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# Transit-Oriented Development (TOD) Scenario Report

Route 8 & Waterbury Branch Line Corridor Transit-Oriented Development & Alternate Transit Modes Assessment Project

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## **1.PRINCIPLES AND BENEFITS OF TOD**

## Introduction

This report on Transit Oriented Development (TOD) opportunities is part of the Naugatuck Valley Council of Governments (NVCOG) Route 8 Corridor Study. The purpose of the TOD task is to identify strategies and actions that will transform the city-town centers of Shelton, Derby, Ansonia, Seymour, Beacon Falls and Naugatuck away from auto-dependent uses to those more supported by transit, and to promote transit supportive densities in development. The report outlines what TOD is and how it can be beneficial to communities within the corridor. Key areas covered include a discussion of the benefits of TOD, a step by step explanation of how the TOD planning process works in communities, and finally, how this applies to the Route 8 corridor communities studied.

## What is TOD?

Transit-oriented development (TOD) is a proven economic growth strategy that integrates land use, transportation, and the environment and results in new housing, jobs, and more sustainable and walkable communities (refer to Figure 1). TOD is an essential component of any transportation plan, as it is a form of infill development that encourages use of mass transit such as trains and buses, as well as non-motorized travel such as walking and bicycling. Successful TODs include:

- Compact, mixed-use development, including a range of housing choices, within a 10-minute walk of a transit station or transportation hub.
- A network of streets, ideally in a traditional street grid with short blocks, that allow for safe walking and bicycling and access to transit stations or transportation hubs.
- Intermodal improvements that facilitate travel mode shift away from single-occupancy cars to train and bus transit, shared vehicles, walking, or bicycling.



## **Can TOD Work in My Community?**

Transit-oriented development can be created in any city or town. In fact, historically, the urban structure of the Naugatuck Valley's towns and cities had many TOD qualities. In their heyday, Naugatuck Valley towns and cities developed compactly around train stations; most residents lived, worked, and shopped

within walking distance of jobs and services and had easy access to transit to reach distant cities. This was a highly efficient form of community development that contributed to healthy, stable neighborhoods, quality housing, and vibrant downtowns. The demise of much of the manufacturing base of the Naugatuck Valley, which was hastened by the great floods of 1955, and the proliferation of the use of automobiles resulted in land use changes that compromised the compact and walkable character of the Naugatuck Valley's towns.

Towns and cities in the Naugatuck Valley are prime for TOD development because they already have compact urban centers with the infrastructure needed to support mixed-use and higher density developments. Also, the key component of Transit-Oriented Development, that is "transit," already exists within the corridor. The Naugatuck Valley is served by commuter rail operated on the Waterbury Branch Line and fixed-route bus networks operated by CT*transit* and other regional transit authorities or districts. These transit services provide the Naugatuck Valley a significant advantage because new infrastructure and services do not need to be built.

TOD can help communities retrofit their central business districts to recapture an urban form and character that helped the Naugatuck Valley achieve national status during the industrial revolution – but in ways that position it to benefit from the digital revolution. TOD can also improve access to jobs because, in a compact, mixed-use district, people can live close to where they work, or they can walk to a transit station to access jobs or educational opportunities in other nearby cities.

While the goals of TOD - such as increasing economic development opportunities, reducing travel demand by single-occupant automobile travel, optimizing infrastructure, making cities more walkable and connected, and reducing environmental impacts - may be similar from community to community, the way TOD looks and feels should be unique to each community. It is very important that TOD respect and complement the form, density, character, and even community values of each station area and downtown. Customization of TOD projects is critical to ensure that the new development is appropriate for their urban context and accepted and supported by elected officials and the public while achieving a suitable level of building or critical mass to attract private investors.

## Why Study TOD Now?

The purpose of the development of TOD scenarios under this corridor study and alternative modes assessment project is to recognize that land use and transportation go hand-in-hand. By integrating land use and community planning with transportation planning, cities and regions can realize great synergies.

Building TOD or new housing and businesses near transit stations is key to promoting transit use, reducing congestion, preserving the environment, and reducing the consumption of fossil fuels and the production of greenhouse gases. TOD can relieve the need to construct costly highway improvements because people can utilize other forms of travel, live closer to where they work, and reduce vehicular trips by living close to stores, restaurants, services, recreation and schools.

Many cities throughout the U.S. have seen great increases in transit ridership and significantly improved real estate values surrounding transit stations upon the construction of TOD. The facilitation of responsible station-area planning and well-planned TOD leverages transit as a catalyst for positive economic, social and environmental change. Quality, compact development near transit stations

offering a convenient mix of uses and an appealing, high-quality walking environment provide a dynamic place for people to live, work, shop, and play in an environment that does not require car trips for daily activities.

TOD better connects people to transit systems and facilitates intermodal travel – that is, the ability of commuters and other travelers to more seamlessly shift or transfer from one mode to another; automobile to bus, or bus to train, for example. TOD allows the region to attract investment, use its land and natural resources wisely, and enhance the long-term quality of life for the region's residents. In short, TOD supports transit and transit supports TOD.

The study team's work in developing custom Model Blocks for Naugatuck Valley communities in collaboration with residents, resulted in a wide range of TOD typologies. This iterative process considered issues and opportunities unique to each city and town to ensure that recommendations respect local context and acceptable to residents.

## What are the Benefits of TOD?

When successfully integrated with transportation, TOD can provide a wide range of benefits and help communities attain many important goals.

#### **Health and Safety**

TOD and walkable neighborhoods encourage healthier, pedestrian-based lifestyles because of their compact nature. Reduced automobile travel results in less vehicle emissions and decreased incidence of respiratory and cardio-vascular disease. Additionally, street design interventions can encourage slower speeds that improve pedestrian and bicycle safety, and vibrant land uses close to the sidewalk provide increased activity and more "eyes on the street" which discourages crime.

#### **Transportation**

TOD enables people to live, work, go to school or obtain everyday services within walking distance of transit. This expands the transportation choices available to them and can help facilitate travel mode shift away from single-occupancy car commuting to commutes via train, bus, walking, or bicycling. Links to other modes of travel can be facilitated via TOD, making it easy for people to use transit and travel to jobs in other cities, to education, and to regional transport hubs. TOD also promotes and builds transit ridership, which provides further justification for capital investments for transit projects.

#### **Environmental Sustainability**

Compact development, a main component of TOD, reduces sprawl and preserves farmland and open space. TOD can lead to reduced parking and less impervious paved surfaces, which results in less stormwater runoff and improved water quality. TOD is less auto-centric and reduces the consumption of fossil fuels which results in less air pollution and decreased greenhouse gases. Overall, TODs are naturally efficient, as people who live in TODs have smaller carbon "footprints" and lead greener, more sustainable lifestyles.

#### Community

TOD by its very nature creates more livable communities, in which less time is spent driving or sitting in traffic; city and town centers are vibrant, mixed-use places; and neighborhoods are better connected to workplaces. TOD greatly enhances the mobility of young people, the elderly, and other populations who are less likely to own and use cars. This enhanced mobility, along with the TOD pattern of walkable, mixed-use centers, makes it easier for older households to "age-in-place." As the Baby Boomer generation makes its retirement and lifestyle decisions, TOD enhances the ability of a city or town to retain this important population as part of the everyday community.

#### **The Economy**

TOD can help a region like the Naugatuck Valley achieve both economic competitiveness and economic equity. TOD helps attract entrepreneurs and innovative businesses, whose young, dynamic, knowledgebased workforce is exhibiting a national preference for mixed-use, less car-centric environments. Highquality, mixed-income housing, integrated with restaurants and shops, increases local spending and tax revenues. On top of that, TOD property values appreciate faster than in conventional residential neighborhoods. TOD can also help grow and retain high-value manufacturing industries, by better linking their regional workforce to jobs located at or near transit stations.

In general, TOD helps advance economic equity by improving job access for households that cannot afford a car, or that cannot afford to add a second car so that two household members can work. For many households that do have automobiles, living and working near reliable transit can provide a more affordable daily commute, helping to offset the cost of housing. TOD also facilitates the development of multi-family housing within walking distance of stations, serving a range of income levels and reducing the number of parking spaces—a considerable savings in land and dollars.

Compact development optimizes use of municipal infrastructure, which saves public dollars. Also, construction costs of compact development are lower which makes housing more affordable and improves the bottom line of businesses. Additionally, TOD can revitalize and clean up contaminated Brownfields, neglected sites, and surface parking lots, making more downtown land available for job-and tax-generating buildings.

## **2.THE TOD PLANNING PROCESS**

The approach taken by the Study team to understand TOD potential in each of the six communities studied under this project was very high level. Our objectives are to engage residents, business leaders, municipal staff and elected officials in a dialog to:

- Improve the public's understanding of the characteristics and benefits of TOD;
- Explore influences or constraints to development that may be unique to each community;
- Understand community sentiments about redevelopment and specific locations where TOD might be appropriate;



Figure 2 - Four Step TOD Planning Process

- Gauge residents' preferences for the general intensity, density and composition of TOD; and,
- Quantify the potential for TOD in each community.

Our four-step approach – refer to Figure 2 – is intended to build support for TOD by informing the public and decision-makers of the value and multiple benefits of TOD. It is also intended to enable communities and the region to lobby and compete for state and federal resources to implement TOD by quantifying TOD and revealing its positive economic impacts. Also, importantly, building community support for TOD and quantifying its build-out boosts the confidence level of prospective investors, lenders, and developers to initiate and execute TOD. They better understand the degree to which future development on adjacent sites would create a critical mass of development that would complement their investment and improve the value of their development.

As a high-level planning study, it is not the intent of the project to "design" TOD or to suggest specific architectural solutions for any one site. Rather, we utilized a "Model Block" approach to enable communities to visualize TOD appropriate for their downtowns or station areas – i.e. understand general urban form, building massing and relationships between streets and buildings. The ultimate design of TOD would be undertaken by private interests (landowners, developers and end users) and would need to be approved by each municipality's/ land use, zoning, planning, and environmental boards and commissions.

The study team conducted two design workshops or Charrettes in each community to inform the development of alternative transportation options, transit-oriented development concepts, and the

Model Block for each community. The first set of workshops: a) introduced the principles of TOD; b) prompted discussion on where TOD would be appropriate in each community; and, c) engaged workshop attendees in a visioning exercise to identify their preferences for TOD.

The second set presented the results of the visioning exercise and the first-cut of the 'Model Block' that culminate from the community-based visual preference survey. The workshops featured interactive work sessions where planners, designers, elected officials, stakeholders, and citizens collaborated to express visual preferences, identify potential development sites, and produce concept plans.

Each workshop was approximately three hours in duration and held in the Naugatuck Valley communities of Naugatuck, Beacon Falls, Seymour, Ansonia, and Derby. In addition, workshops were held in Shelton with a focus on the office, corporate, retail and residential district along the Bridgeport Avenue corridor. The intent of Shelton workshops was to introduce how a potential enhanced express bus route and a new Bus Rapid Transit (BRT) system, combined with a Neighborhood Transit Hub, might support new forms of development in that community.

## Step 1: Assess Station Area Needs and Identify "Opportunity Sites"

Transit-oriented development (TOD) touches upon nearly all aspects of urban centers and downtowns, including zoning, architecture, infill development, parking, streets, utilities, demographics, and market conditions. Accordingly, the consideration of TOD needs to be a collaborative community process.

Public involvement was critical to TOD scenario process and to the development of the Model Block unique to each community. The study team embarked on this planning process by gathering a wide array of information about each station area, including current land use, zoning regulations, parking requirements, redevelopment plans, Plans of Conservation and Development, current and future infrastructure needs, street design guidelines, and community preferences as expressed during Downtown Visioning exercises at public workshops and meetings. The study team also conducted technical meetings and interviews with municipal staff and elected officials to gain a better understanding of issues, constraints and on-going development proposal.

Specific aspects of station areas assessed by the team, both in advance of public workshops through discussions with municipal officials and during public workshops with discussions with the public, included:

- Streets (multimodal travel needs, general traffic flow, need for traffic calming);
- Potential infrastructure and environmental constraints (utilities, public parking, wetlands and floodplains);
- Transit (pedestrian and bicycle connectivity to stations, intermodal connectivity); and,
- Private sector development (TOD Opportunity Sites, current development proposals). Maps showing Opportunity Sites in each station area and along Bridgeport Avenue are included in Appendix A.

#### First Public Workshop or Charrette

The study team conducted the first set of workshops in each community during November and December, 2017. The workshops focused on residents' and business owners' vision for their station areas and their visual preferences for TOD in their downtown. Group exercises during the first public workshops helped the team to further understand downtown and station area strengths, weaknesses, and opportunities.

During one break-out session, residents were asked to talk about how they want people to view their downtown in the future and about the qualities that they think will retain and attract the next generation of

# What are Priorities for Your Community A variety of Affordable Housing types. Low Crime rate in your Downtown. Car Share service. Quality parks or Recreation Fun Places to meet friends before or after work. Variety of Shops/ Services for daily needs. Other criteria you feel important. Easy access to Transit to job, friends or family. Parking near my home. Better/safer streets for Walking and Cycling.



productive citizens and employers. They then "built" a poster using various icons that represent qualities or priorities that would make their community a more desirable place to live or work (see Figure 3).

During another break-out session the study team posed the following questions to residents:

- What do people like or not like in their downtown? Workshop attendees were asked to apply stickers on aerial maps of their town center/train station areas to identify: 1) places in the community that they consider assets and want to see preserved or emulated throughout downtown (with green dots); and, 2) places in the community that need improvement (with red dots).
- Are residents satisfied with existing development and the diversity of uses and services offered downtown?
- Would residents go downtown more frequently if there were more restaurants and stores?
- What would make downtown better... a new plaza, sidewalk cafes, street trees, more parking/less parking, better crosswalks, lighting, bus shelters, bike lanes?
- Do residents welcome new development downtown?



Figure 4 -Charrette held in Naugatuck

- What kind, scale, and character of infill development would be appropriate?
- Does the community need quality in-town housing that would complement downtown?
- If safe, new walking and bicycling routes and new transit offerings were available, would residents be more inclined to go downtown and to the train station as an alternative to driving an automobile?

Workshop attendees were also encouraged to apply sticky notes to the maps to provide specific views of their community and to identify sites within a ½--mile of train stations that they think need to be redeveloped. This was the first step to identify "Opportunity Sites" for TOD. An Opportunity Site, in the context of this study, is a downtown parcel that is situated close to a train station, that, when redeveloped, in whole or in part, would greatly contribute to a more prosperous downtown and to a station area that promotes the use of transit. The study team also held conferences with municipal officials to review Opportunity Sites identified by residents and amend the maps with additional sites that they felt could or should be redeveloped.



Figure 5 - Charrette in Ansonia

## **Step 2: TOD Visioning and Visual Preference Surveys**

During the first round of workshops, a Visual Preference Survey (VPS) was introduced to residents to gauge attitudes about potential new development in their downtowns and around improved transit systems. The VPS exercises provided a fun and informal way for residents to envision the density, type, and character of transit-oriented development that they would welcome in their downtown. Residents selected a preferred image among alternative images (see Figure 6) depicting five different elements of the downtown built environment:



Figure 6 - Visual Preference Survey

- A. Density and Scale: This category was organized to garner community feedback on the height, scale, and massing of the buildings. Different examples presented to each community varied in building height and massing from one-story attached and detached buildings to taller buildings, some as high as six stories. The community's preferences or choices in this category were especially helpful in determining an approximate Floor Area Ratio<sup>1</sup> (FAR) for the Model Block.
- B. Site Layout: This category tested community's preferences about how buildings interact with the street and the sidewalk. Images showing zero-lot-lines, uniform setbacks, and varied

<sup>&</sup>lt;sup>1</sup> Floor Area Ratio (FAR) is a measure of building density and an indicator of critical mass of downtown development. It is a ratio of a building's floor area and the land area on which the buildings sit. FAR is derived by dividing the total square footage of all floors of all buildings on the block or tract of land by the square feet of land area of the block. For example, a downtown block with a land area of 40,000 s.f. (approx. one acre) with a series of two story buildings that contain 20,000 s.f. of floor space on the ground floor and 20,000 s.f. of space on the 2nd floor will have an FAR of 1.0 (40,000 divided by 40,000); the same block with one-story buildings with 20,000 s.f. of floor space will have an FAR of 0.5 (20,000 divided by 40,000).

setbacks were used to understand the community's preferences. This category also tested residents' desire for on-street parking.

- C. **Streets and Streetscapes:** On-street bike lanes, on-street parking and streetscape character types were presented with this category. This category was also organized to gather input about the quality of the biking and walking in a transit-oriented environment.
- D. Architectural Character: This category tested community preferences for types of building materials and architectural character they desired in the future TOD. Contemporary and traditional New England architectural styles were paired with different materials like brick, wood siding, mixed brick and wood siding. Images that depicted the adaptive reuse of existing, historic structures were also provided in this category.
- E. **Pedestrian Environment:** Different types of open space like Town Greens, pocket parks, plazas, and parklets were paired with popular types of activities in this category. Potential activities that complement TOD, including retail, playgrounds, urban farming, health, and fitness, were depicted to gauge community interest in incorporating these activities in downtowns and station areas.

Visual preference surveys were conducted in Ansonia, Beacon Falls, Seymour, and Naugatuck, and for the Bridgeport Avenue business corridor in Shelton. Visual preferences of residents of the City of Derby were determined through the City's recent *Downtown Now*<sup>2</sup> planning process. The City of Derby engaged a team of planners, architects, engineers, and economists to study redevelopment opportunities for the south side of downtown's Main Street. The project, known as *Downtown Now*! -

Derby's Blueprint for Progress, is a comprehensive initiative intended to restore the City's downtown to a vibrant center of economic and community activity. The effort was completed in close collaboration with the public. The initiative resulted in the development of alternative concepts and in the selection of a preferred concept for redevelopment of that section of the City. This study utilized the results of Downtown Now! to identify metrics of a Model Block for opportunity sites other within downtown Derby and around the Derby-Shelton rail station.



Figure 7 – Beacon Falls/Seymour Charrette

The Appendix B presents the alternative images that residents could choose from in each development category and includes the results of Visual Preference Surveys for all towns.

In addition, the VSP was converted to electronic version and posted online to allow those who were unable or did not attend the charrette in their town an opportunity to make their preferences known.

<sup>&</sup>lt;sup>2</sup> <u>https://www.derbyct.gov/Downtown-Now-Derbys-Blueprint-for-Progress/</u>

## **Step 3: Convert Community Preferences to a "Model Block"**

#### **The Model Block Approach**

Based on the results of the Visual Preference Surveys (VPS) conducted during the first workshop, the study team developed a Model Block in each community that captures the essential qualities of **Transit-Oriented** Development (TOD). The team translated the VPS results of each community relative to residents' preferences for building heights, setbacks and massing, as well as parking and streetscape features, into а visual representation of a prototypical block that not only has the features and characteristics necessary for successful TOD, but also has the qualities that residents view as appropriate for their downtowns and station areas.

As mentioned in Section 2, the Model Block is not intended to impose a design on any one site, rather, it is an approach that helps communities visualize a form of mixed-use, compact development that optimizes use of valuable downtown infrastructure, complements existing downtown development, builds a customer base for downtown merchants, builds transit ridership by bringing people closer to transit stations, and enables people to live closer to where they work. The Model Block also enables the study team to understand the development capacity of Opportunity Sites based on the desires of residents in each community.

The Model Block represents a development strategy that can be applied to underutilized lots that exist to varying extents in each community. These underutilized lots lack the density to create the critical mass of buildings, people and investment necessary for an economically robust downtown. They also lack connectivity and other street characteristics that promote active lifestyles and the safety and well-being of pedestrians. These underutilized or vacant sites



Figure 8 - Sample Model Block - Existing Conditions



**Figure 9 - Interim Transformation** 



Figure 8 - Full Transformation

can be redeveloped with more density and accommodate more diversity of land use as TOD and are therefore identified as TOD Opportunity Sites, as defined above in Section 2. Importantly, the Model Block was created to be respectful of the context and unique attributes or qualities of each community.

The dimensions of the Model Block are based on a representative, underutilized block in each community's downtown; that is, a block that is characterized by a combination of vacant sites, and single-use, one-story buildings. Typically, these underutilized blocks contain uses that are automobile-oriented, such as uses with excessive off-street parking, as well as uses that do not contribute to a walk-and-shop atmosphere, such as strip-mall retail with numerous drive-through lanes, and with parking lots fronting streets.

Once a community decides on appropriate guidelines, TOD can be implemented incrementally, in stages (typically through public-private partnerships or P3s), to transform communities with a combination of public investments for infrastructure and private investments for new buildings. Initial catalytic projects on Opportunity Sites near transit hubs can reinforce and complement public investments in transit and spur additional reinvestment on other sites in the downtowns. The experience of these catalytic projects can help further refine TOD guidelines, building regulations, and zoning requirements, and allow the municipality to consider instituting shared parking strategies. The implementation of shared parking has the potential to further increase building space and increase developers' return on investment – all of which serves to create new jobs and increase the grand list and economic health of communities. The diagrams provided in Figures 8, 9 and 10 illustrate this incremental transformation of a prototypical block.

#### **Key Characteristics of the Model Blocks**

The development of a singular Model Block for the communities under study is presented in following section titled Step 4. Common building elements or design strategies for all Model Blocks include:

• **Complementary Mixed Uses:** New infill development should be comprised of mixed uses with retail uses located on the ground floor of primary streets with commercial offices or quality,

market-priced residential units located on the floors above retail uses. Buildings located on secondary or side streets would likely be residential on all floors. This proximity and density of uses contribute greatly to "walkability" and allow people to visit multiple destinations without having to drive from one place to another. Mixed-use buildings on the block add great value to the economic vitality of the district by bringing people to the district at many hours of the day or night; for example, upper story residential space adds value since residents



Figure 9 - Charrette held in Shelton

provide 24/7 activity and help to sustain retail commerce in the district.

- **Building Height:** Buildings in a TOD should be at least two stories. However, the optimal height and spacing of buildings varies by block and by lot depending on the width of street, rhythm and intensity of development in the downtown.
- **Continuous "Street Wall:"** All new buildings are situated close to the back of the sidewalk to create a direct relationship and connection between the public right-of-way and new buildings. In this way, residents can socialize with their neighbors and passersby from their porches and view street activity from their front windows. It is also important to minimize gaps between buildings to enclose the street with active uses. This traditional building to street relationship, or street wall, not only improves active and passive surveillance of the street to reduce crime and improve personal security, but also can improve the walkability of the street and social activity levels in the neighborhood by activating the street with ambient light, people and conversations.
- Architecture: Buildings should reflect the character of the existing historical setting of downtown. Well-proportioned windows, interesting and varied roof-lines, articulated cornices, ornate building entries and special details at gateway corners will result in finely detailed, contextual buildings. Details such as porches, cafes, subtle signage, and warm, pedestrian-level lighting, greatly contribute to aesthetics and allow new development to blend with old. This is not to say that the architecture of a TOD needs to be a slave to historical accuracy or ascribe to any one architectural style, but that the architecture should complement the form and materials of existing buildings and look like it belongs in the community.
- **Off-Street Parking**: Any surface parking for new infill development should be discretely located to the rear of lots and accessed from driveways located on secondary or side streets.

Recommended elements within the public rights of ways or streets that surround the Model Block were also informed by resident feedback through the VPS and recognize limitations of existing streets. Common elements or design strategies for streets surrounding Model Blocks include:

- **Street Widths:** Most streets have rights-of-way widths that range from 50 feet to 60 feet (inclusive of sidewalks), and all streets include two travel lanes.
- On-Street Parking: On-street parking should be provided on both sides of all streets in a TOD. The presence and availability of on-street parking serves several critical needs on downtown streets including: a) to meet the short-term parking needs of adjacent uses (especially retail uses); b) to protect pedestrians from moving traffic; c) to increase activity on the street and contribute to a "park-once-and-walk" environment; and, d) to reduce the perceived operating space of motor vehicles and provide visual cues to motorists that travel speeds are reduced and that they are entering a low speed area.
- Streetscape Elements: Streetscape improvements, including street trees and ornamental light posts, should be provided to further define the street edge and improve the comfort and security of pedestrians. A canopy of street trees can provide more than aesthetic enhancement; it provides enclosure to the street that moderates driver behavior (slows traffic), moderates the climate of the street through shade and evapotranspiration and thereby can reduce energy consumption of nearby buildings.

Streetscaping is provided on the backside of the curbs – that is, in the sidewalk space between the curb and buildings or front yard property lines. Guidelines that address streetscaping should complement or include sidewalk guidelines to ensure that consideration is given to minimum walk space and furnishings. Sidewalk guidelines typically address three zones:

1) Utility zone, tree zone or snow shelf between the curb and the sidewalk where street trees, light posts and signs could be located. The minimum width is 24 inches but should be at least 48 inches if trees are planted;

2) Sidewalk zone or "pedestrian clear zone" that provides adequate width for wheelchairs and the safe, comfortable passage of pedestrians. The minimum width is 60 inches but should be increased to 8-to-10 feet depending on the expected volume of pedestrians; and,

3) Door zone or frontage zone that provides a buffer between the sidewalk and adjacent buildings and space for amenities or furnishings such as café tables, seating and bicycle parking. The minimum width is 36 inches if no amenities will be provided but needs to be wider to adequately accommodate furnishings.

• **Building Setbacks:** A five to ten-foot building setback from the back of sidewalk to the face of buildings is provided, depending on the street location and function, to accommodate a comfortable sidewalk environment, including adequate space for the growth of street trees.

In addition to these street design strategies that provide a better "front door" for TOD, and that seamlessly connects new private uses to the public realm, streets in TOD districts should also be designed to encourage non-motorized travel (walking and bicycling) and to facilitate connectivity to transit. The use of "Complete Streets" strategies can help achieve these desired outcomes.

Complete Streets is a transportation policy and approach whereby streets that serve densely populated communities are planned, designed, and operated to provide safe mobility for all users, regardless of age, ability or mode of transportation. Complete Streets strategies or improvements include safer pedestrian street crossings and trafficcalming measures, and improvements that make transit more convenient and welcoming. The intent



Figure 10 -Cover page of Complete Streets Tool Box

of these strategies and improvements is to make travel safe and accessible for pedestrians, bicyclists, public transportation riders, and motorists.

Accordingly, the study team identified Complete Streets tools that will encourage walking, biking, and transit use, and improve access to shops and train stations in Naugatuck Valley communities. This "first-mile / last-mile" connectivity (travel from a transit station to one's destination of home, work, school, etc.) is a crucial component of TOD viability and success. The combined effect of these tools or street design strategies also imparts a distinctly village character to the street that will remind motorists that they are in a special district and are using streets that are designed for multiple users. People of all ages and abilities, not cars, are the priority.



Figure 11 - Key Features of "Complete Streets"

Complete Streets strategies will not only

improve non-motorized travel at TOD Opportunity Sites, but also serve to improve pedestrian and bicycle travel between downtowns, nearby residential districts, and station areas. Another important benefit of the implementation of pedestrian and bicycle improvements and the conversion of streets to accommodate multiple modes of travel is that it will result in reduced use of automobiles in the area and reduced traffic congestion.

The following lists of improvements are specific measures or strategies that are based on the general strategies depicted in the Complete Streets Tool Box (see Appendix C).

- High-Visibility Crosswalks: Wider, better-designed, and more articulated crosswalks greatly improve pedestrian safety. Examples of safe crosswalks on downtown streets include highly illuminated crosswalks, raised crosswalks or raised intersections, crosswalks comprised of high contrast colors and of textured pavement material, and crosswalks with pedestrian count-down signals.
- Transit Shelters: Bus shelters protect passengers from inclement weather while waiting for the bus. Modern bus shelters may include LED lighting, benches, trash receptacles, system mapping, and dynamic bus arrival messaging signs for users.





- Pedestrian Refuge Islands: Pedestrian refuge islands are protected spaces placed in the center of the street to protect pedestrians at designated crossings. The islands also serve to calm traffic on the street by physically narrowing and/or reducing the perceived operating width of the roadway.
- Curb Bump-Outs: Bump-outs extend the curb-line into parking lanes to reduce the width of the street and reduce crossing distances for pedestrians. Pedestrians waiting in bump-outs to cross the street are more visible to oncoming motorists. Bumpouts can be enlarged to provide amenities such as bicycle parking, bus shelters, benches, and sidewalk cafes.







- Parklets: A parklet is a moveable, temporary use of an on-street parking space for seating, sidewalk cafes, or bicycle parking. Parklets are intended to be publicly accessible and are typically privately constructed and maintained. They not only attract people and animate the street but also serve to calm traffic since motorists instinctively slow down to observe activity in parklets.
- Shared Lane Markings: A shared-lane marking or "sharrow" is a street marking installed in a travel lane on a street that is too narrow to allow formal bicycle lanes or has insufficient shoulder width to accommodate bicyclists. Sharrows remind motorists that a bicyclist may also use the full travel lane. These symbols also serve to assist motorists and bicyclists with maintaining a position in a shared lane to encourage safe passing of bicyclists by motorists. The directional



nature of chevrons also serves to alert bicyclists of the proper direction of travel and reduce the incidence of wrong-way bicycling. Sharrows should be installed in conjunction with share the road signs.

 Shared Streets: Removal of traffic guides on narrow local streets diminishes the priority of vehicles. The roadway is shared among all users including pedestrians and bicyclists. This causes drivers to reduce speeds and be more aware of their surroundings. Appropriate placement of such treatments is critical. The design should be reserved for low-volume, low-speed streets.



## **Step 4: Refine Model Block and Quantify Potential TOD**

#### **Second Public Workshop or Charrette**

The principal objective of the second round of workshops was to engage the public on how the TOD principles and community preferences established in the first workshop would be interpreted or manifested in their downtowns or station areas. At workshops conducted in each community, the study team presented its draft recommendations and renderings for a TOD Model Block that was customized for each community. The study team derived key qualities from the Visual Preference Survey (VPS) results to "construct" a Model Block; therefore, the Model Block reflects community preferences for architectural style, building height, massing, streetscape activity and character.

The study team engaged workshop participants in discussions of possible modifications to the draft Model Block as well as how the Model Block might be refined for each of the various opportunity sites. For example. residents may feel that the Model Block is appropriate for sites immediately adjacent to the train station or at the town center but may need to be scaled back in terms of building heights or overall density for outlying sites or for sites that are directly adjacent to residential districts.

The second workshop also confirmed the location of TOD Opportunity Sites in each community. Based on the land



Figure 12 - Charrette in Derby

area of Opportunity Sites and technical information of the Model Blocks, the study team then conducted a conceptual TOD "Build-Out Analysis" for each community.

#### **Recommended Model Blocks**

As described in Step 3 of section 2, a Model Block is a prototypical arrangement of buildings on a single downtown block that not only has the features and characteristics necessary for successful Transit-Oriented Development (TOD), but also has the qualities that residents view as appropriate for their downtowns and station areas. The heights, setbacks and massing of building in the Model Block as well as its parking and streetscape features, reflect residents' preferences.

Key attributes of TOD and walkable downtowns include:

- TOD buildings are designed and built to accommodate a diversity of uses; i.e. mixed-uses such as residential, small-scale retail, restaurants, professional services such as doctors, lawyers finance and real estate offices.
- A diversity of housing types and sizes is provided to ensure that the housing stock accommodates a wide range of income levels and family sizes. New or renovated housing—typically on upper stories of mixed-use buildings—allows people to live within walking distance of their workplace or within a walking distance of a transit station.
- Design standards provide for human-scaled architecture and streetscape improvements such as finely detailed buildings with traditional materials and proportions, cafes, pedestrian level lighting, street trees, public art and custom signage.
- TOD streets are lined with buildings that are at least two stories tall and located close to the sidewalk. There are few gaps between buildings and street frontage is not taken up by off-street surface parking lots or parking garages.
- Development is organized within a traditional grid of streets with short blocks that encourage walking and promote safety and security.
- Streets have narrow traffic lanes, on-street parking, wide sidewalks, and, where possible, bicycle lanes. Complete Streets or traffic-calming techniques—such as high-visibility crosswalks, pedestrian refuge islands, and curb bump-outs—provide for safer pedestrian travel.
- There is a choice of public transportation or transit and accommodations are provided to allow for seamless interconnections between various modes of travel.
- TOD requires a limited amount of shared and well-managed parking. On-street parking is maximized. Any off-street parking and loading areas are discretely located to the rear of buildings. Parking structures or parking garages (located behind occupied buildings) help to increase building density since surface parking lots take up valuable space that could be used buildings that are more income-producing and that provide more vitality to the downtown.

Also, TOD, by design, is very effective at reducing travel demand by automobiles, which results in substantially decreased parking demand versus conventional development. This means that land typically dedicated to parking can be used for tax-producing, job-creating, and community-building uses—e.g. buildings, parks and other public spaces. Reduced parking demand in a TOD is a result of a variety of factors, including:

- The proximity and mix of uses within a TOD district allow for shared parking; this allows for more efficient utilization of parking supply since the various uses within the TOD would have different, complimentary peak hours of parking demand.
- A TOD creates a 'park once-and-walk' environment that would allow people to visit multiple destinations without having to drive.
- The availability of municipally owned/managed parking facilities within walking distance of a TOD, including commuter parking lots near transit stations, can serve multiple uses including the shops and services within the TOD.
- Improved access to transit and improved transit service levels in or near a TOD results in reduced travel demand and reduced parking demand—more people can live close to where they work or can use transit to get to school, work or other daily destinations.
- More people can use non-motorized transportation (walking and bicycling) because streets in a TOD are more walkable and bikeable.
- The use of shared vehicles provided through Transportation Network Companies (TNC)—such as taxis, Uber, Lyft, and Zip Car—are more available or prevalent in TODs because TNCs prefer to locate shared vehicle outlets in dense districts that are adjacent to transit stations.

The study team utilized these TOD attributes, and other characteristics that reflect residents' preferences for TOD in their downtown and station areas, to design a prototypical "Model Block" for each of the downtowns and station areas studied. The following sections provide images of these Model Blocks and summarize key considerations unique to each community. The communities are listed from north to south along the Waterbury branch line and include:

- Borough of Naugatuck
- Town of Beacon Falls
- Town of Seymour
- City of Ansonia
- City of Derby with a focus on Derby/Shelton train station area which encompasses downtown Derby and a portion of downtown Shelton
- Bridgeport Avenue, Shelton, transit priority corridor and Neighborhood Transit Hub

#### Naugatuck Model Block

The Borough of Naugatuck has a population of about 32,000 (2016 ACS). It is located in the northern end of the lower Naugatuck Valley, directly south of Waterbury. The Borough was founded on the banks of the Naugatuck River and was a prominent center of industry beginning in the late 19<sup>th</sup> century and continuing through the 20<sup>th</sup> century. Naugatuck produced rubber and chemical products, safety pins and candy and was home to the United States Rubber Company (later renamed Uniroyal) and Peter Paul Candy Company, among many others. Most of these industries are no longer in Naugatuck due to regional and global economic influences that caused manufacturing to leave Connecticut for lower cost labor markets in other states and in other countries. The Great Flood of 1955 also destroyed many industrial buildings.

Naugatuck has convenient access to labor markets in the nearby cities of Waterbury and Bridgeport via Route 8, which bisects the town, and Danbury and Hartford via Interstate 84, located about 4½ -miles to

the north. Despite its industrial heritage, it is now largely a bedroom community. However, two industrial parks in town, established in the last quarter of the 20<sup>th</sup> century, provide significant employment opportunities and tax revenues. With its railroad station on the Waterbury Branch Line, the Borough is positioning itself to capitalize on improved commuter rail service. Plans for a new, relocated and improved train station are being considered, which will further enhance Naugatuck's ability to attract investors and construct new, mixed-use developments adjacent to downtown.

The Borough still retains an attractive, compact and walkable downtown comprised of stately, historic commercial and civic buildings and majestic churches that date back to the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. In fact, the Naugatuck Center Historic District, which is listed on the National Register of Historic Places and comprises most of the downtown, contains 137 buildings that qualify as historic status. The downtown is situated near the west bank of the Naugatuck River and extends 1/2--



Figure 13 - Downtown Naugatuck

mile north to south along the river, and about a ¼--mile east to west. Many of the properties between downtown and the river, including sites adjacent to the Naugatuck Train Station, are now vacant.

These vacant, "shovel-ready" parcels can be developed at a higher density and in a manner that supports walkability and complements downtown retail uses and incorporate the principles and qualities of TOD. The Borough's leaders also understand that TOD can complement proposed redevelopment of significant industrial sites located just south of downtown by enabling workers of future industries to live close to where they work. In addition, locating higher density residential units in proximity of the train station will allow residents to use rail service for other travel needs, thereby reducing dependence on the automobile.

In recent years, the Borough has actively pursued development projects that would promote economic growth and strengthen the downtown near the rail station. These efforts have focused on high-density, mixed-use projects like Renaissance Place. That proposed project was a large-scale, high quality proposal for the redevelopment of all lands between downtown and the river. It did not advance due to unfavorable market conditions that the state and Borough have experienced over the past decade. More recently, smaller scale commercial



Figure 14 -Naugatuck Model Block

projects have been approved. An example is the 30,000 square foot medical office building that is currently under construction located at the intersection of Maple Street and Water Street. This site is referred to as Parcel C. Within this context, the Model Block for Naugatuck is depicted at a higher density than other towns and cities in the Naugatuck Valley.

The economics associated with higher density development makes structured parking possible within the Naugatuck Model Block. This structured parking can be wrapped within uses to create active frontages along the streets. In other words, the proposed commercial and residential spaces of the block are situated between the structure parking and the street to make the parking much less visible. Shared parking among the various building users is encouraged within this block to optimize parking usage and reduce the overall number of parking spaces required.

Reflecting existing street patterns in the downtown, as well as, adjacent to the train station, the Naugatuck Model Block consists of a block of 275 feet by 275 feet. In addition, the neighborhood context suggests the Model Block can have the ground floor retail on multiple sides or only on primary streets.

Building massing reflects ground floor retail with three stories of residential wrapping or lining a threestory partially underground parking garage. A twelve-story tall tower building is introduced at the corner to define the block edges. This massing reflects a FAR of 2.8-to-3 with a parking ratio of 1.45-to-1.5 spaces per 1,000 square feet. Retail parking should be mainly accommodated with short-term, on-street parking with additional long-term parking shared with the residential parking garage.

An alternate, less dense version of the Model Block that would be more appropriate for sites located farther from the train station and closer to existing downtown uses would be a block with similar building massing but without the tower building. This alternate Model Block would yield an FAR of 2.15-to-2.25 with a two or three-story parking garage.

#### **Beacon Falls Model Block**

Beacon Falls is a town of about 6,000 people (2016 ACS) located nine miles south of Waterbury. Like other towns and cities in the Naugatuck Valley, Route 8 and the Waterbury Branch Line, travel through the middle of the town, bisecting it north-south. Both provide access to larger cities in the state, as well as the state's Interstate system. To the north, Route 8 and the Waterbury branch line connect to Waterbury and I-84, and to the south, they link Beacon Falls to Bridgeport and I-95.



Figure 15 -North Main Street, Beacon Falls

#### The Naugatuck River played a key

role in the town's early history. During the late 19th and early 20th centuries, rubber and woolen goods manufacturing companies were established on the banks of the river and along canals and utilized water power from the river. The slow demise of manufacturing in Beacon Falls during the mid-20<sup>th</sup> century

was facilitated by the destruction of many industrial buildings by the Great Flood of 1955. A majestic brick mill of the former Home Woolen Company on Main Street is one of the last vestiges of Beacon Falls' manufacturing heyday; it has been converted to luxury apartments.

The Town is still recovering from the loss of its manufacturing base. Economic development efforts are hampered by the bifurcation of the town by Route 8 and the lack of sites near the train station that are not encumbered by floodplains or wetlands associated with the Naugatuck River. The town center located along the east side of the river, fronts on Main Street and has several small sites that could be developed with new mixed uses. The town center is within easy walking distance of the Beacon Falls Train Station, but the station is located on the west side of the river and requires a crossing over the Depot Bridge to access. Improvements to this station and to service levels on the commuter line would better position these properties, and other underutilized sites closer to the station, for development or redevelopment.

However, more significant development opportunities are envisioned on the south side of town. Potential redevelopment sites are located south of Route 42 and Exit 23 of Route 8 and are more than two miles south of the town center and the Beacon Falls station. These much larger, open properties are situated on the west side of the Naugatuck River and extend into the Town of Seymour. The land is adjacent to a large, undeveloped tract of land in Seymour that the Town hopes will be developed in the near term. In recent years, the two towns have been working jointly on efforts to construct a new road to directly connect Route 42 in Beacon Falls and Route 67 in Seymour. The new road would provide the access needed to the vacant parcels and spur the proposed development project. As part of the project, the Seymour train station would be relocated and the Naugatuck River Greenway trail would be extended along the west bank of the Naugatuck River and would provide access to the properties.

Beacon Falls residents show a preference for a two to three story attached building type with a zero-lot-line condition and onstreet parking. The Model Block, which is envisioned for Opportunity Sites on the south side of town near the Seymour town line, delineates three story buildings with ground floor retail and two stories of residential above along the primary street. Surface parking is accommodated behind buildings and can be accessed from side streets. On secondary streets, two story



Figure 16 - Beacon Falls Model Block

residential infill development with parking in the back of the lot is envisioned. The Beacon Falls Model Block represents a Floor Area Ratio (FAR) of approximately 0.8.

#### Seymour Model Block

The Town of Seymour is nestled along the banks of the Naugatuck River with steep hills rising from either side. Its population is about 16,500 (2016 ACS). The town center is small and very compact, comprised of five dense city blocks. The entire downtown measures only about 1/4mile north-to-south, and 1/10-mile east-to-west. This quaint and historic downtown is defined by the Naugatuck River to its west and is sandwiched between an elevated portion of Route 8, which parallels the river, and the Waterbury Branch Rail Line, which lies directly to its



Figure 17 - Downtown Seymour

east at the base of the steep slopes of the valley.

The Town is situated nearly equidistant from Bridgeport to the south, New Haven to the southeast and Waterbury to the north; the travel time to each of these nearby cities is about 25 minutes. Downtown Seymour was once the center of a set of thriving mills that benefitted from the water power of the Naugatuck River and still retains large manufacturing companies adjacent to downtown.

Residents who attended the design workshops expressed a desire for new growth, new jobs and increased economic development identified and several sites for significant mixed-use potential new, development. However, these sites are on the west side of the Naugatuck River and opposite from the downtown. Plans to improve the economic climate to attract development to these sites, and other smaller infill sites within the downtown, include



Figure 18 - Seymour Model Block

moving the Seymour Train Station to a location just north of downtown. The proposal to relocate the train station has been a part of plans to develop a large tract of land that straddles the Beacon Falls and Seymour town line. The approximate 225-acre site is zoned commercial and has the potential to support mixed-use, higher density residential housing and a unique opportunity for TOD. Improving pedestrian connectivity between downtown and the opportunity sites to the north and west have also been included in economic redevelopment discussions. A short section of the Naugatuck River Greenway trail has recently been built to provide a direct connection between the downtown and sites to the north and

west of the area. The relocated train station would not only make more parking spaces available for patrons of downtown merchants but would also provide a transportation focus or amenity to attract new development north of downtown.

Seymour residents show a preference for a two to three story attached building type with a zero-lot-line condition and on-street parking. The Model Block delineates three story buildings with ground floor retail and two stories of residential above along the primary street. Surface parking is accommodated behind buildings and can be accessed from side streets. Two story residential infill development with parking in the back of the lot is shown on secondary streets. The Beacon Falls Model Block represents a Floor Area Ratio (FAR) of approximately 0.9.

#### Ansonia Model Block

Ansonia is a small city of about 19,000 residents (2016 ACS) situated on the Naugatuck River about 12 miles inland from Long Island Sound. It is proximate to three of the state's largest cities, Bridgeport, which is 13 miles to the south, New Haven, which is 10 miles to the southeast, and Waterbury, which is 15 miles to the north. The City is well served by transportation network that а includes the Waterbury Branch Line and Route 8. As with the other communities in the Naugatuck Valley, these facilities link Ansonia to I-95 in Bridgeport and I-84 in Waterbury. Unlike the other communities within the corridor, the downtown is not directly connected



Figure 19 - Downtown Ansonia

to Route 8, with access to and from Route 8 via several state routes, one (Route 334) which passes through a residential and one (SR 727) the serves a commercial/retail corridor. Ansonia is also served by a fixed-bus route operated by CT*transit*. The bus route connects the city to New Haven.

The City of Ansonia was once an industrial powerhouse with numerous mills lining the Naugatuck River. However, the Great Flood of 1955 destroyed many industrial buildings and many others now lie vacant due to the departure of manufacturing companies to lower cost locations, often overseas. Many former industrial sites have been converted to large retail stores or service industries. Despite this conversion, a significant number of industrial employers remain in the City. In addition, City officials are seeing an increase in interest from technology-based businesses to move to the Ansonia.

Based on conversations at the design workshops, City officials and many residents have expressed a desire to diversify the tax base in Ansonia. The City is actively planning and working to attract a new, smaller-scale, knowledge-based economy. A key element to the success of this effort, City officials feel, is the development of a pedestrian-friendly environment in its historic downtown with a diversity of uses and characteristics, such as active storefronts, new cafes and restaurants, open space, river access

and unique facilities that can attract a new generation of entrepreneurs. The City also wants to capitalize on their location along the Waterbury branch line and connections to the New Haven main line by promoting and advocating improvements to service levels along the branch line, purchasing new equipment and increasing the number of daily trains that stop at the Ansonia Train Station. In short, Ansonia is actively promoting TOD concept and succeeding with the redevelopment of several downtown properties.

Community feedback at the design workshops indicates a preference for attached two-to-three story building types. The Ansonia Model Block depicts three-story buildings with ground floor retail and two stories of residential above along the primary street. Three-story residential is illustrated for buildings fronting on secondary streets.

These individual infill developments on Opportunity Sites represent Floor Area Ratio (FAR) within a range of 1 to 1.5. Also, this infusion of the new development within the existing block doubles the overall gross FAR on the block from 0.5 to 1.0.



Figure 20 - Ansonia Model Block

#### **Derby-Shelton Station Area Model Block**

The TOD station area for the Derby-Shelton station encompasses the entire Derby downtown and a small portion of the Shelton downtown.

#### Derby Downtown

The City of Derby is nestled at the confluence of the Housatonic and Naugatuck Rivers about 10 miles north of the City of Bridgeport and Island Sound. Long With а population of only about 12,800 (2016 ACS) and a land area of just over five square miles, Derby is small by most measures. Like other cities and towns in the Naugatuck Valley, Derby was a notable center of industry up until the latter part of the 20<sup>th</sup> century and was a very prosperous community in the 19<sup>th</sup> century and first half of the 20<sup>th</sup> century, with a very vibrant downtown. Many historic and



Figure 21 - Downtown Derby

majestic civic and commercial buildings remain in downtown Derby; however, little remains of the numerous mills that dominated Derby's Main Street and riverfront sites.

The entirety of downtown Derby covers only about ¼ square mile of land area and is characterized by a healthy mix of commercial, retail and residential uses, albeit with some gaps of occupancy either because of vacant or underutilized buildings or vacant sites. Despite its size, about 36% of Derby residents live in the downtown. These residents enjoy ready access to the state highway system and commuter rail services. Route 8 provides direct access to the downtown and links the City to Waterbury and I-84 to the north and Bridgeport and I-95 to the south. In addition, Route 34 connects the City to New Haven and I-95 to the southeast. The Downtown is also served by the Waterbury Branch Line with daily service to Bridgeport with connection to the New Haven Main Line. At Bridgeport, transfers can be made to inbound trains to Stamford and New York City and outbound trains to New Haven. The Derby-Shelton Train Station is situated on the eastern boundary of downtown Derby at the interchange of Route 8 and Route 34 (Main Street).

Three fixed-bus routes serve the City. A CT*transit* route connects to downtown New Haven and traverses Derby on its way to Ansonia and Seymour. The other two routes are operated by the Greater Bridgeport Transit Authority. Both routes originate at the downtown Bridgeport transportation center to the Derby-Shelton Train Station.

A vital asset in the downtown area is the Derby Greenway, a section of the Naugatuck River Greenway trail. This two-mile long, multi-use trail passes through the downtown area and the south end redevelopment district. It links downtown Shelton and Ansonia. While it provides a pleasant recreational path along the west bank of the Naugatuck River, it also serves an important transportation function for residents who find it a better option to access retail stores on the outskirts of downtown than driving.

A significant parcel of land located south of Main Street and directly adjacent to downtown was once densely developed with 19th century mill buildings. This 20-acre tract overlooks the Housatonic River and is now nearly vacant. Recognizing the opportunity to redevelop this site with new, mixed-use development, the City recently commissioned a detailed, market-driven development plan with the vision of creating TOD. The initiative, known as *Downtown Now! - Derby's Blueprint for Progress* resulted in a development concept that would capitalize on the site's riverfront and downtown location, in addition to its proximity to Route 8 and the Derby-Shelton Station.

The *Downtown Now!* study included market and economic analyses and was conducted with extensive public involvement and a week-long design Charrette. The study recommended new mixed-use development served by a new grid of walkable streets that would reflect the character, form and historic development in downtown Derby. Potential new uses envisioned for the site include: multi-family residential; retail; commercial space such as flex/technology buildings with attention to medical care facilities; and educational uses such as a satellite college campus. The preferred plan calls for nearly 700,000 square feet of new development including over 400 housing units that would comprise 75% of the total floor space, 100,000 square feet of commercial space including ground level retail uses, and 60,000 square feet of job shop or light manufacturing uses.

The City is leveraging this planning work with soon to be initiated design and planning efforts that will better assess the environmental condition of the site, recommend remedial actions, design how the street grid proposed for the south of Main Street redevelopment will connect to Main Street (Route 34), which will be widened and reconstructed in the next couple of years

The proposed plan also complements existing downtown development and has the potential to expand onto vacant or underutilized downtown sites north of Main Street. An analysis of the proposed development concept reveals a floor area ratio (FAR)<sup>3</sup> of approximately 1.2. By utilizing the design principles established for *Downtown Now!* and applying this 1.2 FAR – in effect, using the planning study development concept as Downtown Derby's Model Block – the study team determined that there is potential for an additional 1,005,000 square feet of new mixed-use development on vacant or underutilized sites in Downtown Derby north of Main Street. These new mixed-use developments would also be comprised of multi-story, main street-type buildings that would complement the architectural style, building massing, and density of the traditional buildings that give Downtown Derby its unique, walkable character.



Figure 22 - Derby's Model Block: the "U-Street Plan" from *Downtown Now!* (view south to the Housatonic River)

<sup>&</sup>lt;sup>3</sup> Floor Area Ratio (FAR) is a measure of building density and an indicator of critical mass of downtown development. It is a ratio of a building's floor area and the land area on which the buildings sit. FAR is derived by dividing the total square footage of all floors of all buildings on the block or tract of land by the square feet of land area of the block.

#### Shelton Downtown

The City of Shelton, population of about 41,000 (2016 ACS), was founded on the west bank of the Housatonic River just upstream of its confluence with the Naugatuck River. Its compact and historic downtown, covering less than a ½ square mile in area, is situated opposite of and across the Housatonic River from downtown Derby. The two downtowns are linked by the Derby-Shelton Bridge, an historic bridge built in 1918. Because of this proximity, it is a short walk, less than ½ -mile, from downtown Shelton to the Derby-Shelton Train Station and places the downtown within the sphere of a TOD district for the station. Just south of downtown, the Commodore Hull Bridge



Figure 23 – New Residential Development near Derby-Shelton Train Station and Downtown Shelton

carries Route 8 across the Housatonic River between Shelton and Derby. A non-fully directional interchange connects downtown to Route 8.

Fueled by abundant waterpower of the Housatonic River and a network of canals, downtown Shelton was once a thriving manufacturing center. The decline of manufacturing began in the 1970s after the fire and destruction of the Sponge Rubber Products factory. The decline left many large 19<sup>th</sup> century factory buildings vacant throughout downtown; other vacant mills were demolished leaving large empty sites.

However, a downtown renaissance that began in the late 1990s and early 2000s has resulted in the conversion of several former factory buildings into apartments and luxury condominiums. Over the past two decades, hundreds of new housing units have been constructed in the downtown and additional housing units have been approved by the Planning and Zoning Commission, with one of the planned conversions under construction. The 10-acre Riverview Park and downtown streetscape improvements have also been instrumental in attracting more private reinvestment in the form of new apartment buildings and downtown restaurants. Other improvements, including renovation of the Derby-Shelton Bridge and reconstruction of Main Street (Route 34) through downtown Derby, will better connect downtown Shelton to the Derby-Shelton Train Station, especially for non-motorized transportation, and encourage more residents and commuters to use the Waterbury Branch Line rail service.

A Model Block was not developed for Downtown Shelton. Instead, this study focused on transit-adjacent development concepts for the Bridgeport Avenue corridor in Shelton (refer to discussion in the following section). However, an interview of Shelton officials reveals that vacant or underutilized sites throughout a 12-block area of downtown Shelton have the near-term potential to be developed or redeveloped with approximately 500 units of new housing. This new development would be high density, mixed-use,

and comparable in quality and density to recently completed development projects in downtown. The biggest challenge to the downtown regarding this development is the increased demand for parking.

#### Shelton: Bridgeport Avenue Transit-Priority Corridor

In addition to downtown revitalization, the City of Shelton has enjoyed significant corporate and industrial development in several areas outside the downtown core. A prime area where this type of development has occurred is along and in vicinity of Bridgeport Avenue. Bridgeport Avenue had been designated as State Route 8 and functioned as the main north-south route until the early 1980s when the Route 8 Expressway was completed through Shelton. With ready access to the expressway and proximity to corporate and financial markets in Fairfield County and New York City, large tracts of open land were prime and attractive for commercial and corporate development. In the past 40 years, mid-sized retail centers, condominiums, hotels and corporate office parks, including the recently completed mixed-use development, have been constructed. There is potential for more development in the Bridgeport Avenue corridor, but residents' concerns about traffic and other growth impacts are causing the City's leaders to rethink how best to accommodate new growth.

The Bridgeport Avenue corridor represents a unique physical context different from the other communities in this study. Unlike other communities, the development opportunities and transportation challenges are not in a downtown setting or near a train station.

The Bridgeport Avenue corridor extends from downtown Shelton southward to the Stratford townline. The primary business area encompasses the section from Constitution Boulevard to the Route 8 southbound off-ramp at Exit 11, a length of about 3.6 miles. This business corridor starts about 0.9 miles (4,900 feet) from downtown Shelton. Large, open air retail centers anchor the north and south termini of Bridgeport Avenue. These shopping centers feature disconnected buildings and large parking areas located to the front of the stores and controlled access from Bridgeport Avenue. Several, multiple building office parks are located in the district. Access to these parks are from a cross street and not directly from Bridgeport Avenue. Two are located off of Corporate Drive in the southern half of the area and two have access from Constitution Boulevard located at the north end of the corridor. Each features multiple-story buildings with large expanses of surface parking lots and multi-story structured parking. Housing within the area is almost exclusively medium density apartments and condominiums, including the recently opened, 15-story Renaissance Apartment building located in the Shelton Corporate Park development. There are also several light industrial facilities located in the northern half of the corridor.

The principal characteristics of the Bridgeport Avenue corporate/business district are that it is autodependent, with exspansive parking areas, controlled access points, exclusive turn lanes, and lack of sidewalks. Average daily traffic volumes on Bridgeport Avenue range between 14,000 and 18,000 vehciles per day. Based on data from the US Bureau of the Census only about 4% of the people who work in the area also live in the area, which generates a substantial amount of inflow trips each day. Journey-to-Work data indicate that about 22,000 comuter trips are made each day into and from the area, almost all made in a single-occupant vehcile.

Transit services are available but somewhat limited. The Greater Bridgeport Transit operates three fixed, bus routes in the area: Route 15, Route 22X and Route 23.

• GBT Route 15 provides local bus service from downtown Bridgeport to the Derby-Shelton Train Station. It is aligned along local streets through the east side of Bridgeport before entering and using Route 8 to access Bridgeport Avenue. The route operates as unlimited-stop, local service

along Bridgeport Avenue and passes through downtown Shelton before terminating and turning around at the Derby-Shelton train station. Scheduled running times are just under an hour. It takes about 26 minutes for buses to run between where it enters Route 8 and the Derby-Shelton train station. Headways are 60 minutes and services are operated throughout the day, starting at 6:50 am and ending at 9:57 pm.

- GBT Route 22X provides express bus service between the Bridgeport Transit Center (BTC) in downtown Bridgeport and the Shelton Business Park. The service currently operates only during the morning and afternoon peak periods, operating with three trips in the morning and four in the afternoon. The route is oriented toward downtown Bridgeport with service providing a connection from Bridgeport to the Shelton Corporate Park in the morning and the reverse commute in the evening. A 60-minute headway is provided with the first morning trip leaving the BTC at 6:35 am. The route is aligned along the Route 8 from Downtown Bridgeport to Exit 11, where it continues along Bridgeport Avenue. The route diverts from Bridgeport Avenue at Trap Falls Road and follows a series of local roads that provide access to the corporate office buildings. The scheduled running travel times are twelve (12) minutes between the BTC and Trap Falls Road and eleven (11) minutes to complete the trip through the Shelton Corporate Park district. Route 22X does not connect or continue to downtown Shelton.
- GBT Route 23 provides local bus service from downtown Bridgeport to the Derby-Shelton Train Station via local streets through the east end of Bridgeport, the south end of Stratford and north end of Stratford. It serves the office parks located along Constitution Boulevard and bypasses Bridgeport Avenue and downtown Shelton. Service is operated primarily in the morning and afternoon and evenings on 60-minute headways. No buses are operated on the route between 9:05 am and 2:10 pm. Scheduled running times are 45 minutes between the BTC and Derby-Shelton train station.

The Valley Transit District provides commuter connection service along Bridgeport Avenue. It has a transfer point with GBT Route 22X at the Bridgeport Avenue and Trap Falls Road intersection.

Commonly heard complaints from attendees at the design workshops about Bridgeport Avenue are that traffic is terrible during peak hours and it is not easy to get to jobs or retail centers in the corridor from the Derby-Shelton Train Station, Downtown Derby or Bridgeport. The lack of transit connections to and from downtown Shelton were also voiced at a stakeholder meeting held with the Shelton Economic Development Corporation (SEDC). The SEDC has floated the idea of operating a trolley bus shuttle service between the downtown and Bridgeport Avenue.

In recognition of this suburban context, the study team conducted a modified Visual Preference Survey (VPS) to capture resident's preferences for transit-adjacent development and an improved pedestrian and bicycle environment, that would support alternative transit connections to downtown Shelton and to the Derby-Shelton Train Station. The results of this survey and conversations with residents and business owners at stakeholder meetings and the design workshops, led to the development of a unique type of Model Block that interfaces with bus transit systems.



Figure 24 -View of Neighborhood Transit Hub showing relationship of transit services to private transit-supportive uses surrounding a Village Green

This so-called Neighborhood Transportation Hub (NTH) or mobility hub is based on the experiences of other communities that embrace new forms of bus transit to reduce traffic congestion. More robust bus transit along the corridor (including, possibly, bus-rapid transit) combined with the construction of NTHs would make bus transit more convenient and responsive to travelers' needs by creating a transit stop for multiple modes of travel- including express buses, private shuttles, taxis, shared vehicles, private automobile, bicycles and pedestrians – converge. Travelers can then change mode of travel (from car or taxi to bus, from bus to shuttle, from bicycle to bus or shuttle, or from bus to bus, etc.).

A NTH can also be a pulse point where transit vehicles different from routes converge and time their stops to enable easy and immediate transfer of passengers to another route or service. The biggest advantage of integrating a NTH within a corporate or mixed-use campus along Bridgeport Avenue is that travelers can be connected more seamlessly to the Derby-Shelton or Bridgeport



Figure 25 - Street View of Neighborhood Transit Hub

commuter rail stations along the Waterbury Branch Line. This integration and linkage between local

buses, express buses and commuter rail helps solve "last-mile" gap or the challenge of enabling transit riders to use transit from door-to-door.

Another advantage of NTHs is that, because they would be co-located within private development sites among a mix of residential, commercial uses with shops, restaurants and other services, transit riders could grab a cup of coffee or shop at a pharmacy while waiting for their next transit connection.

The hubs could be developed under a Public-Private Partnership (P3) that recognizes that mutual benefits could accrue to the private sector (investors, land-owners and end users) and to the public sector (City of Shelton, the Naugatuck Valley region, and the State of Connecticut). The following points provide an overview of the characteristics and benefits of NTHs as depicted in Figures 26.

Private sector benefits include:

- Expanded Market. The market for services within the development hosting a NTH would be expanded by enabling people that do not have access to cars to patronize the development's stores, medical facilities, doctor's offices and other professional services and restaurants. This would allow merchants and service-providers to 'capture' a considerable and increasing percentage of the population including young people, the elderly and people who do not own cars or prefer not to use a car for the trip.
- **Higher Property Values.** Properties with access to bus transit (especially Bus Rapid Transit system) enjoy increases in land values in comparison to locations away from transit stops. Higher customer capture rates and improved revenue and promote small and local businesses because:
  - <u>More Efficient and Effective Land Use.</u> Reduced parking demand allows more land area to be developed with income generating uses.
  - <u>Attract and Retain Tenants and High-Skilled Employees.</u> A high quality, mixed-use, multimodal district can attract new employers and investments and result in new jobs for the community and region. Increased access to labor markets through better connectivity/mobility, and improved quality of life also enable companies to attract and retain the best, higher-skilled employees.

Public sector benefits include:

- Reduced Traffic Congestion. Higher use of transit results in reduced reliance on auto travel and fewer vehicle trips on our highways during peak hours – this reduces overall traffic congestion and reduces travel times of daily commutes.
- **Optimize Costly Infrastructure.** Compact development enabled by transit-adjacent development optimizes the use of existing infrastructure and lowers infrastructure construction and maintenance costs which result in lower costs for public services.
- **Open Space Preservation.** Compact development near transit stations (Transit-Oriented Development) and along high-capacity bus routes (transit-adjacent development) reduces pressure to build conventional development on "greenfields" (i.e. land that has not been previously developed) and reduces sprawl; which results in the preservation of farmlands and forests.

- Better for the Environment. Reduced fuel consumption because of reduced use of automobile travel results in significantly lower air pollutants and reduced greenhouse gas emissions and higher air quality improvement. Reduced need for parking lots and more compact, low-impact development results in less storm water runoff and reduced pollutant loading into streams, rivers, wetlands, and lakes.
- Improved Municipal Revenues. Greater land use density and diversity associated with TODs and transit-adjacent development (in NTHs) provide synergies and improved accessibility which increase real estate and retail activity and result in increased sales revenue and greater municipal ratables (property taxes, sales taxes, income taxes).

#### Key Characteristics of Neighborhood Transit Hubs (NTH)

The following are key characteristics of a Neighborhood Transit Hub customized for the Bridgeport Avenue corridor of Shelton. The enumeration of these characteristics corresponds to the numbered features provided in Figure 28.

- Transit Hub. A NTH (or mobility hub) is a highly interactive transit stop with multi-modal connections, where transit vehicles (public buses, private shuttles, taxis, and shared vehicles) enable passengers to change mode of travel (from car or taxi to bus, from bus to shuttle, from bicycle to bus or shuttle, or from bus to bus). A NTH can also be a pulse point where transit vehicles from different routes converge and time their stops to enable easy and immediate transfer of passengers to another route or service.
- 2. **Village Green.** The Village Green could be a public or privately-owned public space or pocket park that adds place-making value to the properties within the development.
- **3.** Taxi and Shared Vehicle Stand. Shared vehicles include Transportation Network Companies (TNC) such as Uber and Lyft, as well as, privately operated shuttles.
- 4. Bus Shelters/Transit Conveniences. This could include state-of-the-art bus shelters or mobility hubs that not only protect passengers from inclement weather while waiting for the bus but also provide traveler amenities. The amenities could include Wi-Fi, LED lighting, benches, bicycle parking and storage, trash receptacles, transit system mapping, and dynamic messaging signs. Dynamic message signs give users real-time information about the arrival of their bus or train. This information helps users plan their trips accordingly and rider satisfaction is significantly higher if they know exactly how long they will have to wait for their bus.
- 5. **Commuter Parking.** Commuter parking integrated within a mixed-use development not only provides convenience for motorists to transfer to transit, but also encourages those transitioning commuters to use the private services surrounding the transit hub.
- 6. Shared Use Trail and Protected Bike Lanes. These facilities, sometimes called Cycle Tracks, separate pedestrians and bicyclists from motor vehicles which makes them among the safer means of non-motorized travel. Like the nearby Derby Greenway, they are attractive for bicyclists of all levels and ages and are preferred over on-street bike lanes.
- 7. **Multimodal Streets**. Traffic-calmed 'Complete Streets' facilitate active transportation (walking and cycling) which encourages more active and healthy lifestyles. The dense urban form and use of Complete Streets strategies in Main Street districts result in slower vehicular travel speeds and safer conditions for all users. This improves pedestrian safety and encourages people to

walk and cycle; it also results in fewer accidents which reduces insurance, health care and lost productivity costs.

8. **Shared Parking**. Shared parking that services multiple uses and buildings: a) maximizes parking efficiency and minimizes extent of paved surfacing; b) encourages people to park once and walk to multiple destinations; and, c) allows expense of parking lot operation and maintenance to be shared, resulting in less cost per land use.

Shared parking also results in significantly decreased demand due to complementary, crossutilization of parking by surrounding uses (e.g. an office building parking lot will be empty when the restaurant next door is packed after 5 P.M., so requiring both to provide dedicated spaces for 100% of their individually-calculated parking needs is often wasteful).

9. Transit Supportive Development. The provision of effective and predictable transit encourages surrounding development, which, in turn, supports transit. Private uses such as coffee shops, book stores, restaurants and convenience stores provide services of value to transit riders and area workers alike. The activity levels associated with transit hubs provides new customers for private development and the activity levels in shops, cafes, and service establishments provides more "eyes on the street" that improves the security of people waiting for buses.



Figure 26 - Artist depiction of possible Neighborhood Transit Hub

#### **Build-Out Analysis**

One of the objectives of this study is to quantify the potential for transit-oriented development in each of the downtowns or station areas of Naugatuck Valley towns and cities. The estimation of potential new, mixed-use development will cast a bright light on the value that TOD can bring to each community and the region relative to expanded Grand Lists, sales tax revenue, jobs, and improved diversity of housing. It will also underscore the value of TOD and encourage municipalities and State agencies to lay the groundwork to enable TOD through zone changes, economic incentives and infrastructure development—not the least of which is transit infrastructure, particularly new investments in the Waterbury Branch Line.

Another advantage of quantifying potential TOD is to boost the confidence level of potential investors of TOD. When prospective investors, lenders and developers see public support for TOD and understand its potential build-out, they gain confidence to partner with municipalities to initiate and execute development.

The build-out analysis provides a quick and effective way to not only determine how the adoption of TOD guidelines and public investments in transit could boost potential future building area (i.e. quantify the potential for new TOD in each community) but also how the changes will affect future travel demand.

The results of the TOD build-out analysis for the towns and cities included in this assessment are summarized in Table 1. This TOD build-out analysis calculated the additional potential mixed-use development that could be constructed within a ½-mile radius around train stations. In total, within the six municipalities studied, over 12.3 million square feet of new TOD development could be constructed. To provide perspective to this number, two notable, Connecticut mixed-use developments—Blue Back Square in West Hartford Center and Storrs Downtown adjacent to the University of Connecticut in Mansfield—consist of just over 800,000 square feet each. The TOD development potential in the Naugatuck Valley towns and cities would be 15 times larger than either of those developments.

It should be noted that the quantities representing potential future uses are general in nature, and assumptions about the mix of potential new uses are untested; however, the methodology used to determine these quantities is an appropriate and effective way to approximate development potential for planning purposes.

	TOD Opportunity Sites	Naugatuck Downtown	Beacon Falls (South Side)	Seymour Downtown	Ansonia Downtown	<b>Derby</b> (Downtown Infill)	Derby (Downtown Now! sites)	Shelton Downtown	Total of Downtov or Station	All wns Areas
1	No. of Opportunity Sites	22	5	14	19	34	10		104	sites
2	Total Area of Opportunity Sites	44.1	68.5	53.2	71.8	22.6	15.9		276	acres
3	Area required for R.O.W./Open Space	6.6	10.3	8.0	10.8	3.4	2.9		42	acres
4	Net Land Available for Development	37.5	58.3	45.2	61.0	19.2	13.0		234	acres
5	F.A.R. of Model Block	2.2	0.8	0.9	1.0	1.2	1.2			
6	Total Potential New TOD Development	3,593,339	2,030,210	1,812,882	2,658,097	1,005,039	672,059	550,000	12,321,625	sq. ft.
7	Potential Mix of Uses:									
8	Residential	2,156,003	1,015,105	906,441	1,329,048	402,015	511,203	550,000	6,869,816	sq. ft.
9	No. of Housing Units (assumes 1,100 s.f. per living unit)	1,960	923	824	1,208	365	465	500	6,245	housing units
10	General Retail	359,334	203,021	181,288	398,714	201,008	0	0	1,343,365	sq. ft.
11	Restaurants/Dining	179,667	101,510	90,644	265,810	150,756	0	0	788,387	sq. ft.
12	Office/Commercial	539,001	304,531	271,932	398,714	150,756	102,900	0	1,767,835	sq. ft.
13	Maker-Space/Live-Work Studios	359,334	406,042	362,576	265,810	100,504	57,956	0	1,552,222	sq. ft.

#### Table 1: Summary of TOD Build-Out

The components of the build-out analysis and the methodology used to determine the property development and redevelopment potential of TOD in the study area can generally be described as follows (the enumeration of these components follows those listed in Table 1):

- 1. No. of Opportunity Sites: A tally of all TOD "Opportunity Sites" in each downtown or station area. As discussed in Section 2, a TOD Opportunity Site is a vacant or under-utilized downtown parcel that is situated close to a train station, that, when redeveloped, in whole or in part, would greatly contribute to a more prosperous downtown and to a station area that promotes the use of transit. The Opportunity Sites were identified in collaboration with residents and officials in each community during the TOD Workshops and in conferences held with municipal officials.
- 2. **Total Area of Opportunity Sites:** The gross land area of all Opportunity Sites, in acres, as derived from available GIS mapping from each community.
- Area required for R.O.W./Open Space: A factor of 15% of total land area is estimated to be needed for public purposes upon property redevelopment; either to create new streets to access smaller lots, expand rights-of-way to provide more space for sidewalks and streetscaping, and/or to dedicate for publicly or privately-owned open space that would provide a community amenity.
- 4. Net Land Available for Development: These acreage numbers represent the land available for TOD development after netting out potential new streets, expanded rights-of-way, public plazas or other green space.
- 5. F.A.R. of Model Block: Floor Area Ratio (FAR) is a measure of the density of various blocks or districts that comprise a downtown. FAR is the ratio of total building floor area to the area of land on which a building is located. For example, if a lot measures one acre (approximately 40,000 sq. ft.) and the permissible FAR for that area or district is 1.0, then a maximum of 40,000 sq. ft. of space will be permitted to be constructed in all floors of the building, often within multiple stores. The FAR value, when multiplied by the lot area gives us the maximum floor area

that can be constructed on a lot. The higher the FAR value, the greater the allowed floor area will be on any one lot or Opportunity Site.

FAR is an important metric by which planners gauge the viability of downtowns and transitoriented development because it is an indicator of a "critical mass" of development needed to sustain a downtown economy as well as a key predictor of "walkability." Generally, the greater the density of a downtown, the more walkable it is. This is because a compact, mixed-use development provides a critical mass of buildings and activity levels, encourages "park-once and-walk-behavior," and results in a continuous street wall that encloses the street and creates more comfortable and secure streetscape. These conditions create places where people want to live, work and recreate and, therefore, improve the marketability of the TOD. For these reasons, FAR is a very useful tool to decide the appropriate intensity of development in an area and to help planners, zoning commissioners and other public-policy officials to determine desirable minimum and maximum thresholds of development<sup>4</sup>

However, it is important that the public's preference for density within a specific district be considered to ensure that development is in harmony with the community in general and with the neighborhoods surrounding the proposed development. For example, the FAR or density level appropriate in downtown Waterbury may not be acceptable in other, smaller Naugatuck Valley towns and cities because it would be deemed out of scale with the character of surrounding development.

In other words, density needs to consider the context of the town or city and the preferences and design sensibilities of its residents. To ensure context is considered, the findings of the Visual Preference Surveys conducted as part of the community design workshops were utilized (refer to Section 2, Step 2). Briefly stated, the VPSs were used as a gauge of community attitudes about the density, type, and character of transit-oriented development that residents would welcome in the downtowns and station areas of Naugatuck Valley towns and cities.

The study team translated the VPS results of each community into a visual representation of a prototypical block—the Model Block—that not only has the features and characteristics necessary for successful TOD, but also has the qualities that residents view as appropriate for their downtowns and station areas. The team then analyzed the Model Block for each community to derive the FAR value that residents prefer for their community. The FAR value in each column, therefore, generally represents each community's preferences for the intensity of TOD within their downtowns.

6. **Total Potential New TOD Development:** These numbers represent the total square footage of potential new, transit-oriented development within each of the Naugatuck Valley's towns and

<sup>&</sup>lt;sup>4</sup>Note: We are not advocating in this discussion that Naugatuck Valley towns and cities use F.A.R. as a regulatory tool to establish minimum or maximum development densities or site coverage. The development of zoning regulations is very complex. Many other factors affect traditional design and the character of our townscapes including building height, roof profiles, building proportions, lot sizes and shapes, parking lot size and setbacks lines. Zoning regulators and other land use agencies must consider all these factors when determining the appropriateness of new development.

cities. It is simply the product of the FAR multiplied by the "Net Land Area Available for Development." The acres of the net land area were converted to square feet for this calculation.

- 7. **Potential Mix of Uses:** This series of entries characterizes TOD potential within five categories of downtown development:
  - 1) Residential;
  - 2) General Retail;
  - 3) Restaurants/Dining;
  - 4) Office/Commercial; and,
  - 5) Maker-Space/Live-Work Studios.

This breakdown allows the municipality and region to better understand and plan for potential impacts such as the number of future downtown residents, future downtown employment levels, future demand for water and other utilities, future parking demand, future demand for transit, and future traffic generation.

Arguably, this set of numbers is the most speculative of all data in this build-out analysis. The break-down or percentage value of each use relative to the total is based on a cursory understanding of the Naugatuck Valley's current inventory of commercial and residential uses and current market demand for new uses or services. Ideally, this predicted demand for future development by classification of land use would be determined through market and economic analyses of current supply, current trends, and projected demand—specific to the market, demographic and economic conditions and factors within each community. The resources for this level of analysis were not available for this study.

Therefore, it is important to note that it is not possible for this study to accurately predict future TOD build-out. Nor is it possible to determine a specific time when future development can be expected or the period over which projected development would occur (i.e. the "absorption" period for real estate development and occupancy). Market conditions (such as regional, national and even global forces of supply and demand), limits of population growth, limits on the capacity of the utility and transportation infrastructure, land values, physical characteristics of the land (e.g. presence of wetland soils, flood plains, and steep slopes, etc.), unwillingness or reticence of property owners to develop their land, local and state economic development policies (e.g. tax incentives), state and municipal regulatory factors, and other variables that cannot be predicted, could all influence the actual amount of available land that will be developed, the intensity of that development, the specific mix of uses that the development will be comprised of, and the build-out period.

The results of this build-out analysis, therefore, represent only one potential development scenario. However, the intent is to demonstrate that the promotion and incentivizing of TODs has the potential for substantial returns in terms of economic redevelopment and revitalization.

## **3. TOD ZONING RECOMMENDATIONS**

Many of the Study Area communities have downtown regulations that are conducive to Transit-Oriented Development (TOD). Additional information and background regarding incentivizing TOD and model zoning regulations to permit TOD can be found in the NVCOG's publication: *"Transit Oriented Development in the Lower Naugatuck Valley: Model Zoning and Financial Tools"* published in August 2016.

This publication describes various land use tools and policies that communities can use to encourage and support mixed-use and higher density developments that support increased transit services and a variety of financial tools to implement transit supportive developments. In addition, the report presents opportunities to enhance the community's zoning regulations to be more TOD friendly. The NVCOG *Model Transit Oriented Development District Overlay Zone*, which was reviewed during development of this publication, is a great resource to utilize when considering TOD-related zoning changes.

Simplifying the zoning regulations in many communities could assist in encouraging development and redevelopment. Current zoning in many cases has complex regulations, overlay districts, and crossover requirements that reference one district for regulations in another district. These types of regulatory framework can create confusion, inconsistencies in implementation, and make it difficult for municipal officials and developers alike to fully understand what can and cannot be done.

The study team reviewed zoning regulations, current land uses, and conducted a residential build-out analysis to understand the potential for TOD under existing zoning. Additionally, a subsequent review was undertaken to assess and document any TOD-related changes that were enacted or implemented in the second half of 2018. Based upon both of these reviews, the following zoning update recommendations are made for consideration to further encourage TOD development within the TOD areas:

#### **Derby**

Within ½ mile of the train station, the City of Derby has the following zoning districts:

- Business-1 District (B-1)
- Business-2 District (B-2)
- OS District (OS)
- Public and Semi-Public District (P)
- Industrial District (I-1)
- Residential-3 District (R-3)
- Residential-5 District (R-5)
- Residential-Multiple District (R-M)
- Center Design Development District (CDD)
- Center Residence District (CR)

The majority of the downtown is Center Design Development District. The CDD Zone allows for shared parking if within 600 feet of the property. The City could review the CDD to see if additional changes

could be made that would further support mixed-use development and TOD-related development. The City Planning and Zoning Commission was presented with a Planned Development District Zone (PDD) proposal through an application for change of zone or zone text in July 2018 which was stated to primarily "...encourage the adaptive reuse and redevelopment of real properties located within the CDD Zone." The PZC denied the application in November 2018 but stated that "...some sort of PDD Zone in Derby..." is needed. Future considerations could take into account the work undertaken as part of this TOD planning effort to assist in developing any zoning changes in the future.

#### **Shelton: Bridgeport Avenue**

Along the Bridgeport Avenue corridor in Shelton, the following zoning districts are in place:

- Residence Districts: R-1, R-2, R-3, R-4
- Commercial Districts: CA-3 and CB-2
- Industrial Districts: IA-2, IA-3, IB-2, LIP
- Office Park Development (OPD)
- Restricted Business District (RBD)
- Multiple Planned Residential Developments (PRD) and Planned Development District (PDD), as well as the Special Development Area Overlay District

Parking requirements are determined by the Commission and shared parking is permitted in the downtown area and for mixed-use developments. The City could consider instituting some defined parking requirements (at least maximum individual development parking requirements) to help property owners determine the required number of spaces.

#### **Naugatuck**

Naugatuck's zoning within a ½ mile of the train station, includes:

- Business Districts: B-1 and B-2
- Industrial Districts: I-1 and I-2
- Residential Districts: R-8, RA-1 and RA-2, as well as Residence Office (RO-1),
- Rubber Avenue Design District (RADD) mixed retail and service uses
- Special Development District (SDD)

The industrial districts do not permit residential development and many of the residential districts permit higher density residential by special permit. The SDD district requires a large lot (87,120 sq. ft.). Shared parking is permitted but the regulations do not provide for a reduction in the number of spaces. In addition, parking requirements for the SDD #1 require a parking study. The Borough could consider permitting a mix of uses in appropriate areas within Industrial Districts, reducing the acreage required for the SDD, and updating shared parking provisions to allow for a reduction in parking spaces when there is complementary demand between nighttime and daytime uses (such as bank parking lots being available for restaurant parking etc.).

#### Ansonia

Ansonia's zoning within ½ mile of the train station includes:

- B Residence District
- C Central Commercial District
- HI Heavy Industrial District
- LI Light Industrial District
- City Center Zone Overlay District.

Residential zoning is not permitted in either industrial districts. The City Center Overlay Zone (CCOZ) requires a minimum of ½ acres and permits mixed use development (commercial on the ground floor and residential above). The City also has an Age-Restricted Multifamily Housing (ARMH) District. The City does allow for a reduction in parking for shared parking. The City could consider permitting mixed-use in appropriate areas of the Industrial Districts and reducing the acreage required for use of the City Center Zone Overlay District. At the January 2019 Planning and Zoning Commission meeting, a motion passed to amend Section 222 - Permissible Uses, to permit mixed use properties in existing or proposed structures at least 3 stories in height, to establish a minimum requirement for 2-bedroom dwelling units in the City Center Zone, and to permit the commission to reduce the required landscape area.

#### **Beacon Falls**

Zoning in Beacon Falls within ½ mile of the train station incudes:

- Business District No. 1
- Industrial District No. 1
- Industrial Park District
- Planned Adaptive Reuse Development districts
- Residential Districts: R-1 and R-3.

Shared parking is permitted but the regulations do not provide for a reduction in the number of spaces. Beacon Falls could consider updating its shared parking provisions to allow for a reduction in parking spaces when there is complementary demand between nighttime and daytime uses. The study team recommends that the Town consider permitting a mix of uses in appropriate areas of the Industrial Districts and reducing lot area requirements in areas that would be appropriate for mix

#### **Seymour**

Zoning in Seymour within ½ mile of the train station includes:

- Central Commercial (CBD-1)
- General Commercial (C-29)
- General Industrial (GI-2)
- Residential 18 (R-18) District
- Multi-Family Residential (MF) District.

Seymour has a number of large sites that could be developed however environmental constraints may limit their potential for development. In addition, Seymour also has a Mixed-Use District (Floating Zone) with a minimum site of two acres. While the industrial districts do not permit residential development, the Mixed-Use District allows uses in the Multi-Family Residential District when combined with a nonresidential use. Seymour permits shared parking for up to half of the total required spaces and has an exemption for the CBD-1 Zone for a parking reduction if within 300 feet of a municipal lot.

The study team recommends reviewing lot size requirements and reducing them to encourage additional TOD development.

#### **General Recommendations**

Overall amongst all the communities, in order to encourage additional TOD development, the study team recommends the following zoning changes:

- Consider adoption of the NVCOG "*Model Transit Oriented Development District Overlay Zone*" as an optional overlay or as a by right ordinance to encourage further TOD development.
- Allow mixed-use development and/or residential development in industrial zoning district (especially in areas where there are vacant industrial sites).
- Reduce lot size requirements and remove larger acreage requirements for new development (i.e. removing the requirements for ½-acre or more).
- Reduce parking requirements as many communities have already done for their downtown areas. Adding additional shared parking provisions that allow for a reduction in parking requirements when adjacent to municipal parking or for complementary uses and setting parking maximum requirements to minimize the need for larger parking areas. To support Complete Streets policies, the study team also suggests requiring bicycle racks for developments and encouraging the use of transit and bicycling in the downtowns and disincentivizing large parking lots in the vicinity of the train station to further support transit-oriented development.

# APPENDIX A TOD Opportunity Sites











## Shelton-Bridgeport Avenue Corridor #1



## Shelton- Bridgeport Avenue Corridor #2



## **APPENDIX B**

# Visual Preference Survey Images

## A. Density and Scale

Please rate each image according to their appropriateness to your downtown. Make sure to review the list of considerations (right) before beginning. Rate the overall image and ignore minor details

## Things to Consider

- Height of the buildings
- Attached or Detached
- Varying Heights of the Buildings



A1. 4-story buildings set apart



A2. 2-story attached buildings



A3. 1 & 1.5-story buildings set apart



A4. 3-story buildings set apart



A5. 3 & 4-story attached buildings



A6. 5 & 6-story attached buildings apart



A7. Buildings higher than 6 floors set apart



A8. 1 & 1.5-story attached buildings



A9. 3-story buildings attached



A10. 2 & 2.5-story buildings set apart



A11. 2-story buildings set apart



A12. 2 & 2.5-story buildings

## **B. Site Layout**

Please rate each image according to their appropriateness to your downtown. Make sure to review the list of considerations (right) before beginning. Rate the overall image and ignore minor details

## **Things to Consider**

- How Building Meets the Sidewalk
- Building Setbacks
- How Parking is Integrated





B2. Landscaped Setback



B3. Varied Setback



B4. Landscaped Setback





B6. Varied Setback



B7. Buildings & Front Doors Sited along the Sidewalks





B9. Parking in Front



B10. Buildings & Front Doors Sited along the Sidewalks

## C. Streets and Streetscapes

Please rate each image according to their appropriateness to your downtown. Make sure to review the list of considerations (right) before beginning. Rate the overall image and ignore minor details

## Things to Consider

- Street Widths
- On-Street Parking
- Type of Bike Lanes





## **D. Architectural Character**

Please rate each image according to their appropriateness to your downtown. Make sure to review the list of considerations (right) before beginning. Rate the overall image and ignore minor details

## **Things to Consider**

- Building Materials Mix
- Architectural Character and Style





## **E. Pedestrian Evironment**

Please rate each image according to their appropriateness to your downtown. Make sure to review the list of considerations (right) before beginning. Rate the overall image and ignore minor details

## Things to Consider

- Type of Open Space
- Type of Activity
- Street Furniture and Landscape



# **APPENDIX C**

# **Complete Streets Tool Box**

# **Complete Streets: Key Features**



# **Complete Streets: Key Features and Benefits**

6

8

9

## **High-Visibility Crosswalk**

Wide crosswalks improve pedestrian safety. Crosswalks should also be highly illuminated, raised, and have pedestrian count-down signals.

## **Transit Shelter**

Bus shelters protect & comfort transit-riders and should include LED lighting, benches, maps, & dynamic messaging signs.

## **Pedestrian Refuge Island**

Refuge islands in center of streets protect bicyclists and pedestrians in crosswalks. They also 'calm' traffic by reducing the perceived operating width of roadways.

## **Curb Bump-Outs**

Bump-outs extend curb-lines into streets to reduce crosswalk distances. Safety is enhanced because people in Bump-outs are more visible to motorists.

## **Parklets**

Parklets use on-street parking spaces for seating, sidewalk cafes or bicycle parking. They can be privately constructed and maintained. They attract people to the street and serve to calm traffic.

## Shared Lane Markings

Shared-lane markings (sharrows) are painted in travel lanes that are too narrow to allow formal bicycle lanes. Sharrows remind motorists to share the street with bicyclists.

## **On-Street Parking**

On-street parking is critical to meet the parking needs of businesses; it also buffers pedestrians from traffic and increases activity on downtown streets, which encourages strolling and shopping.

## **Shared Street**

Shared streets prioritize pedestrians and bicyclists and require motorists to operate at very slow speeds. This tool is best for low-volume streets that serve residential areas

## **Street Trees**

Street trees create greener public spaces. The vertical tree trunks and overhead canopy of trees enclose the street, cause motorists to slow down. and provide shade for pedestrians.





Naugatuck Valley Council of Governments

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