastructure to a state of good repair and enhance the resiliency of the City. Downtown Crossing Full Build will:

- Improve roadway conditions
- Reduce life cycle cost for roadway infrastructure
- Improve stormwater and drainage facilities

Improve roadway conditions

Downtown Crossing involves the development of new roadways and redevelopment of existing ones to accommodate the transition from grade separated highway to urban boulevard. Changes include the realignment of service drives, modifications to South Frontage Road and MLK Boulevard, and new roadway connections at South Orange Street and Temple

Street. Existing roads will be replaced with new roads that will feature new pavement, curbs, sidewalks, lighting, signals and landscaping. This will improve the conditions of the existing roadways in New Haven and increase the supply of quality roadways.

Reduce life cycle costs for roadway infrastructure

Downtown Crossing will promote the use of non-motorized travel that will result in cost savings on the maintenance of roadway infrastructure. The design will reflect the City's Complete Streets policy and design manual. As described in the Benefit Cost Analysis, the project is conservatively expected to result in a mode shift from 73.7% single occupancy vehicles currently to 65.5% with the project and therefore to reduce reliance on automobiles.

Improve stormwater and drainage facilities

Route 34 has experienced frequent street flooding in recent years. According to NOAA National Climatic Data Center, three flash floods and two severe storms were recorded in New Haven between 2005 and 2010. Over the last three years, the City has recorded three major storm events. During one of these storms, three feet of water flooded Route 34, making it impassable. Storms have flooded the Temple Street parking garage routinely, causing significant damage. With the advent of Sea Level Rise, chronic flooding problems will only increase. The Full Build proposes to manage stormwater using a green infrastructure approach consisting of a subsurface detention and infiltration system below South Frontage Road, and creating a water amenity and additional stormwater storage in open space near the Route 34 and I-95 ramps. This system will relieve pressure on the system. The stormwater approach recommended here will allow the City to avoid some of the estimated $55 million in costs contemplated in a 2012 Route 34 and Union Avenue Drainage Study, by using groundwater recharge and sustainable drainage design. Further, the City will avoid some long-term maintenance costs through reduced infrastructure requirements.

Economic Competitiveness

The Downtown Crossing project will strengthen local and regional economic competitiveness and reinforce New Haven's position as a global center of influence in biotechnology and health sciences. New Haven is positioned at the center of a large statewide bioscience cluster. In Connecticut, bioscience employs more than 18,000 people and spends more than $6 billion on operations annually within the state. New Haven is a Top 10 secondary city for venture capital nationwide with $3 billion in private capital leveraged. Of the 52-biotech firms in the state, 39 are located in Greater New Haven and several new firms open every year. Proximity to Yale University, the Yale School of Medicine, and Yale-New Haven Hospital are key locational advantages. Downtown Crossing provides the foundation to support and activate this growth. Downtown Crossing Full Build will:

- Increase land value
- Increase short and long term employment benefits,
- Support local major mixed-use development initiatives
- Create space for additional development to take place in the former open cut of Route 34

Increase land value

Downtown Crossing Full Build will improve connectivity to multiple key destinations within walking distance of the corridor including Yale University, City Hall, and the government center, the New Haven Green, the Medical District and Union Station. Providing access to the Central Business District for residents and businesses to the West of Route 34 and access to Union

Station for those living and working east of Route 34 will unlock development potential, increase the appeal of land for development while also increasing land values (see Figure 8 which depicts potential growth in the Crossing and South of the crossing from having the neighborhoods re-stitched into a downtown community).

The land value of just the two new development parcels within the existing highway right of way will increase from $0 to $47 per square foot, yielding tax revenues and economic benefits to the City. It is estimated that the entire Downtown Crossing project could yield net tax revenues of $1.434 million [Source: Downtown Crossing, 2007].

Increase short and long-term employment benefits

New Haven is an Economically Distressed Area. The unemployment rate, which totaled 8.3% in 2008 and 11.3% in 2009, exceeds the national average rate. Similarly, the per capita income of New Haven is only 77% of the national per capita income.

Figure 10: Rendering of LiveWorkLearnPlay Development

The City of New Haven's philosophy is to compete effectively in the global economy with job ladder opportunities for every citizen, including women, minorities, and disadvantaged populations. Downtown Crossing will help create Ladders of Opportunity for low-income residents on the west side of Route 34 by increasing their access to jobs and education centers. This project will serve the area of the City with the highest employment and population density, as well as neighborhoods with special populations. The immediate area surrounding the project corridor includes some of the highest densities within the City. It also includes many low-income residents with no access to automobiles. Downtown Crossing promotes the creation of job opportunities for low-income workers and provides opportunities for small business and disadvantaged business enterprises.

Downtown Crossing Full Build will increase the attractiveness of employment in New Haven over jobs in other areas, further enhancing the City's economic competiveness. The project will help support recent and planned development and initiatives in the vicinity that will expand the employment base.

LiveWorkLearnPlay is a $400 million mixed –use development planned for the former Coliseum site, a 4.85-acre site adjacent to Route 34. This development will be Smart Growth, transit oriented, mixed-use, and mixed-income. LiveWorkLearnPlay will construct an urban village with: mid to high end residential rental apartments over ground-floor retail; a high-rise residential tower over a retail podium; a hotel and multi-functional center, live/ work space, and a class "A" office facility.

The project is anticipated to generate approximately 4,700 construction jobs and $303 million in labor income from

construction jobs over the seven to ten years of project build-out. The project will generate approximately 2,800 permanent jobs at full operation, creating approximately $189 million in annual labor income. [Source: Downtown Crossing, 2007].

The City of New Haven is working closely with the developer on coordinating Downtown Crossing design to enhance development opportunity. The new at-grade intersection at South Orange Street, adjacent to the site, is essential to the realization of this development. Creating a pedestrian environment at its front door, connecting the site to Union Station, and creating automobile access to the site from both Union Avenue and Route 34 places this development as a signature destination in the heart of the gateway.

The Hill Community has developed a plan (The Hill to Downtown Plan) to redevelop a significant portion of this economically challenged neighborhood into an affordable mixed use, mixed income, transit oriented development between downtown New Haven, Union Station and the Medical District. The $150 million development vision would include housing, apartments, restaurants, offices, and storefronts and would revive the Hill Neighborhood, including the vacant Welch Annex School. This neighborhood has floundered since the construction of the Oak Street Connector that isolated the neighborhood from downtown.

Implementation of the Community Plan could result in the creation of 2,500 new permanent jobs, accounting for $165 million in annual payroll, as well support 10,000 construction-period jobs over the next 10 years. (Source: Hill to Downtown Plan, 2013). Full Build public infrastructure improvements are critical to the success of this plan. One of the specific initiatives of this plan includes rebuilding a new street grid that connects to the new South Orange Street and Temple Street in order to support walkability, complete streets, wayfinding, and both revised and new transit routes to support Transit-Oriented Development. This new grid will build a new Lafayette Street, which will open up new key development parcels adjacent to Route 34. Getting the Route 34 intersection at MLK Boulevard and South Orange Street as well as reconnecting Temple Street is essential to supporting the investment in the Hill Downtown Community area.

Position Development of the Remaining Parcels

Downtown Crossing Full Build of Downtown Crossing enables the development of the two large parcels within the Route 34 Corridor. With only 4% of land in New Haven unbuilt, and precious little available land in close proximity to transit hubs and major economic drivers, unlocking the land within the Downtown Crossing is critical to the growth of New Haven as a world-class center for healthcare, bio-medical research and life sciences. This project supports New Haven's economic recovery from the 2008 Recession and lays a foundation for a larger economic base. At full build out of the Downtown Crossing master plan, the development parcels are expected to generate more than 2,000 new jobs and $3.775 million in net tax revenues [Source: Downtown Crossing, 2007].

Downtown Crossing builds upon the expansion of the Yale University Medical District, immediately adjacent to the corridor. Since 2010, three major new facilities have been built within a few blocks of the Route 34 corridor and are fully occupied. The growth of these institutions is important for the economic health of the nation, not just New Haven and Connecticut.

In addition, the corridor has seen the completion of two new mixed-use development buildings and the relocation of Gateway

Community College, all of which assist the economic growth of New Haven.

These recent developments include the following major public and private investments in the vicinity of Downtown Crossing:

- Smilow Cancer Hospital (2009): $500 million, 497,000 sf world-class cancer treatment facility. Creation of 350 construction jobs and approx 600 new permanent jobs.
- 360 State Street (2010): $180 million, 300 foot, 500 unit residential building above a 25,000 sf grocery store. The largest apartment building in the Connecticut, and the first residential building to gain LEED Platinum status (2012).
- 55 Park Street (2010): is a 150,000 sf medical lab/office facility with street level retail adjacent to the new Smilow Cancer Center. The $92.8 million facility houses state-of-the-art clinical laboratories, pharmacy services, shipping, and receiving for all of Yale-New Haven Hospital.
- 2 Howe Street (2010): 53,000 sf retail/office building with 24 residential units. The first building within Route 34 to include residential units, a key policy initiative for the City.
- Gateway Community College (2012): $198 million, 367,000 sf 11,000 –student higher education facility located in the central business district.
- 100 College Street (2016): $200 million, 425,000 sf medical/lab office building. Resulted in 2,000 construction jobs, and nearly 1,000 permanent jobs as Alexion Pharmaceuticals moved its corporate headquarters downtown – created in partnership with Downtown Crossing Phase 1.

These projects represent over $1 billion in construction spending and have generated 2,000 construction jobs. They are now contributing up to $3 million in property tax revenue to New Haven. Going forward, demand exists for similar types of facilities within Downtown Crossing.

Environmental Sustainability

Consistent with City policy, the project will contribute to reduced greenhouse gas emissions and energy independence. Downtown Crossing Full Build will:

- Enhance stormwater retention through natural stormwater management strategies
- Reduce congestion to improve air quality,
- Promote transit-oriented development, and
- Encourage a mode shift to non-motorized transportation

Natural Stormwater Strategies

The City of New Haven has made green infrastructure a priority and has infused that dedication into Downtown Crossing. Recognizing the significant flooding problems endemic to this low-lying coastal downtown, multiple green infrastructure strategies are designed for the project to alleviate impacts of flooding and storm sewer back-ups and to reduce the costs of stormwater infrastructure investment. The project utilizes bio-swales and infiltration trenches to treat, attenuate and reduce the volume of runoff leaving the area. On the major streets, the project incorporates tree bioswale systems in the sidewalk to filter and infiltrate water before it enters into the storm sewer system. The project incorporates a dozen sidewalk bioswales in the street system and larger catchment zones will capture 5 inches of rainfall (corresponding to a 10-yr storm event) from any given storm condition.

Reduce congestion to improve air quality

For more than 10 years, the City of New Haven has been a leader within Connecticut in conserving energy and protecting the environment (New Haven Energy Conservation). New Haven was among the first municipalities in the state to become a member of ICLEI Cities for Climate Protection, complete a greenhouse gas inventory, and draft a local action plan. Local initiatives include installation of real-time energy monitoring and controls in more than 90 municipal buildings and replacement of the city's roadway lighting system to increase energy efficiency. As a testament to the communitywide commitment to a sustainable future, New Haven is home to the second highest number of LEED certified buildings in New England, after Boston. In the medical district, the Smilow Cancer Center and 2 Howe Street are LEED certified. The new 55 Park Street building is at a LEED Gold Standard.

Based on the air quality analysis for the Full Build improvement's Categorical Exclusion these improvements would not result in an increase in air quality impacts. Environmental permitting associated with the Downtown Crossing Project has been divided into separate, but related documents - each prepared to enable completion of a portion of the project and its associated economic development. A Categorical Exclusion was prepared for Phase 1 of the project in 2011. While this document enabled the first phase, it examined the impacts of the full-build traffic volumes on the corridor and surrounding neighborhoods. A CATEX was also prepared for the construction of the Orange Street intersection to enable its construction and the associated redevelopment of the former coliseum site.

Promote transit-oriented development

The City's transit-oriented development initiative focuses on redeveloping the ½-mile area adjacent to Union and State Street Stations as dense, walkable, mixed-use areas that extend to downtown and the Downtown Crossing Corridor. By accessing these stations through the new connections made by the Downtown Crossing, commuters will be able to access Amtrak, Shoreline East, Hartford Line, or MTA Metro-North Railroad and can access jobs in the downtown from these stations via safe walkable and bikeable pathways. Downtown Crossing is designed based on the principles of transit-oriented development with compact mixed-use development that promotes walking and provides for bicycle access. The project will create a walkable environment with wide sidewalks, crosswalks, pedestrian crossing signals, protected bike lanes, landscaping and active street level development. With a large and growing resident population living in downtown, many new employees will never need to own a car.

To enhance transportation options at the medical district, both Yale University and Yale-New Haven Hospital supplement public bus service with employee/affiliate shuttles to both train stations. The City manages parking in the medical district through an innovative zoning tool – an overall parking plan. Medical district users are required to manage their parking needs and encourage demand management through ride matching, subsidized transit, bicycle amenities, bicycle storage, and shower facilities. Increasing mobility in Downtown Crossing and increased connecting pathways will enhance the efforts of these institutions to promote alternative transportation options.

Encourage a mode shift to non-motorized transportation

New Haven has a larger number of downtown residents than many larger business-centered cities, a number that is anticipated to grow significantly with the expansion of employment at Downtown Crossing. Over 1,000 new residential units came online within the past five years and another 611 are under construction - all within walking distance of the medical district. The new mixed-use high rise at 360 State Street encourages a single vehicle for their residents, and has over 200 secure spaces for bicycle storage. It is winning national recognition for its sustainable design. The project improvements, including changes in development patterns, the creation of the urban boulevards, and implementation of the City's Complete Streets policy, will continue to encourage a mode shift to non-motorized transportation.

Compared with the ten largest cities in New England, New Haven already has the highest percentage of commuters who walk to work (13.6%) and use non-motorized transportation (15.5%), according to the 2000 US Census. By enhancing safe pedestrian and bicycle mobility, the project is expected to boost the number of commuters choosing non-motorized transportation.

Quality of Life - Ladders of Opportunity

Downtown Crossing adheres to HUD's six livability principles. A substantial portion of the City's downtown population will benefit from the Full Build improvements through increased mobility, improved multi-modal choice, and affordable housing opportunities. By literally building bridges to Union Station, this project is investing in existing communities by recycling land for new mixed-use development connected to its mass transit infrastructure. This project is leveraging funding from the City of New Haven, and from private investment that is concentrating on development connected to this infrastructure investment. It is leveraging funding from HUD for flood mitigation, and from investments by DECD and CTDOT to make improvements to Union Station, clean-up sites for redevelopment and through economic development loans to spur growth in the corridor. This project revitalizes a community that was severely impacted by the original Oak Street corridor project. This project rights the wrongs of that era and builds a multi-modal community, connected to transit.

Rebuild a street grid and connect communities

The project sits between a vibrant central business district and the struggling Hill neighborhood, one of many neighborhoods severely impacted by the original Oak Street Connector. Today, there are over 150 vacant structures (roughly ¼ of all vacant structures in the City) in the Hill neighborhood (City of New Haven, 2011). The total number of housing units in the Hill has decreased by 175 since 2000 (US Census, 2010) even though demand for rental housing is increasing Citywide.

Designated as a Federal Empowerment Zone and a State Enterprise Zone, the Hill can once again become a thriving neighborhood when its residents become better connected to the employment opportunities within Downtown Crossing.

The Yale-New Haven Hospital / Yale School of Medicine communities will benefit from the improvements. As noted in the Union Station Medical District Concept Plan, (Davis Brody Bond, 2006), parking consumes 30% of land area in the medical district, as compared with 12% in Cambridge, Massachusetts. The authors have noted that this area is an "incoherent maze of streets and super-blocks which constrict both pedestrian and vehicular movement." The plan also notes that "…walking from the station to downtown or the medical district is a circuitous and uninviting trek past vacant sites and parking lots." The City,

Yale University, and Yale-New Haven Hospital are among the largest landowners in the area and all parties are working to restore a logical, walkable street grid.

Connectivity will be reinforced and re-established within the project area and will extend to the adjacent downtown, medical district, and university as well as many adjacent neighborhoods and businesses. The reconnected streets will reduce transit travel times and increase safety. (Transit Memo). The project will develop land within the highway right of way, restore a major division in the urban fabric, establish crosstown connections, and connect neighborhoods with the City's major civil, institutional, and cultural facilities. Improved connectivity with the project improvements will also improve emergency access to Yale New Haven Hospital.

Secondary Selection Criteria

Innovation

The conversion of Route 34 is an innovative way to address the safety, livability and economic development needs of the community. The project is looking to incorporate an urban design approach that, coupled with on-street traffic calming creates a decrescendo effect as a means to slow down vehicular speed coming into downtown. The project demonstrates how efficiencies can be gained with fully integrated, demand responsive traffic control systems to reduce travel speed and still accommodate the capacity needs of Downtown environment.

As a matter of citywide priority, Downtown Crossing will be designed for consistency with the City's Complete Streets policy. The policy calls for shared streets for all users even in complex urban environments. Given the high demand for bike / pedestrian access, the plan includes (1) exclusive phase pedestrian signals; (2) dedicated bike lanes and bike boxes; (3) streetscaping and (4) wide sidewalks to enhance the pedestrian experience. In order to facilitate the shift to non-motorized modes, the City will deploy advanced signal and traffic control technologies to manage traffic flow and optimize lane assignments.

The selection of appropriate advanced technology for traffic signals was based on our major initiative to enhance traffic operations and monitor incidents for reducing congestion, increase safety, monitoring construction traffic management, and expediting goods movement throughout the City. Coordinated systems reduce air pollution from traffic by approximately 10-15% on average (VHB, Inc.)

Similarly, the use of video vehicle detection and incident management camera system technologies are now part of the City's standard design practices. New Haven installed the first video detection system and incident management camera in 2003, and since then the City has installed, operated, and maintained the equipment at many intersections, which were reconstructed under the Federal and State Surface Transportation Program funds.

The installation of video detection at City intersections has proven very effective to provide flexible and non-intrusive multiple-vehicle detection zones. The City has the ability to remotely and continuously monitor intersection operation for addressing congestion, and traffic information dissemination to optimize traffic signal timing for most favorable performance. Likewise, the use of video detection has also allowed the City to enhance traffic system functionality and a develop logic program for obtaining a Measure of Effectiveness (Reduce delays, congestion, fuel consumption, and air pollutant) at each location.

Figure 11: Orange Street Protected Bicycle Lanes

The Orange Street intersection has been designed with a striped and dedicated protected bike lane configuration, the first such design approach in the State of Connecticut, designed to foster vehicular movement while protecting bicycles from moving vehicles, the intersection will convert this once impassable place into a pilot for bicycle design in the State.

Partnership

As stated in Section 8: Cost Sharing or Matching, non-federal funding for this project is aggregated from two sources and totals $33.5 million. This represents 45.6% of the project budget. The City of New Haven, as the applicant and project manager, is committing $12.0 million in local capital funding toward the project. This contribution is matched by a contribution by the State of Connecticut.

The Department of Economic and Community Development is making available $21.5 million in economic development bond authority funds. As the City and State collaborate on a host of projects, the level of commitment to this project signifies its importance from a transportation and economic development perspective.

Outside of this project, the City is coordinating Downtown Crossing with a number of large projects around the site. These projects include:

- Interstate 95 New Haven Harbor Crossing Corridor Improvement Program - $2 billion project now under construction to expand the regional highway system along the east side of the site. The design team for Downtown Crossing is working closely with Connecticut DOT to ensure coordination of the improvements.
- Hill To Downtown Plan - $150 million plan to further reconnect the street grid and convert surface parking to a mixed-use community and medical-related development along the southeast corner of the site. As part of the Downtown Crossing master plan, a new street segment will be introduced connecting Temple Street across Route 34 to Congress Avenue and South Frontage Road. The city is applying for a Choice Neighborhood Initiative grant as part of its plan to rebuild the Church Street South 300 unit housing complex.
- Union Station Transit Oriented Development - $200 million plan to expand Union Station with a mix of transit oriented uses. The project includes near term expansion of commuter

parking and remerchandising of the landmark station building.

Jurisdictional and Stakeholder Collaboration

The City, State, MPO and their partners have been working on the project plan since 2007. The Yale School of Medicine and Yale New Haven Hospital are active participants in this project. As evidenced by the many letters received, which are included in the Appendix.

Disciplinary Integration

One of the primary objectives of Downtown Crossing is to restore neighborhoods and improve livability within the Route 34 corridor and downtown New Haven. The project is engaging citizens in stakeholder interviews and public meetings, with more to be scheduled as the project progresses. Non-transportation public agencies will be invited to participate in these sessions, which will provide input to the design team.

6. Demonstrated Project Readiness, Technical Feasibility

As the schedule in Table 2 shows, the project is on schedule to open in June 2017. As part of the broader project, the full build improvements have independent utility in transitioning traffic from the regional highway network, reducing weaves, and improving safety. Structural, civil, traffic engineering and planning reviews are being completed for technical feasibility.

Financial Feasibility

A total of $40 million is required to complete the infrastructure for the full build improvements. The requested TIGER 2016 Grant funding of $40 million is matched by a $31.5 million (54.4%) non-federal local contribution. In addition, the project demonstrates a substantial positive benefit/cost ratio, as described in the Benefit/Cost Analysis.

Project Schedule

The Full Build of the Downtown Crossing project will complete all design, permitting, and obligation of funding necessary to complete construction. The City is positioned to execute the completion of design and start construction in accordance with the funding requirements of the TIGER 2016 program. All funding can be obligated by September 30, 2019. Construction will proceed concurrent to the private investment and private construction adjacent to the Full Build construction on the Coliseum site.

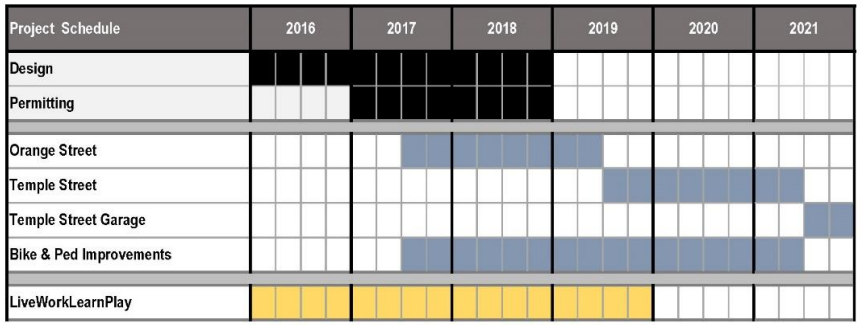


Table 2: Project Schedule

Required Approvals

Environmental Permits and Reviews

The National Environmental Policy Act (NEPA) process for Downtown Crossing Full Build improvements is substantially complete. In meetings held to assess the environmental review

requirements for the project, ConnDOT and FHWA concurred that the project would qualify for a Categorical Exclusion. A Categorical Exclusion for the first phase improvements was submitted (August 2010). This document evaluated the full-build traffic impacts and demonstrated that the Downtown Crossing project will not significantly impact the natural or built environment.

Legislative Approvals

The following legislative approvals have been obtained for this project:

- FFY 2010-2013 Transportation Improvement Plan. The S. Central Regional Council of Governments approved this project and incorporated as part of Amendment #8 on July 28, 2010. The MPO reference # is SCRCOG #2010-A8-6.

State and Local Planning

The Downtown Crossing project is specifically referenced in the state's Master Transportation Plan, which establishes a framework for planning for future transportation improvements. These plans have generated specific actions, leading to the project being listed in the Transportation Improvement Program. The overall project improvements are consistent with the following state and local plans:

- New Haven Vision 2025
- The Future of Route 34 Study, Clough Harbour, 2007
- Downtown Crossing: A Proposal for the Revitalization of Route 34 East, 2007
- Comprehensive Economic Development Strategy (CEDS), 2008
- LetsGoCT!, 2015
- Transportation Improvement Program, 2015

Assessment of Project Risks and Mitigation Strategies

Potential risks to the Full Build of Downtown Crossing have been identified and assessed. The main identified risks associated with the construction of the project specifically are:

- Unforeseen site conditions
- Unanticipated infrastructure impacts associated with flood mitigation strategies
- Vibration impacts to the Temple Medical Center
- Development changes to LiveWorkLearnPlay that impact project infrastructure and design

Management and mitigation of risk is a continuous process that will include proactive coordination with the project stakeholders. Collaborating with major stakeholders early in the design process, design and construction workshops, and a multi-media public information program all components of the risk management and mitigation process.

7. Benefit Cost Analysis

A benefit-cost analysis (BCA) was conducted for the for Downtown Crossing submission to the U.S. Department of Transportation (U.S. DOT) as a requirement of a discretionary grant application for the 2016 TIGER program. The analysis was conducted in accordance with the benefit-cost methodology as recommended by the U.S. DOT in the Federal Register (81 FR 9935) and conducted for a 34-year analysis period after operations begin in 2022.

The BCA compares the benefits and costs that would accrue under a Project and a Non-Project scenario. Under the Project scenario included in this BCA, the Downtown Crossing is built,

and developments that depend upon the project's completion move forward. Under the Non-Project scenario, the Downtown Crossing is not built, the roadway infrastructure in the area and the development within the area are much as they are today.

For the purposes of the BCA, the overall capital cost of the project is expected to be $73,500,000 in undiscounted 2015 dollars from 2017 through 2022. This analysis includes $33,500,000 ($2015) dollars beyond what appear in the TIGER grant request. It is anticipated that some aspects of the Downtown Crossing will increase annual operating and maintenance costs while others will decrease costs. For example, the new Temple Street overpass will increase operating and maintenance, while the removal of lanes from the existing Route 34 will decrease operating and maintenance. The net result is expected to be a minor increase in operating and maintenance costs of approximately $30,000 per year.

In real 2015 dollars, the Project creates $46,082,461 in present value benefits when discounted at 7% (or $131,627,770 when discounted at 3%). New developments will be made possible by the project, by providing developable land with adequate connectivity to the surrounding transportation system. Some developable land will be reclaimed from what had been roadway. Because previously undevelopable locations will now be able to be developed, the underlying land values will increase, creating value. New Haven also has a much lower rate of vehicle trip generation than other locations in Connecticut and in the United States as a whole. Rates of usage for transit, bicycling, and walking are much higher in New Haven than at these other locations. Therefore, bringing development to New Haven will reduce automobile usage and increase usage of transit, bicycling, and walking compared to if these development occurred elsewhere in Connecticut.

Relative modal usage associated with existing businesses, institutions, and residences in New Haven will be impacted.

Table 3: Summary of BCA of the Downtown Crossing Project

Benefit Description	*Benefit Value (7% discount rate)*	*Benefit Value (3% discount rate)*
State of Good Repair		
- *Reduced highway maintenance*	*148,834*	*310,431*
- ***Category subtotal***	***148,834***	***310,431***
Economic Competitiveness		
- *Fuel savings*	*6,560,385*	*13,888,020*
- *Vehicle Operations & Maintenance*	*36,399,188*	*75,920,016*
- *Real Estate Appreciation*	*15,216,703*	*19,867,647*
- *Reduced Processing of Storm Water Runoff*	*502,127*	*753,319*
- ***Category subtotal***	***58,678,403***	***110,429,002***
Sustainability/Livability		
- *Emissions – CO2*	*3,083,878*	*3,083,878*
- *Emissions – Criteria Pollutants*	*141,474*	*281,699*
- *Health Benefits*	*2,850,675*	*5,939,535*
- *Commuter Mobility Benefit*	*7,337,152*	*15,896,373*
- ***Category subtotal***	***13,413,179***	***25,201,485***
Safety		
- *Property damage only accident savings*	*728,450*	*1,532,637*
- *Injury reduction savings*	*18,128,355*	*37,933,053*
- *Fatality reduction savings*	*10,288,970*	*21,460,334*
- ***Category subtotal***	***29,145,775***	***60,926,024***
Total Project Benefits	***101,386,189***	***196,866,942***
Costs		
- *Capital costs*	*(55,303,729)*	*(64,708,245)*
- *Operating and maintenance costs*	*(256,955)*	*(530,927)*
Total Project Costs	*(55,303,729)*	*(65,239,173)*
Net Present Value	*46,082,461*	*131,627,770*
Benefit/Cost Ratio	*1.83*	*3.02*

Modeling by the City of New Haven as well as research by others has found that providing bicycle and pedestrian friendly infrastructure reduces vehicle trip generation. The project will also improve access to Union Station, thus supporting the usage of intercity and commuter rail. Reduced vehicle trip generation saves costs associated with operating vehicles, reduces pavement damage, saves fuel, and saves vehicle emissions. The project will improve safety both by reducing vehicle trips and by providing a safer roadway design. Promoting walking and bicycling generates health benefits and increases commuters' modal choices. Finally, the project decreases the cost of treating rainwater runoff. Table 3 provides a summary of benefits and costs of the Downtown Crossing Project.

8. Cost Sharing or Matching

A total of $40 million is required to complete the infrastructure for the full build improvements. The requested TIGER 2016 Grant funding of $40 million is matched by a $31.5 million (54.4%) non-federal local contribution.

Non-federal funding for this project is aggregated from two sources for a total of $33.5 million. This represents 45.6% of the project budget. The City of New Haven, as the applicant and project manager, is committing $12.0 million in local capital funding toward the project. This contribution is matched by a contribution by the State of Connecticut. The Department of Economic and Community Development is making available $21.5 million in economic development bond authority funds.

Table 4: Funding Sources

Funding Sources		
Non-Federal	TIGER VIII	Total
$33.5 (Total) • $21.5 (CT DECD) • $12.0 (City)	**$40.0**	**$73.5**
45.6%	**54.4**	**100%**

9. Federal Wage Rate Certification

As required in the Notice of Funding Availability, the City of New Haven states and assures that it will comply with the requirements of subchapter IV of chapter 31 of title 40, United States Code (Federal wage rate requirements), as required by the FY 2016 Appropriations Act.