



HARTFORD LINE

TOD ACTION PLAN PART 2 REPORT



2019



ACKNOWLEDGEMENTS

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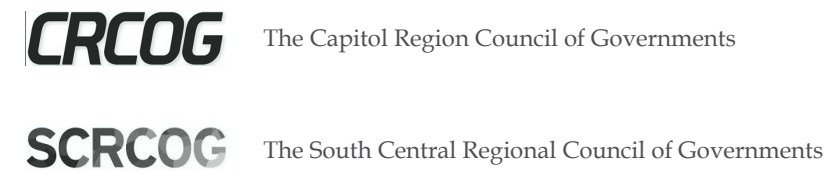
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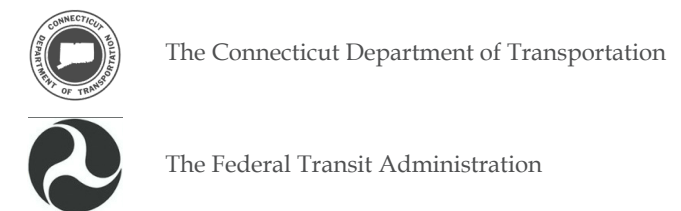
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Scenes from the Hartford Line
in 2015-2016



INTRODUCTION

In 2015, the State of Connecticut was awarded a grant from the Federal Transit Administration (FTA) to conduct a study of transit-oriented development (TOD) opportunities pertaining to the New Haven-Hartford-Springfield (NHHS) corridor, now branded as the *CTrail* Hartford Line. TOD is defined as compact, mixed-use development located within a short walk of a transit station. Whether it is new construction, redevelopment, or small-scale infill development, a fundamental characteristic of TOD is that its physical form responds to - and is interrelated to - transit.

The Connecticut Department of Transportation (CTDOT) initiated the Hartford Line TOD Action Plan in May 2016 to complement the ongoing work to provide more frequent, convenient, and faster passenger rail service along the corridor. Through the Hartford Line TOD Action Plan, the project team, consisting of CTDOT with support from its consultant, WSP USA, Inc., has partnered with interested municipalities along the Hartford Line corridor to identify and overcome hurdles for TOD implementation. The purpose of the Hartford Line TOD Action Plan is to identify strategies to activate TOD in selected station areas by building upon local, regional, and statewide planning efforts. As used in this report, the term “station area” refers to a half-mile radius from the location of a Hartford Line station.

Part One of the Hartford Line TOD Action Plan summarized the detailed assessment of “Desire and Readiness” (D&R) for TOD in several municipalities served by the recently launched Hartford Line. The assessment was built around an interactive process with municipal leadership and local stakeholders to identify actionable strategies to promote locally-defined and context-sensitive TOD within the station areas. Based on the Desire and Readiness assessments, the project team developed a tailored set of recommendations for each municipality.



Part Two of the Hartford Line TOD Action Plan enabled the project team to provide targeted technical assistance to the selected station area municipalities to continue moving from TOD planning to implementation. In collaboration with municipal leaders, one “key recommendation” for each municipality identified in Part One was advanced. Recommendations ranged from development propositions, to conceptual public realm improvements, to TOD supportive regulatory policies - all to support efforts in realizing the potential benefits of the transformative transit investment through economic development potential. For each recommendation, the project team produced a final deliverable and proposed associated next steps that the municipality can use to continue to advance TOD implementation.

The Part Two effort focuses on selected station areas of new or relocated Hartford Line stations. Following the Part One effort, as station designs have progressed and municipalities have continued to advance TOD, some of the key recommendations from Part One have been updated to reflect evolving municipal priorities.

The Part Two effort focuses on selected station areas of new or relocated Hartford Line stations. Following the Part One effort, as station designs have progressed and municipalities have continued to advance TOD, some of the key recommendations from Part One have been updated to reflect evolving municipal priorities.

- The original key recommendation for the Town of North Haven was revised due to a modification to the siting of the future station. Originally, the project team planned to assist the Town in positioning for future grant opportunities to implement streetscape improvements in the proposed station area. However, with the relocation of the planned station, the need to update TOD planning efforts to account for the new station location emerged as a priority.
- In addition to the selected station area municipalities detailed in the Part One report, the Town of East Windsor was added as a partner municipality due to their proximity to the planned station in Windsor Locks. A complimentary recommendation focusing on enhancing non-motorized access to the future Windsor Locks Station was advanced in Part Two.
- The original key recommendation for Windsor Locks was to coordinate complete streets and TOD planning/

implementation with the Town of East Windsor. Subsequently, the project team, in coordination with the Towns of Windsor Locks and East Windsor, opted to advance unique recommendations for each of the municipalities, rather than combining into a single recommendation.

The following list reflects the key recommendations that were advanced in the Part Two effort of the Hartford TOD Action Plan:

- **North Haven:** An update to the 2015 North Haven Walkability and Livability Plan, including streetscape improvements and other recommendations to improve connectivity to the new proposed station location.
- **Wallingford:** A conceptual plan for targeted development opportunities with associated financial feasibility analysis, to serve as a resource for the Town as it engages the development community and property owners.
- **Berlin:** A conceptual site plan for the redevelopment of 100 Harding Street to present a development vision for the site.
- **Newington:** An alternative station siting assessment to identify an alternative location for a future station, based on the potential for TOD.
- **West Hartford:** Recommendations to modify zoning in the future station area to support appropriately scaled redevelopment, based on test fit scenarios.
- **Windsor:** Recommendations for strategies to balance and manage short-term and long-term parking needs in Windsor Center, to accommodate additional demand from future development opportunities and increased rail passenger traffic.
- **Windsor Locks:** A future build-out illustrative plan that highlights the Town’s vision for future TOD in the station area, that can be used in discussions with potential developers to revitalize the downtown.
- **East Windsor:** A streetscape plan that can support improved connectivity within Warehouse Point and to the future Windsor Locks Station.
- **Enfield:** A TOD blueprint that fosters interproject coordination and cohesion by outlining critical paths for advancing TOD, common themes, goals, and

potential interdependencies among the many ongoing and forthcoming projects in Thompsonville. The blueprint is accompanied by an interactive tool for coordinating ongoing and planned TOD initiatives.

The Part Two Report of the Hartford Line TOD Action Plan is a compilation of these targeted strategies advanced for each municipality as identified in the Part One Report. While diverse, the recommendations and associated action items for each municipality all serve to advance each Town’s unique vision for TOD within their communities. In this way, the full Hartford Line TOD Action Plan supports TOD planning and implementation along a corridor that is poised to capitalize on the transformative transit investment through the advancement of development initiatives, public realm improvements, and a regulatory environment that will support ongoing and future TOD related initiatives.

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NORTH HAVEN

WALKABILITY AND LIVABILITY PLAN UPDATE



Welcome to North Haven. A welcome to North Haven sign at one of the main station gateway intersections in the planned North Haven station area.

NORTH HAVEN

Chapter Context

The chapter for the Town of North Haven was completed during Spring and Summer 2019. The information herein is reflective of the data and information available during this time period, and any recommendations made are based upon the conditions within the station area at this time.

Introduction and Background

In 2015, the North Haven Station Walkability and Livability Plan (the 2015 plan) was prepared for the planned Hartford Line station in North Haven. This plan identified key issues that impact walkability of the proposed station area, as well as opportunities to promote transit-oriented development (TOD) through public realm improvements. These issues and opportunities informed recommendations in the future proposed station area to:

1. Enhance pedestrian connectivity between established neighborhoods and the future station,
2. Connect new and planned development to the future station, and
3. Improve the safety, quality, appearance, and economic opportunity of the neighborhood through targeted and strategic infrastructure improvements to the street system.

The original “Key Recommendation” for the Town of North Haven in the Hartford Line TOD Action Plan – Part One Report was to help the Town position for grant and other funding opportunities to finance implementation of recommended streetscape improvements from the 2015 plan .

At the time of the 2015 plan and the 2017 Part One Report, the proposed station location was on Devine Street, east of State Street and north of Route 40. However, the proposed location of the future station has subsequently been modified based on an evaluation of alternative sites, citing access constraints and significant environmental concerns. The new planned location of the future Hartford Line station in North Haven is on Stiles Lane, south of Route 40 and east of State Street.

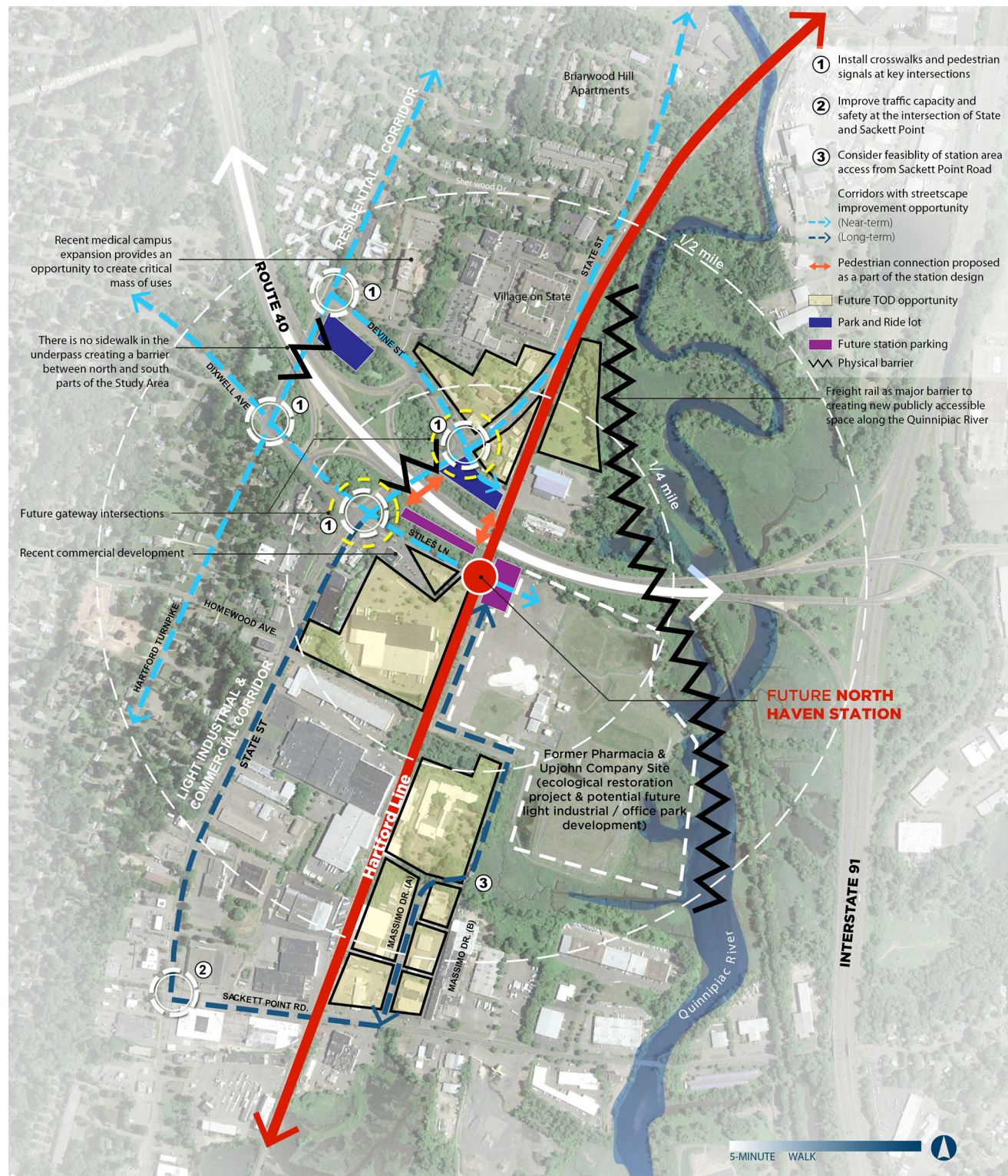


FIGURE 1 UPDATED ISSUES AND OPPORTUNITIES IN THE NORTH HAVEN STATION AREA

Due to the station siting relocation, CTDOT and its consultant team, in coordination with Town leadership, identified the need for an update to the 2015 plan. As such, this effort advances a new “Key Recommendation” for the Town of North Haven that addresses this need. The ultimate goals of the updated plan are consistent with those previously stated and originally included in the 2015 plan. However, this update identifies additional recommendations for infrastructure improvements that enhance access to the new station location.

Key Considerations

The project team identified several critical considerations to address in the update to the 2015 plan. Figure 1 is an updated version of the original “Key Issues & Opportunities” graphic, highlighting major considerations in the station area, many of which were addressed in the recommendations made in the original walkability plan. Of these considerations, the project team identified three that were prioritized for this update, including:

The creation of a new “gateway” intersection based on the new station location.

While the State Street-Devine Street gateway intersection identified in the original plan will continue to provide access to a station area park and ride lot, a new gateway at the intersection of State Street and Stiles Lane will be the primary access point to the station for all vehicular, bicycle, and pedestrian traffic. Infrastructure improvements to the gateway intersections should improve accessibility, safety, and visibility to the station.

The need for infrastructure improvements to provide multi-modal station access.

The new primary access road to the future station is Stiles Lane. However, Stiles Lane has limited roadway and right-of-way width to provide sufficient pedestrian and bicycle connectivity to the station. Multi-modal improvements that do not require intense capital investment are needed to encourage non-motorized traffic accessing the station from the surrounding area.

The need for alternative station access via Massimo Drive.

The future station at the Stiles Lane location requires the closure of an existing private at-grade crossing. This creates a lack of direct vehicular access to the east station platform and associated commuter parking. As such, the conceptual station design includes the creation of secondary vehicular

station access to the east commuter parking lot via Massimo Drive.

To avoid duplicating aspects of the planned station, the project team developed recommendations for improvements in coordination with those that are being included as part of the design for the future North Haven Station. These features include sidewalks along the east side of State Street and along the western side of the tracks under the Route 40 overpass, connecting the future station parking west of the tracks on Stiles Lane to the existing park and ride commuter lot on Devine Street. The recommendations also assume under initial station planning that a new or extended roadway will be constructed for Massimo Drive. Rather than focusing solely on these station-based elements, the project team concentrated on additional improvements to the area that the Town of North Haven can implement in collaboration with CTDOT, as well as property owners and developers.

North Haven Walkability and Livability Plan Update

Based upon the new proposed location of the future Hartford Line station in North Haven, the project team developed this update to the 2015 North Haven Walkability and Livability Plan. The goal of the update is to identify recommended infrastructure improvements, detailed in this section, that would create a safe, accessible streetscape that supports multi-modal connections and fosters TOD in the future station area.

The following recommended improvements are conceptual and if implemented, would be subject to a formal design review and refinements. However, they serve as a foundation for the Town as it continues efforts to enhance connectivity in the future station area.

Station Gateway Intersection

The “gateway” intersection functions as the primary access point to the future station, and provides a sense of arrival into the station area. As such, the update recommends that safety improvements and aesthetic enhancements be implemented at the State Street - Dixwell Avenue - Stiles Lane intersection. As a busy intersection that manages industrial trucks, residential traffic, highway access, bicycles, and pedestrians, many of the recommended improvements seek to improve connections and enhance safety for all users.

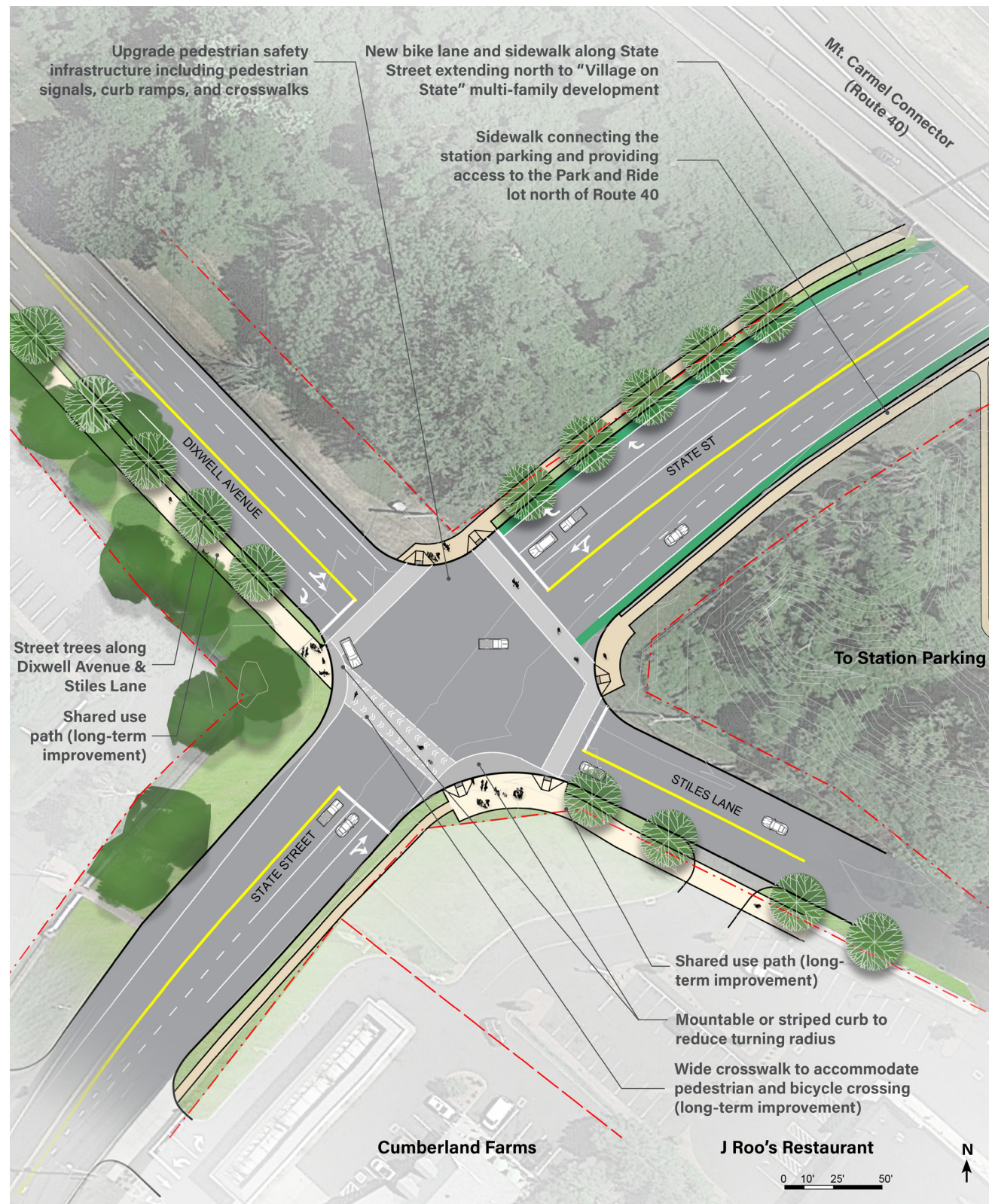


FIGURE 2

STATION GATEWAY INTERSECTION AT STATE STREET & STILES LANE (SHOWING LONG-TERM IMPROVEMENTS) IN THE NORTH HAVEN STATION AREA

New crosswalks and pedestrian push-button signals are recommended along all intersection legs to support walkability for pedestrians. Crosswalks provide visual cues to drivers that pedestrian traffic will be using the intersection and to exercise caution. Installation of prominent crosswalks and associated crossing infrastructure will delineate a clear pedestrian space, providing visibility and safety for pedestrians. In the long-term, the project team recommends that the southern leg of the intersection should feature a widened crosswalk to accommodate connecting into a proposed shared use path, detailed later in the chapter.

Due to the presence of freight generated by nearby businesses, the project team does not recommend the installation of permanent curb extension infrastructure that would impede truck turning movement. However, the project team recommends the installation of either mountable or striped curb extensions to reduce vehicular turning speeds. These types of curb extensions provide visual cues to drivers to reduce speeds, make drivers aware of potential pedestrian traffic, and create a safer environment for bicycle activity. Vehicular turning movements are one of the biggest hazards facing bicyclists at intersections. This proposed improvement would help reduce the likelihood of high-speed turns while still allowing large trucks the capacity to complete turning movements within the existing roadway. Other recommended improvements throughout this intersection and nearby roadway corridors include street trees and pedestrian scaled lighting to create a safe and aesthetically pleasing pedestrian environment.

Extending north from the proposed gateway intersection, as proposed in the 2015 plan, the project team recommends the installation of dedicated bicycle lanes on both the east and west sides of State Street. The recommended bike lanes would improve dedicated bicycle infrastructure in the station area and facilitate the connection between the State Street intersections with Devine Street and Stiles Lane. Bike lanes would supplement the planned sidewalks on State Street between Stiles Lane and Devine Street and improve multi-modal connectivity north of the station area to station parking, the "Village on State" development, and the North Haven Medical Center. Due to the industrial nature of the State Street corridor south of the Stiles Lane intersection, bike lanes are not recommended for this segment as a near-term improvement. If the industrial uses turn over at some point in the future, then this section of the corridor may warrant bicycle infrastructure. Figure 2 highlights these improvements and provides a graphic representation of

what the station "gateway" intersection could ultimately look like with other long-term improvements along key corridors.

Dixwell-Stiles Pedestrian Improvements

Extending out from the gateway intersection, the project team recommends several improvements be made to Dixwell Avenue and Stiles Lane, particularly to connect the future station and residential neighborhoods to the west. Due to the potential for TOD in the area surrounding the future station, the project team identified both near-term and long-term improvements for these roadways. In the near term, it is recommended that the existing curbs are preserved and the existing sidewalk segment along Stiles Lane, constructed as part of a private development, be extended to the future station. To connect with proposed bicycle improvements on State Street, north of the gateway intersection, the project team recommends that bicycle signage and bicycle sharrows be implemented within the existing right-of-way along Stiles Lane and Dixwell Avenue, alerting drivers to the potential presence of increased bicycle activity in the station area. The recommended near-term improvements do not include special accommodations for bicycles at the gateway intersection, requiring bicyclists to utilize standard crossing infrastructure. Figure 3 depicts a cross-section and rendering of what the proposed right of way could look like, if implemented.

It is anticipated that construction of the new station will spur TOD and increase pedestrian and bicycle activity around the station. As a longer-term improvement, the project team recommends that a shared-use path be implemented along the south side of Dixwell Avenue and extended along Stiles Lane to the future station. The proposed shared-use path would connect east to the future station and west to Hartford Turnpike. The shared-use path will connect with proposed infrastructure that was recommended in the 2015 plan for Hartford Turnpike and State Street, including sharrows along Hartford Turnpike to accommodate bicycle needs in the residential areas. The purpose of the recommended path is to provide dedicated infrastructure for pedestrians and bicyclists to access the future station area from the primarily residential neighborhoods to the west. Due to the presence of highway access ramps on the north side of Dixwell Avenue, the project team recommends implementing the shared-use path along the south side of the roadway. The recommendation calls for a two-way bicycle and pedestrian shared-use path along the south curb outside the roadway, connecting to the widened crosswalk at the gateway

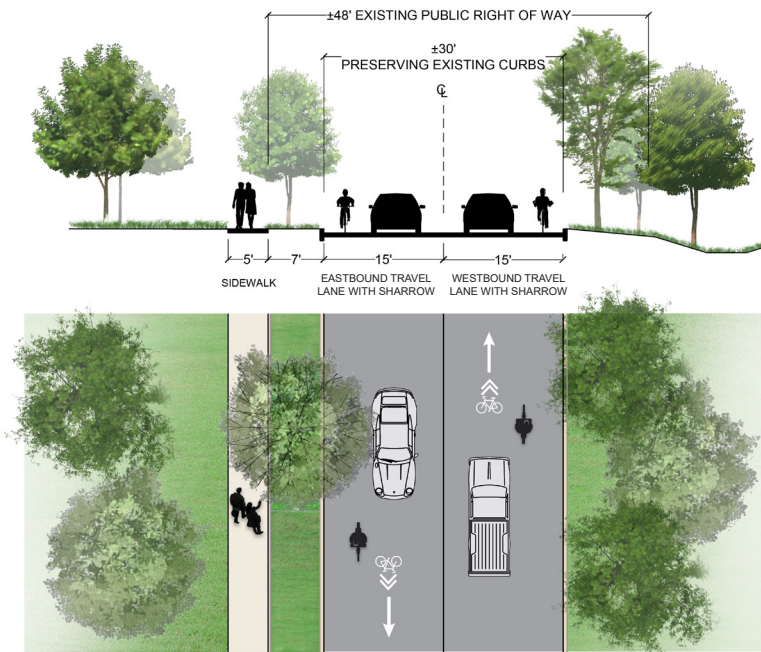


FIGURE 3 NEAR-TERM IMPROVEMENTS TO NON-MOTORIZED MOBILITY ALONG STILES LANE IN THE NORTH HAVEN STATION AREA (LOOKING WEST)

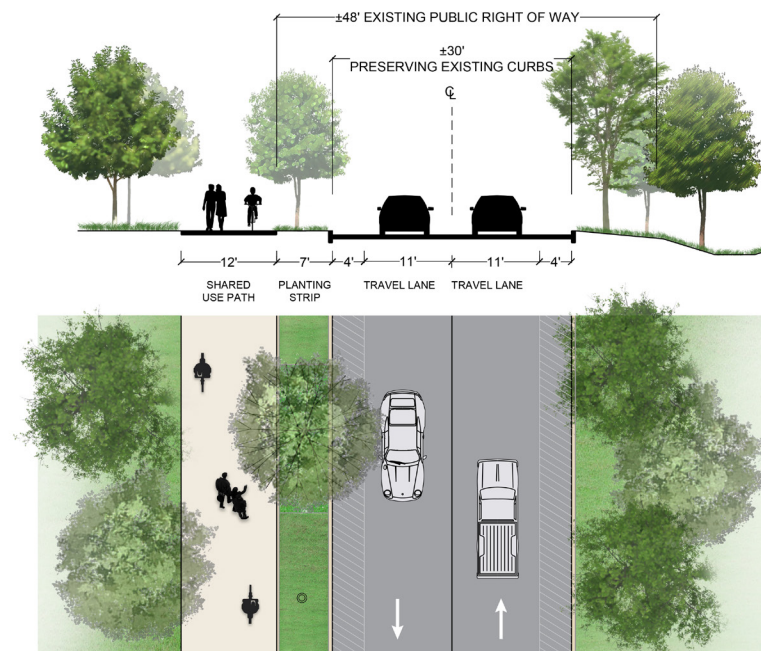


FIGURE 4 LONG-TERM IMPROVEMENTS TO NON-MOTORIZED MOBILITY ALONG STILES LANE IN THE NORTH HAVEN STATION AREA (LOOKING WEST)

intersection previously mentioned. Since the shared-use path would be outside of the existing public right of way on Stiles Lane, it is recommended that the Town require private developers to install this improvement as part of any development plans.

As existing industrial uses turn over to accommodate more TOD friendly uses, such as residential, commercial, or mixed-use developments, the existing lane widths needed to accommodate large trucks may no longer be necessary. In addition to the shared-use path, the project team recommends reducing the travel lane widths along Stiles Lane, from the existing 15 foot widths to 11 foot widths. This could have the added effect of slowing traffic, resulting in a safer streetscape environment for all users. Figure 4 depicts a cross-section and rendering of what the proposed right of way could look like, if implemented.

Massimo Drive Access Improvements

Massimo Drive will be a secondary station access road, providing access to the east side platform and associated passenger parking via a significant extension of the existing roadway (Figure 1). The current proposed alignment follows a partial existing right of way, as well as an area of land to be acquired during station design and construction. While the proposed alignment will alleviate some of the vehicular traffic accessing the station, especially from the south and east, several constraints may limit use of the roadway by alternative modes of transportation. Primarily, the existing right of way is very narrow, limiting the capacity for pedestrian infrastructure to supplement vehicle travel lanes. Wetlands, utilities, and environmentally contaminated industrial sites have all been identified as other potential constraints. Additionally, the southern portion of the roadway near Sackett Point Road is dominated by heavy industrial land uses which would limit the demand for additional pedestrian infrastructure. Due to these identified constraints, the industrial character of the surrounding area, and the distance from the station, the installation of sidewalks along Massimo Drive is not currently included in station design plans and is not an immediate recommendation by the project team.

Implementation of pedestrian and bicycle infrastructure would likely be dependent on supportive surrounding land uses and necessitate increased right of way width to become feasible. Future TOD-friendly uses may be possible

through the potential redevelopment of industrial sites and the opening of a portion of the Pharmacia & Upjohn ecological restoration site to the public (by appointment). These changes may encourage additional foot traffic in the area that creates an opportunity to support sidewalks and other pedestrian and bicycle infrastructure in the future. If industrial sites turn over, the Town could coordinate with potential future developers to include this infrastructure as part of redevelopment plans of the former industrial sites.

If the area were to become TOD-friendly in the future, the project team recommends that the Town consider coordinating with CTDOT and local property owners to determine the feasibility of creating a dual access system. A portion of Massimo Drive and a nearby access road, noted on Figure 1 as Massimo Drive (A) and (B) respectively, could be utilized for one-way traffic to potentially alleviate some of the constraints that could inhibit implementation of additional infrastructure.

Conclusions and Recommended Next Steps

This update to the 2015 plan provides additional recommendations that support multi-modal connectivity based upon the new proposed station location on Stiles Lane. This update serves as an addendum to the original plan and does not preclude the original recommendations made, rather, builds upon them to bolster connectivity in the station area. The public realm improvements recommended for the station area aim to provide support for future TOD scenarios envisioned by the Town and ensure safe, appealing, and efficient station access for all users. Collectively, these recommendations are referred to as the Streetscape & Public Realm Improvement Plan, and are depicted in Figure 5. The updated plan, including both the original recommendations and recommendations in this addendum, can serve as a tool to secure the funding needed to implement the optimal infrastructure improvements based upon the findings of this walkability and livability plan. This plan includes cross sections, illustrations, and other graphics that could be used by the municipality in presentations and proposals to highlight key infrastructure improvements and can be used when developing grant and other funding proposals. The matrix below outlines recommended improvements beyond those recommended in the original 2015 plan, at the target locations based upon the suggested timeframe for their implementation.

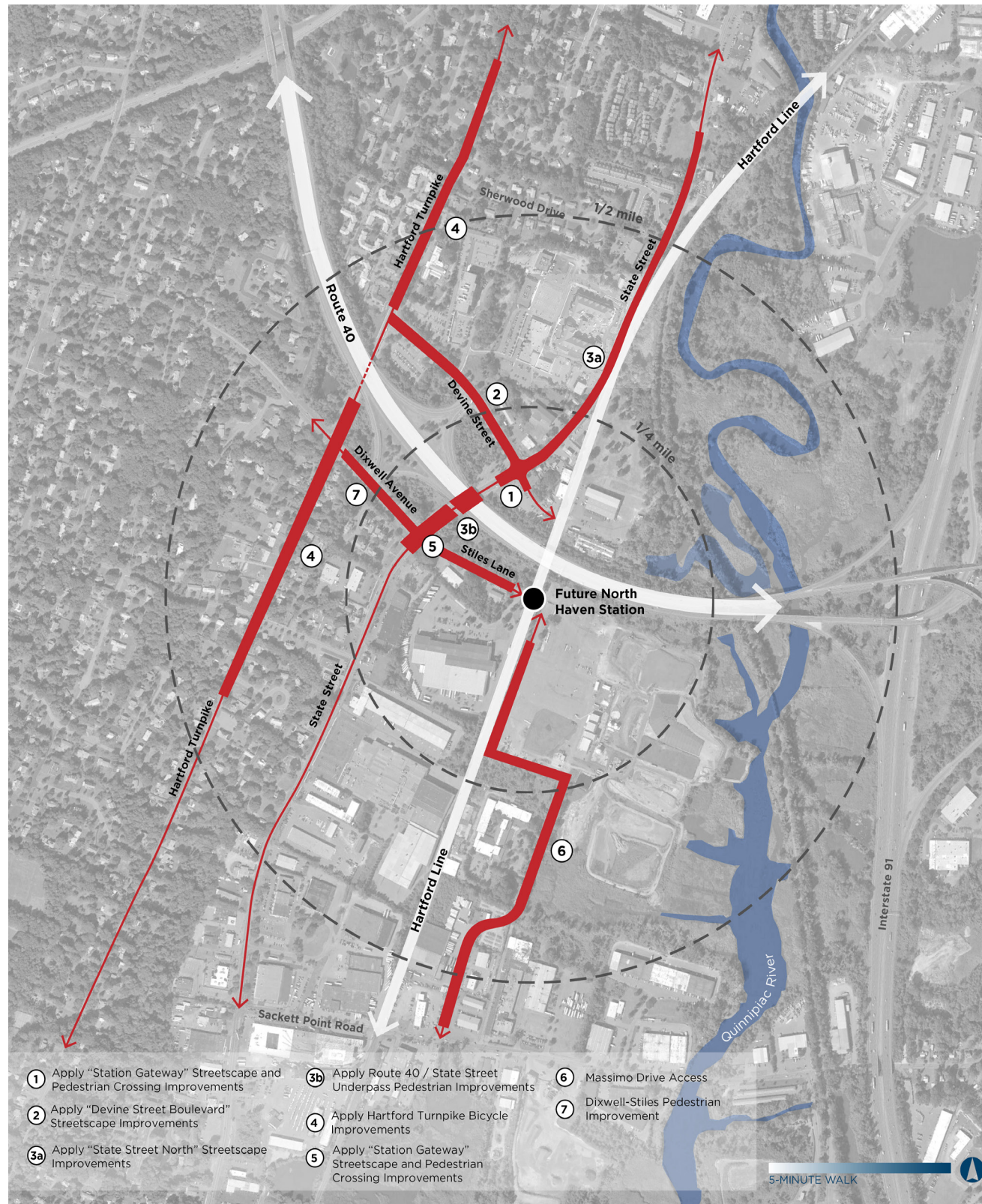


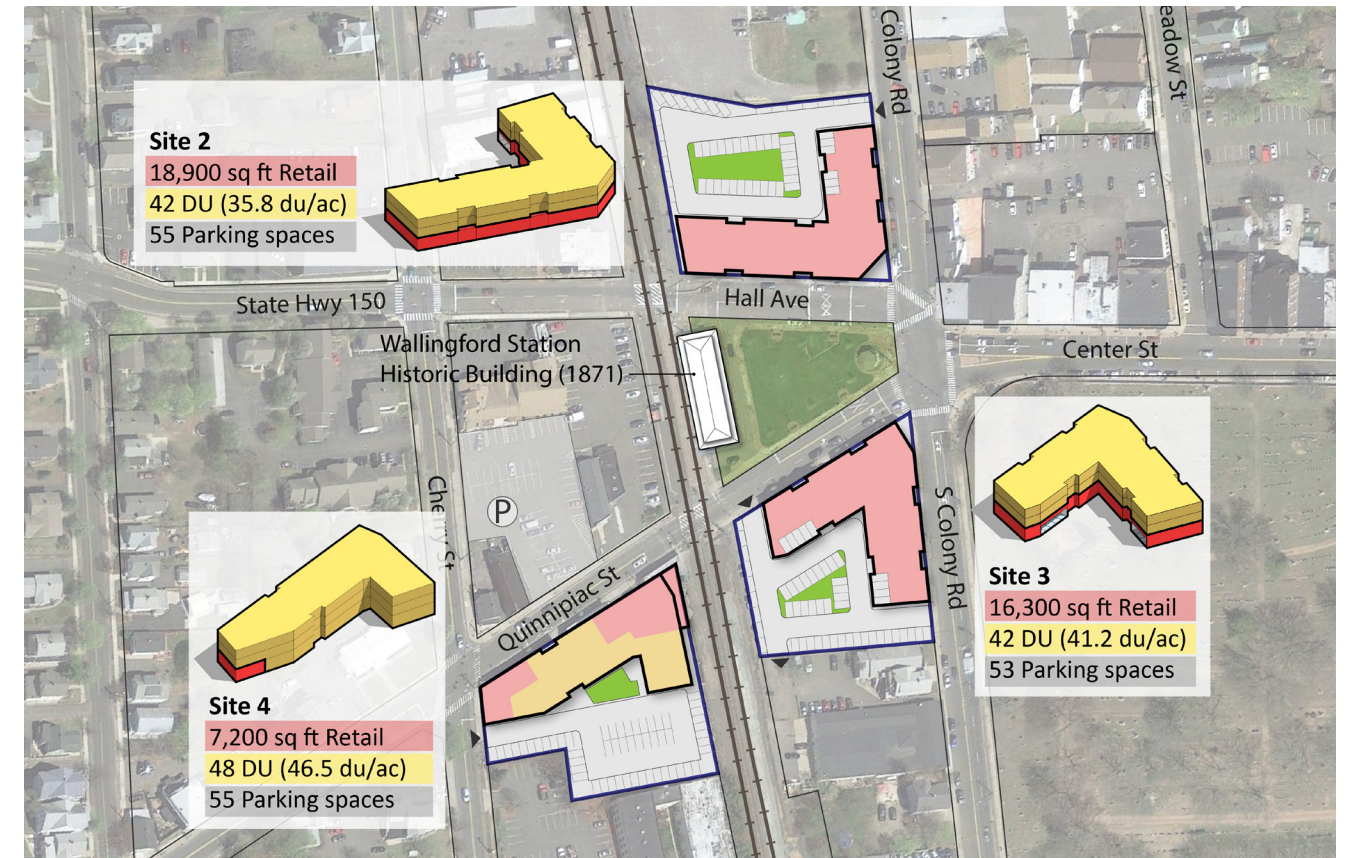
FIGURE 5 UPDATED STREETScape AND PUBLIC REALM IMPROVEMENT PLAN IN THE NORTH HAVEN STATION AREA

Location	Near-Term Improvements	Long-Term Improvements
State Street-Stiles Lane 'Gateway' Intersection	<ul style="list-style-type: none"> New crosswalks New push buttons Installation of visual curb extensions Bicycle lanes on State Street (north of the intersection) New sidewalks under Route 40 overpass 	<ul style="list-style-type: none"> Widened crosswalk to accommodate bicycle connections
Dixwell Street	<ul style="list-style-type: none"> Installation of bicycle sharrows on existing roadway 	<ul style="list-style-type: none"> Shared-use path along southern side of the roadway Street trees and pedestrian scaled lighting
Stiles Lane	<ul style="list-style-type: none"> Installation of bicycle sharrows on existing roadway Extension of existing sidewalk towards the station 	<ul style="list-style-type: none"> Continuation of proposed shared-use bike path to the future station Narrowed lane widths
Massimo Drive	<ul style="list-style-type: none"> Coordinate with CTDOT for the following improvements: <ul style="list-style-type: none"> Extend existing roadway to provide vehicular access to secondary station parking as part of the station design Installation of a new traffic signal at the intersection of Sackett Point Road and Massimo Drive Implement improvements to turn lanes and turn signaling at the intersection of Sackett Point Road and State Street as part of the station design to manage increased vehicular traffic 	<ul style="list-style-type: none"> Installation of sidewalks and bicycle infrastructure pending turnover of industrial sites Consideration for a dual-access roadway system (one way in, one way out)

Critical next steps to advance the recommendations for walkability and livability in the future station area include the following:

- Prioritize identified improvements in the future station area. Collectively, the 2015 plan and this update recommend several different streetscape and public realm improvements. It will be beneficial to prioritize the various recommendations so that implementation can be sequenced as funding becomes available.
- Identify funding sources to implement proposed streetscape improvements. While Chapter 5 of the original 2015 plan identified some potential funding sources, there may be additional sources of funding that have since become available.
- Prepare grant and other funding applications to secure sufficient funds.
- Coordinate with CTDOT and private owners/developers to advance TOD and infrastructure initiatives in the future station area.

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WALLINGFORD

TARGETED DEVELOPMENT FEASIBILITY CONCEPT PLAN



Historic Station and Railroad Green. The Town's historic station and railroad green, situated in Downtown Wallingford.

WALLINGFORD

Chapter Context

The chapter for the Town of Wallingford was initiated in Summer 2017 with subsequent updates in Spring 2019. The information herein is reflective of the data and information available during these time periods and any recommendations made are based upon the conditions within the station area at this time.

Introduction and Background

In the Hartford Line TOD Action Plan, CTDOT and its consultant team collaborated with the Town of Wallingford to prepare a development feasibility concept plan for priority sites in Downtown Wallingford. Although the Town, developers, and several property owners would like to see redevelopment in the Wallingford station area, there is a need to align the varied interests of these parties to realize a development vision. The purpose of this effort was to identify a financially feasible development scheme for catalytic properties that aligns with the goals of the Town, development community, and property owners. To do so, the project team developed concept plans that covered a range of opportunities at priority sites (Figure 6) through an iterative process. The priority sites were identified through collaboration with the Town and Wallingford Center Inc. (WCI), a local Main-Street style non-profit and champion for downtown improvement and revitalization. Over the course of this iterative process, the project team:

- Coordinated with the Town Planner and Town Economic Development Specialist to get a nuanced understanding of the desired outcome from the perspectives of building form and development program;
- Prepared concept plans in coordination with the Town and WCI for multiple development scenarios at each site, and identified a development scenario to advance as a preferred concept plan for a sub-set of the priority sites;
- Refined the preferred concept plan based on a financial feasibility analysis, looking at two different financing scenarios – (1) conventional financing with all market-rate residential units; (2) financing with public sector support, enabled through the inclusion of mixed-income residential units with a mix of market-rate and affordable housing in the development program.



FIGURE 6

PRIORITY DEVELOPMENT SITES
IN THE WALLINGFORD STATION AREA

This effort helps to address several key hurdles for TOD implementation that were identified during the D&R process with the Town:

- Lack of a stable retail presence Downtown;
- Disconnect between property owners and potential developers;
- Limitations of zoning at the time of study to encourage TOD-supportive densities and building form;
- Underutilization of the Historic Station building and Railroad Green; and
- Uncertainty surrounding actual development opportunities based upon on-site challenges such as the potential need for site assemblage of small, fragmented parcels.

Key Considerations

Based on discussions with the Town, the following considerations informed the development feasibility concept plan for priority sites Downtown:

Preferred Development Program

Based on background research, an understanding of the local market, and recent developments, the preferred development program focused on mixed-use buildings with rental apartments over ground-floor retail. The Town’s 2016 TOD Market Assessment supports the case for rental apartments as opposed to condominiums, with recent developments such as Parker Place and Judd Square transitioning condominiums to rental properties.

Zoning Flexibility and the Acceptable Scale of Development

Building upon its adoption of the Incentive Housing Zone (IHZ) in 2014, the Town updated its base zoning regulations in 2017 to decrease base parking requirements in the underlying commercial district and include opportunities for shared parking. Further discussion with the Town and the Planning and Zoning Commission (PZC) provided insights on future potential updates such as eliminating maximum building coverage and allowing four story buildings in the IHZ. Based on these updates and possible future updates, the project team tested a range of assemblage, height, density, parking ratio, and parking layout options in the scenarios.



Priority Development Sites in the Wallingford station area Above, top to bottom: the southwest corner of Site 1, looking northeast from the Railroad Green; the southeast corner of Site 2, looking north from the Railroad Green; the northeast corner of Site 3, looking south from the cemetery; the northwest corner of Site 3 and the northeast tip of Site 4, looking south from the Railroad Green.



FIGURE 7

**TEST FIT 1.1 FOR PRIORITY SITES
IN THE WALLINGFORD STATION AREA**

Site Design

Multiple versions of a conceptual plan were laid out to examine the physical suitability of each site under different zoning scenarios in conjunction with urban design considerations to create a vibrant and pedestrian friendly environment. Initial test fits provided a basis for understanding development potential under existing zoning while the TOD scenarios identified development opportunities under proposed zoning modifications. Primary design principles that guided the concept plans included maximizing the street wall frontage, providing continuous ground level uses along Hall Avenue and Quinnpiac Street to form an active and safe public open space, avoiding residential units directly facing the rail tracks, placing surface parking and driveways in the rear to provide a buffer from the tracks, and precluding off-street parking in front of buildings on any street. Site design of the concept plans also sought to balance considerations of access constraints imposed by the rail tracks and easement requirements to adjacent properties on sites 2 and 3, while maximizing build-out potential.

Targeted Development Feasibility Concept Plan

The development of the preferred concept plan started with a test fit study to examine site performance under different planning parameters and scenarios. The two initial test fits (1.1 and 1.2) explored as-of-right scenarios that showed what could be developed complying with the existing zoning at the time of the effort and how development differs with or without assembling parcels.

Test Fit 1.1 applied the existing (at the time of this study in 2017) base district zoning (CA-6/CB-12) and assumed that parcels are not assembled. Because most of the parcels do not meet the minimum 25,000 square foot lot area requirements for the IHZ overlay it would not apply to most of the parcels (as shown in Figure 7). Within these constraints – no assemblage and the then-existing zoning – Test Fit 1.1 assumed ground-floor retail with offices above (only residential conversions were allowed by right under zoning regulations at the time). Due to the fragmented geometry of individual parcels, the development scenario resulted in limited building floor area and an inefficient parking layout. Some parcels are too small and not feasible for independent development, resulting in gaps in development and street wall continuity. Test Fit 1.1 shows that non-assemblage significantly limits the development density and salable/

rentable floor area, which would have a negative impact on the financial feasibility of the development.

In the second as-of-right scenario, Test Fit 1.2, the project team assumed assemblage of the parcels so the sites could take advantage of the IHZ zoning overlay to maximize development. Increasing building height to the maximum four stories permitted and following the allowable density requirement (26 residential units per acre) resulted in limited square footage of building footprints that created discontinuous retail frontage and allowed for more surface parking than zoning requires.

Next, the project team developed three TOD Scenarios that were not constrained by the then-existing zoning, but maintained the building height at four stories. With the goal of maximizing development under existing parking requirements, TOD Scenario 2.1 combined the lower parking requirements from CA-6 for retail use and IHZ for residential use, but kept the four-story maximum height stipulated in the IHZ overlay. The result was a slight increase in retail frontage from Test Fit 1.2, which would support an active and pedestrian friendly street environment.

To continue to address the short-comings of the previous scenarios, the project team developed two additional TOD Scenarios that adopted transit-oriented parking requirements, where parking requirements were reduced to 1 space per 1,000 square feet of retail/ office and 1 space per unit for multi-family residential (regardless of the number of bedrooms). TOD Scenario 2.2 tested a four-story building with ground-level parking, while TOD Scenario 2.3 offered a less dense option with a three-story building with surface parking that was partially tucked-under the structure. Both scenarios maximized street frontage retail, increased development density, and incorporated amenities for future customers and residents, which in return increased the value of both retail and residential components.

Preferred Concept

The project team presented the analysis of various Test Fits and TOD Scenarios to the Town. TOD Scenario 2.3 was selected for further study because of its merits in achieving maximum building footprints while accommodating context-sensitive parking. Upon additional consideration, the four priority sites were further narrowed down.

Site 1 was removed due to assemblage obstacles associated with multiple property owners. Using the three remaining priority sites, the project team further refined the design

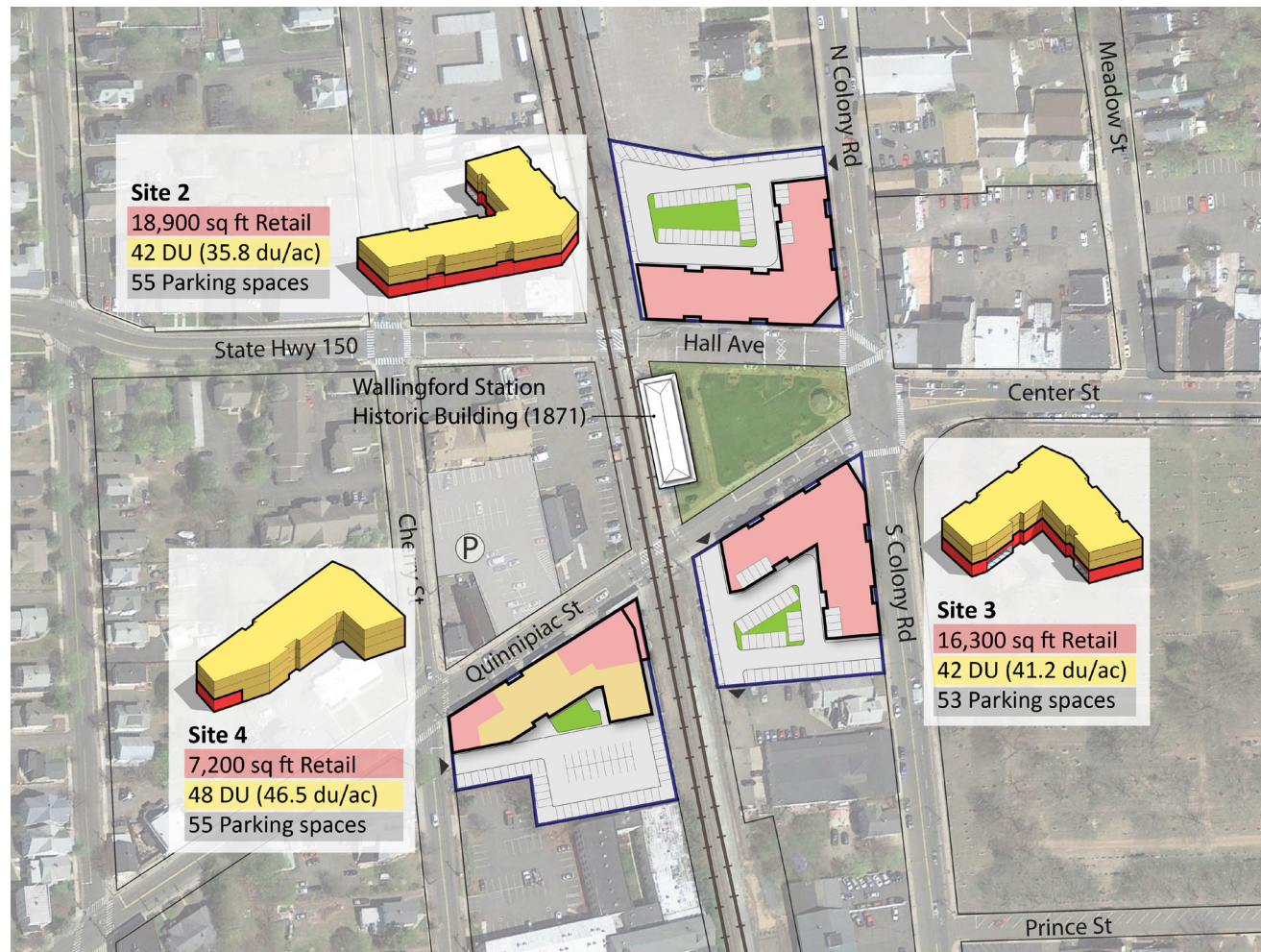


FIGURE 8

PREFERRED CONCEPT PLAN FOR PRIORITY SITES IN THE WALLINGFORD STATION AREA

Note: Amenity space is included in the residential floor area.

concept of TOD Scenario 2.3 based on the design principles previously described. The preferred concept plan and massing are shown in Figure 8.

All three sites are programmed with ground level retail along the street edge and two stories of rental apartment units above. The layout creates continuous retail frontage on Hall Avenue and Quinnpiac Street, and forms a private courtyard space in the center of each block. To maximize street frontage and build-out potential, Site 2 accommodates access to the adjacent church via North Colony Road, but eliminates the Hall Avenue access easement. Parking needs are accommodated by a combination of surface spaces and parking tucked-under the structure in the rear. The building configuration was tested in the financial feasibility exercise and modified accordingly to achieve a balance between development program, average apartment size, and parking requirements. The preferred concept plan envisions mixed-use, multifamily buildings that offer residential and retail development new to the Wallingford market. The detailed program is listed in the preliminary return on investment summary tables.

Financial Feasibility

To test potential financial feasibility of the preferred concept plan, the project team conducted a preliminary return on investment (pROI) analysis that supported and informed the Preferred Concept Plan. The financial feasibility was analyzed solely for this study and the conclusion from the pROI exercise is intended for informational purposes only¹.

The project team worked with the Town which, based on an understanding of the local market and development community, provided a picture of the current rental market and development considerations to create a realistic development program. The unit mix for residential was based on discussions with the Town, as well as a thorough investigation of recent multifamily residential developments in the Wallingford area. The project team determined that the most appropriate mix of units would be approximately two-thirds 1-bedroom apartments, with the remaining one-third comprised of studio and 2-bedroom apartments. There was no discernible market for 3-bedroom units in

the Wallingford area. Unit size was similarly decided as an average of identified ranges, with studios just under 600 square feet, 1-bedroom apartments at 750 square feet, and 2-bedroom apartments assumed to be just around 1,000 square feet. A shared space for amenities was also included.

The primary development costs estimated included: land acquisition, construction hard costs, construction soft costs, and construction financing. Land acquisition was determined to be \$20,000 per residential unit as a reasonable land cost based on online research of local land sales and knowledge of the local real estate market. Construction costs were based on industry expertise and confirmed by employing RS Means Construction Estimates modeled on a 1-3 story residential apartment in the Meriden, CT area built with open shop labor, assuming a 10 percent builders overhead and profit and a five percent contingency. Drawn from a review of these sources, construction costs for Sites 2 and 3 were set at \$130 per square foot of gross floor area, and at \$135 per square foot for Site 4 due to the above-grade coal silos that exists on it now, which would need to be removed and reviewed for potential environmental remediation. Soft costs, such as architecture, engineering, accounting, and legal fees, were estimated at 20 percent of the construction hard costs. Construction financing was assumed to be a 24-month loan term with an interest rate of 4.00 percent for the conventional financing scenario and 4.50 percent for the mixed-income housing financing scenario. These numbers were based on the industry expertise as well as information available from the Connecticut Housing Finance Authority (CHFA).

The determination of gross revenues varied between the two financing scenarios. Market-rate unit rents per square foot were informed by broker websites such as Zillow and Rent.com, as well as development project websites. Estimated rent prices were reached by comparing monthly rents and apartment sizes at several multi-family residential projects in the submarket, including: Flats@520 in North Haven; Windsor Station Apartments in Downtown Windsor; and Hamden Center & Dogwood Hill Apartments and Canal Crossing at Whitneyville West in Hamden. Other listings that provided comparable monthly rents and apartment sizes were drawn from New Haven, Milford, Meriden, North Haven, and Wallingford (Parker Place and 76 S. Turnpike Road).

Rent prices for affordable housing units are fixed according to the number of bedrooms provided, as per the Low-Income

¹ The data used for this exercise represents a snapshot in time, and is based on the hypothetical scenario reflected in the preferred concept plan. The completeness, accuracy, reliability, or suitability of this data should not be relied upon for any purpose outside of the narrow focus of this study.

Table 1. Town of Wallingford: preliminary Return on Investment - Conventional Financing Scenario

	Site 2	Site 3	Site 4
Project Components			
Gross Floor Area (SF)	59,300	55,800	50,500
Total Residential Units	42	42	48
Affordable Units	-	-	-
Percent Affordable	0%	0%	0%
Retail (SF)	18,900	16,300	7,200
Total Development Cost ¹	\$10,275,820	\$9,718,580	\$9,304,620
Cost/SF	\$173	\$174	\$184
Apartment Size (SF)			
Gross Floor Area (SF)Studio	590	570	580
1 BR	750	730	750
2 BR	1,010	1,000	1,010
Monthly Market Rents			
Studio	\$1,050	\$1,050	\$1,020
1 BR	\$1,370	\$1,340	\$1,345
2 BR	\$1,770	\$1,740	\$1,745
Average Monthly Rent/SF	\$1.80	\$1.81	\$1.77
Non-Residential Rents			
Retail (monthly rent/SF)	\$1.13	\$1.13	\$1.08
Operating Costs			
Annual Operating Costs	\$340,005	\$322,504	\$309,098
Financing Terms			
Loan to Value Ratio	70%	70%	70%
Construction Interest Rate	4.00%	4.00%	4.00%
Long Term Interest Rate	4.75%	4.75%	4.75%
Term (in years)	30	30	30
Project Feasibility			
Cash-On-Cash Return	2.6%	2.6%	2.7%
Debt Service Coverage	1.18	1.18	1.18
Capitalization Rate	5.2%	5.2%	5.2%
Net Operating Income	\$532,980	\$505,550	\$484,530

¹ Total Development Cost includes land acquisition costs, construction financing costs, construction hard costs (and contingency), and construction soft costs.

Housing Tax Credit (LIHTC) program. It was assumed for this analysis that 20 percent of the units in the development would be rented to households at or below 80 percent area median income (AMI), and their rent costs must not exceed more than 30 percent of a household’s annual income. The median income in Wallingford is \$88,100, meaning that the maximum rent for a household at 80 percent AMI is \$1,762 a month. The average rent per residential square foot in the market-rate scenario ranged from \$1.77 to \$1.81 per month, compared to \$1.64 to \$1.70 per month in the mixed-income scenario. Relatively higher market-rate rents are reasonable to assume because of proximity to transit, shared amenities, as well as the lack of existing comparable developments in the Wallingford submarket. Retail rents per square foot in both the market-rate and the mixed-income scenarios ranged from \$1.08 - \$1.13 per month (\$13.00 - \$13.50 per square foot per year). Vacancy loss was assumed to be five percent of revenue from residential rents.

Operating costs differed based on market-rate or mixed-income housing. Per the 2016 National Apartment Association Survey of Operating Income and Expenses, operating costs for conventional mid/high-rise buildings were roughly 37 percent of gross rent. While this percentage was used in the market-rate housing scenario, in the mixed-income housing scenario, operating costs were estimated at 27 percent of effective gross rent revenue, assuming a developer would take advantage of the Town’s tax incentive program that is part of the IHZ overlay. Wallingford’s IHZ tax incentive program reduces property taxes (a portion of operating costs) by an average of 80 percent over the first five years for qualifying mixed-income housing projects, and is a very effective tool and key factor in helping to achieve financial feasibility for mixed-income housing projects. In addition to annual operating costs, replacement reserves were then estimated at five percent of effective gross rent revenue.

Financing the development of market-rate and mixed-income housing projects differs primarily in the amount of equity that is required from the developer/sponsor and a lender’s mortgage interest rate and length of term. The loan-to-value ratio, a risk assessment metric for lenders, describes how much debt a project can safely support by dividing the loan amount by the appraised value of the property. A decade or more ago, lenders were satisfied with lower amounts of equity and higher proportions of debt, a condition that contributed to the housing crisis beginning in 2007. However, in the current market, commercial

lenders, the primary source of mortgages for market-rate residential projects, tend to limit mortgages to 70 percent of the total development cost, requiring 30 percent of the total development cost be provided in cash (equity) by the developer. In addition, lenders look for the revenue stream to be 1.20 to 1.25 times higher than the annual debt service or repayment. Thus, for the market-rate scenario, the project team determined that the developer’s equity requirement would be 30 percent and the long-term mortgage would be 70 percent of project costs. Commercial lenders typically charge a fee of at least one percent to “originate” a mortgage. Based on current industry expertise, the interest rate on a 30-year mortgage for a market-rate residential project was estimated to be about 4.75 percent.

Mixed-income projects that utilize LIHTC can finance projects through CHFA. To effectively achieve lower, more affordable rents for qualifying households, CHFA provides long term mortgages typically backed by tax-exempt bonds at competitive interest rates with longer repayment periods. Based on a review of relevant information on the CHFA website and recent applications for CHFA financing, the project team determined that mixed-income housing projects in Wallingford could expect a loan-to-value ratio of 85 percent, with the mortgage running for 40 years at an effective interest rate of 4.7 percent. CHFA typically charges 1.25 percent of the mortgage amount as an origination fee.

CHFA’s flexible approach in financing mixed-income housing projects could be a realistic option as a source of financing for the mixed-income housing scenario in Wallingford. CHFA’s ability to provide flexibility on a project-by-project basis, along with its lower equity requirements, competitive interest rates, and longer repayment terms create favorable returns on investment for mixed-income housing projects. The low-income housing tax credits themselves are also an important tool to attract investors who provide the equity for mixed-income housing projects that often imply greater risk because of the lower mandated rents.

In the end, developers and their investors measure the risk and return on their investment using a few common real estate metrics. For a project in the preliminary stages of development, such as the conceptual projects considered in this analysis, developers often look at the cash-on-cash return to compare the “bottom line” to less risky investments like U.S. Treasury Bonds. Cash-on-cash return is calculated by dividing pre-tax cash flow by the total equity invested.

Table 2. Town of Wallingford: preliminary Return on Investment - Mixed-Income Housing Financing Scenario

	Site 2	Site 3	Site 4
Project Components			
Gross Floor Area (SF)	59,300	55,800	50,500
Total Residential Units	42	42	48
Affordable Units	9	9	10
Percent Affordable	21.4%	21.4%	20.8%
Retail (SF)	18,900	16,300	7,200
Total Development Cost ¹	\$10,298,940	\$9,740,340	\$9,325,070
Cost/SF	\$174	\$175	\$185
Apartment Size (SF)			
Gross Floor Area (SF) Studio	590	570	580
1 BR	750	730	750
2 BR	1,010	1,000	1,010
Monthly Market-Rate Rents			
Studio	\$1,050	\$1,040	\$1,020
1 BR	\$1,370	\$1,340	\$1,345
2 BR	\$1,770	\$1,740	\$1,745
Average Monthly Rent/SF (includes both market-rate and fixed affordable rents)	\$1.69	\$1.70	\$1.64
Monthly Affordable Rents			
Studio	\$800	\$800	\$800
1 BR	\$860	\$860	\$860
2 BR	\$1,030	\$1,030	\$1,030
Non-Residential Rents			
Retail (monthly rent/SF)	\$1.13	\$1.13	\$1.08
Operating Costs			
Annual Operating Costs	\$232,979	\$220,895	\$207,084
Financing Terms			
Loan to Value Ratio	85%	85%	85%
Construction Interest Rate	4.50%	4.50%	4.50%
Long Term Interest Rate	4.70%	4.70%	4.70%
Term (in years)	40	40	40
Project Feasibility			
Cash-On-Cash Return	7.1%	7.2%	6.4%
Debt Service Coverage	1.22	1.23	1.20
Capitalization Rate	5.8%	5.8%	5.7%
Net Operating Income	\$599,090	\$568,020	\$532,500

¹ Total Development Cost includes land acquisition costs, construction financing costs, construction hard costs (and contingency), and construction soft costs.

The return on equity demonstrates a project’s level of feasibility when compared to return on an investment with less risk (i.e. U.S. Treasury Bonds, which offered a 2.7 percent return as of December 2017) and return on an investment with greater risk (i.e. the stock market as represented by the Dow Jones ten-year average, which demonstrated a 4.2 percent return in December 2017). The cash-on-cash return range is 2.6 to 2.7 percent for the conventional financing scenario and 6.4 to 7.2 percent for the mixed-income housing financing scenario indicating that the development of mixed-income housing potentially offers a greater return and is more financially feasible than conventional market-rate housing.

Another metric to measure risk and return is a capitalization rate (cap rate), which is calculated by dividing the net operating income (NOI) of a project (projected rents minus operating expenses) by the overall value of the asset or total cost of the project. In other words, the cap rate represents the percentage of return a developer or investor could expect to receive on the total value or cost of the project under consideration. In many cases, the cap rate is used to measure return on investment by investors who are buying projects that have been completed and already are operating.

Based on the preferred concept plan, the three sites in Wallingford come with development price tags of \$10.3 million, \$9.7 million, and \$9.3 million for Sites 2-4 respectively. A June 2017 report by the brokerage firm of Marcus & Millichap indicated that the cap rate in the New Haven-Fairfield County market area ranged from mid-5 percent to mid-6 percent for “value added” multi-family residential properties (i.e. those requiring renovation) and about 5 percent for higher class assets (i.e. those requiring little to no renovation). Because there have been few comparable projects in the Wallingford submarket area, developers and investors would likely look for cap rates within a range of five percent to six percent. Testing the two financing scenarios against this threshold, the conventional financing scenario has implied capitalization rates (net operating income/total development cost) of 5.2 percent among the three sites, whereas the mixed-income housing financing scenario has higher implied rates of 5.7 to 5.8 percent, indicating that mixed-income projects might be more attractive to developers. Tables 1 and 2 detail the results of the pROI exercise.

Another way to evaluate the scenarios is by reviewing debt service coverage. Debt service coverage, a common metric for lenders, is the net operating income divided by the amount of debt that a project can support (how much a project can pay on its long-term loan, with a margin for contingency). As previously noted, lenders typically require a debt service coverage ratio of 1.20 to 1.25. The coverage ratio for the scenarios tells a similar story to that of the capitalization rate – the conventional financing scenario’s debt service coverage ratio is 1.18, while the mixed-income financing scenario’s debt service coverage ratio range is 1.20 to 1.23, meaning that the conventional scenario can support debt less securely than the mixed-income scenario.

Investors, lenders, and developers have their own individual thresholds for returns based on these and other metrics that dictate whether they take on a project. While this preliminary financial feasibility analysis is based on the hypothetical scenario reflected in the preferred concept plan, it reveals many of the moving parts that inform development. The story that these metrics tell is that the conventional scenario is most likely not financially sensible, particularly compared to a risk-free investment. However, the mixed-income scenario may be more promising, particularly for Site 2 and Site 3. Site 4 has a slightly lower cash-on-cash return at 6.4 percent, which still indicates a financially feasible development. That return is based on higher construction costs to reflect the potential for environmental issues that could be encountered during construction from residual contaminated or hazardous materials in the abandoned coal silos on-site. If no environmental complications arise, it is likely that Site 4 construction costs would be similar to Sites 2 and 3. In such a scenario, a mixed-income development on Site 4 would yield a cash-on-cash return of 7.7 percent, with a capitalization rate of 5.9 percent and a debt service ratio of 1.24, surpassing the financial feasibility of Sites 2 and 3.

Recent and future modifications to zoning regulations for these sites may positively impact returns on investment, if the sites are appropriately designed to accommodate necessary parking, resulting in improved financial feasibility of redevelopment on these sites.

Conclusions and Recommended Next Steps

The Town of Wallingford identified four potential catalytic sites in the vicinity of the Hartford Line station that can contribute to the improvement and revitalization of the Downtown. The development feasibility concept plan for the priority sites provides a framework upon which to build

Wallingford PZC establishes town center zone in hopes of spurring economic activity



Center Street in Wallingford, seen earlier this month, is the site of a new downtown zone, created in an effort to stimulate economic activity in area. Dave Zajac, Record-Journal



August 14, 2018 02:33PM
By Lauren Takores, Record-Journal staff



WALLINGFORD — The Planning and Zoning Commission unanimously approved [new zoning regulations](#) on Monday establishing a town center zone after a public hearing.



momentum in re-imagining the heart of Wallingford near the Historic Station and the Railroad Green. The preferred concept plan envisions mixed-use, multifamily buildings that would be a new product in the Wallingford market.

To advance the opportunity at the selected sites, the project team recommends that the Town proceed with the following steps:

- **Continue facilitating coordination with property owners:** The Town should present the findings of the preliminary financial feasibility analysis to the property owners to demonstrate the interplay of variables in development financial feasibility including property sale prices and property assemblage.
- **Continue to consider potential zoning modifications:** The Town should consider the preferred concept plan’s implications for zoning modifications. Particularly, the Town should consider how density maximums and parking minimums affect development prospects. The Town is already amending its zoning regulations by including detailed building form standards, reconsidering maximum setbacks, requiring sidewalks in certain areas, and streamlining the approvals process. Some of the changes can be addressed in the underlying zoning districts, the IHZ overlay district, or by creating an additional overlay district.
- **Implement complementary public realm improvements:** During the D&R process, the Town described one of its overall objectives in the station area as promoting walkability between Downtown and the new station. The Town recognized that public realm improvements could be leveraged to encourage and support private investment. Proposed enhancements include new or expanded sidewalks, accommodations for bicyclists, and pedestrian-scaled amenities such as crossings, lighting, furnishings, and plantings. Moving forward with these improvements will require funding, and the Town has already taken measures to pursue potential funding sources.

The key conclusions from this effort are that property assemblage is key to maximizing value – more units can be built on larger, consolidated sites – and that the concept plan’s product – 3-4 story buildings with ground-floor retail and upper story residential studios, 1-, and 2-bedroom apartments – would be a new, but potentially feasible product in the Wallingford development market.

2019 Update

Since the completion of the development site conceptual planning exercise, completed in 2017 and detailed in this chapter, and as a result of recommendations from the Plan of Conservation and Development, workshops and discussions at the local level, and information developed as part of this report, the Town created a new “Town Center District” zone in 2018. This new zone encompasses the targeted sites in this report as the new underlying zone and raises the permitted density to 30 units per acre in parcels over 25,000 square feet, maintains reduced parking requirements, eliminates maximum building coverage, and allows four story buildings by Special Permit. The Town anticipates near-future changes to the IHZ that would, in turn, make IHZ-type developments even more permissive in terms of density. With the allowance of an additional story under the new base zoning regulations, additional development potential may be achieved beyond what was analyzed for the preferred concept advanced in this study. This could improve potential returns on investment, provided the site can be designed to accommodate the additional floor and parking requirements.

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BERLIN

100 HARDING STREET REDEVELOPMENT CONCEPT PLAN



Berlin Station. Ribbon cutting ceremony held in Fall 2018 to celebrate the full opening of the new Hartford Line station in Berlin.

BERLIN

Chapter Context

The chapter for the Town of Berlin was completed during Spring and Summer 2017. The information herein is reflective of the data and information available during this time period and any recommendations made are based upon the conditions within the station area at this time.

Introduction and Background

In the Hartford Line TOD Action Plan, CTDOT and its consultant team collaborated with the Town of Berlin to prepare a concept plan for the identified redevelopment site at 100 Harding Street in Kensington Village. The purpose of this effort was to complement the work completed through the 2017 Berlin TOD Kensington Village Plan, which included a focus on redevelopment potential at the following three sites in the vicinity of the new Hartford Line station in Berlin:

1. Depot Crossing on the south side of Farmington Avenue at Depot Road, which offers opportunities for infill development behind the existing building;
2. An assemblage of 889, 903, and 913 Farmington Avenue, with accommodation for a future Train Station Boulevard to provide an additional connection from Farmington Avenue to the station; and
3. The Berlin Steel site, which is located adjacent to the Berlin station and poses a longer-term opportunity for redevelopment with the potential for turnover of the existing industrial use.

In addition to the prospect of new development on these three sites on the east side of the railroad tracks, the property owner of 100 Harding Street has expressed interest in exploring the redevelopment potential of the approximately four-acre site on the west side of the railroad tracks.

Despite the physical barrier between 100 Harding Street and the station created by railroad infrastructure and underdeveloped land, the site is still within walking distance of the station (i.e. approximately 0.4 miles along Harding Street, Farmington Avenue, and Depot Road), as shown in Figure 9. Although additional pedestrian improvements in the station area would be necessary to



FIGURE 9

**100 HARDING STREET SITE CONTEXT
IN THE BERLIN STATION AREA**

fully unlock the TOD potential at 100 Harding Street, the site is well positioned for redevelopment due to its size and strategic location near the station and in the Kensington Village District, the overarching purpose of which is to “promote the development of a transit-oriented, pedestrian-friendly, village-type environment.”

Key Considerations

Based on discussions with economic development and planning staff at the Town of Berlin, the following considerations informed the project team’s redevelopment concept for 100 Harding Street:

Preferred Development Program

The concept plan should include a multi-family residential development. The site is located within the Village Redevelopment Area sub district of the Kensington Village District, which permits multi-family developments subject to special permit and site plan approval by the Planning & Zoning Commission. Although a mixed-use development proposition was initially considered for this site, the project team and the Town of Berlin determined that the site is not conducive to mixed-use due to its location off of Farmington Avenue. Based on recent market assessments, it was determined that there is stronger market potential for residential uses at this time. Accordingly, the concept plan for 100 Harding Street features a multi-family residential development program.

Zoning Flexibility and Acceptable Scale of Development

Based on the current zoning regulations, residential density in the Village Redevelopment Area is capped at eight units per acre. However, this density threshold may not support TOD, and there is an opportunity to enable targeted increases in residential density without jeopardizing neighborhood character. For instance, it could be possible to maintain the scale and character of development in Kensington Village by limiting building height for the redevelopment (to a maximum of two- to three-stories) without restricting residential density, provided that adequate parking is provided on-site. In addition to the flexibility regarding residential density, the Town also expressed an openness to consider a range of off-street parking ratios. Specifically, Town staff guided the concept plan for 100 Harding Street by noting that while two parking spaces per residential unit may be excessive given the proximity to the station, one space per unit may be insufficient given the suburban character of Kensington Village.

Historic Preservation And Site Design

The Kensington Village District was adopted by the Town to promote development patterns that “preserve, restore and enhance the overall historic and unique character” of the area, and design guidelines were established to “reinforce this area as a significant focal point in the community.” The concept plan for 100 Harding Street advances these priorities by preserving an element of the existing building to honor the historic industrial heritage of the area, and incorporates a public open space into the site design to create a destination for the surrounding community.

100 Harding Street Redevelopment Concept Plan

Inspired by the design guidelines of the Kensington Village District, the guiding principle of the concept plan for 100 Harding Street is to encourage context-sensitive development that is “reflective of a New England village center,” while also leveraging the economic development opportunities generated by the transit investment along the Hartford Line corridor. Depending on the mix and size of residential units, the concept plan includes a total of 65-75 units (corresponding to a density of 15-18 units per acre) in a mix of three-story and two-story residential buildings, plus 110 parking spaces (corresponding to a ratio of 1.5 to 1.7 spaces per unit, depending on the number of units).

Two-story semi-detached residential buildings are proposed to front Harding Street and Langdon Court to complement and reinforce the scale and massing of development within the immediate blocks. Three-story residential buildings are sited adjacent to the rail spur, where increased building height would have less of a visual impact on adjacent properties than if they were sited along Harding Street or Langdon Court. The form and design detailing of these residential buildings could draw inspiration from the local architectural styles of residential buildings in the area.

A central feature of the concept plan is flexible park and plaza space with a multi-use path system that provides a pedestrian and bicycle-friendly connection to and from Harding Street and Langdon Court. This space could serve as an amenity for the residents of the new development as well as the surrounding community, and could provide both passive and active recreational opportunities, such as benches, picnic tables, and a playground. The proposed park and plaza space is strategically located at the intersection of Harding Street and Langdon Court. Additionally, the location of this space would enable the



FIGURE 10

REDEVELOPMENT CONCEPT PLAN FOR 100 HARDING STREET
IN THE BERLIN STATION AREA

inclusion of the existing smoke stack as a homage to the site’s industrial heritage, although it would be necessary to determine the structural integrity of the smoke stack as part of the redevelopment plan. Other potential ways to honor the industrial legacy of the site could include adaptive reuse of a portion of the existing building.

The site design, including the buildings as well as the proposed public realm improvements, was created to be consistent with the objectives and design guidelines of the Kensington Village District. In conjunction with the addition of sidewalks, the buildings that front Harding Street and Langdon Court would encourage walkability by strengthening the street wall. The concept plan includes one driveway with off-street parking interior to the site. The inclusion of a flexible park and plaza space with landscape features—in addition to the proposed preservation of the existing smoke stack—helps to “unify the site design,” as called for in the district design guidelines. If the concept plan is advanced as part of a redevelopment proposition, additional site-specific details such as building facades, materials, colors, and window displays could be defined to further advance the objectives of the Kensington Village District. Figure 10 depicts a conceptual plan developed for the potential development site.

Conclusions and Recommended Next Steps

The Town of Berlin’s TOD Plan identifies four potential catalytic sites in the vicinity of the Hartford Line station that can individually and collectively contribute to the revitalization of Kensington Village. Concurrent with the Town’s efforts to explore the redevelopment potential of three sites on the east side of the railroad tracks, the proposed concept plan for 100 Harding Street provides a framework upon which to build momentum and re-imagine this key site on the west side of the railroad tracks.

To advance the opportunity at 100 Harding Street, the project team recommends that the Town proceed with the following steps:

Assess the financial feasibility of the proposed development program and refine: The concept plan presents an option for redevelopment that warrants additional specificity, which should be guided by an assessment of return on investment for a potential developer. For instance, market conditions would inform the mix and size of the residential units, whether or not the development would be condominium or rentals, and whether or not the development program would be feasible based on conventional financing (e.g.,

without tax incentives). It would be worthwhile to evaluate the financial feasibility of the development program as currently defined, and consider potential alternatives to maximize the marketability and TOD potential of the site, in consultation with the property owner who has expressed interest in redevelopment.

Consider potential zoning modifications: The development program shown in the concept plan is not currently permitted based on existing zoning regulations. However, residential density needs to be sufficient to achieve financial feasibility for developers, while maintaining and enhancing the character of the surrounding area. The Town could consider proposing targeted zoning amendments to enhance the TOD-supportive nature of the existing Kensington Village District.

Implement complementary public realm improvements: Harding Street currently lacks sidewalks. Building upon the recent and ongoing capital improvements in the station area through the Kensington Village Sidewalks project and Main Street/Town Center Area Streetscape project, the addition of sidewalks along Harding Street would be an important step to increase the attractiveness of this site as a walkable location to and from the station.

The Town of Berlin is actively advancing several initiatives to promote the vitality of Kensington Village, and the redevelopment of 100 Harding Street as a transit and pedestrian-oriented multi-family residential complex would contribute to meeting this overarching goal. The forthcoming completion of the Berlin station, and the subsequent introduction of frequent and convenient passenger rail service along the Hartford Line corridor, could serve as the impetus to spur this redevelopment and other complementary private and public sector investments. In this way, the Town can reinforce Kensington Village as a community focal point that honors the past while positioning it for the future.

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NEWINGTON

ALTERNATIVE STATION SITING ASSESSMENT



Downtown Newington. Main Street in the core of Newington.

NEWINGTON

Chapter Context

The chapter for the Town of Newington was initiated and completed during Spring and Summer 2018. The information herein is reflective of the data and information available during this time period and any recommendations made are based upon the conditions within the station area at this time.

Introduction and Background

The Town of Newington is one of the few municipalities that could be served by both Hartford Line and CTfastrak services. Under the NHHS Rail Program, a new Hartford Line station was originally planned to be located in Newington on Francis Avenue, adjacent to the CTfastrak Newington Junction Station. However, during the first phase of the Hartford Line TOD Action Plan, the project team made initial observations that identified limited potential for TOD in the area surrounding this site. Identified hurdles for TOD implementation at the Newington Junction site include limited development potential, access challenges, and lack of community support.

The “desire and readiness” framework that the project team applied during the first phase of the Hartford TOD Action Plan asserts that a community’s level of desire for TOD is critical to empowering local leaders to make decisions that set the stage for a station area strategy. Although the project team did not conduct a desire and readiness assessment with the Town of Newington, actions in recent years have signaled a lack of support for TOD at the Newington Junction location. In 2014, a TOD concept memo that presented a long-term vision for denser, mixed-use development in the Newington Junction area did not receive community support. Following the concept memo, in the summer of 2015, the Town voted to implement a one-year moratorium on higher-density residential development in the CTfastrak station areas, around both Newington Junction Station and Cedar Street Station. In 2016, the Town adopted TOD regulations and lifted the moratorium for the Cedar Street Station area. Alternatively, per the Town of Newington Zoning Regulations, the Town extended the Newington Junction moratorium as the Plan and Zoning Commission continued to develop TOD regulations “to ensure appropriate residential development in the

vicinity.” While the discourse around higher density residential uses in the municipality continues, the moratorium for Newington Junction would have impacted any TOD associated with a future Hartford Line station at this location and it indicated the community’s lack of support for development in this area.

The project team’s initial observations presented a need for exploring alternative station locations that hold greater potential to support TOD. Therefore, during the second phase of the Hartford Line TOD Action Plan, CTDOT and its consultant team conducted an alternative station siting assessment. The purpose of this assessment was to identify an alternative location for a future station that is economically beneficial to the Town, favorable to the local community, and supportive of Hartford Line ridership in a way that maximizes the potential for TOD in the surrounding area.

Key Considerations

The project team developed a set of criteria, summarized in Table 3, to take into consideration during the evaluation of alternative station sites. At a high level, this list reflects practical considerations and potential for spurring TOD.

The following criteria informed the alternative station siting assessment:

Ridership Potential

When choosing a station location, CTDOT takes the ridership potential of a site into consideration. Increased ridership results in increased revenue, thereby decreasing the reliance on public funding for operating the transit service. Factors that influence ridership potential include spacing between stations and the presence of nearby local trip generators.

Access

There must be sufficient access to a station’s location to facilitate the use of transit service and to support nearby TOD. A station area should offer local and regional vehicular access, afford bicycle and pedestrian accommodations, and allow for multimodal connectivity. In addition to access, CTDOT considers existing and future traffic concerns that would require mitigation.

Construction Feasibility and Environmental Impacts

CTDOT must assess the environmental conditions and technical feasibility of a station site. Environmental and

technical considerations include topography, railroad track geometry, and impacts to utilities, floodplains, and wetlands.

Order of Magnitude Cost Estimate

Rudimentary cost estimates for a station include anticipated expenses associated with property acquisition, station construction, and pedestrian connections in the immediate area. Actual station costs are dependent on specific final station design.

Long-Term Development Build-Out Potential

Some of the most significant local benefits of a train station are realized through the economic activity generated in the station area. These local economic benefits often translate into regional economic benefits and increased transit ridership. However, it is important to recognize that broad-scale TOD tends to materialize slowly, as market conditions evolve and land uses turn over. Some factors that may influence an area’s long-term build-out potential include total developable land, the size and shape of developable sites, local land use regulations that enable transit-supportive development, surrounding land use compatibility, and community support.

Alternative Station Siting Assessment

Using the station siting evaluation criteria, the project team assessed alternative sites for a Hartford Line station in Newington that may be more suitable for TOD and more acceptable to the community than Newington Junction. Based on a preliminary review, the project team initially identified two alternative sites: one on Cedar Street and one on New Britain Avenue.

The alternate site on New Britain Avenue is located just west of Stamm Road, with the potential station area’s ½-mile wide radius encompassing a portion of Newington and a portion of New Britain. During the preliminary review, the project team noted that this location presented a handful of TOD-supportive attributes, including multi-family housing and a mix of uses in the New Britain portion of the station area, longer-term redevelopment opportunities through the potential turnover of industrial uses, and proximity to Chesley Park. However, the following constraints limit the area’s overall TOD potential:

- The potential station area crosses the municipal boundary between Newington and New Britain. Maximizing TOD potential would be dependent on

inter-municipal coordination to realize consistent land use controls (zoning) and a unified vision for the station area.

- The existing single-family homes and cul-de-sac block structure in the Newington portion of the station area are not conducive to TOD.
- There is a limited amount of vacant and underutilized parcels for near-term redevelopment opportunities. Additionally, the prevalence of small parcels in the station area would likely require property assemblage to solicit developer interest.
- There is a lack of nearby anchor institutions or major employers to attract future development and generate transit ridership.
- The station area has an incomplete sidewalk network, limited east-west connectivity, and no direct access to a regional highway.
- The alternative station site is not adjacent to or within walking distance of a CTfastrak station to enhance multimodal connectivity.
- The alternative station site is located in a floodplain with potential wetland impacts.
- The alternative station site is located on a section of track where the superelevation exceeds one inch, most likely necessitating additional track work to make it a viable station location.

Due to the preliminary assessment of limited TOD potential, the project team dismissed the New Britain Avenue site as a viable candidate for station siting. However, the preliminary review revealed that the site on Cedar Street, located approximately 825 feet west of Alumni Road, had enough TOD potential to merit further evaluation as the preferred alternate site. The project team applied the station siting evaluation criteria to assess and compare the TOD potential of the Cedar Street site to Newington Junction.

Ridership Potential

Siting the station at a location that is relatively equidistant between the two adjacent stations may balance the ridership catchment areas. The Cedar Street location is more centrally located between the Berlin station to the south and the future West Hartford station to the north. Whereas Newington Junction is located about six miles from Berlin Station and two miles from the future West Hartford Station, the Cedar

Table 3. Evaluation Criteria for Alternative Station Siting Assessment

Evaluation Category	Evaluation Criteria
Ridership Potential	Station Spacing
	Trip Generators/Attractors
Access	Local Vehicular Access
	Regional Vehicular Access
	Multi-Modal Connectivity
	Pedestrian/Bicycle Accommodations
Construction Feasibility/Environmental Impacts	Constructability Conditions
	Environmental Conditions
Station-Related TOD Opportunity	Acreage of Site(s) Acquired for Station
Order-of-Magnitude Cost Estimate	Station Construction
	Property Acquisition
	Complete Streets/Pedestrian Improvements
Long-Term Development Build-Out Potential	Acreage of Redevelopment Potential
	Local Support

Street site is located 4.25 miles and 3.75 miles from those stations respectively. The Cedar Street site's relatively central location could potentially lend itself to a greater ridership catchment area than Newington Junction.

Proximity to nearby trip generators is another factor that contributes to ridership. Although Newington Junction is located near existing stable residential neighborhoods from which it could potentially draw ridership, there are no nearby anchor institutions or major employers to attract future development and additional ridership. Furthermore, based on the surrounding land use patterns and available land, there are a lack of near-term development opportunities at this location. Alternatively, the Cedar Street site is located approximately $\frac{3}{4}$ of a mile from Central Connecticut State University (CCSU). As the largest school within the Connecticut State Colleges and Universities system, this major anchor institution could potentially generate significant ridership from its student population, as well as faculty and staff. Furthermore, in past years, the university had discussed potential plans to expand the campus into Newington near the *CTfastrak* Cedar Street Station. In addition to proximity to a major anchor institution, the Cedar Street site offers proximity to other assets, including Fenn Road Plaza, Newington Arena, and downtown Newington. Nearby sites, such as the recently demolished and remediated former National Welding facility, offer near-term redevelopment opportunities. These nearby assets and opportunities have the potential to generate significant ridership for a station sited at Cedar Street.

Access

To facilitate ridership, a station should be accessible by a variety of different modes of transportation. One of the biggest benefits of a station sited at Newington Junction is that its adjacency to the *CTfastrak* station would enable direct, cross-platform access between the *CTrail* and *CTfastrak* services. The provision of a seamless transfer between the bus rapid transit and rail services would transform this location to a multimodal transit hub. However, to truly capitalize on Newington Junction's potential multimodal connectivity, the station area requires additional bicycle and pedestrian accommodations.

Although Newington Junction connects to the *CTfastrak* multi-use trail, the trail concludes at this location, affording access only from the south rather than bi-directional access. While there have been recent pedestrian improvements

on Willard Avenue near the *CTfastrak* station, there is an inconsistent and incomplete sidewalk network on connecting streets. Francis Avenue, which would be the only direct access road to the rail station, lacks sidewalks and potentially has capacity constraints for accommodating additional traffic. Furthermore, there is generally limited east-west roadway connectivity in the station area and no direct access to regional roadways. Access to I-84 is approximately 1.5-2 miles from the station site.

Unlike Newington Junction, the Cedar Street site offers convenient local and regional roadway access. Route 9, which is a half-mile away, provides regional access with connections to I-84 and Route 72. The Cedar Street site also offers east-west connectivity to downtown Newington as well as CCSU. However, Cedar Street is heavily trafficked posing congestion and safety concerns. To accommodate additional volume associated with a future station, traffic mitigation would be required. A potential station at this location would be subject to a study of future traffic impacts, including an analysis of traffic patterns, current demand, and projected future demand. The analysis would inform a set of alternatives to mitigate traffic and enhance capacity.

Although the Cedar Street site is a short, walkable distance of a half-mile from the *CTfastrak* Cedar Street Station, there would be no direct, cross-platform connection between the two stations. However, just one station north of Newington, the future West Hartford Station would provide a direct, cross-platform connection to the *CTfastrak* Flatbush Avenue Station. Moreover, there would be opportunity to pursue Complete Streets improvements along Cedar Street in Newington to facilitate connectivity between the two stations. Depending on phasing, it is possible that these improvements could be constructed concurrently with station construction. Additional Complete Streets improvements could be implemented by the Town or a developer to improve non-motorized connectivity throughout the Cedar Street station area. While the Cedar Street location connects to the *CTfastrak* multi-use trail from the north and south, currently the sidewalk network in the station area is incomplete.

Construction Feasibility And Environmental Impacts

At a high level, the project team assessed the construction feasibility and potential environmental impacts of each station site. There appear to be no significant anticipated flood zone or wetland impacts on station feasibility at either location, however further evaluation of all environmental

impacts under the Connecticut Environmental Policy Act (CEPA) will be required to make a determination. In terms of construction feasibility, no additional track work would be required to accommodate a station at Newington Junction. However, the limited space between the *CTfastrak* and rail right-of-way at this location may necessitate additional time to design a station that would deviate from standard Hartford Line station design and additional construction time. A station at the Cedar Street site is also technically feasible, though the track geometry at this location most likely requires track work to accommodate a station. Since the station platforms must be located on a section of tangent track, the station would likely have to be located just south of Cedar Street to avoid a curve in the track north of Cedar Street. Depending on the exact location of the platforms south of Cedar Street, track work would likely be required to address the issue of superelevation which may impact the speed of the train. This track work would require additional construction time and may require relocation of utilities. Due to the topography at the Cedar Street location, some type of vertical structure would be required to address the grade change from the station to the tracks. While preliminary findings indicate the feasibility of constructing a station at Cedar Street, total project costs, station impacts, and final design of a station at this location will not be determined until a design project is underway.

Order of Magnitude Cost Estimate

The project team developed rudimentary cost estimates for the Newington Junction and Cedar Street sites. At Newington Junction, the project team estimated approximately 38.2 million for station construction, including construction and property acquisition. An additional estimated \$4.1 million would be required for initial pedestrian improvements along Francis Avenue, from Willard Avenue to Day Street. At the Cedar Street location, the project team estimated approximately \$54.7 million for station construction, including station construction, track work, and property acquisition. An additional estimated \$26.7 million would be required for bicycle and pedestrian accommodations along Cedar Street, from the proposed station site to Fenn Road, including a connection to the existing *CTfastrak* station. These estimates reflect order of magnitude cost estimates based on the proposed station concepts. Actual station costs would be dependent on the specific final station design.

Long-Term Development Build-Out Potential

The project team assessed the Newington Junction and Cedar Street station areas for long-term development build-out potential, considering land uses that may turn over in the long-term and current vacant land. The project team also factored in some environmental constraints, such as flood impacts from Piper Brook. Although actual long-term development build-out will depend on site-specific market conditions and zoning, the project team's preliminary assessment revealed that there is greater long-term TOD potential around the Cedar Street location than around Newington Junction.

As part of the build-out assessment, the project team estimated that there could be 32 developable acres in the Newington Junction station area. However, this estimate is largely based on a community-opposed 2014 TOD concept memo that presented a long-term vision for denser, mixed-use development. In addition to local resistance, this build-out potential would be hindered by the area's current stable single-family residential neighborhoods, active auto-oriented industrial uses, and historic districts.

In contrast, the project team estimated that there could be 95 developable acres in the Cedar Street station area over the mid-term and long-term. While some of the land included in this estimate contains active uses, these uses may turn over as market conditions evolve, especially in proximity to a train station. Figure 11 illustrates a concept of what future development around a station sited on Cedar Street could look like if unconstrained by current zoning. While conceptual in nature, this build-out illustrates elements of a transit-supportive environment, including mixed-used development, higher-density residential development, a connected street network, pedestrian plazas, street trees, and open space. This type of transformative development has the potential to generate economic activity and create a vibrant community around transit.



FIGURE 11 LONG-TERM DEVELOPMENT BUILD-OUT POTENTIAL AROUND CEDAR STREET IN NEWINGTON

Conclusions and Recommended Next Steps

Following the station siting assessment, CTDOT recognized that siting a station on Cedar Street may hold greater benefits for supporting Hartford Line ridership and maximizing economic development opportunities. The alternative station siting assessment revealed that although the Cedar Street site poses traffic concerns, this location may have much greater TOD potential than Newington Junction. Furthermore, there appears to be greater potential for local appetite for transit-supportive development near Cedar Street.

As CTDOT continues to consider Cedar Street as an alternative station site, the following next steps will be critical for the Town if it wishes to advance a future station in Newington:

- **Continue discussions with CTDOT regarding Cedar Street as a potential station location.** CTDOT has presented the assessment's findings to municipal officials as part of preliminary discussions. The Town should continue to coordinate with CTDOT and keep CTDOT apprised of any developments that may demonstrate a willingness to maximize the potential benefits of a train station.
- **Consider zoning changes that will allow transit-supportive development around Cedar Street.** As part of a larger economic development strategy, the Town should amend its zoning to permit denser, mixed-used development that could transform the area and generate economic activity.
- **Engage the development community to solicit interest and gauge market appetite.** The Town should maintain an open channel of communication with developers to understand market conditions, generate interest in transit-supportive development, and remain apprised of development plans.

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WEST HARTFORD

STATION AREA TEST FITS AND TOD ZONING ANALYSIS



CTfastrak Flatbush Avenue Station. CTfastrak station across from the planned CTrail West Hartford Station.

WEST HARTFORD

Chapter Context

The chapter for the Town of West Hartford was completed during Spring and Summer 2018. The information herein is reflective of the data and information available during this time period and any recommendations made are based upon the conditions within the station area at this time.

Introduction and Background

In the Hartford Line TOD Action Plan, CTDOT and its consultant team collaborated with the Town of West Hartford to identify strategies for modifications to West Hartford's zoning regulations to better support TOD. West Hartford Station will be a future transit hub with direct cross-platform connections facilitating transfers between the Hartford Line and CTfastrak and has a high potential for TOD.

Most of the station area in West Hartford is zoned as General Industrial District and General Business District. The regulations associated with these zoning districts are generally not supportive of TOD. The area is mostly light industrial and retail with a limited mix of the residential and other uses necessary for TOD. With several long-term development opportunities in the station area there is an opportunity to modify the current zoning to support TOD with the building form, scale of development, and mix of uses that can leverage the State's investment in transit, increase transit ridership, and generate local economic development.

The project team conducted a build-out analysis to explore context-sensitive increases in density to advance TOD near the CTrail West Hartford Station. The analysis tested multiple build-out scenarios for two sites. These test fits were used to identify zoning strategies and modifications to the existing zoning that would encourage TOD.

An initial build-out test fit was created based on conformance with existing zoning. Additional test fits were prepared to understand the impacts of specific modifications to the existing zoning. The findings of these test fits formed the basis of recommendations for changes to the existing zoning to better support TOD.

The selection of the sites was based on their proximity to Flatbush Station and for their representation of



FIGURE 12

**BUILD-OUT SCENARIO TEST SITES
IN THE WEST HARTFORD STATION AREA**

development parcels typical to the New Park Avenue corridor (Figure 12). Neither the Town nor the State is proposing any actual development, redevelopment, or takings as part of this conceptual study.

Site 1 is located on the diagonally opposite corner of the existing CTfastrak Flatbush Avenue Station. The site currently contains vacant as well as auto-oriented uses. Three parcels make up Site 1: 628 Flatbush Avenue, 453 New Park Avenue, and 457 New Park Avenue.

Site 2 is located south of the existing CTfastrak Flatbush Avenue Station, separated from the station by a CTDOT owned parcel. The site currently contains an assortment of active retail uses. Site 2 is comprised of a single parcel, 486 New Park Avenue.

Key Considerations

The build-out analysis created test fits for two sites to identify zoning strategies that would accommodate a TOD supportive mix of land uses; improve the pedestrian experience with a continuous street-wall and active ground floor uses; and build on the recommendations in the New Park Avenue Complete Streets Study. Based on discussions with the Town of West Hartford, the following considerations specific to each site informed the analysis:

Land Use Program

Site 1

The build-out analysis should include an office building. Parking lots or structures should be screened as much as possible so that they are not visible from the street. Ideally the site should contain publicly accessible open space. The Town recommended that an office building at 15-17 North Main Street be considered as a precedent for Site 1. The North Main Street development consists of a 3-story building with 18,500 square feet of office space on a similar sized parcel. This development obtained an approval for a reduction in required parking spaces.

Site 2

There should be ground floor retail development with residential uses on the upper stories. Parking, whether a lot or structured, should be screened and not visible from the street. Ideally, the site should contain publicly accessible open space. The Town expressed flexibility in the open space requirement, noting that the requirement of 200 square feet of useable open space per residential unit could be reduced to 100 square feet per unit.

Scale of Development

Site 1

The maximum building height should be capped at 4 stories, or 45 feet. Based on current zoning regulations (General Business District BG), density is not limited in office only uses.

Site 2

The maximum building height should be capped at 4 stories, or 45 feet, and residential density capped at 43.5 units per acre (1,000 square foot lot area per dwelling unit) based on current zoning regulations (General Industrial District IG). However, the Town recognized the opportunity to implement targeted increases in residential density without jeopardizing neighborhood character, and while the Town prefers that the current maximum building height be maintained, if the ground floor contains commercial uses then the maximum building height could be increased to 55 feet.

Parking

Site 1

The analysis should consider a range of off-street parking ratios. Existing zoning requires four parking spaces per 1,000 square feet of office development; however, the Town acknowledged that this requirement may be excessive given the proximity to the station, and that two parking spaces per 1,000 square feet of office development may be sufficient.

Site 2

The analysis should consider a range of off-street parking ratios. Existing zoning requires 1.5 parking spaces per residential unit and one parking space per 150 square feet of retail development. The Town acknowledged that 1.5 parking spaces per unit may be excessive given the proximity to the station, and that one parking space per unit may be sufficient. Reduced parking for retail could be considered at three parking spaces per 1,000 square feet of retail development.

TEST-FIT 1



- 2 stories
- 15,700 sf office
- 63 parking spaces
- FAR: .45
- 165 ft street wall

TEST-FIT 2



- 2 stories
- 18,400 sf office
- 55 parking spaces
- FAR: .53
- 185 ft street wall

TEST-FIT 3



- 2 stories
- 21,400 sf office
- 48 parking spaces
- FAR: .61
- 200 ft street wall

FIGURE 13

TEST FIT SCENARIOS FOR SITE 1
IN THE WEST HARTFORD STATION AREA

Station Area Test Fits and TOD Zoning Analysis

Building on the key considerations, the test fit scenarios progressively seek to maximize development potential to support transit use and spur economic development.

Site 1

Development on Site 1 is constrained by its irregular shape and relatively small size (approximately 35,000 square feet). Even though new sidewalks and pedestrian infrastructure (crosswalks and pedestrian signals) have been installed on the New Park Avenue and Flatbush Avenue frontages, heavy traffic on these streets contributes to a poor pedestrian experience. Figure 13 illustrates the test fit scenarios developed for Site 1.

Test Fit 1

Test Fit 1 was developed under existing zoning regulations (including maximum floor area ratio (FAR) requirement of 1.25). The test fit illustrates a 2-story office building located at the corner of Flatbush Avenue and New Park Avenue. The footprint of the approximately 15,700 square foot building was constrained by the need to provide the 63 parking spaces required under the existing zoning (four parking spaces per 1,000 square feet of office use). Due to the limited building footprint, the street wall is approximately 165 feet long. Two curb-cuts are provided to access the parking lot, one on Ahern Street and one on New Park Avenue.

Test Fit 2

Test Fit 2 applied the bulk requirements of the existing zoning regulations, but tested reduced parking requirements. This test fit illustrates a 2-story office building located at the corner of Flatbush Avenue and New Park Avenue with parking requirements reduced to three parking spaces per 1,000 square feet. As a result, the floor area was increased to approximately 18,400 square feet of office space and the parking was reduced to 55 parking spaces. The street wall increased to approximately 185 feet with two curb cuts to access the parking lot, one on Ahern Street and one on New Park Avenue.

Test Fit 3

Test Fit 3 applied the bulk requirements of the existing zoning regulations but further reduced parking requirements. This test fit illustrates a 2-story office building at the corner of Flatbush Avenue and New Park Avenue with parking requirements reduced to

two parking spaces per 1,000 square feet. As a result, the floor area increased to approximately 21,500 square feet of office space and the parking reduced to 48 parking spaces. The street wall increased to approximately 200 feet long with two curb cuts to access the parking lot, one on Ahern Street and one on New Park Avenue.

Site 2

While Site 2 is approximately 4.8 acres, development is constrained by a shallow lot depth and the site is encumbered by access shared with the property to the south. Even though new sidewalks were installed along the New Park Avenue frontage, heavy traffic contributes to a poor pedestrian experience. The analysis for Site 2 assumed that the property to the south would use the existing driveway to the south as the sole access point. The test fits assumed 1,000 gross square feet per unit as the average residential unit size and did not include the CTDOT owned property towards the useable open space requirement. The useable open space required for the residential use was configured to be accessible to the public. Figure 14 illustrates the test fit scenarios developed for Site 2.

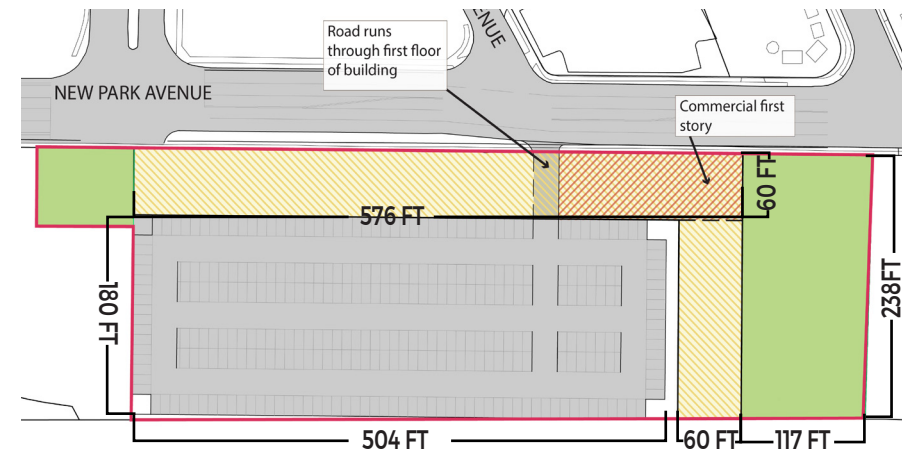
Test Fit 1

Test Fit 1 was developed under the existing zoning regulations (including maximum FAR requirement of 1.0). The test fit illustrates a 4-story mixed-use building fronting on New Park Avenue with 320 surface parking spaces. To meet the parking requirements under the existing zoning (1.5 parking spaces per residential unit, one parking space per 150 square feet of retail development), the retail floor area was limited to 10,000 square feet and residential floor area limited to 170 units. The test fit also meets the useable open space requirement of 35,000 square feet for the residential uses (200 square feet per unit). The street wall is approximately 575 feet long with approximately 25 percent of the ground floor frontage on New Park Avenue devoted to retail use.

Test Fit 2

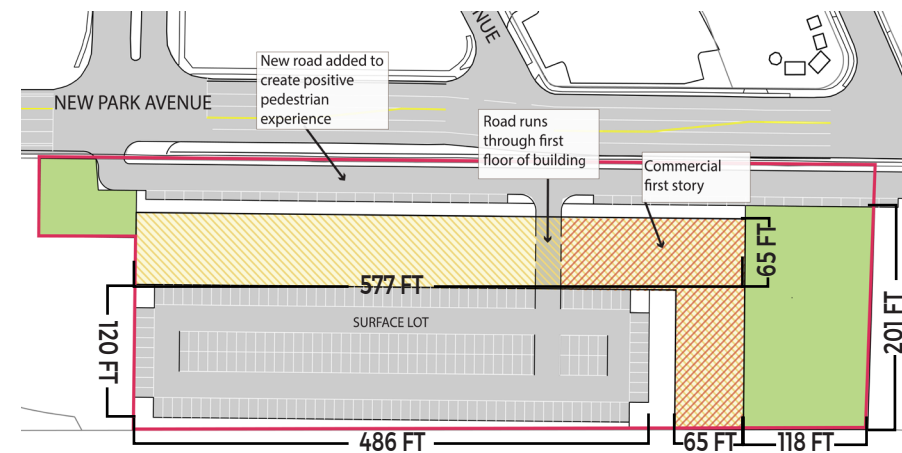
Test Fit 2 applied the bulk and use requirements of the existing zoning, but tested a reduction in the residential parking requirement from 1.5 parking spaces per residential unit to one parking space per residential unit and a reduction in retail parking requirement from one parking space per 150 square feet to three parking spaces per 1,000 square feet of retail. Test Fit 2 also tested a new service road that runs parallel to New Park Avenue as a buffer to improve the pedestrian experience. For this

TEST-FIT 1



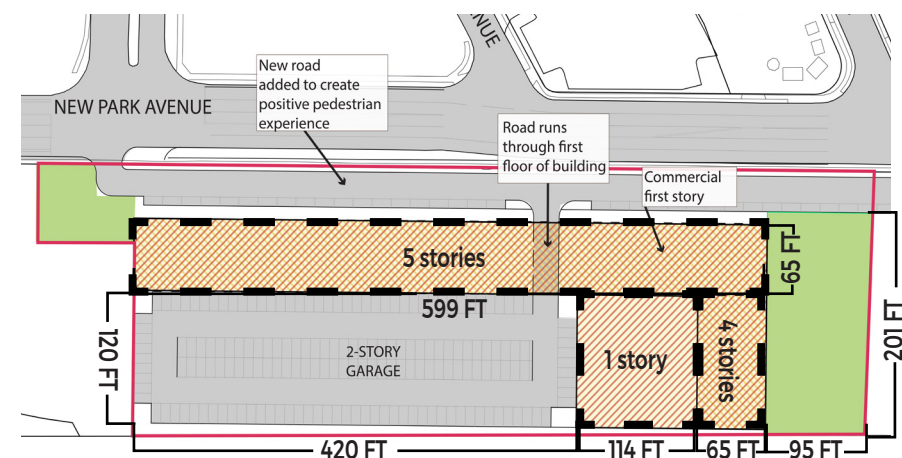
- 4 Stories (mixed-use)
- 10,000 sf retail
- 170 residential units
- 35,000 sf open space
- 320 parking spaces
- FAR: 1.0
- Street wall: 575 ft

TEST-FIT 2



- 4 Stories (mixed-use)
- 19,000 sf retail
- 160 residential units
- 33,000 sf open space
- 200 parking spaces
- FAR: 1.0
- Street wall: 575 ft

TEST-FIT 3



- Mixed stories: 1, 4, and 5 Stories (mixed-use)
- 59,000 sf retail
- 175 residential units
- 19,000 sf open space
- 350 parking spaces
- FAR: 1.36
- Street wall: 600 ft

FIGURE 14

TEST FIT SCENARIOS FOR SITE 2 IN THE WEST HARTFORD STATION AREA

test fit the build-out analysis illustrated a 4-story mixed-use building fronting New Park Avenue with 200 surface lot parking spaces. There are an additional 35 on-street parking spaces on the added service road. To balance the reduced parking requirements (one parking space per residential unit, and three spaces per 1,000 square feet of retail) while maximizing development potential, the floor area of the retail space was increased to 19,000 square feet and the number of residential units reduced to 160 (a reduction of 10 units from Test Fit 1). The test fit also meets the required 33,000 square feet of useable open space (200 square feet per residential unit). The street wall is approximately 575 feet long with approximately 30 percent of the ground floor frontage along New Park Avenue as active retail use.

Test Fit 3

Test Fit 3 reduced the useable open space requirement, and tested a partial 5th floor. Test Fit 3 also included a service road. Residential parking remained at one parking space per residential unit and the retail parking remained at three parking spaces per 1,000 square feet of retail (the same as Test Fit 2). To maximize development, this scenario included a 2-story parking structure with 350 parking spaces wrapped on the north and west sides by a 4-story mixed-use building with a partial 5th floor. There are an additional 35 on-street parking spaces on the added service road. The retail floor area was increased to 59,000 square feet (an increase of 40,000 square feet from Test Fit 2) and the number of residential units was increased to 175 units. Test Fit 3 included 19,000 square feet of useable open space based on a reduced requirement of 100 square feet per residential unit (from the 200 square feet per unit required by existing zoning). The street wall is approximately 600 feet long and the ground floor frontage is almost entirely devoted to active retail use.

Conclusions And Recommended Next Steps

In the future, West Hartford Station is envisioned to be a multi-modal transit hub with direct cross-platform connections between the Hartford Line and CTfastrak and a high potential to transform the New Park Avenue corridor. The test fit scenarios conducted on the two sites in the build-out analysis provides a context for identifying zoning strategies and other appropriate policy initiatives that can support TOD and catalyze economic growth near the station.

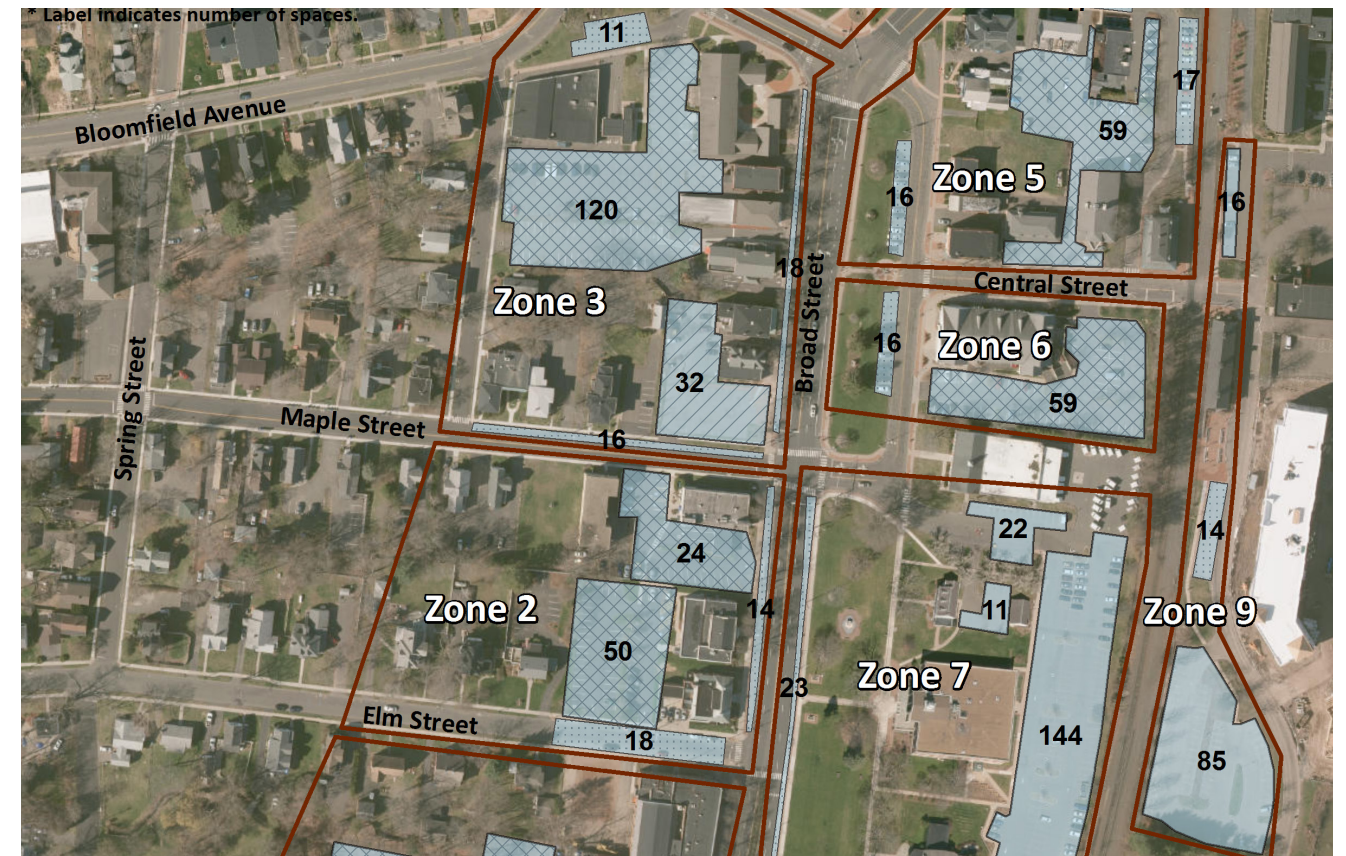
To encourage TOD near Flatbush Station the project team recommends that the Town consider the following zoning strategies and policy initiatives to unlock the potential for TOD:

Implement zoning modifications to encourage TOD: The Town should consider targeted zoning amendments to enhance the existing zoning near the station area to better support TOD. Potential zoning revisions garnered from the test fit analysis include reductions to off-street parking requirements to lessen the burden of providing on-site parking; establishment of build-to lines to reinforce the street edge and to improve the pedestrian environment; reduction in usable open space to increase residential densities to better support transit use; and strategic increases in building heights to allow more flexibility for developers. These types of zoning modifications could be amended in the underlying zoning districts or through a TOD overlay district. Design guidelines could also be established for future development within the station area to support a mixed-use and walkable environment.

Prohibit non-TOD uses in the station area: The existing zoning on New Park Avenue allows uses that are generally not supportive of transit. These uses should be prohibited from future development because they create a car-centric environment and contribute to unfriendly streets for pedestrians. Prohibiting non-TOD supportive uses could enhance the pedestrian experience on New Park Avenue and extend the reach of transit. Uses that are currently permitted in the station area and are recommended to be prohibited include: service and repair and gasoline service stations; car wash facilities; vehicle-intensive businesses, and drive-in facilities. Other uses that the Town should consider prohibiting include motor vehicle sales; passenger automobile rental agencies; certain industrial and manufacturing uses, and wholesale business and storage warehouse uses.

Implement complementary public realm and complete street improvements: Improvements to the public realm in the station area can act as catalysts for development. Building upon the recent and ongoing capital projects in the area and the New Park Avenue Complete Streets Study, the addition of wide sidewalks, on-street parking where possible to buffer pedestrians from traffic, and on-street bike facilities where feasible along New Park Avenue and Flatbush Avenue, could be important steps to create a walkable station area with an enhanced public realm.

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WINDSOR

WINDSOR CENTER PARKING MANAGEMENT STRATEGY

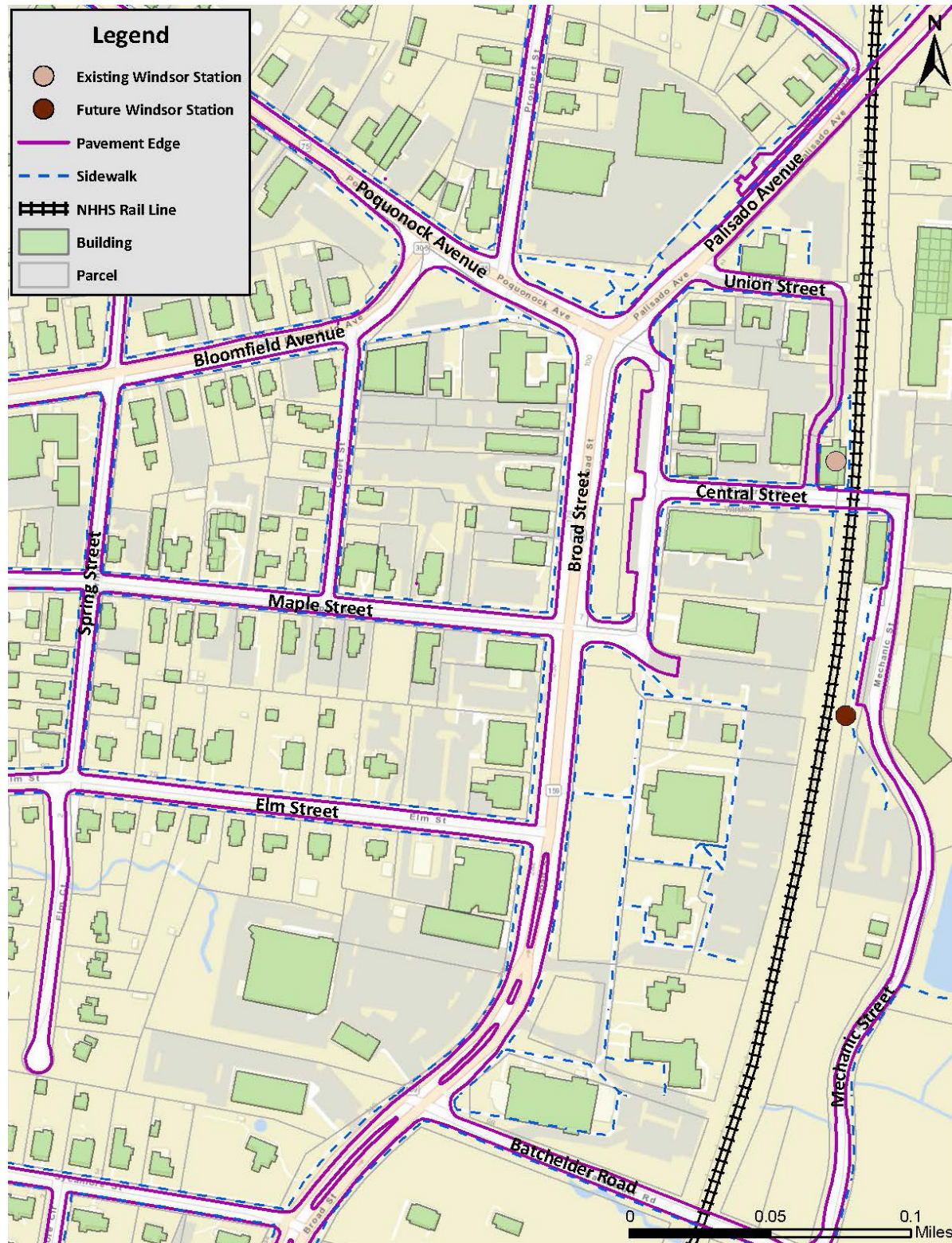


FIGURE 15

EXISTING CONDITIONS BASEMAP
IN THE WINDSOR STATION AREA

WINDSOR

Chapter Context

The chapter for the Town of Windsor was completed between Summer 2018 and Spring 2019. The information herein is reflective of the data and information available during this time period and any recommendations made are based upon the conditions within the station area at this time. Recommendations may need to be updated or modified based upon any changes in the project area.

Introduction and Background

In the Hartford Line TOD Action Plan, CTDOT and its consultant team collaborated with the Town of Windsor to develop a parking management study within the likely TOD area in downtown Windsor. The purpose of this effort was to understand the existing parking conditions within the study area, as well as align the supply and demand for both public and private parking in the near- and long-term within Windsor Center. Specifically, the parking management study focused upon TOD scenarios and the effect it could have on future parking conditions. This effort built upon work completed in the Town's 2014 Windsor Center TOD Master Plan and Redevelopment Strategy, which detailed the Town's goals for development within Windsor Center, and the 2016 and 2017 On-Street and Off-Street Parking Survey, which examined existing parking supply. Ultimately, the results of this study were applied to identify potential strategies to manage parking for future development proposals.

This parking management study is a living document that should be updated and revised as development scenarios are realized within the Town. The strategies recommended in this study aim to leverage downtown economic development associated with the June 2018 launch of CTrail Hartford Line service. Convenient transit access is an increasing consideration for the location and expansion of businesses, housing, and institutions. Expanded rail service will be supplemented with a new transit station in the coming years, positioning Windsor to take advantage of frequent regional and intercity links. This chapter summarizes the methodology and key considerations used to develop several strategies to manage parking and promote TOD in proximity to downtown Windsor and Windsor Station.

The community's vision for Windsor Center builds upon its current strengths, valuing it as a compact district that takes advantage of transit and encourages economic

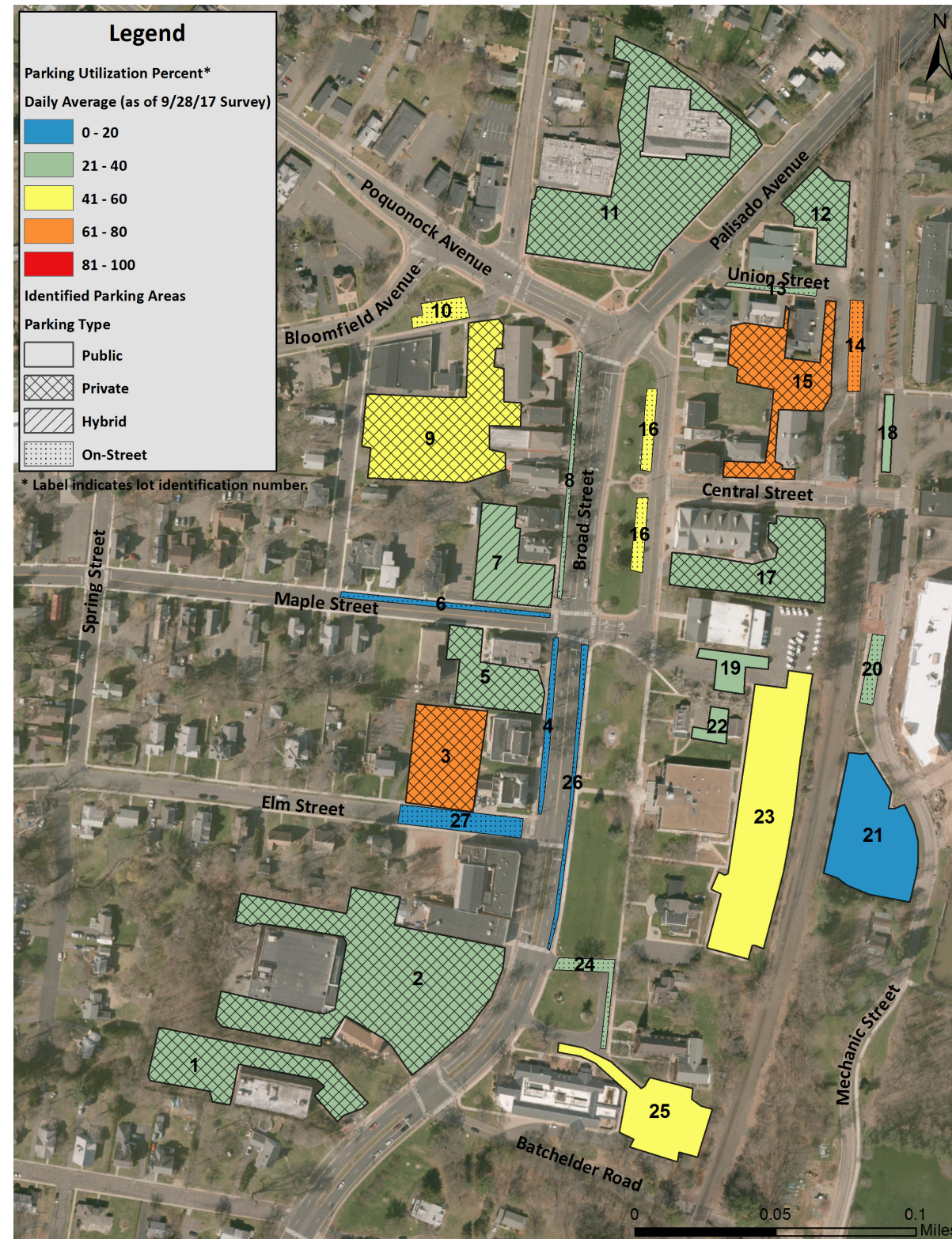


FIGURE 16

**PARKING UTILIZATION
IN THE WINDSOR STATION AREA**

development by improving walkability, increasing connections, and creating a town center with an appropriate scale and mix of uses, places, services, and amenities. To achieve this, the Center needs to be a convenient district that is easy to access from other areas and where pedestrians, bicycles, and automobiles can get around safely and efficiently. A parking management strategy will create an environment within downtown that supports a “park once” mentality. This is achieved, in part, through the im

Key Considerations

Based on discussions with the Town of Windsor, and using documentation of existing parking and infrastructure inventory within downtown, including private and public parking, on-street and surface parking, roadways, and sidewalks, the following considerations shaped the Windsor Center Parking Management Strategy:

- A base map of Windsor Center,
- A parking utilization map based upon the September 2017 update to the Town’s On-Street and Off-Street Parking Survey, and
- An overlay map of the assessment zones utilized to understand parking usage by proximity to land uses.

The following pages summarize the methodology used in the creation of each map and its applications during the study.

Windsor Center Base Map

The project team used a combination of data received via CTDOT from the Capitol Region Council of Governments (CRCOG) and GIS layers obtained during Part One of the Hartford Line TOD Action Plan study to develop a base map for Windsor Center (Figure 15). Relevant layers included on this initial base map are: (1) roadways, (2) parcel data, (3) building footprints, (4) the New Haven-Hartford-Springfield Rail Line, (5) the future location of the new Windsor Hartford Line station, (6) pavement edges, and (7) sidewalks. The base map detailed street structure and pedestrian infrastructure to understand connectivity within the study area.

Parking Utilization Map

The findings of the September 2017 parking utilization survey conducted by the Town of Windsor were used to develop a map to identify saturation of parking infrastructure on a typical weekday (Figure 16). This map assigns a utilization

range based on average daily use, separated into five groupings at 20% intervals. Additionally, this map denotes whether the parking location is public, private, hybrid, or on-street. Each parking location is denoted by the number assigned to it in the 2017 survey, and corresponds with the detailed tables in subsequent sections.

Sub-Area (Zone) Map

The project team, based on the location and layout of available parking in Windsor Center, and in coordination with the Town, identified a total of nine (9) zones or smaller sub-areas to study in more detail (Figure 17). This map also identifies the type of parking (i.e. public, private, etc.) as well as denoting the total number of available parking spaces. The selected zones were based primarily upon clusters of similar parking types in distinct blocks throughout Windsor Center. Selection of concise sub-areas allowed for detailed analysis on a zone by zone basis and helped to identify areas with a mismatch in supply versus demand.

Windsor Center Parking Management Strategy

Existing Conditions Summary

Using counts from the 2017 parking survey, Table 4 details the parking capacity in downtown Windsor. In this table, parking availability is broken down by zone and type, with cumulative totals of public vs private parking in Windsor Center, and on a zone by zone basis. The table also identifies which parking location is included in each zone, to supplement the Sub-Area (Zone) map. The lot number directly correlates with the parking identification number in the 2017 study.

Based on Table 4, nearly 60% of the available parking is for private use. In general, the parking demand for both public and private parking lots are met throughout the day with an average utilization ranging from 30% to 50%. However, Lot 3 (Windsor Savings - 50 spaces) and Lot 15 (Union & Central Block - 59 spaces) exceed 80% for portions of the day. Also, Lots 23 (Town Hall - 144 spaces) and 25 (Public Library - 43 spaces) have utilization rates above 70% for portions of the day. Similar results are found for the on-street parking facilities; however, utilization is slightly lower with the average utilization ranging between 20% and 35%.

Based on the utilization survey completed, during the peak periods there is sufficient off-street and on-street parking to meet the current parking demand. However, this includes the combination of both public and private parking facilities. Table 5 (pages 56-57) shows the results of this survey.

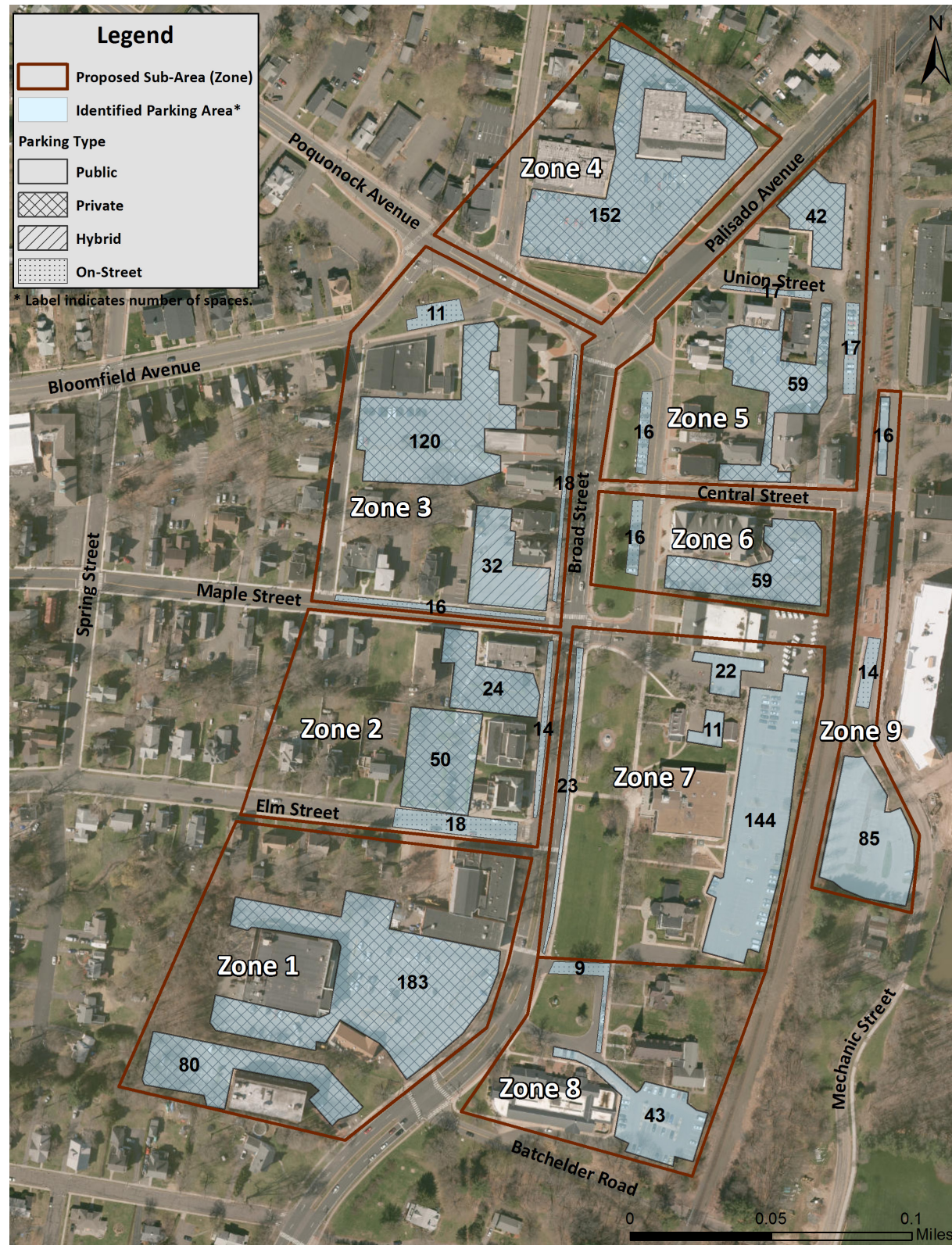


FIGURE 17

**SELECTED PARKING ZONES
IN THE WINDSOR STATION AREA**

Table 4. Parking Capacity in the Windsor Station Area

Zone	Private Lots	Public Lots*	Private Spaces	Public Spaces	Total Spaces
1	1, 2	N/A	263	0	263
2	3, 5	4, 27	74	32	106
3	9	6, 7, 8, 10	136	61	197
4	11	N/A	152	0	152
5	12, 15	13, 14, 16**	101	50	151
6	17	16	59	16	75
7	N/A	19, 22, 23, 26	0	200	200
8	N/A	24, 25	0	52	52
9	N/A	18, 20, 21	0	115	115
Total Number of Spaces			785 (59.9%)	526 (40.1%)	1311

* Includes on-street and hybrid parking.

** Lot 16 was split into two zones, 5 and 6.

If only the use of public parking facilities (526 spaces as noted in Table 4) were considered with the current parking demand, using the occupation rates developed under the previous study, the demand will average approximately 90% with demand exceeding capacity during the 12:30 time-period with 607 spaces being occupied. Table 6 shows the result of this exercise.

Following the completion of the existing conditions analysis, the project team identified potential near-term

parking management strategies to address the mismatch between existing parking supply and demand, especially during the midday period. These strategies are presented in the following section. Consideration of near-term strategies for accommodating the increase in rail passenger parking demand associated with the introduction of Hartford Line service in June 2018 was also given, including supporting the Town’s ongoing efforts with respect to wayfinding and the expansion of those efforts.

Future Estimates Of Parking Supply And Demand

Using the existing conditions as a baseline, the project team prepared estimates for future parking supply and demand within Windsor Center. These estimates supplement the existing supply and demand with anticipated growth based on future TOD buildouts, streetscape improvements, and the construction of a new Hartford Line station and associated parking as discussed with town representatives. Tables 7, 8, and 9 provide a summary of the future estimated parking supply and demand based on these factors. Table 7 summarizes the 1-3 year build out timeline. This timeline assumes 100% occupancy of the future TOD site on the corner of Elm Street and Broad Street. This site, currently under redevelopment, is proposed to be a theatre with primary occupancy geared toward the evening hours. Table 8 summarizes the 3-5 year build out timeline. In addition to

Table 6. Parking Utilization with Only Public Parking in the Windsor Station Area

Time Period	Spaces Occupied	Occupancy % with Only Public Parking (526 spaces)
9 :00 AM	431	81.9%
11 :00 AM	485	92.2%
12 :30 PM	607	115.4%
2 :00 PM	521	99.0%
4 :00 PM	483	91.9%
5 :30 PM	405	77.0%

Table 5. Windsor Center Parking Utilization Survey Results

LOT	SPACES	9:30 AM		11:00 AM		12:30 PM		2:00 PM		4:00 PM		5:30 PM	
		% UTILIZATION	SPACES OCCUPIED	% UTILIZATION	SPACES OCCUPIED	% UTILIZATION	SPACES OCCUPIED	% UTILIZATION	SPACES OCCUPIED	% UTILIZATION	SPACES OCCUPIED	% UTILIZATION	SPACES OCCUPIED
1	80	35.6%	29	41.9%	34	36.9%	30	41.9%	34	8.8%	7	18.8%	15
2	183	35.8%	65	14.3%	26	47.5%	87	28.1%	51	33.1%	60	28.1%	51
3	50	83.0%	42	85.0%	43	73.0%	37	80.0%	40	83.0%	42	17.0%	9
4	14	0.0%	0	0.0%	0	3.6%	0	0.0%	0	7.1%	1	7.1%	1
5	24	25.0%	6	37.5%	9	22.9%	6	20.8%	5	29.2%	7	35.4%	9
6	16	9.4%	2	15.6%	3	37.5%	6	34.4%	6	18.8%	3	21.9%	4
7	32	34.4%	11	42.2%	14	68.8%	22	45.3%	14	43.8%	14	23.4%	8
8	18	16.7%	3	19.4%	3	50.0%	9	25.0%	5	19.4%	3	27.8%	5
9	120	43.3%	52	44.2%	53	47.5%	57	50.4%	61	46.7%	56	38.3%	46
10	11	81.8%	9	72.7%	8	81.8%	9	72.7%	8	45.5%	5	31.8%	4
11	152	17.4%	26	24.0%	36	33.9%	51	24.3%	37	27.0%	41	27.6%	42
12	42	4.8%	2	15.5%	7	56.0%	23	39.3%	17	23.8%	10	38.1%	16
13	17	0.0%	0	0.0%	0	20.6%	4	14.7%	3	23.5%	4	35.3%	6
14	17	55.9%	9	55.9%	9	88.2%	15	76.5%	13	82.4%	14	88.2%	15
15	59	27.1%	16	44.1%	26	84.8%	50	61.0%	36	65.3%	38	89.8%	53
16	32	31.3%	10	35.9%	12	50.0%	16	53.1%	17	64.1%	20	62.5%	20
17	59	27.1%	16	32.2%	19	33.9%	20	35.6%	21	35.6%	21	31.4%	19

LOT	SPACES	9:30 AM		11:00 AM		12:30 PM		2:00 PM		4:00 PM		5:30 PM	
		% UTILIZATION	SPACES OCCUPIED	% UTILIZATION	SPACES OCCUPIED	% UTILIZATION	SPACES OCCUPIED	% UTILIZATION	SPACES OCCUPIED	% UTILIZATION	SPACES OCCUPIED	% UTILIZATION	SPACES OCCUPIED
18	16	31.3%	5	40.6%	7	34.4%	6	68.8%	11	34.4%	6	50.0%	8
19	22	38.6%	9	68.2%	15	38.6%	9	43.2%	9	27.3%	6	11.4%	2
20	14	14.3%	2	28.6%	4	10.7%	1	21.4%	3	17.9%	3	10.7%	1
21	85	2.9%	2	5.3%	4	1.8%	1	1.8%	1	5.3%	4	7.1%	6
22	11	13.6%	2	50.0%	6	50.0%	6	50.0%	6	36.4%	4	18.2%	2
23	144	66.3%	96	75.4%	109	73.3%	105	63.9%	92	53.8%	78	25.4%	37
24	9	22.2%	2	61.1%	5	50.0%	5	55.6%	5	44.4%	4	38.9%	4
25	43	34.9%	15	75.6%	32	74.4%	32	58.1%	25	68.6%	29	54.6%	23
26	23	2.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
27	18	5.6%	1	11.1%	2	5.6%	1	11.1%	2	11.1%	2	8.3%	1
Spaces Occupied			431		485		607		521		483		405

Table 7. Future Estimate of Parking Supply and Demand in the Windsor Station Area (1-3 Year Timeframe)

	Peak Demand	End of Day Demand
Summary of Results - Public		
Existing Public Parking	526	526
Existing Occupancy	251	129
Future Additional Parking Demand	146	146
Total Under/Over Parking Supply	129	251
Percent Utilization	75.5%	52.3%
Summary of Results - Private		
Proposed Private Parking	778	778
Existing Occupancy	439	322
Total Under/Over Parking Supply	339	456
Percent Utilization	56.4%	41.4%
Summary of Results - Total		
Proposed Public/Private Parking	1304	1304
Existing Occupancy	690	451
Future Additional Parking Demand	146	146
Total Under/Over Parking Supply	468	707
Percent Utilization	64.1%	45.7%

the assumptions made for the previous table, this timeline assumes 100% occupancy of a new TOD at the existing Arthur’s Plaza, situated in Zone 4. The 3-5 year timeline also includes the implementation of a proposed road diet along Broad Street. The new streetscape concept is planned to account for a modest increase of approximately 17 spaces in available public parking and is anticipated to increase walkability in Windsor Center through the implementation of targeted pedestrian realm improvements along the Broad Street Corridor. These improvements will not only increase available public parking supply in Windsor Center, but provide increased pedestrian safety to facilitate the flow of foot traffic along the corridor and throughout Downtown Windsor. Table 9 summarizes the buildout timeline greater than 5 years. This timeline assumes the same buildouts as the previous two tables, in addition to 100% occupancy at the proposed Union Street block TOD. All TOD scenarios assume a 30% reduction in parking requirements as supported by Town policies.

As evidenced by the summary tables, total parking supply within Windsor Center has the capacity to meet overall demand. However, especially in the longer-term scenarios, the increase in public parking demand generated by the new TODs is not met by the amount of public parking being supplied, resulting in a net shortage of parking for public use. These findings informed the recommended timeframe based strategies detailed in the following section.

Conclusions And Recommended Next Steps

Near-Term And Long-Term Parking Management Strategies

The project team utilized estimates for future parking supply and demand to inform recommendations for both near- and long-term parking management strategies, to support the expansion of TOD within Windsor Center.

As evidenced in the future estimates tables, parking demand will increase as TOD scenarios are implemented. As previously noted, the total parking supply in the downtown area will be sufficient to satisfy overall demand, however with some available parking locations reaching upwards of 80% capacity during peak periods, the inventory of only public parking will not be sufficient to accommodate the demand for public parking based on the future buildout scenarios. As such, the project team recommends a set of timeframe specific strategies to manage supply and demand of public parking. The following sections summarize several

recommendations for each of the assessed timeframes for development within the central business district.

1 To 3 Year Timeframe

- Analysis shows an oversupply of parking during the peak hour of parking. Therefore, no additional parking requirements are warranted for this timeframe.
- Implement a wayfinding signing system to direct drivers to appropriate parking areas, as recommended in the previous section.
- Investigate and, if feasible, implement a pedestrian connection behind the Post Office property between the Town Hall parking lot (Lot 23) and the sidewalk behind the CVS parking lot (Lot 17).
- Initiate design for the proposed road diet which will increase safety and convenience for pedestrians, and increase public parking supply.
- Continue to monitor the parking use and requirements for CTrail passengers as ridership expectations continue to grow.
- Continue to monitor development of TOD properties to ensure future parking demand is met as new development comes online.

3 To 5 Year Timeframe

- Analysis shows the supply of parking during the peak hours is at capacity for public parking areas. Additional public parking requirements are warranted.
- Parking demand in Zone 4 within the downtown area is expected to experience a shortage of public parking within the 3-5-year timeframe. Acquiring private parking and converting it to public parking, or implementing shared use strategies in zones adjacent to Zone 4 would aid in accommodating future need. This could include full or partial acquisition of Lot 9 in Zone 3 and/or Lot 12 in Zone 5. The Town is also currently engaging in similar strategies with the property owners on Lot 15 to consolidate parking, which can be used as a model for future agreements which would supplement the demand for parking. The following recommendation summarizes potential steps to implement such a program.
- As a temporary solution to acquiring private parking areas, the Town could also implement measures that

Table 8. Future Estimate of Parking Supply and Demand in the Windsor Station Area (3-5 Year Timeframe)

	Peak Demand	End of Day Demand
Summary of Results - Public		
Future Proposed Public Parking	543	543
Existing Occupancy	331	169
Future Additional Parking Demand	217	217
Total Under/Over Parking Supply	(5)	157
Percent Utilization	100.9%	67.8%
Summary of Results - Private		
Proposed Private Parking	778	778
Existing Occupancy	439	322
Total Under/Over Parking Supply	339	456
Percent Utilization	56.4%	41.4%
Summary of Results - Total		
Proposed Public/Private Parking	1321	1321
Existing Occupancy	770	491
Future Additional Parking Demand	217	217
Total Under/Over Parking Supply	334	613
Percent Utilization	74.7%	53.5%

would provide relief to parking shortages that could include;

- Implementation of a valet parking service - This would establish a curb-side valet parking service at critical parking areas and would only need to be active during peak times of the day. An option to provide temporary relief to parking shortages, this option could be initiated through a public-private partnership (PPP) with local organizations such as First Town Downtown, to garner community support.
- Implement a For Hire Vehicle (FHV) service - Similar to the valet service discussed above, the Town could encourage local organizations and/or businesses to contract with a FHV service such as Uber and Lyft to provide residents free rides to the downtown area at peak time periods.
- Pay for convenience - Parking within the Town is currently free, however certain areas of the proposed parking area behind the municipal building will have a fee. The Town could consider charging premium rates for premium parking locations. These locations would be some of the higher utilized parking areas in the downtown area and may force parkers to use some of the ancillary locations. Charging for convenience also encourages the use of transit and creates high turnover in busy areas. It also ensures more pedestrian activity, which in turn enhances safety.
- Update the implemented wayfinding signing system based on proposed changes to parking areas, including the preceding recommendations for Zones 3, 4, and 5.
- Continue to monitor the parking use and requirements for CTrail passengers as ridership expectations continue to grow.
- Continue to monitor development of TOD properties to ensure future parking demand is met as new development comes online. Evaluate impacts of TOD related parking on adjacent zones and investigate feasibility of the shared parking strategies presented in the next section for new developments.

Over 5 Year Timeframe

- Analysis shows that under future conditions, demand exceeds capacity of public parking supply during the peak hours, and is at capacity for the end of day period. Additional public parking requirements are warranted.
- In addition to the under supply of public parking in Zone 4 discussed in the 3-5 year time frame, Parking Zone 5 is expected to experience a shortage of public parking in the 5+ year timeframe. Acquiring private parking in adjacent zones will be required to meet the overall parking demand. This could include those items discussed in the 3-5 year recommendations as well as full or partial acquisition of Lot 17 in Zone 6.
- Update the implemented wayfinding signing system based on proposed changes to parking areas, including the recommendations for previous time periods.
- Continue to monitor the parking use and requirements for CTrail passengers as ridership expectations continue to grow, and continue to coordinate with the Connecticut Department of Transportation on parking needs and opportunities, including public-private partnerships and structured parking.
- Continue to monitor development of TOD properties to ensure future parking demand is met as new development comes online and reevaluate a potential need for the implementation of parking maximums and zoning updates to manage buildout and parking demand as peak buildout is approached.

Based upon the analysis performed, the future demand for parking within Downtown Windsor, including in the long-term, 5+ year timeframe, is anticipated to be met by the programmed supply. Management strategies of existing supply will be the key factor related to parking availability within Windsor Center. However, as the Town continues to identify and implement redevelopment opportunities and public realm improvements, and as the Hartford Line rail service continues to grow in both popularity and ridership, additional parking strategies may need to be explored. As such, this report does not preclude the potential need for additional parking supply in the future. Parking management strategies should continue to be examined as the Town progresses the scenarios identified in this study and other future TOD initiatives, and while not recommended at this time,

could include the construction of a parking structure behind Town Hall, if the need arises for a significant increase in public parking supply.

Other Parking Management Strategies

Pedestrian and Parking Wayfinding Program

One of the major impetuses for the development of this Windsor Center Parking Management Strategy was the perception that there is a lack of parking in Windsor Center. This perception was identified as a primary concern for the area surrounding the Hartford Line rail station during Part One of the Hartford Line TOD Action Plan. The results of the existing conditions assessment of parking in Windsor revealed that there does not currently appear to be a mismatch between parking supply and demand in Windsor Center as a whole. However, demand currently varies significantly between zones, with some experiencing demand upwards of 80% during peak and evening hours, necessitating targeted strategies to manage these high demand areas. Much of the perceived lack of parking can be attributed to limited wayfinding for parking, specifically locations where public parking is permissible and not limited to parking for a private use. This includes public parking for special events on the Windsor Green as well as parking for the train station. The project team recommends that enhanced wayfinding signage be developed and placed strategically throughout Windsor Center as a near-term parking management strategy.

An anecdotal increase in rail passengers using Windsor Station has been observed due to the recent launch of the CTrail Hartford Line, and the Town of Windsor has worked with CT DOT to place temporary wayfinding signage in proximity to the rail station on Central Street and Mechanic Street, primarily focused on the east side of the rail tracks. This signage includes both wayfinding to the station itself as well as associated commuter parking for the station (Figure 18). The primary commuter rail parking location is located at the Mechanic Street commuter lot, located south of the northbound station platform. In addition to the temporary wayfinding, permanent signage has been proposed within Windsor Center (Figure 19) to expand upon this rail-based wayfinding campaign. The proposed signage is designed in accordance with signage surrounding other existing Hartford Line stations. Permanent station and commuter parking signage is already posted along Broad Street. While focused primarily on commuter rail passenger parking, permanent wayfinding signage helps rail passengers easily

identify appropriate parking locations for rail travel and would allow parking elsewhere in the area to be utilized primarily for visitors to downtown Windsor.

A unified pedestrian and parking wayfinding program could be used to complement the rail wayfinding system in Windsor Center. This campaign could include signage geared towards both motorists and pedestrians to allow drivers to quickly identify where public parking is available, as well as direct pedestrians to locations of interest, such as the future station, Town Hall, Windsor Library, the Windsor Town Green, and planned TODs.

The parking wayfinding component would help visitors and residents easily identify locations of public parking to complement existing station and commuter signage. Parking signage should be placed along main corridors such as Broad Street, Poquonock Avenue, Palisado Avenue, Mechanic Street, and Batchelder Road, primarily at critical gateway points. These gateways could include improved pedestrian infrastructure to facilitate pedestrian movements and encourage walkability and safety by alerting drivers that they are entering a pedestrian friendly area. Pedestrian wayfinding signage should be primarily situated around public parking locations and key walkways, especially at pedestrian street crossings. This wayfinding campaign should clearly delineate between public and private parking areas. It should also include delineation of on-street parking availability along main corridors such as Broad Street. Clear markings of these locations would help make public parking locations easily identifiable for drivers, and address the perceived lack of parking.

To complement the improved parking wayfinding portion of the program, a pedestrian wayfinding component could be implemented as well. This system would guide visitors and residents to areas of interest within Town, and potentially including walking distance in minutes to important destinations. This system could combat the perception that parking in a public lot that is not adjacent to a visitor's destination is inconvenient or undesirable, and encourage foot traffic in the area. Placing this type of signage at key hubs such as public parking lots or at the future train station could encourage visitors to explore downtown Windsor. Special events such as events on the Green could be advertised in this way as well. Improving connections between parking and destination will help encourage visitors to park in appropriate locations. This would also support a shared parking initiative whereby parking is

Table 9. Future Estimate of Parking Supply and Demand in the Windsor Station Area (5+ Year Timeframe)

	Peak Demand	End of Day Demand
Summary of Results - Public		
Future Proposed Public Parking	543	543
Existing Occupancy	331	179
Future Additional Parking Demand	333	333
Total Under/Over Parking Supply	(121)	31
Percent Utilization	122.3%	94.3%
Summary of Results - Private		
Proposed Private Parking	778	778
Existing Occupancy	439	322
Total Under/Over Parking Supply	339	456
Percent Utilization	56.4%	41.4%
Summary of Results - Total		
Proposed Public/Private Parking	1321	1321
Existing Occupancy	770	501
Future Additional Parking Demand	333	333
Total Under/Over Parking Supply	218	487
Percent Utilization	83.5%	63.1%

Windsor Wayfinding Signage

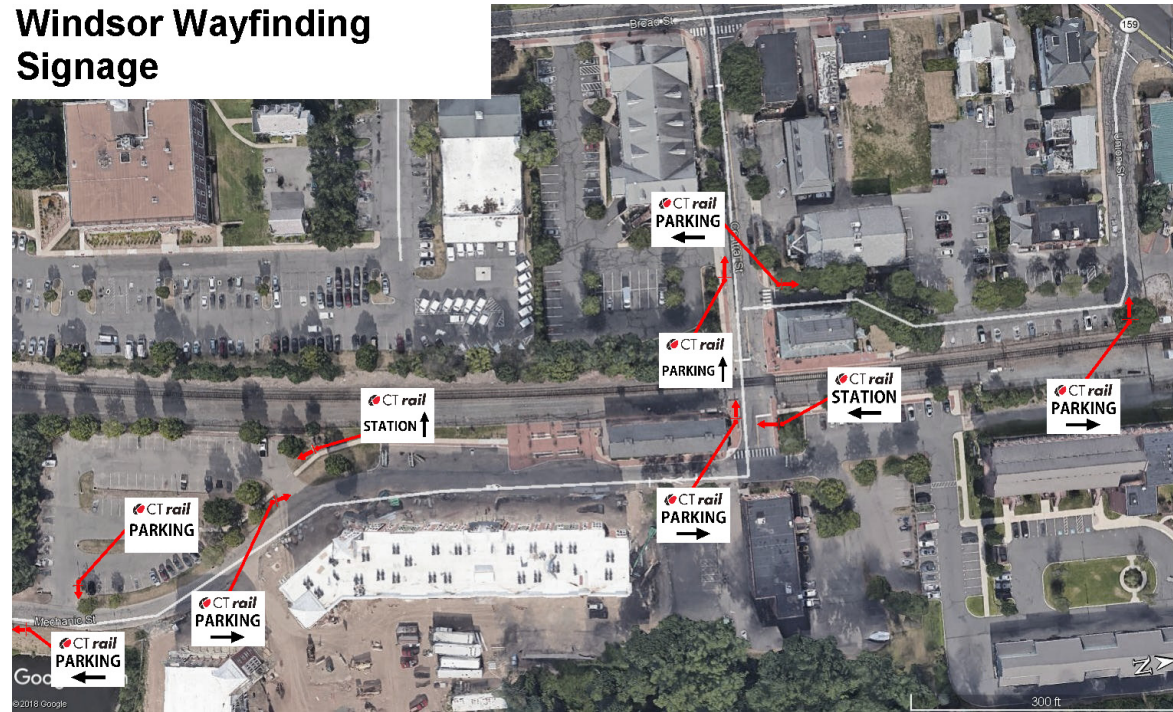


FIGURE 18 TEMPORARY WAYFINDING SIGNAGE IN THE WINDSOR STATION AREA

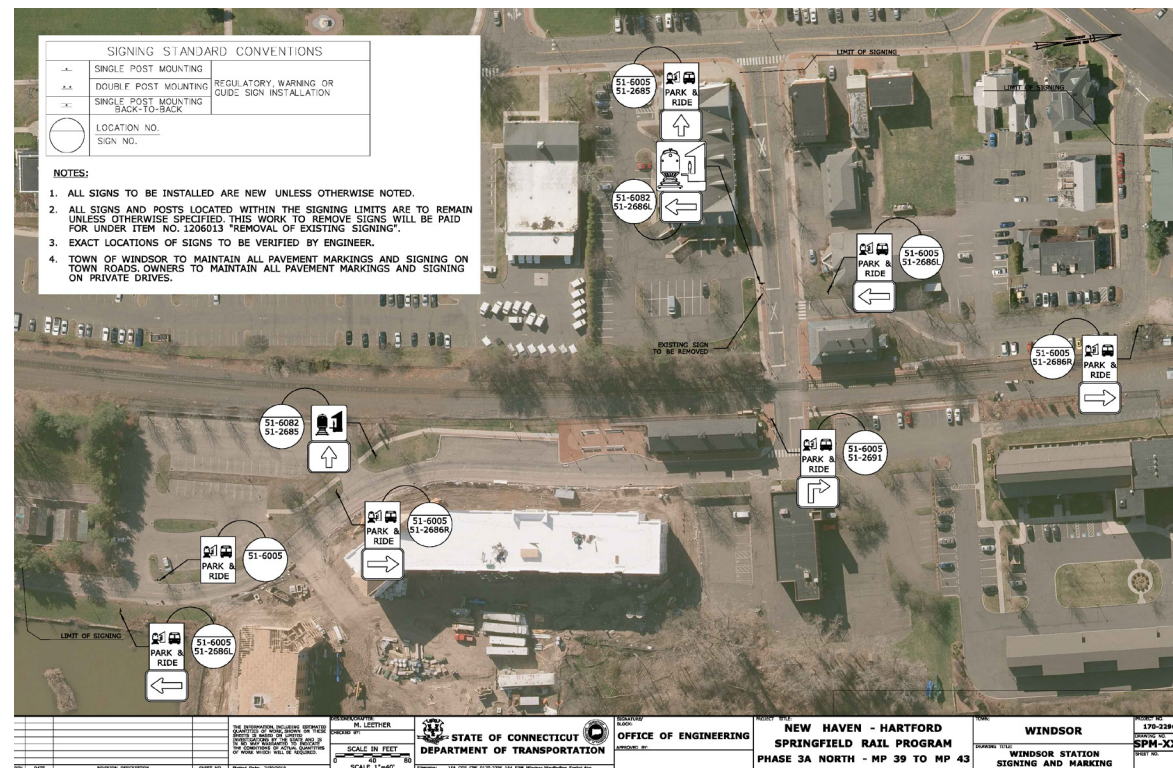


FIGURE 19 PROPOSED PERMANENT WAYFINDING SIGNAGE IN THE WINDSOR STATION AREA

Windsor

shared between uses with differing peaks, including uses included in both planned and ongoing TOD initiatives. Image 1 is one example of what this signage could ultimately be modeled after. Figure 20 identifies potential locations for new public parking and pedestrian wayfinding signage as part of this unified wayfinding program.

Image 1. Example Wayfinding Program for the Windsor Station Area



Shared/Leased Parking Management Strategies

In addition to the possibility of full or partial acquisition, the Town could investigate the feasibility of implementing shared and/or leased parking management strategies with private owners. As mentioned previously, the Town has begun to engage business owners within the Union/Central Street block to consolidate parking and provide shared public access to parking in a key location downtown. The process for introducing shared or leased parking into the existing parking supply can vary widely based upon the goals and expectations of the community, local businesses, and Town leadership. The project team identified several key steps and examples of case studies that could aid in generating a conversation surrounding this type of strategy, and eventually integrating this type of parking management with the local transportation system.

1. Develop basic educational materials for the public. This will help inform members of the public as to the need for, and goals of, shared parking within their communities. Garnering public support can help achieve a parking system that is well utilized and promotes a culture of embracing a park-once mentality alongside a willingness and desire to walk using well maintained and pedestrian friendly infrastructure to key destinations.

2. Develop the regulatory framework to allow for these strategies to be put into place. This could include the passing of a shared parking ordinance that provides support, incentives, or partnerships for participants in the program. An ordinance could also include design guidelines and planned community benefits for participation in a shared use program. The City of Miami sought to mitigate parking and development pressures in the popular shopping and entertainment district of Coconut Grove through flexible parking requirements. The City requires developers or property owners to select one of following three options to fulfill their parking requirements:

- Provide off-street parking,
- Contract off-street parking spaces elsewhere,
- Pay in-lieu fees.

In practice, the option to pay fees in-lieu of parking is the most utilized option. Under this scenario, businesses pay \$50 per space per month to the City. The City in turn uses the fees to provide shared, structured parking, improve transit service to the area, and enhance pedestrian amenities. Through such flexible requirements, the City can encourage and maintain a pedestrian friendly environment and maintain the character of the neighborhood.

3. Find a pilot project to provide an example of a shared parking strategy that works in practice, supports a unified vision, and provides a benefit to the community and local businesses. One such example is a community that recently leveraged local businesses to implement a private parking consolidation strategy. The Town of West Hartford led a consolidation effort to improve the parking that served businesses on Farmington Avenue. Through this effort by the Town of West Hartford, and its encouragement and recommendations, several private business lots were combined into a single parking lot. While these lots were privately owned, the initiative proposed by West Hartford staff successfully lobbied the owners to consolidate their various parking lots by agreeing to maintain lots, including the striping, snow removal, and other aspects of maintenance. In exchange for this continued public support, these lots function as paid, public parking. The effort by the Town of West Hartford allows for expanded public parking through

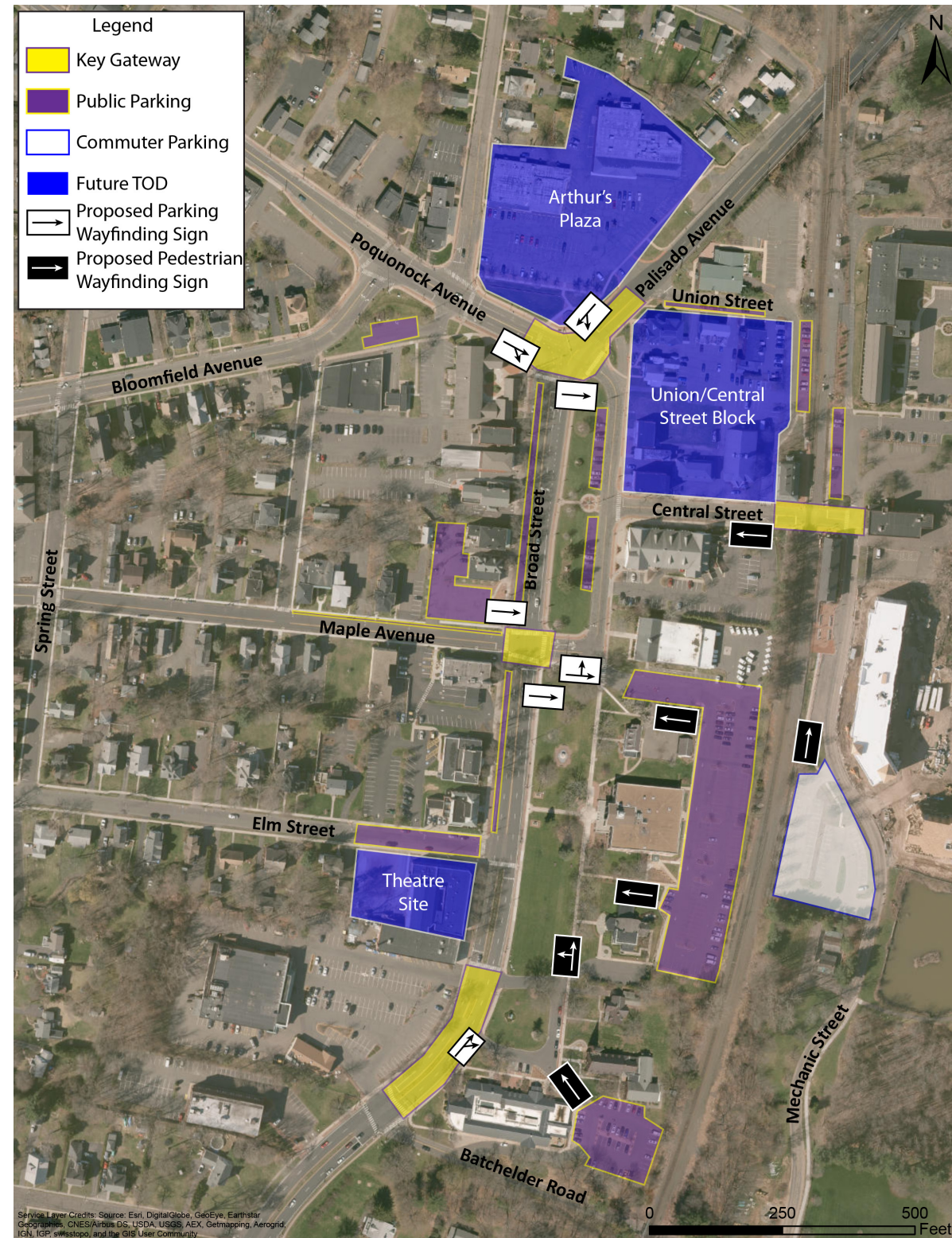


FIGURE 20

POTENTIAL PARKING AND PEDESTRIAN WAYFINDING PROGRAM FOR THE WINDSOR STATION AREA

cooperation with local parking lot owners, and provides an improved lot for those businesses served by the shared lot.

Parking Demand Mitigation Strategy

With the expected increase in TOD within downtown Windsor, many residents, or possible future residents, may increasingly opt to relocate to Windsor Center. This has already begun to be seen with the recently completed Windsor Station Apartments, and several TOD concepts that increase the available residential footprint downtown. With this increase in potential residents accounting for a portion of the increased demand, an alternative possible strategy would be to mitigate parking demand and promote additional multi-modal connections, rather than building new parking to suit this new demand. This is evidenced by a case study in New Haven, in which the City's Parking Authority (Park New Haven), in an effort to avoid the expansion or construction of new parking facilities in the downtown area, decided to focus on demand management in lieu of new parking construction.

Through a parking and mobility study, Park New Haven found that the downtown area already had an ample supply of parking with room to grow over the next 10 years. In lieu of building new parking facilities, Park New Haven, in partnership with the City, increased its efforts to improve mobility by making New Haven a better place to walk, cycle, and ride transit. The City and its Parking Authority, in partnership with major employers, worked to reduce demand through mobility interventions and coordinated, district-level demand reduction programs. The Parking Authority also aimed to improve livability by encouraging focused investment in walkable environments that encourage people to move to New Haven, while further providing many of the services and amenities that existing residents requested.

The shift away from the auto-dependency paradigm has meant an estimated demand reduction of 1,000 to 3,000 parking spaces. At a conservative estimate of \$30,000 per space, this demand reduction could result in the savings of tens of millions of dollars from deferred parking construction, which could be invested elsewhere in the New Haven community. The change in thinking of how parking should be viewed in New Haven has allowed for an improved downtown environment and positioned the City and Authority to be more flexible in how it addresses transportation needs. This shift will allow for improved

safety throughout the area, with an improved bicycle network and pedestrian amenities, in addition to better transit connections in the downtown area.

While at a much larger scale, the case study in New Haven can provide strategies that could be considered in the Town of Windsor as well. Windsor could capitalize upon multi-modal options and improved connections to employers via the Hartford Line rail service and possible future connections to the Day Hill Road employment center by supporting a community focused on livability and walkability, freeing up additional parking spaces for visitors by reducing the need for an automobile to access downtown.

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WINDSOR LOCKS

STATION AREA BUILD-OUT ILLUSTRATIVE PLAN



Streetscape Improvements along Main Street. Ongoing streetscape improvements in the future station area aim to create a welcoming environment for pedestrians.

WINDSOR LOCKS

Chapter Context

The chapter for the Town of Windsor Locks was completed during Spring and Summer 2019. The information herein is reflective of the data and information available during this time period and any recommendations made are based upon the conditions within the station area at this time.

Introduction and Background

The Town of Windsor Locks is seeking to create a vibrant town center around the relocation of the existing Windsor Locks station to its historic downtown location along Main Street, by supporting mixed-use, context-sensitive redevelopment and pedestrian-oriented infrastructure improvements within the future station area. To achieve this goal, the Town has been active in promoting an overall station area vision centered upon TOD and public realm improvements. As a means to support these ongoing efforts, the Key Recommendation identified in the Hartford Line TOD Action Plan Part One Report by CTDOT and its consultant team was to coordinate complete streets improvements and TOD planning with the Town of East Windsor. The goal of this actionable recommendation was to enhance the connectivity to the planned station through coordinated inter-municipal efforts that would improve multi-modal connectivity along Main Street and across the Route 140 Bridge, and support targeted redevelopment on both sides of the Connecticut River.

Subsequent to that recommendation, the project team, in coordination with the Towns of Windsor Locks and East Windsor, opted to advance unique recommendations for each of the municipalities, rather than combining into a single recommendation. As such, a new Key Recommendation was identified to advance for Windsor Locks: the creation of an illustrative plan highlighting the potential full build-out of the station area based upon ongoing and planned improvements, and the overall Town vision. During the Part One report, municipal leaders stressed their vision for a rejuvenated identity of downtown, and to reverse the perceived negative effects of urban renewal policies in the area. The purpose of this illustrative plan is to detail the transformative effect these improvements could have upon downtown Windsor Locks, should the future build-out vision be achieved.

This detailed illustrative plan can also be used to garner local and developer support for additional improvements and redevelopment planning. As such, this plan can help support the Town's vision for a reinvigorated downtown that embodies a local and regional destination, and to encourage additional private development in the area.

Key Considerations

Several key considerations informed the creation of this Windsor Locks Station Area Build-Out Illustrative Plan. As previously stated, a major goal of local leaders from the Town of Windsor Locks is to reverse the perceived detrimental impacts of urban renewal policies. A common theme throughout the Part One Report process was the perception that downtown Windsor Locks lacked the character it once had in the past. Municipal leaders indicated their belief that the relocation of the Windsor Locks station back to the downtown will have a revitalizing and transformative effect on the surrounding community. As such, this plan seeks to demonstrate the ways in which TOD and public realm initiatives can generate pedestrian activity and serve as a tool by which to create a sense of place, anchoring future opportunities along the Main Street corridor.

The projects and improvements included in the plan are all on unique timelines and may be implemented in phases. The illustrative plan includes long-term build-out scenarios that will require significant capital and developer interest to achieve. The build-out plan incorporates private, local, and state initiatives, and intends to portray the ways in which these projects support the goals of local leaders and members of the community, creating a character unique to the future downtown station area.

Station Area Build-Out Illustrative Plan

The Windsor Locks Station Area Build-Out Illustrative Plan (Figure 21) includes several ongoing, planned, or envisioned redevelopment scenarios and public realm improvements. As the build-out plan represents a snapshot in time, the components in this plan are subject to refinement as they progress toward implementation. The following section details the many components included in the plan.

Anchoring this vision is the future relocation of the Windsor Locks station. As part of the NHHS Rail Program, the existing rail station in Windsor Locks, located on South Main Street, will be relocated back into the center of town, adjacent to the site of the historic station along Main Street,

approximately one mile north of the existing station. The relocated station, which is currently in design, is envisioned as an anchor for activity and redevelopment in downtown. The most recent station designs have been included in the illustrative plan, to depict how the future station could create a multi-modal transit hub, closely aligned with other ongoing and planned initiatives. Construction, which is anticipated to start in 2020, will likely be completed in phases. The initial construction phase will consist of a single station platform on the west side of the tracks. Subsequent phases would include a second platform and pedestrian bridge over the tracks.

To support multi-modal connections to the future station, the Town of Windsor Locks has begun to plan, design, and implement streetscape improvements along Main Street, adjacent to the future station location. These complete streets improvements aim to slow vehicular traffic and create a more pedestrian oriented streetscape to support the expected increase in foot traffic generated by the future station and future redevelopment projects. These improvements include a roundabout at the intersection of Main Street and Chestnut Street, conversion of Chestnut Street into a two-way street, a landscaped median along portions of Main Street, on-street parking, set back sidewalks on the west side of the roadway, and a 10-foot shared-use path along the east side of the roadway. It is expected that these street treatments will create a streetscape that reduces high-speed traffic and improves safety for bicyclists and pedestrians, while still maintaining sufficient traffic flow through the area on a State Route. The proposed shared use path would expand pedestrian and bicycle accessibility to the future station, as there is currently no pedestrian infrastructure that provides direct access to the station site. While currently in design, these improvements will be constructed in different phases that will be coordinated with the sequencing of station construction and track work.

To expand upon the Main Street improvements and the associated pedestrian connections to the new station, there are additional improvements planned for the Route 140 Bridge. The additional improvements focus primarily on a new pedestrian bridge on the north side of Bridge Street, which would rectify an existing connectivity gap between the proposed shared-use path on the east side of Main Street, the new Montgomery Mills development site, the Windsor Locks Canal Trail, and the existing sidewalk on the south side of the Route 140 Bridge. The new pedestrian bridge and associated sidewalks and crosswalks will improve station



FIGURE 21 BUILD-OUT ILLUSTRATIVE PLAN FOR THE WINDSOR LOCKS STATION AREA

connectivity east of Main Street. Moreover, Church Street will be reconstructed as a dead-end road to mitigate traffic impacts in relation to the station.

Many of the public realm improvements proposed in the station area will improve connectivity to and from Montgomery Mills and the nearby Windsor Locks Canal Trail. Montgomery Mills is an adaptive reuse redevelopment of a former mill, located between the Connecticut River and the Windsor Locks Canal. The redevelopment project features 160-units of mixed-income housing with one and two bedroom floorplans. The \$62 million project broke ground in early 2018 and is expected for completion in summer 2019. The project is anticipated to increase foot traffic in downtown and vastly expand residential options in the station area. Adjacent to the redevelopment site, the Town's long-term vision includes the expansion of the Windsor Locks Canal Trail as a recreational asset. For additional access, the vision for this site includes a pedestrian walkway over the canal, providing access between the future station and the northern portion of the Montgomery Mill site. The waterway is designated as a navigable channel, although such use is no longer possible as the northern entrance to the canal has been permanently sealed. This pedestrian bridge is not associated with station design or funding plans and should be designed, financed, and constructed separately from the station by the Town or others.

In addition to the residential redevelopment at the Montgomery Mills site, the Town is also envisioning the redevelopment of the existing Windsor Locks Commons site. Windsor Locks Commons is a retail business complex located adjacent to the future site of the relocated Windsor Locks station. With the planned relocation of the station, increase in foot traffic associated with Hartford Line rail service and expanded residential options, proposed redevelopment of the site can leverage the current investments in the area. Due to its proximity to the future station, the planned development seeks to harness the potential of its location, providing mixed-use and transit supportive options in the station area. Redevelopment plans include a potential parking deck and mixed-use development with street frontage, which could encourage local businesses to move their operations downtown, reversing an outflow of business following urban renewal policies in the past. The proposed parking deck would be situated above dedicated station parking, serving as a separate parking option with a separate entrance/exit for

local visitors not utilizing the Hartford Line service. A new pathway has also been proposed to connect to the historic Chapman House, north of the station, which would be constructed by the Town or others and would likely require overcoming grade change challenges. Conceptual site plans, referred to as "Windsor Locks Market," also depict a public market, open space connections, and parking in the rear, with secondary access via the proposed roundabout on Main Street.

In addition to Windsor Locks Commons, the so-called "properties on the curve" are also envisioned to be redeveloped. This collection of underutilized parcels on the west side of Main Street, across the street from the existing Windsor Locks Commons, is proposed as a unified development site, referred to as the Main Street TOD Development. The redevelopment site concept includes several mixed-use buildings fronting the proposed new on-street parking along Main Street, with access from Chestnut Street and parking behind the development.

Conclusions And Recommended Next Steps

The relocation of the rail station back to downtown, bringing with it improved rail service, has been viewed as an opportunity to harness the potential of a significant transit investment to address the perception of a lack of character in the downtown. As such, the Town is actively supporting several initiatives and plans to reverse the detrimental effects of urban renewal in the past, which resulted in the perception of Main Street functioning as a high-speed thoroughfare with no sense of identity. Members of the community, local business leaders, and various stakeholders cite this as a contributing factor to the outflow of local businesses over the last several decades. The long-term build-out illustrative plan details components of a vision aimed at revitalizing downtown, generating and encouraging foot traffic, and supporting developer and business interest in the downtown core. The depicted plans, projects, and initiatives aim to achieve this vision by supporting targeted TOD and public realm improvements, contributing to a sense of place for the community.

The Windsor Locks Build-Out Illustrative Plan serves as a visual representation of this reinvigorated identity. The many projects incorporated into the long-term vision for the new station area are unique and several entities are involved in advancing this vision. The plans incorporated in this build-out vision represent a snapshot in time and are subject to refinement as they progress toward

implementation. A cohesive illustrative plan serves to assist with forming consensus around a singular, high-level vision, highlighting the potential of redevelopment and infrastructure improvements and the benefits they can bring to the local community.

To realize the build-out vision detailed in this illustrative plan, the project team recommends that the Town continue its efforts with the following next steps to bring the vision from plan to reality:

- Continue to coordinate with CTDOT to support the relocation of the Windsor Locks station. As the Town's redevelopment plans and CTDOT's station design plans progress, coordination will ensure that these plans are mutually supportive.
- Continue to advance the planning and design process of the proposed Complete Streets improvements, and work with CTDOT to coordinate and initiate implementation.
- Identify funding opportunities to implement several proposed improvements. Possible sources of funding include grants and tax increment financing (TIF). In 2016, Windsor Locks was the first municipality in Connecticut to approve a TIF district, which can serve as a tool to assist with revitalization.
- Identify and coordinate with local developers to redevelop priority sites such as Windsor Locks Commons and the "properties on the curve".
- Coordinate with the Town of East Windsor to mutually support a cohesive station area that supports TOD and multi-modal connectivity.

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EAST WINDSOR

WAREHOUSE POINT CONNECTIVITY PLAN

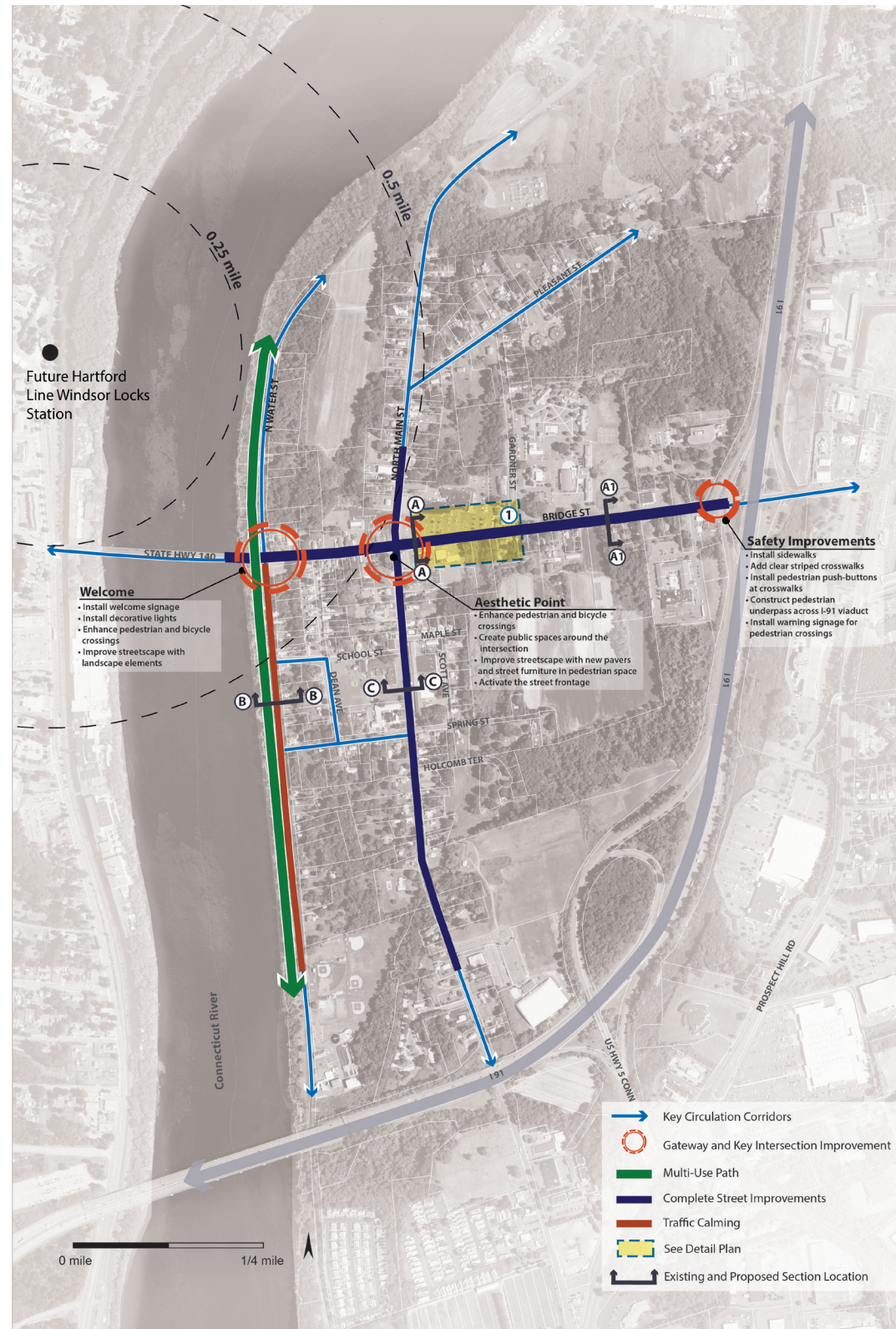


FIGURE 22

WAREHOUSE POINT CONCEPTUAL CONNECTIVITY PLAN

EAST WINDSOR

Chapter Context

The chapter for the Town of East Windsor was completed between Spring 2017 and Winter 2017. The information herein is reflective of the data and information available during this time period and any recommendations made are based upon the conditions at this time.

Introduction and Background

In the Hartford Line TOD Action Plan, CTDOT and its consultant team collaborated with the Town of East Windsor to identify Complete Streets strategies to create a Connectivity Plan for Warehouse Point Village to capitalize on the proximity to the future relocated Windsor Locks Station.

Warehouse Point, the oldest of five villages in East Windsor, is located along the Connecticut River and connects to Windsor Locks via the Bridge Street (Route 140) Bridge. The village is characterized as a historic residential village, including a mix of uses, cultural resources, and limited existing farm land. The Connectivity Plan seeks to improve multi-modal connections both within Warehouse Point and to the future station in Windsor Locks.

The plan focuses on several key corridors and gateways within Warehouse Point including Main Street, Bridge Street, Water Street, and the intersections of Bridge Street and Water Street, Bridge Street and Main Street, and Bridge Street and the Interstate 91 (I-91) access ramps. The recommendations developed for the Connectivity Plan were based upon an existing conditions analysis and findings from the Complete Streets and Development Concept Plan for Warehouse Point.

Key Considerations

The project team, through coordination with the Town, examined ways to improve walkability and multi-modal connectivity that would create safe and convenient access throughout Warehouse Point and to the future Hartford Line Station in Windsor Locks. Several key considerations were identified, including:

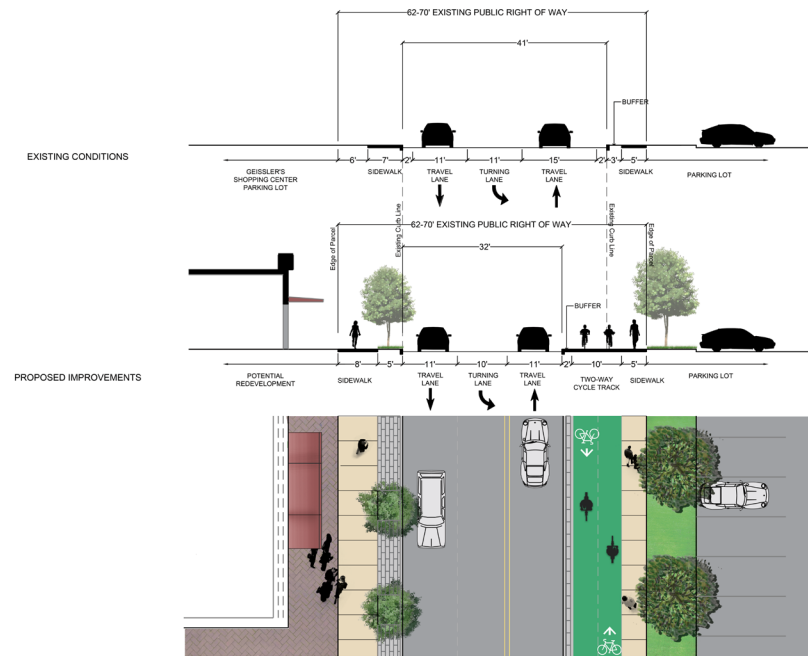


FIGURE 23 PROPOSED BRIDGE STREET CROSS-SECTION SECTION A: LOOKING EAST (AS IDENTIFIED IN FIGURE 22)

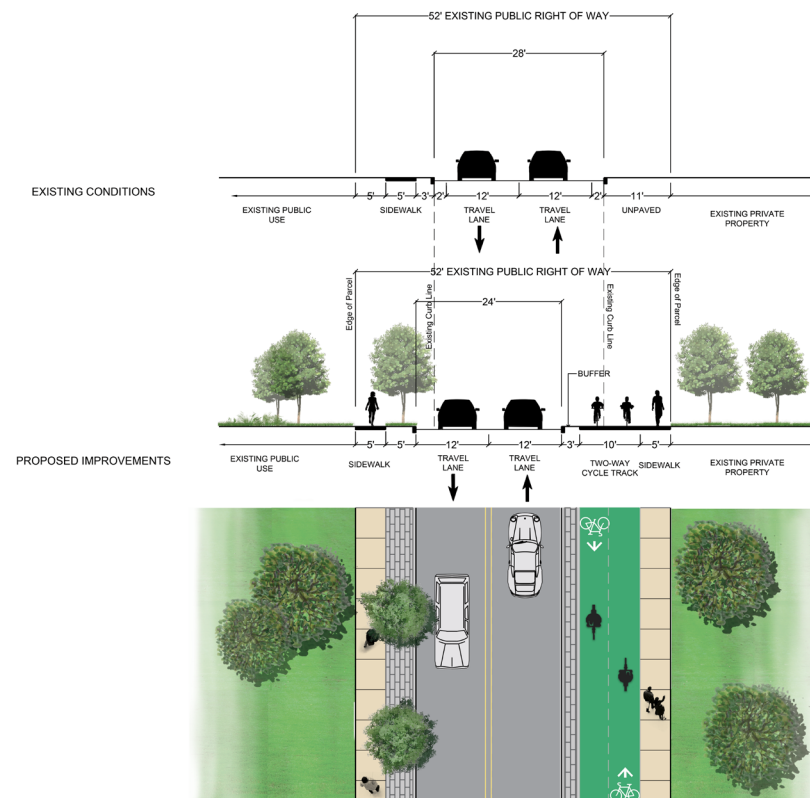


FIGURE 24 PROPOSED BRIDGE STREET CROSS-SECTION SECTION A1: LOOKING EAST (AS IDENTIFIED IN FIGURE 22)

Improve Connections to the Future Windsor Locks Hartford Line Station

While present throughout Warehouse Point, the sidewalk network is often disconnected, inconsistent, or in deteriorating condition. Sidewalk conditions include inconsistent width or location, erosion along the street edge, lack of defined pedestrian space or curbs, or the absence or abrupt end of sidewalks. Crossing infrastructure is often insufficient and does not promote walkability in several key locations, including the core of Warehouse Point and the intersection leading west to Windsor Locks and, by extension, the future Hartford Line Station. These inconsistencies in connectivity inhibit pedestrian and other non-motorized access to the future station area.

Improve Pedestrian Experience

With several main auto corridors in the area, roadways often experience heavy traffic conditions, especially at peak travel times. Compounding these traffic conditions is the presence of heavy truck traffic between I-91 and industrial businesses in Windsor Locks, resulting in congestion and backups at critical intersections. Frequently, drivers utilize local roadways as cut-throughs to avoid heavy traffic, resulting in streetscapes that are unsafe for pedestrians and non-motorized traffic. The main corridors have characteristics, such as frequent and large curb cuts, to accommodate trucks and heavy vehicular traffic. These conditions create an environment that is unappealing both to drivers and pedestrians and does not support connectivity between Warehouse Point and the future station.

Define Community Gateways

Stemming from congestion and traffic issues, critical gateways in the community lack appeal and safety measures to encourage pedestrian and non-motorized traffic. In coordination with improving streetscapes to enhance connectivity between Warehouse Point and the future station, aesthetic and safety improvements to these gateways would encourage additional foot traffic and create clearly delineated sight and travel lines along important corridors.

Provide Waterfront Access

A unique and underutilized asset of Warehouse Point is its proximity to the Connecticut River, as identified in the previously mentioned Complete Streets Plan. Highlighting and improving access to this asset is a key outcome of promoting walkability within the community.

To address these key considerations, the project team developed a Warehouse Point Connectivity Plan to improve connectivity within Warehouse Point and between the community and future station, for pedestrians and other non-motorized transportation options.

Warehouse Point Connectivity Plan

A Complete Streets strategy based on key considerations was developed for key corridors and intersections, prioritizing sidewalk and crosswalk installation, bicycle infrastructure, and safety improvements. Complete Streets is the practice of developing streetscapes that support safe mobility for all users regardless of method of travel, age, or ability. Traffic calming techniques, as well as installation of pedestrian infrastructure, should be designed to support an enhanced pedestrian experience and improve critical connections. Traffic calming is the practice of using physical design components to reduce vehicle speeds and create a safe pedestrian environment. Conceptual street section plans, detailed below for key locations, recommend traffic calming techniques to supplement the proposed pedestrian infrastructure. The full Complete Streets Concept Plan for Warehouse Point is illustrated in Figure 22, identifying key corridors and proposed improvements. This concept could serve as a base for additional coordination between the Town and CTDOT, especially for improvements on Main Street and Bridge Street which are state routes, as the Town develops the design of a more detailed streetscape plan, a critical next step in advancing this concept plan from vision to reality.

The following recommended improvements are conceptual and if implemented, would be subject to a formal design review and refinements. However, they serve as a foundation for the Town as it continues efforts to enhance connectivity in Warehouse Point.

Key Gateways

The intersection of Bridge Street and Water Street is the most proximate to Windsor Locks and serves as the primary intersection providing access to the station area. It is envisioned as the “Welcome Gateway” to Warehouse Point, providing an inviting sense of arrival into the neighborhood. Intersection design improvements could include welcome signage, decorative lights, enhanced pedestrian and bicycle crossings between the community and the Route 140 bridge, as well as improved landscape elements to complement proposed streetscaping in Windsor Locks.



FIGURE 25

**BRIDGE STREET COMPLETE STREETS CONCEPT PLAN
DETAIL PLAN 1 (AS IDENTIFIED IN FIGURE 22)**

The intersection of Bridge Street and Main Street is the geographic center of Warehouse Point and could serve as an “Aesthetic Gateway” highlighting the historic context of the community. Redesign of the intersection would help establish a physically discernable center and include enhanced pedestrian and bicycle crossings, public space around the intersection, improved streetscape with new pavers, street furniture, and active frontage by local businesses. Collectively, these improvements could encourage and support pedestrian activity.

The intersection of Bridge Street and I-91 provides connections outside of Warehouse Point, including to a proposed future casino. While safety improvements throughout the area are critical to creating an inviting pedestrian environment, specific safety improvements for this intersection could include sidewalk installation, high visibility crosswalks, construction of a pedestrian underpass across the I-91 viaduct, and warning signage for pedestrian crossings. There should be a focus on traffic calming where it is appropriate to accommodate safe non-motorized travel options on a highly utilized roadway. These improvements would also serve as a benefit to developments east of I-91 and would enhance connections between the station, the Warehouse Point core, and other amenities such as the casino, if constructed.

off-street cycle track should be painted per guidelines from the National Association of City Transportation Officials (NACTO) to be distinguished from pedestrian zones. Financial feasibility and maintenance issues should be taken into consideration when selecting specific treatments for streetscape improvements. The plan view (Figure 25) provides an example of the corridor with the implementation of Complete Streets concepts.

Water Street

The project team recommends several improvements along Water Street to enhance walkability and multi-modal connections. Despite its function primarily as a residential street and access road to recreational amenities such as Osborne Field, Water Street does not have sidewalk infrastructure. Water Street is constrained in terms of a narrow right-of-way (approximately 42 feet) and by homes that closely front the street. Expanding the right-of-way is a challenge because it would require potential property transfer or an easement to use portions of private property. However, if these challenges can be overcome, there is potential to enhance mobility and safety along Water Street.

The proposed cross-section (Figure 26) illustrates a new sidewalk, a multi-use path, and chicanes as a traffic calming measure to address concerns regarding speeding and pedestrian safety. Chicanes include hardscaping and on-street markings that function to curve the road to slow down traffic for increased safety. Currently, Water Street is used as a cut-through and many residents have identified vehicles and trucks speeding as a concern. These proposed infrastructure changes would help improve mobility and safety for non-motorized connections and would also increase the capacity for safe connections to the waterfront.

Bridge Street

Bridge Street is the primary east-west corridor in Warehouse Point. The availability of public right-of-way between Water Street and Gardner Street could be used to expand mobility options and implement several streetscape improvements. The project team proposes that the travel lane widths be reduced, a two-way cycle track be installed off-street, and buffers be added to separate the sidewalks and cycle track from traffic (Figure 23). Some curb cuts along Bridge Street could be consolidated or reduced to minimize disruption to pedestrian and bicycle flow. These improvements would provide better pedestrian and bicycle connections to and from the future station and throughout Warehouse Point. While Bridge Street narrows between Gardner Street and I-91, these non-motorized improvements could be accommodated within the existing, albeit narrowed, right-of-way (Figure 24).

Main Street

Main Street is the primary north-south corridor in the study area. Figure 27 shows how this relatively constrained right-of-way could be improved with the installation of new or widened sidewalks and striped on-street bicycle lanes within the existing right of way. These streetscape improvements would improve connections and provide the community with direct and safe non-motorized access and could help support new land use and development patterns. They would also improve access to existing community assets such as the East Windsor Police Station, the Warehouse Point Library, and various recreational opportunities.

The proposed streetscape concept aims to establish Bridge Street as a gateway corridor through the center of Warehouse Point, maintaining vehicular traffic flow while improving pedestrian and bicycle amenities. A potential

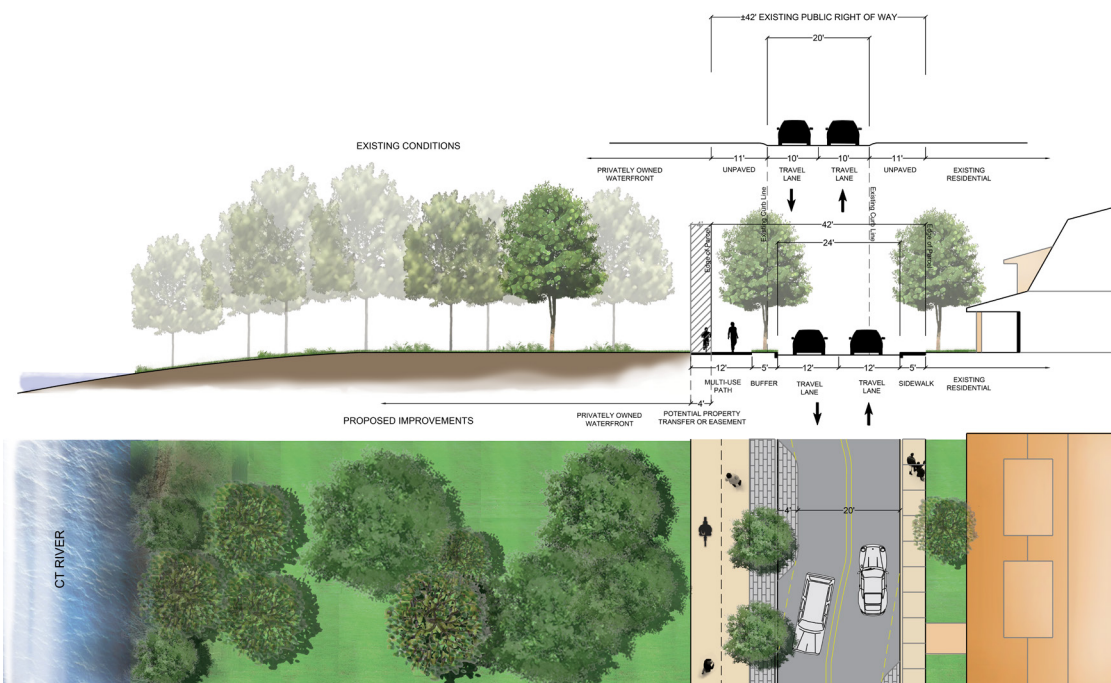


FIGURE 26

**PROPOSED WATER STREET CROSS-SECTION
SECTION B (LOOKING NORTH - AS IDENTIFIED IN FIGURE 22)**

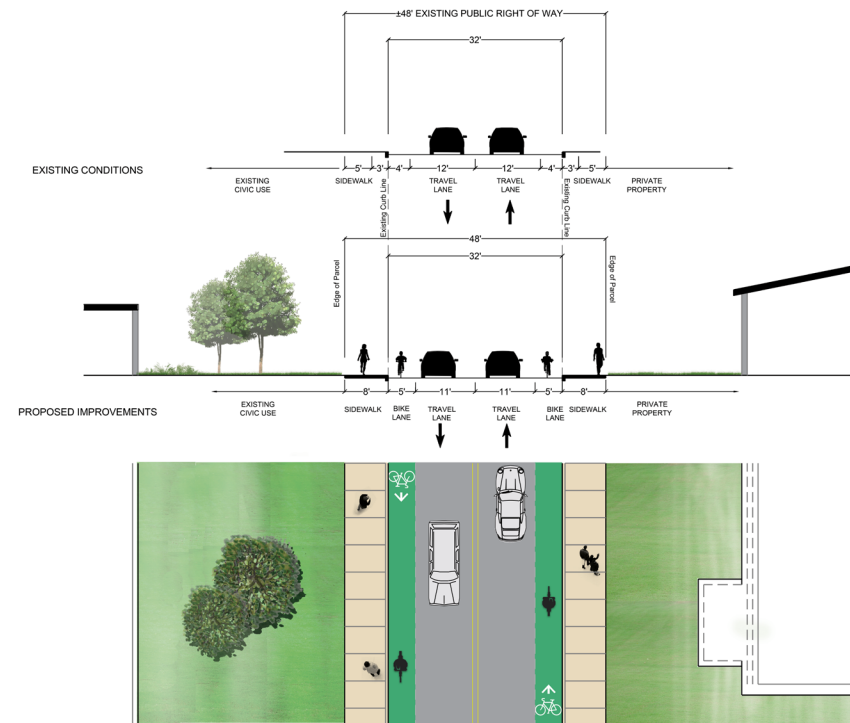


FIGURE 27

PROPOSED MAIN STREET CROSS-SECTION
SECTION C (LOOKING NORTH - AS IDENTIFIED IN FIGURE 22)

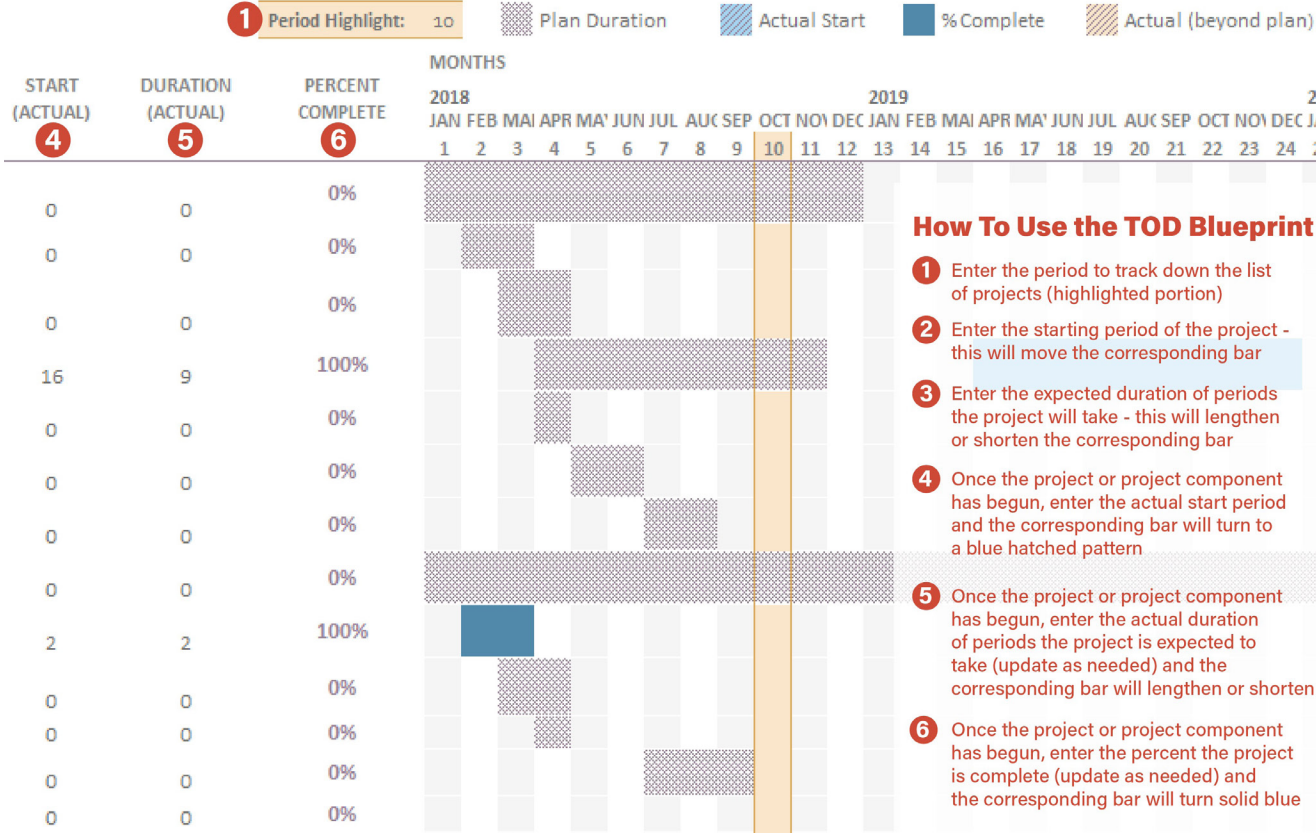
Conclusions and Recommended Next Steps

The improvements recommended in the Warehouse Point Complete Streets Concept Plan would serve to improve walkability within Warehouse Point and expand multi-modal connections to the future relocated Hartford Line Station in Windsor Locks. Specific proposed enhancements that focus on Complete Streets, streetscaping, and traffic calming include new or expanded sidewalks, accommodations for bicyclists, pedestrian-scaled amenities like crossings and plantings, and hardscaping such as chicanes. These improvements could function to supplement ongoing improvements being made within Windsor Locks, and create clear, safe, and efficient multi-modal pathways to the future station, generating opportunities for residents and local businesses to harness the potential of Hartford Line rail service.

The conceptual plans presented in this Plan serve as a base for the Town as it continues efforts to enhance connectivity in Warehouse Point. To advance the conceptual plans for increasing connectivity, the project team recommends that the Town proceeds with the following steps:

- Prioritize recommended improvements for Warehouse Point so that implementation can be sequenced as funding becomes available.
- Identify and apply for various funding opportunities to implement proposed improvements.
- Coordinate with the Town of Windsor Locks to mutually support a cohesive station area that supports TOD and multi-modal connectivity.

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ENFIELD

THOMPSONVILLE TOD BLUEPRINT



Freshwater Pond in central Thompsonville. The central green space and pond in the Thompsonville community in Enfield.

ENFIELD

Chapter Context

The chapter for the Town of Enfield was completed between Fall 2017 and Spring 2019. The information herein is reflective of the data and information available during this time period and any recommendations made are based upon the conditions within the station area at this time.

Introduction and Background

In the Hartford Line TOD Action Plan, CTDOT and its consultant team collaborated with the Town of Enfield to prepare a TOD Blueprint for the Thompsonville community. The blueprint aims to support the ongoing studies and projects either planned or underway by the Town of Enfield, aimed at the creation of a walkable, mixed-use, and transit-supportive community in the Thompsonville neighborhood of Enfield. Collectively, these initiatives seek to leverage transportation investments made by the State as a part of the NHHS Rail Program, including the new *CTrail* Hartford Line passenger rail service and a future rail station in Enfield.

The purpose of the Blueprint is to outline critical paths forward, common themes and goals, and potential interdependencies among the many ongoing and forthcoming projects in Thompsonville. The Blueprint is designed to be an interactive tool that the Town can update in real-time to reflect progress made on each initiative and proactively identify scheduling challenges that may arise in the future. In this way, the Blueprint can serve as a program management tool that the Town can use to coordinate their complementary initiatives and thereby address key hurdles for TOD implementation that were identified during the D&R process.

The Blueprint effectively dovetails with Enfield's recently completed Thompsonville Zoning & Economic Development Strategy, which was funded by a TOD grant from the State Office of Policy and Management (OPM). Whereas the strategy seeks to address specific opportunities and make regulatory and market recommendations to support TOD, the Blueprint aims to promote coordination across the many complementary initiatives—including several capital improvement projects—that collectively will enable the Town to move from plan to implementation.



FIGURE 28

PROJECT COMPONENTS AND KEY FEATURES TO PROMOTE TOD IN THE ENFIELD STATION AREA

One of the key conclusions from this effort is that there are opportunities to coordinate between the Town’s ongoing initiatives that support TOD specific themes, by identifying tools to advance three overarching goals:

1. A Multi-modality, Wayfinding, Branding, and Visitor Plan,
2. A Coordinated Parking Plan for Downtown, and
3. A Waterfront Zone Plan.

A coordinated approach across the ongoing projects, plans, and strategies could greatly help the Town of Enfield achieve many of their goals and objectives for TOD and advance each towards implementation.

Key Considerations

With input from the Town of Enfield, the Thompsonville TOD Blueprint illustrates the relationship of major projects and studies underway. An overview of the major components and key features of these projects follows (illustrated in Figure 28), as a precursor to outlining the components of the Blueprint in a subsequent section.

Thompsonville Zoning & Economic Development Strategy

The Thompsonville Zoning & Economic Development Strategy was completed by the Town in January 2019 and resulted in several recommendations for new development, regulatory changes, and zoning amendments with the goal of supporting economic revitalization. The study includes an economic development strategy informed by a market analysis, a labor and industry evaluation, and a real estate analysis. This analysis establishes existing conditions and identifies market-driven opportunities in the half-mile around the proposed Thompsonville Transit Center. The Study also includes a financial feasibility analysis that focuses on development densities and residual land values for different redevelopment scenarios. The analysis identifies multiple redevelopment sites and suggests subsidized structured parking and public/private partnerships as part of the redevelopment.

River Access Project

The River Access Project is a State project that includes the design and construction of a multi-use path to provide a safe and convenient link for pedestrians and bicyclists from Freshwater Pond along Pearl and Main Streets, under the Asnuntuck Street archway, to a turnaround and viewing point at the Connecticut River. The Town hired contractors

to survey and design the River Access multi-purpose path, and work commenced in early 2018 with an anticipated preliminary design expected by the end of the calendar year. One of the important first steps was the acquisition of the 1.55-acre parcel on the Connecticut River, which was completed in February of 2018. Construction is anticipated for 2021-2022.

Replacement of the South River Street Bridge

The State is advancing a project to replace the South River Street Bridge over Freshwater Brook. In September 2018, an emergency closure was enacted with emergency repairs scheduled to be completed by November 2018 to address safety concerns surrounding severe deterioration. A Structure Type Study and final design are expected to be complete by December 2018 with full bridge replacement anticipated in 2021.

Hartford Line Station Design and Construction

The construction of a new Hartford Line station in Enfield is a future component of the NHHS Rail Program. The planned station will be located at the intersection of Main Street and River Street and will include high-level platforms and an overhead pedestrian bridge to cross the tracks. Final design is scheduled for completion in summer 2021 with timing of station construction being dependent on securing funding.

Timing of station construction is also dependent upon the completion of other work in the area, including projects under the purview of the NHHS Rail Program. Station construction must be sequenced after the design and construction of double track between Windsor and Enfield, the mitigation of impacts to the Asnuntuck Street Bridge, and the relocation of infrastructure and utilities to accommodate the new station.

Thompsonville Transit Center

The Thompsonville Transit Center is a Town project that seeks to capitalize on the anticipated Hartford Line station by creating a multi-modal transportation hub adjacent to, and integrated with, the station. The Transit Center would serve rail and bus riders, bicyclists, pedestrians, and drivers, and would align the operations of a local bus station with the full-service passenger rail station, once constructed. Key components of the Transit Center include: vehicle and pedestrian access; internal bus circulation and loading bays; passenger amenities, such as waiting areas, bus shelters, and concessions; open space for recreation;

ticket vending machines offering connections to the rail line and other transit services; and a station building connecting to the Hartford Line station, which is planned as a reuse of the historic Casket Hardware Building with some retail and commercial uses.

As part of the Thompsonville Transit Center project, environmental remediation and acquisition of properties are necessary. The Town contracted consultants to perform the Environmental Site Assessment (ESA) Phase II & III for the Eversource site, a key site that the Town is seeking to acquire for the Transit Center. The Town is currently determining a timeline and cost for remediation on the site. The Town will move forward with acquisition of other identified sites for the Transit Center following completed environmental work. Relocation of North River Street is undergoing design but the construction timeline is unknown and may be integrated with the future Hartford Line station construction.

Thompsonville TOD Blueprint

Based on the information about each project summarized in the preceding section, the project team developed the Thompsonville TOD Blueprint to support the Town's efforts in moving from plan to implementation. The Blueprint consists of two graphics and an interactive Excel template:

- The **Critical Path by Project** flowchart (Figure 29) is a visual representation that charts a simplified critical path for each of the projects over time.
- The **Opportunities for Inter-Project Coordination and Cohesion** graphic (Figure 30) is a visual representation of the outcomes associated with each of the major projects, as well as the major TOD theme(s) and goal(s) they address. This graphic highlights the themes and goals central to implementing context sensitive TOD in Thompsonville, and additional tools that could be utilized in coordination with ongoing projects to advance this vision. These opportunities and common themes are detailed in the next section.
- The **Critical Path Timeline Excel Template** (Figure 31) was created to help the Town of Enfield track and schedule the listed projects that are critical to the success of TOD implementation in Thompsonville. The template is intended to be a living document and an interactive tool that the Town can update over time as appropriate to denote changes in anticipated vs. actual start/completion dates of different initiatives,

projects, or studies. This tool will enable the Town to quickly and visually identify potential conflicts or codependent tasks. The template has estimated dates and other placeholders that requires input of updated project information. Figure 4 illustrates what the template looks like and gives a brief "How To" use this interactive tool.

Opportunities for Coordination Between Projects and Studies

It is important that the aforementioned studies and projects are coordinated and build on opportunities identified from past studies and recommendations. There are common themes that are addressed by multiple studies and projects:

- **Cohesive and Attractive Waterfront:** The Town of Enfield's Plan of Conservation and Development and the Thompsonville Zoning & Economic Development Strategy have envisioned a green, publicly accessible waterfront that balances development, access, conservation, and recreation.
- **Coordinated and Adequate Parking Facilities:** Many of Thompsonville's priority projects and redevelopment opportunities will require parking. However, it is important to promote coordination across the individual projects so that parking facilities are adequately sized (with potential opportunities for shared parking) and easy to navigate, without creating a car-oriented community that discourages foot traffic to the waterfront, recreational amenities, or existing/proposed cultural hubs.
- **Safe and Attractive Bicycle and Pedestrian Amenities:** Prior studies have proposed a network of pedestrian and bicycle amenities that will encourage convenient non-motorized transportation in and around the Thompsonville area.
- **Successful and Unique Placemaking:** For decades, Enfield has envisioned Thompsonville as a revitalized downtown where visitors can explore and enjoy cultural and recreational amenities. Creating a place that is memorable and unique is key to capitalizing upon Enfield's priority projects.
- **Useable and Accessible Transit Connections:** As discussed, Enfield is anticipating and actively planning for investment in its transit infrastructure. To encourage ridership and attract visitors and commuters into

Thompsonville, it is imperative that the investments prioritize accessibility to and connections between different transit services.

These common themes can be grouped into three overarching goals needed to be achieved in the Thompsonville community to advance and implement the Town's vision for TOD:

- **A Waterfront Zone Plan for Multi-modal Amenities and Connections:** A cohesive plan that highlights the multi-modal investments being made would help tie several individual initiatives together to promote connectivity and accessibility between the new transit hub, downtown, and waterfront assets. Not only would this plan address the need for accessible multi-modal transportation by offering connectivity between pedestrian, bicycle, bus, and rail travel, it will create a sense of place centered upon a unique local amenity, the Connecticut River.
- **A Coordinated Downtown Parking Plan:** With an expected increase in visitors to the downtown and the waterfront, a coordinated parking plan would ensure that all modes of transportation can be accommodated, including personal automobiles, and commuters accessing the future Hartford Line station and Thompsonville Transit Center.
- **A Multi-modal Wayfinding, Branding, and Visitor Plan:** To complement the Waterfront Zone Plan and Downtown Parking Plan, a Wayfinding, Branding, and Visitor Plan could be implemented to guide visitors to local areas of interest including new TOD, waterfront amenities, and multi-modal connection points. This plan could highlight important connection points such as the future Thompsonville Transit Center/Hartford Line Station, future local activity generators such as the potential redevelopment and/or reuse of the Strand Theater and other downtown sites, and other amenities such as the Connecticut River waterfront. This plan could include the development of a highly visible wayfinding campaign to highlight local assets and create a clear sense of place in Thompsonville to support economic activity and revitalization.

Conclusions and Recommended Next Steps

The Town of Enfield identified five local projects, including the future Hartford Line station, that will create a walkable, mixed-use and transit-supportive neighborhood in Thompsonville. The Blueprint outlines critical paths forward, interdependencies, and common goals and themes among these projects, with the interactive spreadsheet serving as a project management tool that the Town can use to coordinate and address key hurdles for TOD implementation.

To advance the implementation of these TOD-supportive projects, the project team recommends that the Town proceed with the following steps:

- **Utilize the interactive spreadsheet:** The Town should update the interactive spreadsheet to reflect the current state of all the ongoing local projects to identify any conflicts, opportunities, or related critical path items among the projects.
- **Coordinate between projects to enhance outcomes:** The Town should consider the opportunities for coordination between projects and studies as they proceed with implementation, ensuring that outcomes are cohesive and achieve the community's vision for TOD. Several implementation tools, identified in Figure 3, could be utilized to bring together the various ongoing or forthcoming projects in a way that meets the overarching TOD goals.

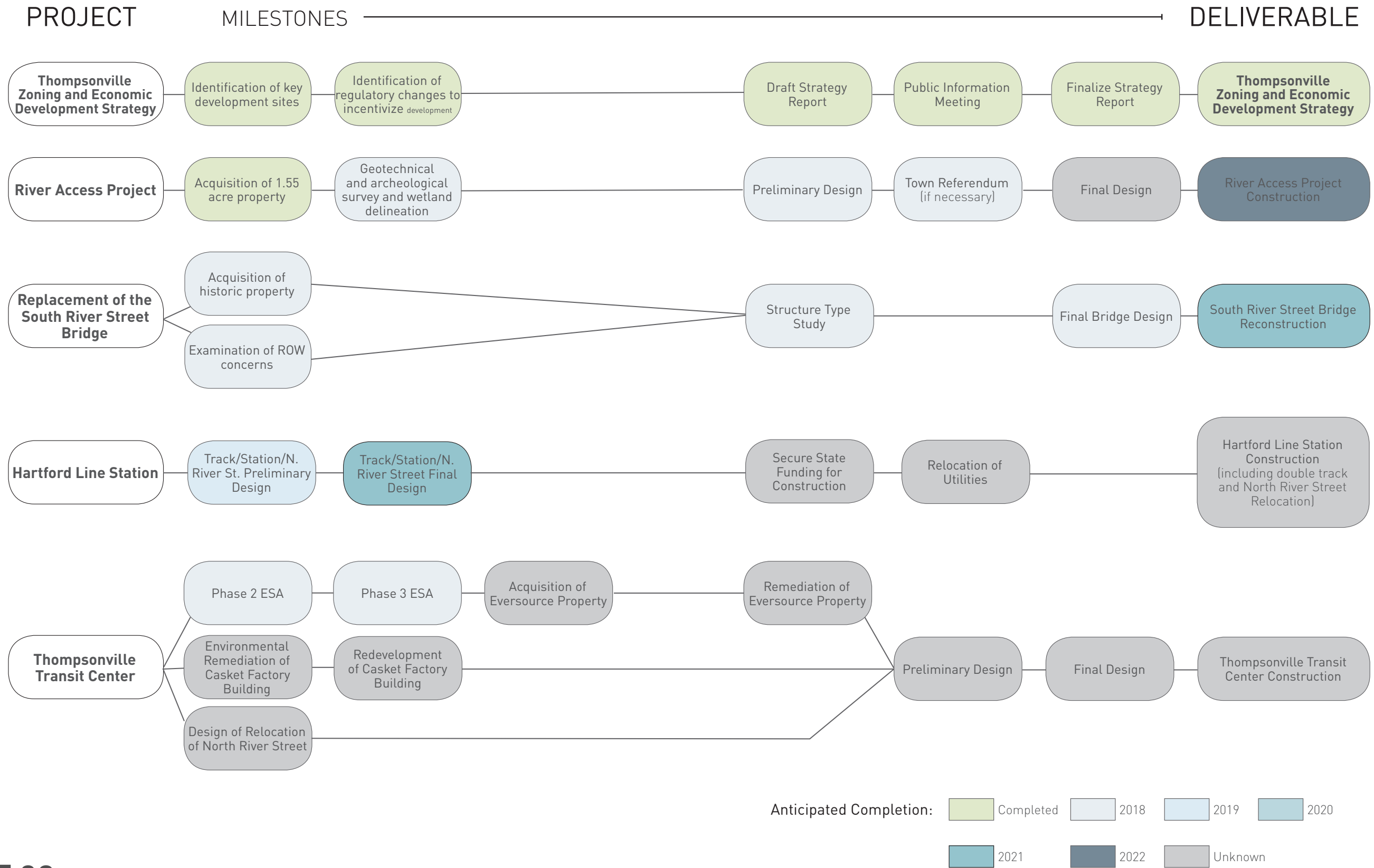


FIGURE 29

**CRITICAL PATHS FOR PROJECT COMPLETION
IN THE ENFIELD STATION AREA**

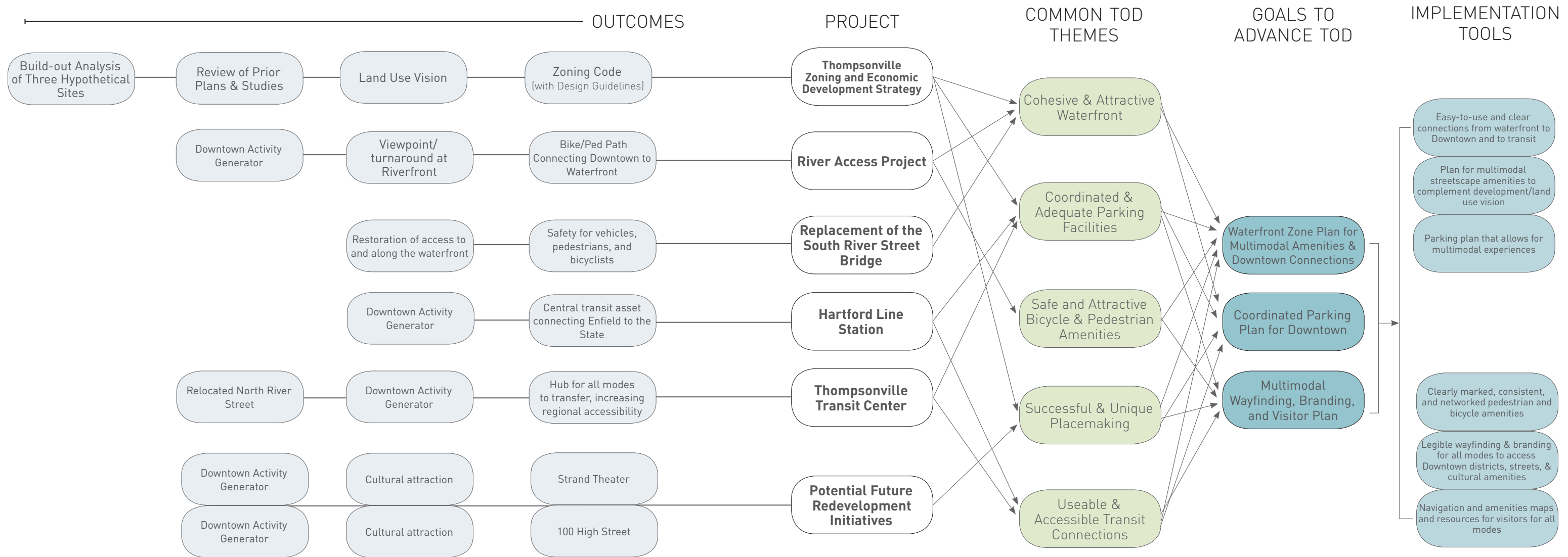


FIGURE 30

OPPORTUNITIES FOR COORDINATION AND COHESION BETWEEN TOD PROJECTS IN THE ENFIELD STATION AREA

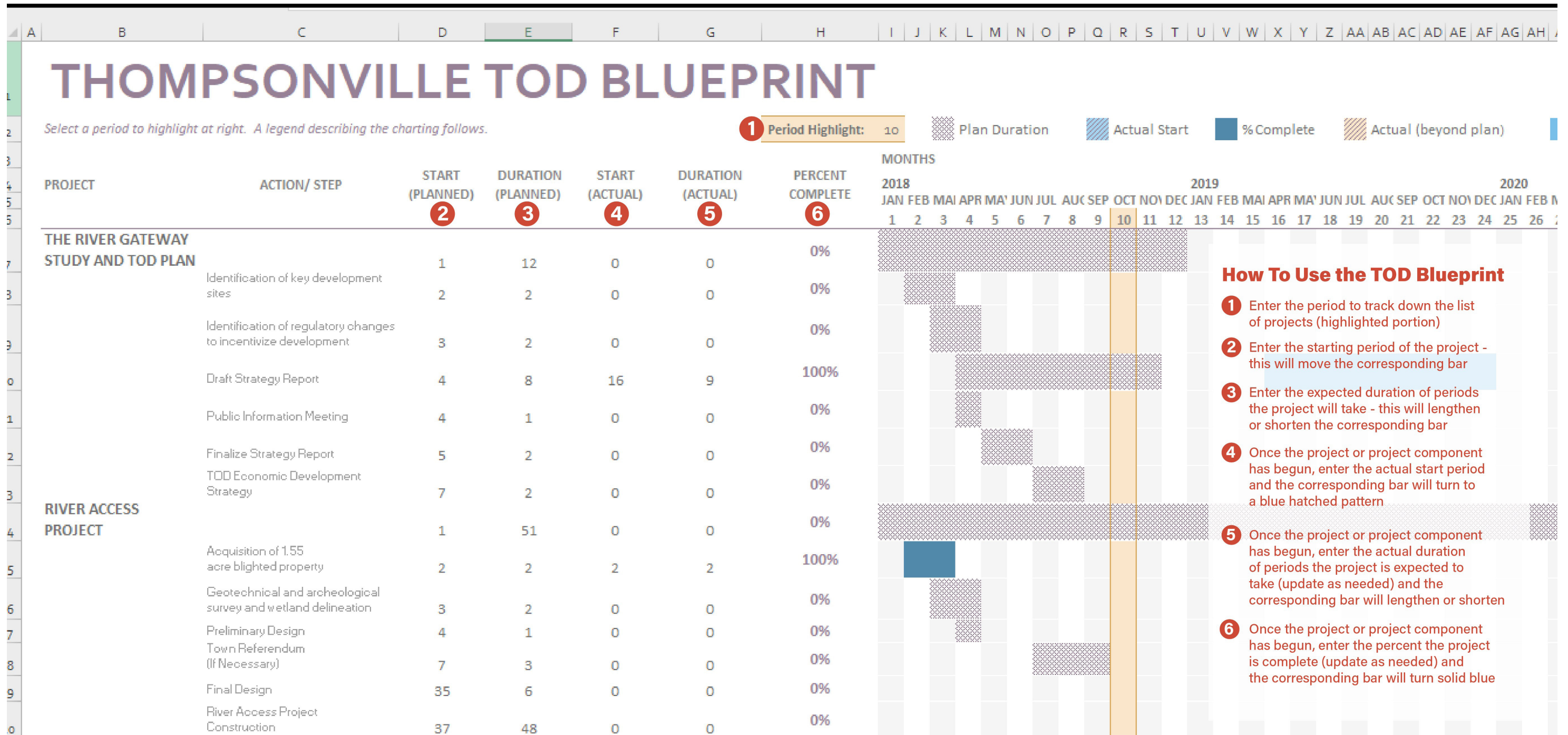
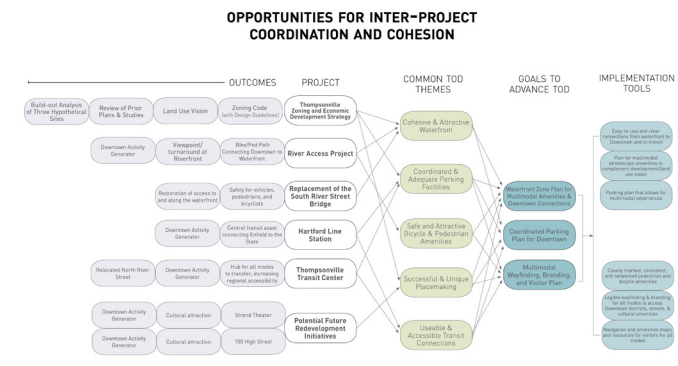
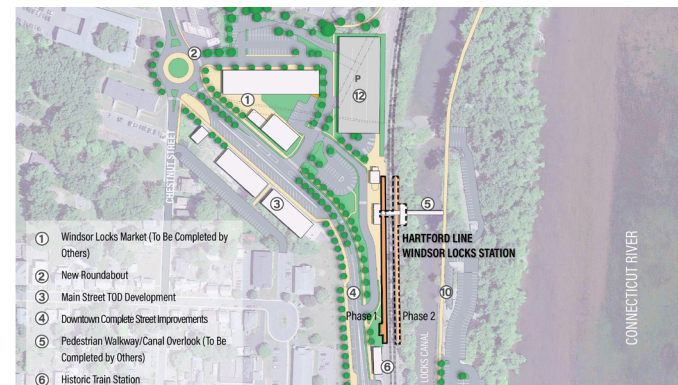
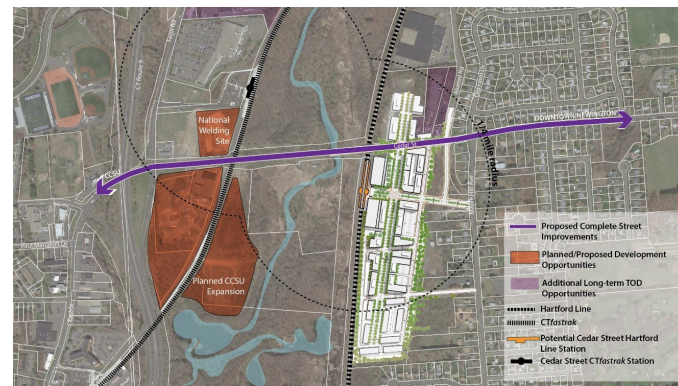
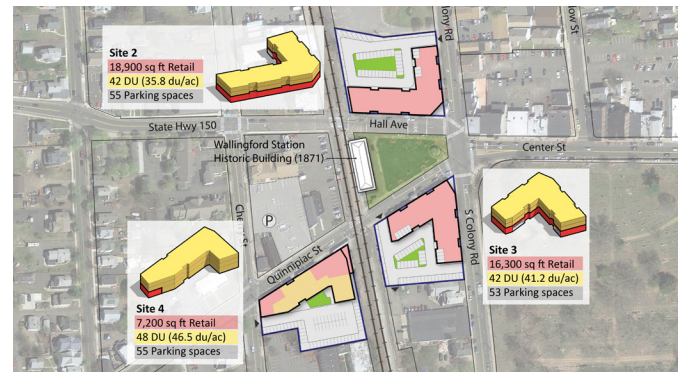
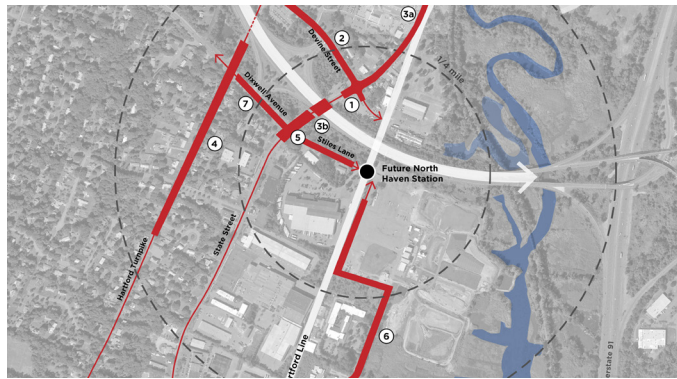


FIGURE 31

SAMPLE THOMPSONVILLE TOD BLUEPRINT TOOL DEVELOPED FOR THE ENFIELD STATION AREA

Hartford Line TOD Action Plan Outputs
between 2017-2019



CONCLUSION

The Hartford Line TOD Action Plan provided an opportunity for CT DOT to partner with municipalities to continue to position their respective station areas for TOD implementation. This Part Two Report details the key recommendations advanced for each municipality and the corresponding tailored strategies to promote and support TOD initiatives along the Hartford Line rail corridor. While diverse in scope, each community's key recommendation was strategically chosen to address an overarching hurdle to TOD, as identified in the Part One Report.

The final action-oriented output for each municipality is as follows:

- **North Haven:** An update to the 2015 North Haven Walkability and Livability Plan.
- **Wallingford:** A development feasibility concept plan for priority sites in its downtown.
- **Berlin:** A conceptual site plan for the development of 100 Harding Street.
- **Newington:** An alternative station siting assessment.
- **West Hartford:** Recommendations to modify zoning in the West Hartford portion of the station area to support TOD based upon a build-out analysis.
- **Windsor:** A parking management strategy to address short-term and long-term needs in Windsor Center.
- **Windsor Locks:** An illustrative plan to highlight key ongoing and planned improvements as a full station area build-out vision.

- **East Windsor:** A connectivity plan for the Warehouse Point community.
- **Enfield:** A blueprint for TOD implementation in the Thompsonville community.

Ultimately, the cumulative Hartford Line TOD Action Plan sought to embark upon a detailed analysis of communities along the Hartford Line and identify both the desire and readiness for TOD implementation within each of the unique communities. Through this process, the project team identified assets and opportunities to support TOD planning initiatives, as well as potential issues or hurdles to implementation. Through targeted recommendations, CT DOT and its consultant provided technical assistance to overcome these identified hurdles and support ongoing planning, initiatives, and visions for TOD. In this way, the Hartford Line TOD Action Plan supports municipal and state-wide goals for economic opportunity, multi-modal connectivity, and community placemaking along a re-emerging and reinvigorated rail corridor, ripe with opportunity stemming from the transformative transit investment.

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