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WINDSOR CENTER

TRANSIT-ORIENTED DEVELOPMENT
Master Plan and Redevelopment Strategy







Prepared for the

Town of Windsor

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WINDSOR CENTER

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EXECUTIVE SUMMARY

OVERVIEW

Windsor Center is the heart of the community. Its is linked to the image, quality of life and value of the entire Town. The future of the Center builds upon its many strengths to create a more active, complete and well-balanced district with distinctive benefits as a place to live, work, visit and enjoy.

This is a plan that assembles the community's vision for Windsor Center and lists the pragmatic steps to accomplish it.

The future will include preservation and enhancement of Windsor Center's historic features, but will also find new sources of economic investment and civic energy that are needed in the 21st century. One of the key sources of postive change will be significantly improved rail access to the region, and beyond. Windsor Center will benefit from a superb new rail depot and expanded rail service for people who live and work here.

To achieve the benefits of a compact, mixed-use area, the future will include new housing, shops and businesses in core locations that significantly enhance the vitality of the entire area. The residential neighborhoods around the Center will become increasingly valued as convenient, pleasant places with an easy walk to shopping, restaurants, open spaces, and the cultural and civic amenities clustered around the historic Town Green.

This district will be increasingly walkable and bikeable – with streets, sidewalks and landscaping composed to serve all of the uses. All of the uses will be linked to parking areas that are convenient, attractive and efficient – including many areas that will serve as shared resources. Getting to and through Windsor Center by car will be convenient and better managed with intersections and street improvements that direct and channel traffic.

This report is addressed to the stakeholders in the future success of Windsor Center. It describes the vision that has emerged from study, meetings and discussions. It describes specific projects and programs that will translate the vision into reality, and how to accomplish them.

Everyone has a key role to play – residents, elected officials and Town staff, businesses and community leaders, landowners and investors, institutions and organizations. These pages describe how concerted actions must be taken – incrementally and over several years – to bring new public and private investment and ensure that Windsor Center contributes to the growing the quality of life for the entire community.

*The **planning area** for the TOD Master Plan and Development Strategy encompasses land and ownership parcels within approximately ½ mile of the future rail station in Windsor Center, a convenient walking distance and a meaningful measure of the scale of compact village and mixed-use districts. For Windsor, the ½-mile radius approximates the boundaries of the neighborhoods that have clustered around the Center. The pattern reaches back to eras when many residents walked to and from street cars and trains that connected Windsor to the region, and walked to the shops and services clustered here.*

Goals

For the future of Windsor Center, goals include adding vitality and providing a balanced set of uses and amenities that serve the Town and are attractive to visitors and businesses because of the quality of entire district. All of these goals are direct extensions of preceding plans and initiatives for the Town Center. These precedents include concepts established in the municipal Plan of Conservation and Development and special zoning incentive and design-related districts created to support mixed-use development. The precedents include many civic and business-related projects, programs, events and promotions in Windsor Center. The goals build upon projects and initiatives to redevelop former industrial sites and municipal land east of Mechanic Street, and link the open space assets for public enjoyment.

New opportunities will be triggered with the expansion of rail service within the Town Center. The Town would like to take advantage of the Transit Oriented Development that can occur as a result of this expansion. The initiative by the State of Connecticut to construct a new railroad station to serve expanding services along the line can contribute to the Windsor Center in many ways, if the design and location of the facilities are linked to other Town purposes. Other communities with improved rail service have benefited from transit related development opportunities within a one-half mile radius of the station – if the area is compact and pedestrian-oriented.

The Town goals include attracting redevelopment to key sites that will bring new uses and organize them to complement the established, compact patterns of streets, blocks and buildings. By understanding potential markets and removing barriers to successful redevelopment, the Town can accelerate the amount and timing of private sector reinvestment.

Enhancing the economic and civic value of the district is a fundamental purpose of this initiative. The goals linked to this outcome include improving quality of connections, adding to the resident population, attracting new businesses and creating additional destinations and amenities.

VISION

The vision for the future of Windsor Center reflects the shared perspectives of the community expressed during the many meetings and workshops with the participants in this planning process. This vision has been used to guide choices among different alternative paths that the Town could follow, as it considers the decisions ahead.

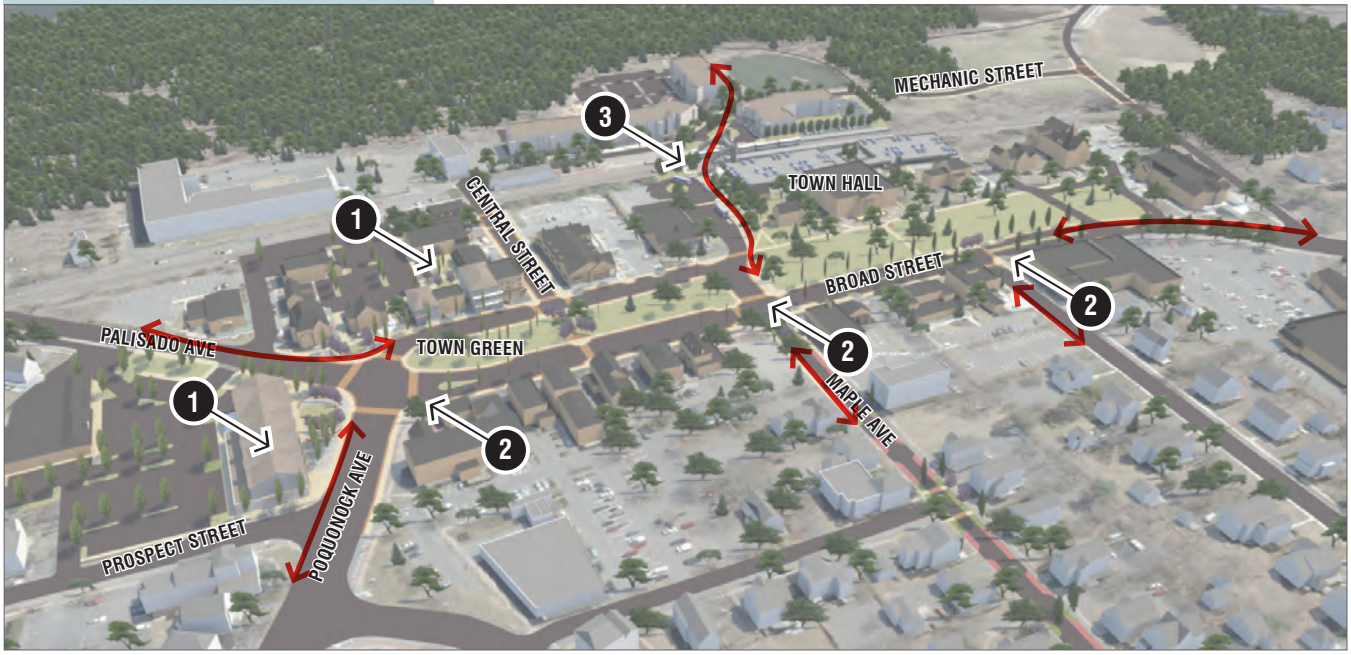
The community's vision is for a Windsor Center that is…

- **Walkable and Connected –** a compact district that takes advantage of transit and reinforces all of the uses by becoming an increasingly walkable, well-connected cluster of uses, places, services and amenities;
- **Vibrant and Diverse Uses –** a vibrant district that boasts a diverse mix of uses that enhances the area as a place to live, work, visit and play;
- **Accessible and Safe –** a convenient district that is easy to access from other areas and that allows pedestrians, bicycles and automobiles to get around safely and efficiently; and
- **Attractive and Distinctive –** a clearly defined district through the urban design of its streets, ways and public spaces and through the consistent qualities of its constituent buildings that preserve and enhance the existing village character and historic and iconic assets, while encouraging new uses that provide additional attractions for people to come to the Center.

TOWN CENTER: VIEW TOWARDS THE EAST

The edges of the historic Town Green will be strengthened through a combination of infill development and renovations along the sidewalks and paths that loop around the Town Green, and enhanced pedestrian connections in every direction.

1. Focus sites for infill development and renovations
2. Re-organized intersections/traffic calming
3. New transit hub
4. Enhanced pedestrian connections



The Center

Broad Street and the Town Green establish the identity of Windsor Center, and orient and distribute its visitors and users. The composition of the buildings, uses, and open space creates a clear and positive image of Windsor Center as a traditional New England village, with its clustering of prominent civic buildings, institutions, shops, stores and services gathered around the perimeter of a generous and simple open space. The plan calls for strengthening the core of the Center by rebalancing the circulation patterns to better incorporate pedestrians and parking, and through a series of initiatives to add new uses and redevelop key properties around the perimeter of the Town Green.

The Town will undertake a variety of street, streetscape, and pedestrian improvements to remove excess paving and lanes in several locations – a "road diet." The normal flows of traffic can be accommodated in better organized intersections with sidewalk extensions to make crossings easy, and there will be ample room to provide for more convenient on-street parking in several locations.

To be more successful as a shopping and business destination, the Center must offer a more extensive and continuous set of shops, restaurants, and businesses along the sidewalks that border the Town Green. This vision includes reinvestment to "fill out" the northern end of the Town Green with mixed-used development including pedestrian-oriented uses along the sidewalk. Completing the perimeter will require reviving the empty and historic Plaza Building and its theater and transforming the cluster of disparate buildings and sites north of Central Street into a unified collection of small shops and businesses.

TOWN CENTER: VIEW TOWARDS THE WEST

A new multi-modal transportation center with parking decks is envisioned behind Town Hall – combining parking for Town Hall and nearby uses and for the expanding rail service. These will be linked by a pedestrian bridge and walkway system to new housing and other uses along Mechanic Street, and to the Town's open space network beyond.

1. New rail station and pedestrian overpass
2. New parking decks
3. Future multi-family housing along Mechanic Street
4. Coordinated village-style reinvestment north of Central Street

Neighborhoods

The compact, predominantly single-family neighborhoods around the Center will be an increasingly valued home to new generations of Windsor residents who want to take advantage of the comfortable scale, quiet, tree-lined streets and the ability to walk and bicycle throughout. These areas will be preserved through appropriate zoning, and enhanced with complete, tree-lined sidewalks and a streetscape network with traffic calming to limit cut-through traffic.

Borders

The core of the Center will be flanked by two border areas. To the east, Mechanic Street will be lined with additional multi-family housing to augment renovated historic buildings and the mix of uses already here. Redevelopment of existing sites and buildings may also provide opportunities for small offices or live/work units that can take advantage of the proximity to transit and the Center. To the west, a transitional zone will support a compatible mix with relatively small businesses, institutions, houses and multi-family residences - all taking advantage of the walkable proximity to the Center's transit and mix of uses, provided that the scale, form, and character of these uses are compatible with the low-scale residential areas nearby.

Corridors

Three street corridors converge at Windsor Center: Broad Street, Poquonock Avenue, and Palisado Avenue. The most significant changes will be along Poquonock Avenue, with streetscape improvements, redevelopment of underutilized land and new design guidelines to promote additional redevelopment of underutilized properties for businesses, shops or housing that can benefit from the convenient location.

Connections

An extended pedestrian network will include improved sidewalks, crosswalks and other pedestrian amenities. A principal new east-west pedestrian corridor will extend along Maple Street, to and across the new rail station, leading to Mechanic Street and extending to the paths and trails in the Town's open spaces. This will include connections to the growing network of regional walking and bicycle trails that will serve as shared paths, stretching to Hartford. Sidewalks will reach down Batchelder Road, providing a pleasant and practical link to the Loomis Chaffee School and the Town Center. Bicycle access will be enabled and supported through signage, storage racks and in the overall design of a traffic-calmed street network.

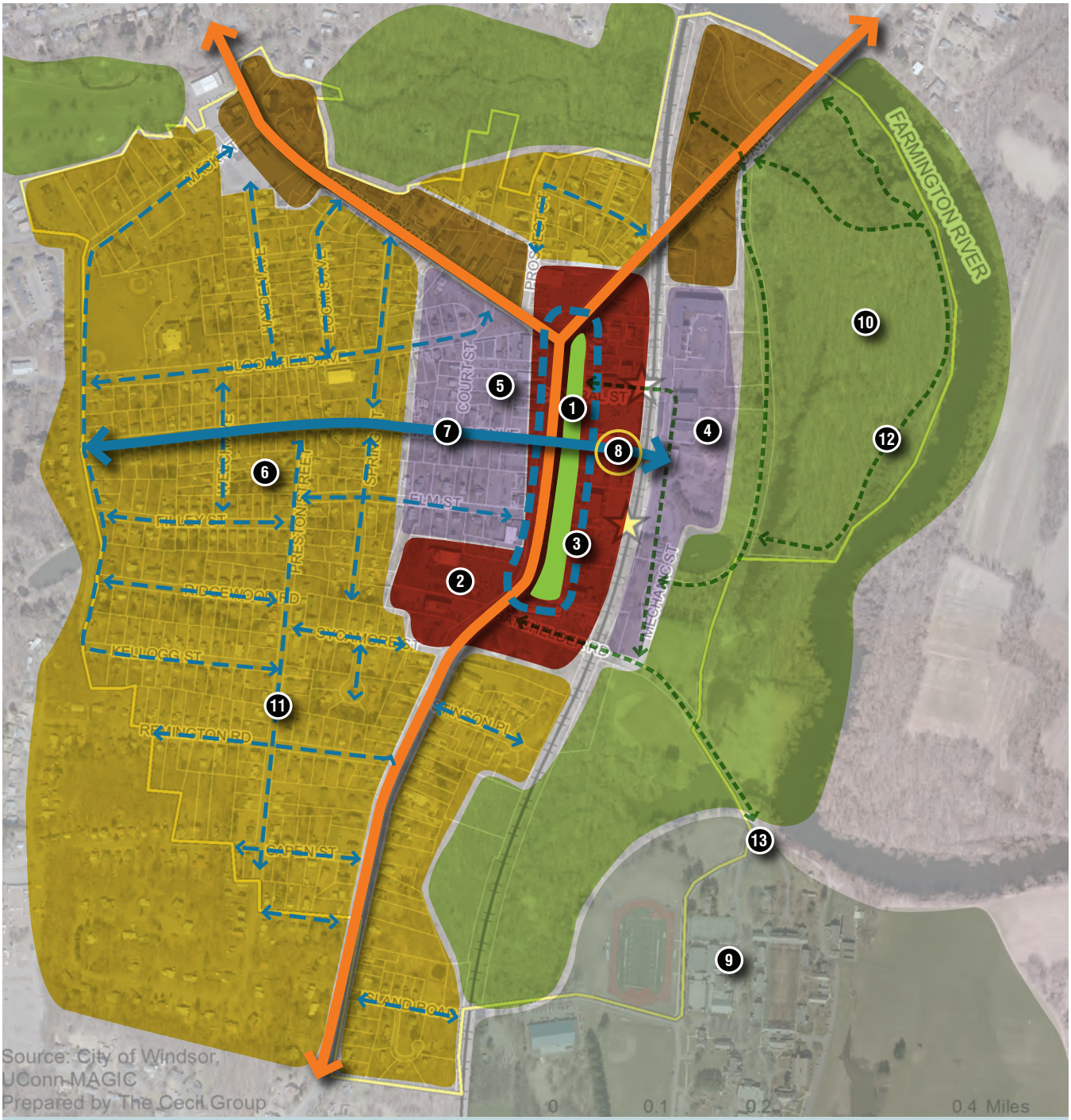


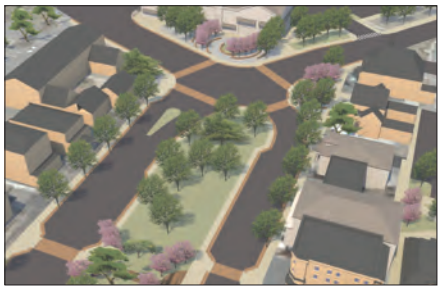
DIAGRAM FOR THE FUTURE

1. Town Green – Enhanced, historic open space
2. Active Core – Active civic uses and business edge
3. Pedestrian Loop – Primary path around Town Center
4. Border (East) – Multi-story and historic developed edge
5. Border (West) – Middle-scale transition area
6. Traditional Neighborhoods – Compact fabric of smaller homes
7. East-west Connector – Continuous pedestrian link
8. Mobility Center – Enhanced parking, and transit connections for all modes
9. Campus – Loomis Chaffee
10. Green Resources – Buffers, preserved wetlands and parks
11. Neighborhood Links – Pedestrian-oriented, traffic-calmed streets
12. Green Links – Paths and trails through open spaces
13. Multi-use Path – River trail connection to Hartford

Keys to the Future

Achieving the vision will require short-term actions and larger projects that will involve all of the stakeholders in the Town Center. Implementation of these and other ideas is described at the end of this summary.

Key strategic changes and improvements can accelerate the Town's ability to fulfill its goals for Windsor Center. Some of these changes can be accomplished relatively soon; others may take several years to fully accomplish. However, progress on any of these will help shift the quality, activity, value and image of the district.

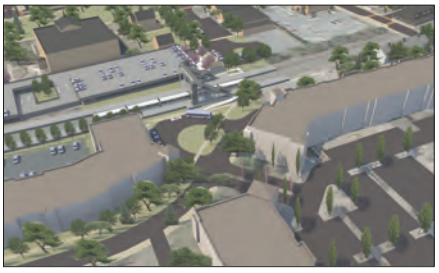


BROAD STREET RECONFIGURATION

The Town can narrow portions of Broad Street and realign its intersections to be more effective in directing and distributing traffic while shortening pedestrian distances. Excessive street width would become additional on-street parking and landscape medians. Peak hour traffic would still be supported, but with a better balance of convenient walking, parking and circulation choices to encourage a successful business and civic center.

NEW HOUSING IN WINDSOR

The future economic vibrancy and vitality within Windsor Center will require an infusion of several hundred units of new multi-family housing. Well-designed projects are needed at key sites, converting underutilized land and providing additional high quality housing choices. A hallmark of a successful town center, the new housing will appeal to younger generations and "empty nesters", complementing the family-oriented houses of nearby neighborhoods. The new residents will become important patrons for shops, stores, restaurants and transit.



STATION AREA REDEVELOPMENT

Long-term transit, parking, and mobility solutions can emerge on Town-owned land behind Town Hall. Funding will needed to create a central parking deck serving Windsor Center, Town needs, and rail patrons. This location will become a transit hub, connecting pedestrians, bicycle, and transit routes. The transit hub will link both sides of the tracks with an architecturally prominent pedestrian bridge, linking the Town Green to a cluster of multi-family residential buildings that may incorporate some commercial uses or live/work units as part of a cohesive, complete Mechanic Street corridor.

NEIGHBORHOOD STREETSCAPE AND TRAFFIC CALMING

The compact neighborhoods around the Center can provide the fundamental qualities of a safe, walkable and bikeable place through a series of coordinated sidewalk repairs and extensions, traffic calming, and streetscaping at strategic locations to reduce cut-through traffic and increase their attractiveness and value.

COLLABORATIVE REINVESTMENT: CENTRAL ST. NORTH

The cluster of properties and buildings north of Central Street can become a village within a village – an attractive combination of restored historic buildings, new construction and additions connected by a shared landscape, walkways and parking resources that enhance the attractiveness and identity for all of the uses. The Town will work with property owners over several years to accomplish this goal.

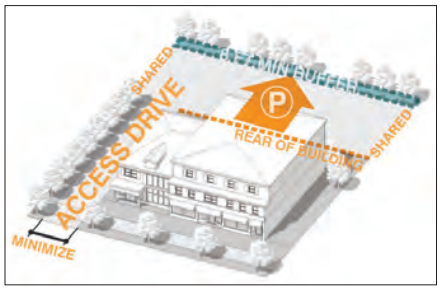
REDEVELOPMENT: TOPPING OFF BROAD STREET

The former Arthur's Drug site provides an opportunity for strategic, multi-story reinvestment that can "top off" Broad Street. Development on this centrally-located site could transform the northern end of Broad Street by visually connecting the east and west sides of the Town Green, enhancing the value of the entire area. Redevelopment could take advantage of the enhanced pedestrian links and increased on-street parking associated with the proposed street and intersection changes.

BRINGING THE PLAZA BUILDING BACK TO LIFE

The historic Plaza Building could be brought back to life with ground-level restaurants and shops and upper-level uses. The theater space holds the promise associated with a relatively small but unique entertainment or event destination that can restore the weekend and evening vitality that was once a hallmark of its role in the life of Windsor Center.

MIXED-USE DESIGN GUIDELINES AND REGULATIONS



The Town's regulations can be tools to enhance the value of the entire district over time by providing incentives for appropriate village scale development and innovative solutions to parking needs, protecting historic buildings and neighborhood character and providing for a consistent design quality that will enhance the value of properties. Design guidelines included in this Plan will help guide new development and renovations accordingly. Zoning might also be refined to further support appropriate mixed use development in the future.

NEW AND EXPANDED ACTIVE USES AROUND THE GREEN

A combination of public and private initiatives are needed to complete a continuous border of active, visually engaging buildings and uses around the Town Green. These initiatives will need to support uses with enough variety and interest to draw and retain visitors from Windsor and other communities, collectively boosting the market for all of the destinations. A larger cluster of diverse, quality restaurants, food-oriented shops is an attainable step in this direction, especially when paired with well-publicized events on the Town Green.

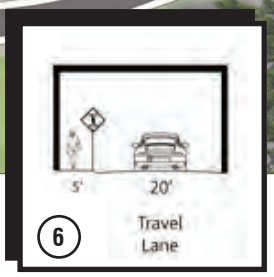
PARKING AND PARKING MANAGEMENT

The Town and private owners will need to manage their parking lots and spaces through a coordinated program directly tied to their joint goals of enhancing the mixed-use vitality of the district and draw new investment. A successful program will include the appropriate supply of parking spaces in convenient, efficient, targeted locations, rather than the existing scattered collection of parking lots that vary considerably in their use. There are many advantages to supporting compact retail, restaurant, and business patterns through shared parking solutions among properties and well-managed curb-side spaces.

PUTTING IT ALL TOGETHER. The Vision seeks to create a "sense of place" at Windsor Center, making it a more enticing destination through urban design changes to public spaces and improvements to buildings and development that preserve and enhance the existing village character. Strategies include strengthening transit with a new multi-modal station, rebalancing circulation patterns to improve accessibility from other areas and better incorporate pedestrians and parking, and channelling strategic infill and redevelopment of key properties to bring activity and vitality to the area surrounding the Town Green.

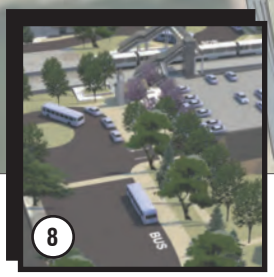
A reinvigorated Plaza building with street-level retail and an entertainment venue

Streetscape and safety improvements to local streets, and enhanced connections to the Green



Sidewalk improvements for the under-bridge crossing on Batchelder Street

A new central parking deck to support Town Hall, nearby uses, and expanded rail service



A new multi-modal transit hub with a link to Broad Street

Sidewalk extensions and traffic calming, including a "road diet" on Broad Street

Mixed-use development at the Arthur's Drug site and elsewhere to line the Green

Village-style infill and renovations, with shared landscapes, parking, and walkways

Additional on-street parking strategically located where most beneficial.

Mixed-use zoning and innovative design guidelines to strengthen the Center

Future multi-family housing in the Mechanic Street area

A pedestrian overpass designed as a visible and attractive connector

PROCESS

THE COMMUNITY

Community participation was high at all workshops. Attendees defined the desired identity and vision for Windsor Center, and helped craft the most appropriate approach to reaching those goals. To help strengthen the physical character of Windsor Center, participants scored images during a Visual Preference Survey.

Steps

The process for the transit-oriented development planning and redevelopment strategy entailed a step-by-step progression of studies, discussions, input and responses over a 12-month period.

The initial steps included evaluations of existing conditions and trends, taking into account the many relevant precedent plans and studies regarding rail transit, the economic position of the Town and development initiatives both in the Town Center and in other areas of the community. The Steering Committee and stakeholder interviews provided valuable information and feedback. A traffic model includes new traffic counts at key locations and a review of parking and circulation conditions in the Town Center. A community workshop provided additional insights and helped to articulate the goals for the area.

This process included an exploration of alternative concepts for improvements in the Town Center and redevelopment of key sites that could serve as prototypes for reinvestment. The alternatives were discussed and evaluated, including active input from a community meeting and discussions with property owners, public agencies and the Steering Committee.

The final steps in the process translated the preferred approaches into a clear community vision, with a methodology for implementation that reflects the preference of the community. This methodology includes a program of private and joint public/private reinvestment, improvements to the entire circulation network, special regulations and incentives, and other actions.

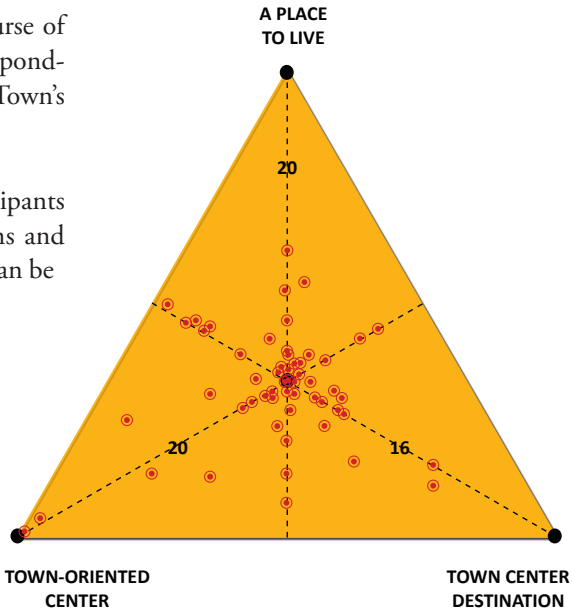
Participants

The planning process actively engaged a broad spectrum of citizens, property owners and business leaders, town staff and public agency representatives at each step.

A series of public workshops and presentations were held during the course of the planning process, with excellent attendance and broad participation responding to active outreach, including posted information and updates on the Town's website.

An initial public workshop was held at the Windsor Arts Center; the participants indicated specific locations in the Town Center where there are problems and opportunities for productive change, and generated lists of priorities that can be addressed by the Town through this TOD master planning process.

A second workshop at the Town Hall focused on the choices for the future in the context of the economic, development, circulation, and parking studies prepared by the consultant team. This session included a survey of **visual preferences** about the "look and feel" of Windsor. The session asked participants to express their preferences for the predominant character of the Center: should it be primarily a residential district (a "Place to Live"), a special destination for people inside and outside of the community (a "Town Center Destination"), or a district focused upon services and amenities for the townspeople (a "Town-Oriented Center"). The majority of participants indicated a preference for a balance among these three characteristics, rather than allowing the Center to become specialized.



A third workshop included a presentation of the principal concepts contained in this Executive Summary, and provided opportunities for comments and input.

The final public presentation focused on the recommendations stemming from the process and the actions that can be taken to fulfill the community vision.

Professional services for this project have been provided by a team led by The Cecil Group (planning, urban design and landscape architecture): HDR (regional economics and station area planning); TR Advisors (real estate and development); Milone & MacBroom (traffic and circulation planning, environmental planning); and Nelson Nygaard Consulting Associates (multi-modal connectivity, parking).

THE TRIANGLE EXERCISE

One workshop explored three broad approaches to strengthening Windsor Center. A "Place to Live" approach would focus on housing creation and choices. A "Town-Oriented Center" approach would emphasize local retail and services, while a "Town Center Destination" would establish regional destinations that attract visitors and commerce. In the end, the public preferred a balanced approach combining aspects of all three, as shown by preference dots placed on the triangle graphic above.

CONTEXT

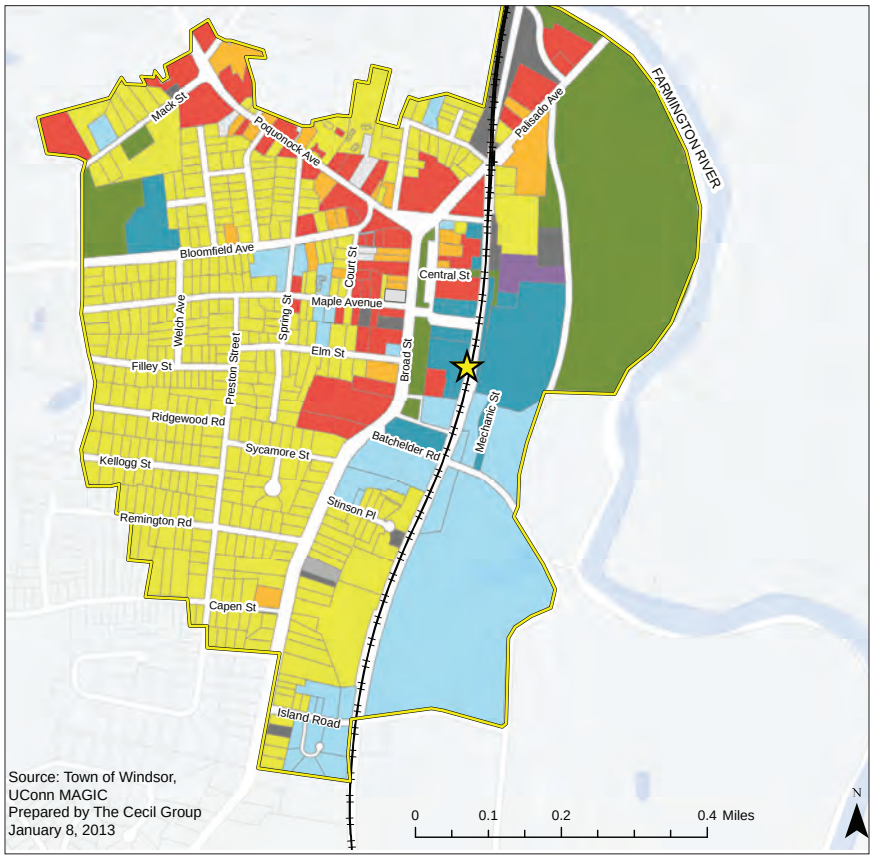
Conditions and Trends

The planning ideas for the future of Windsor Center require an overall understanding of the existing conditions and trends in land use, economics, development, traffic, parking and many other factors. This context for planning consists of both opportunities and potential barriers that must be taken into account for successful implementation of the community's vision. This brief review underlines some of the important observations that emerged as part of the research phase of the project.

Land Use and Development Patterns

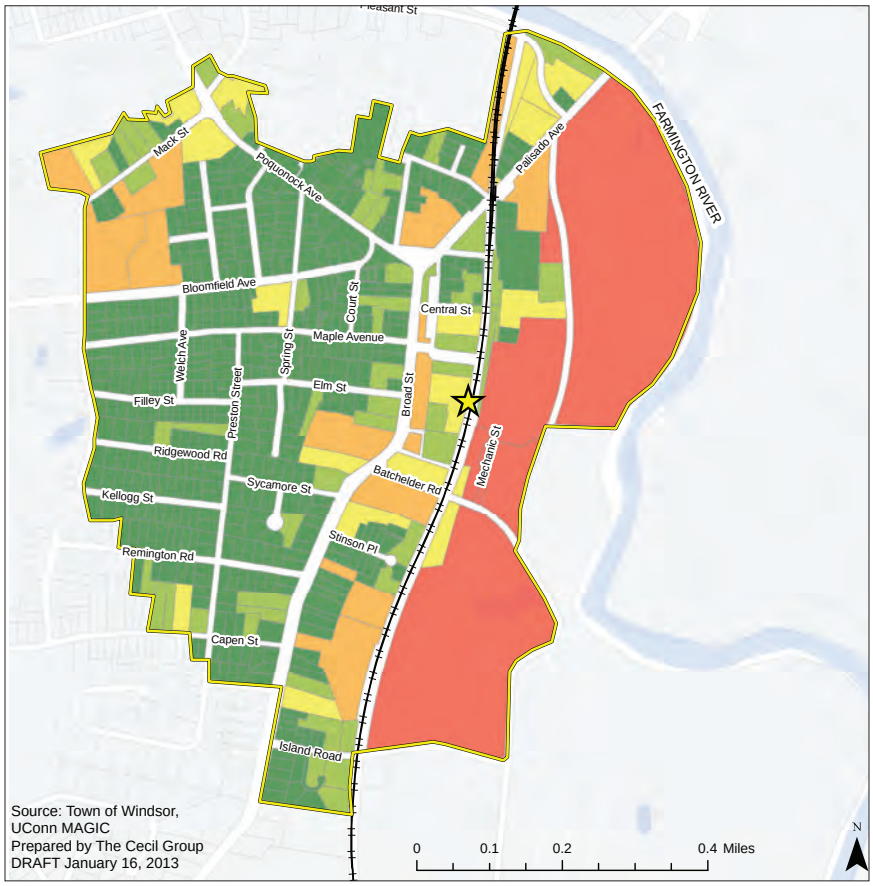
The 600 properties in the planning area host a broad variety of uses. The predominant use is housing (74 percent), and the majority of the residences are single-family homes. Most of the remaining land is distributed among municipal, institutional, commercial or mixed-uses along Broad and Mechanic Streets and Poquonock and Palisado Avenues. As a result, increases in multi-family housing, commercial and institutional uses can occur in specific locations, without tipping the overall balance and benefits of preserved and enhanced, walkable, low-scale neighborhoods clustered around the Center.

- **The Center as an edge of the community –** Windsor Center benefits from the open space along the Farmington River, including its wetland edges. But the river forms an unpopulated barrier to the east, so that trade areas, traffic access along road connections, and opportunities to develop land for transit-oriented businesses and residences are restricted to areas along the rail alignment and to the west.
- **The land use patterns have largely compatible relationships –** The Center benefits from transition areas and features such as the main streets and the rail corridor that separate and organize different uses and densities, so that issues of compatibility occur in limited locations and can be addressed on a case-by-case basis.
- **Persistence of small properties, with change focused on larger parcels –** The typical parcel sizes in the Center are quite small, a remnant of the traditional small business and residential homes in compact patterns that were a hallmark of the streetcar era, when proximity of houses and business within walking distance of the Center and the transit junctions was a matter of important convenience. As a result, significant redevelopment is most likely to occur within the handful of relatively large lots or assembled parcels; most redevelopment in other areas will be renovations, additions or small developments similar to existing patterns.



Land Use

- Residential
- Mixed Use
- Commercial
- Industrial
- Institutional
- Civic
- Mun. Parks/Open Space
- Parking Lot
- Utility
- Vacant



Parcel Size

- < 0.5 acre
- 0.5 - 1 acre
- 1.01 - 2 acres
- 2.01 - 5 acres
- > 5.01 acres

Economics and the Real Estate Market

With its post office, library, pharmacy, banks, churches, food market, restaurants, retail establishments, realtors and smaller offices, Windsor Center currently serves as a local service center for area and town residents. Diversified retail is situated in regional malls and along major arterials within a 10- to 15-minute drive, including locations in West Hartford, Enfield and Manchester. Windsor provides a significant portion of commercial, office and light industrial uses for the region, but these are located in other areas of the community that have room for expansion and excellent arterial and highway access. As a residential community, Windsor Center offers many advantages, including its small town atmosphere and relatively low property taxes, and amenities and services supported by a strong tax base.

Regional Attractions

- **Strong housing demand –** Windsor Center is likely to absorb significant future demand for housing due to its advantages of relative affordability, transit service, and a convenient, walkable fabric linked to local services and amenities. The new residents will be buyers and renters attracted to the existing stock of housing and well-designed multi-family units; several hundred units could be added over time on a handful of buildable parcels. Windsor Center will appeal to the strongest market segments in the Greater Hartford region – young people and "Baby Boomers" looking for smaller rental units in a pleasant, walkable and transit-linked place.
- **Moderate demand for destination retail, restaurants, entertainment and recreation –** The demand for uses as a local retail and service center is not likely to increase substantially, but will keep pace with additional housing provided in the Center. However, there are opportunities associated with uses that become destinations for people in Town and beyond the Town's borders. These include good restaurants, specialty shops, recreation "wellness centers" and entertainment venues offering small performances or art-house type movies.
- **Modest demand for commercial space –** Additional demand for office space is likely to be modest, consisting of professional offices and small businesses that want to take advantage of the pleasant village environment and proximity to growing regional and intercity rail service. Similar communities have experienced an increased demand for "live/work" spaces for individuals who create unique products or can rely on computers and internet connections to conduct their business.

Planned New Development at Mechanic Street

Urban Design Characteristics

The urban design of a place offers keys to the composition of an entire district. The planning area exhibits the "classic" form of a traditional New England village center, assembled over its history in response to incremental changes in transportation, economics and community culture. It is important to understand the Center as an adaptation to changing circumstances, rather than as a fixed design composition that emerged at a single point in time.

- **A New England common –** The Town Green and the civic and commercial buildings that line it create a true common space that has an informal landscape, dotted by trees and memorials. The Town Green emerged from a simple beginning, as land set aside in the Center associated with a main street; modified over the years, it has adapted to respond to the civic, circulation and open space preferences of the community. In contrast, most of the buildings around its perimeter were formal architectural compositions, expressing popular styles of their era – including but not limited to classically-inspired styles. These iconic features have been designated as part of the Broad Street Green National Historic District, which supports standards and incentives for preservation.
- **East of the tracks –** The areas east of the tracks were once relegated to industrial and commercial uses clustered near the depot, taking advantage of rail access and separated from the housing.
- **Auto adaptations –** Some properties along the main arteries into the Center were adapted during the auto-oriented decades of the last century, maximizing parking areas in front of low buildings and diminishing the pedestrian environment. This pattern reaches all the way to the edges of the Town Green, with community-serving retail like Geissler's grocery and the complex of buildings at the former Arthur's Drug Store site.
- **Neighborhood fabric –** The residential blocks, lots, and houses form a fabric that composes much of Windsor Center. Although the styles of the single-family and two-family houses reflect various periods of growth and prosperity, the overall pattern is one of closely-spaced buildings and landscaped front yards. Sidewalks are common but not entirely complete, and various approaches have been taken to accommodate parking in the front, side or back yards.

Circulation Patterns and Issues

Windsor Center is located one mile east of the regional north/south highway corridor (I-91) and 2 ½ miles north of the interchanges with the major east-west highway corridors (I-291 and its connections to I-84). As a result, the Center benefits from excellent nearby regional access. But because the Town is bounded by the Connecticut River to the east, the local roads are largely dedicated to serving traffic within a relatively small area under normal conditions. This circumstance changes occasionally: if I-91 is significantly congested or blocked, motorists cross through Windsor Center as a convenient bypass.

- **Excess paving and the connectors –** Portions of the streets within Windsor Center are wider than required to serve existing or projected traffic demands. The Center is connected to the town and region by several converging, connecting routes extending to the south, north and west: Route 159 (Broad Street/Palisado Avenue), Route 305 (Bloomfield Avenue) and Route 75 (Poquonock Avenue). The traffic capacities of these connecting avenues – which date back to an era before I-91 was built – are significantly more than the traffic flows for typical and peak hour conditions. In addition, and similar to other similar suburban communities, auto traffic has entered an era of slowly declining volumes. For Windsor Center, the Average Daily Traffic on these connector streets has declined by about 3 percent, from 70,800 to about 68,600 vehicles over the past decade.

Existing and Proposed Sidewalks

- **Local streets and cut through traffic –** The other streets in the district directly serve Windsor Center and its uses. In some locations, cut through traffic between the connector avenues occurs, and motorists tend to speed through neighborhoods as they use these shortcuts.

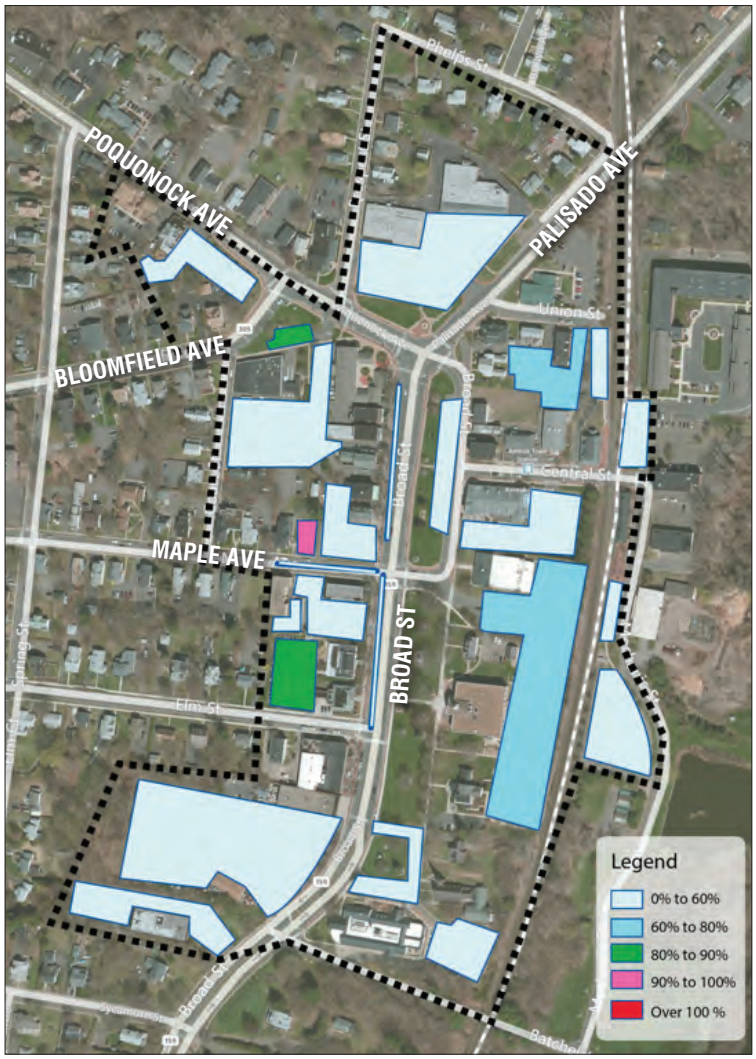
- **Incomplete pedestrian network –** The pedestrian network of paths and sidewalks in the Center is incomplete, with significant gaps along some of the streets and at the rail underpass of Batchelder Road. There is only one sidewalk that extends across the rail alignment, at Central Street.

- **Bicycles and the Center –** While there is an excellent Windsor Center River Trail along a loop extending along the Farmington River, bicycle facilities are generally lacking in the Town Center today.

Parking Conditions

Even though a compact, transit-oriented district can cater to pedestrians, Town Center will need an adequate and convenient supply of parking so that workers, visitors, patrons and residents can have the benefits of mobility; inadequate parking will impede reaching the economic and civic goals. An excess of parking results in expensive and inefficient use of land that could be put to better use – producing revenues, generating activity and taxes, or contributing to the open space and pedestrian network. Similar to many other suburban communities, Windsor's Town Center has a surplus of parking spaces. However, the spaces are not consistently located, shared or managed to be a fully effective resource in supporting business and Town purposes. This leads to overcrowding on some lots, while empty spaces are not far away.

- **Parking supply –** Windsor has approximately 1,160 parking spaces, with 30 on-street spaces in the the core of the Center. This includes over 20 parking lots located in this core area. However, on-street parking is limited and is not consistently aligned with retail frontage; only three streets in Windsor Center have dedicated and marked on-street parking today.
- **Utilization of parking –** The consultant team undertook an inventory of the private and public parking lots and on-street spaces in the Town Center and evaluated the extent that they are occupied (the "utilization rate"). For the entire area, parking utilization is low, with less than 60 percent of total existing parking spaces currently used.
- **Future demand, transit, and development –** Additional development and increasing rail trips will increase demand for parking in the Town Center. To the extent that this demand can be satisfied through improved management, shared use, redevelopment and reallocation of existing lots, and the provision of on-street spaces, the existing parking surplus can be brought into balance and future demand satisfied.
- **Zoning standards and opportunities for shared parking –** In its zoning, most of Windsor's required parking minimums are higher than national Institute of Transportation Engineers (ITE) standards indicate and much higher than shared parking would necessitate. Although Windsor zoning does have a shared parking provision, it limits the number of spaces and types of uses that can be shared.



Existing Parking Utilization

Survey of January weekday conditions, 2013

Community Character

The characteristics of Windsor's population and the attributes of the Town indicate opportunities to strengthen Windsor Center as a place to live, work and enjoy the shops, restaurants, destination, and events within an increasingly pedestrian and transit-oriented district.

Windsor Center has an estimated population of approximately 1,730 individuals with 64 percent of working age (between 20 and 64 years old). This is a slightly larger proportion of working-age residents than for the entire Town and the region, which both have approximately 60 percent falling within this age bracket.

Windsor Town Hall PHOTO COURTESY OF WOLFMANRADIO [CC BY 3.0 US]

The market assessments indicated that the populations most interested in walkability and good access to public transportation are the "Baby Boomers" and members of "Generation Y" – young people in their twenties and thirties. More than one-third of the Town's population falls into the Baby Boomer category, and a significant number of residents are part of Generation Y today. Because both categories are a growing proportion of the Hartford regional population, Windsor Center may prove to be an increasingly attractive place for new residents with similar lifestyles.

The income profile for residents of Windsor Center is within a relatively small range, with median households levels at about $75,000 – slightly less than the average for the Town as a whole, but greater than the average income for the region. Average purchase prices for housing in Windsor in late 2013 are about 20% less than the pre-recession peaks, and housing prices in Windsor Center appear to be reasonably affordable for households at the median income level.

However, the housing stock within Windsor Center does not offer a significant range of price choices. With its many assets as a compact, walkable community linked to transit and many amenities, it is likely that the area can attract higher income individuals and families and support higher housing prices, if the available housing choices are expanded through redevelopment.

According to long-time residents, the neighborhoods within Windsor Center were once home to many families with children, when the "Baby Boomers" were younger. As the "Generation Y" residents have families in the future, the area could recapture this character by retaining this generation to live in the neighborhood, provided that Windsor attains competitive advantages with the quality of its schools and family-oriented amenities.

Amenities and Attractions

Windsor Center has a collection of amenities and attractions sponsored by the Town and civic-oriented entities that will directly contribute to the future by reinforcing its positive identity and marketable image.

- **Events –** Town Center events range from the seasonal farmer's market that is staged in an open lot along Broad Street to holiday events and celebrations. There are summer concerts on the Town Green; an annual Shad Derby began as a commemoration of the migration of the famous fish up the Connecticut River, and has since expanded to a multi-faceted festival.
- **Arts –** The Windsor Arts Center is a place dedicated to the visual and performing arts, and occupies the historic rail depot freight house.
- **Trails –** The trail system in the Town-owned land along the Farmington River offers recreational walking paths, and is linked directly to the Town Center through trail heads along Palisado Avenue and Mechanic Street.
- **Institutions –** Loomis Chaffee School and its campus are important assets that distinguish Windsor Center as the location of an elite preparatory school and reinforce its role as an important destination for parents, faculty, students, staff, and visitors.
- **Civic Life –** The civic resources include an excellent public library at the end of the Town Green, and the Town Hall, which host numerous meetings and events.

WINDSOR ART CENTER: WINDSORCC.ORG)

CHILI CHALLENGE (PHOTO: WINDSORCC.ORG)

READ ON GREEN GRASS (PHOTO: WINDSORCC.ORG)

SHAD DERBY FESTIVAL (PHOTO: JENNY COE)

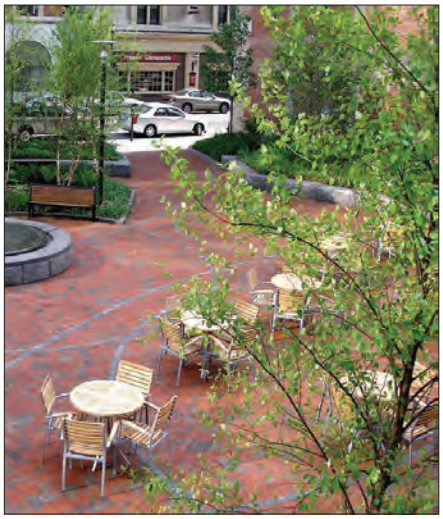
FIRST TOWN DOWNTOWN
WINDSOR, CT
FARMERS' market

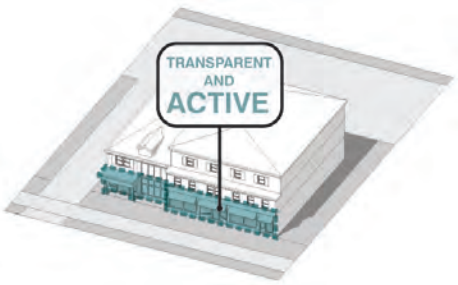
WINDSOR ART CENTER (PHOTO: WINDSORARTCENTER.ORG)

Festivals and events enliven the Green public parks, including the famous Shad Derby and the Chili Challenge.

STRATEGIES

The master plan consists of a series of related strategies to reposition Windsor Center by targeting public investment and drawing private sector and institutional investment through concerted efforts.





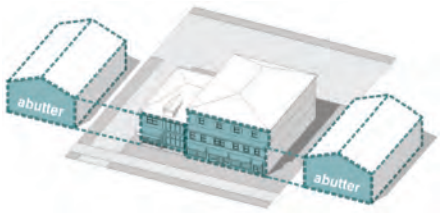
- **Urban Design –** These are the principles and actions that will refine the physical form of the Town Center through its buildings, open spaces, and circulation patterns so that it is perceived as an interesting, coherent and attractive district.
- **Land Use and Redevelopment –** The combination and amount of various uses are critical to creating both a healthy economic environment and a healthy residential district; new uses need to be added and key locations redeveloped over time.
- **Windsor Center Station Area –** The station area needs to be reconfigured to meet future rail station needs; by planning strategically for the adjacent land, this area can accomplish many other goals for the entire Town Center.
- **Circulation and Mobility –** The strategy for traffic, transit, pedestrians, and bicyclists must follow a shared theme and enhance everyone's ability to move easily to, from and within the Center.
- **Parking –** Parking must be designed, implemented, and managed as an area-wide asset by rethinking where and how it will be provided.
- **Complete Streets and the Streetscape Plan –** The network of streets, sidewalks, and associated landscaping cannot be an afterthought, but must be matched to the other aspects of the district.

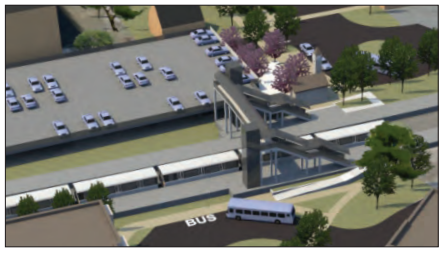
Urban Design

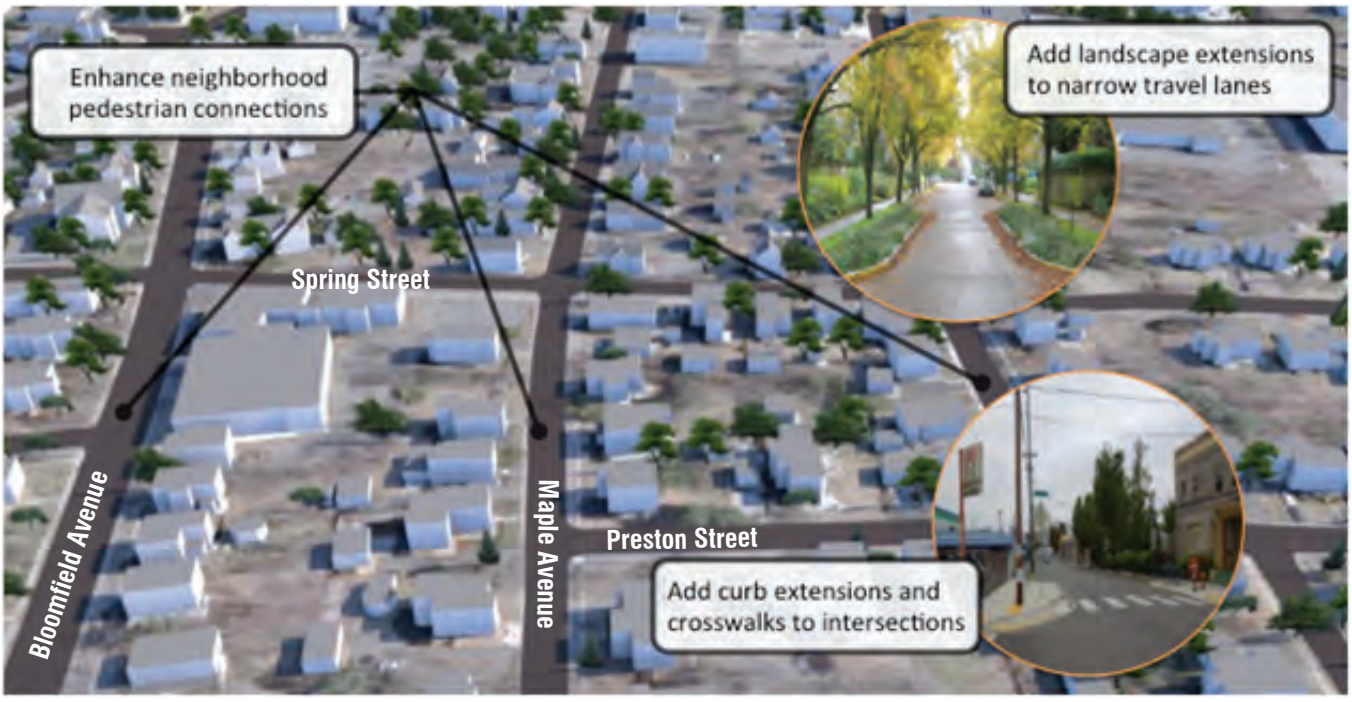
Urban design decisions will reinforce the characteristics of a traditional, pedestrian-oriented town center with distinct sub-areas. There will be a renewed emphasis on the central hub provided at the rail station. The urban design will diminish the visual impact of parking but enhance its convenience by creating great connections from parking spots to the various destinations in the Center.

- **The Town Green and its edges –** The Town Green can be enhanced as a flexible and informal open space, with increased and improved paths to traverse the space and connecting it to nearby areas, encouraging movement between parking, uses and activities including the future rail station. Buildings and active ground floor uses can fill in the edges of the Town Green wherever possible to generate a continuous positive experience for pedestrians. Where this is not practical, a combination of landscape improvements and small retail kiosks – perhaps a mini coffee shop, flower market

- **or the like –** can fill in the gaps.
- **Historic preservation and contemporary buildings –** Windsor's historic buildings are distinguished long-term assetsand the Town can encourage saving, restoring, and improving buildings with historic merit. New buildings can have the integrity and advantages of contemporary styles and expression, but be good neighbors to traditional styles.
- **Continuity of building forms and fabric –** The fundamental pattern of building shape, location, and organization within residential neighborhoods and traditional commercial and civic structures should serve as a guide to the future; the challenge is to repair the fabric, rather than reinvent it.
- **Rail station as a visible, central connector –** The new rail station can be architecturally interesting and a visible connector, by emphasizing its vertical elements and bridge-like crossing creating covered areas adapted to the ground-level needs of the users of this active hub.
- **Reducing the visual impact of parking –** The siting and design of parking lots and a future parking structure near the rail station can limit the visual impact from the pedestrian vantage points of streets and the Town Green.
- **Streetscape as an attractive landscape –** The provision of generous, tree-lined sidewalks and an emphasis on the green landscape at crossing points and along paths is a thematic approach to streetscape design that can be extended throughout the Center.







Recommended Pedestrian Facilities in Residential Neighborhoods.

Land Use and Redevelopment

The Town Center will become a more vital and economically successful district with additional uses on available land, particularly on relatively large parcels that can be assembled. The desirable uses are those that will add to the convenience and quality of the Town Center as a place for residents to live and shop, or that add distinctive destinations and services that will attract patrons and visitors, boosting the market support and expanding business opportunities for the more town-oriented enterprises in the Center.

Multi-family residential development and mixed-use projects with residential and retail or office space are strong, positive candidates for redevelopment of large parcels, including the conversion of underutilized or low-density auto-oriented lots along Poquonock Avenue, Palisado Avenue and Broad Street.

Retention and redevelopment of many existing buildings will be an essential part of this redevelopment strategy. In contrast to the benefits of reusing distinctive historic buildings, the prospective revenues associated with the wholesale redevelopment of sites under current conditions may not be adequate to offset the risks and costs of removing some or all of the structures and replacing them with new buildings. However, very positive, "hybrid" redevelopment of sites could expand, improve or selectively replace existing buildings.

- **Redevelopment sites –** Some sites, like the former Arthur's Drug site, can be partially redeveloped. The Arthur's Drug site could feasibly support a new multi-use building with ground-level retail to cap off the north end of Broad Street, taking advantage of this visible location.
- **The Plaza Building –** Reuse of the historic Plaza Building is a key priority for the Center; innovative reuse of the theater for performances or entertainment may be difficult to achieve, but would reconstitute an important anchor activity.
- **Incremental Improvements –** Some areas, such as the cluster of buildings east of the Town Green and north of Central Street, can be substantially enhanced through parallel, coordinated improvements that share parking among neighboring uses and institute common signage and landscape themes, with a few new structures or additions over time.

Windsor Center Station Area

New train station facilities need to be constructed to effectively serve the expanding regional and intercity rail services stopping in Windsor Center. Studies undertaken by the Connecticut Department of Transportation call for long, raised platforms along both sides of a track in a location just south of the Central Street grade crossing, which will allow trains to stop without blocking the intersection. A pedestrian bridge will connect the two sides of the track. Initial concepts include a parking structure adjacent to the tracks on Town-owned property. The siting and size of such a structure would allow "liner" buildings for a residential or mixed-use frontage along Mechanic Stredet.

This study has evaluated the siting and configuration of the parking and station area within a broader perspective, taking into account the additional goals and opportunities associated with the entire Town Center as a transit-oriented district. Principal recommendations include:

- **Create a shared-use parking structure behind Town Hall –** There are distinct advantages associated with creating parking decks over the existing Town parking lots on the west side of the track. In this location, the parking supply can efficiently support a range of uses in addition to rail-related demand, such as parking for Town Hall, other uses in the Town Center and special events.
- **Transit hub on the west side –** Creating multi-modal access across the rail alignment will be more convenient for most people accessing the station, and will reduce potential congestion and conflicts along Mechanic Street.
- **Redevelopment of the existing west side parking lot –** The existing Town lot on the west side of the track can be redeveloped as a companion to the new housing being created across Mechanic Street. The resulting ensemble will create a strong cluster of new development, linked by the pedestrian bridge to the Town Center, at the trail head to the Farmington River paths and open space.

Circulation and Mobility

The strategy to alter and improve circulation patterns will enhance mobility for everyone using Windsor Center, with the exception of motorists who occasionally cut through the Center or its neighborhoods for their own convenience.

- **Broad Street reorganization –** Broad Street can be substantially improved as a Town Center circulation asset by reducing excess paving where it is not needed, tightening up intersections so that they function appropriately, expanding pedestrian paths and shortening crosswalk distances and adding on-street parking. Except at certain intersections, the level of traffic using Broad Street only requires one travel lane in each direction. Even with the need to provide turning lanes to avoid congestion at the intersections with Poquonock, Palisado, Maple Avenues and Batchelder Road, there are substantial opportunities to extend striped, parallel on-street parking along many blocks to place spaces closer to shops, broaden sidewalks and expand the green space and provide curb extensions at street ends.
- **East-west connections –** There are several short-term and long-term opportunities to improve the connections across the rail tracks. In the short term, re-alignment of the two-lane Batchelder Road underpass can provide enough space to provide a sidewalk – a fundamental safety improvement that is needed. In the long term, state and/or federal funds should be sought to create an adequately wide underpass to accommodate bicycles, pedestrians and cars with adequate visibility for everyone.
- **Traffic calming and a neighborhood pedestrian network –** A series of traffic calming enhancements can be designed to decrease the convenience of the area for cut-through traffic, while pedestrian-friendly sidewalks and crossings can be extended to every corner of Windsor Center.

WINDSOR CENTER AS A MOBILITY HUB

1. New rail depot with vertical circulation to parking and bridge over the tracks
2. Pick-up and drop off areas for cars, shuttles, and buses
3. New multi-use parking decks
4. East-west pedestrian corridor
5. Walking loop around the Town Green
6. Secondary pedestrian connections
7. Open space trail links

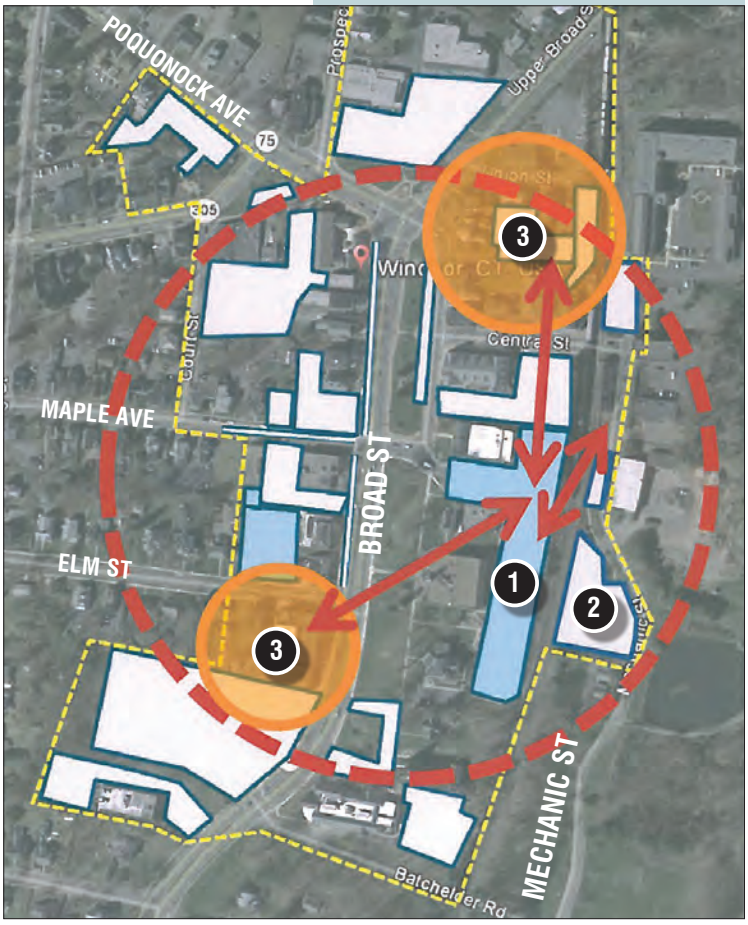
Parking

Through a series of incremental changes and deliberate management of parking resources, the Town and property owners are in a position to enhance convenience, secure the necessary supply of parking, and free a great amount of land for development and open space.

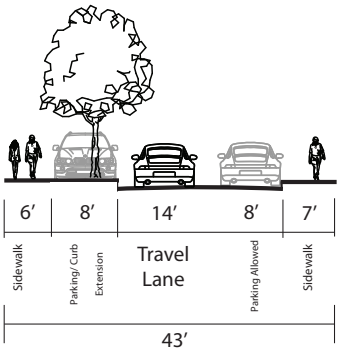
- **Town lots –** The Town-owned lots will become an increasingly important, central resource for businesses, entertainment, and events while creating the supply for municipal facilities and rail passengers, as described in the strategy for the station area.
- **On-street parking –** Striped and managed on-street parking needs to be provided where possible on the blocks around and directly connecting to Broad Street as a key supply of convenient, short-term parking for the patrons of the businesses in the core area.
- **Shared lots –** Cooperative agreements among land owners, supported by the town through its zoning regulations, will allow more shops, businesses and restaurants to locate in the Center by using available parking spaces more efficiently.
- **Public/private collaborations –** The Town can work with property owners to create more parking with flexible uses. For example, the individual parking lots within the block between Central and Union Streets are inefficient. The Town could work with property owners, using a combination of public land, easements, and private property agreements to create efficient parking.
- **Management and regulations –** The Town's zoning regulations and review methods could take full advantage of shared parking solutions and require on-site parking to meet basic requirements for businesses, institutions, and new housing; while avoiding unacceptable negative, off-site impacts for other uses and residents. The responsibility for parking management should be clearly delineated within the Town government, and policies should be established to allocate time limits, fees and enforcement to maximize the availability of convenient parking where it is most needed.

PARKING STRATEGY

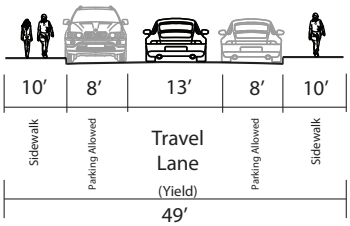
1. "Land bank" the parking lot behind Town Hall for a future potential parking structure
2. Free up existing commuter parking lot for future development (parking utilization rate here is currently less than 5 percent)
3. Support redevelopment of Central Street block, theater at Plaza Building, and other businesses within walking distance.



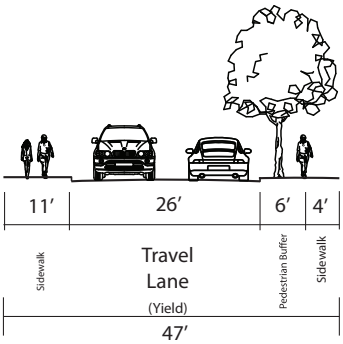
Proposed Type A Street



Proposed Type B Street



Proposed Type C Street



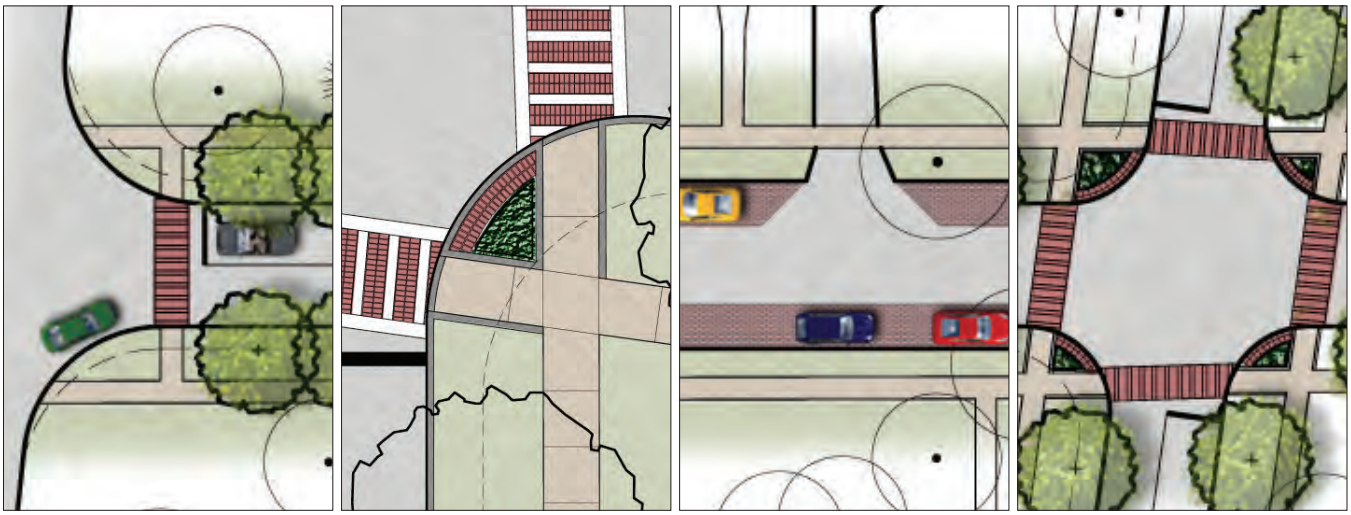
Sample street cross section standards that balance vehicular flow with pedestrian needs

Complete Streets and the Streetscape Plan

In addition to basic vehicle circulation, the concept of "Complete Streets" seeks a comprehensive approach to street and streetscape design and accomplishes many of the community's purposes. A menu of recommendations provides goals for all of the streets within Windsor Center, while palettes of streetscape improvements provide guidance in terms of design elements.

- **Traffic calming features –** The menu of street design techniques includes features such as "neck-downs" to slow turning traffic at key intersections that serve as the gateways in and out of residential neighborhoods. In some locations, motorists cut through the neighborhoods to find intersections where they can make easy turns onto Broad Street.
- **Street cross sections –** Cross section standards can be created for a hierarchy of streets, so that the road design responds to different vehicle flows and speeds while accommodating sidewalks in nearly all locations. This will require extending and improving sidewalks in areas where they are lacking or insufficient; for example, along Palisado Avenue where it drops below the rail overpass.
- **Keeping residential streets narrow –** Design standards can emphasize the benefits of keeping residential streets as narrow as practical; this allows for sidewalks and on-street parking, but tends to slow traffic in keeping with the character of the blocks.
- **An east-west corridor: Maple to Mechanic –** The complete street network can emphasize a visibly-improved pedestrian-oriented corridor stretching from Mechanic Street, across the new rail station, across the Town Green and into the neighborhoods, with specially landscaped intersections along the way.

Diagrammatic Streetscape Plans



ACTIONS AND ROLES

With concerted actions, the entire vision described within these pages can be achieved in ten years. These actions can begin immediately with some of the simpler components – incremental street improvements, parking initiatives, marketing, regulatory changes and many other activities. The larger public investments will require securing appropriate resources and adequate time for design, reviews, approvals, and construction.

The Town will continue to play a central role in organizing the public investment in infrastructure and facilities. But it cannot succeed alone. It will also depend upon the active engagement of the organizations devoted to the programs and businesses in the Town Center, stewardship by individual property owners that reinvest in their properties seeking the long-term benefits associated with changing the course of the entire district and the many citizens who value the Center as the heart of their Town.

First Town Downtown is representative of the type of civic and business oriented organization that can play increased roles within the framework that this plan provides. This will require aligning its mission, resources and responsibilities with appropriate components of this implementation plan.

First Steps: Short Term Actions

A number of short term actions are needed to continue the progress that has been made, and set the stage for subsequent public and private reinvestment, including:

- **Support for housing –** The Town can provide financial incentives for housing redevelopment or mixed-use development as a method to allow

A VISION FOR THE CENTER

Community participation at public workshops helped to establish the Vision for WIndsor Center as a place that is:

- walkable and connected,
- Viibrant with diverse uses,
- Accessible and safe, and
- Attractive and distinctive.

These goals in turn informed the solutions for the Redevelopment Strategy.

feasible market-rate redevelopment and reposition the Town Center for future private sector investment.

- **Interim "road diet" improvements along Broad Street –** At a low cost, the Town can begin re-organizing Broad Street with a project that includes restriping and other low-cost changes to better organize circulation flows, allocate marked spaces for parking and improve pedestrian crossings.
- **Policy direction for the rail station and parking structure –** The town's approved policies can direct ConnDOT to plan the location and configuration of the rail station, the amount and location of rail-related parking and access consistent with the conclusions of the *TOD Master Plan*.
- **Shared parking solutions through public and private partnerships –** on some lots in the Center, parking is limited because of the size and configuration of the buildings and ownership. The town and private property owners can form alliances to re-organize and create use agreements to share parking.
- **Image –** Efforts with immediate benefit include short-term funding or loan assistance for correcting deteriorated property conditions such as façade or temporary site improvements that clean up and improve the appearance of key locations and features that influence the image of the entire district. This could include a rehabilitation of the marquee in front of the Plaza Building, for example.

Implementing Development and Redevelopment

Developers of new projects and redevelopers of existing buildings face market challenges over the next few years in many instances because the costs of development can exceed the revenues that the market can provide. This will change, as the positive improvements make Windsor Center an increasingly desirable place to live, shop, or work. To improve competitiveness, a number of steps can be taken.

- **Special assessment or tax increment "mini-districts" –** Working with property owners, the Town can organize special tax district mechanisms or tax-increment financing that will channel a portion of future tax revenues to finance basic public parking, infrastructure, or other improvements for target blocks or properties in concert with private sector redevelopment.
- **Opportunities for historic tax credit financing –** State or federal historic tax credit financing may be used to make some renovations feasible. The Town should sponsor a study of the potential for such financing in Windsor Center, and use advice or assistance that may be available through advocacy organizations such as the Connecticut Trust for Historic Preservation.
- **Façade and signage improvement program –** A program to provide low-cost loans or grants to commercial properties for façade and signage improvements should be advanced with participation by local banks and organizations.

- **Financial Incentives –** Amend the Town of Windsor's fixed assessment policy to encourage development of quality market rate multi-family housing.

Accomplishing Improved Circulation and Parking

The circulation and parking improvements can be accomplished incrementally; including the following steps.

- **Reconfiguration of Broad Street and its intersections –** The design and reconstruction of several blocks of Broad Street will be a relatively expensive undertaking; the Town will need to pursue State and Federal resources through existing programs and new opportunities that may arise. As an interim step, initial design and engineering plans can be created to establish refined cost estimates and to solidify key agreements about the design concepts with ConnDOT.
- **Incremental street and sidewalk changes –** Incremental improvements along area streets and for key sidewalks and crossings can be accomplished by incorporating the recommendations into ongoing repairs and upgrades while more extensive resources are identified and secured.
- **Parking management –** The town can establish a specific parking management committee to create consistent policies and institute changes in a coordinated manner.

Refining Regulations

Some of the Town's regulations and design review practices can be refined to enhance the quality and value of the district.

- **Design guidelines –** Design guidelines should be established to ensure that new buildings and renovations are excellent neighbors to the existing fabric and the historic context of Windsor Center. Guidelines describe preferred approaches to facade articulation and building massing, and criteria for the siting of buildings, parking, and landscaping to create quality and consistency in the area's overall built form. These guidelines can be directly incorporated into village district zoning.
- **Zoning and mixed use –** The current zoning might be refined, over time, to further support the goals of mixed-use development and to ensure the value of investments and property for the district. Changes could build upon the existing system of allowable uses, but provide additional

flexibility for emerging use categories that are appropriate for mixed-use transit-oriented districts.

ENGAGING DESTINATIONS

Surveys and workshops revealed that the destinations that residents and visitors would most like to see in Windsor Center include:

- Destination retail
- Music / film venue at Plaza Theater
- Additional restaurants
- Canoe / kayaking river launch
- Regional bike path connection
- Regional sports complex
- Art and cultural attractions

Expanding Marketing of the Town Center

The Town and First Town Downtown and its businesses provide an excellent marketing resource for the Town Center today. Building on the expanding transit and the information assembled for this study, additional marketing could attract new businesses and patrons to the Center. Specific recommendations include:

- **Outreach program for restaurants and food establishments –** A "matchmaking" initiative can be undertaken to actively identify potential restaurateurs or food-oriented establishments, and pair them with potential landlords or developers for targeted properties.
- **Repair and adoption of the theater marquee for public announcements –** the historic theater marquee at the Plaza Building can be refurbished with shared funding and an agreement among the property owners, stewardship organizations and the Town Offices, and used to announce events in the Town Center, until a final tenant for the space is in place.
- **Marketing of the theater space for an entertainment tenant –** A concerted initiative can be undertaken to work with the property owner and pro-actively solicit, identify, and secure a high quality tenant to use this unique space.
- **Development inventory –** A site-specific inventory of targeted properties with redevelopment potential can be assembled with the cooperation of existing owners and be regularly updated as a communication tool for prospective buyers and investors in the future of the Town Center.

Leveraging Public Land and Facilities

Innovative use of public land and facilities is an integral aspect of the redevelopment and transit-oriented vision.

- **Aligning the Town and State approaches to the station area design –** Town Offices can work closely with participating state agencies to approve the location and parking program for the station components and parking structure, and advance the design process in concert, so that the final result optimizes transit-oriented development and economic benefits.
- **Use of surplus public land to support development –** The current disposition of the Town-owned former park equipment garage and storage yard for multi-family housing is precisely the type of initiative that will create value and vibrancy for the entire district. Similarly, the Town should eventually repurpose the land adjacent to the new rail station for more Mechanic Street redevelopment. Also, the Town of Windsor should obtain excess land from the state at the intersection of Poquonock and

Palisado Avenues, and then expand the potential for development on the adjacent site in keeping with the goals for the Center.

Enhancing Open Space and Amenities

The Town is unusually well-positioned in terms of the open space and amenities within and near the Town Center. Additional actions over time could include:

- **Pop-up food and services –** The Town can actively promote locations for temporary business opportunities that rent bicycles or kayaks for trips along the river, station food trucks around the Town Green and maintain and expand the successful farmer's market.
- **Trailblazing and wayfinding signage –** Signage with directions to popular destinations and interpretation of natural and historic resources in the Town Center would make the area more enticing to both visitors and locals.
- **Public art and performances –** The activities and serendipitous public art installations provided by the Windsor Arts Center and its supporters add an extremely valuable dimension to the Center and the community. The cultural dimension should be adopted as part of the theme, image and life of Windsor Center.

Master Plan

WINDSOR CENTER

TRANSIT-ORIENTED DEVELOPMENT

Master Plan and Redevelopment Strategy

TOD MASTER PLAN

CONTENTS

FIGURES

1 INTRODUCTION

This *TOD Master Plan and Redevelopment Strategy* is a guide for reinvestment that will reposition Windsor Center, building upon its historic character and many assets to create an increasingly vibrant business hub, excellent place to live, and attractive civic destination serving the needs of the community.

This report is the product of a planning initiative undertaken by the Town through a participatory process that engaged the community and key stakeholders in the future of Windsor Center. The process was guided by a Steering Committee and supported by a professional consultant team. The resulting *TOD Master Plan and Redevelopment Strategy ("TOD Master Plan")* reflects the vision that was created through the community process and provides recommendations for actions that can achieve this vision. As a technical report, this TOD Master Plan describes the studies and observations of the participating professionals that served as a basis for their recommendations. As a strategic guide, it includes an *Implementation Plan* that indicates priorities and roles that can be played to accomplish the vision over time.

This initiative takes advantage of a growing trend in community economics and downtown revitalization associated with improved transit. Convenient transit access is an increasing consideration for the location and expansion of businesses, housing and institutions. A new transit station and expanded rail service is planned for Windsor Center that will create more frequent regional and intercity links. A coordinated plan can maximize the benefits of this transit accessibility. Typically, the benefits of transit extend about 1/2 mile from a rail station; this almost exactly coincides with the boundaries of the traditional Town Center and the adjacent residential neighborhoods.

Reinvestment is also being attracted to compact, walkable districts. As a result, this report uses the opportunities of transit as a starting point, but conveys a combination of strategies and recommendations that support the broader vision for Windsor Center as a high quality mixed use district with the special characteristics identified by the community during the planning process.

The community's vision for Windsor Center builds on its current strengths, valuing it as a compact district that takes advantage of transit and reinforces all of the uses by becoming an increasingly walkable, well-connected cluster of uses, places, services and amenities. Participants in the process want to enjoy a vibrant district that boasts a diverse mix of uses that enhances the area as a place to live, work, visit and play. To achieve this, the Center needs to be a convenient district that is easy to access from other areas and where pedestrians, bicycles and automobiles can get around safely and efficiently.

Design is important to the community. Many suggestions called for a an attractive and distinctive Center, accomplished in part through the urban design of its streets, ways and public spaces. The "fabric" of a district is created by the composition of the buildings and open spaces, and their relationship

The components of this report provide a vision for Windsor Center to leverage its many assets and help build an increasingly successful future.

The location of the regional and intercity rail station in the Town center is one of these assets, and will become increasingly important in the future. Both existing and new development can take advantage of their proximity to this station. This key opportunity is called "Transit Oriented Development" (TOD), and gives rise to a theme of this master plan. As a TOD Master Plan, this report indicates how Windsor Center can best take advantage of this asset, over time.

This report also provides a broader plan for coordinated actions and improvements that will strengthen Windsor Center as a place to live, work, visit and enjoy.

to streets and parking. The "fabric" of district can be improved and expressed with the architecture of its constituent buildings that preserve and enhance the existing village character with its historic and iconic buildings and Town Green, while encouraging innovative new uses which will provide additional attractions for people to come to Windsor Center.

Master Plan Topics

This *TOD Master Plan* addresses specific topics, which have been the subject of the studies, discussions and the recommendations within this report.

A vibrant Windsor Center relies on a number of strategies, including redevelopment and infrastructure improvements. The challenge is to revitalize the Center while retaining its New England village characteristics.

- Land Use and Redevelopment - The *TOD Master Plan* identifies opportunities for real estate investment and private sector redevelopment. The planning is based on a evaluations of current and future market conditions, and recognizes the importance of key land parcels as prospective sites for positive change.
- Windsor Station Area - The land around the future rail station provides many opportunities to support and enhance the entire Town Center. Most of the key parcels are owned by the Town. The *TOD Master Plan* illustrates how strategic use of the land can create a transit hub, provide a central parking structure supporting many different needs. It explores the opportunity to enhance the Mechanic Street redevelopment area with additional housing and other uses, and considers how to incorporate an attractive pedestrian bridge linking the east and west side of the tracks.
- Urban Design - The urban design focus incorporates studies and methods to enhance the value of the entire district through coordinated, well-designed improvements.
- Circulation and Mobility - This planning initiative includes studies and recommendations to support a circulation system that is safe and is aligned with the community vision for the Town Center. This topic consider vehicles, pedestrians, bikes, shuttles and buses - in addition to the train station.
- Parking - The *TOD Master Plan* addresses many issues associated with planning for appropriate parking that is convenient, well-managed and supports the entire district including the individual uses that compose Windsor Center.
- Complete Streets and Streetscape - Current planning and engineering practice emphasize having a complete strategy for the design of streets and streetscapes so that they contribute to the quality and safety of the districts they support. This TOD Master Plan provides suggestions and recommendations for consideration by the the Town as options for future improvements.

Master Plan Goals

A series of community goals inform the entire *TOD Master Plan*. These goals are articulated in the Executive Summary, and were drawn from the community workshops, meetings and discussions, and included:

- Provide a balanced set of uses and amenities – The Center should have vibrant and diverse uses that serve the Town and are attractive to visitors and businesses.
- Attract redevelopment to key sites – Redevelopment should include new housing to increase the population in the district and new uses to attract new and current residents and complement the existing businesses.
- Link new development to transit-oriented development – All new development should be oriented to the rail station and take advantage of the additional mobility provided by improved connections.
- Compact, connected uses and places - new development should complement the established, compact patterns of streets, blocks, and buildings.

Contents of the TOD Master Plan

The remaining sections of this *TOD Master Plan* provide the strategies and implementation steps to execute these goals. *Section 2.0 Land Use and Development* addresses redevelopment, station area, and urban design strategies. *Section 3.0 Mobility* addresses strategies for circulation (including vehicles, pedestrians, and bicycles), parking, and complete streets.

These strategies address the Town's goals by analyzing the existing conditions in Windsor Center (documented in *Appendix 1.0 Existing Conditions and Trends*) and providing detailed recommendations to address both those conditions and future opportunities for development related to the expansion of rail service. Appendix 1.0 also contains case studies of communities with similar conditions and/or challenges.

Section 4.0 Implementation Plan and Schedule breaks these recommendations down into specific action steps to address each of these strategies. Each step includes the responsible entity or entities and the priority level. Section 4.0 is a "living document" – one that should be reviewed and updated at least once a year to track progress towards the Town's goals and reorder the priorities as each step is completed.

Appendix II: Regulatory Framework contains draft zoning changes, design guidelines and a parking management strategy for review and possible implementation by the Town.

Appendix III: Tools and Resources offers some additional information on marketing and funding strategies.

2 LAND USE AND DEVELOPMENT

This section includes the strategies for redevelopment within Windsor Center, specific strategies for the area around the new rail station and urban design strategies to guide redevelopment so that it reinforces the current New England Village pattern.

Redevelopment Strategy

Windsor Center needs additional uses to draw residents, other businesses, and visitors. Development of selected parcels can bring positive change to the Center, including new businesses and residential units on sites that are not at their full potential now.

Additional uses are needed in the Town Center for it to become a more vibrant and economically successful district. This can be done with available land and, where practical, relatively large assemblages of parcels. The most desirable uses are those that will add to the convenience and quality of the Town Center as a place to live or for nearby residents to shop, or which will add distinctive destinations and services to attract patrons and visitors, boosting the market support and expanding business opportunities for the more town-oriented enterprises in the center.

Redevelopment for multi-family residential or mixed-use projects with a residential component along with retail and/or office space are strong and positive candidates for redevelopment of large lots, including the conversion of underutilized or low-density auto-oriented lots that are located along Poquonock Avenue, Palisado Avenue and Broad Street.

Retention and redevelopment of many existing buildings will be an essential part of the redevelopment strategy. In addition to the benefits associated with reusing distinctive historic buildings, the prospective revenues associated with the complete redevelopment of sites under current conditions many not be adequate to justify the risks and costs of removing some or all of the structures, and replacing them with new buildings. Very positive "hybrid" redevelopment of sites could occur that expand, improve, or selectively replace existing buildings.

REDEVELOPMENT AND DEVELOPMENT OPPORTUNITIES

Key strategic changes and improvements can accelerate the Town's ability to fulfill its goals for Windsor Center. Some of these changes can be accomplished relatively soon; others may take several years to fully accomplish. However, progress on any of these will help shift the quality, activity, value, and image of the district.

North End of Broad Street/Former Arthur's Drug Site

Some sites, like the former Arthur's Drug site could be partially redeveloped, and could feasibly support a new multi-use building with ground-level retail to cap off the north end of Broad Street, taking advantage of this visible location. This site has been analyzed as one of the target sites and is discussed in detail elsewhere in the report.

Figure 1. Keys to the Future of Windsor Center

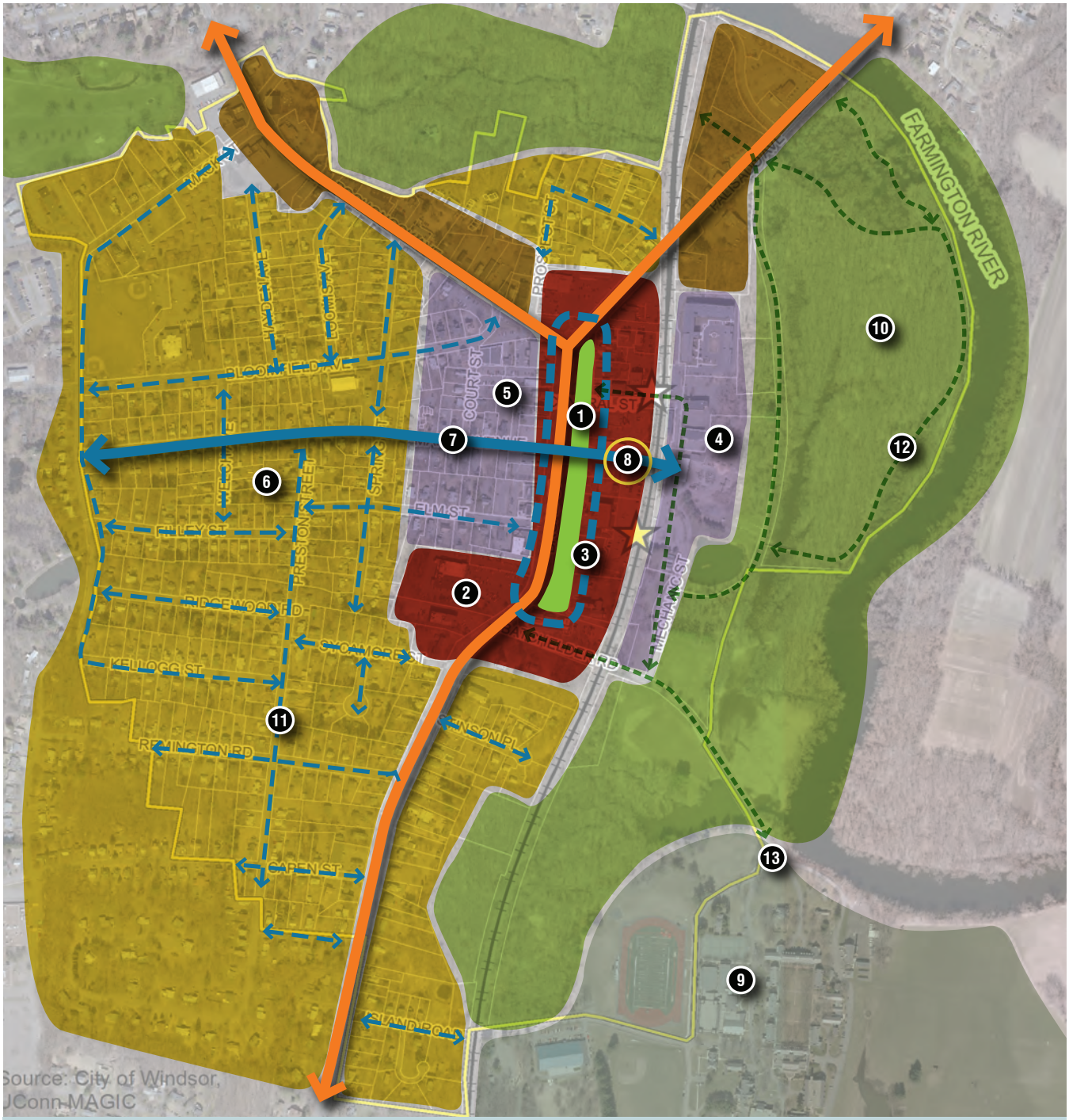


DIAGRAM FOR THE FUTURE

1. Town Green – Enhanced, historic open space
2. Active Core – Active civic uses and business edge
3. Pedestrian Loop – Primary path around Town Center
4. Border (East) – Multi-story and historic developed edge
5. Border (West) – Middle-scale transition area
6. Traditional Neighborhoods – Compact fabric of smaller homes
7. East-west Connector – Continuous pedestrian link
8. Mobility Center – Enhanced parking, and transit connections for all modes
9. Campus – Loomis Chaffee
10. Green Resources – Buffers, preserved wetlands and parks
11. Neighborhood Links – Pedestrian-oriented, traffic-calmed streets
12. Green Links – Paths and trails through open spaces
13. Multi-use Path – River trail connection to Hartford

The former Arthur's Drug site provides an opportunity for strategically-located, multi-story reinvestment that can "top off" the northern end of Broad Street. This site is a prominent, central site that could transform the northern end of Broad Street through development that bridges between the east and west side of the Green, enhancing the value of the entire area. The redevelopment needs to take advantage of the prominent site, enhanced pedestrian links and increased on-street parking associated with the street and intersection changes.

Plaza Building

Reuse of the historic Plaza Building is a key priority for the Center; innovative reuse of the theater for a relatively small but unique entertainment or event destination can be difficult to achieve, but would reconstitute an important anchor activity and should be supported as a goal. The Town should work with the property owners to provide for development, including ground-level restaurants and shops, which maintains the historic quality of the building and vitality that it represented in the area.

Blocks North of Central Street

The cluster of properties and buildings east of the Green and north of Central Street can become a village within a village – an attractive combination of restored historic buildings, new construction and additions connected by shared landscape, signage, walkways and parking resources that enhance the attractiveness and identity for all of the uses; this will require collaborative efforts among the property owners and the Town over several years. This site has been analyzed as one of the target sites and is discussed in detail elsewhere in the report.

Sites along Poquonock Avenue

There are a series of underutilized sites along Poquonock Avenue with automobile-related uses that may receive insufficient traffic over the long term compared to other locations. Potential candidates have been identified in Appendix C: Analysis of Development Alternatives, which shows that most of the sites have significant constraints due to the size and geometry of the parcels. However, there appear to be opportunities over time for site redevelopment with a moderate amount of multi-family housing as part of a mix that may enhance the feasibility of a project. In order to create an improved environment over time, this report includes design guidelines and revised zoning to reinforce a positive redevelopment over time.

Sites along Palisado Avenue

There are a number of parcels along Palisado Avenue that have similar characteristics to those along Poquonock Avenue described above. These parcels should be considered for similar treatment, but with the note that the floodplain is a significant limiting factor for these sites.

Reuse or Expansion of Uses along Broad Street

Some of the buildings along Broad Street do not take advantage of the commercial and retail characteristics of the district and should be repurposed for active programs. Expansion of existing buildings is a more desirable outcome than demolition or surface parking lots along Broad Street. The Town should support the reuse of existing buildings, and the removal of historic or architecturally significant buildings should be resisted.

Sites along Batchelder Road and Mechanic Street

The Loomis Chafee School owns a series of parcels along Batchelder Road and lower Mechanic Street that could be candidates for redevelopment related to the school or multi-family or single-family housing and be valuable additions to the downtown.

Broad Street Reconfiguration

Broad Street can and should be narrowed in some locations, and its broad intersections redesigned to be more effective in directing and distributing traffic while creating excellent and shorter pedestrian connections. Excessive width should be transformed into additional on-street parking and landscape medians in some locations to make Windsor Center more convenient and attractive. The normal peak hour needs of commuter traffic can be easily supported with this approach, but will be better balanced with the need to emphasize convenient walking, parking, and circulation choices to be successful as a business and civic center.

Station Area Redevelopment: West Side

The Town can facilitate long-term transit, parking and mobility solutions using its own land behind Town Hall, by focusing funding sources to create a central parking deck serving Windsor Center and bringing pedestrian, bicycle and transit routes to a convenient central point. The architecture of the depot should be visible from the Green and create an integral pedestrian overpass with the station reaching across to the east side of the tracks. The landscape architecture should support a continuously pleasant environment from the Green to the station.

Station Area Improvements: East Side

The Town land on the east side of the tracks will be available to support a cluster of multi-family residential buildings that could incorporate commercial uses or live-work units in response to market opportunities, as part of a cohesive Mechanic Street corridor. Completing this new edge of the Center depends on relocating the rail parking to the west side of the tracks.

New and Expanded Active Uses around the Green

A combination of public and private initiatives are needed to complete a continuous, active edge with new uses around the Town Green that will have

enough variety and interest to draw and retain visitors from Windsor and other communities, boosting the market for all of the destinations. A larger cluster of diverse, quality restaurants and food-oriented shops is an attainable step in this direction.

Station Area Strategy

The area around the new rail station requires some additional strategies to ensure that the ability to access rail service from the neighborhood is easy for pedestrians, bicyclists and drivers alike. Making changes to the current design will make a better and more connected rail station for Windsor Center.

The station area strategy examines the program of changes, anticipated new services and capital improvements, requirements for the station and suggested modifications.

STATION AREA PROGRAM

The Connecticut Department of Transportation (ConnDOT), through funding from the Federal Railroad Administration, Federal Transit Administration, and State sources, is making improvements to the rail service and associated infrastructure along the corridor between New Haven, Connecticut and Springfield, Massachusetts, known as the New Haven-Hartford-Springfield (NHHS) Corridor. The project includes improvements to the level of service at the station in Windsor.

This section presents the details of the improvements planned by ConnDOT at Windsor Station for the NHHS project, as well as additional requirements that will need to be considered as the Town plans for development around the station, including modifications to the planned improvements that will benefit to the Town.

PLANNED SERVICES AND CAPITAL IMPROVEMENTS

Rail Service Plans

Amtrak currently operates six round-trip trains over the NHHS corridor with five round-trip trains stopping in Windsor. One provides direct service between Springfield, Massachusetts and Washington D.C. The four other round-trip trains shuttle between Springfield and New Haven, where the trains meet Amtrak Northeast Corridor trains to Boston and New York, Metro-North trains to New York, and Shoreline East trains to New London. The Vermonter, which operates from Washington, D.C. to St. Albans, Vermont, uses the corridor but does not currently stop in Windsor.

The goal of the NHHS Project is to improve train service along the corridor. This is planned to occur in a series of phased improvements. The first set of changes to rail service is anticipated to occur in 2016 and will include approximately 11 to 12 round-trip trains stopping in Windsor. This will effectively double the shuttle service between Springfield and New Haven from four daily round-trips to eight and increase the regional Amtrak service between Springfield and New Haven, connecting to other locations in New England such as Boston, Greenfield, Massachusetts and White River Junction, Ver-

mont. In addition to the Vermonter train making additional stops, including Windsor, these Northeast Regional trains are anticipated to include two to three additional round-trip trains per day stopping in Windsor.

The next phase of service improvements along the line is anticipated to occur in 2030 or beyond and will likely include increased service and connections to Boston and increases in travel speeds along the route between Springfield and New Haven with the potential of up to 25 round-trips per day. Additional study and project development is required before more information is available on the longer-term train service levels.

Train trip travel times for the rail service are as follows and are not anticipated to change in 2016:

- **Windsor to Hartford –** 12 minutes;
- **Windsor to Springfield –** 30 minutes; and
- **Windsor to New Haven –** 58 minutes.

Rail System Improvements

In order to increase the level of service along the NHHS Corridor, significant improvements are required along the corridor. The NHHS program of capital improvements includes:

- Restoration of sections of second track;
- Construction of new passing sidings;
- Construction of a layover and light maintenance facility;
- At-grade crossing upgrades;
- Bridge and culvert rehabilitations, replacements and removals;
- Installation of new crossovers and signal upgrades;
- Improvement or relocation of existing passenger rail platforms for Amtrak intercity service, as well as additional station parking and improved station access;
- Improvements to platforms, track configuration and sidings in the Springfield Terminal area; and
- Construction of future FTA-funded new regional rail stations.

Planned improvements in and around Windsor Station will include the following:

- Restoration of the second track from Palisado Avenue southward to beyond the I-91 overpass in Hartford;
- Improvements to the at-grade crossing at Central Street to accommodate the second track;
- Relocating the existing low-level platform on the west side of the tracks to the south as a high-level platform;

- Construction of a second platform on the east side of the tracks;
- Construction of a pedestrian/station overpass to allow travel between station platforms; and
- Construction of parking to accommodate increased ridership.

Additional detail regarding the proposed design and design requirements are provided in following sections.

Connecting Transit Services

Windsor Station is served by three CTTransit bus routes including the following:

- **Route #32 –** Windsor Avenue. Downtown Hartford via Windsor Street;
- **Route #34 –** Windsor Avenue-Windsor Center-Poquonock via Windsor Street; and
- **Route #36 –** Windsor Avenue-Rainbow-International Drive.

The resulting combined service frequency of the three routes is approximately every 20 minutes during the peak commute periods, with a 20-30 minute trip time between Windsor and Downtown Hartford. Each of these routes uses the combination of Central Street and Mechanic Street to serve the Windsor Amtrak Station and Mechanic Street Park and Ride lot.

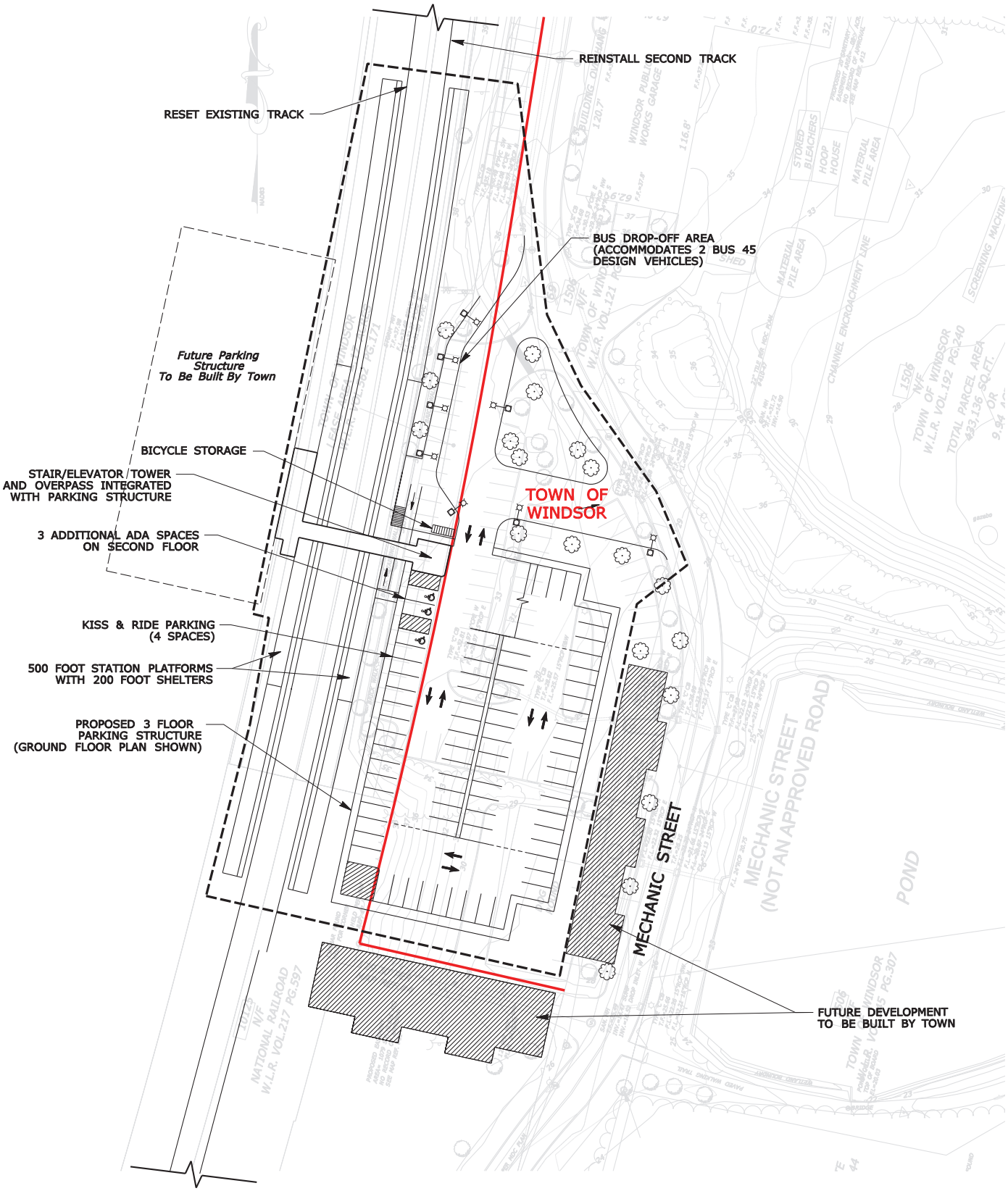
STATION REQUIREMENTS

Platform Locations

The current plan for the new platforms at Windsor Station locates them approximately 300 feet south of the Central Street at-grade crossing. This plan provides for clear sightline distances for the cars crossing the tracks at that location. There appears to be some flexibility to shift the platforms farther south, however the platforms should not be moved any farther north than the currently plan. The preliminary plan for Windsor Station includes platforms that are 500 feet long by 12 feet wide. The platform length has been established in accordance with future plans for train service needs along the corridor. The platform width at the conclusion of final design activities may end up being wider than 12 feet, depending on vertical circulation (i.e., elevators and stairs) and the required clearances along the edges of the platform.

Figure 2. Site Plan of ConnDOT's Design for Windsor Station Parking Garage

Source: New Haven-Hartford-Springfield Commuter Rail Implementation Study Final Report, ConnDOT, June 2005



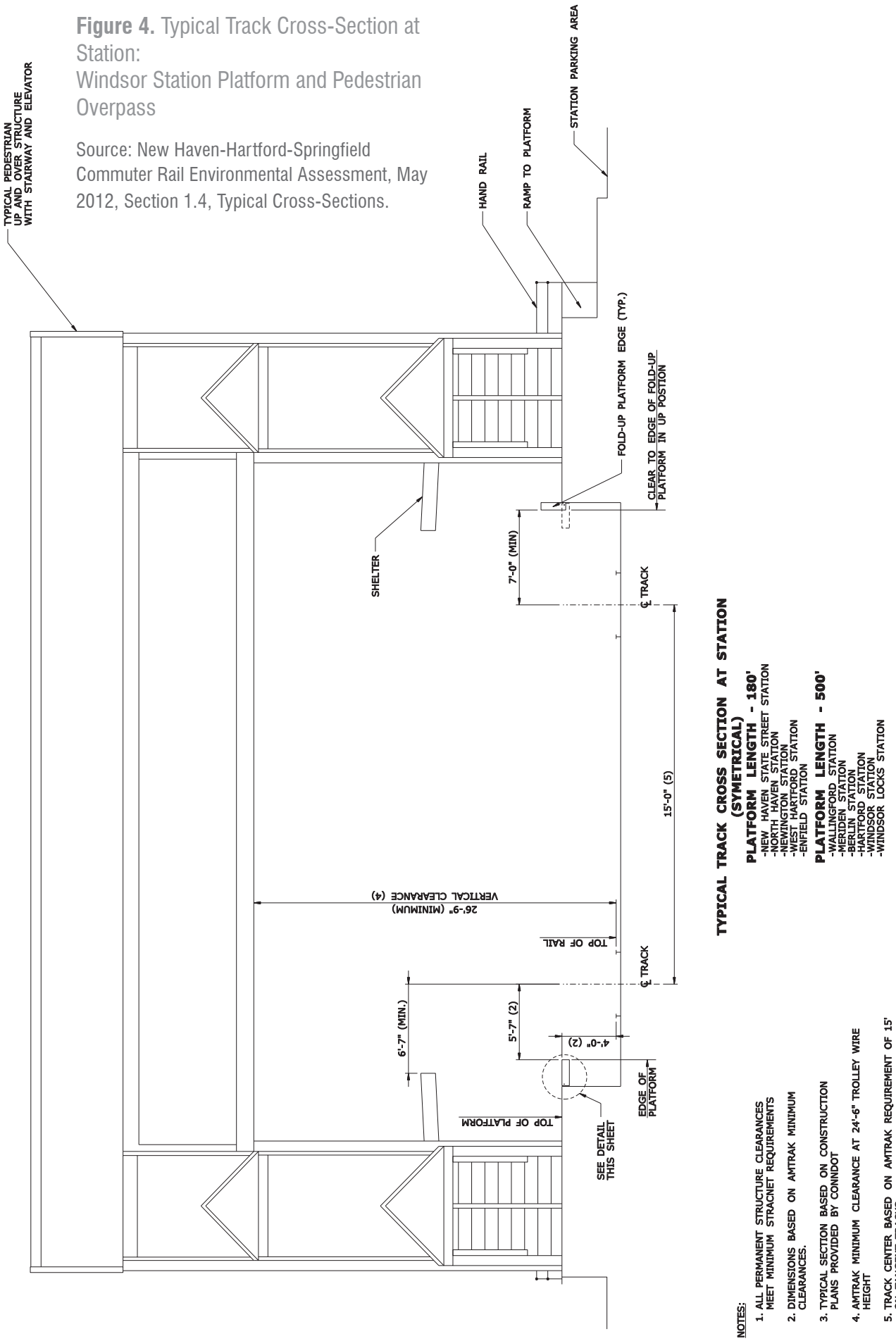
Platform Access

The restoration of the second track and the change from a single low-level platform to high-level platforms will require new platforms on both sides of the tracks. These high-level platforms will be built at the same height as the floors of the trains in order to provide faster and safer boarding. The design of the platforms will be fully accessible via ADA compliant ramping systems. The configuration of platform access in the preliminary plans developed by ConnDOT (see Figure 4) include ramps from ground level to the platform level and a pedestrian bridge over the tracks, complete with stairs and elevators for easy access. Platform access is shown on the preliminary plans in the center of the platform; however, this could be relocated anywhere along the platform as long as it works with the other station facilities.

Figure 3. Rendering of ConnDOT's Design for Windsor Station Parking Garage

Figure 4. Typical Track Cross-Section at Station:
Windsor Station Platform and Pedestrian Overpass

Source: New Haven-Hartford-Springfield Commuter Rail Environmental Assessment, May 2012, Section 1.4, Typical Cross-Sections.



Parking Demand

The parking required for intercity rail service can vary depending on a variety of factors and cannot be scientifically calculated. There are many attributes of a rail station that drive the demand for parking. These include, but are not limited to:

- **Projected ridership –** Projected number of passengers boarding the train each day;
- **Rider type –** Commuter, multi-day traveler, and recreational traveler;
- **Location of alternative station –** Ease of vehicular access to station; and
- **Ratios of station access modes –** Driven by station area land use patterns, routes and frequency of transit access, and ease of bicycle/pedestrian connections.

ConnDOT's preliminary plan included a parking garage at the Windsor Station with a total of 180 spaces. This space count was based on the following program:

- **Preliminary rail parking demand estimate –** 85 spaces
- **Replacement of existing Mechanic Street Park and Ride Lot (east of tracks) –** 85 spaces
- **Minimum parking required –** 170 spaces
- **Parking provided in preliminary plan –** 180 spaces

Given the variability of the parking demand for rail stations, ConnDOT's estimated demand for 85 new spaces could change depending upon development trends in the station area and potential improvements to transit and pedestrian connections. The 85-space parking demand estimate is a reasonable assumption if no other changes are made in the station area. Changes that increase alternative modes of access to the station, including pedestrian or bicycle access, could decrease the level of parking demand.

The existing Mechanic Street Park and Ride Lot, located on the east side of the tracks, also has 85 spaces. Recent surveys of this lot found that only three to four of these spaces were occupied at any given time. This public parking lot will be displaced under ConnDOT's plan and the spaces added to the planned garage to create the minimum requirement of 170 spaces.

However, a commuter rail parking program limited to approximately 85 spaces seems reasonable given the lack of demand for the spaces in this lot and the potential to minimize parking demand for the rail station through the addition of mitigating improvements in the station area. Within the station area, there are currently three surface parking lots and limited street parking spaces that provide a total of 247 spaces. These 247 spaces include the 85 spaces in the Mechanic Street Park and Ride Lot. The remaining parking within the station area is located in lots on the west side of the tracks and

along Broad Street serving the Town of Windsor, the U.S. Post Office, and the Windsor Chamber of Commerce

For the Windsor Station area, an alternative consolidated parking facility, currently under discussion, would include the following parking program:

- **Replacement of existing Town Hall lot (not including spaces behind the Post Office) –** 144 spaces
- **Replacement of Mechanic Street Existing Park and Ride Lot (east of tracks –** 85 spaces
- **Replacement of existing Chamber of Commerce Lot –** 11 spaces
- **Replacement of existing on-street parking on south side of Maple Avenue –** 7 spaces
- **Minimum parking capacity required –** 247 spaces

The contemplated consolidated parking facility would serve the downtown, the station, as well as future development within the station area. Facility design options are being considered that could accommodate between 200 and 300 cars. The ideal location for the parking facility would be on the west side of the tracks to serve multiple users and provide good access.

CIRCULATION AND ACCESS REQUIREMENTS

Kiss and Ride Facilities

"Kiss and ride" spaces are short-term parking spaces that are generally located adjacent or very close to a station platform. Kiss and ride spaces are typically used as the primary access point for riders dropped off by a family member, friend, or a taxi (more typical on longer intercity trips), or as a way to wait in a car on days of inclement weather until the train is approaching, to minimize exposure to the elements.

Easily accessed kiss and ride facilities maximize their use and can minimize the demand for parking. Easy access involves both the location of the facilities relative to the station platforms and the route between the nearest major road and the kiss and ride.

ConnDOT's preliminary plans provide four kiss and ride spaces in the proposed lot on the east side of the tracks. This is a reasonable number of spaces, but two or three may be adequate given the projected ridership at the station. However, there are two reasons to locate the kiss and ride facility on the west side of the tracks. Passengers arriving late to an east side location, with primary access along Central Street, may be prevented from reaching the platform when the crossing gates close at Central Street. A location near the proposed pedestrian overpass would improve the connection between Broad Street and the station, minimizing travel time to the station, increasing kiss and ride usage, and decreasing parking demand.

Bus Transit Requirements

The existing ConnDOT plan for the station includes two 45-foot bus berths on the east side of the tracks. This is in addition to bus stops on Central Street, Mechanic Street and Broad Street. As identified above, there are currently three routes that serve Windsor Station. With the combined headways of 20 minutes, it is unlikely that there will be more than one bus berthed at that station at any one time, even when taking into account the non-peak direction buses. With the possibility of additional services or shuttle routes from surrounding developments, however, increased frequencies of existing routes in the future, or modification of route schedules to match arrival times with train time, it is likely in the future that the second bus berth would be utilized. The bus berths would optimally be located on the east side of the tracks, as the buses are just as likely to serve the residential properties on the east side of the track as they are to serve the train passengers. The station will also be configured to provide for convenience shuttle pickup and drop-off from other area users, including participants in Transportation Management Association (TMA) programs.

Pedestrian Bridge

The change in platform configuration will require a pedestrian bridge over the tracks. This bridge needs to maintain a vertical clearance of 26 feet, 9 inches above the top of rail elevation, requiring lengthy stairs and either elevators or large ramp structures to access the bridge.

RELATIONSHIP TO ADJACENT SITES

The Windsor Station will be located directly behind the Windsor Town Hall, within a 10-minute walk from most of Windsor Center and within a 10- to 20-minute walk of Loomis Chaffee School. The pedestrian connection between the station and those locations will be important to the success of station area development.

In addition, the station will be located across Mechanic Street from a newly-permitted residential development to be called Olde Windsor Station. This development of 130 units offers the opportunity to further enliven the area, but will require a strong connection between the residential district, the station and the remainder of Windsor Center. Without the strong connection, the co-locational benefits of the station and residential development are not likely to be fully achieved. It may be possible to further enhance this benefit by adding to the residential district through the conversion of the current Mechanic Street Park and Ride Lot (and possibly the land along the tracks further to the south) to a similar residential development.

Figure 5. Rendering of Olde Windsor Station Residential Development

Source: www.lexingtonpartnersllc.com

PREFERRED STATION AREA PLAN

To analyze the possibilities around the new rail station, a series of station area plan alternatives were created, based on discussions with the Town and the assessment of facility needs and requirements. As with the TOD Master Plan as a whole, the community vision for Windsor Center informed the development of these alternatives, and is repeated here for easy reference. The community vision is that Windsor Center should be…

- **WALKABLE AND CONNECTED** – A compact district that takes advantage of transit and reinforces all of the uses by becoming an increasingly walkable, well-connected cluster of uses, places, services and amenities;
- **VIBRANT AND DIVERSE USES** – A vibrant district that boasts a diverse mix of uses that enhances the area as a place to live, work, visit and play;
- **ACCESSIBLE AND SAFE** – A convenient district that is easy to access from other areas and that allows pedestrians, bicycles and automobiles to get around safely and efficiently; and
- **ATTRACTIVE AND DISTINCTIVE** – A clearly defined district through the urban design of its streets, ways and public spaces and through the consistent qualities of its constituent buildings that preserve and enhance the existing village character and historic and iconic assets, while encouraging new uses that provide additional attractions for people to come to the Center.

Station Area Attributes

The station area alternatives included the following attributes related to the Windsor Center vision.

Walkable and Connected

- **ENHANCE WALKABLE CONNECTIONS/IMPROVE PEDESTRIAN ENVIRONMENT** – A core component of each alternative is to provide walkable connections between the east and west side of the railroad corridor and provide improved pedestrian connections between the rail station area and the remainder of Windsor Center. With the newly approved Olde Windsor Station residential development, as well as the rail station, the pedestrian connections are an increasingly important component of the station area.
- **ENHANCE CONNECTIVITY TO RIVER TRAIL AND LOOMIS CHAFFEE** – The pedestrian connections along Mechanic Street are an important component of connectivity to and from the station area. With the improved pedestrian access across the tracks, maintaining, and improving pedestrian connections to Loomis Chaffee and the River Trail will further enhance the vitality of Windsor Center.

Vibrant with Diverse Uses

- **MAXIMIZE REDEVELOPMENT OPPORTUNITIES** – Underutilized sites within the station area were examined for the potential for redevelopment opportunities.
- **RESIDENTIAL DEVELOPMENT TO SUPPORT VITALITY AND ACTIVITY** – Opportunities for residential development in the station area that will expand upon the recently approved Olde Windsor Station development were identified.

Accessible and Safe

- **ENHANCE RAIL ACCESS AND DROP-OFF** – Access to the rail platform includes improved routes and locations for passenger drop-off, bus transit stop locations, and bicycle/pedestrian access.
- **PROVIDE POTENTIAL FOR FUTURE SHARED PARKING GARAGE** – Parking is provided that can be used by rail passengers, existing users (such as town hall) and visitors of new commercial developments in the station area. The projected parking program for a future shared parking garage would include 247 spaces, as described in Section 2.2.3 Station Requirements, but could include up to 300 cars as any new development uses within the station area would require additional parking facilities, either on-site or within the shared garage.

Attractive and Distinctive

- **PRESERVE WINDSOR CENTER CIVIC AND HISTORIC BUILDING** – The station area alternatives respect the existing civic and historic buildings. The existing feel and functionality of Windsor Center should not be significantly impacted by additional development in the station area.
- **REINFORCE ACTIVE GROUND-FLOOR USES AT STREET FRONTAGES** – Station area alternatives were developed to provide opportunities to reinforce or introduce active ground-floor uses on street frontages that will enliven the station area.

Station Area Plan

The preferred Windsor Station plan is shown below. Circulation and access elements include multiple pickup-drop off areas, good pedestrian connectivity to both sides of the tracks, and opportunities for valuable multi-use parking. The plan shows two drop off-areas; one at Mechanic Street and another at the rear of the Post Office and Town Hall accessible from Broad Street. The proposed pedestrian crossover bridge connects Mechanic Street on the east to Windsor Center on the west and enhances access between downtown and the proposed TOD projects on the east side of the tracks. The future parking structure, now shown in place of the surface lot behind town hall, is a key piece of the overall TOD strategy, as it would allow for excellent shared parking potential; serving commuters during the daytime and downtown during the evening and weekends. Bicycle storage provided at the station would accommodate and promote non-motorized travel.

Figure 6. Preferred Station Area Plan

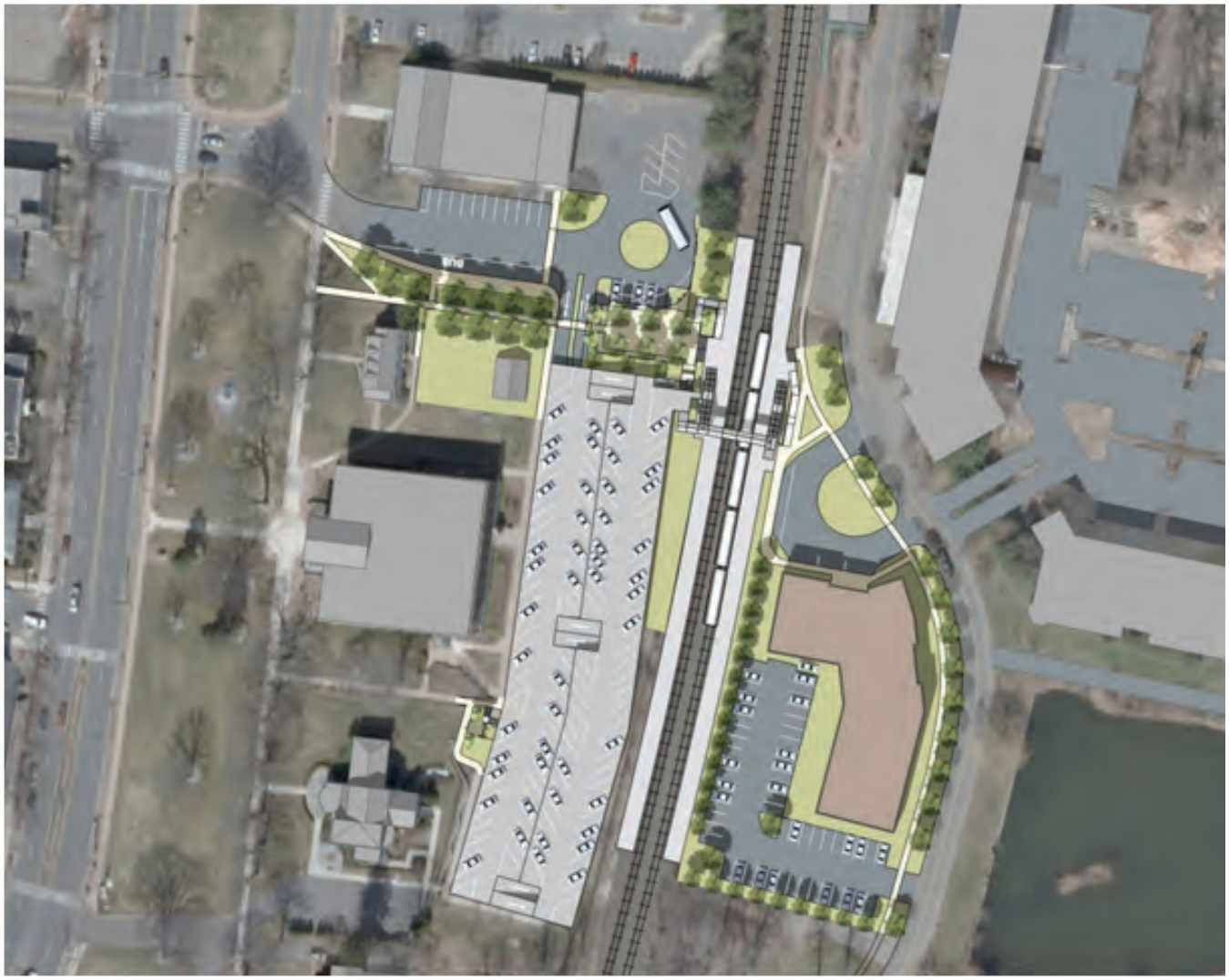
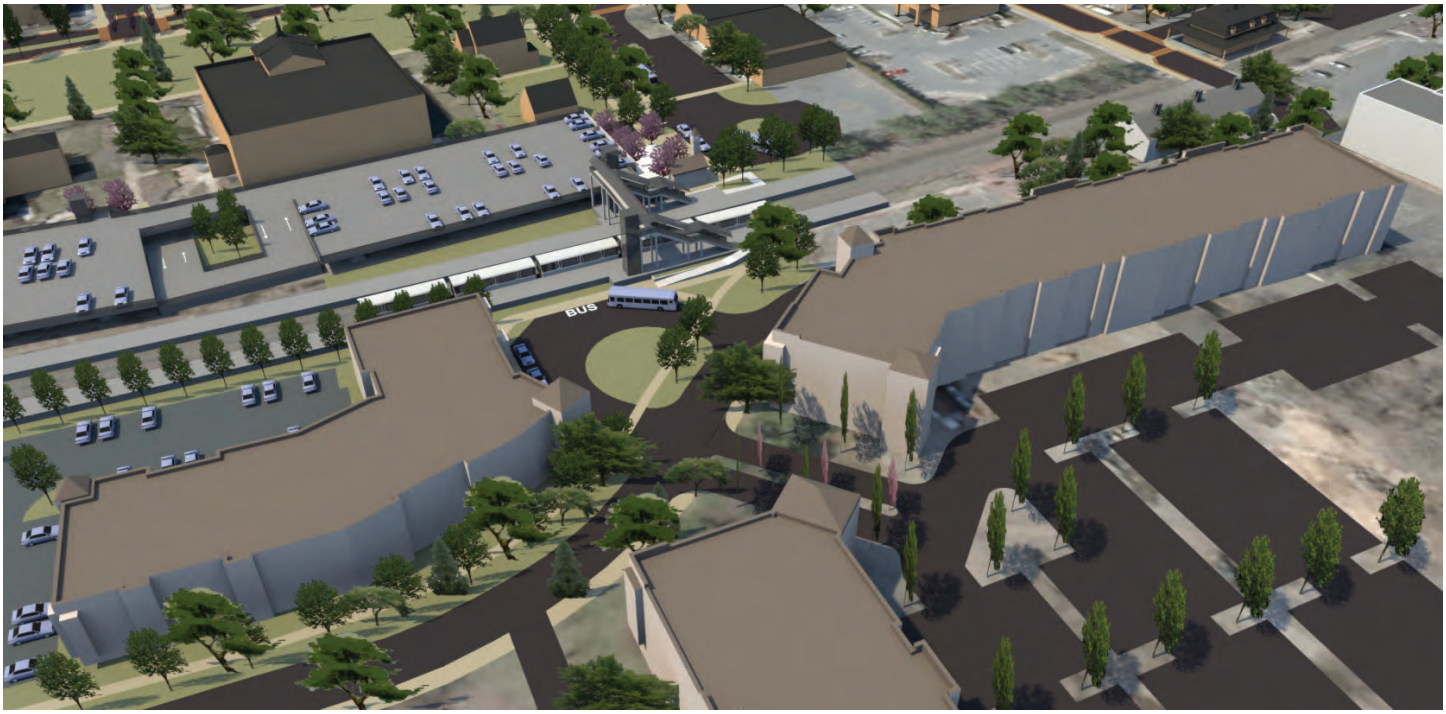


Figure 7. Proposed Station Area, West Side

Figure 8. Proposed Station Area, East Side



Urban Design Strategy

The urban design concept for Windsor Center places a high value on the characteristics of a traditional, pedestrian-oriented town center that has a range of uses and distinct subareas that are connected to each other, and renews the emphasis on the central hub provided at the rail station. The urban design will emphasize the patterns of buildings and attractive open spaces, and diminish the visual impact of parking while enhancing its convenience by creating connections from parking to the various destinations in the center.

Introducing new development into an historic area can be a challenge. A focus on urban design can help integrate the old and the new and improve how people interact within the Center.

PATTERNS OF DEVELOPMENT

The following patterns of development should be reinforced by proposed redevelopment and streetscape improvements.

The Green and its Edges

The Town Green should be enhanced as a flexible and informal open space, with increased and improved paths to walk across the open space, encouraging movement between parking, uses and activities including an emphasis on the paths leading to and from the future rail station. Buildings and active ground floor uses should fill in the edges of the Green wherever possible, to generate a continuous positive experience for pedestrians. Where this is not practical, a combination of landscape improvements and small retail kiosks can fill in the edge—perhaps a mini-coffee shop, flower market or the like.

Historic Preservation and Contemporary Buildings

Windsor's historic buildings are distinguished long-term assets, and there should be a renewed emphasis on saving, restoring, and improving buildings with historic merit. New buildings should have the integrity and advantages of contemporary styles and expression, but be good neighbors to traditional styles.

Continuity of Building Forms and Fabric

The fundamental pattern of building shapes, location and organization on their sites of the residential neighborhoods and traditional commercial and civic structures should serve as a guide to the future; the challenge is to repair the fabric, rather than reinvent it.

Rail Station as a Visible, Central Connector

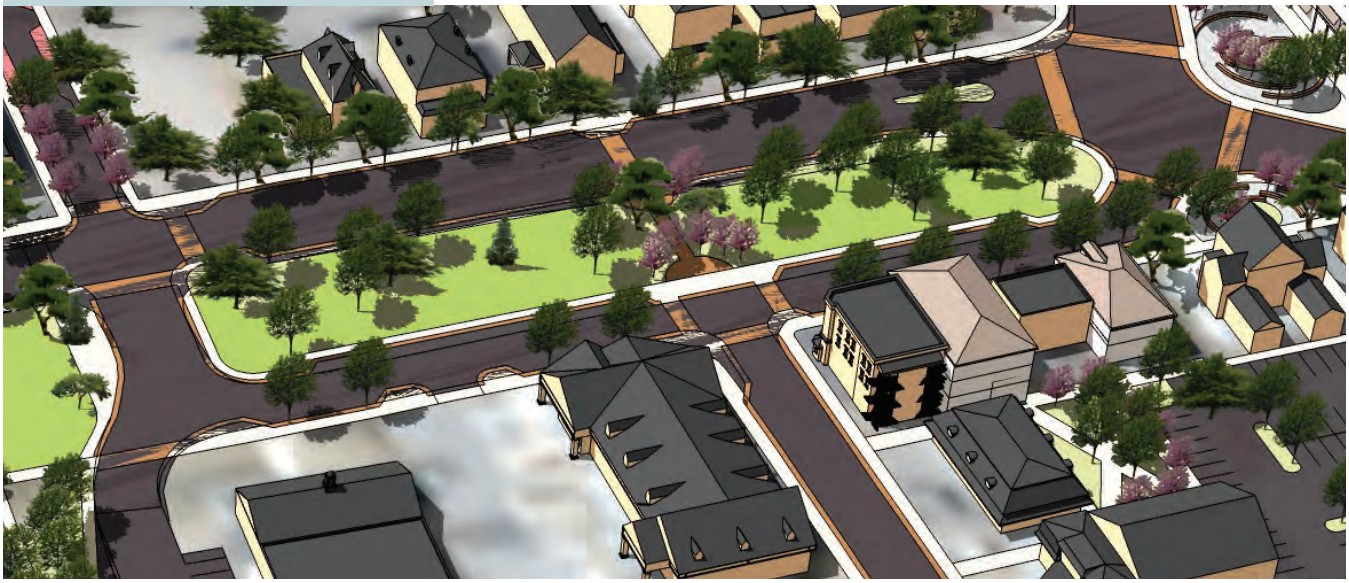
The new depot should be architecturally interesting and a visible connector, by emphasizing its vertical elements and bridge-like crossing, and creating covered areas adapted to accommodate the ground-level needs of the users of this active hub.

Windsor Center can be a compact district that takes advantage of transit and reinforces all of the uses by becoming an increasingly walkable, well-connected district...

Figure 9. Top of Broad Street

... a vibrant district that boasts a diverse mix of uses that enhance the area as a place to live, work, visit and play.

Figure 10. Windsor Green



The Town Center can be a convenient district that is easy to access from other areas and allows pedestrians, bicycles and automobiles to get around safely and efficiently ...

Figure 11. New Development North and East of the Green

... and a distinct district that preserves and enhances the existing village character and historic and iconic assets, while at the same time, encouraging new uses that provide additional attractions for people to come to the Center.

Figure 12. New Development East of the Station

Reducing the Visual Impact of Parking

The siting and design of parking lots and a future parking structure near the rail station should limit the visual impact of parking from the pedestrian vantage point from streets and the Green. The parking requirement of the residential development shown in the plan is covered by surface parking within those parcels. The parking lot of the Post Office will not be negatively affected as the parking study indicates that there is currently excess parking supply on that site.

Streetscape as an Attractive Landscape

The provision of generous, tree-lined sidewalks and an emphasis on the green landscape at crossing points and along paths is a thematic approach to streetscape design that should be extended throughout the Center.

OPEN SPACE AND AMENITIES

The Town is unusually well positioned in terms of the open space and amenities within and near the Town Center. Additional actions over time can include:

Improvements to the Town Green

The road diet, by reconfiguring the street, will create opportunities for additional sidewalks along the perimeter, spaces for public art, and additional seating.

Pop-up Food and Services

The Town can actively promote locations for temporary business opportunities to rent kayaks along the river and bicycles, allow food trucks around the green, and support a successful and expanding farmer's market. Just as other towns and cities have benefitted from the use of these amenities in their downtowns, Windsor can increase the vitality of the area on and around the green.

Trailblazing and Wayfinding Signage

The Town can use enhanced signage to direct visitors and help them interpret the natural and historic resources in the Town Center. High-quality environmental graphic design can build experiences that connect people to place, with elements of wayfinding systems, architectural graphics, signage, exhibit design, identity graphics, dynamic environments, and civic design.

Public Art and Performances

The activities and serendipitous public art installations provided by the Windsor Arts Center and its supporters add an extremely valuable dimension to the Center and the community. The cultural dimension should be adopted as part of the theme, image and life of Windsor Center.

REGULATORY FRAMEWORK

Appendix II: Regulatory Framework contains zoning recommendations and draft design guidelines that support these urban design recommendations and other strategies in this *TOD Master Plan*.

3 MOBILITY

Vehicles, pedestrians, and bicyclists have to share the streets safely, especially when connecting quiet residential streets to more heavily trafficked ones. Easy access from the neighborhoods to the rail station can improve the use of rail services and the experience of getting from home to work.

This section provides the strategies necessary to address the mobility of vehicles, pedestrians, and bicyclists. Recommendations for circulation, parking demand and management and complete streets work in concert to address the Towns' goals of walkability, connectivity, access and safety.

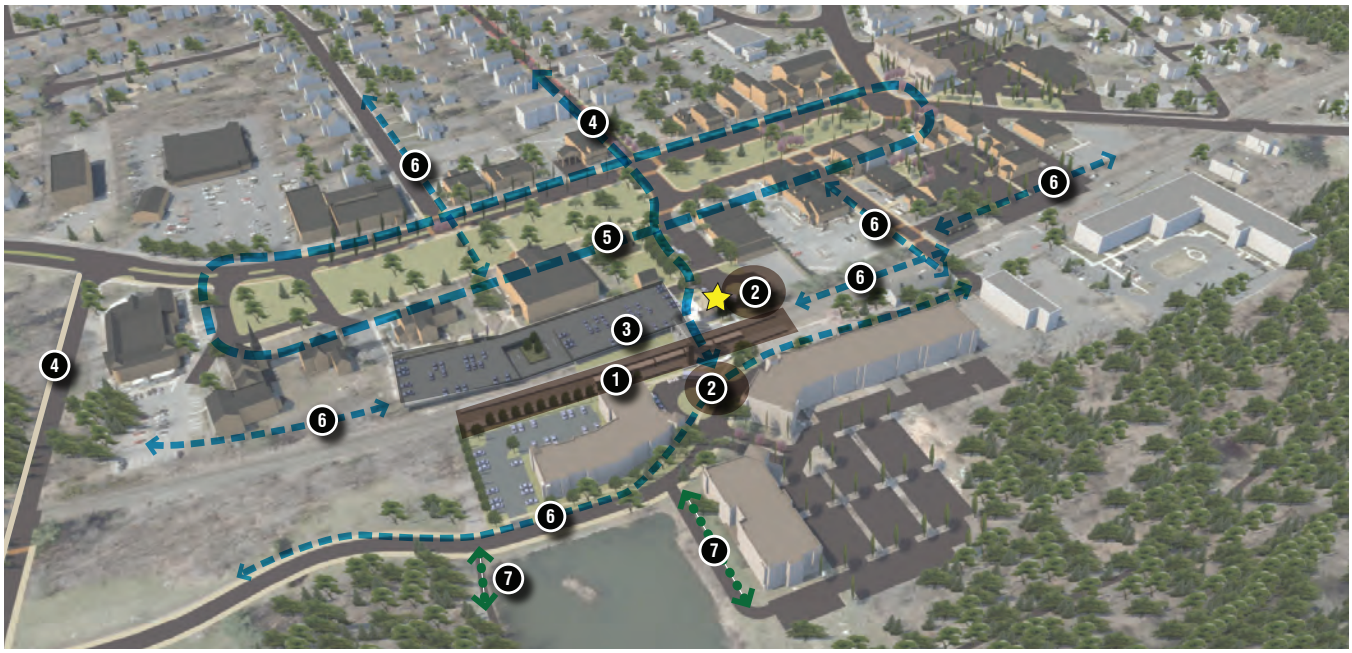
A road diet removes excess paving and lanes from a road that is too wide for the amount of vehicular traffic that uses it. The extra space can be reconfigured to provide pedestrian and bicycle access and additional parking. The overall recommendation for a road diet for certain streets in Windsor Center is discussed in more detail throughout Section 3.0, but the following is a list summarizing improvements and benefits associated with the road diet:

- Reduction of pavement dedicated to motor vehicle travel
- Reallocation of pavement for vehicle parking
- Additional green space
- Additional room for wider sidewalks
- Smaller corner radii at intersections
- Creation of curb bump-outs at intersections to lessen pedestrian crossing distances
- Windsor Center streets that are more welcoming to non-motorized road users

The goal is to create a "mobility hub" in Windsor Center, with the following components, as shown in Figure 13:

1. New rail depot with vertical circulation to parking and bridge over tracks
2. Pick-up and drop off areas for cars, shuttles, and buses
3. New multi-use parking decks
4. East/west pedestrian corridor
5. Walking loop around the Green
6. Secondary pedestrian connections
7. Open space trail links

Figure 13. Mobility Hub



Circulation Strategy

The circulation strategy provides recommendation for the circulation of vehicles, pedestrian and bicycles. *Appendix III: Tools and Resources* includes funding sources for implementing the circulation strategy.

Improving the movement of vehicles, pedestrians, and bicyclists from the neighborhoods, through and around the Center, and to the rail station will improve the quality of life for all. Slowing traffic in the residential neighborhoods and streamlining access to the rail station will make the streets safer for pedestrians and bicyclists.

VEHICULAR TRAFFIC PATTERNS

To confirm that a road diet, as described in Section 1.1, would be appropriate under future conditions, projections were made of 2030 peak hour traffic volumes. Several factors were included in the future projections, including normal ambient traffic growth, new traffic generated by developments that are currently pending or proposed in Windsor, new traffic associated with increases in rail ridership from the New Haven-Hartford-Springfield (NHHS) rail project, and new traffic generated by future transit-oriented development in Windsor Center. The 2030 traffic volumes are shown in Figures 14 and 15.

Figure 14. Broad Street 2030 Future Traffic Volumes, Weekday Morning Peak

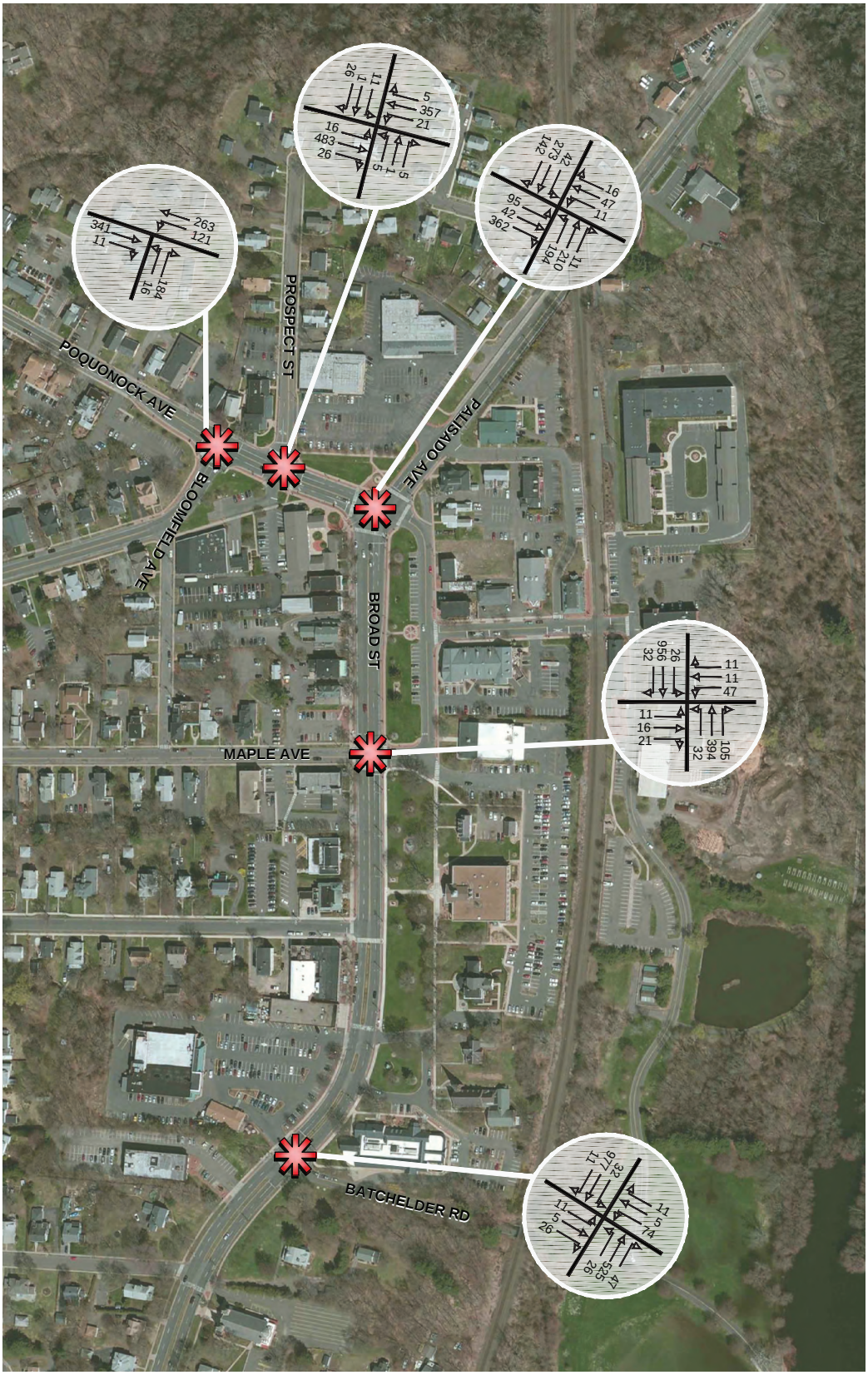
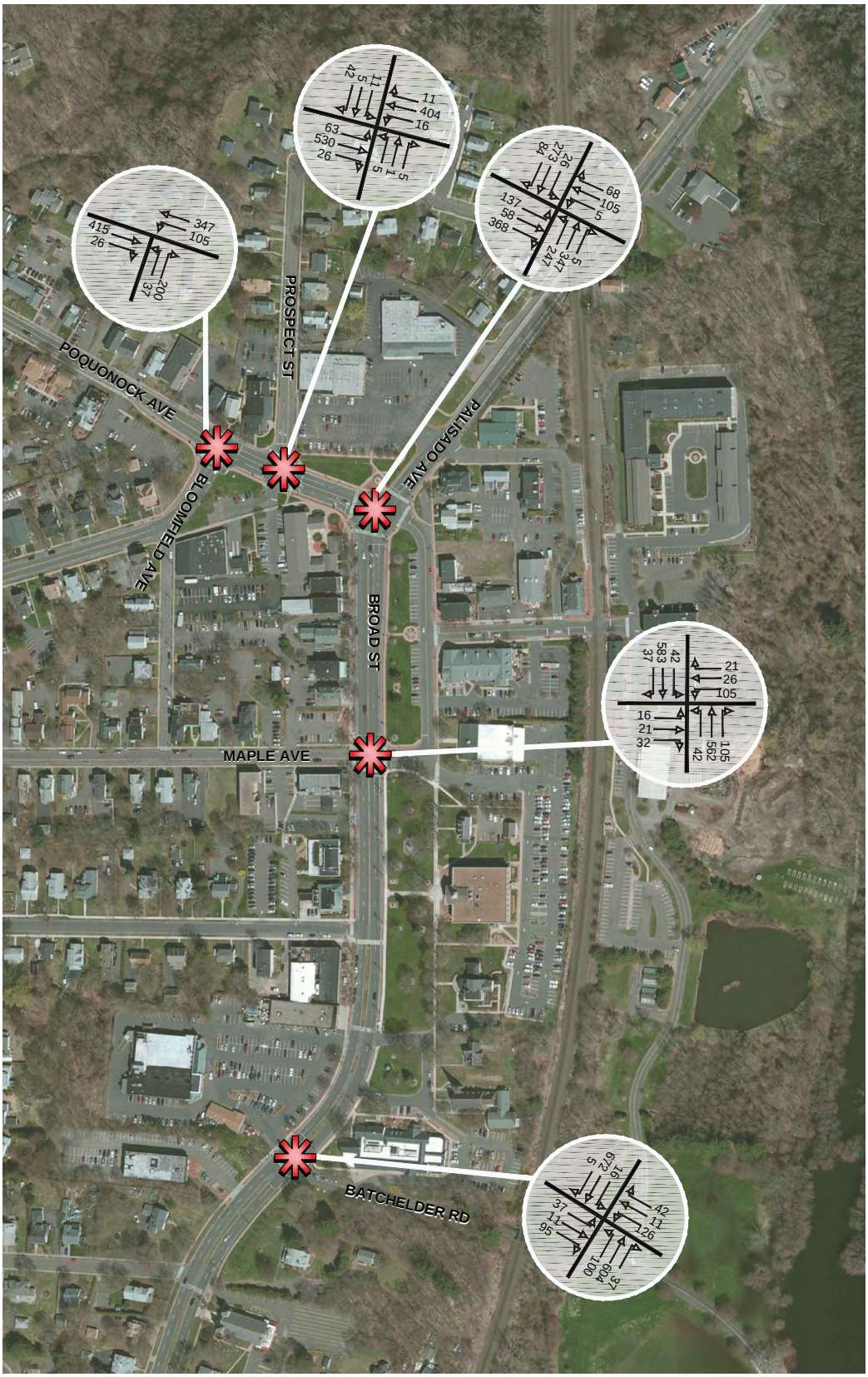
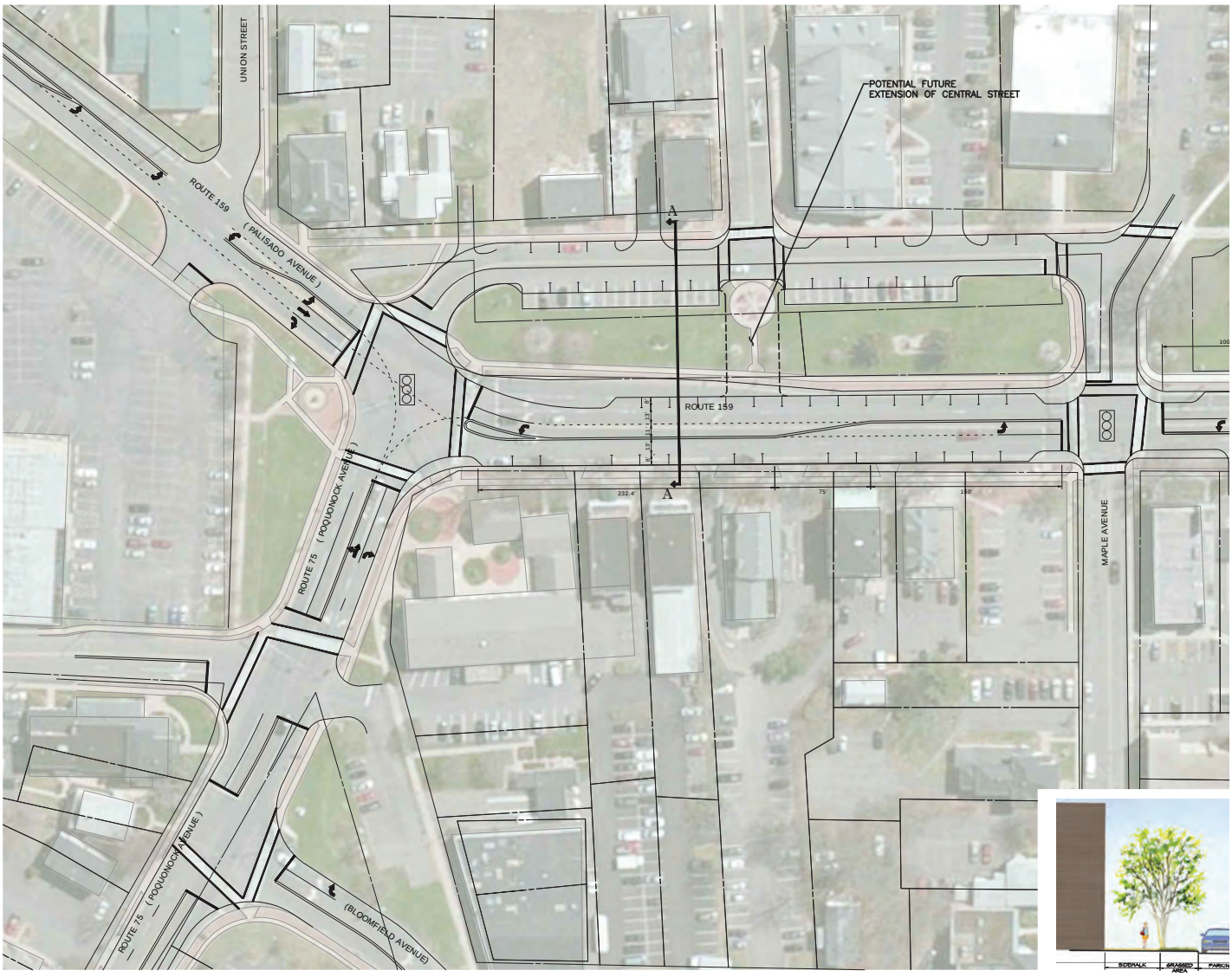


Figure 15. Broad Street 2030 Future Traffic Volumes, Weekday Afternoon Peak



Several variations of road diet concepts for Windsor Center were developed; different variations included angled parking at different locations, one-way traffic concepts for Constitution Way, and a connection of Central Street through the Town Green to Broad Street. The various concepts were reviewed with the Town and community, and ultimately a preferred road diet layout was chosen. Figure 16 depicts the preferred road diet concept superimposed over the current landscape.

Figure 16. Broad Street Road Diet Layout

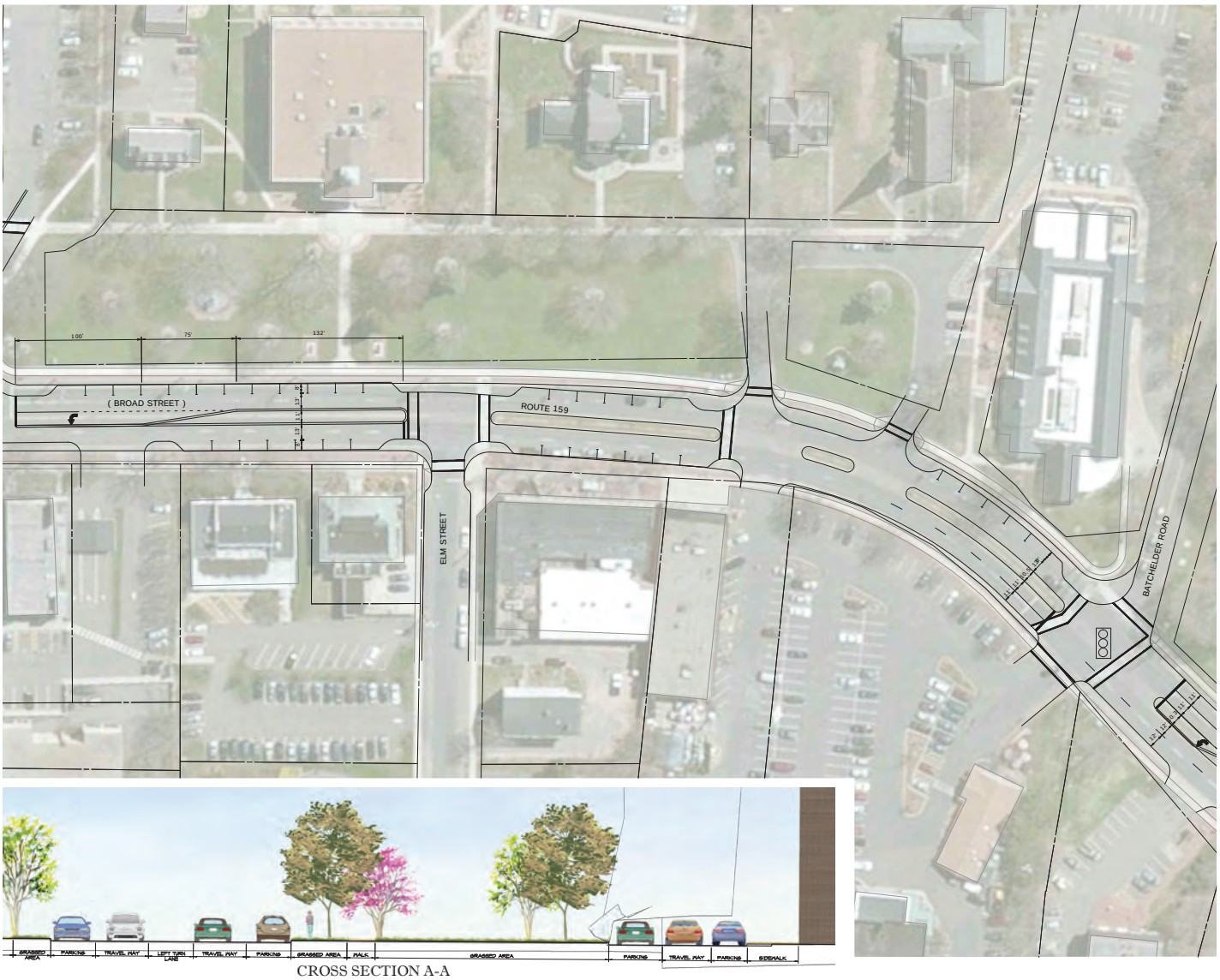


LAYOUT

WINDSOR T.O.D.

ROUTE 159
WINDSOR, CONNECTICUT DATE: JULY 2013

This alternative represents a compilation of preferred attributes of these alternatives, which demonstrate three approaches to access; "distributed access," "channel and direct," and "calming." The alternatives can be seen in *Appendix I: Existing Conditions and Trends*. Capacity analyses of the study intersections were completed using the estimated 2030 traffic volumes and the preferred road diet layout. Figure 17 summarizes the intersection level of service (LOS) findings. As shown, future conditions with the preferred road diet are expected to remain very good.



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0 40' 80' 120' 160' NORTH

Figure 17. Levels of Service (LOS) / Vehicle Capacity Analysis Results: Existing, Future, and Future with Road Diet

MOVEMENT:	LEVEL OF SERVICE					
	WEEKDAY MORNING PEAK HOUR			WEEKDAY AFTERNOON PEAK HOUR		
	EXISTING	FUTURE	FUTURE ROAD DIET	EXISTING	FUTURE	FUTURE ROAD DIET
Poquonock Avenue at Bloomfield Avenue						
Northbound Left	B	B	C	B	B	C
Northbound Right	B	B	A	B	B	A
Eastbound Through	A	A	A	A	A	A
Eastbound Right	A	A	A	A	A	A
Westbound Left	A	A	A	A	A	A
Westbound Through	A	A	A	A	A	A
OVERALL	**A**	**A**	**A**	**A**	**A**	**A**
Poquonock Avenue at Prospect Street						
Northbound Left / Through / Right	A	C	C	A	C	C
Southbound Left	C	C	C	C	C	C
Southbound Through / Right	A	B	B	B	B	B
Eastbound Left / Through / Right	A	A	A	A	A	A
Westbound Left / Through / Right	A	A	A	A	A	A
OVERALL	**A**	**A**	**A**	**A**	**A**	**A**
Broad St at Poquonock Avenue and Palisado Avenue						
Northbound Left	C	D	A	D	D	A
Northbound Through / Right	A	A	A	A	A	A
Southbound Left	B	B	A	A	B	B
Southbound Through	B	B	B	A	B	B
Southbound Right	B	B	A	A	B	A
Eastbound Left / Through	D	D	D	E	F	C
Eastbound Right	B	C	B	A	A	A
Westbound Left / Through	C	C	C	C	C	C
Westbound Right	C	C	A	C	C	A
OVERALL	**B**	**C**	**B**	**B**	**C**	**B**
Broad Street at Maple Avenue						
Northbound Left	A	A	A	A	A	A
Northbound Through / Right	A	A	A	A	A	A
Southbound Left	A	A	A	A	A	A
Southbound Through / Right	A	A	A	A	A	A
Eastbound Left / Through / Right	C	C	C	C	B	C
Westbound Left	D	D	D	D	D	D
Westbound Through / Right	C	C	C	C	B	B
OVERALL	**A**	**A**	**A**	**A**	**A**	**A**
Broad Street at Batchelder Road						
Northbound Left	A	A	A	A	A	A
Northbound Through	A	A	A	A	A	B
Northbound Right	A	A	A	A	A	A
Southbound Left / Through / Right	A	A	A	A	A	A
Eastbound Left / Through / Right	C	C	D	C	C	D
Westbound Left / Through / Right	D	D	C	D	E	C
OVERALL	**A**	**A**	**A**	**B**	**B**	**B**

Note: *FUTURE ROAD DIET* includes phasing changes and timing optimization.

The main element of the preferred road diet concept is a reduction of vehicle travels lanes on Route 159 (Broad Street) from four to three. This allows for one through lane in each direction and an exclusive left turn lane at intersections. The provision of an exclusive left turn lane, instead of a shared left turn/through lane, will provide dedicated space for vehicles waiting to turn off Broad Street. Another component of the preferred road diet concept is the reduction in lane widths. The result of both elements is that roadway space can be reallocated for other uses such as additional on-street parking, wider sidewalks, and more green space. On-street parking can act as a buffer between vehicle traffic and the sidewalk, improving the pedestrian experience. The reduction in space dedicated to vehicle travel can also have traffic calming benefits, improving safety. Moreover, the creation of curb bump-outs and smaller corner radii at intersections can reduce vehicle travel speeds while lessening pedestrian crossing distances. Bump-out will be discussed with the Fire Department to coordinate access for emergency vehicles. As shown on the preferred road diet concept, the cross-section of Broad Street includes 8-foot wide parallel on-street parking on both sides of the streets, two 13-foot wide shared through/right turn travel lanes, and an 11-foot wide exclusive left turn lane.

PEDESTRIAN CIRCULATION

Windsor Center has "the bones" to be a highly walkable environment. Years of development and lack of connections have eroded this walkability; however, the desire and opportunity to enhance existing and create improved pedestrian connections will enhance the economic vitality and quality of life in Windsor Center. Strategies that enhance the accessibility and connectivity from Windsor Center to the surrounding neighborhoods will create a district that encourages all modes of transportation, allowing pedestrians, bicyclists, and automobiles to travel to and from their destinations comfortably. Key recommendations for improving the circulation and access points for pedestrians in and around the station area are explained in the following sections.

Continuous and Complete Sidewalk Network

The quality and presence of a continuous sidewalk network varies throughout Windsor Center. Most of the major roadways, such as Broad Street and Poquonock Avenue contain adequate sidewalk infrastructure, but this is not always matched by the rest of the streets. Throughout the residential neighborhoods and in the areas east of the railroad track, pedestrian amenities are deteriorating and sometimes not present. This incomplete network inhibits pedestrian activity and limits the vitality of the adjacent land uses. To achieve the desired connected environment, a complete and continuous sidewalk network should be developed, and will include:

- New sidewalks on all residential streets, including Remington Road, Kellogg Street, Ridgewood Road, Filley Street, and Bloomfield Avenue.

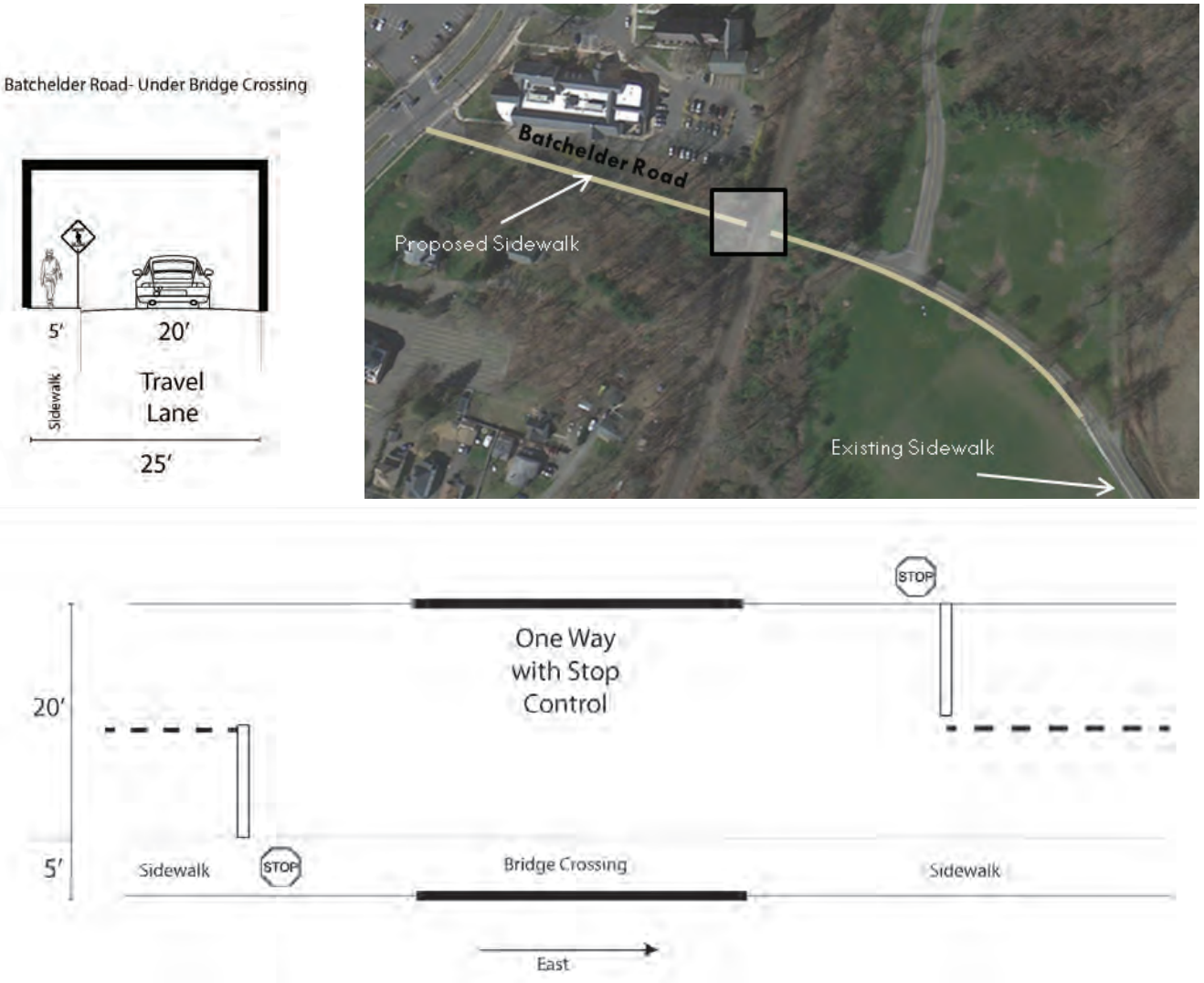
- Sidewalks on both sides of Palisado Avenue connecting to Windsor Center from the north, as shown in Figure 18.
- Sidewalks on Mechanic Street south to Batchelder Road will help create a safer and more comfortable walking environment that connects and enhances the walkability of the Town Center for residents and visitors, as seen in Figure 19.
- Create a pedestrian connection on Batchelder Road to provide a direct connection from the areas south to the Windsor Center Trail and train station. Figure 20 shows a how providing a stopped controlled lane under the bridge will allow for pedestrian access to existing sidewalks near Loomis Chaffee and connect to the proposed sidewalk on Mechanic Street.

Figure 18. Pedestrian Facilities on Palisado Avenue

Figure 19. Pedestrian Facilities on Mechanic Street

Figure 20. Existing and Proposed Sidewalks

Figure 21. Sidewalk Improvements on Batchelder Road Bridge



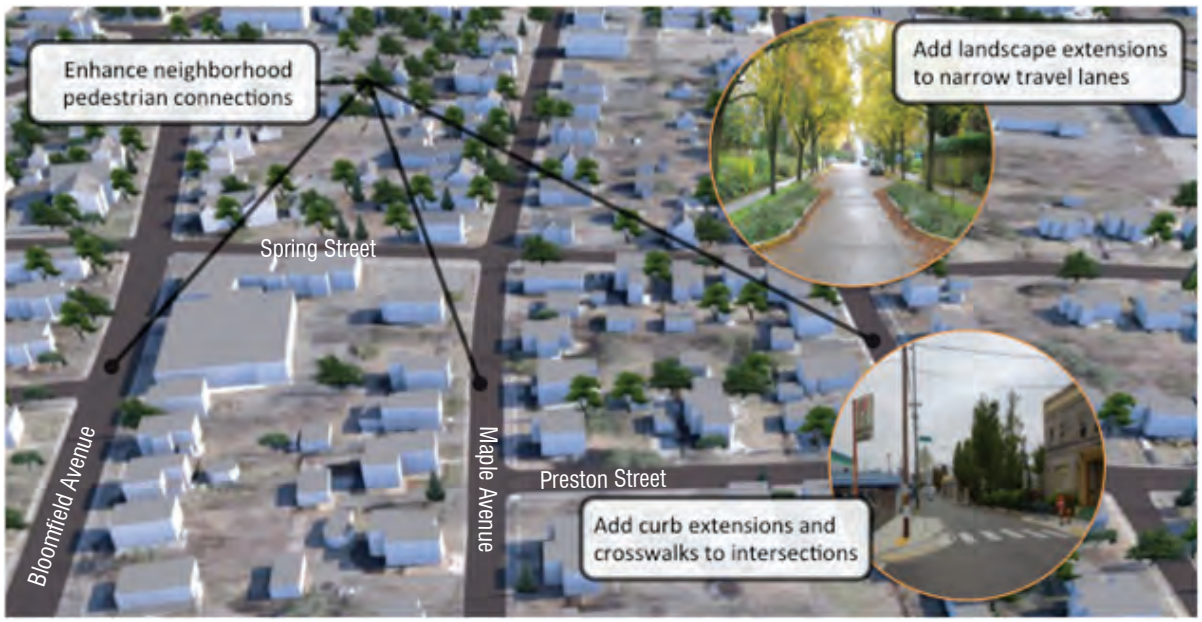
Create a Pedestrian Gateway to Windsor Center

While several of the residential streets provide access to Broad Street or the other streets in Windsor Center, they are not oriented to emphasize this connection. With the proposed Broad Street road diet, improved station, and added development in the Center, there is an opportunity to designate and design a connection. Maple Avenue is the most centrally located, and has the width and connectivity to be designed as the primary pedestrian connection. Maple Avenue would provide wide, canopied sidewalks, visual appeal, and calmed pedestrian amenities all supported by on-street parking on its approach to Broad Street.

Crosswalks and Pedestrian Ramps at all Intersections

While most major intersections in Windsor Center contain crosswalks, they are not always present on secondary streets. In order to create a safe, comfortable and fully connected walking environment, pedestrian facilities such as crosswalks and ADA accessible curb ramps are necessary throughout Windsor Center to provide comfortable access at major crossing points to local destinations.

Figure 22. Pedestrian Facilities in Residential Neighborhood



Curb Extensions

Curb extensions shorten the pedestrian's crossing distance, reduce vehicle turning speeds, and make pedestrians more visible to drivers. They are great tools for slowing speeds at intersections and mid-block locations and help to define parking areas as separate from drive lane areas. Providing curb extensions at key locations within the neighborhood setting will help provide

traffic calming elements to prohibit fast speeds along residential neighborhoods. These include intersections such as Preston Street and Capen Street and the intersection of Maple Avenue with Welch Avenue, Preston Street, Spring Street, and Broad Street.

On-Street Parking

On-street parking provides more activity on the street, supports adjacent commercial uses, provides a buffer for pedestrians between the sidewalk and moving traffic, and serves to calm traffic. Currently, on-street parking is limited to the eastern side of Broad Street with limited short term parking spaces. The proposed plan will add on-street parking along the both sides of Broad Street to create a more buffered and comfortable environment, providing pedestrians a sense of safety as they stroll, shop, and converse on the sidewalk. Parking can also be reconfigured along Constitution Way from the existing parking layout to parallel parking spaces on both sides of the roadway in order to provide convenient spaces close to businesses. Parking will also be allowed on Elm Street for one block from Broad Street, along Maple Avenue from Broad Street to Lenox Avenue, and along Bloomfield Avenue.

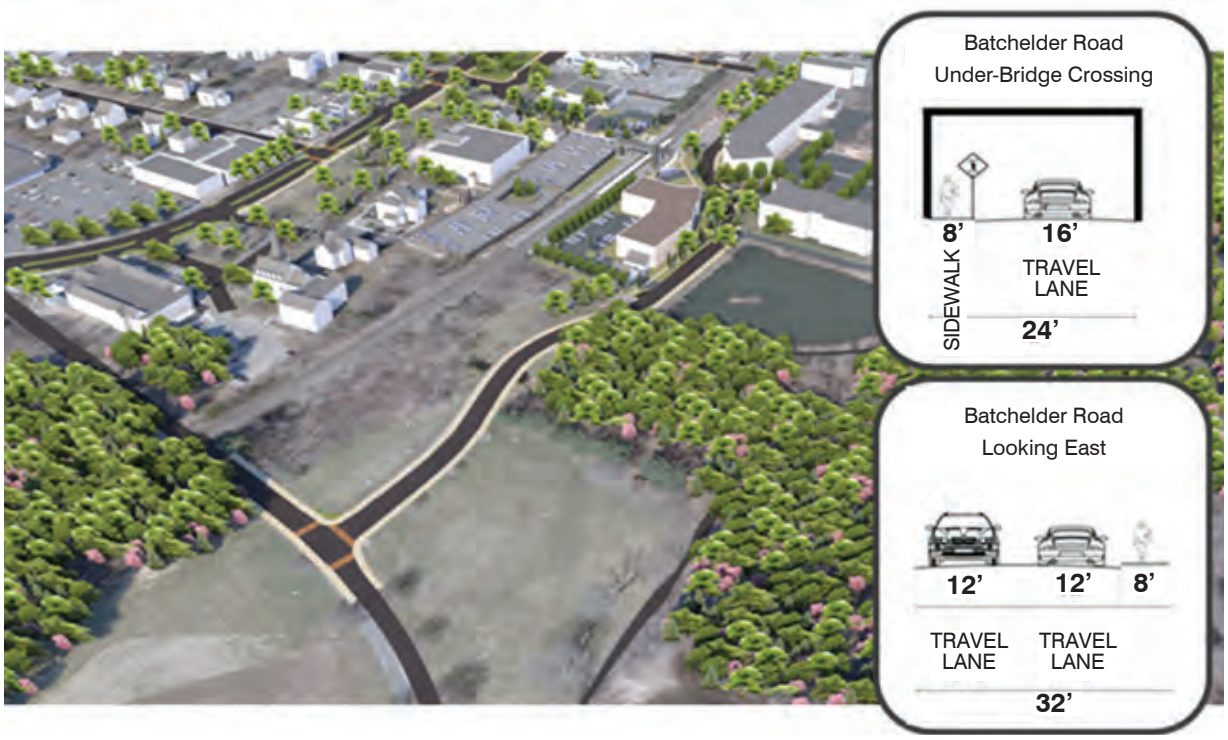


Figure 23. Enhance Connectivity to River Trail and Loomis Chaffee

BICYCLE CIRCULATION AND FACILITIES

Bicycling is an important component of creating a multimodal environment. Bicycle infrastructure and facilities are recommended throughout the Windsor Center as few designate markings exist at present. "Sharrows," or

shared lane markings, will be provided on major roadways such as Palisado Avenue, Poquonock Avenue, and Broad Street. Sharrows alert both bicyclists and vehicles that the road is to be shared by all users, and indicate the safest location for bicyclists to travel.

Minor streets have limited rights-of-way; on-street parking and adding sidewalks are recommended in lieu of designating bicycle lanes. Because the residential neighborhoods currently carry low volumes of traffic at slow speeds, no dedicated bicycle facilities are necessary. These neighborhood streets will serve as shared streets.

Bicycle parking will be allocated throughout the Town Center, predominately in front of retail storefronts along Broad Street, along Central Street, and at the station headhouse. Bicycle parking will also be located at the entrance of the River Trail.

Parking Strategy

The parking strategy requires understanding and managing parking demand, and providing information to potential users about location and supply.

The availability of parking is an important component of the success of local businesses. If people believe there are not enough parking spaces, they will go somewhere they feel is more convenient. Drivers need to know where and when parking is available.

PARKING MANAGEMENT PROGRAM

In aggregate, Windsor does not have a shortage of parking. However, as currently located and managed, the parking system in Windsor Center does not best serve storefront retail or the casual customer. As the area develops, demand for parking will increase, but the Town cannot afford to build parking supply to create the desired density of uses. Short-term steps to improve management practices can use existing spare capacity and remote resources more efficiently, improve front-door access, and lay the foundation for the future. More efficient management will allow the Town to administer the supply on surface lots so as to potentially reduce the number of new spaces needed.

Described below are parking management program recommendations and strategies to maximize availability of existing parking, while balancing demand of shorter and longer term parking needs of each user category. The system should establish firm guidelines of how the parking system should function today and evolve with downtown as development and parking demands change.

Create On-Street Parking

On-street parking will be created on Broad Street and other streets within the Road Diet area to calm traffic and enhance the storefront retail environment. Currently, on-street parking is limited to a few segments along the eastern half of Broad Street, all of which are unregulated. The western side of the street, which includes many retail storefronts, does not allow any on-street parking. Maximizing opportunities for on-street parking on Broad Street will

allow visitors to more easily arrive at their destinations and provide short-term and prime parking spaces for customers and patrons of local businesses.

Charging for parking is recommended as an incentive to encourage people to park in spaces appropriate to their needs and thus create greater availability of on-street parking. These spaces should not be time limited and should be responsive to the surrounding land uses. Short-term parkers will park in the highest-priced spaces, and long-term parkers will park in the less expensive spaces. Additional on-street parking should be allowed and encouraged on residential side streets, but these need not be metered. These regulatory adjustments will create customer availability in the core business district – expanding opportunities for customers and employees. This strategy is critical in helping to establish and redevelop the core of downtown Windsor as a vibrant and customer-friendly destination with ample available parking where customers want it.

Incentivize Shared Parking

As shown in the parking analysis in *Appendix I: Existing Conditions and Trends*, mixed-use developments offer the opportunity to share parking spaces between various uses with different peak periods of demand, reducing the total number of spaces required. Sharing parking also allows walking between destinations, as one parking space can serve multiple uses.

Windsor's zoning contains a shared parking provision, but it has limitations. The Town requires that off-street parking facilities be provided on the same lot as the associated use or on other land under the same ownership and within a radius of 400 feet of the Site. Current zoning does not provide parking requirements specific to mixed-use developments; each use component is treated as a separate principal use for the purpose of determining parking requirements. To capitalize on shared parking opportunities, a more progressive code that uses a simple method of allowing developers to build less than the minimum amount of required parking if they share their spaces with other uses.

Shared Parking Location Recommendations

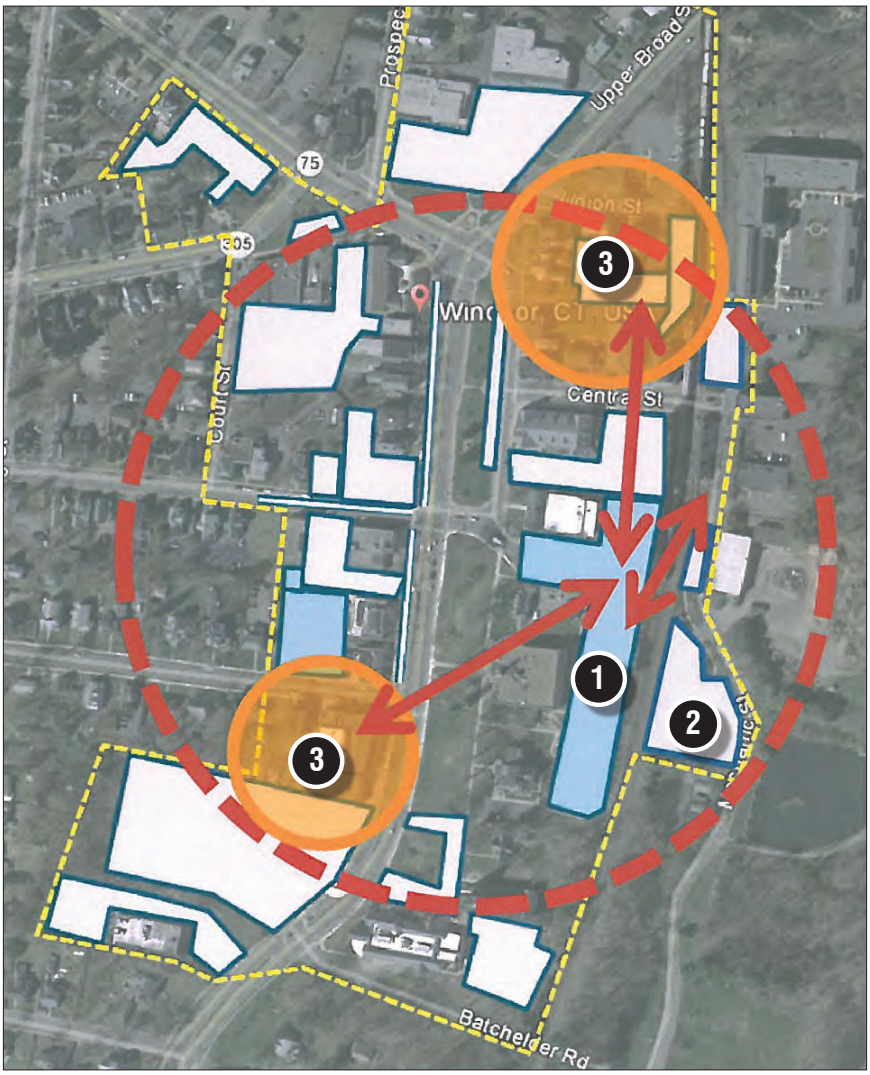
Various existing and potential off-street parking locations are possible shared parking locations to accommodate the future station area. Municipal owned lots such as the proposed garage located behind Town Hall provides an ideal opportunity to create shared parking arrangements. As shown in Figure 24, other existing and proposed parking lots such as the proposed Union/Central Street Block and Arthur's Plaza developments, and the existing accessory parking locations such as the Windsor Federal Savings Bank, the parking lot on located on Court Street, and the Family Dentistry on Broad Street, will help to accommodate future parking demands in this area.

Eliminating or Reducing Parking Minimums

Most minimum parking requirements take into account only two variables, land use and the size of development, and typically lead to overbuilding of parking. In a downtown center, parking demand is affected by many more variables, such as location, demographic characteristics of the community, availability of transit or other alternatives to the car, traffic demand management programs, vehicle ownership rates, housing unit size, share of affordable housing units, etc.

Parking maximums restrict the total number of spaces that can be constructed. As currently configured, the Windsor Zoning Regulations establish minimum parking requirements for a variety of land uses but do not provide a cap or limit on the maximum number of spaces (including the Historic District). The Town should consider eliminating or reducing parking minimums and introducing parking maximums in Windsor Center.

Figure 24. Parking Strategy



PARKING STRATEGY

1. "Land bank" the parking lot behind Town Hall for a future potential parking structure
2. Free up existing commuter parking lot for future development (parking utilization rate here is currently less than 5 percent)
3. Support redevelopment of Central Street block, theater at Plaza Building, and other businesses within walking distance.

Parking In-Lieu Fees

In some communities new developments can waive their minimum parking requirements by making an annual payment (in-lieu of providing parking) to the municipality pursuant to Section 8-2c of the Connecticut General Statutes. The fee can be utilized for transportation improvements, including the funding of shared public parking facilities. In lieu fees truly benefit the redevelopment of constrained sites and can provide a revenue stream to support the construction/maintenance of shared public parking facilities.

PARKING INFORMATION PROGRAM

Providing clear identification of parking facilities aids in understanding acceptable parking areas. In Windsor Center, on-street parking is limited, and off-street parking can be difficult to locate. With new development in the station area, clear guidance for visitors, tourists, and patrons unfamiliar with the area is a crucial component in attracting new customers to the Center.

The underutilized off-street lots behind commercial areas are assets for long-term parkers and help avoid cruising for the limited on-street spaces. The Town should invest in signage that clearly indicates regulations – including days of the week and hours of service – for on- and off-street parking facilities. Both frequent and infrequent visitors should be able to clearly understand where they can and cannot park. Similarly, restricted lots should be signed appropriately to indicate the parking regulation. Signage should do the following:

- Simply and clearly define parking rules;
- Provide helpful information about free and long-term parking locations; and
- Guide pedestrians back to their car through simple wayfinding.

Overall, signage should work with enforcement design and policy to eliminate confusion and to ensure that all users understand the rules and locations of parking within the Town Center.

PARKING DEMAND MANAGEMENT PROGRAM

A demand management program reduces the demand for parking, by maximizing opportunities for carpooling, transit use, shuttle connections to the corporate area, and alternative modes of transportation. With existing uses and new development, demand management can be a key component of parking (and transportation) strategies. Appendix I: Existing Conditions and Trends includes more detailed analysis of these measures relative to Windsor's current zoning, but a comprehensive program could include:

- **CAR SHARING** – Allows access to a fleet of shared vehicles, lowering the need for auto ownership;
- **UNBUNDLING PARKING COSTS** – Charging separately for parking is the single most effective strategy to encourage households to own fewer cars, and rely more on walking, cycling and transit. According to a study by Todd Litman , unbundling residential parking can significantly reduce household vehicle ownership and parking demand;
- **ALTERNATIVE TRANSPORTATION FACILITIES/ BICYCLE FACILITIES** – The Town should consider including short- and long-term bicycle parking standards in the Zoning Regulations, including bicycle rack standards and provision of on-street or publicly available bicycle parking; and
- **TRANSPORTATION DEMAND MANAGEMENT MEASURES** – TDM programs (parking cash-out, subsidized transit passes, guaranteed ride home, carpool incentives, and information and marketing efforts) have been shown to reduce commuting by single-occupant vehicle by up to 40%, particularly when financial incentives are provided.

Complete streets consider the practical methods of sharing the roadway among a number of users (vehicles, pedestrians, and bicyclists) and the experience of using the street itself. The street must be safe for all, but also a pleasant experience – with streets trees and other landscaping, benches for resting or chatting with neighbors, and signs to celebrate the community or let people know where they are and where they are going.

Complete Streets Strategy

The complete streets strategy addresses every aspect of street design, including multimodal access, landscape, street trees and street furniture and connectivity from the neighborhoods to transit through Windsor Center. This section includes a discussion of the design of the complete network and sample streetscapes. Appendix II: Regulatory Framework contains the draft street palette with the elements need to implement a complete streets program.

DIAGRAMMATIC PLAN

The design of a complete, multimodal integrated transportation network that promotes connectivity and re-establishes pedestrian-oriented place-making is an integral part of the Windsor Center plan. Design begins with an understanding of the context of the streets, and establishing both basic design parameters and a hierarchy of uses. Different streets will have varying starting conditions, adjacent land uses and potential uses.

Through the TOD Study process, the community preferred an integrated approach that provides distributed access through the Center and adjacent neighborhoods. This conceptual approach maximizes connections for all modes of transportation, and best distributes access through the Town Center. There is also an emphasis on creating multimodal access on the major roadways and adjacent to the station area. The distributed access plan is augmented with a "calmed" approach which provides on-street parking where feasible, and improves roadways and intersections in ways that help slow traffic speed and enhance walkability. These elements will be incorporated in all street typologies as sidewalks, crosswalks, pedestrian ramps, and on-street parking are integral to developing the connected, calmed environment sought for Windsor Center.

All streets will have common elements. Street typologies have been created to signify the hierarchical differences in the design of the roadways in Windsor Center. This categorization shows all streets, and even distinguishes differences within the residential neighborhood streets.

Internal Collector Circulation (Street Type A)

Maple Avenue would be designated as the primary pedestrian corridor from the residential neighborhood. As such, it would receive a higher level of design and would be oriented toward pedestrians. The aesthetic design and physical features will reinforce this orientation for all users. Maple Avenue would have wider sidewalks, eliminate the grass strip, and have curb extensions at regular intervals in the midst of the blocks that can support larger street trees. These areas will serve to "calm" the street, mark parking areas, and eventually provide a canopy that shades pedestrians and acts as a visual cue that this is the gateway street to Windsor Center. Curb extensions will also provided at all intersections along Maple Avenue, further calming traffic and easing crossings.

Internal Residential Circulation (Street Type B)

Streets categorized as Type B, generally have higher traffic volumes and slightly wider curb to curb measurements than the other residential neighborhood streets. These streets – Capen, Bloomfield, and Preston – also are the main connecting streets through the residential neighborhood. On these streets, the existing grass strip buffers on sidewalks should be removed and full sidewalks with curbs installed to separate roadway and sidewalk zones. As with all streets, crosswalks and ADA compliant curb ramps should be provided at all intersections, but pedestrian bulbouts should be created anywhere Type B streets intersect either each other or a Type A street. A concept that was raised during the process includes a traffic signal placed at the intersection of Broad Street and Capen Street to aid left hand turns onto Broad Street. A study can be made that takes into account this potential in concert with changes to Broad Street, addressing implications such as whether it meets warrants and how circulation will be affected. This signalization will help reduce through traffic in neighborhood streets as many vehicles headed north circulate to avoid this difficult move. Residential Shared Circulation (Street Type C)

All other streets within the residential neighborhood district are classified as Type C. These streets should be designed as shared streets as they typically are used more frequently by residents and carry low volumes of traffic. Their primary function would be to provide amenities that support residents rather than bypass and through traffic. As shown in Figure 25, many of these residential streets lack continuous sidewalk networks moving away from the Town Center. Sidewalks should be completed on all of these roadways to provide for a complete network. The grass strip buffers can remain on these streets, however adequate curb ramps and crosswalks are still recommended throughout the residential area. Trees should be planted where possible to create a more comfortable and shaded pedestrian environment, while adding to the aesthetic nature of the residential neighborhood.

Figure 25. Windsor Town Center Vehicular Circulation Improvements

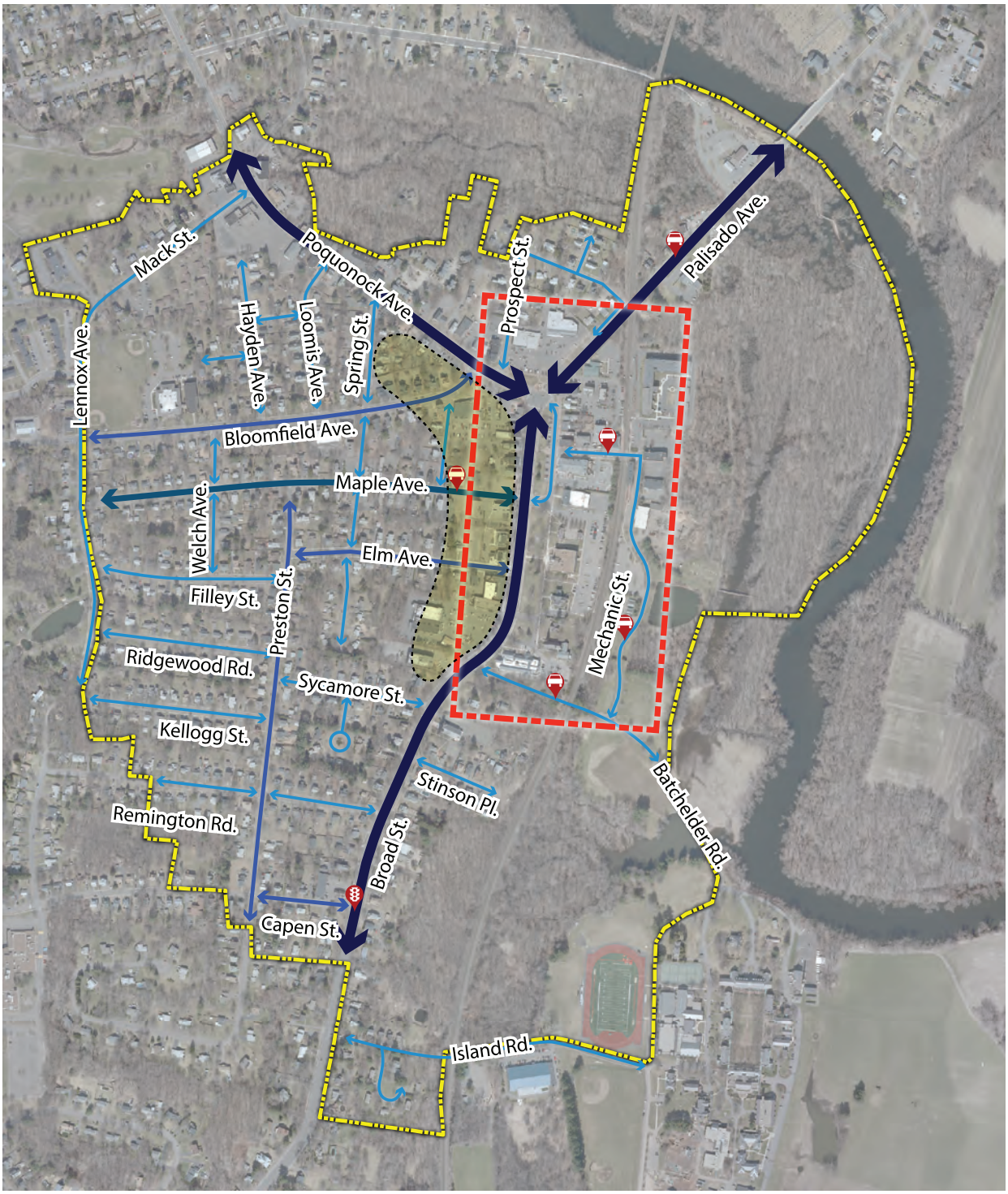
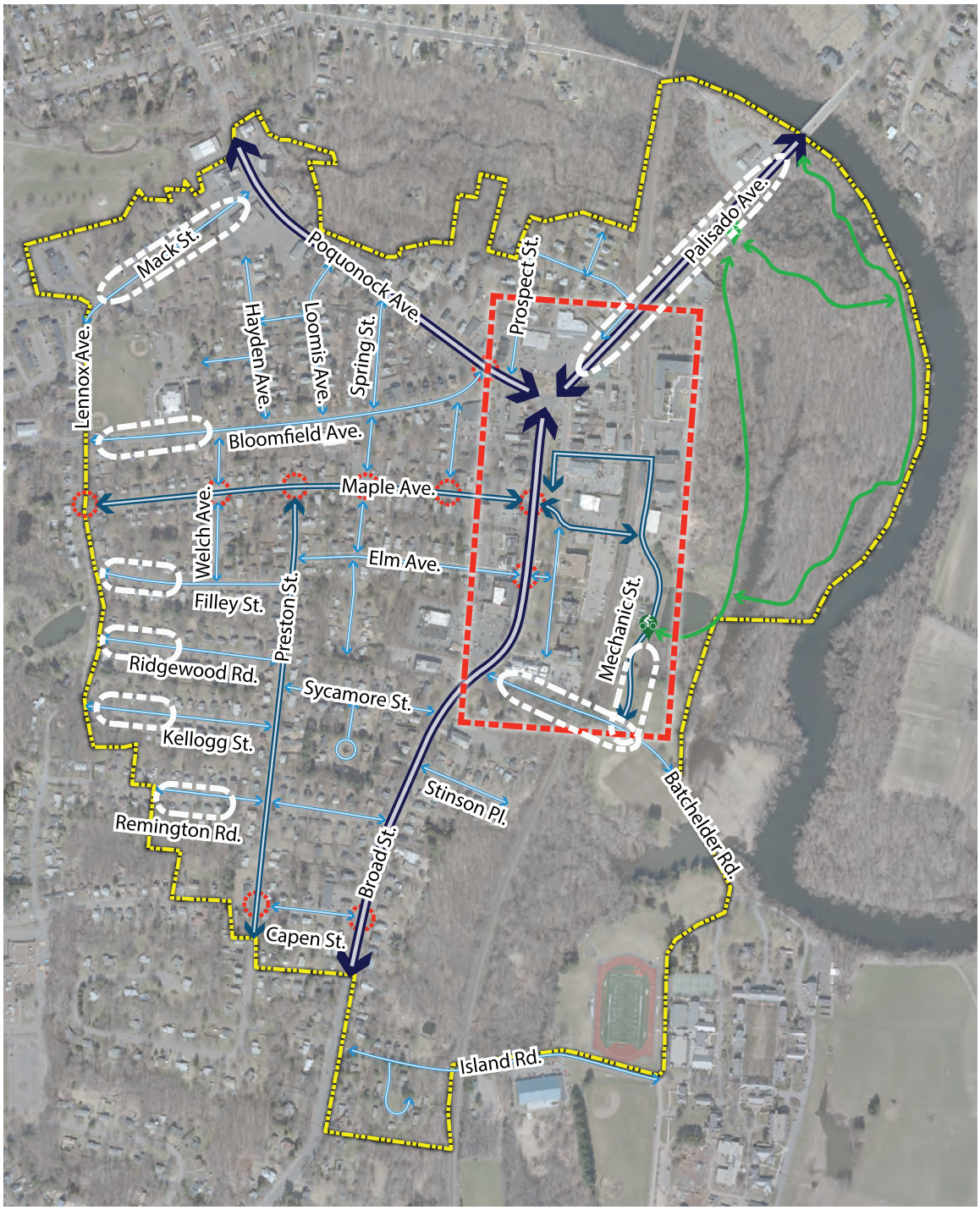


Figure 26. Windsor Town Center Pedestrian Circulation Improvements



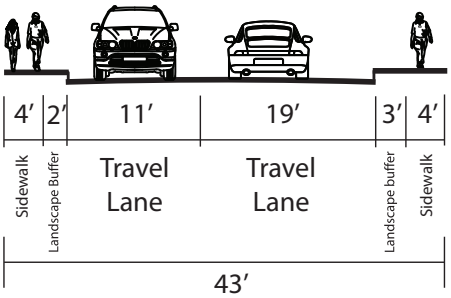
- Primary Pedestrian Circulation
- Secondary Pedestrian Circulation
- Tertiary Pedestrian Circulation
- Trail Pedestrian Circulation
- Pedestrain Center Study Area
- Windsor T.O.D. Downtown Study Area
- Proposed Trail Access Point
- Existing Trail Access Point
- Curb Extension
- Complete Sidewalk Network

Note:
Provide marked crosswalks at all intersections.

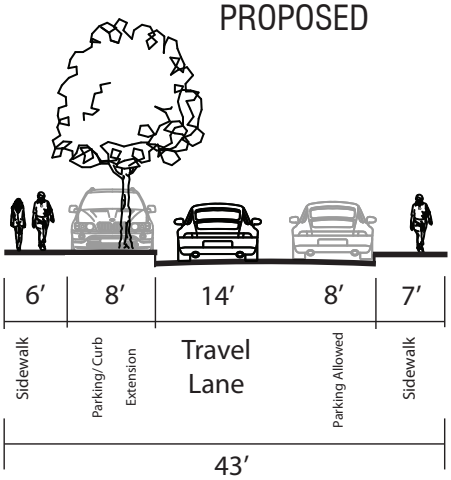
Figure 27. Road Cross Sections by Street Type

TYPE A STREET

EXISTING

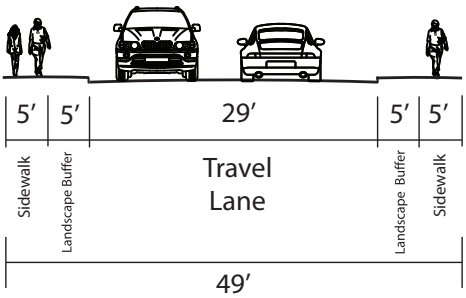


PROPOSED

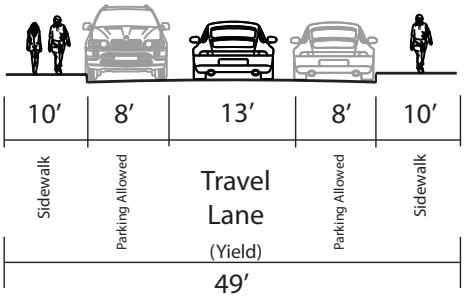


TYPE B STREET

EXISTING

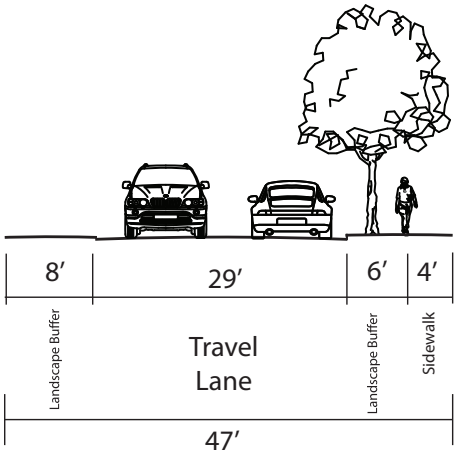


PROPOSED

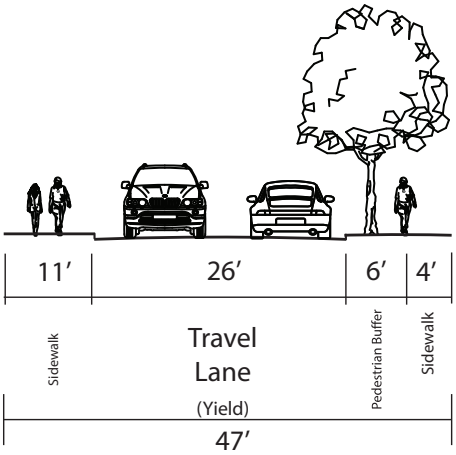


TYPE C STREET

EXISTING



PROPOSED



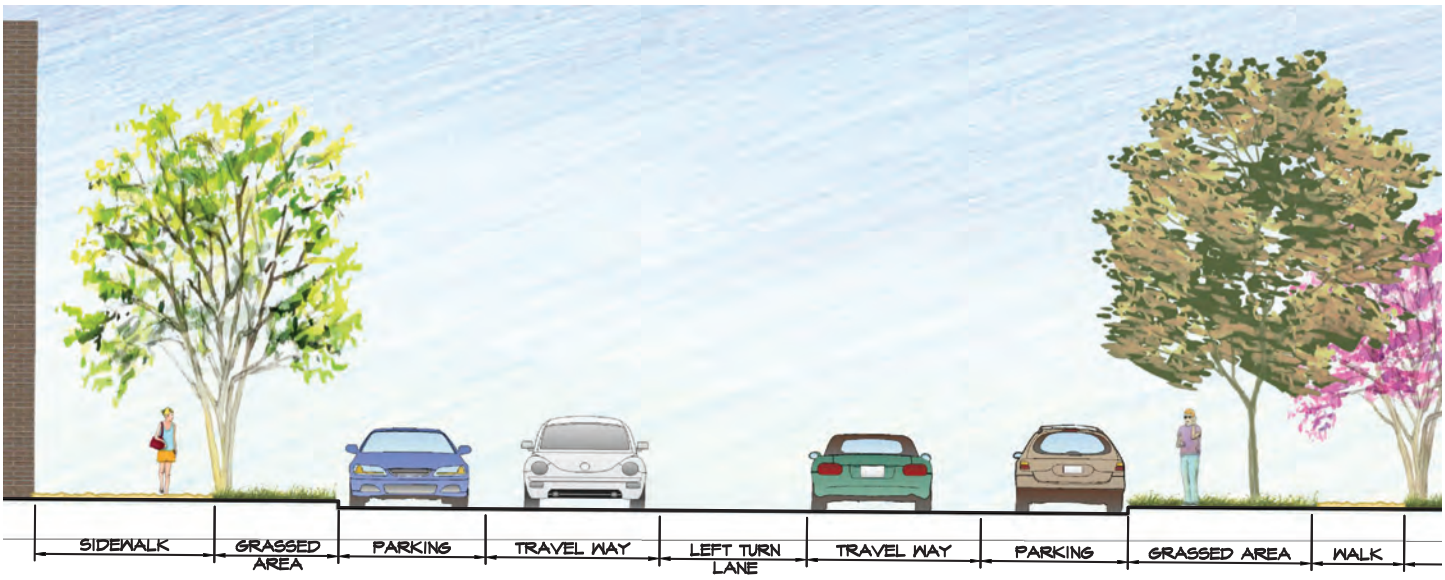
EXAMPLE STREETSCAPE PLAN

The following diagram is an example of a complete street solution, incorporating the road diet for Broad Street. The draft street palette is in Appendix II: Regulatory Framework.

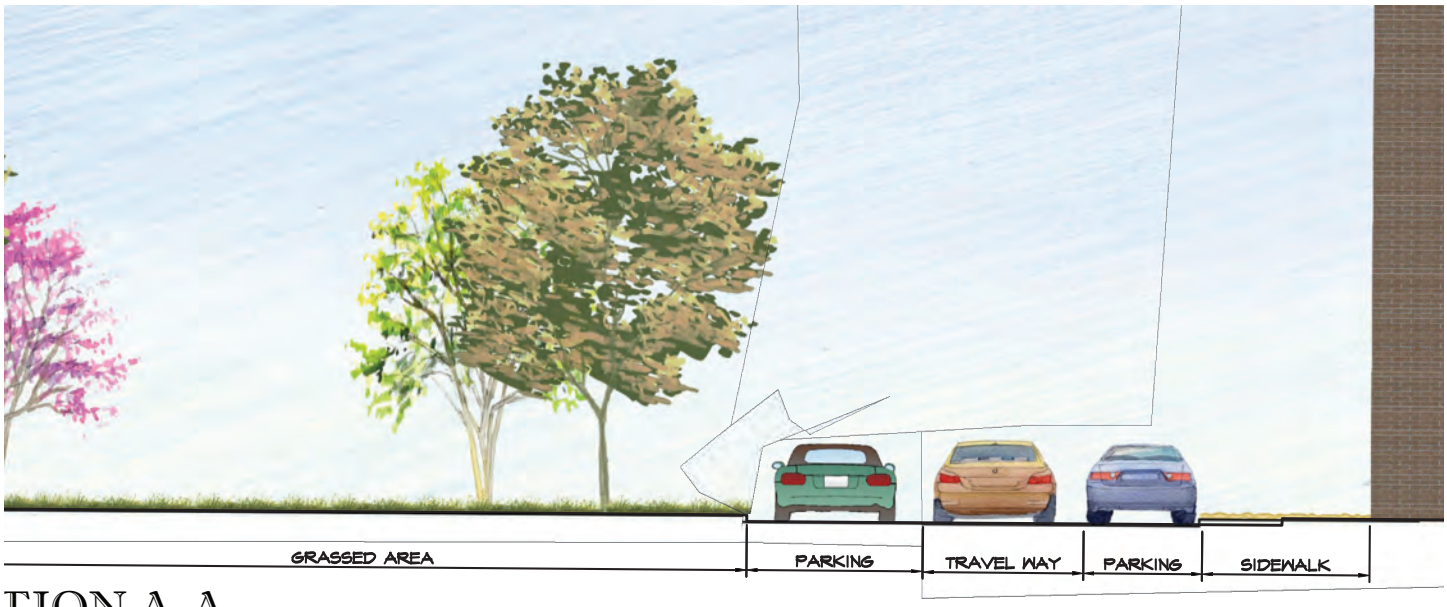
Broad Street

Figure 16 (earlier in this document) showed the preferred treatment of Broad Street and the connection between Broad Street and Central Street. The diagram includes the final parking arrangement, curb extensions, sidewalks, crosswalks, and curb cuts. It also indicates the location of the potential future extension of Central Street. Figure 28 shows the street cross-section in a larger size.

Figure 28. Broad Street Cross Section



CROSS SECT



TION A-A

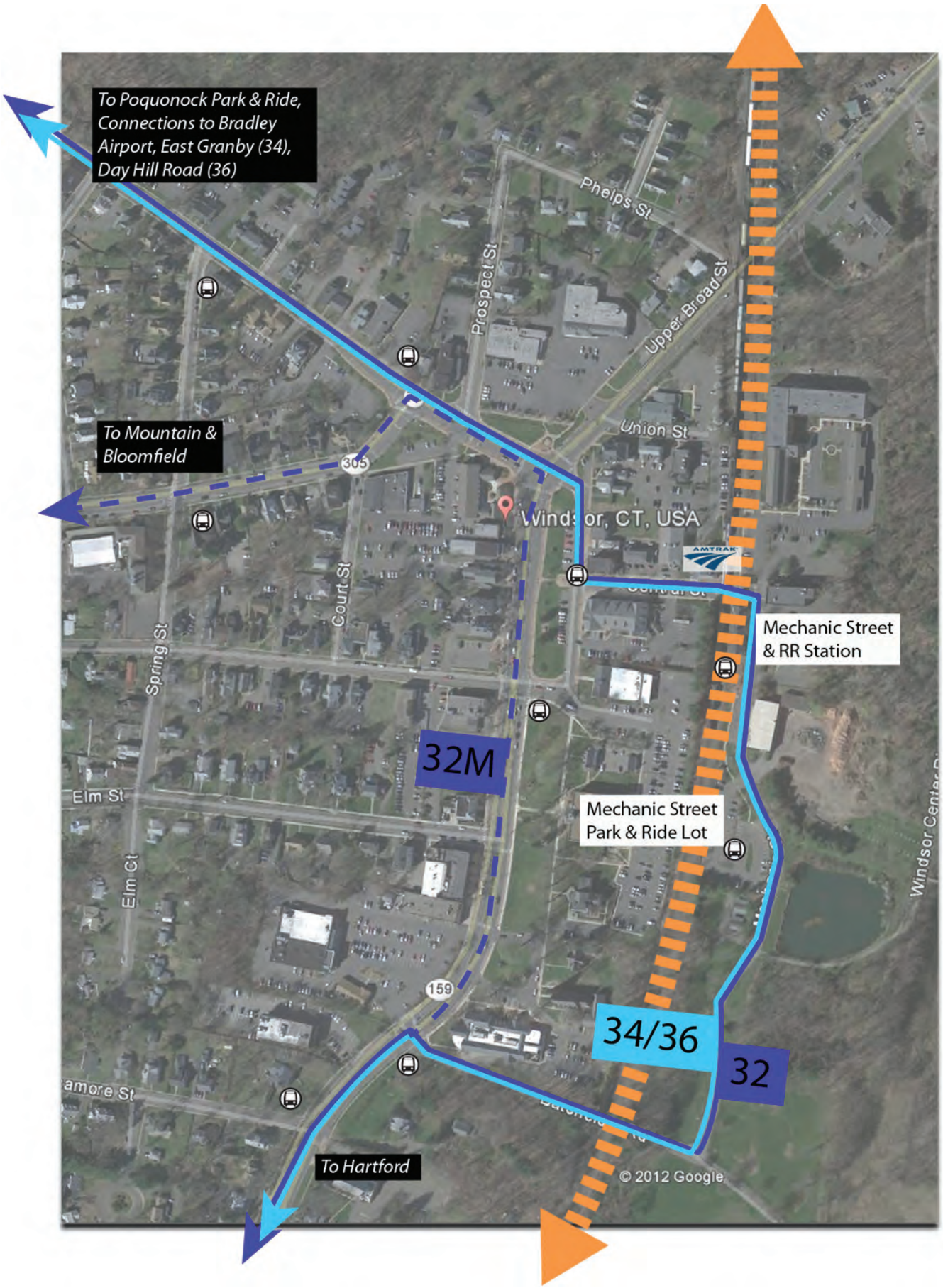
TRANSIT INTEGRATION

Linking the residential neighborhoods with public transportation is an important component of the mobility strategy. As Windsor Center develops, transit becomes an increasingly important component of a multimodal system. With the realignment and development of a new station and the coming NH-H-S service, opportunities to improve and integrate transit are being incorporated into all buildout scenarios. Establishing Windsor Center as a transit oriented destination will encourage development, in a manner that reduces traffic and parking demand constraints, while providing better access and multimodal alternatives.

Achieving transit oriented goals is not simply a matter of adding service, but in integrating the design into the fabric of the Center in a way that simplifies transit access and is cognizant of pedestrian connections to transit. As part of the Windsor Center plan, several elements working in tandem will provide this integration. Proposed designs for the Broad Street should create visible, clearly marked bus stops with pedestrian amenities such as benches, and bus shelters. These stops should be located adjacent to pedestrian crossings to encourage the use of transit and improve pedestrian connections back into the residential neighborhood.

The proposed station area plans for bus circulation are creating a bus turnaround on the west side of the new station, as shown in Figure 29. Currently, some bus routes use Mechanic Street to access the station, which increases ride time, decreases operational efficiency and does not serve the densest areas of the Center. Moving the stop to the west side, with ease of access from Broad Street concentrates transit use in the heart of the Center, while establishing a singular transfer point that can enhance the surrounding land uses.

Figure 29. Windsor Center Public Transportation



No plan is complete without a clear idea of how the community's goals will become reality. Action steps with assigned responsibilities indicate who needs to do what to make this vision happen.

4 IMPLEMENTATION PLAN AND SCHEDULE

Overview

This Implementation Strategy provides the steps to ensure that the goals of the *Windsor Center TOD Master Plan and Redevelopment Strategy* (the "*TOD Master Plan*") are met. The community identified a vision for the Town Center that addressed four areas that should be emphasized in all future planning for this area. According to the community, the Town Center should be:

- Walkable and connected
- Vibrant and diverse uses
- Accessible and safe
- Attractive and distinctive

To support this vision, the *Executive Summary* of the *TOD Master Plan* identifies a series of strategies, as follows:

- Refine the physical form of the Town Center through **urban design.**
- Add new uses and redevelop key locations through **land use development.**
- Reconfigure the **Windsor Center Station area** to accommodate future needs and create a plan for the adjacent land.
- Create a multi-modal **circulation and mobility** plan to address the needs of traffic, transit, pedestrians and bicyclists.
- Design, implement and manage **parking** as an area-wide asset.
- Integrate the network of streets, sidewalks and associated landscaping into a **complete streets and streetscape plan.**
- Continue and expand the **stewardship** of the Town Center by the stakeholders in its future.

The *TOD Master Plan* provides more detailed information on each of these strategies, including draft regulatory language, technical studies and diagrams. Each strategy has a related series of goals, summarized below.

Urban Design

- Promote new development and designs that enhance the overall district by replacing parking or underutilized land with new structures that contribute to the pedestrian orientation of the district and the architectural character as a compact center.
- Enhance the Town Green as a flexible and informal open space.
- Preserve historic buildings.

- Integrate new construction as good neighbors to historic buildings and to reinforce the pedestrian scale and orientation along lower floors, in keeping with a compact, traditional character.

- Repair the fundamental pattern of traditional building forms and town center fabric where it was removed or disturbed by auto-oriented patterns.

- Create an architecturally interesting rail depot that acts as a physical and visible connector between the east and west sides of the rail alignment.

- Reduce the visual impact of parking.

- Create an attractive, thematic streetscape that reinforces the landscape of a traditional New England town center.

Land Use and Development

- Promote and actively support additional housing as an essential component of a vital and economically successful mixed-use district.

- Promote and support redevelopment at locations that are suitable for complete or partial redevelopment including sites developed with an auto-orientation and underutilized sites along the major streets serving the Town Center, Town-owned land, institutional properties or other parcels to add vitality, enhanced economic activity and property values.

- Promote and support renovation and appropriate modifications to existing buildings to fill underutilized and empty space.

- Support concepts and proposals to restore an entertainment-related use for the Plaza Building's theater and encourage other recreation and entertainment related projects that would serve local needs, be available for Windsor residents and attract patrons to the Town Center.

- Install incremental improvements that benefit multiple properties and uses, including shared parking arrangements, common signage and landscaping themes.

Windsor Center Station Area

- Create a shared-use parking structure behind Town Hall that will serve enhanced rail patronage, redevelopment of properties near the Town Green, Town and civic needs.

- Create a transit hub on the west side by reconfiguring the end of Post Office Road as a pick-up and drop-off space for buses, shuttles and cars, as a pedestrian link to the Town Center, Town Green and neighborhoods, and providing bicycle parking facilities.

- Design the rail station so that it provides a visible and attractive architectural and landscaped pedestrian link proceeding from the Town Green, through the transit hub, across the tracks, into the redevelopment along Mechanic Street and to the open spaces and other uses beyond.

- Redevelop the Town's existing west side parking lot as a companion to the new housing on Mechanic Street and linked to the pedestrian bridge, trail head and open space.

- Provide visitor information at the transit hub and within the Chamber of Commerce, identifying destinations and features.

- Connect the Library and Town Parking lots with a driveway connection behind Grace Episcopal Church, if this is approved by the Church.

- Work with the U.S. Post Office to obtain reconfiguration and off-site provision of employee and postal vehicle parking and related operations if feasible, to allow for redevelopment and parking adjacent to the transit hub and the Green.

Circulation and Mobility

- Reorganize Broad Street to balance pedestrian and vehicle traffic and to remove inefficient paved areas through a "road diet," by reducing excess paving, tightening intersections, expanding pedestrian paths, shortening cross-walk distances and adding on-street parking.

- Improve the east-west connections across the rail tracks by re-aligning the Batchelder Road underpass in the short term and widening the underpass in the long term, and extending sidewalks and crosswalks connecting Loomis Chaffee School, the Mechanic Street area, open space and the Town Center along Broad Street.

- Install traffic-calming enhancements and pedestrian-friendly sidewalks and crossings to reduce the traffic impact on and provide safe paths for pedestrians in the surrounding neighborhoods and to reduce conflicts among drivers, pedestrians and bicyclists.

- Expand the walking and bicycling network throughout the Town Center, and improve and extend segments through public open spaces.

- Improve and expand bicycle connections through signage, links to adjacent networks, shared paths or dedicated links.

- Provide for bicycle racks and storage within the new transit hub.

Parking

- Institute a coordinated parking management program and responsibilities for the entire Town Center to better support the goals for the entire area.

- Emphasize the Town-owned lots as a central resource for customers, residents and passengers.

- Provide striped and managed on-street parking where possible.

- Establish shared lots by cooperative agreements among landowners.

- Create public/private partnerships to create parking with flexible uses.

- Promote and implement shared parking solutions and modify required on-site parking to efficiently meet needs for businesses, institutions, housing and civic uses through amended regulations, programs and policies.

- Establish policies to allocate time limits, fees and enforcement procedures.

Complete Streets and Streetscape Plan

- Install traffic calming features such as neck-downs and crosswalks.
- Adopt cross section standards for a hierarchy of streets to guide future improvements.
- Keep residential streets narrow to allow sidewalks and on-street parking and reduce traffic speeds.
- Emphasize a pedestrian-oriented east-west corridor from Maple Avenue to Mechanic Street.

Stewardship

- Strengthen and focus the policies and programs of stewardship committees and organizations to help implement relevant aspects of the Town Center.
- Actively recruit businesses or uses that will be attractive to both Town residents and patrons from other communities.
- Support collaborative redevelopment and improvement projects sponsored by multiple owners and businesses.
- Strengthen collaboration and communication with the Loomis Chaffee School.

The Implementation Schedule

These goals have been translated into a series of implementation steps, divided into major categories, consistent with the scope and organization of this planning initiative. The categories are as follows:

- Implementing Development and Redevelopment
- Accomplishing Improved Circulation, Parking and Complete Streets
- Refining Regulations and Guidelines
- Expanding Marketing of the Town Center
- Leveraging Public Land and Facilities
- Enhancing Open Space and Amenities
- Strengthening Stewardship

These categories organize the strategies into coherent steps that can be addressed together for efficiency in implementation. The specific steps listed under each category support the community vision and related goals above. Some goals will take longer than others to complete, and care should be taken to consider how the steps will affect each other over time. The individual steps should be incorporated into the update of the overall Town Implementation Plan created in the Town of Windsor's *Plan of Conservation and Development.* Each step has additional information: 1) which organization is responsible and 2) the priority level. The key to these items appears at the bottom of each page. Detailed information for certain steps, such as funding sources or design guidelines, can be found in the relevant section of the *TOD Master Plan*.

Implementing Development and Redevelopment

Focus resources and provide incentives targeted to key redevelopment needs.

What	Who	Priority	Done
1. Provide financial incentives for housing redevelopment or mixed-use development on Town-owned sites as a method to allow feasible market-rate redevelopment and reposition the Town Center for future private sector investment.	Town, EDC, TC	1	☐
2. Create a short-term funding or loan assistance program for correcting deteriorated property conditions to improve the appearance of key locations and features that influence the image of the entire district.	TC, Staff	1	☐
3. Evaluate the potential to amend the role and responsibilities of the existing Fire District or create a Special Assessment District for some or all of the Windsor Center to pay for shared improvements to the area. Work with property and business owners to create a program of improvements, funding plan and appropriate assessments.	Town, EDC, TC, FTDT	3	☐
4. Identify projects that could benefit from tax increment financing for public infrastructure related to the projects. Work with developers and property owners to evaluate the balance of public and private financing.	Staff, EDC, TC, WRA	1	☐
5. Seek grants for planning assistance from the Connecticut Trust for Historic Preservation to evaluate the potential redevelopment advantages and resources associated with historic designation and historic tax credits and methods to enhance district and building designations.	Staff, EDC, WRA, FTDT	2	☐
6. Identify buildings eligible for state or federal historic tax credit financing. Work with property owners and the Connecticut Trust for Historic Preservation and other similar advocacy programs.	Staff, FTDT, EDC, WRA	2	☐
7. Create a façade and signage improvement program with funding from local banks, civic organizations, or Town funding to provide low cost loans or grants to commercial properties for façade and signage improvements.	Town, EDC, TC, Others (First Town Downtown, Chamber of Commerce)	1	☐

Legend

DOT	Connecticut Department of Transportation	**Staff**	Town Staff
EDC	Economic Development Commission	**TC**	Town Council
FTDT	First Town Downtown	**Town**	Town staff and agencies
P&R	Parks and Recreation	**TPZ**	Town Planning & Zoning Commission
PW	Public Works Department	**WRA**	Windsor Redevelopment Agency

Priorities

1	Short Term
2	Medium Term
3	Long T erm

8. Continue grant and funding source monitoring and advocacy to evaluate the applicability of the following programs to Town goals for Windsor Center, in association with other initiatives: • TOD Bond Program • Brownfields Redevelopment Programs • Surface Transportation Program (STP) – Urban Program • Surface Transportation Program (STP) – Transportation Alternatives • Congestion Mitigation and Air Quality (CMAQ) • Economic Development Administration (EDA)	Town	1	☐

Legend

DOT	Connecticut Department of Transportation	**Staff**	Town Staff
EDC	Economic Development Commission	**TC**	Town Council
FTDT	First Town Downtown	**Town**	Town staff and agencies
P&R	Parks and Recreation	**TPZ**	Town Planning & Zoning Commission
PW	Public Works Department	**WRA**	Windsor Redevelopment Agency

Priorities

1	Short Term
2	Medium Term
3	Long T erm

Accomplishing Improved Circulation, Parking and Complete Streets

Improve multi-modal circulation in Windsor Center and at Windsor Station.

What	Who	Priority	Done
1. Adopt policies and direct ConnDOT to plan the location and configuration of the rail station, the amount and location of rail-related parking and access consistent with the conclusions of the *TOD Master Plan*. Coordinate design process with state agencies.	Staff, TC, DOT	1	☐
2. Undertake funding, phasing and operational planning for the parking structure and transit hub. This will include coordination and negotiations with adjacent property owners.	Town	2	☐
3. Initiate interim "road diet" improvements along Broad Street with restriping and other low-cost changes to better organize circulation flows, allocate marked spaces for parking and improve pedestrian crossings.	Town, ENG	1	☐
4. Advance detailed design and engineering for Broad Street improvements and obtain ConnDOT support and approval.	Town, DOT	2	☐
5. Reconfigure Broad Street and its intersections. Transform excessive street width to additional on-street parking and landscaped medians. Work with ConnDOT to establish key agreements.	Town, DOT, ENG	3	☐
6. Participate in designing and implementing shared parking and pedestrian circulation improvements in the blocks between Central and Union Streets.	Town, ENG	1	☐
7. Make incremental improvements to the streets and sidewalks by incorporating recommended actions into ongoing repairs and upgrades.	ENG,PW	1	☐
8. Create two drop-off areas at Windsor Station – one on Mechanic Street and one at the rear of Town Hall. Work with ConnDOT to shift the planned "Kiss and Ride" from the east side of the tracks to the west side, near the pedestrian overpass.	DOT, ENG	2	☐
9. Install a pedestrian crossover bridge with elevators to connect Mechanic Street to the west side of the track.	DOT	2	☐
10. Build proposed parking structure to increase ability to park for multiple uses.	Town, DOT	2	☐
11. Provide bicycle storage at Windsor Station.	Town, DOT	2	☐

Legend

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P&R	Parks and Recreation	**TPZ**	Town Planning & Zoning Commission
PW	Public Works Department	**WRA**	Windsor Redevelopment Agency

Priorities

1	Short Term
2	Medium Term
3	Long T erm

Implement changes to parking conditions to create incentives for economic development.

What	Who	Priority	Done
1. Establish a parking management committee to create consistent policies and manage parking in a coordinated manner. This should begin as a working committee with representatives from Town staff, Town Council and other boards or commissions with an agenda that includes: • Reviewing the current policies and decision-making process. • Recommending methods and the best internal organizational structure to consolidate oversight and coordinate decisions on parking supply, management, enforcement, signage, pricing and other issues consistent with the overall goals and recommendations within the *TOD Master Plan.* • Identifying specific opportunities and actions to support private or public/private shared parking solutions.	Town, TC, TPZ	1	☐
2. Create and operate a central parking deck to serve Windsor Center on Town land behind Town Hall. The deck should be a destination point with architecture visible from the Town Green. Support the environment from the Town Green to the rail station with landscape architecture.	Town, DOT, PW, TC	3	☐
3. Evaluate on-street metered parking in appropriate locations as part of overall parking management strategy. Work with ConnDOT to allow for parking to be created on Broad Street .Include metered parking in Broad Street and Station Area Designs.	TC, DOT, TPZ, Others (Police Department)	3	☐

Legend

DOT	Connecticut Department of Transportation	**Staff**	Town Staff
EDC	Economic Development Commission	**TC**	Town Council
FTDT	First Town Downtown	**Town**	Town staff and agencies
P&R	Parks and Recreation	**TPZ**	Town Planning & Zoning Commission
PW	Public Works Department	**WRA**	Windsor Redevelopment Agency

Priorities

1	Short Term
2	Medium Term
3	Long T erm

4. Identify parking minimums to eliminate or change to promote Town goals, subject to determination that parking demand is adequately provided on-site, off-site or as part of public parking solutions. Draft ordinance; hold public meetings and landowner focus groups; submit for approval.	TPZ,TC	2	☐
5. Allow parking in-lieu fees as part of new development to reduce onsite parking requirements. Establish a mechanism to escrow funds and a fee schedule in line with Town goals and parking demand.	TC, TPZ	2	☐
6. Implement signage and wayfinding. Identify type and locations for signage. Identify preferred pedestrian/vehicular paths, work with local businesses to develop and map downtown businesses and attractions. Develop information program, website, brochures and other related materials.	Staff, ENG, FTDT	2	☐

Legend

DOT	Connecticut Department of Transportation	**Staff**	Town Staff
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FTDT	First Town Downtown	**Town**	Town staff and agencies
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PW	Public Works Department	**WRA**	Windsor Redevelopment Agency

Priorities

1	Short Term
2	Medium Term
3	Long T erm

Improve pedestrian and bicycle environment to encourage connections between the Town Center, the rail station and the neighborhoods.

What	Who	Priority	Done
1. Repair sidewalks on neighborhood streets, add sidewalks extensions, traffic calming elements and enhanced streetscape elements.	Town	2	☐
2. Enhance pedestrian connections between the east and west side of the tracks and connect the rail station to Windsor Center. Ensure good pedestrian connections along Batchelder Road and Mechanic Street to Loomis Chaffee School and the River Trail.	Town	2	☐
3. Establish Maple Avenue as the pedestrian gateway to the Town Center with canopied sidewalks, visual appeal and calmed pedestrian amenities supported by on-street parking close to Broad Street.	Town	2	☐
4. Install crosswalks and ADA accessible curb ramps throughout the station area.	Town	2	☐
5. Install curb extensions at key locations to reduce fast speeds in neighborhood areas. Consider curb extensions at the intersections of Maple Avenue and Welch Avenue, Preston Street, Spring Street, and Broad Street.	Town	2	☐
6. Designate sharrows along major roadways such as Palisado Avenue, Poquonock Avenue and Broad Street.	Town, DOT	2	☐
7. Add bicycle parking facilities throughout the Town Center, particularly along Broad Street and Central Street and at the station headhouse.	Town	2	☐

Legend

DOT	Connecticut Department of Transportation	**Staff**	Town Staff
EDC	Economic Development Commission	**TC**	Town Council
FTDT	First Town Downtown	**Town**	Town staff and agencies
P&R	Parks and Recreation	**TPZ**	Town Planning & Zoning Commission
PW	Public Works Department	**WRA**	Windsor Redevelopment Agency

Priorities

1	Short Term
2	Medium Term
3	Long T erm

Enhance the streetscape for all users.

What	Who	Priority	Done
1. Develop policies for streetscape enhancements, including intersection and access improvements, street trees, landscaping, lighting and street furniture. Reinforce the recommended street hierarchy to distinguish between collector streets and residential streets and among different types of circulation needs.	Town, TC, ENG, TPZ	1	☐
2. Modify the street tree planting program to reinforce the character of each street type as identified in the *TOD Master Plan*.	Town, PW	2	☐
3. Develop a lighting program based on street type and install street lights appropriate to the character of the street as identified in the *TOD Master Plan*.	Town, PW	3	☐

Legend

DOT	Connecticut Department of Transportation	**Staff**	Town Staff
EDC	Economic Development Commission	**TC**	Town Council
FTDT	First Town Downtown	**Town**	Town staff and agencies
P&R	Parks and Recreation	**TPZ**	Town Planning & Zoning Commission
PW	Public Works Department	**WRA**	Windsor Redevelopment Agency

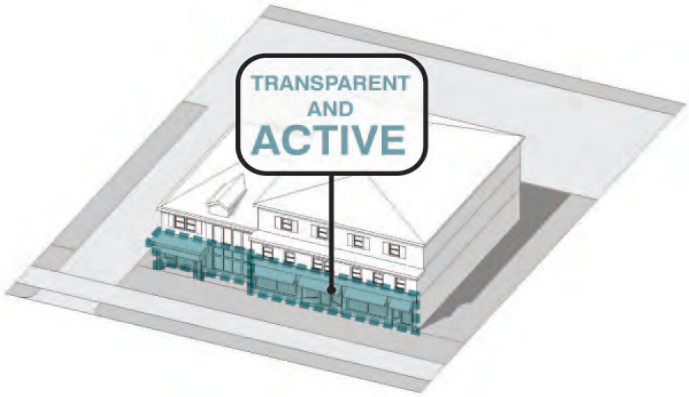
Priorities

1	Short Term
2	Medium Term
3	Long T erm

Refining Regulations and Guidelines

Use Town-sponsored tools to ensure that the quality and character of future development contributes to the vision and value for Windsor Center.

What	Who	Priority	Done
1. Create Advisory guidelines that will be distributed and promoted by the Town, but mandatory for any project that is provided Town funding, financing or façade or is a party to a Town land disposition.	Staff	1	☐
2. Consider future benefits of revised zoning with a Village Center (VC) zone for mixed-use in the core of the district, including potential advantages or disadvantages of Village District regulations (under Connecticut General Statutes 8-2j).	TPZ	2	
3. Consider refining zoning for transitional residential/business areas, such as a Neighborhood Mixed-use (NM) zone.	TPZ	2	☐
4. Consider potential boundary changes to the historic district to include additional properties, considering local, state and national significance and the economic benefits associated with access to historic tax credits or other resources.	TPZ	3	☐
5. Consider creating an additional use type within the Town of Windsor Zoning Ordinance known as "Live/Work" for the Village Center zone.	TC, TPZ	2	☐



Legend

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Priorities

1	Short Term
2	Medium Term
3	Long T erm

Expanding Marketing of the Town Center

Identify shared opportunities for land owners and potential tenants.

What	Who	Priority	Done
1. Create a marketing and outreach program to identify specific developers and businesses that may be attracted to the opportunities in Windsor Center, and match them with existing redevelopment or tenancy opportunities. As part of the marketing and outreach program, identify potential restaurateurs or food-oriented establishments and pair them with potential landlords or developers for targeted properties.	Town, EDC, FTDT	1	☐
3. Repair the historic theater marquee at the Plaza Building and use it to announce events in the Town Center or other public-spirited use. Repairs should be funded by an agreement among the property owners, stewardship organizations and the Town.	Town, EDC, FTDT	1	☐
3. As part of the marketing and outreach program, work with the theater owner to solicit, identify and secure an entertainment-related tenant.	Town, EDC, FTDT	1	☐
4. Conduct a business and development workshop with an invited panel of experts and entrepreneurs with the Town, business leaders and landowners using the Urban Land Institute model to identify marketing opportunities and consider additional steps to attract investment.	Town, EDC, FTDT	2	☐
5. Create a development inventory of specific properties with redevelopment potential and provide it as part of the marketing information and outreach program. Work with existing owners to update the inventory on a regular basis.	Town, EDC, FTDT	1	☐

Legend

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Priorities

1	Short Term
2	Medium Term
3	Long T erm

Leveraging Public Land and Facilities

Use surplus public land to support development goals in the Town Center.

What	Who	Priority	Done
1. Actively support the redevelopment of the town-owned land east of Mechanic Street for housing as a critical component in advancing the redevelopment and economic revitalization of the Town Center.	Town, TC, EDC, WRA	1	☐
2. Repurpose land adjacent to the new rail station for Mechanic Street redevelopment. Support development of multi-family buildings, potentially incorporating commercial uses or live/work units. Create a cohesive Mechanic Street corridor. Relocate rail parking to the west side of the tracks.	Town, TC, EDC, WRA	2	☐
3. Obtain excess land from the State of Connecticut at the intersection of Poquonock and Palisado Avenues. Expand the potential for development on the adjacent site.	Town, TC, DOT	1	☐
4. Support the realignment, sale, lease or reuse of Union Street as it may contribute to the redevelopment of adjacent sites, as long as circulation and access to all affected properties is provided. Incorporate public easements into parking, pedestrian circulation and landscape enhancements within the block between Central and Union Streets.	Town, TC, EDC, PW	2	☐
6. Explore the realignment, sale, lease or reuse of portions of Upper Broad Street adjacent to the former Arthur's Drug site if it will support feasible and appropriate redevelopment of that site, as long as circulation and access to all affected properties is provided.	Town, TC, TPZ	2	☐
7. Explore the long-term reconfiguration and redevelopment of the existing U.S. Post Office to reduce or relocate the amount of staff and postal vehicle parking, while retaining and improving access for Post Office patrons.	Town, TC, EDC, WRA	3	☐

Legend

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Priorities

1	Short Term
2	Medium Term
3	Long T erm

Enhancing Open Space and Amenities

Improve the Town Green and amenities in Windsor Center.

What	Who	Priority	Done
1. Expand and improve the trail systems to and through the open spaces in Windsor Center. Such as connecting to the Connecticut River Trail at East Barber Street. Enhancements should include wayfinding and interpretive signage for natural and historic resources.	TC, ENG, P&R	2	☐
2. Install additional infrastructure to the Town Green, including perimeter walkways or sidewalks, spaces for public art and additional seating.	Town, CC, P&R, PW	2	☐
3. Promote locations for temporary or seasonal businesses such as bicycle or kayak rental, food trucks and an expanded farmer's market.	Town, EDC, FTDT	1	☐
4. Adopt performances and public art installations provided by the Windsor Arts Center as part of the theme, image and life of Windsor Center.	Town, FTDT	3	☐

Legend

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Priorities

1	Short Term
2	Medium Term
3	Long T erm

Strengthening Stewardship

Focus and coordinate activities by key stakeholder groups, organizations and the Town

What	Who	Priority	Done
1. Strengthen and refocus the policies and programs of stewardship committees and organizations to help implement relevant aspects of the Town Center.	Town, EDC, FTDT	1	☐
2. Actively recruit businesses or uses that will be attractive to both Town residents and patrons from other communities, through the marketing programs developed and implemented by stewardship groups within the Town.	Town, EDC, Others FTDT, WRA	2	☐
3. Strengthen collaborations and communications with the Loomis Chaffee School.	Town, TC, Loomis Chaffee School, FTDT	2	☐

Legend

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2	Medium Term
3	Long T erm

Appendices

WINDSOR CENTER

TRANSIT-ORIENTED DEVELOPMENT
Master Plan and Redevelopment Strategy

Appendix A: Existing Conditions and Trends

WINDSOR CENTER

TRANSIT-ORIENTED DEVELOPMENT
Master Plan and Redevelopment Strategy

FIGURES

CONTENTS

APPENDIX A: EXISTING CONDITIONS AND TRENDS

1 LAND USE AND DEVELOPMENT PATTERNS

Land Use Patterns

Windsor Center, a classic New England town center, consists of a diverse mix of land uses. Among the nearly 600 properties within the Planning Area there are single-family homes, restaurants, offices, mixed-use buildings, open space, civic buildings and other uses. A residential neighborhood is located west of Broad Street, and many commercial and mixed-use buildings are situated along Broad Street, Poquonock Avenue and Palisado Avenue. Near the Town Green are many government buildings, including Town Hall, Windsor Public Library and the U.S. Post Office, and together these uses contribute to the civic center. Windsor Center River Trail is located west of the Farmington River, serving as an open space and recreational amenity for residents and visitors.

The majority of properties in Windsor Center are residential as shown in the map to the right. The following is a breakdown of properties by land use:

- 74% residential
- 9% commercial
- 7% civic/institutional
- 4% mixed-use
- 2% parks/open space

HOUSING TYPES

There is a mix of housing types in Windsor Center:

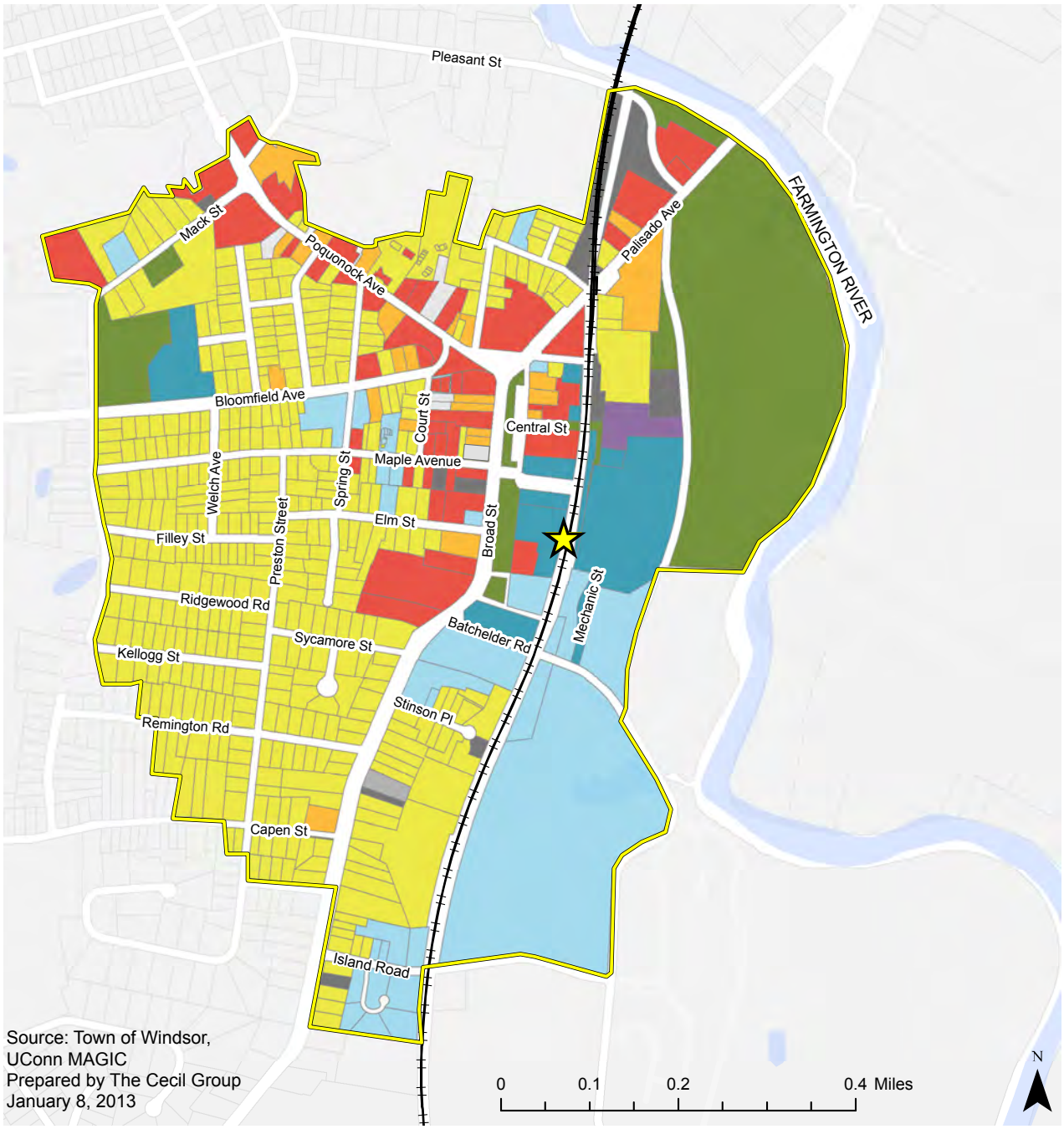
Single-family homes are most prevalent, making up roughly 76% of the residential properties

Roughly 12% are two-family homes, many of which are north of Bloomfield Avenue and east of Broad Street (south of Stinson Place)

OWNERSHIP

- The Town of Windsor owns nearly 20 properties in Windsor Center, including Town Hall, the Public Library, Fitch Park and the River Trail
- The Windsor Fire District and Housing Authority each own property within Windsor Center

Figure 1. Land Use



Land Use

- Residential
- Mixed Use
- Commercial
- Industrial
- Institutional
- Civic
- Mun. Parks/Open Space
- Parking Lot
- Utility
- Vacant
- Planned Commuter Rail Station Area
- Planning Area
- Railroad

Urban Design Analysis

The urban design character of Windsor Center is established by a few key components at the core of the town, namely the Town Green and the buildings that frame the open space, the compact residential neighborhood to the west, and the connections to open spaces and the river to the east. Windsor Center is distinguished by a relatively regular and consistent building pattern and block structure, particularly in the residential neighborhood to the west of the center. The single-family homes are oriented to the street with minimal vacant lots, and they are well connected to a network of sidewalks and walkable streets to the center. In Windsor Center, municipal and retail buildings are generally oriented to the street and create a pleasant and consistent street wall of active uses. The buildings are consistently scaled at between two and three stories. The Town Green is punctuated by mature trees, fountains, and monuments. This sense of character is occasionally interrupted by surface parking lots. The major roadways into the center and the rail corridor interrupt the walkable compact core of the Town.

KEY FACTS AND FIGURES

- The majority of properties in Windsor Center are smaller than ½ acre:
- 84% < ½ acre
- 9% are between ½ and 1 acre
- 7% > 1 acre

Several prominent vacant or underutilized properties detract from the vibrancy and sense of place in Windsor Center, including the former Arthur's Drug site, the Plaza Building, the former car dealership on Poquonock Avenue and the Mechanic Street site.

Figure 2. Streetscape from Bird's Eye View

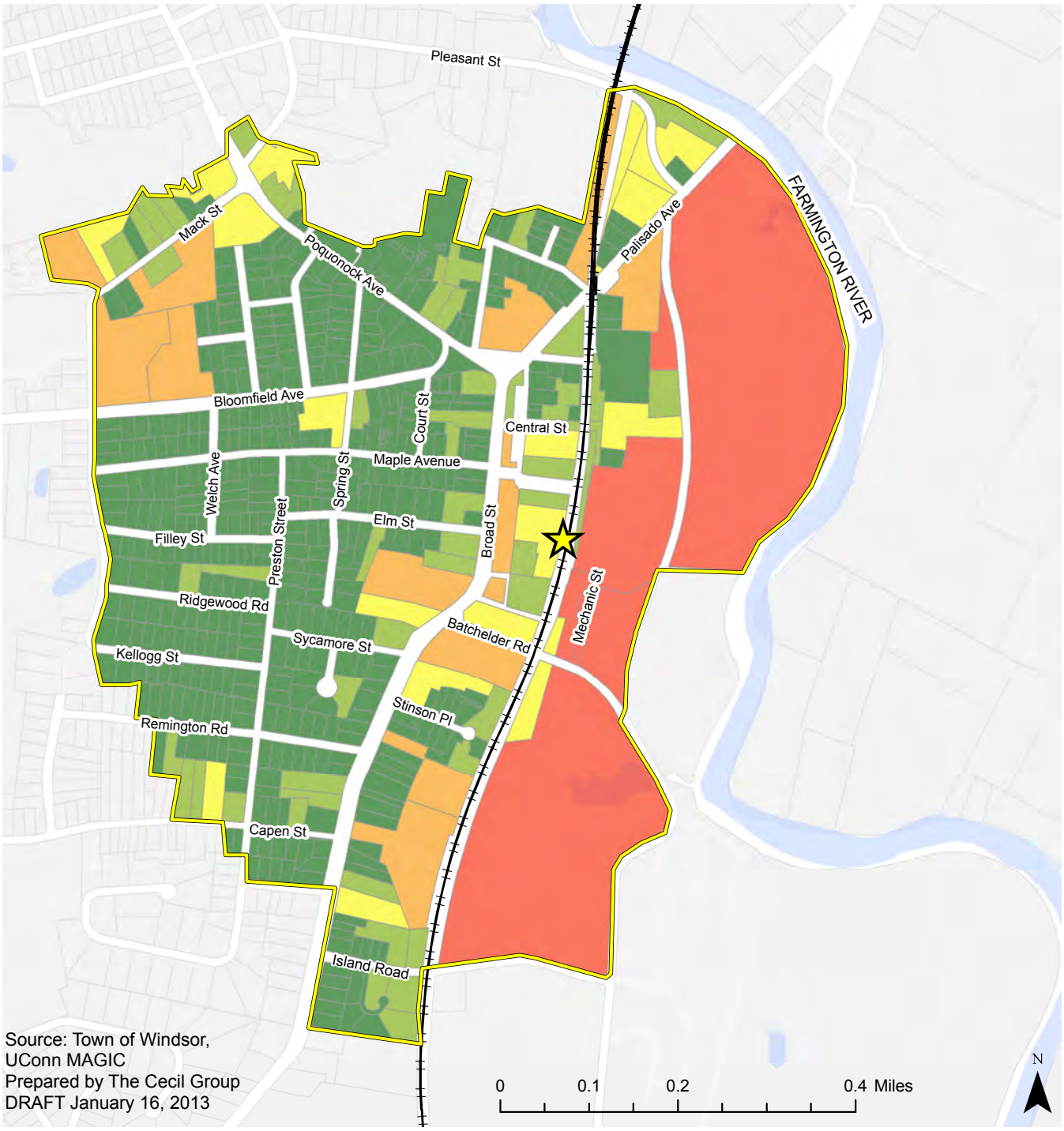
Opportunities and Constraints

When considering the land use characteristics of the Windsor Center study area, the team identified a number of key opportunities and constraints related to redevelopment.

OPPORTUNITIES

- Historic district and identity of the green
- With the centralized rail station, the Town can leverage the improvements of a true mobility center over time
- The downtown area has been historically divided by rail, with a secondary area to east, and now there are opportunities for new types of development on the other side of the tracks
- Loomis Chaffee School has a positive New England and national identity
- Relatively affordable single-family neighborhoods that are in good condition in close proximity to a walkable downtown center
- Redevelopment possibilities for parcels currently with auto-oriented businesses that are failing due to lack of traffic
- Rebalancing the main street configurations and reduction of street capacity for automobiles
- Vast and attractive green space on east side of the tracks

Figure 3. Parcel Size



Parcel Size

- < 0.5 acre
- 0.5 - 1 acre
- 1.01 - 2 acres
- 2.01 - 5 acres
- > 5.01 acres

- Planned Commuter Rail Station Area
- Planning Area
- Railroad

CONSTRAINTS

- Predominant pattern of small parcels of land that could hamper redevelopment
- Some of the larger parcels have site configurations that are awkward, especially in relation to the roadway intersections
- Certain properties are currently visibly deteriorated or vacant
- While Windsor Center has a generally desirable land-use pattern, the susceptibility of change is relatively low (although the spaces unsusceptible to change are valuable to the downtown, such as the green)

2 REGULATORY ENVIRONMENT

Zoning

Windsor's regulatory environment is established by the Zoning Regulations, revised May 25, 2012. The study area contains the following zones:

- Single-Family AA;
- Single-Family A;
- Single-Family R13;
- Single-Family R11;
- Single-Family R10;
- Single-Family R8;
- Residential High-Density RHD (one lot, discontinued zoning type);
- Agricultural AG (one lot behind corner of Central Street and Mechanic Street);
- Business B2;
- Industrial I;
- Professional P;
- Public and Quasi-Public NZ; and
- Warehouse W.

The majority of the business, professional, and public and institutional uses are along the Broad Street corridor, while a patchwork of residential zones fills in the back streets to the west.

RELEVANT CHARACTERISTICS OF ZONES

The study area contains all six graduated residential zones, Single-Family AA through R-8. The allowable density ranges from 1.6 units per acre to 3 units per acre. In addition, in the Center Redevelopment Area on the east side of the railroad, projects may apply for up to thirty units per acre. The residential zones allow for home offices of registered tenants plus one non-resident employee.

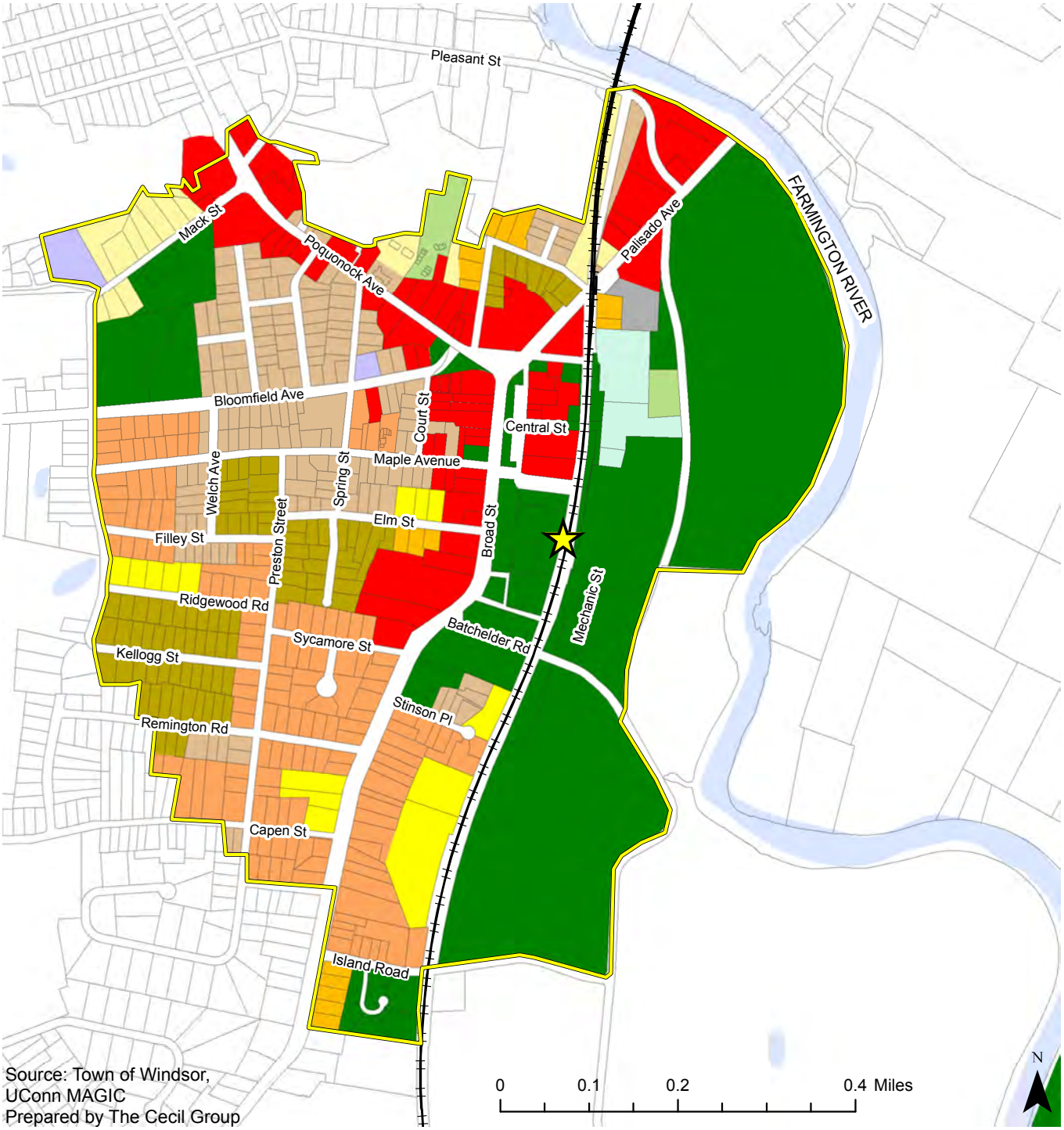
Non-residential zones in the study area are Agricultural, Public and Quasi-Public, Professional, Business, Industrial, and Warehouse. Agriculture is intended for locally grown products, open space, and transitional low-density residential uses (up to 0.3 units per acre). Public and Quasi-Public zoned land provides for "land uses and associated activities that are in harmony with surrounding development," which in practice in the study area includes the uses of single-family dwellings, open space, town offices, and religious buildings.

Professional is a zone intended primarily for offices and low-intensity uses that do not produce excessive auto traffic, noise, or other nuisances. Business B-2 allows for central business functions compatible with a shopping street environment, including retail, offices, and personal services, with a minimum of two stories of potential occupancy. Industrial's uses include offices, laboratories, manufacturing, storage, and vehicle distribution and a large number of special uses are permitted.

Figure 4. Summary Table of Zoning Dimensions.

DIMENSIONAL TABLE	LOT		YARDS (FT)			BUILDING		
	Density Units/Acre	*Area SF*	*Width ft*	*Front ft*	*Side ft*	*Rear ft*	*Area SF*	*Coverage %*	*Height Stories*
Agricultural - AG	0.3	130,680	150	40	15	25	--	15	2.5
Public and Quasi-Public - NZ	1.6	27,500	100				1,300		
Single-Family - AA									
Single-Family - A	1.3	20,000	125				950	20	
Single-Family - R-13	2.2	12,750	85		10	20		25	
Single-Family - R-11	2.3	11,250	75		8				
Single-Family - R-10	2.7	9,750	65	30				30	
Single-Family - R-8	3	7,500	50	25					
Professional - P	--	15,000	100	40	30	50	3,000	25	
Business - B-2		15,000	75	10		30	1,500	33-1/3	3
Industrial - I		87,120	180	50	35	35	--		4
Warehouse – W			180	50	35	35		33-1/3	4

Figure 4 Existing Zoning



Zoning

A	I	R-11
AA	NZ	R-13
AG	P	R-8
B-2	R-10	W

Planned Commuter Rail Station Area

Design Districts

Beyond the standard zoning districts, the study area also contains the Windsor Center Design Development Area, with three sub-areas:

- Center Core Area;
- Center Redevelopment Area; and
- Center Gateway Area.

The written intent of the Design Development Area is to facilitate "a more harmonious relationship between the development, the site, and the surrounding area than is possible under conventional zoning regulations." Project applicants may choose to use a Design Development or revert to the zoning of the underlying zone(s). Within the Center Design Development, the aim is to encourage redevelopment, preserve historic buildings, promote architectural and site design, provide amenities for non-motorized transportation, use design review to create a uniform design theme, and promote residential densities within walking distances of mass transit. A Design Development has different site standards, form requirements, parking standards, and building standards, but there is no explicit design review process.

Specifically in the Center Redevelopment Area, a project can apply for a maximum density of 30 units per acre (rather than three or less) and a maximum building height of four stories with a reduction in the maximum ratio of parking per unit. Specific requirements are in the Town of Windsor Zoning Regulations, Section 13 – Design Developments.

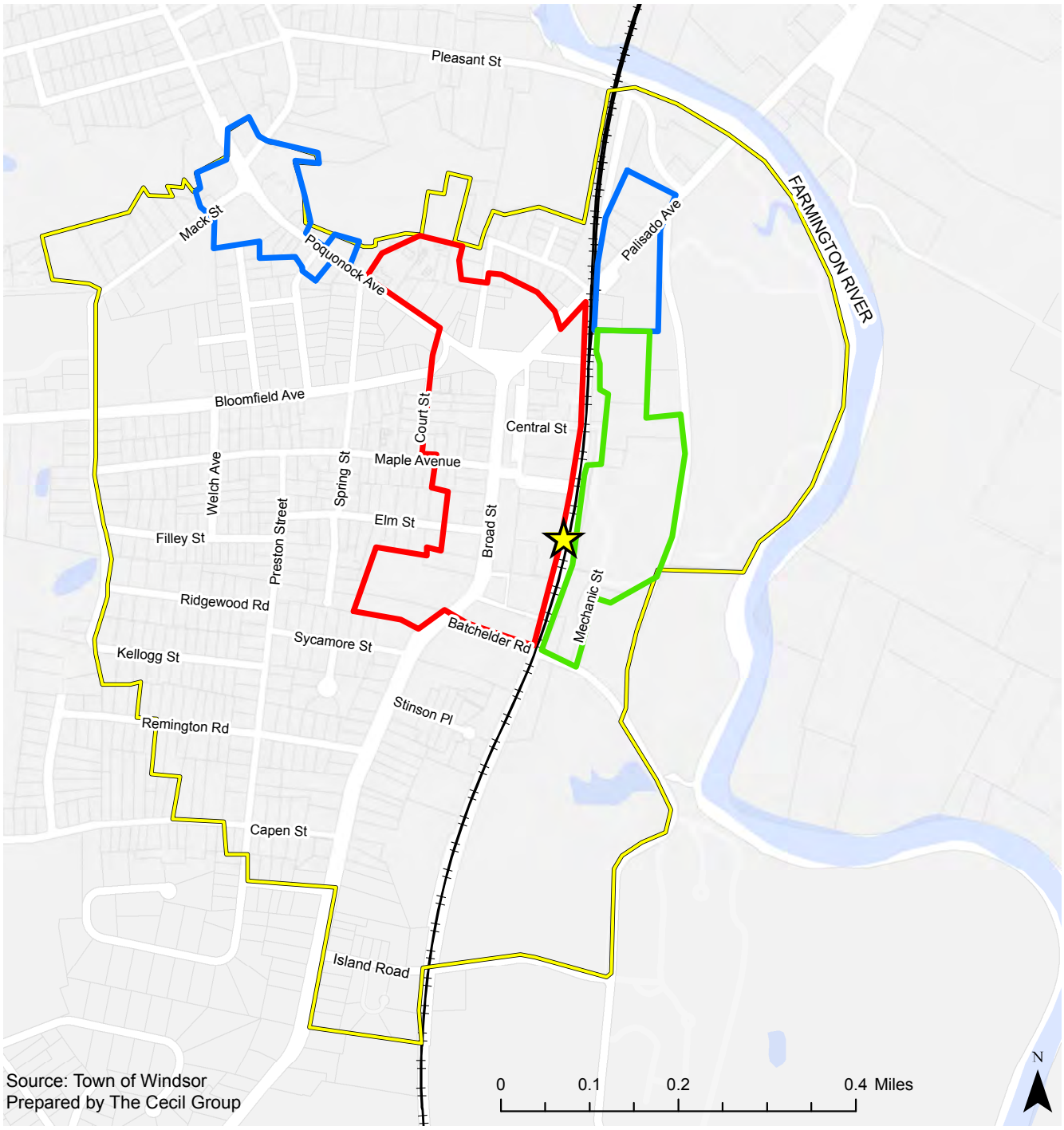
Broad Street Green Historic District

BACKGROUND

The Broad Street Green Historic District was listed on the National Register of Historic Places in 1999. It runs approximately a third of a mile along Broad Street, from Batchelder Road at the southerly end to Union Street at the northerly end, and incorporates about three dozen buildings, including a church and several public buildings. It is predominantly a commercial area, although many of the buildings once served residential purposes. The buildings surrounding the Green date from the late 18th through the middle 20th centuries and are from one to three stories high; brick is the most common construction material. Architectural styles represented in the Broad Street Green Historic District include the Federal, Greek Revival, Italianate, Gothic Revival, Queen Anne, and, most commonly, Colonial Revival.

The Green itself is the District's most prominent visual feature with the appearance of a small urban park, including a perimeter walkway, benches, scattered shade, a flagpole, the town's historical marker, a fountain, and sev-

Figure 5. Existing Design Development Areas



Design Development

- Center Core Area
- Center Redevelopment Area
- Center Gateway Area
- Planning Area
- Planned Commuter Rail Station Area

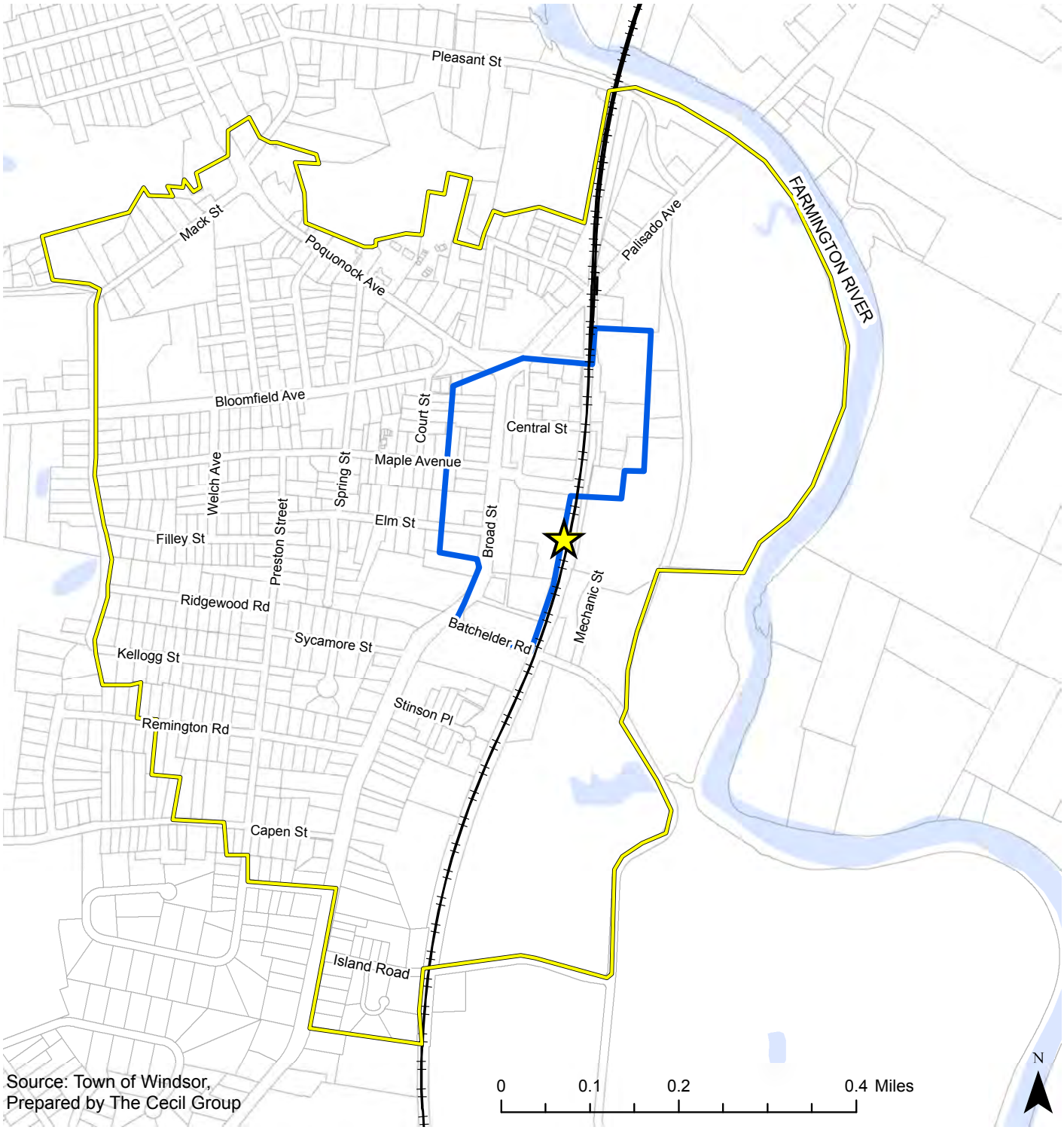
eral monuments. Surrounding the Green are buildings from Windsor's history, including the Colonial-style Colonel Oliver Mather House (323 Broad Street, built 1777), the Second Empire style Windsor passenger depot and its more utilitarian freight companion, a Colonial Revival style bank, and the former 1940 Windsor Post Office. The District also includes four industrial/warehouse buildings located on the east side of the railroad tracks along Mechanic Street. The oldest is the brick factory built for the Spencer Rifle Company in 1882 but occupied shortly thereafter by the Eddy Electric Manufacturing Company.

CONNECTICUT HISTORIC STRUCTURES REHABILITATION TAX CREDIT PROGRAM

The Broad Street Green Historic District is eligible for Public Act 06-186, Section 82 established tax credits for the conversion of historic commercial and industrial buildings to residential use, including rental or condominium units. The tax credits generated can be sold to tax liable corporations to offset rehabilitation costs. The program's features are outlined by the Connecticut Trust for Historic Preservation:

- 25% tax credit of the total qualified rehabilitation expenditures;
- State tax credits may be combined with the 20% Federal historic preservation tax credits provided the project qualifies under Federal law as a substantial rehabilitation of depreciable property as defined by the Internal Revenue Service;
- Annual aggregate cap of $15 million in tax credit reservations;
- Per building cap is up to $2.7 million in tax credits; and
- Tax credit vouchers are issued after completion of rehabilitation work or, in phased projects, completion of rehabilitation work to an identifiable portion of the building placed in residential use.

Figure 6. Broad Street Green Historic District



Broad Street Green Historic District

Planning Area

Planned Commuter Rail Station Area

Broad Street Green Historic District

3 PARKING CONDITIONS

Existing Parking Supply

As part of the evaluation of parking supply and demand, an analysis of expected parking demand based on current land use was completed. The Institute of Transportation Engineers (ITE) produces a period report titled Parking Generation, which is the prevailing national standard in determining parking demand for different land uses. ITE parking generation rates are developed and tested nationally and are a commonly used tool to determine baseline assumptions for levels of development. The average peak period parking demand rate calculation is meant to represent the number of expected parked cars at the peak period per either built square footage or residential unit.

To estimate the expected parking demand in Windsor Center, the analysis used Town Assessor's data to calculate total floor area by land use. The resulting peak period parking demand rates act as a guideline to benchmark how Windsor's existing supply compares to both its land uses and existing parking demand. Using this analysis, the expected number of parking spaces required for Windsor Center is approximately 1,280 spaces, while the actual parking supply is about 1,160 spaces.

Despite the ITE analysis, in denser mixed-use downtown areas like Windsor Center, parking and trips are typically shared between various uses. Moreover, different uses have different peak demands for parking through the course of a day. For example, an office may have a high demand until 5 p.m. and a restaurant's demand may not peak until after 6 p.m. Also, Windsor Center's walkable environment allows for parking to be shared. Visitors, commuters and employees can park once and walk to multiple downtown destinations. Each land use may not need its own dedicated supply of parking in order to achieve the level of vitality desired in Windsor Center.

For downtown, mixed-use areas like Windsor Center, a shared parking model, using variable parking demand rates by time of day, is used to calculate expected parking demand. This model uses parking rates developed by the Urban Land Institute (ULI) and is based on the same land use scenario as the ITE unshared model. The almost 400,000 built square feet of land use in Windsor Center have been categorized for this analysis, and are shown in the figures below.

Figure 9 depicts the expected parking demand using the ITE parking demand model and shows an estimated demand of 1,276 spaces, which is above the current inventoried supply of 1,160 spaces. Figure 10 uses the shared parking model and shows a shared parking demand peak at an estimated demand of 986 spaces at 1 p.m. With Windsor Center's current supply of 1,160 spaces, at peak there are theoretically more than 152 available spaces when parking is shared. Figure 10 further shows the observed parking utilization during the

mid-day. As discussed above, parking in Windsor Center is generally under-utilized, showing significant availability in most locations. With only about 500 parked vehicles observed at during the mid-day, Windsor Center shows less demand than even the shared parking analysis indicates. This suggests that there is significant opportunity to increase land use within the existing parking supply in Windsor Center.

Figure 7. ITE Parking by Land Use (Unshared) in Windsor Center

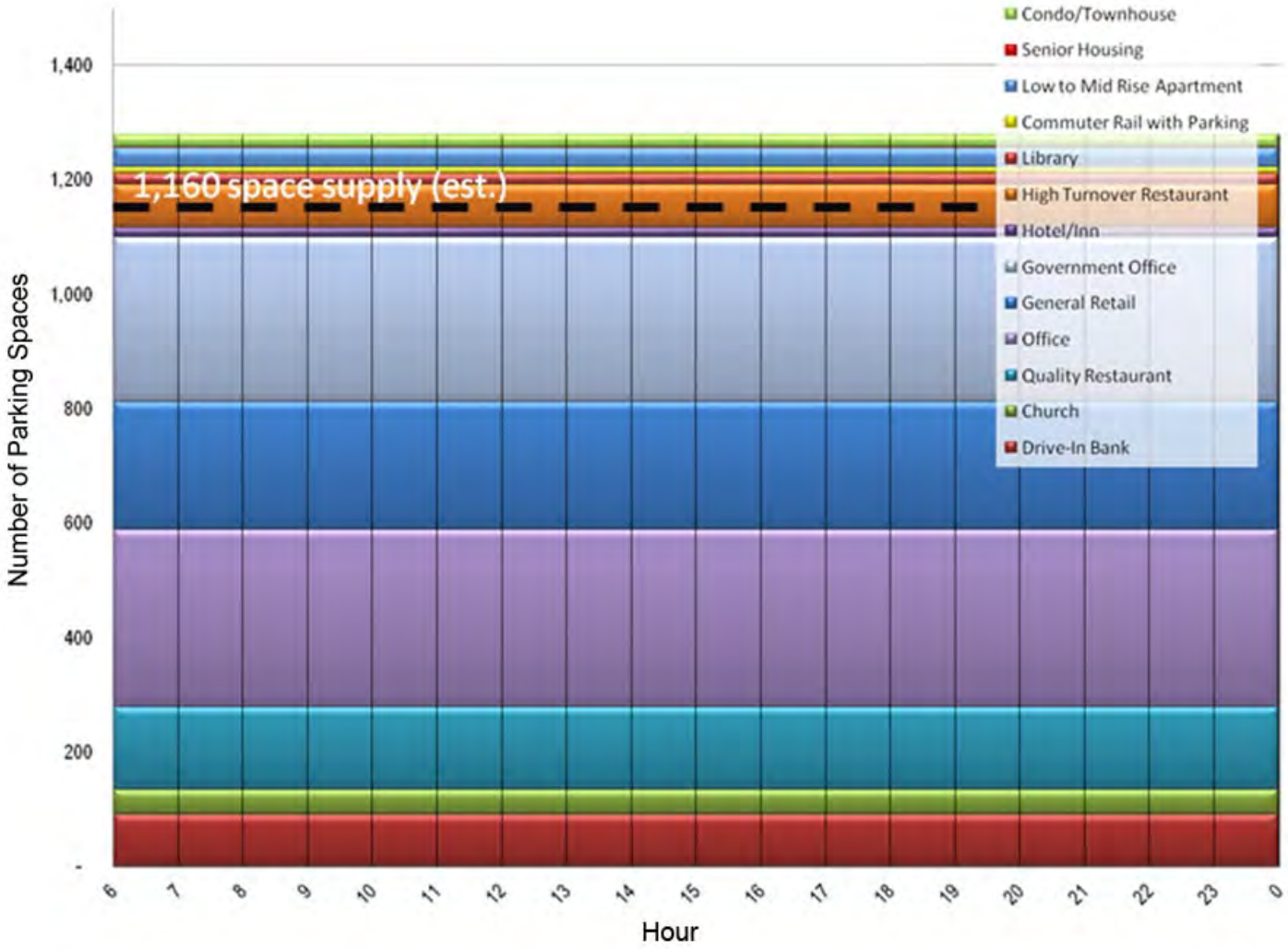
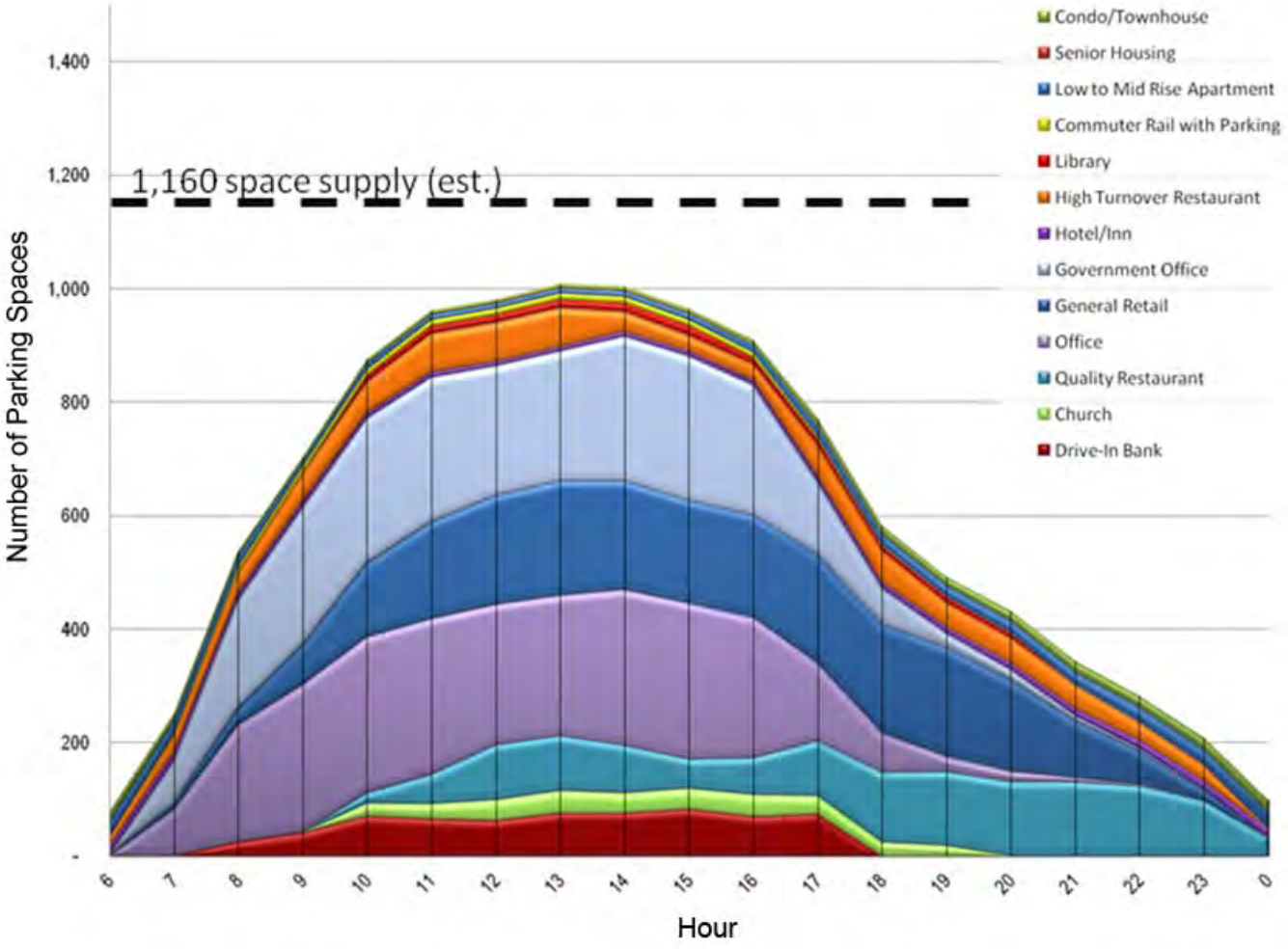


Figure 8. ITE Parking by Land Use (Shared) in Windsor Center



Parking Supply and Utilization

A parking supply and utilization analysis was completed within the boundaries of Windsor's Town Center. The analysis considered areas of commercial and mixed-use development and was meant to provide an understanding of current use and provide a basis for future parking needs in the study area. Several methods were used to understand the relationship between the existing conditions, the supply of parking, and the overall demand for parking within the downtown Windsor as described further below.

PARKING INVENTORY

Within the core of the Windsor Center study area, the team completed an inventory of approximately 1,160 parking spaces, with 33 on-street and 1,127 off-street parking spaces. There are over 20 parking facilities located in the Town Center, a majority of which act as dedicated accessory parking for the

retail stores and businesses in Windsor Center. The remaining off-street parking lots are commuter parking for the train station and municipal parking. The few on-street spaces in the core area are located on both the east side of Broad Street and on Maple Avenue, and are unregulated. On-street parking is limited throughout the study area, and is not always aligned with retail frontage. The residential neighborhood streets directly east of Broad Street allow for unregulated parking.

PARKING UTILIZATION

The team conducted a parking utilization analysis in Windsor Center on an average weekday in January, during the afternoon peak hour at 1:30 p.m. The team observed the accumulation of cars on both on- and off-street locations and mapped the utilization during this time period. With a majority of both on- and off-street lot locations below 60% occupancy, it is evident that at a typical time Windsor Center has adequate parking capacity. Supplemental observations through the course of the study showed similar results. The only off-street parking facility observed to reach maximum capacity is the private law office lot located on Maple Avenue. The private off-street lot on Bloomfield Avenue and the Windsor Federal Saving Bank lot are also well-utilized showing around 80% occupancy during this peak afternoon hour. However the remaining on- and off-street spaces within the study area exhibit 60% utilization or less, as shown in Figure 13 below.

Short Term and Long Term Supply

Based on field observations of the inventory of existing on- and off-street parking spaces, there is little dedicated parking regulated as short-term throughout Windsor's Town Center. There is an overall limited supply of on-street spaces, which typically would be regulated as short-term, and what exists is concentrated in the storefront retail environment within the boundaries of Town Center. The small amount of on-street parking that is available on Broad Street is unregulated and unrestricted allowing for long-term parking.

Based on parking counts and utilization analysis, all spaces are underutilized during the peak afternoon period. Short-term or time limited regulations are typically implemented in areas of high parking demand to create availability for customers, and prevent employees and commuters from occupying the more valuable spaces. With parking typically available in Windsor Center there is little incentive in the current environment to retain significant spaces for short-term use. It is evident that the substantial number of long-term spaces in Windsor Center is currently meeting the parking demands of local commercial and retail businesses without creating any over capacity conflicts in both short and long term parking locations in the Center.

Vehicle Access Profiles

Windsor's Town Center benefits from its proximity and accessibility to both local and regional road networks. Major nearby destinations include Bradley Airport to the north, the Day Hill Road business complex to the northwest, and Hartford to the south. Windsor Center is a crossroads of several routes, but is bounded to the east by the Farmington River right before it flows into the Connecticut River.

The eastern boundary impacts Windsor Center as it essentially has access from only three directions and four major roadways, with the Center itself acting as a distributor between these paths. Figure 10 shows vehicular access in the AM peak from the four major access roads. Palisado Avenue, from the Northeast has the highest volumes, with 41% of entering volumes. Approaching from the south, Broad Street (which includes vehicles entering from Capen Street) has 30% of entering volumes. From the northwest, Poquonock Avenue and Bloomfield Avenue comprise the remaining 39% of volumes with Poquonock Avenue showing the higher volumes.

Generally traffic entering the Town Center is using it as a means of connecting to other areas. There are key destinations in Windsor Center – the train station, local businesses, Loomis Chafee – but most sub-regional vehicular traffic is connecting through Windsor Center. As seen in Figure 10, in the morning peak almost as many vehicles are exiting (1,505) Windsor Center as are entering (1,614) indicating a substantive number of pass through trips, as few are originating in the Center itself. Even those beginning in the Center and in the residential neighborhood are likely to circulate through side streets to the extent possible before accessing one of the major connecting streets.

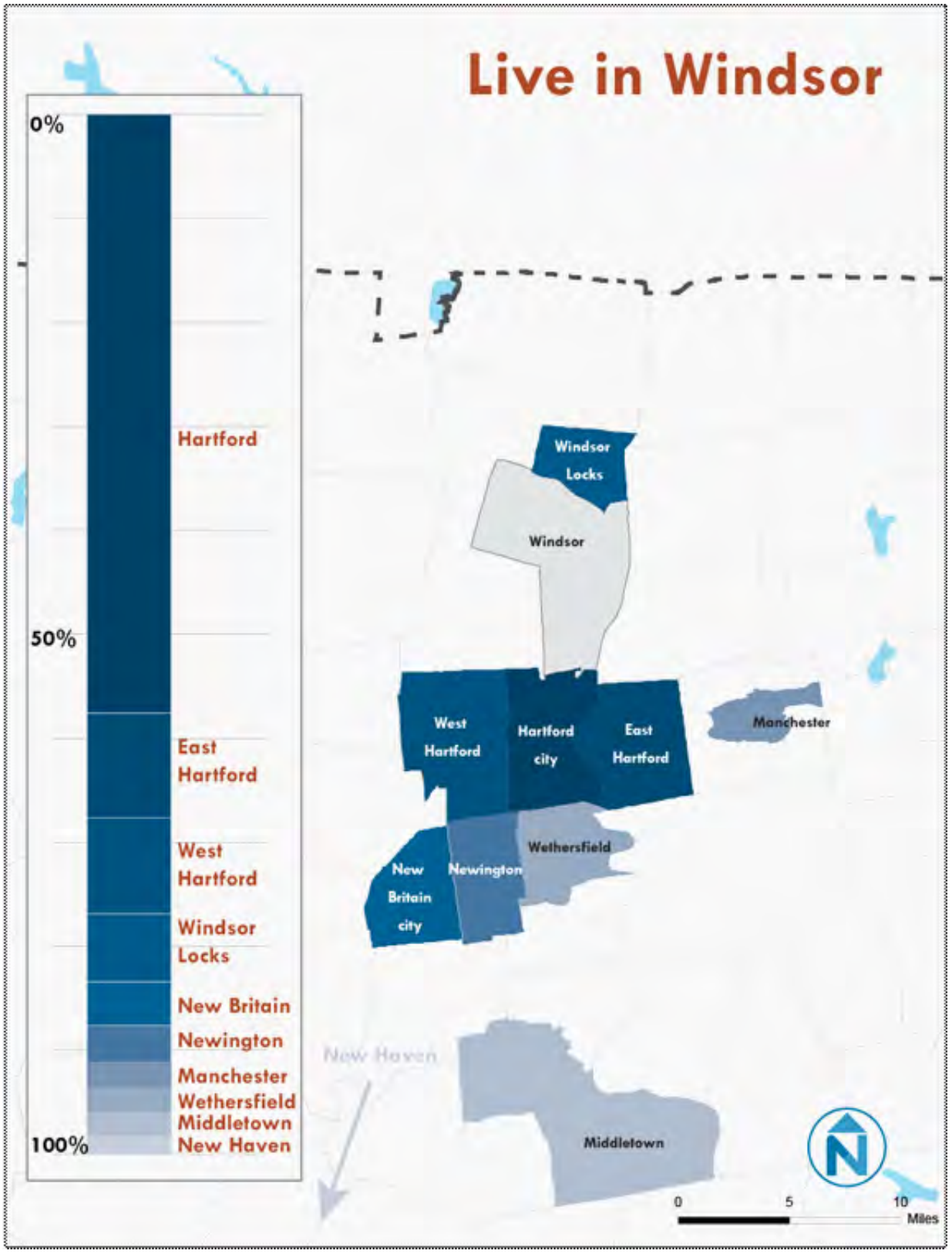
Figure 9. Windsor Parking Utilization

An additional analysis was completed to understand local and regional origin and destination patterns. Journey to work data, compiled from the 2010 U.S. Census, was analyzed for both those that reside in Windsor and work in the surrounding towns, and commuters that work in Windsor, but reside in surrounding towns. As shown in Figure 4, most Windsor residents who work outside the Town travel south to East Hartford, West Hartford, and Hartford. Even with enhanced regional rail access at Windsor's train station, it is likely that most demand for parking will come from Windsor residents. The station is less convenient to access for drivers from other towns, but significant demand from Windsor residents should be evident. Parking demand at the station will be primarily be generated by Windsor residents who do not live in close walking distance to the station.

Figure 5, indicates that of the commuters who travel to Windsor for work, most come from the south, but a significant percentage come from as far north as Springfield. Although the journey to work data is town-wide, many of these may be destined for the Day Hill road area if not Windsor Center. Regardless, the data shows that many commuters to Windsor are coming from towns that will not have direct rail access. Commuters from Hartford and Springfield will benefit and could be candidates for combined rail and shuttle service to Day Hill Road, but this is still only a portion of all commuters into Windsor.

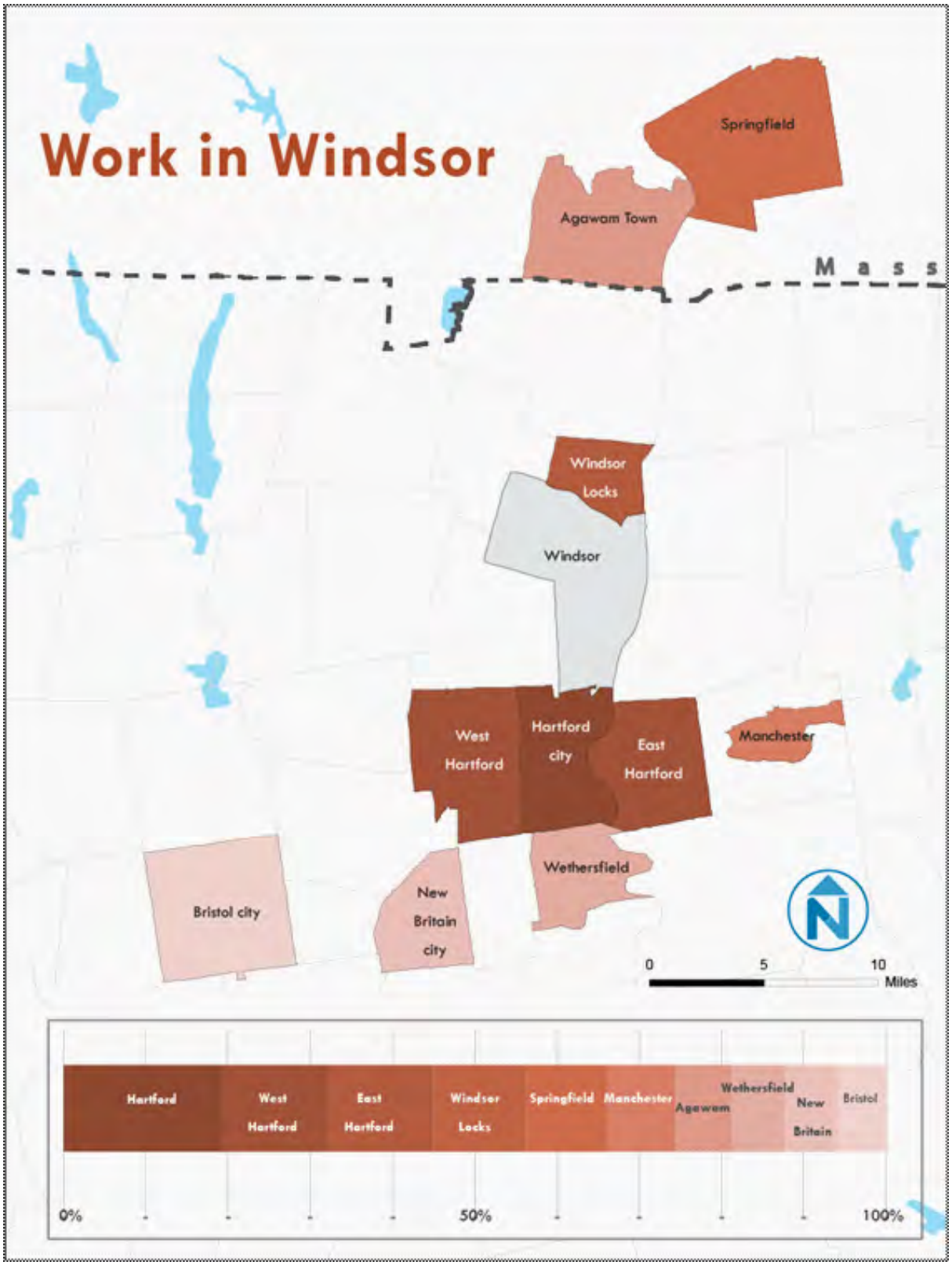
Figure 10. Windsor Center 2010 Vehicle ADT (CTDOT)

Figure 11. Journey to Work-Trips Originating from Windsor



Source: U.S. Census Bureau, LEHD Origin-Destination Employment Statistics 2010

Figure 12. Journey to Work- Trips Ending in Windsor



Source: U.S. Census Bureau, LEHD Origin-Destination Employment Statistics 2010

Multi-modal Conditions

Windsor Center has a Rail Line through its Center, which runs parallel to Broad Street. The train station provides limited service to Springfield and also points south, but will grow with the completion of the New Haven-Hartford-Springfield (NHHS) project. The station location will shift south, further away from Central Street, as new platforms and parking are completed.

While the station area is surrounded by a fabric of roadway, lots, driveways and walkways, the tracks and station provide a separation in Windsor Center, as there are only two crossings in the center to get to the station and land uses on the eastern side of the tracks. The ample supply of commuter parking, east of the railroad tracks, easily meets current commuter rail and Amtrak parking needs. The lots are close to the station, and were observed to be underutilized.

Around the station area, field observations were conducted as part of our visual assessment of Windsor Center to assess pedestrian and bicycle desire lines and access points around the area. Overall passenger activity is low and somewhat dispersed, making it difficult to conduct more formal observations. Rail commuters primarily rely on Central Street to access the Center. Field observations indicated that pedestrians tend to use the informally paved pedestrian path that runs parallel to the west of the tracks behind the CVS and into the US Post Office and Town Center municipal lot. There was low pedestrian and bicycle activity throughout Mechanic Street, with almost none coming from the southern portion of the street.

4 TRAFFIC AND CIRCULATION

Pedestrian Access Patterns

Windsor Center's walkable environment has been eroded, and there is a strong desire to improve the pedestrian and bicycle networks connecting residents to Windsor Center from the abutting traditional New England neighborhood west of Broad Street.

Broad Street's vehicular orientation has created an unwelcoming environment for those pedestrians wishing to access the commercial areas. Many shops located along the west side of Broad Street lack curbside parking or other streetscape amenities that enhance the pedestrian experience. The sometimes heavy and fast moving traffic is a disincentive for pedestrians from the heavily residential neighborhoods west of Broad Street to walk to the retail, recreational, and transit connections in the Center. While there are a number of crosswalks along Broad Street connecting residential neighborhoods in the west to businesses to the east, long block segments between crosswalks and long crossing distances along Broad Street make it difficult for pedestrians to travel between destinations. Batchelder Road and Mechanic Street lack key pedestrian facilities that could better connect neighborhoods directly south of the station area. Furthermore, transit facilities throughout the study area are scattered and often lack basic amenities such as trash barrels, benches, and shelters, and in some locations contain deteriorating signage.

Although pedestrian amenities are available within the residential neighborhoods, sidewalk connections and crossings are not always consistent throughout, which may discourage pedestrian activity. Neighborhood streets have been negatively impacted by circulating traffic trying to avoid difficult moves and peak hour congestion on Broad Street and Poquonock Avenue. Most residential streets have a sidewalk, but the conditions in residential streets are deteriorating and often lack defined curbs or are incomplete.

Bicycle Circulation and Facilities

Windsor Center does not have dedicated on-street facilities for bicycling, nor does it have designated parking facilities. The existing street widths on major roadways have sufficient right-of-way to add bicycle amenities, especially the through streets of Broad Street, Palisado Avenue, and Poquonock Avenue. Many of these roads serve as through routes for vehicular travel between surrounding communities, and would also be the connecting routes for bicyclists. Local bicyclists, including those from the surrounding residential neighborhood often shift from these roadways into the residential area or onto already narrow sidewalks. The residential neighborhood streets generally carry low vehicle volumes with minimal conflicts, so bicyclists tend to use them to minimize their interaction with the major streets to the extent possible.

There is a demand for bicycle parking in Windsor Center as evidenced from the informal bicycle parking on signage poles in front of businesses. Many of these bicyclists may also be using the River Trail, a major amenity. Located just east of the railroad tracks, the River Trail is both a local and regional destination for both pedestrians and bicyclists. Both were observed to be entering the trail from the Mechanic Street entrance.

Key Facts and Observations

- Existing pedestrian infrastructure in Windsor Center is in reasonable condition, as most streets have sidewalks.
- Except for parts of Broad Street, the main streets in Windsor Center are not pedestrian oriented. Buildings are set back from the street in locations, lighting is not always optimal, and there is no on-street parking, which would provide a buffer from traffic.
- There are only two streets crossing the railroad, leading to a lack of pedestrian connections across the railroad tracks, and there are few pedestrian facilities east of the tracks.
- Several of the main intersections act as pedestrian barriers.
- Existing roadways have the width and capacity to integrate bicycle facilities.
- Providing bicycle and pedestrian linkages from regional facilities to the center will help create a town center destination.

Within the Town Center, all streets should be improved to be inviting and accessible for pedestrians and bicyclists

Vehicle Traffic and Circulation Conditions

Regional access via Interstate 91 to Windsor Center is available via Route 159 (Broad Street/Palisado Avenue), Route 305 (Bloomfield Avenue) and Route 75 (Poquonock Avenue). Currently, Broad Street is a four-lane road that meets with Poquonock Avenue at a large intersection (formerly a round-a-bout). Average daily traffic has decreased in the area over the last decade. However, future developments along with the new commuter rail line suggest a reversal of this trend. Future traffic volumes were estimated and indicated that even with future development, the roadway could sustain a "road diet." This is where the roadway could be restriped or reconfigured so that some of the vehicle travel space would be designed and allotted for bicycle, pedestrian and parking improvements.

The area is also characterized by several awkwardly-spaced curb cuts, particularly on the east end of Poquonock Avenue. Several opportunities exist to rationalize traffic flow here.

Figure 13. Pedestrian and Bicycle Facilities

Average Daily Traffic (ADT) data at several locations in and around Windsor Center was obtained from ConnDOT and supplemental traffic count data was collected by The Cecil Group team.

The latest available ConnDOT data, from 2010, for locations surrounding Windsor Center and at the nearby I-91 interchanges is shown in Figure 19. Route 159 (Palisado Avenue) north of Windsor Center had a 2010 ADT of 6,900 vehicles. South of Windsor Center, Route 159 (Windsor Avenue) had an ADT of 11,400 vehicles. Route 75 (Poquonock Avenue) at I-91 interchange 38 and Route 305 (Bloomfield Avenue) at I-91 interchange 37 were found to both have higher daily traffic volumes than those in Windsor Center.

The Cecil Group team collected all-day traffic volumes at four locations in the center of Windsor in 2012 and included the data in a summary of ADT volumes over the past decade. The following table summarizes the ADT volumes.

Figure 14. Average Daily Traffic Volumes – Windsor, Connecticut

LOCATION	2001(1)	2004(1)	2007(1)	2010(1)	2012(2)
Windsor Center					
Route 159 south of Maple Avenue	13,700	13,300	12,400	10,500	10,900
Route 159 north of Post Office Road	12,400	12,000	11,100	9,900	
Route 159 northeast of Union Street	9,300	8,300	7,800	6,900	7,200
Route 75 west of Route 159	10,000	8,200	8,100	7,600	
Route 75 southeast of Spring Street	7,600	6,100	6,100	5,400	5,600
Mack Street southwest of Route 75		2,700	2,600	2,300	
Route 305 east of Spring Street	4,600	4,100	3,800	3,800	3,600
Spring Street north of Route 305	2,300	1,100	1,000	900	
Spring Street south of Route 305	1,500	1,400	1,300	1,100	
Route 305 east of Mack Street	7,100	5,300	4,800	4,900	
Route 305 west of Mack Street	8,200	8,300	7,600	7,300	
Vicinity of I-91 interchange 38					
Route 75 south of Drive to River Bend Condos	7,400	7,300	8,000	7,000	
Route 75 southeast of I-91 NB on-ramp	11,800	12,000	12,900	13,500	
Route 75 northwest of I-91 NB off-ramp x38	19,300	20,000	21,200	21,300	
Route 75 southeast of Day Hill Road WB connector	15,100	15,900	15,600	16,000	
Route 75 northwest of I-91 SB off-ramp x38A	9,600	9,900	9,200	9,300	
Day Hill Road east of Addison Road				20,200	
Vicinity of I-91 interchange 37					
Route 305 east of I-91 NB ramps	13,400	13,100	12,200	11,700	
Route 305 east of I-91 SB ramps	16,400	17,000	17,500	16,600	
Route 305 west of I-91 SB ramps	21,300	21,200	22,100	22,100	
Vicinity of I-91 interchange 36					
Route 178 east of I-91 NB ramps	8,600	8,400	8,200	8,500	
Route 178 between NB and SB ramps	11,600	11,400	11,600	11,300	
Route 178 west of I-91 NB ramps	14,800	14,500	15,900	14,900	

(1) Connecticut Department of Transportation; (2) Milone & MacBroom. Data seasonally adjusted based on ConnDOT AADT factor

It was found that traffic has predominantly decreased over the past decade in Windsor as a whole, especially Windsor Center. Daily traffic steadily declined since 2001. For example, Route 159 (Broad Street) south of Maple Avenue had an ADT in 2001 of 13,700 vehicles that decreased steadily to 10,500 vehicles in 2010. The 2012 data collected by The Cecil Group team indicates that the past decade decline in daily traffic may have leveled-off.

Weekday morning and afternoon peak hour traffic volumes were counted in 2012 by The Cecil Group team at the following intersections:

- Route 75 (Poquonock Avenue) at Route 305 (Bloomfield Avenue);
- Route 75 (Poquonock Avenue) at Prospect Street;
- Route 75 (Poquonock Avenue) at Route 159 (Palisado Avenue and Broad Street);
- Route 159 (Broad Street) at Maple Avenue; and
- Route 159 (Broad Street) at Batchelder Road.

The 2012 morning and afternoon peak hour traffic volumes can be seen on Figure 12 and Figure 13, respectively. The flow of traffic through Windsor Center is oriented in the southbound direction during the morning commuter period, while during the afternoon peak hour the northbound and southbound traffic flows are more evenly matched.

Capacity analyses were conducted of the 2012 peak hour traffic volumes at the study intersection using Synchro software using procedures from the Highway Capacity Manual. Overall Level of Service (LOS) at each intersection was found to be A or B, indicating very good operations. This is a result of the fact that Route 159 and Route 75 in the center of Windsor currently have more physical roadway capacity than necessary to handle the typical peak traffic demands. In other words, Route 159 and Route 75 through Windsor Center generally have more lanes of traffic than necessary. The potential for a Road Diet was found to exist. A Road Diet is a reconfiguration of the layout of a street whereby space dedicated to motor vehicle traffic is reallocated for other uses such as green space, pedestrian space, bicycle infrastructure, etc., often entailing a reduction in the number of vehicle travel lanes.

KEY FACTS AND FIGURES

Existing Traffic

- Average Daily Traffic has decreased in the last decade.
- From 2004 to 2012, total traffic in Windsor Center decreased from 70,800 trips to 60,600, a 14% decline.
- Regional traffic (near I-91) has remained steady.
- There is room for traffic growth.

Figure 15. Average Daily Traffic Total

Existing Level of Service

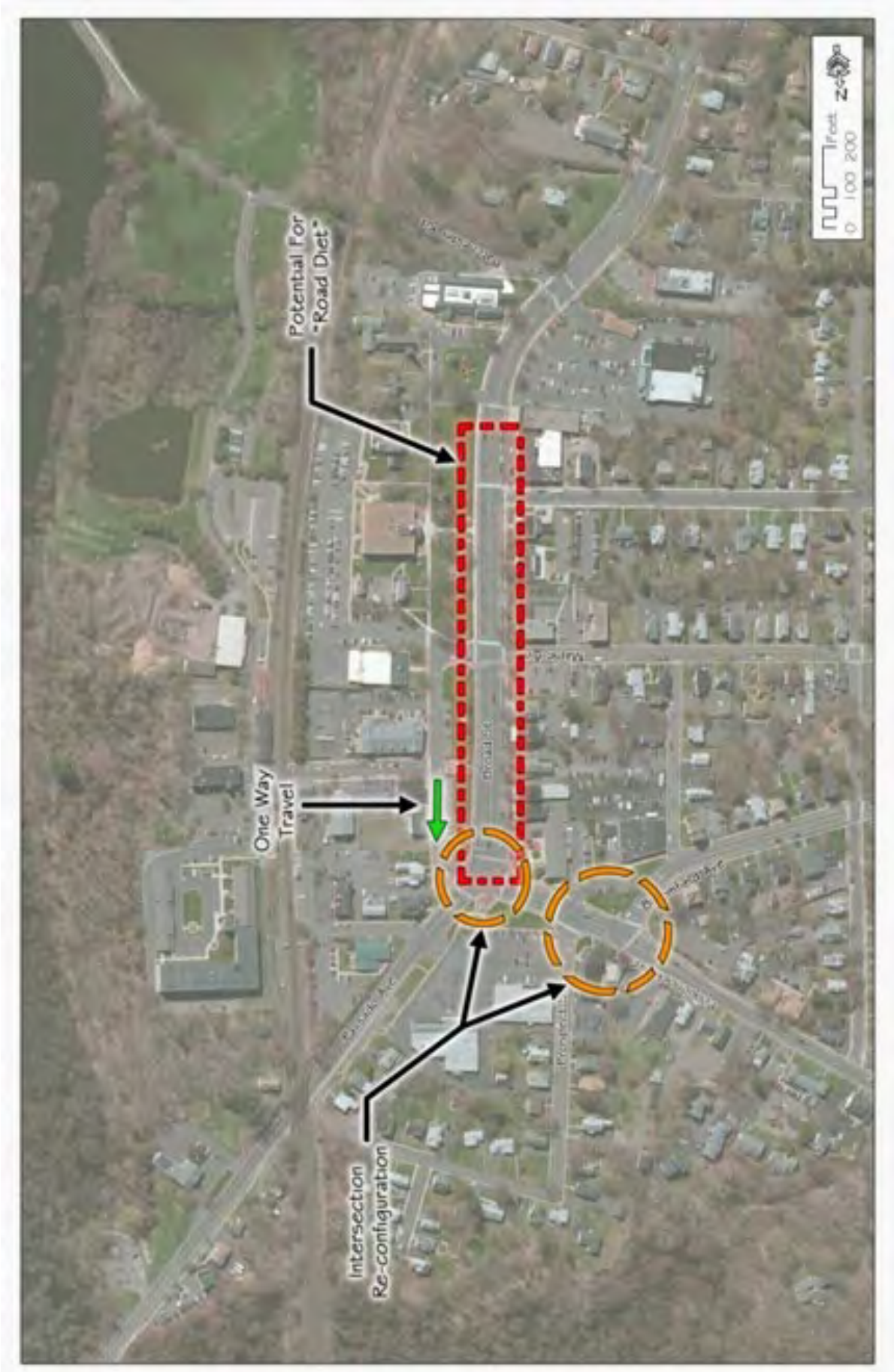
- Good existing Levels of Service (LOS) for vehicles
- C or better on all approaches
- A or B intersection wide

FUTURE OPPORTUNITIES

- Excess Capacity still available
- Opportunities for improvement
- "Road Diet"
- Intersection Re-Configuration
- Bike/Pedestrian Amenities

Figure 16. Existing Service

Figure 17. Future Opportunities



Transit

Current bus transit service is operated by Connecticut Transit and there are three routes (#32, #34, and # 36) with a 20-30 minute trip time to Downtown Hartford.

- Service frequency is every 20 minutes during peak periods
- Residents of Windsor Center have relatively short commutes:
    * Nearly one quarter commute less than 10 minutes
    * More than 65% commute less than 20 minutes
- 57% of residents leave their homes between 7 a.m. and 9 a.m.
- Automobiles are the transportation mode of choice for Windsor Center residents:
- Nearly 90% of residents travel by car, truck or van to work (87% of residents drive alone)
- 2.4% take public transportation to get to their jobs

KEY FACTS AND FIGURES

- Passenger Rail Service
    * Existing Amtrak – 5 weekday round-trip trains
    * Combined Amtrak and Commuter (2016) – 11 to 12 weekday round trip trains
    * 2030 Vision – 26 weekday round trips on New Haven-Hartford-Springfield Line (# of trains to stop in Windsor TBD)
- Travel Times (not anticipated to change)
    * Windsor to Hartford – 12 minutes
    * Windsor to Springfield – 30 minutes
    * Windsor to New Haven – 58 minutes
- Annual Ridership
    * Existing Amtrak (2011) - 10,269 annual (on and off)
    * Amtrak and Commuter Service (2016) – 51,600 annual
- Weekday Ridership (2016)
    * 135 Daily Commuter Train Boardings
    * 15 Daily Amtrak Train Boardings
- AM Peak Ridership (2016)
    * 75 Morning Commuter Train Boardings (on)
    * 50 Morning Commuter Train Alightings (off)

Figure 18. Commuting Times for Windsor Center Residents

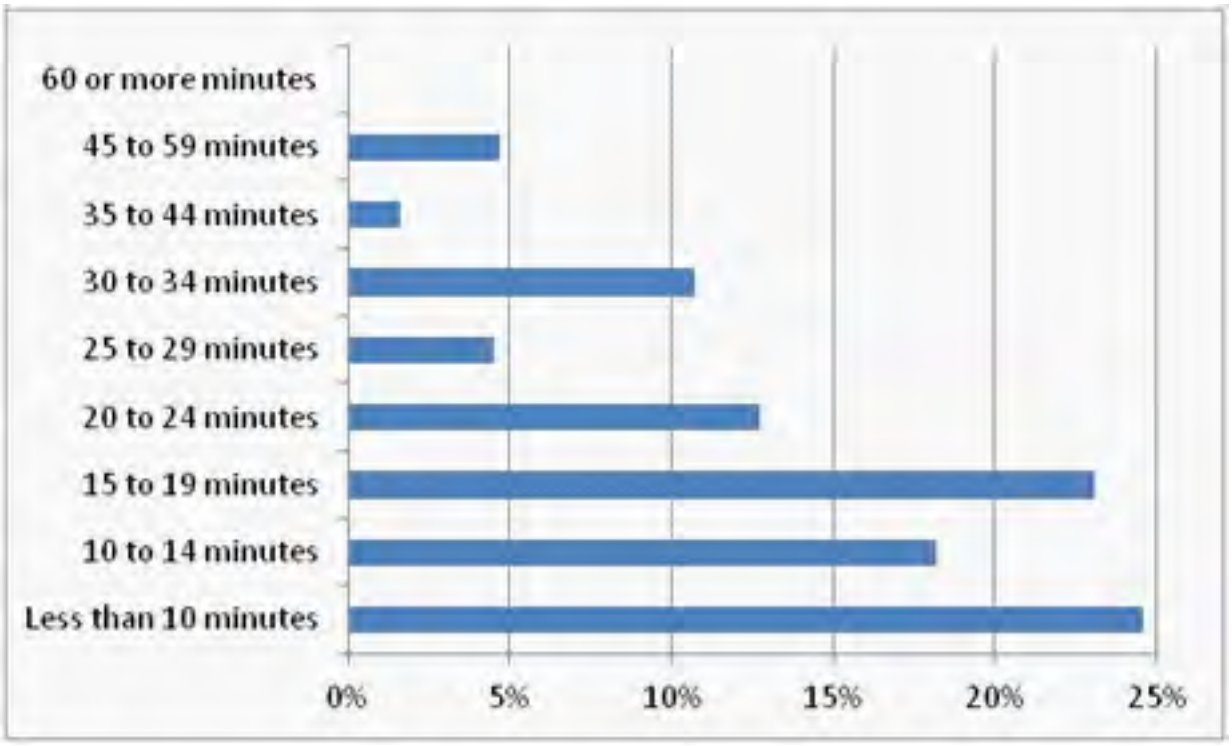


Figure 19. Mode of Transportation for Commute

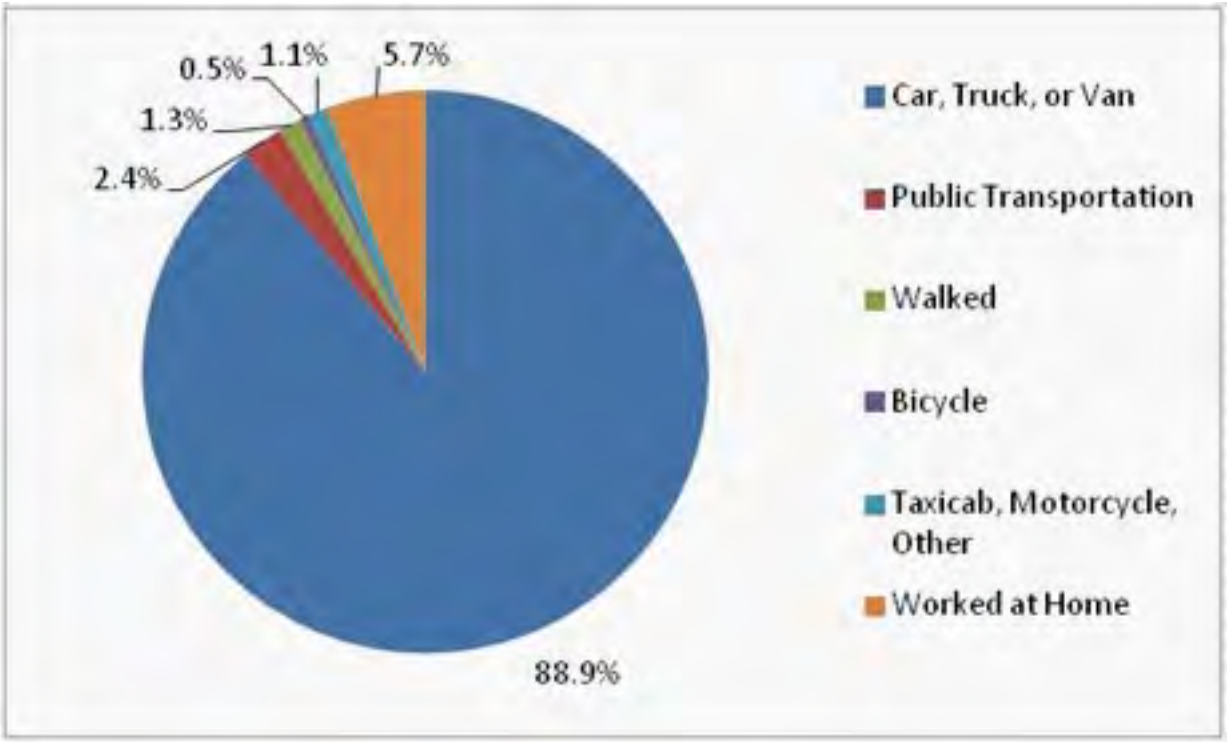


Figure 20. Amtrak Service

5 MARKET ASSESSMENT

Windsor Center currently serves as a local service center for area and town residents with its post office, library, pharmacy, banks, churches, food market, restaurants, retail establishments, realtors and smaller offices. Larger public functions, hospitality uses and corporate offices are located in the Day Hill area facilities. Diversified retail is situated in regional malls within a 10 to 15-minute drive in West Hartford, Enfield and Manchester. Demand for certain uses is curtailed due to limited accessibility over the Connecticut River. Windsor has a small town atmosphere and low property taxes, and it is located in a metropolitan area – attractive to current demographics.

The following discussion is divided into two main sections.

The first section looks at Windsor Center's regional context and evaluates that context in terms of economic, demographic and development factors. An examination of communities with similar characteristics and challenges provides further information. The final element in this section summarizes the implications to Windsor Center of its place within a set of regional competitors.

The second section examines data and trends specific to real estate development within Windsor Center itself. This section takes the information from the evaluation of regional context and an assessment of current conditions within Windsor Center and projects the effect of current real estate trends on possible current and future development of multiple real estate products – residential, retail, and office – on Windsor Center.

The overall conclusion of the study is that communities within the Corridor may show growth if they take advantage of their unique attributes to draw new residents and customers to their downtowns. This section identifies a strategy for Windsor Center to capture the current and future opportunities to encourage growth.

KEY FACTS AND FIGURES

- Approximately 1,200 people live in 700 households within a half-mile of the center, according to the 2010 U.S. Census.
- Within a half-mile of the center, there are 195 businesses employing 1,250 persons; and within 3 miles, about 12,000 households and 21,000 jobs.
- That translates to more than 1.7 jobs/household, which is an excellent indicator that there is unmet demand for housing units in the market area.
- Based on pending projects, the proposed 130-unit residential project on Mechanic Street and the 4,000-unit "new urbanism" community proposed on Day Hill Road support that conclusion of unmet demand.
- A 2009 residential demand study completed for the new community on Day Hill Road indicates an overall annual residential demand of over

2,000 units in the Town of Windsor. The study proposed building 300 units/year or capturing only 15-20 percent of the annual demand (about half being multi-family for rent).

- Larger parcels (over one acre) are at a premium.
- Uses that provide regional draw will enliven the center with more activities. Examples are live entertainment venues, cinemas, sports facilities and more diverse restaurants.
- Windsor Center has some vacancies or developable parcels that are the immediate opportunity to enhance the character of the center.

Figure 21. Windsor Center

Regional Economic and Development Context

OVERVIEW: REGIONAL CONTEXT

The Town of Windsor is the first municipality immediately north of the City of Hartford. Greater Hartford, a metropolitan area of 1.1 million people, has many attributes that are typical of mid-size urban areas. A differentiating factor is that Hartford is relatively small in area and is surrounded by more affluent suburbs. It is served by Amtrak from New Haven to Springfield and points north, roughly along the I-91 Corridor. This corridor is known as the Knowledge Corridor because many name colleges and universities are located within it. Currently the train service within the corridor is five trains per day, projected to more than double to twelve trains per day by 2016.

The Capital Region Council of Governments and Pioneer Valley Planning Commission contracted with the Jonathan Rose Companies and Center for Transit-Oriented Development to undertake a Market Analysis of the

Knowledge Corridor. In a draft dated December 2012, the report stated five key findings:

- There is opportunity to capitalize on the modest regional demand for TOD-supportive commercial space by directing growth in NHHS Rail corridors;
- The Government Sector and Anchor Institutions together represent a significant source of employment and real estate activity in the region;
- Demographic shifts in the region could help to support TOD housing demand in future years;
- Though there is demand for TOD housing and commercial space, real estate dynamics in the short term do not currently favor new development in most CTFastrak and NHHS rail station areas; and
- Regional trends of population and employment moving away from transit corridors must be reversed for TOD to occur.

For the purposes of this Windsor Center TOD Planning and Facilitation Program, the key point is that significant positive change in the Windsor Center in unlikely without a concerted planning effort on multiple fronts to focus market demand in Windsor Center that could reasonably go elsewhere.

This discussion of Regional Context evaluates Windsor Center's relative economic competitiveness in the region and its suitability for transit oriented development. An existing economic conditions assessment was conducted as part of this effort. Other regional planning efforts are in progress or recently completed including the Capital Region Council of Governments (CRCOG) market analysis of the entire Knowledge Corridor and each station area and the Comprehensive Economic Development Strategy (CEDS) for the Metro Hartford Region. The Cecil Group team reviewed these studies and assembled information relevant to Windsor Center's role in the region. The Cecil Group team also conducted interviews with local real estate and economic development experts to assess the "real world" context for development.

The first part of this discussion includes a regional demographic and economic condition profile for Windsor Center, Windsor, and the Hartford Metropolitan Statistical Area (MSA). Throughout the report, the findings of the CRCOG and Connecticut Economic Resource Center (CERC) market analysis and CEDS, as they relate to Windsor Center, are highlighted. The profile includes data related to:

- Population;
- Median household income;
- Poverty level;
- Educational attainment;
- Unemployment rate;
- Employment and establishments; and

- Location Quotients (LQs) to measure employment concentration by industry.

Additional, available data related to specific communities in the Hartford area provide a framework to evaluate comparisons with Windsor Center. The following communities were the focus of the assessment:

- Bloomfield;
- East Hartford;
- East Windsor;
- Enfield;
- Hartford;
- Manchester;
- Newtown;
- South Windsor;
- West Hartford;
- Wethersfield; and
- Windsor Locks.

Comparisons with Regional Station Areas provide more specific details about communities with similar assets and challenges to Windsor Center. The communities are divided into specific focus areas as follows:

- Limited Station Area Planning;
- Development Focus;
- Nearby Attractions (Educational); and
- Rail Stations in Connecticut.

The last part of this discussion of Regional Context includes implication for Windsor Center based on this analysis of its regional competitors.

EMPLOYMENT, ESTABLISHMENTS AND UNEMPLOYMENT RATE

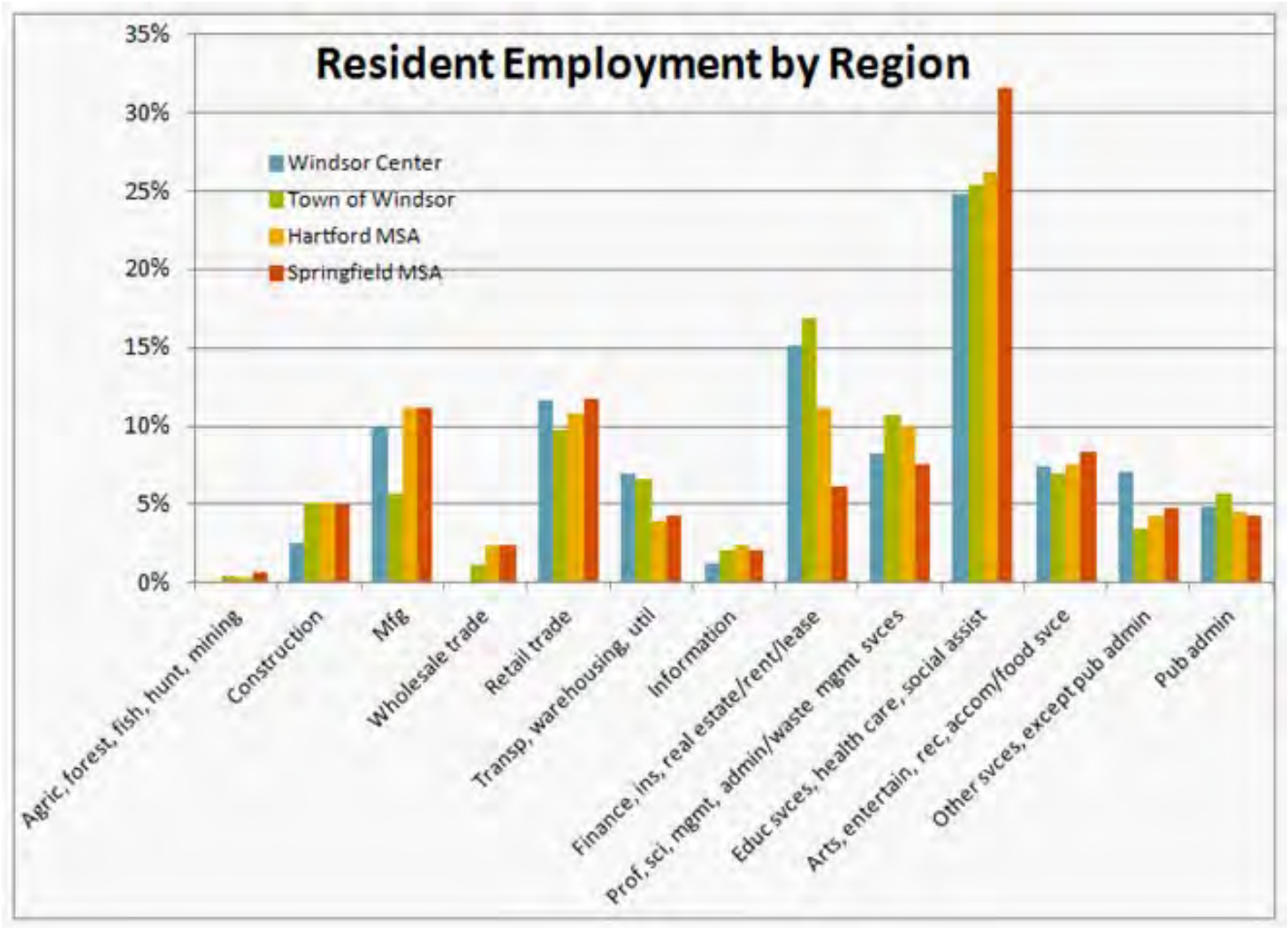
Establishments and Employment

CERC indicates that nearly 42 percent of the establishments located in the Town of Windsor are service industry businesses. Retail and wholesale trade account for another 21 percent of establishments, while finance, insurance and real estate establishments account for only 8.4 percent of total establishments.

In terms of employment in Windsor Center, it is difficult to collect data from the town's businesses because it is a relatively small geographic area. As a result, the team considered US Census data, which show the industries in

which residents of the community work, as well as the share of employment accounted for by each industry. Windsor Center residents work in a variety of industries, with nearly one-quarter working in the educational services, health care and social assistance industries. This is roughly consistent with the region in general, as shown in Figure 22.

Figure 22. Resident Employment by Region



According to a recently conducted study by CRCOG, the Health Care and Social Assistance sector experienced significant growth from 2001 to 2010, similar to national trends. Employment in these industries rose by 17 percent, making this industry the largest industry in the region. Drilling down to sub-industry level data, employment growth in this industry was highest for ambulatory health care services, followed by social assistance, nursing and residential care facilities and hospitals. The CEDS completed for the Metro Hartford Region suggests that growth in this sector will continue to outpace growth in other sectors. From 2008 through 2018, 12,610 new jobs are expected to be created in Health Care and Social Assistance for the Region. No

other sector is expected to see such significant growth, although Educational Services and Professional, Scientific & Technical jobs are expected to increase 5,432 and 4,795, respectively, over that same time period. This is good news for Windsor Center residents, many of whom are employed by businesses in these growing sectors.

The CRCOG analysis also suggests that there are certain types of jobs that are likely to be in a TOD; specifically, those that are knowledge-based or are related to education, health services and the government. Knowledge-based industries include information, finance and insurance, real estate, professional, scientific and technical services and management of companies and enterprises. Nearly one-quarter of Windsor Center residents are employed in these industries. The Town of Windsor is one of the largest employers, with offices in close proximity to the Windsor train station. ING and the Hartford have major facilities in Windsor, and Each of these businesses falls into the category of businesses that are likely to be in a TOD, although these facilities are several miles from the station. ING is approximately 3.5 miles away and the Hartford is within six miles of the station. Throughout the Knowledge Corridor, public administration and knowledge-based jobs represent a significant share of total jobs: 34 percent and 21 percent, respectively.

Location Quotients – Employment Concentration by Industry

Location Quotients (LQs) are ratios that allow an area's distribution of employment by industry to be compared to a base area's distribution. The base area is usually the United States, but it can also be a state or a metropolitan area. If an LQ is equal to 1, then the industry has the same share of its area employment as it does in the base area. An LQ greater than 1 indicates an industry with a greater share of the local area employment than is the case in the base area.

For example, Hartford County has an LQ greater than 1, as compared to the United States, in the finance and insurance industry because this industry makes up a larger share of the County's employment total than it does for the country as a whole. The detailed data for Windsor Center that would allow such comparisons were not available, but the concentration of large insurance companies such as The Hartford, AETNA and ING suggests that Windsor Center is likely similar to Hartford County, from an industry concentration perspective. This concentration in finance and insurance is compatible with TOD, as discussed previously.

Figure 23. Location Quotients – Connecticut and Hartford County as Compared to US

INDUSTRY	CONNECTICUT	HARTFORD COUNTY
Agriculture, forestry, fishing and hunting	0.34	0.3
Mining, quarry, oil/gas extraction	0.06	0.03
Utilities	0.88	0.54
Construction	0.74	0.67
Manufacturing	1.12	1.19
Wholesale trade	0.9	0.9
Retail trade	0.97	0.85
Professional and technical services	0.9	0.9
Management of companies and enterprises	1.18	1.17
Administrative and waste services	0.82	0.79
Educational services	1.69	1.1
Health care, social assistance	1.2	1.15
Transport and warehousing	0.77	0.88
Information	0.92	1.03
Finance and insurance	1.64	2.58
Real estate, rental, leasing	0.77	0.76
Arts, entertainment, recreation	0.98	0.78
Accommodations, food services	0.78	0.71
Other services, except public administration	1.02	0.9
Unclassified	0.14	0.05

Figure 24 below uses the State of Connecticut as the base area for a comparison with Hartford County. As shown, employment in the Finance and insurance industry is relatively higher for the County than the state as a whole. Other industries where the relative concentration of employment is higher in Hartford County include manufacturing, transportation and warehousing, and information.

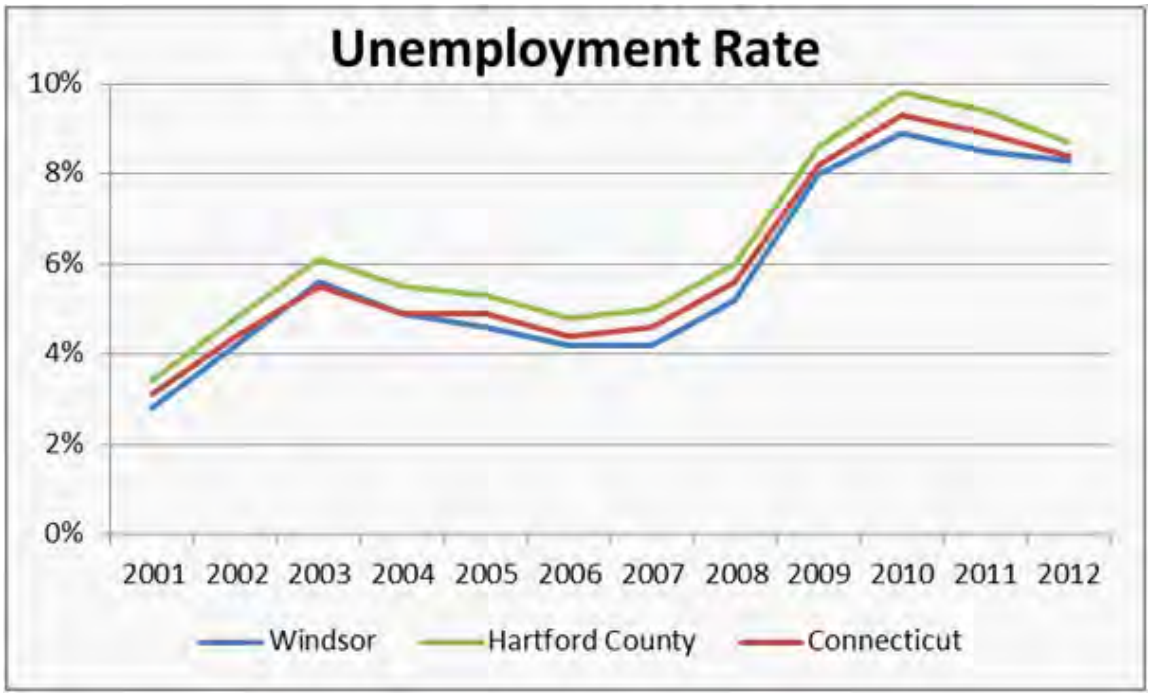
Figure 24. Location Quotients – Hartford County as Compared to the State of Connecticut

Agriculture, forestry, fishing and hunting	0.87
Mining, quarry, oil/gas extraction	0.52
Utilities	0.61
Construction	0.91
Manufacturing	1.06
Wholesale trade	1
Retail trade	0.88
Professional and technical services	1
Management of companies and enterprises	0.99
Administrative and waste services	0.96
Educational services	0.65
Health care, social assistance	0.96
Transport and warehousing	1.15
Information	1.11
Finance and insurance	1.58
Real estate, rental, leasing	0.99
Arts, entertainment, recreation	0.79
Accommodations, food services	0.91
Other services, except public administration	0.88
Unclassified	0.38

Unemployment Rate

Overall job growth has been positive for Hartford County and Connecticut. The Town of Windsor's job growth rebounded in 2011, with a slight decrease again in 2012. It's expected that Windsor and Windsor Center will continue following the short-term growth trends of the county and state.

Figure 25. Unemployment Rate



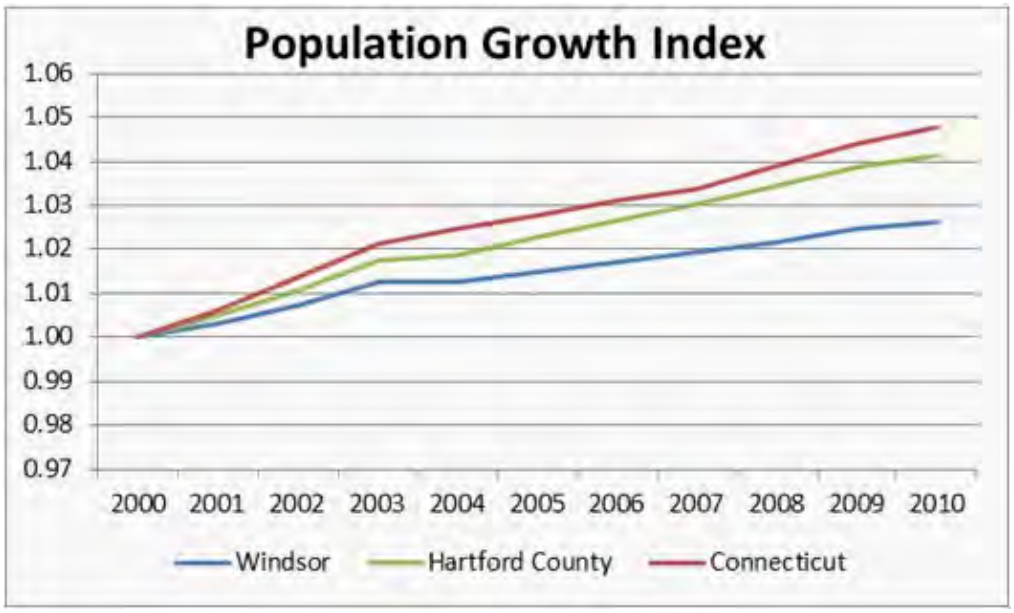
The unemployment rate for the Town of Windsor is lower than the county, state, or national rates. The census data suggest that Windsor Center's unemployment rate is a few percentage points less than the Town of Windsor, however, the sources of unemployment data at the census tract and town level differ. The latest data for the Town of Windsor has the unemployment rate at 8.5 percent, as compared to Hartford County's 9.2 percent, the State of Connecticut's rate of 8.8 percent, and the national rate of 8.9 percent. All towns in the Metro Hartford Region have been experiencing drops in the unemployment rate and, according to a report completed by CERC, the Hartford MSA has recovered a greater percentage of jobs that were lost due to the recession than Connecticut or the United States overall. This may indicate that the region is somewhat ahead of the curve in terms of economic recovery and the opportunity for economic development. Figure 20 shows the unemployment rate in decline since 2010 for the Town of Windsor, Hartford County, and Connecticut, supporting the assertion that Windsor and Hartford County's economy is recovering.

REGIONAL DEMOGRAPHIC CONTEXT

Population

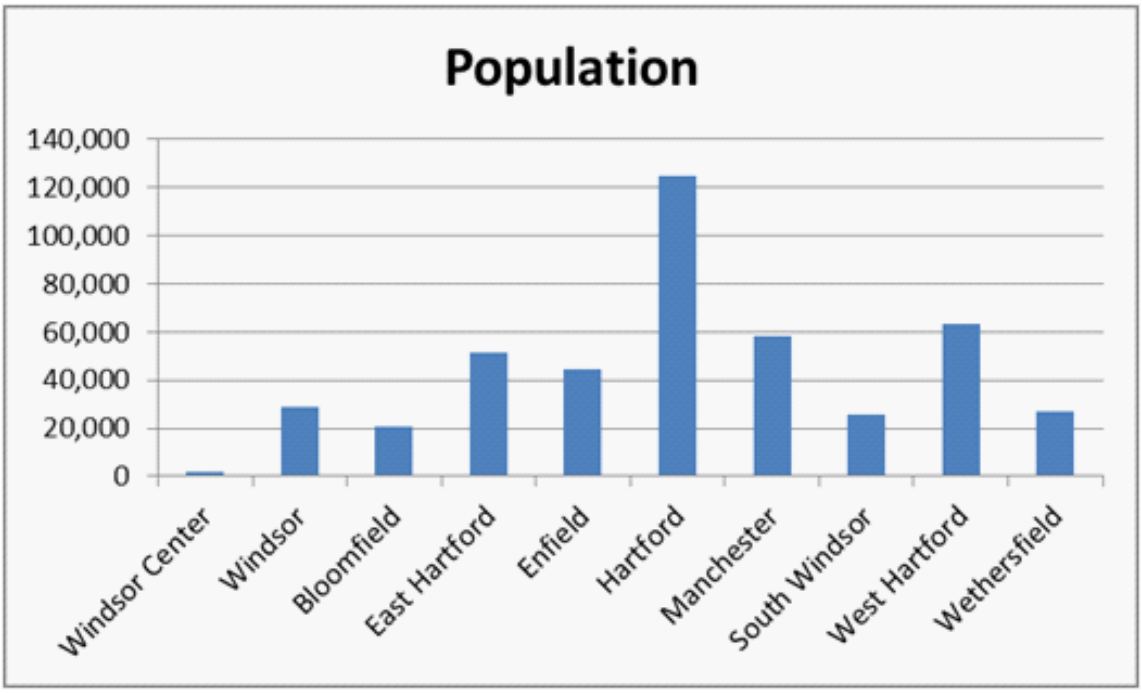
Overall, the Town of Windsor's population growth has been steady, albeit at a rate slower than Hartford County and Connecticut, as shown in Figure 21 below. According to Connecticut Economic Resource Center projections, Windsor's population will grow by 0.2 percent annually through 2016.

Figure 26. Population Growth Index



Windsor Center is a relatively small community within the Town and the region with just 1,731 residents. Figure 22 below shows the population for each of the 11 communities evaluated in the Hartford MSA.

Figure 27. Population



Age

Approximately 64 percent of Windsor Center's residents are working age, between 20 and 64 years old. This is a slightly larger share than the Hartford and Springfield MSAs and the Town of Windsor, all of which have approximately 60 percent of their populations within this age bracket.

The CRCOG study suggests that Baby Boomers and Generation Y (or the Millennial Generation) are shaping the future housing market. Each group is discussed in detail below.

According to the CRCOG study, individuals falling within these age brackets appear to have a preference for compact, walkable lifestyles, which supports TOD. In addition, there is growth in smaller, non-family households like the oldest Millenials (under 30 years old) and in the Baby Boomers cohort throughout the region. These demographic shifts could help support TOD housing demand in the future.

With respect to Windsor Center, more than one-third of the town's population falls into the Baby Boomer category, and a significant number of residents are part of Generation Y. It is also worth noting that the CRCOG study found that there is no net out-migration of young professionals from the region. From 2000 to 2010, the population in the 1981 to 1990 age cohort remained stable and there was only a slight decline in the 1971 to 1980 age cohort.

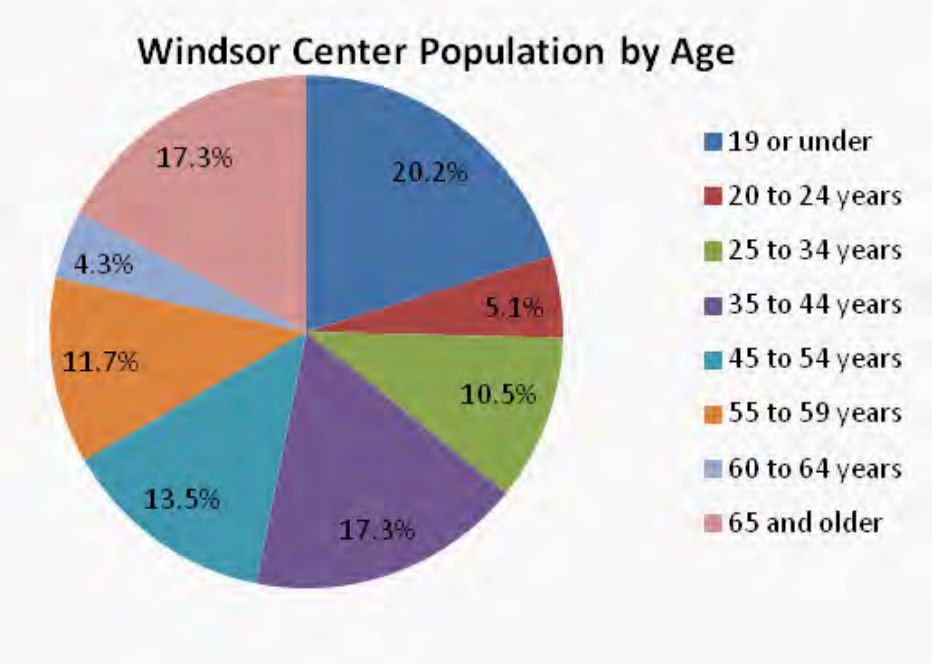
Generation Y has an age range between 18 and 35. This generation is one of the two largest in American history – nationwide over 75 million strong. Urban lifestyle centers, compact clusters with a mix of uses including residential, retail, and amenities, are more targeted to this group for discretionary spending for two reasons. Baby Boomers are beginning to retire and are past their peak spending years (late 30s to early 40s). Members of Generation Y enjoy shopping and enjoy visits to most types of centers, but are attracted to retail environments that evolve constantly and provide a sense of excitement.

Some of the more pronounced qualities of this group:

- They are the most diverse, multi-cultural group of any prior generation;
- Due to this ethnic diversity and general lifestyle preferences, they are attracted to restaurants of all types at all price points and tend to eat out more often than their older counterparts;
- They will frequent both high-end retailers for specialty items while shopping at discount department stores and price clubs for more regular, commodity-type purchases;
- 45% of them make more than $50,000 per year and thus would be able to afford market rate rental housing, such as that to be offered at Olde Windsor Station;

- They are postponing marriage and family creation, as they want to remain flexible for potential relocation, travel or other life choices;
- While 25% come from families with relative wealth (over $100,000 income/year), the majority have insufficient savings to purchase a house or condo at this time in their life;
- They are attracted to authentic places that are unique to a locale and build on that heritage and uniqueness; and
- When looking to purchase an item, they will tend to "multi-channel." They will do on-line research on different brands and styles, visit a store to actually see, feel and determine fit of a product, and then purchase the product either in store or on-line, depending on the best price.

Figure 28. Windsor Center Population by Age



Baby Boomers can be further divided into two groups: today's middle-aged workers (45-54 years old) and today's older workers (55 to 64 years old). Baby Boomers are also about 75 million nationwide and are about one-third of the Town of Windsor's population. The National Center for Policy Analysis conducted research on these two cohorts and found the following:

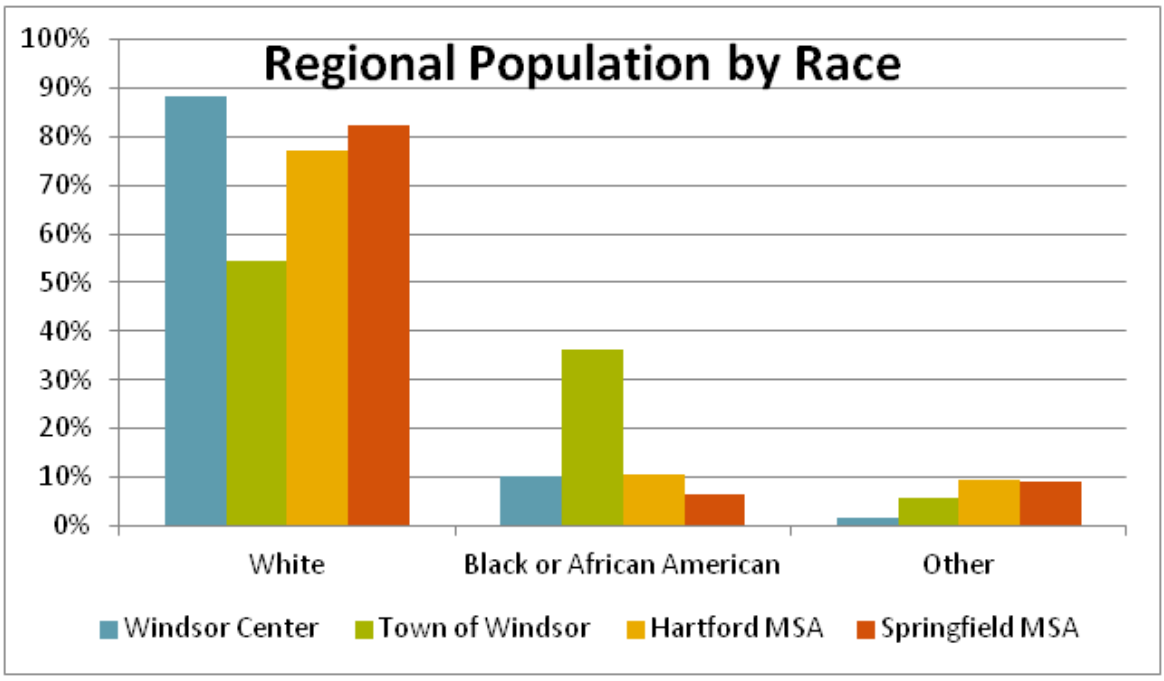
- Real incomes for these age groups has not changed much over the last twenty years;
- However, the portion of discretionary income spent on certain categories of goods and services has changed;
- Baby Boomers are spending more on education, most likely for their young adult college bound or college educated children for tuition expenses that have been rising faster than incomes;

- This age group is spending more on adult children, taking the form of living expenses, transportation costs, spending money, medical bills, and paying back student loans;
- This age group is spending twenty-five percent more on mortgage debt than twenty years ago;
- This age group is not spending more on entertainment or other frills, contrary to popular belief. Food purchases have fallen about twenty percent; household furnishings by twenty-five to forty-five percent; and clothing expenses from forty-two to seventy percent, depending on which age cohort; and
- This age group experienced increases in utility payments and health care expenditures between twenty-one and thirty percent.

Race and Ethnicity

Less than 20 percent of Windsor Center's population is non-White. Ten percent of the population is Black or African American and approximately five percent of the population is Hispanic or Latino. The Asian population represents less than one percent. This composition is comparable to both the Hartford MSA and Springfield MSA overall, but the Town of Windsor is much more racially diverse, as shown in Figure 24 below.

Figure 24 Regional Population by Race



The population within one mile of Windsor Center that is White has decreased approximately five percent since 2010, according to US Bureau of the Census data. It should be noted that the number of people this represents is quite small, but the data do suggest that the population in Windsor Center

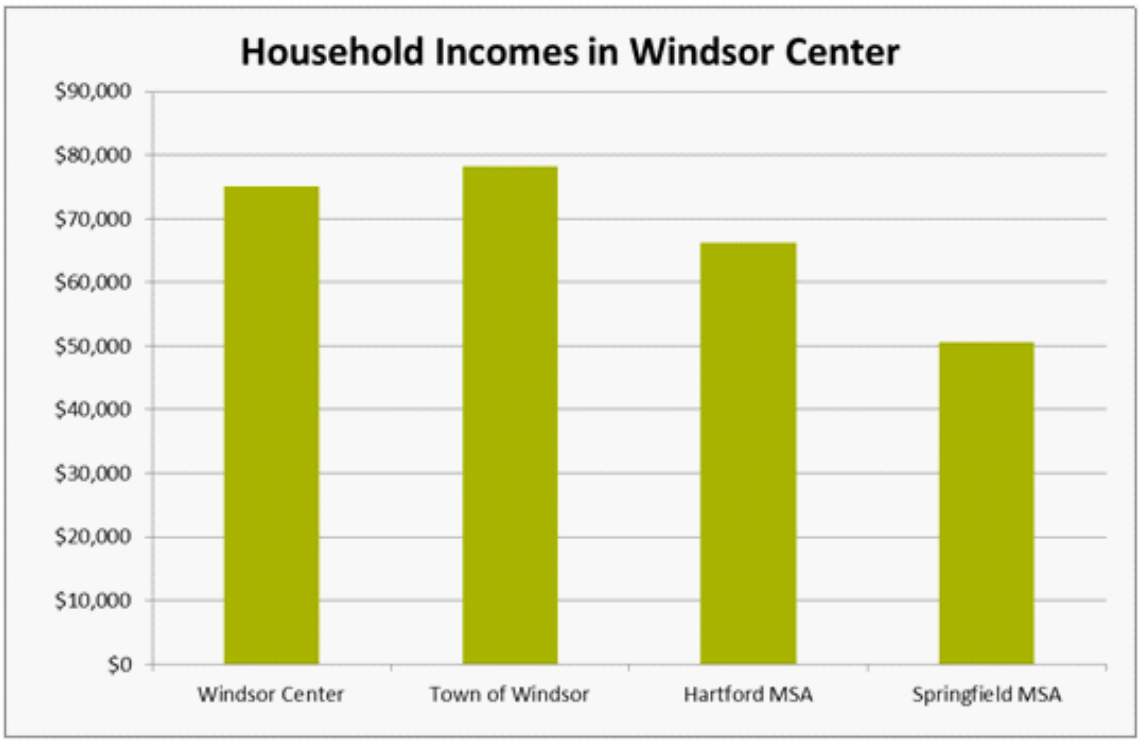
is becoming slightly more diverse over time, and it is expected that this trend will continue into the future.

Income and Poverty Level

Income

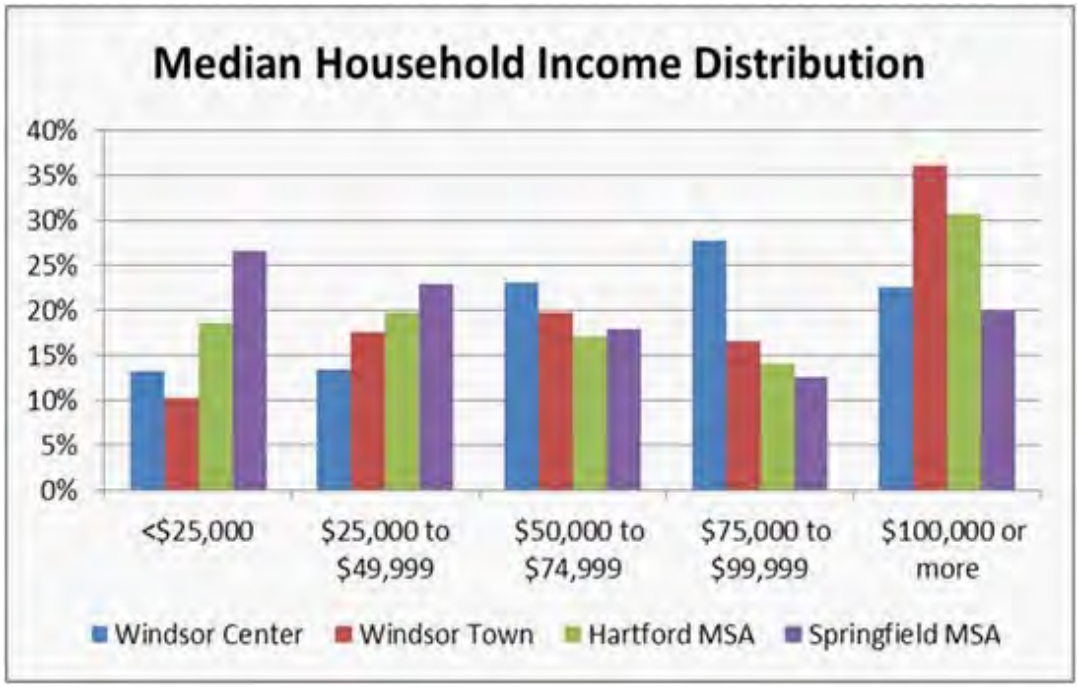
Based on US Bureau of the Census data, median household incomes in Windsor Center are relatively high compared to both the United States and Connecticut as a whole. The median household income for Windsor Center is $75,150, as compared to the Hartford MSA's $66,254 and Springfield MSA's $50,591. The Town of Windsor reports median household income of $78,211, which is slightly higher than Windsor Center.

Figure 29. Household Incomes in Windsor Center



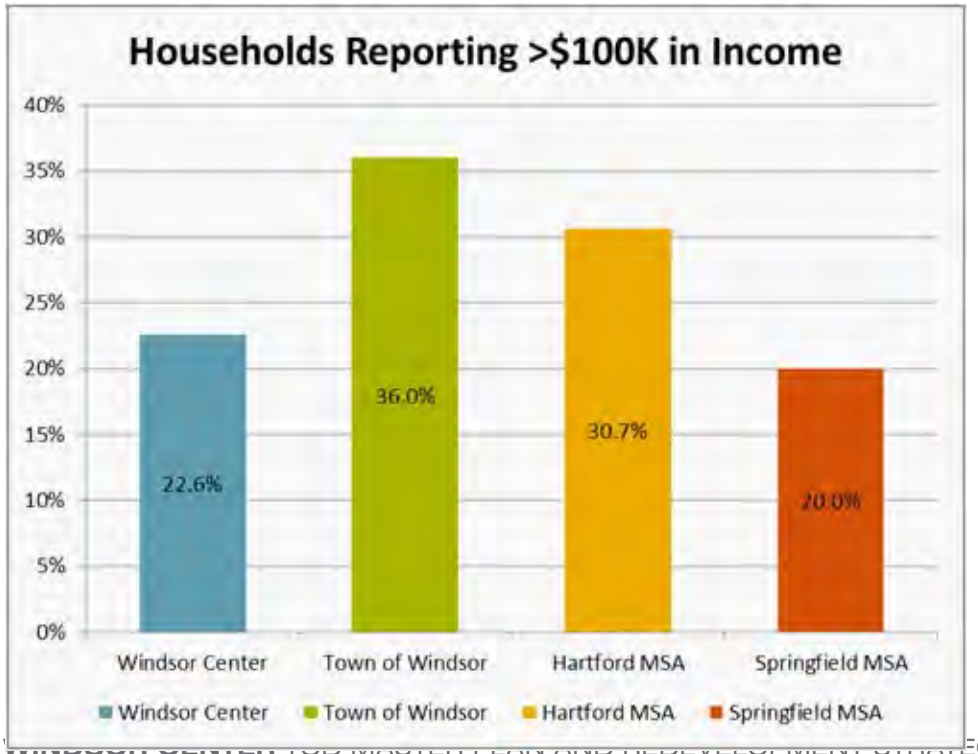
More than one quarter of Windsor Center residents reported median household income levels that fell between $75,000 and $99,999, as shown in the figure below. More than two-thirds of Windsor Center residents reported household income of at least $50,000 annually.

Figure 30. Median Household Income Distribution



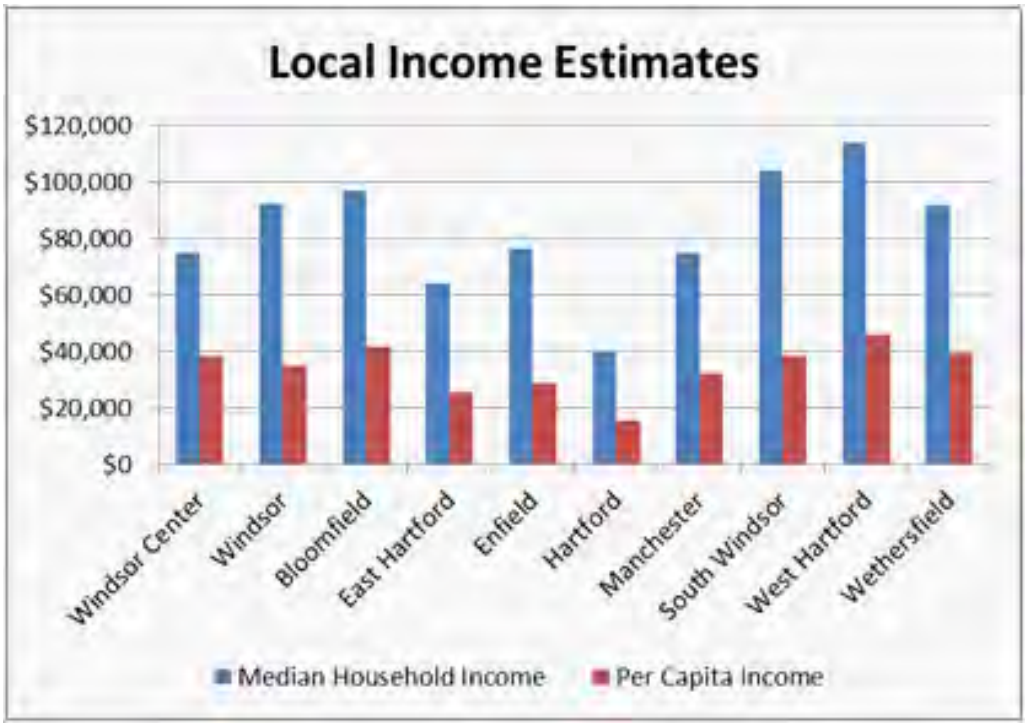
Nearly 23 percent of households in Windsor Center reported annual household income of $100,000 or more. This is relatively lower than the other Connecticut geographies included in this regional context assessment, but significant nonetheless. The Town of Windsor reported 36 percent of its households make $100,000 or more annually and 30.7 percent of households in the Hartford MSA reported that level of income.

Figure 31. Households Reporting >$100K in Income



The figure below shows the household income and per capita income estimates for 2011 for the communities surrounding Windsor Center. Windsor Center's household income is $75,150, per capita income is $38,307. While Windsor Center's median household income is similar to Enfield and Manchester, there are several communities around Hartford where income is considerably higher; notably, West Hartford and South Windsor. Generally, however, Windsor Center's income is consistent with other communities around Hartford.

Figure 32. Local Income Estimates



Level of Poverty

Determining whether a family is impoverished depends on a number of factors, including number of people in the family, number of children, and the income for that family. The table below shows the poverty thresholds used by the US Bureau of the Census.

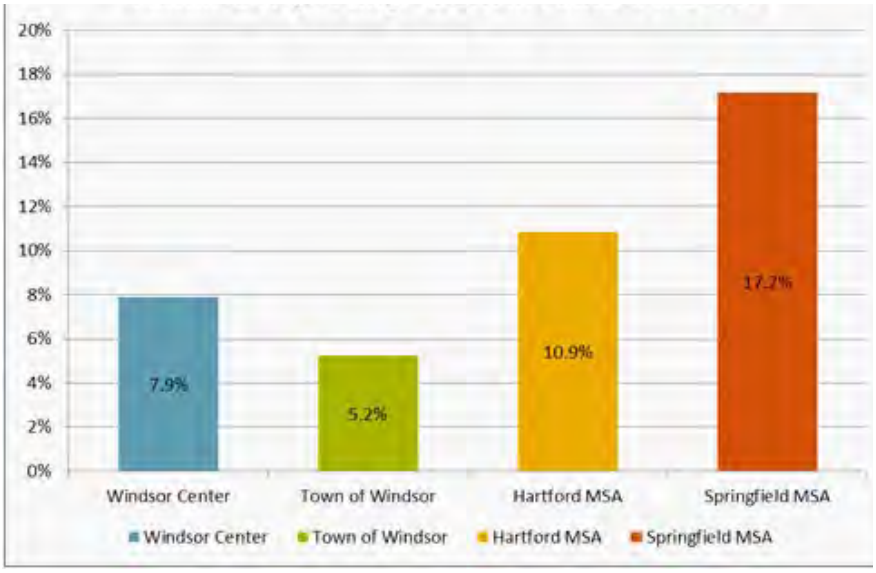
Figure 33. Table of Poverty Thresholds for 2012 by Size of Family and Number of Children

	RELATED CHILDREN UNDER 18 YEARS								
Size of family unit	*None*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8 or more*
One person (unrelated individual)									
Under 65 years	11,945								
65 years and over	11,011								
Two people									
Householder under 65 years	15,374	15,825							
Householder 65 years and over	13,878	15,765							
Three people	17,959	18,480	18,498						
Four people	23,681	24,069	23,283	23,364					
Five people	28,558	28,974	28,087	27,400	26,981				
Six people	32,847	32,978	32,298	31,647	30,678	30,104			

Source: US Bureau of the Census

A family of four with one related child would be considered impoverished if the family income was $24,069, as shown in the table above. While the composition of families in Windsor Center and the other geographic areas in the region was not evaluated, less than eight percent of families reported less than $25,000 in income in Windsor Center. In contrast, the Hartford and Springfield MSAs reported that 10.9 percent and 17.2 percent of all families earned less than $25,000, respectively. The figure below shows the share of families that make less than $25,000 in each of the geographic areas being assessed.

Figure 34. Families Reporting <25K in Annual Income



Educational Attainment

According to the Metro Hartford Region's CEDS completed in Fall 2012, the Town of Windsor's graduation rate was less than 80 percent. While this is a concern when neighboring communities like South Windsor have a graduation rate higher than 92 percent, the CEDS findings also indicate that 61 percent of Windsor Center's residents have a bachelor's degree or higher. This is significantly higher than the region's 36 percent for this level of education.

REGIONAL DEVELOPMENT CONTEXT

Windsor Center and Neighboring Communities

The most significant findings from the demographic information above are summarized as follows:

- One-third of Windsor's residents are Baby Boomers (ages 45-65). Some of these resident will plan to downsize from single-family detached housing to lower maintenance attached product, according to industry studies;
- Within the region, there is growth in the Generation Y cohort (ages 18-35). The smaller, non-family households will most likely be a majority of those renting the apartment units proposed for Windsor Center;
- Windsor Center is less diverse than the Hartford MSA and the Town of Windsor, but is projected to become more racially diverse in the next 5 years;
- Windsor's population growth is slated to be 0.2 percent per year according to the Connecticut Economic Resource Center projections, consistent with the Knowledge Corridor projects referenced above;
- The average household income of $83,046 for Windsor Center is somewhat lower than the Town of Windsor and Hartford MSA, but one-third higher than Springfield MSA;
- Windsor's unemployment rate at 8.3 percent is slightly lower than the State of Connecticut's and Hartford County's; and
- Industries which are more likely to locate in the Hartford area, as opposed to the United States in general, relate to manufacturing, management of companies and enterprises, educational services, health care, and finance and insurance.

Regional Destinations

Windsor Center's location provides access to a number of job-centers in Connecticut and opportunities for tourism. Downtown Hartford is a job center with the state offices and a large insurance industry cluster. Hartford's dining, city sponsored cultural events, night life, and sporting events are growing, providing more foot traffic to the downtown area. Another job center to the east is Storrs, Connecticut with the University of Connecticut. The UConn Health Center in Farmington, is to the southwest. To the north, Springfield, MA is a local tourist destination with the Basketball Hall of Fame and the

Springfield Armory. To the west, Bloomfield, Connecticut is home to Penwood State Park, a 787 acre site which is a popular area for hiking, biking, and cross country skiing. Within Windsor itself, NorthwestPark, currently 475 acres, is a draw to visitors from the region. Windsor also has job-centers, including the Day Hill Road area.

Windsor Center itself offers a number of special events and activities as well, including the bike path, farmer's market and summer concert series. These destinations draw some visitors from outside the community, as well as encourage Windsor Center residents to be a part of the vibrant downtown activities that are offered.

Regionally and further to the south, the Connecticut beaches draw crowds in the summer months. Visitors also come to New Haven throughout the year for the arts, architecture, and Yale University. Lastly, the Mashantucket and Montville casino resorts draw visitors locally and from neighboring states for gaming and entertainment.

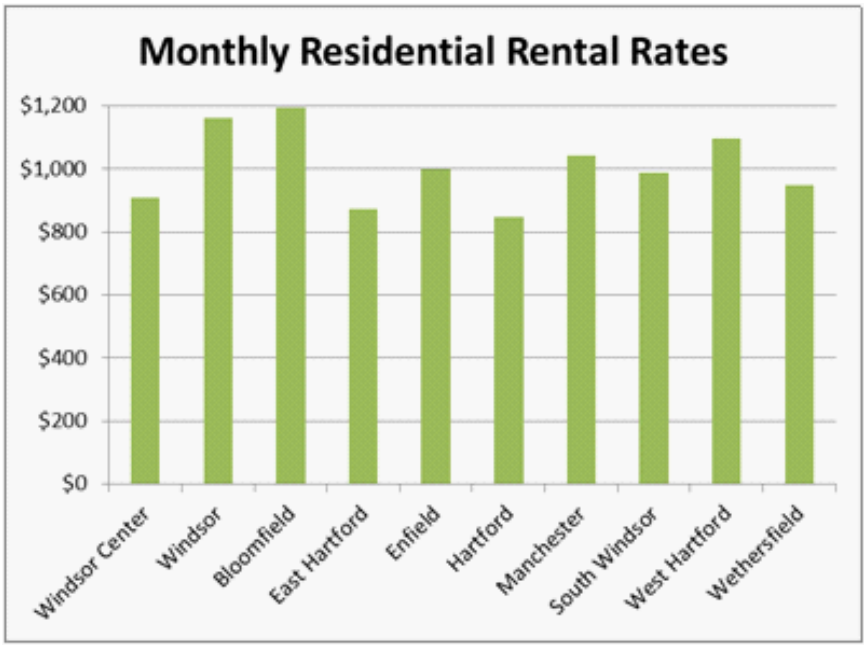
Real Estate Condition

It is important to understand the current real estate conditions within Windsor Center and its neighboring communities. Residential, Office and Industrial Uses are examined below.

Residential

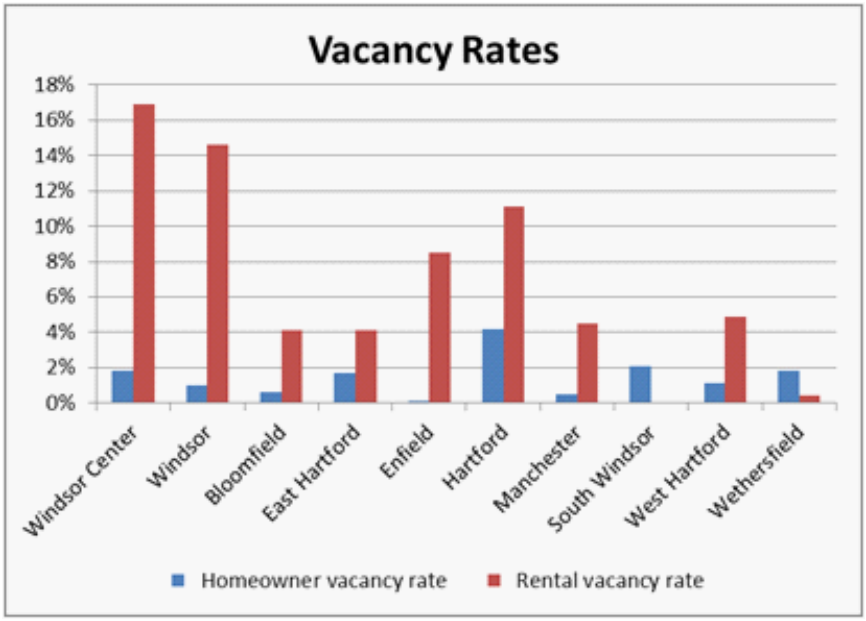
For rentals, the median rent in Windsor Center is $908, which is third most affordable in the region. Only East Hartford and Hartford have lower monthly rents. As the figure below shows, Town of Windsor, West Hartford, and Bloomfield have the highest rents, more than $1,000 a month.

Figure 35. Monthly Residential Rental Rates (2009-2011 American Community Survey 3-Year Estimates)



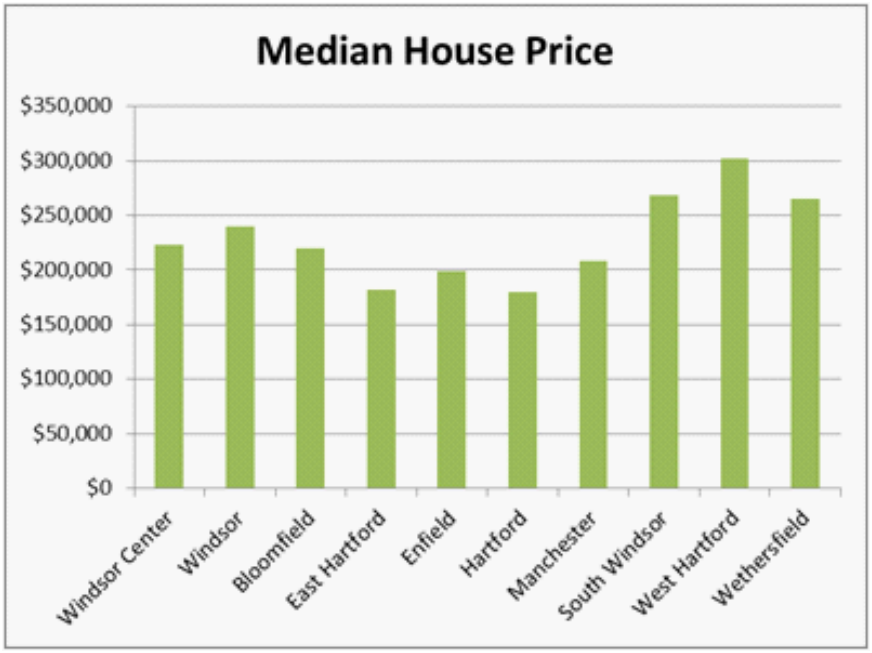
According to the US Census Bureau's 2009-2011 American Community Survey 3-Year Estimates, Windsor Center had the highest rental vacancies of the local area at 16.9 percent followed by Town of Windsor, Hartford and Enfield; the remaining cities and towns in the local area have a rental vacancy of less than five percent. While Hartford does have a high vacancy for rental property, it also has the most housing units in the area (45,805) and 76 percent of properties are renter occupied, compared to the 65 percent owner occupied in Windsor Center. Homeowner vacancy rates are also relatively high as compared to other communities.

Figure 36. Vacancy Rates (2009-2011 American Community Survey 3-Year Estimates)



The median house price in Windsor Center is $223,200 which is just behind the median home price of the Town of Windsor, West Hartford, Wethersfield, and South Windsor as shown in the figure below.

Figure 37. Median House Price (2009-2011 American Community Survey 3-Year Estimates)



There are some signs of new residential development despite relatively high vacancy rates in some of the communities in the Hartford MSA, property value decreases averaging 20 percent in the Hartford area since the housing downturn began in 2007[1], and struggling new home construction. The region has seen an increase in plans for new apartment buildings, with more than 2,500 apartment units planned to be available for rent at full market value within the next three to five years. The Table 6 below shows the location of the planned apartment development in the region.

Figure 38. Table of Planned Apartment Development, Metro Hartford Region

LOCATION	NUMBER OF UNITS
Windsor	300-400 units
Hartford conversion of the Clarion Hotel on Constitution Plaza	199 apartments
Simsbury	88 apartments – part of mixed-use development
South Windsor	200 units as part of Evergreen Walk
Glastonbury	250 units as part of redevelopment of old mill
Glastonbury	Add residential component to existing office, hotel, and retail space in Somerset Square with 155 units
Manchester	224 units
Bloomfield	78 units

Source: City of Hartford's Economic Development Department

Regional growth of empty-nesters, young couples without children, and single-person households may be increasing the demand for multi-family rental units in the Knowledge Corridor area, based on recently completed regional studies. In the Hartford MSA, vacancy rates are currently low and rental rates are moving upward for these types of properties in the Knowledge Corridor.

In Windsor Center, approximately 35 percent of the occupied housing units are rentals, and 65 percent are owner-occupied. The number of Windsor Housing Authority units in Windsor Center is not present in this census data. This share of ownership to rentals may shift over-time to be more consistent with the passenger rail corridor average of 75 percent renter occupied as more transit and housing opportunities become available in Windsor Center. Demand for multi-family rental units is likely to increase in the region. Within Windsor Center, there may be an opportunity to increase multi-family rental units in response to the relatively significant share of residents in the working age groups, including Generation Y cohorts (under 30 years old) and Baby Boomers.

1 Metro Hartford CEDS

Office and Industrial

Recent real estate trends in the Hartford/Springfield area indicate high vacancy rates, stationary rental rates, and little new construction in the office market. Office vacancy rates have hovered around 20 percent and direct vacancy rates have increased from 16 percent in 2007 to nearly 19.6 percent in the fourth quarter of 2013. Metlife and The Hartford, both insurance companies, have made corporate changes relatively recently. Metlife has moved some of its business to Charlotte, North Carolina, and a line of business within The Hartford was sold. The Hartford jobs will be absorbed by other local companies.[2]

Areas outside of the downtown Hartford have lower vacancy rates, consistent with the fact that businesses have trended toward suburban locations for their offices. The overall vacancy rate in eastern Hartford is 8.8 percent, and vacancy rates in northern and southern Hartford are 20 and 18.7 percent, respectively. Western Hartford is 18.1 percent.

The Town of Windsor is leading the northern Hartford region commercial real estate market with positive absorption through 2012. The area is retaining large companies; for example, UPS Capital renewed a 25,000 SF facility on Day Hill Road. The vacancy for industrial developments is 20.2 percent with an asking rent of $5.24 per SF. This vacancy rate is slightly higher than the region's 16.6 percent rate for industrial buildings. For office space, the Town of Windsor has a vacancy rate of 18.2 percent and an asking rent of $15.73, whereas the north Hartford region has a higher vacancy rate of 25.3 percent.[3]

Based on the CEDS study, the Town of Windsor has nearly 1.4 million square feet of commercial and industrial facilities and property available. This equates to 19 sites and 81 buildings. In the Metro Hartford Region, Windsor has more square footage available than any other community. The CEDS also indicates that a Walmart is expected to open in East Windsor in August 2013. This facility is expected to employ 100 workers. In South Windsor, Maine Oxy opened its first Connecticut store in the fall of 2011, and TicketNetwork relocated its Corporate Headquarters to South Windsor in 2011. Unfortunately, some businesses closed, including RR Donnelley and AETNA's offices on Pigeon Hill Road.[4] UTC Power and Hamilton Sundstrand, both in the Windsor Center area, reduced their labor force or moved overseas.

Another regional trend identified in the study is that residential and commercial development has tended to occur in areas of the region that are not connected to the new transit services. To some extent, this is to Windsor

2 Market Beat Office Snapshot, Hartford, CT, Cushman and Wakefield, First Quarter 2013, http://www.cushwake.com/cwmbs1q13/PDF/off_hartford_1q13.pdf

3 CBRE, Market View Industrial and Office Snapshots, Q3 2012

4 Conversation with AETNA employee on January 10, 2014. These offices closed in 2011.

Center's advantage. For example, the interior sections of the Town of Windsor (e.g., Day Hill Road) contain significant concentrations of office space and employment. While this development is not located directly next to the Windsor train station, there may be ways to better connect residents and employees located in those areas to transit via scheduled shuttle bus, for example. Increasing the flow of passenger rail riders could help support TOD around the station area. According to the CRCOG market analysis, there are 1,217 employees located in the Windsor Center station area.

REGIONAL CONTEXT IMPLICATIONS FOR WINDSOR CENTER

The following sections provide a summary of the key points from the discussion of Windsor's position relative to its competitor communities in the surrounding region.

Population Implications for Windsor Center

- Windsor Center's population continues to grow, but at a modest rate.
- Young professionals are living in the Hartford MSA region, rather than leaving the area, and many of these residents are part of Generation Y, an age cohort identified as having a preference for compact, walkable lifestyles.
- One-third of Windsor Center's population falls within the Baby Boomer age cohort, another age group viewed as supportive of compact, walkable lifestyles.

Income and Poverty Level Implications for Windsor Center

- Windsor Center's median household income is relatively high as compared to the region. In fact, 22.6 percent of Windsor Center residents make more than $100,000 per year in household income. More than one-third of residents in the Town of Windsor and Hartford MSA make more than this amount annually. Households with this income level likely have greater latitude in discretionary spending, which could support increased retail activity in Windsor Center and be an important factor to businesses considering locating in the community.
- Windsor Center's relatively low poverty level is another attribute of the community, making it somewhat unique as compared to other communities around Hartford.

Educational Attainment Implications for Windsor Center

- Higher levels of education for residents of Windsor Center may be encouraging to businesses looking to locate in the area. Access to an educated labor force is factored into many business decisions based on location.
- The relatively lower graduation rate in the Town of Windsor should be examined and improved, as the quality of schools is an important consideration for families making decisions on where to live. Improved schools

could help support residential development and the ability of businesses to recruit national employees to their facilities in the Windsor area.

- Windsor Center's residents are relatively well-educated, with 61 percent having a bachelor's degree or higher. This is significantly higher than the region's 36 percent for this level of education and should be highlighted to potential residents and businesses considering relocating to the area.

Regional Destination Implications for Windsor Center

- Regional attractions provide an opportunity for visitors to explore the Metro Hartford area as they travel from their home to the destinations and special events.
- Building on existing events and destinations in Windsor Center could help support additional development in the TOD area.

Employment, Establishment and Unemployment Rate Implications for Windsor Center

- Knowledge-based, health care services, educational services, and public administration are industries that support transit-oriented development. Because Windsor Center employs a significant number of people in these industries, many of which are growing, there may be an opportunity to develop office space for these businesses and related transit-oriented development around the Windsor Center train station.
- The Hartford MSA has recovered a greater percentage of jobs that were lost due to the recession than state or nation overall, possibly indicating that the region may be relatively well-positioned in terms of economic recovery and the opportunity for economic development.

Regional Real Estate Implications for Windsor Center

- The real estate climate of the region is not favorable for new development in the near term, although the industry base of the region and Windsor Center may be supportive of TOD, and demand may exist for residential development around transit facilities. In the longer term, there may be increased demand for new residential multi-family units in the region and Windsor Center's population demographic in terms of age, as well as its relative affordability and proximity to transit, support increased residential development in Windsor Center.
- According to the US Census Bureau's 2009-2011 American Community Survey 3-Year Estimates, residential vacancies for Windsor Center are relatively high as compared to other communities in the Hartford MSA. Consideration should be given to whether the available stock is comparable in quality to the rental units available in other communities or if there are other factors that are contributing to the higher vacancy rates. Rental rates are relatively low in Windsor Center, however, offering relatively affordable housing to the region's residents. Rental rates are relatively low in Windsor Center, offering relatively affordable housing to the region's residents.

The Town of Windsor is leading the northern Hartford region commercial real estate market with positive absorption through 2012, though much of this development is not in close proximity to the rail station. There may be opportunities for Windsor Center to build on this growth and the trend toward businesses locating outside of the urban centers in the region.

Windsor Center Context

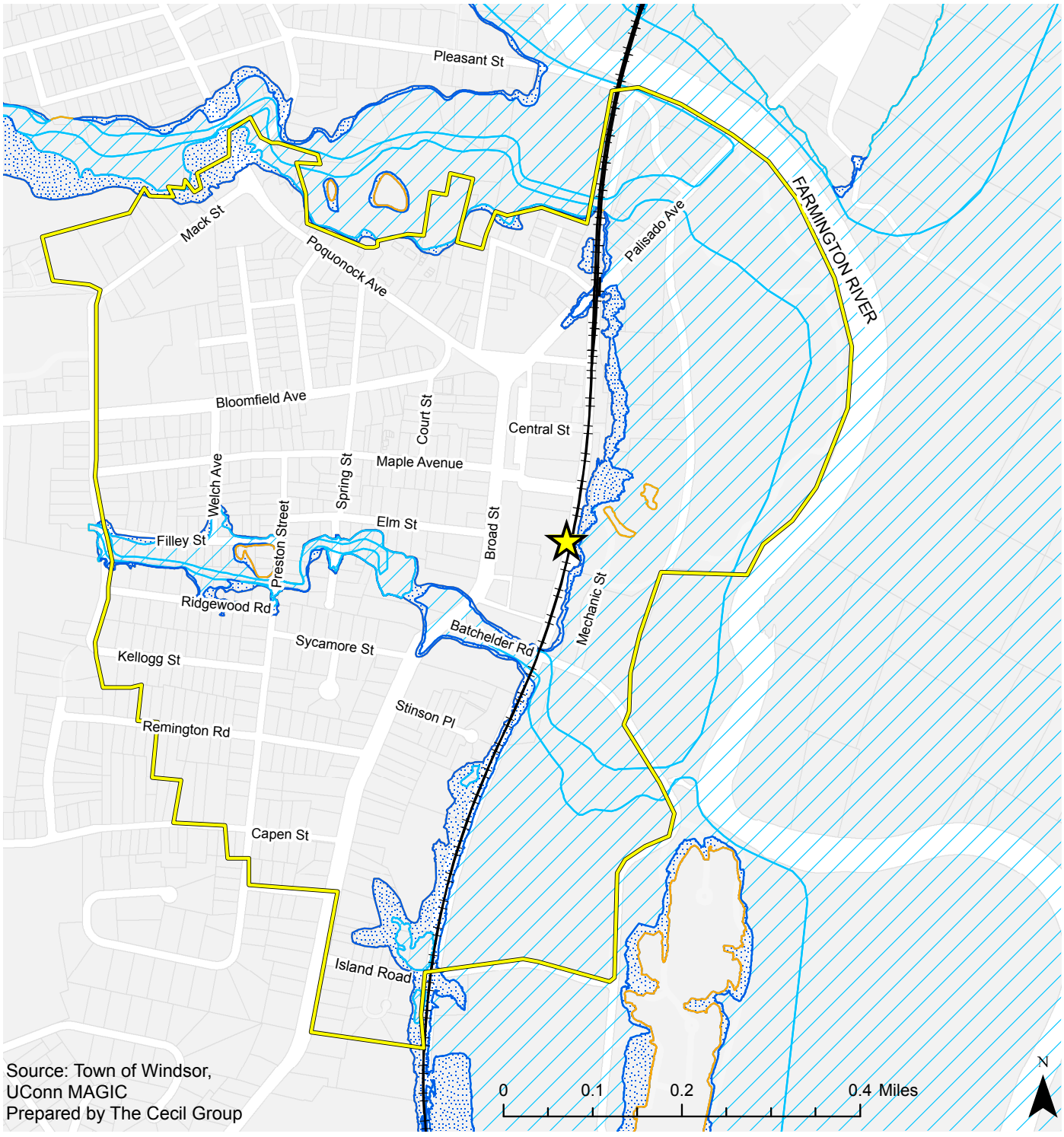
Windsor Center currently serves as a local service center for area and town residents with a combination of the Town Hall, post office, library, pharmacy, banks, churches, grocery market, restaurants, certain other retail establishments, realtors, smaller offices, group homes, single-fam¬ily houses and a few higher density apartment/condo complexes.

PHYSICAL CONSTRAINTS RELATED TO LOCATION

In addition to the lack of robust economic activity in the Knowledge Corridor as a whole, there are some physical and transportation aspects that are important in shaping the market conditions specific to Windsor Center:

- **THE CONNECTICUT RIVER** – The Farmington River and its tributaries run through Windsor. This physical aspect can be an environmental amenity; however, it limits access to the great majority of land to the east (about 40 percent of the area within one-half mile of the Windsor station). Highway access is constrained to the east, except by going up I-91 to the crossing at Windsor Locks/East Windsor or down I-91 to I-291 leading to South Windsor/Manchester, which limits the number of residents within a short travel distance, who would otherwise come to the center for retail and entertainment offerings;
- **RAILROAD TRACKS** – The Amtrak railroad track running north and south is also a physical barrier. Within the Town Center there are two street under-crossings of the right-of-way and one at-grade crossing, creating some bottlenecks. Currently the right-of-way consists of one track, but with the rail expansion program will return to two operating tracks on the same right-of-way; and
- **FIVE INTERCHANGES OFF I-91** – I-91 parallels the river and has five interchanges in Windsor, making for easy and quick access to other parts of metropolitan Hartford. This convenience factor makes it relatively easy to reach other communities with desired activities or products not found in Windsor. Windsor Center itself is at least a mile away from I-91, making it less convenient than shopping destinations right off the freeway, for example the shopping malls in the City of Enfield.

Figure 39. Floodplain Map



Floodplain

- 0.2 percent Annual Chance Flood
- AE 100-year Floodplain
- X Minimal Flood Hazard
- Planned Commuter Rail Station Area
- Planning Area
- Railroad

ATTRIBUTES UNIQUE TO WINDSOR CENTER

Even with these considerable physical challenges, Windsor Center has many other attributes operating in its favor.

- **TOWN SEAT OF GOVERNMENT** – Windsor Center houses many of the public functions required of town government and has a pleasant town green and picturesque buildings along its main street – the Town Hall, town library, and church, and post office line Broad Street. Residents come to the center to transact town business, browse the library stacks, attend community meetings, post letters, and participate in other community activities.
- **RESTAURANT CLUSTER** – Over a dozen restaurants are established in the Center representing a diverse and attractive mix of family-friendly dining: Italian, pizza, Chinese, Indian, barbeque, diner, sandwich, and American. The number of food choices and price points makes the center a destination for those looking to dine out.
- **CONCENTRATION OF LOCAL SERVICES** – While there is no special theme to the retail currently located in the Town Center, critical convenience items and services related to neighborhood retail can be found: second-hand merchandise/auctions, jewelers, realtors, hardware store, grocery market, churches, community service organizations, pharmacy, restaurants, etc. These functions provide multiple reasons for residents of the center and the town to come to the Center as it is easily accessible, has local charm, and provides a place to socialize while taking care of local errands.
- **LOOMIS CHAFFEE PREP SCHOOL** – The Loomis Chaffee Prep School, an elite college preparatory school of about 600 resident students and 150 teachers, occupies about a third of the study area and is immediately adjacent to the center. The school relies on it for housing many of its faculty and providing incidental services to its students. Also the school owns significant portions of the area within a half mile of the train station that are either playing fields or open space. Much of this space lies within 100-year flood plain with some development constraints, but some of it lies out of the flood plains and can be developed.
- **CORPORATE HEADQUARTERS OF WINDSOR FEDERAL SAVINGS** – In the middle of the district is the retail office and corporate headquarters for a homegrown institution, Windsor Federal Savings. About forty-five employees work in its building and, if they add more, may need additional space. This institution is an example of the type of office users that would be attracted to Windsor Center – locally based entrepreneurs looking for a local presence in a location convenient to households with similar income and other demographic qualities of Windsor residents.
- **SUMMER EVENTS ON THE TOWN GREEN** – Each summer, public events are sponsored on the town green on Broad Street. They are well attended and a catalyst to area restaurants and other public offerings in the Center. During these events, the Center has proven to be a regional entertainment destination. This summer draw that provides reasons for others outside

Windsor proper, perhaps unfamiliar with Windsor's attributes, publicize the Center's attributes to a broader clientele.

- **TRANSIT SERVICE** – For a suburban location, Windsor Center has relatively good bus and train service. Three bus routes stop adjacent to the train station. Amtrak currently operates five weekday roundtrip trains, and is expected to increase service to eleven or twelve roundtrip trains by 2016 and twenty-six weekday roundtrips by 2030. As the transit hub for the town, Windsor Center is an attractive residential location for those with limited transportation choices.

In summary, Windsor's small town atmosphere includes a convenient cluster of public services, a broad array of neighborhood retail and general services, a destination for summer special events and family dining, and the local transportation hub. Its town center is relatively isolated by physical constraints, but easily accessible from the west on numerous interchanges off I-91. It has developed a unique and attractive assortment of local serving functions that create a center for mainly home-grown enterprises and independent living in and around the Center. Windsor Center is in good position to address improvements and revitalization of the center functions in several ways.

DEMOGRAPHIC TRENDS AFFECTING THE MARKET

These demographic trends describe current conditions in Windsor Center that would affect the local demand for housing, products and services and include:

- **GENERAL PROXIMITY** – Windsor is in the approximate center of a multi-nucleated metropolitan area with employment centers scattered along the east-west and north-south interstate corridors. Commuter rush-hour traffic is roughly equal in both directions on I-91 in Windsor, approximately eight miles from downtown Hartford to Windsor Center or a fifteen-twenty minute commute by car during rush hour;
- **HOUSEHOLDS IN THE CENTER** – According to the 2010 U.S. Census, approximately 1,200 persons living in 700 households are located within a half mile of the station;
- **JOBS AND HOUSING IN WINDSOR** – Within a half mile of Windsor Center, there are 195 businesses employing 1,250 persons; and within three miles about 12,000 households and 21,000 jobs. According to industry studies, there is greater demand for new housing in areas that have more jobs than households. In general, people would like to live closer to their jobs to reduce the length of their commute and the amount they spend on gas. The job to household ratio is 1.7 jobs/household in the Town of Windsor, which is an excellent indicator that there is unmet demand for housing units in the market area. This demand for new residential product will be discussed in detail later in this report;
- **STABLE POPULATION AND HOUSING MAKE-UP** – The town has had a relatively stable population and housing composition in the last 10 years. The majority of the houses were built in the mid-1900s. This lack of change in the housing stock has contributed to the lack of population growth to the town generally. This lack of dynamism in the housing stock over the last 20 years creates the opportunity for new development in the Center as well as the town at large;
- **GENERATION Y PREFERENCES** – This generation prefers urban places that are walkable, where multi-shopping trips can be met in one outing, making Windsor Center an ideal place to attract this group. With the added destinations of other uses suggested in this report, we believe Windsor Center has the fundamentals to attract more than its share of this group and enough variety in offerings for a town its size to maintain that requisite level of evolving excitement that is a characteristic of this group; and
- **BABY BOOMER PREFERENCES** – Many Baby Boomers in Windsor most likely have expenses that are taking a larger share of discretionary income. Peak household spending years are past for them, generally occurring during the process of family formation and housing purchase, usually in the late 30s or early 40s. Retail in the center should focus on neighborhood retail goods and services, especially those considered essentials, and lower to moderate cost entertainment/dining.

Land Use and Property Value Data

CURRENT WINDSOR CENTER PARCEL INVENTORY

The Cecil Group team identified the priority development blocks (Blocks A through I) in Windsor Center (shown on the next page) and documented the parcels in each block by total square footage and building square footage by use: commercial retail, commercial office and residential. This parcel and building information is summarized by block in Table 5. Overall non-residential uses amount to almost 550,000 square feet of building area on approximately 44 acres of land. Commercial retail comprises 256,000 square feet (42%) and commercial office comprises 293,000 square feet (48%), the rest 56,000 square feet being residential. According to these numbers the floor area ratio, that is, the ratio of building coverage to parcel size, for these priority blocks is only 32%, whereas a normal ratio would allow closer to 50%. If the 44 acres were closer to that factor of 50% coverage, another 345,000 square feet of building footprint could be built in these priority blocks, plus additional square footage in added stories. These calculations suggest additional square footage within the Center would be relatively easy to develop. Due to many factors, which are addressed later in this study as well as the Cecil Group team efforts collectively, these additions are challenged by urban design and economic issues.

RECENT DEVELOPMENT ACTIVITY IN WINDSOR CENTER

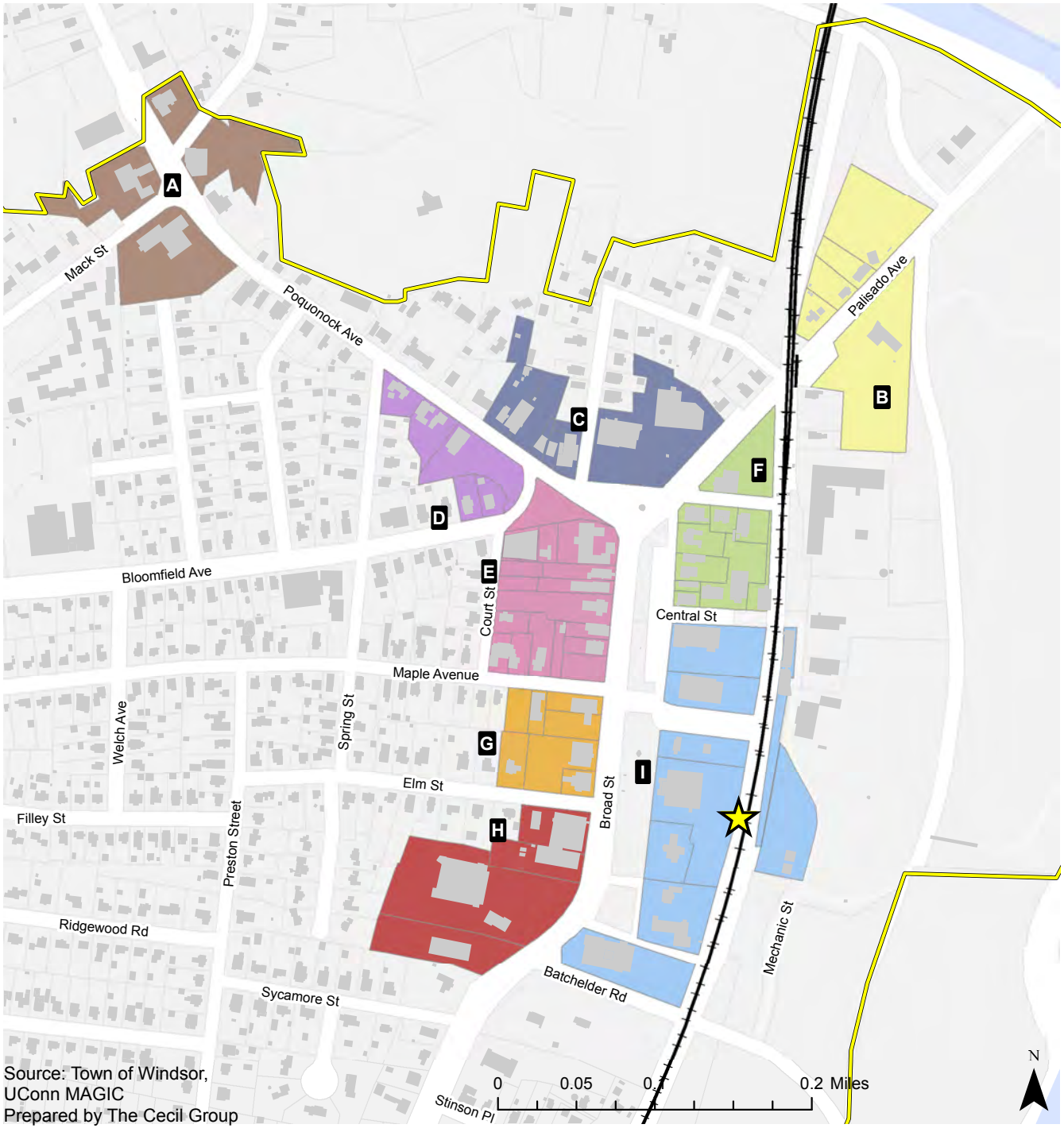
Major new construction in Windsor Center has been lacking since 2008. This is similar to most communities across the country after the effect of the Great Recession. The last major project constructed in the immediate study area was the conversion of the mill complex on the east side of the railroad tracks off Mechanic Street into a condominium project. That project was finished in 2006, and sold out within a reasonable timeframe indicating a demand for new residential development.

Larger parcels (over one acre) that could be developed into larger projects can be found in the study area, but most have existing buildings in some productive use. Such a project means that existing buildings would most likely need to be razed in order to create larger-scale development opportunities. The destruction of existing buildings only makes economic sense for the most profitable businesses or unique products. One example would be a larger residential complex, like Olde Windsor Station, proposed on Mechanic Street, discussed in more detail below.

As noted above, Windsor Center has some building vacancies or developable parcels that provide an immediate opportunity to enhance the character of the center. The largest of these is the vacant car dealership at Mack Street and Poquonock Avenue. The lack of larger parcels (over an acre) in the commercial district could present an obstacle for larger-scale residential and mixed-

use development projects. However, if several lots can be joined, then other projects could become financially viable.

Figure 40. Build Out Analysis Sites Map



Build Out Analysis Sites

Planned Commuter Rail Station Area

PROPOSED LARGE PROJECTS

While large projects have not been built in the last several years, some projects have been proposed or are already in the development process:

Figure 41. Former Arthur's Drug Site

Olde Windsor Station Apartment Complex, Town Maintenance Yard

Olde Windsor Station is a proposed four-story multi-family rental property that would create 130 new rental units. This project would be the first new construction of a larger scale rental product. A market study completed for that project defines the market as aging "Baby Boomers" and younger "Gen Ys" looking for more urban lifestyles. This size project can offer modern conveniences, such as wireless internet access, low carbon footprint, common space for socializing or entertaining, and health club facilities. According to Windsor's Economic Development Director, the project's market study defined a demand of over 600 units per year in Windsor Center. Average unit size is proposed at around 820 square feet and the project will offer studio, one, and two bedroom floor plans. This project would accelerate the transformation of the Town Center as both a symbolic achievement for the Town and by additional, younger residents in the center, attracted by the ability to be in an urban center. According to the ULI report Generation Y: Shopping and Entertainment in the Digital Age, 14% live in a downtown area and 34% live in a city neighborhood outside the downtown, for a total of 48% of this age group living in an urban environment.

Former Arthur's Drug Site

The property owner would demolish the northwesterly building and build a replacement one-story pharmacy closer to Poquonock Avenue. The town would like a denser, multi-use building of one to two residential stories over the ground-floor retail. The other building on the site, perhaps in a subse-

quent development phase, could be the same mix of ground floor retail and residential on upper floors, either condominiums or rental product.

Plaza Building

The lower floors of this critical building on Broad Street are currently vacant, but the owner is rehabilitating the upper floor residential units. The owner is also rehabilitating the 400 seat theater behind the store front and plans to convert the space into a 300+ seat theater, possibly with a stage for live music performances. The building owner is proposing a bar and one or more restaurants on the first floor that would complement a live performance and film venue in the theater. This live performance venue could be an exciting catalyst for new restaurants and other entertainment offerings in the Center. The space created would also be an excellent complement to the summer offerings on the Windsor Town Green.

Loomis Chaffee Enrollment Expansion Plans

The Loomis Chaffee School is expanding its school-year student population by thirty-five students (fifty beds), adding new teachers to serve those students, and establishing a summer camp program (100 to 200 students). A larger, more active student body and faculty provides for more demand for incidental goods and services in the Center. The school owns around fifty houses in the vicinity of the campus. The school administration may be interested in building more faculty housing on land it currently owns in the Center, perhaps at higher densities than current residences.

The combination of these existing initiatives and other public initiatives will help to transform the Center from a secondary restaurant destination to a lively entertainment/dining destination for the region. Additional development possibilities are explored later in the report.

Figure 42. Table of Existing Gross Square Footage and Vacancies by Block

Existing Gross Square Footage By Block
Windsor Center

Site	Parcel SF	Existing Building GSF By Use				FAR
		Comm/Retail	Comm/Office	Residential	Sub-Total	
A*	208,216	37,742	3,802	2,030	43,574	0.20
B	223,027	10,025	-	6,672	16,697	0.10
C	217,364	42,880	7,922	11,006	61,808	0.43
D	77,973	12,736	7,864	3,730	24,330	0.34
E	221,090	23,448	55,712	10,450	89,610	0.42
F	160,736	15,396	32,553	12,531	60,480	0.68
G	110,643	12,951	30,724	-	43,675	0.66
H*	270,943	70,217	22,512	10,000	102,729	0.46
I	427,462	30,766	131,833	-	162,599	0.37
Total SF	1,917,454	256,161	292,922	56,419	605,502	0.32
Total Acre	44.02	42%	48%	9%		

7/23/2013

Summarized from The Cecil Group's Build Out Analysis, Jan 28, 2013

**Where specific property usage types were left undefined, the allocation of uses was assigned based on consultant's knowledge of the building*

Existing Vacancies By Block
Windsor Center

Site	Parcel SF	Existing Vacancy GSF By Use			
		Comm/Retail	Comm/Office	Residential	Sub-Total
A*	208,216	22,174	-	-	22,174
B	223,027				-
C	217,364				-
D	77,973				-
E	221,090				-
F	160,736				-
G	110,643				-
H*	270,943	19,959	-	-	19,959
I	427,462				-
Total Vacancy SF	1,917,454	42,133	-	-	42,133
Total Building SF	1,917,454	256,161	292,922	56,419	605,502
%		16%	0%	0%	7%

7/23/2013

Summarized from The Cecil Group's Build Out Analysis, Jan 28, 2013

**Where specific property usage types were left undefined, the allocation of uses was assigned based on consultant's knowledge of the building.*

Lease and Vacancy Rates

The amount of current vacancies for residential and retail in Windsor Center provides a sense of the level of demand for real estate products.

LOCAL RESIDENTIAL VACANCIES

Like most areas around the country and Connecticut, single-family for-sale real estate values have declined over the last five years. According to Zillow, an on-line web site which tracks home sales and values, Windsor home values peaked the fall of 2006 at an average of $240,000 and are now around $185,000, a decline of approximately 23 percent. In the last six months, prices have stabilized and are once again increasing, although at a modest rate. For single-family homes in Windsor Center sold in 2012 and to date in 2013 (Table 6), values ranged from a low of $70,000 to a high of $250,000 for an average price of $151,000 ($106 per square foot). In May 2013, there were approximately two dozen houses for sale on the market within Windsor Center, some of which were in foreclosure.

Condominium sales ranged from $192,500 to $270,000 for an average of $226,000 ($165 per square foot). Only one multi-family property sold for $138 per square foot.

The ESRI data for the half-mile radius from the station says the vacancy rate for apartment vacancies is 9.7 percent of total units. Note that this figure is based on a slightly different geographical area and time period than earlier figures in this report which were based on the 2009-2011 American Community Survey 3-Year Estimates. This figure may be due to current foreclosures, as noted above, or other abandoned housing for other reasons than financial. On the other hand, eight units were actively listed for rental as of May 2013. According to ESRI, within a half mile of the Windsor Center train station, of the total 711 housing units, 327 (46%) are rentals, translating to an apartment active vacancy rate of 2.4 percent. A vacancy factor of less than five percent indicates that demand for rental units exceeds supply; the rates shown in this study, of between 9% and 17% do not indicate a huge demand for rental units.

LOCAL RETAIL VACANCIES

During this latest real estate downturn, retail merchandise offerings in Windsor Center have dropped. Overall occupancy is healthy when compared to some town centers. Few retail stores are vacant and available for new tenants.

During the priority block inventory that took place in January, 2013, only three buildings had obvious vacancies:

- **BLOCK A** – The former car dealership and gas station at the intersection of Mack Street and Poquonock Avenue. This site has excellent parking and

a relatively large floor plate that could be converted into a larger general merchandise use;

- **BLOCK H** – The Plaza Building which was and is continuing to undergo renovation. The Plaza Building is being renovated to house around nine residential units on the second floor, restaurants on the first floor store-front facing Broad Street, and a 300 seat live music/film venue in the renovated theatre behind the proposed restaurants. The project owner has initiated applications for specific uses within the building which, he says, he intends to build-out, if approved. Therefore, it is questionable as to whether this square footage should be defined as "vacant;" and
- **FORMER ARTHUR'S DRUG SITE** – The owners of the two commercial retail buildings on the former Arthur's Drug site are anticipating relocating some tenants from one building to the remaining building in anticipation of building another use on site. These shifts in tenancy are not considered vacancies. [5]

Commercial retail rents are around $14.50 per square foot per year, well below the rental rates that would be necessary to support new construction at $120 per square foot for general merchandise space. Restaurant fit-out would be in addition to that figure.

5 Interview with Mohan Sachdev, property owner and developer, April 11, 2013.

Other sources related to real estate values are included in Appendix F. Note that Zillow's sales data does not appear to include foreclosures.

EXHIBIT 2-5
Windsor Center: 2012-2013 Residential Properties Sold
Half Mile Radius from Planned Station
5/18/2013

Address	Price	Beds	Baths	Sqft	Price per Sqft	Lot (sq ft)	Year built	Date Sold
Single Family / Detached								
475 Broad St	$210,000	2	2	1,337	**$157**	33,976	1927	4/1/2013
35 Parkwood Dr	$250,000	3	3	2,469	**$101**	55,321	1966	3/6/2013
114 Maple Ave	$120,000	3	1.5	1,300	**$92**	8,276	1920	1/18/2013
164 Capen St	$139,900	3	1	1,144	**$122**	13,503	1952	12/19/2012
88 Capen St	$127,000	3	1	1,196	**$106**	7,405	1920	12/13/2012
77 Capen St	$70,000	3	1	1,152	**$61**	7,405	1918	11/26/2012
41 Remington Rd	$82,500	4	2	1,241	**$66**	10,890	1948	11/1/2012
62 Sycamore St	$105,000	3	2	1,811	**$58**	-	1923	10/31/2012
26 Kellogg St	$123,000	2	1	1,031	**$119**	15,246	1938	10/15/2012
1 Moorlands St	$203,500	3	2	1,678	**$121**	33,976	1959	10/1/2012
18 Parkwood Dr	$206,000	3	2	1,508	**$137**	27,443	1962	8/30/2012
1359 Crest Dr	$165,000	3	1	1,324	**$125**	12,632	1951	8/20/2012
53 Elm St	$71,000	2	1	1,140	**$62**	17,424	1935	8/17/2012
54 Maple Ave UNIT 54	$82,250	1	1	1,068	**$77**	-	1869	8/1/2012
125 Maple Ave	$212,000	3	1.5	1,568	**$135**	13,504	1936	7/30/2012
50 Mack St	$193,000	3	1.5	1,206	**$160**	29,621	1956	7/16/2012
72 Hayden Ave	$195,900	3	2	1,994	**$98**	11,325	1915	6/20/2012
6 Sarah Anne Ln	$229,900	2	2.5	1,655	**$139**	9,148	2000	6/7/2012
19 Brown Ave	$216,000	3	1.5	1,988	**$109**	19,602	1890	5/16/2012
275 Bloomfield Ave	$176,000	3	2	1,360	**$129**	22,216	1951	5/14/2012
85 Elm St	$126,000	2	1	1,136	**$111**	10,019	1935	4/2/2012
48 Filley St	$15,000	3	1	1,264	**$12**	7,405	1923	3/15/2012
Average (Excludes highest and lowest price per sqft, highlighted)	$150,861				**$106**			
Condominiums								
33 Mechanic St UNIT 306	$235,000	2	2	1,597	**$147**	-	2007	9/27/2012
33 Mechanic St UNIT 206	$270,000	2	3	1,745	**$155**	-	2006	6/29/2012
33 Mechanic St UNIT 303	$210,000	2	2	1,146	**$183**	-	2006	5/11/2012
33 Mechanic St UNIT 214	$192,500	2	2	1,110	**$173**	-	2007	4/24/2012
Average	$226,875				**$165**			
Multiple Occupancy / Apartment								
103 Capen St	$210,000	5	3	1,523	**$138**	9,148	1910	6/26/2012
Average					**$138**			

Source: Zillow.com, access on May 18th, 2013

* These locations are mapped in Appendix 5.3

Figure 43. Table of 2012-2013 Residential Properties Sold

Real Estate Products and Trends

Trends and values for residential, commercial retail and commercial office product types are noted below. Overall little development activity has occurred over the last five years.

RESIDENTIAL PRODUCT TRENDS

The following notes address the overall picture of residential trends in the Town of Windsor:

- **LIMITS ON RESIDENTIAL EXPANSION TO THE EAST** – Most of the area to the east of the railroad tracks in inaccessible to Windsor Center given the location next to the river and its floodplain. Traditional approaches to calculating market demand for different land uses rely on evaluating the number of households (or "rooftops") within a certain radius. This approach using radii does not apply here because of the river's presence, making development infeasible;
- **NEW RESIDENTIAL PRODUCT** – Very little residential product has been built in the Town Center in the last twenty years. The exception is conversion of the mill complex at 33 Mechanic Street into 60 residential condominium units in 2007;
- **GREAT POND IN WINDSOR** – A new community developer has proposed a mixed-use development of over 4,000 units, called Great Pond in Windsor, including a new "town center" off Day Hill Road. A 2009 residential demand study completed for this new community indicated an overall annual residential demand of over 2,000 units in the market area. The market study proposed building 300 units/year or capturing only 15-20% of the annual demand (about half being multi-family for rent); and
- **OTHER POSSIBLE NEW RESIDENTIAL PRODUCTS** – A narrow parcel along Mechanic Street running parallel to the tracks to Batchelder Road may accommodate higher density product similar to that proposed at Olde Windsor Station, although there are some constraints related to its location within flood plain to the east of the railroad tracks,. Mid to long-term reuse of current town owned parking east of the railroad tracks for multi-story residential development.

RETAIL PRODUCT TRENDS

This section addresses regional destination shopping, local vacancies and neighborhood retail opportunities.

Regional Destination Shopping

Diversified larger-scale retail is situated in several regional malls within a ten to fifteen minute drive in West Hartford, Enfield, Bloomington, and Manchester. Specifically, major retail destinations include:

- The Promenade Shops at Evergreen Walk, South Windsor;

- The Shoppes at Buckland Hills, Manchester;
- Bishops Corner, Blue Back Square, and Westfarms Mall, West Hartford; and
- Enfield Mall, Enfield.

In fact, larger-scale destination retailers are located in adjacent towns to Windsor in every direction, except due east. Due to the proximity of regional destination malls and the relatively modest growth projected for the region, no demand is projected for a larger scale retail format in Windsor Center.

Neighborhood Retail Opportunities

A useful tool in understanding local retail opportunities in a given location is the Retail Leakage and Surplus Analysis. This analysis examines the quantitative aspect of the community's retail opportunities, but it is not an analysis that indicates unconditional opportunities. The analysis is sometimes called "a gap analysis" or "a supply and demand analysis" and can aid in the following:

- Indicating how well the retail needs of local residents are being met;
- Uncovering unmet demand and possible opportunities;
- Understanding the strengths and weaknesses of the local retail sector;
- Measuring the difference between actual and potential retail sales.

The leakage/surplus index provides a relative comparison of the supply and demand across retail product categories. It is calculated by dividing actual sales by potential sales. An index greater than 1.0 indicates that the community is attracting retail sales (surplus) from outside the trade area. If the index is less than 1.0 it means that residents of the community are shopping outside the community.

Understanding Retail Leakage/Surplus

Retail leakage means that residents are spending more for products than local businesses capture. Retail sales leakage suggests that there is unmet demand in the trade area and that the community can support additional store space for that type of business. However, retail leakage does not necessarily translate into opportunity. For example, there could be a strong competitor in a neighboring community that dominates the market for that type of product or store.

Retail surplus means that the community's trade area is capturing the local market plus attracting non-local shoppers. A retail surplus does not necessarily mean that the community cannot support additional business. Many communities have developed strong clusters of stores that have broad geographic appeal. Examples of these types of retailers include sporting goods stores, home furnishing stores, restaurants, and other specialty operations that become destination retailers and draw customers from outside the trade

area. Examining the quantitative aspects (Leakage/Surplus) is only part of the evaluation of community's retail opportunities. Before any conclusions can be drawn about potential business expansion or recruitment opportunities, qualitative considerations such as trade area psychographics and buying habits must be analyzed in context of other market factors.

Major Retail Leakage Study Conclusions:

Detailed analysis provided by ESRI for half-mile, 1-mile and 2-mile radii is included in the appendix. Major findings/conclusions from this analysis are:

- Within a half-mile radius: the largest leakage categories are clothing and general merchandise; the biggest surpluses are food and beverage stores, auto dealers (now closed), and food services and dining places (the restaurant cluster noted above);
- Within one-mile radius: To the above list of leakage, add furniture and home furnishings and building materials and garden supplies. To the above list of surplus, add electronics and appliances and drinking establishments; and
- Within a two-mile radius: all categories show leakage except gasoline sales, electronics, and auto dealerships (now closed).

In other words, Windsor Center is meeting some of the needs of the local residents within 2 miles. Beyond two miles, the retail attractions of Windsor Center are significantly reduced.

The category of most concern from the leakage study is "general merchandise." $13 million of sales is lost serving the population within 2 miles. A general merchandise store is defined as offering a wide array of goods at mid-level price points, similar to what is offered in niche providers such as Benny's in Rhode Island or by store like Family Dollar but with a broader selection. This type of store would probably be free-standing and would have a floor plate of between 15,000-20,000 square feet.

In conclusion, Windsor Center has the fundamentals in place for new restaurant and entertainment offerings. The proposed residential projects within the center will create additional residents that will bring potential for additional retail offerings. The new retail would not be national chains, but homegrown unique specialty stores appealing to Generation Y.

Office Product Trends

Commercial office, of almost 300,000 square feet in the priority blocks, is scattered along Broad Street and Poquonock Avenue. Additional office space is located west of Broad Street in single-family residences converted to office. Commercial office rents in Windsor Center are currently in the range of $12 to $16 per square foot, below replacement cost of about $20-$25 in this area. Replacement cost is the amount of revenue per square foot needed to support current levels of new construction.

Most of the new office and industrial development has occurred in the industrial/office park off Day Hill Road which now houses over 20,000 employees. Some limited expansion is still occurring for build-to-suit users for larger corporate users. Currently there is no office and little industrial "spec" construction (that is, already leased space prior to the commencement of construction) in this market area. Windsor has 1.4 million square feet of commercial office facilities and properties available on 19 sites in 81 buildings. This translates to a vacancy factor of over 18 percent for larger space users. This level of vacancies for larger suburban office parks around the country is typical given the recent economic climate and the loss of jobs in the overall economy. It is also symptomatic of the younger workers wanting to work in urban areas without relying exclusively on the automobile for access.

The projected addition of office in Windsor Center will be smaller enterprises, probably home grown, that is of local origin where the owner/operator desires to be within a walkable small town rather than an automobile-dependent large office complex with few if any convenience retail offerings within walking distance. Windsor Federal Savings is illustrative of this type of user. According to management, this local firm with its corporate headquarters located in Windsor is enamored with its location and may want to expand there as its business grows.

Hospitality/Entertainment Trends

With the exception of the Plaza Building renovation, there appears to be little opportunity for expansion in this sector within Windsor Center. The lack of demand is due to area demographics, and the proximity to existing established cinemas, hotels and downtown Hartford performing arts venues, such as the following:

- Cultural arts and live theatric performances are relatively accessible in downtown Hartford, for example, Comcast Theatre, Hartford Stage, Theaterworks, Webster Theater, and Bushnell Center for the Performing Arts. SummerWind Performing Arts Center is a seasonal venue in Windsor. Infinity Hall, in Norfolk, is another venue, but is almost an hour away;
- Five national-chain hotels are located in or near the entrance to the Day Hill commercial office and industrial park, and serve the corporate market; and
- Cinema locations include Digiplex Bloomfield 8 in Bloomfield, Rave Cinemas in Manchester, Cinestudio in Hartford, and Rave Cinemas in Enfield.

The most likely opportunity for this sector is the renovation of the Plaza Theatre, a 400 seat facility, which has been recently gutted by a new owner who is interested in transforming it into a film and live music venue, with a larger format restaurant, or multiple smaller ones. This would be a unique offering to the market area and different from offerings in downtown Hartford.

Best Prospects for Development Projects

The Knowledge Corridor as a whole has limited growth prospects in the near term. Transit-served areas within the corridor would benefit from public policies encouraging and capturing that growth. Windsor Center is poised to change if public policy and property interests are aligned. The extent of the transformation will relate to:

- How many of the new "destinations" and other improvements to the physical landscape proposed here are created and in what timeframes; and
- How the vision is conceived and then executed systematically.

In other words, each change individually will make an incremental improvement to the enhancement of Windsor Center, but it is the cumulative effect of many smaller incremental improvements that will result in transformation of the Center into an enhanced and revitalized place. The key is to implement those incremental changes within a similar timeframe, for example twelve to twenty-four months so that synergies can take place among the new uses.

This section summarizes all the best development prospects mentioned above: development of new destinations to attract all users to Windsor Center and the addition of several types of residential development within Windsor Center.

CREATE MULTIPLE ADDITIONAL DESTINATIONS IN AND AROUND WINDSOR CENTER

The objective is to create many reasons for Town and adjacent community residents and visitors to come to Windsor Center – a quaint New England Town Center with a plenty of things to do.

- **LARGER-SCALE GENERAL MERCHANDISE RETAIL** – The retail leakage information, which shows large unmet demand for general merchandise. The goal is to attract a larger-scale retail tenant selling general household merchandise as a retail anchor to the Poquonock Avenue corridor. This could be similar to a Woolworth-scale department store which provided an assortment of household merchandise at reasonable prices;
- **REGIONAL MUSIC/FILM VENUE AT PLAZA THEATER** – Ideally this use would be supported by a structured parking lot behind Town Hall to create a viable regional destination for this exciting revitalized use and the potential for multiple additional restaurants. Provision of adequate parking is needed – this may include on-street parking, off-site parking agreements, and the future development of structured parking;
- **REGIONAL CANOE/KAYAKING RIVER LAUNCH** – The Town should seek proposals on a water-related use at Palisado Avenue and the river. This launch would provide a new amenity for town residents, in response to the increase in interest in active recreation sports. It would also create the potential for new sporting goods related retail within proximity to

the site. Users would be likely to go to restaurants in Windsor Center for refreshment or meals after being on the water;

- **REGIONAL BIKE PATH CONNECTION** – Build bike/walking trail and connect it to the proposed regional trail along the railroad tracks. Once such a connection was in place, it could provide another amenity to local town and neighboring town residents interested in an active lifestyle. Similar to the canoe launch above, it could spawn related retail offerings and provide additional traffic to restaurants and other establishments in the Center;
- **REGIONAL SPORTS COMPLEX AT LOOMIS** – Work with Loomis Chaffee to create a sports complex, including the existing ice skating rink and an adjacent, newly constructed field house and artificial turf playing field on the existing upland playing field which lies outside of the 100 year flood plain. Local and regional teams using these new facilities could add to the new clientele for retailers and restaurants in the center. Sports that could make use of the facility include lacrosse, ice hockey, baseball, and soccer; and
- **OTHER ART AND CULTURAL ATTRACTIONS** – Facilitate other art/cultural uses in the district establish themselves in currently vacant or underutilized buildings. The existing art center could act as a catalyst for a more formal mix of local and regional art offerings. Adding these other new destinations to the center could increase the visitors to support such offerings.

Quantification of the impact of these new uses in and around the center is not possible. However, the collective impact of the establishment of a majority of these uses cannot be underestimated. An example of the impact of these active recreation additions to communities is the Walk over the Hudson in Poughkeepsie, NY. An existing unused rail trestle over the Hudson River was converted into a pedestrian and bike path and connected to the regional bike trails on either side of the river. Projections for use within the first year were around 500,000 visitors. Within the first year, over 1 million came to enjoy the experience and the numbers keep climbing. The combination of the canoe launch, the regional bike trail connection, and a ice rink/field house would not be as spectacular as the Walk over the Hudson, but cumulatively these new amenities could identify Windsor Center as a regional recreational destination for many new households.

FOSTER OTHER RESIDENTIAL DEVELOPMENT

The goal is to revitalize Windsor Center with new residents, by creating infill development on underutilized parcels and encouraging larger scale projects such as the existing Mill Condo complex or the proposed Olde Windsor Station.

- Expedite construction of the proposed Olde Windsor Station residential project on the Town's maintenance yard on Mechanic Street. This project is important to the creation of a new image for the center and providing new residential choices to those who want to live in Windsor;

- Encourage Loomis Chaffee to build or contract to build new multi-family product for its faculty off Broad Street on its two large parcels, and off Stinson Place and Island Road where it already owns most of the properties and makes them available to faculty;
- Determine feasibility of developing between the railroad track and Mechanic Street to Batchelder Road at densities consistent with the proposed Olde Windsor Station project;
- Encourage accessory housing to existing units within the existing single-family area; and
- Encourage two and three story multi-family products within two blocks of Broad Street.

All of these initiatives in residential unit expansion will add to the appeal of Windsor Center:

- Increase evening street life after the business and town offices close;
- Generate additional demand for existing and new retail offerings in the center;
- Provide additional housing choices to baby boomers seeking to downsize from single-family detached houses and younger residents looking for more urban life styles and walkable places;
- Provide new entertainment and recreational opportunities, leading to additional visits to the Center and incidental shopping; and
- Foster a new image of Windsor Center with new music offerings a meeting place for "hip" younger generation, possibly creating a different mix of retail.

The cumulative effect of these changes may create enough new demand for a different mix of retail to allow landlords to charge higher rents than have historically been the case in Windsor Center. Higher rents would, in time, lead to options for construction of new retail, further enlivening the place. All of these initiatives should bring new activity and excitement to the Center through the interaction and synergy between and among these additions to the center.

Development Projects and Absorption

PROJECTED BUILD-OUT ANALYSIS AND

ABSORPTION: METHODOLOGY

Windsor Center is attractive because it feels like an old New England town. Existing residents, tourists and neighboring town residents come here to transact town business, meet local neighborhood retail needs, satisfy some limited shopping needs and pursue some entertainment and dining offerings.

Due to high cost of new construction relative to existing rents and the general viability of existing buildings within the Center, it is unlikely that an existing property owner would tear down an existing structure and build something new. There would have to be an unusual circumstance in order to rationalize this investment:

- A national retail chain, like a pharmacy, wants a local presence and is willing to pay a premium rent to be in this market for whatever reason, for example, the proposal for a new pharmacy proposed at the site of the old Arthur's Drug store;
- A project is of sufficient scale to offer a new set of amenities that is not currently available in the market place, for example, the proposed Olde Windsor Station residential apartment complex. This complex is able to charge higher rents than other rentals in Windsor Center because the larger scale can attract new residents with a health club, communal entertainment space and a "low carbon footprint;"
- A unique use relative to neighboring towns, for example, the rehabilitation of the Plaza Building into a live entertainment venue and specialty films, combined with new restaurant offerings; and
- A town benefactor – someone who has multiple interests in Windsor and wants to see the Town Center prosper for many reasons, not just to make a monetary investment, but to create a sense of civic pride and progress.
- The Cecil Group evaluated the existing building square feet, its potential square feet with current zoning and the potential change in square feet within the Town Center. This analysis assumes a 0.5 floor area ratio (FAR) for the Windsor Town Center and is summarized in Table 8. The analysis shows the following:

Retail

- **CURRENT ZONING** – The zoning for the area would allow greater than double the current retail uses from 215,000 square feet to almost 450,000.
- **CURRENT MARKET** – Windsor Center is primarily a neighborhood service center with some limited retail. Retail shopping is available in abundance within ten to twenty minutes at three regional shopping malls. If the other destination uses identified above are realized, there will be demand for another 45,000 to 60,000 square feet on the first floor of commercial, office and residential properties that serve neighborhood shopping. Neighborhood retail that could be added include: auto supply, sporting goods, furniture, home furnishings, lawn and garden, gift, building materials,

apparel, specialty foods, convenience foods, appliance, hobby/toy, health and wellness, physical fitness/yoga, book, pet stores, and flower shops.

- **PROJECTED 10 YEAR ABSORPTION** – 45,000 to 60,000 square feet. This amount of new retail is premised on the assumptions that (1) the new destinations delineated in the District Vision are realized in a reasonable time frame and (2) that, based on the increase in visitors to Windsor Center, rents will rise to a level that supports new construction. These additions to existing space will occur in the second half of the ten year projection as rents increase due to the new appeal and increased number of visitors coming to Windsor. Because almost no new construction or absorption has occurred in the last decade, it is not possible to quantify product absorption in any more detail.

Office

- **CURRENT ZONING** – The zoning for this area would allow an increase of 30,000 square feet, from the current level of 292,000 square feet to 320,000 square feet.
- **CURRENT MARKET** – This estimate is probably close being realistic, although it could be slightly higher at 40,000 square feet. Some existing businesses in the center will want to expand and some community service entities in the Center will most likely be converted to office and have second and third stories added. Since Windsor Center will have more to offer in terms of convenience to neighborhood services and transit, new, smaller businesses will chose to locate here if space is the right size, competitively priced and convenient to parking.
- **PROJECTED 10 YEAR ABSORPTION** – 40,000 square feet in smaller sites, probably in second and third story buildings that have been renovated or expanded in order to capitalize on higher land values resulting from improvements in and attractiveness of the Town Center. Because almost no new construction or absorption has occurred in the last decade, it is not possible to quantify product absorption in any more detail.

Residential

- **BUILD-OUT ANALYSIS** – The build-out analysis shown in the table below looks at the amount of square footage in existing buildings, what the potential square footage could be if the density were increased, and how the market would respond to those densities. For example, retail square footage could increase by over 230,000 square feet, but there is only market demand for 60,000 square feet. However, a residential market demand of 772,000 square feet outweighs the ability to increase residential square footage.
- **CURRENT MARKET** – Market studies for the proposed new community of Great Pond and the Olde Windsor Station apartments show much greater residential demand for new product than can be produced.
- **PROJECTED 10 YEAR ABSORPTION** – We project approximately a doubling of the number of residential units for rent or sale. A conservative projection would be 500 additional units in addition to Olde Windsor

Station (130 units). Other projects could be infill in lower density sites within Windsor Center. Because other projects in town have completed detailed absorption studies by product type, this report does not address that issue.

Figure 44. Table of Build-out Analysis including information from TRA Associates (TRA) and The Cecil Group (TCG)

		EXHIBIT 3-1				
		Build-out Analysis				
		Windsor Town Center				
		Ten Year Build-Out: 2013-2023				
		----------TCG Estimates----------			**TRA Estimate**	Proposed
			.5 FAR	.5 FAR	**Market**	new
		Existing	Potential	Change in	**Change in**	Residential
		Building SF	Bdlg SF	Bldg SF	**Bldg SF**	Units
Retail		215,228	448,835	233,607	**60,000**	
Office		292,922	320,961	28,039	**40,000**	
Residential						
Existing Priority Block Condition		44,514	217,267	172,753	172,000	143
Other Res. Infill Projects in the District (1)					600,000	500
TRA Estimated Residential Market		44,514	217,267	172,753	**772,000**	643
Total TRA Market Estimates		552,664	987,063	434,399	**872,000**	643
Recently approved Windsor Station					112,000	130
Total New					984,000	773
Footnotes						
(1) Existing Residential in 1/2 mile radius		960,000	960,000	960,000	960,000	763 units in the Center currently
						@1,200 SF/unit or 960,000 SF
TR Advisors, 7/15/13				-		

6 CASE STUDIES OF COMPARABLE COMMUNITIES

Purpose

Case study research in urban planning excels in bringing an understanding of a complex issue by learning from the experience of existing and similar iterations. The team analyzed a number of case studies to better understand the circumstances around similar transit oriented development projects and similar transit stations. For each of these cases, the comparability to Windsor, background, improvement initiatives, and outcomes were all considered. These cases were gathered from well-known projects and selected by their relevance to the goals of the Windsor Center project.

An analysis was conducted specifically for ten passenger rail stations in the Northeast. The focus of these cases is on Windsor center's most closely related stations.

Lastly, an analysis was conducted of three similar shared commuter park and ride lots. This study was conducted in conjunction with the parking analysis and helped to form that basis of the recommendations.

Comparable Development Case Studies

BRUNSWICK, MAINE

Comparability

- Slightly smaller population than Windsor (20,278)
- Lower median household income ($50,117 in 2010) than Windsor
- Educational Institution (Bowdoin College) within walking distance of center
- Amtrak station opened in November 2012 with service between Maine and Boston

Background

- Historic Downtown with college atmosphere

Improvement Initiatives

- $38.3 Million in Federal Stimulus for construction of Brunswick/Freeport stations
- $500,000 from Maine for Brunswick/Freeport station platforms

Outcome

- Expected $325 million in new construction investment, 800 jobs, and $7 million in saved transportation costs by 2030.

Figure 45. Brunswick Maine

Source: http://www.theforecaster.net/node/140933

Lessons Learned

- Commuter rail station offers alternate mode of access for residents and visitors
- Rail service provides alternate way for students and families to travel to and from the college
- Businesses will benefit from additional visitor presence

Additional Resources

http://www.brunswickme.org/

EXETER, NEW HAMPSHIRE

Comparability

- Smaller population size than Windsor
- Slightly lower median household income ($61,367 in 2010) than Windsor
- Educational Institution (Phillips Exeter Academy) within walking distance of center
- Downtown has Amtrak station with service between Maine and Boston

Background

- Historic Downtown

- Highest ridership of Down-easter Stations in New Hampshire
- Improvement Initiatives
- $160,000 was allocated for station improvement in 2005

Outcome

- Station area has experienced increased property values – level of premium unclear
- The local economy benefits from the station. Projected annual benefits for 2015 include $1.2 million in annual business sales, 16 jobs, and $369,000 in wages
- On average, a visitor directly attributed to Down-easter service spends $154 in Exeter

Figure 46. Exeter, New Hampshire

Source: http://www.flickr.com/photos/24653690@N03/7648386000/

Lessons Learned

- Station area with access to major metropolitan centers offers increased commuter population and potentially higher property values
- Attractions in the downtown will encourage visitor spending and help grow the local economy
- Rail service provides alternate way for students and families to travel to and from Phillips Exeter

Additional Resources

http://www.town.exeter.nh.us/

LA GRANGE, ILLINOIS

Comparability

- Smaller population size than Windsor
- Slightly higher median household income than Windsor ($94,629 in 2010)
- Commuter Rail Station located in the center of small town with service to Chicago

Background

- Less than 15 miles from Chicago
- Depressed Downtown
- More than 30 restaurants in downtown/business district

Improvement Initiatives

- $50, 000 from IDOT "Illinois Tomorrow"
- Initiative to develop a comprehensive plan to stimulate the under-performing west end business district
- 40 unit La Grange Plaza Condos (1995)
- Triangle Redevelopment of 78 condos, 45,800 square ft. retail space, 194 parking spots (2000)

Outcome

- $29 million invested in public improvements
- 67,275 square feet of new retail and commercial space
- 173 new residential units
- Incremental sales tax revenue increase from $20,000 to $350,000 between 1986 and 2003

Figure 47. La Grange, Illinois

Source: http://www.mdot.maryland.gov/Office_of_Planning_and_Capital_Programming/Plans_Programs_Reports/Historical_Documents/Odenton_Case_Studies.pdf

Lessons Learned

- Utilization of several funding sources (Local, State, and Other) to facilitate TOD – collaboration is beneficial
- Inter-agency and public cooperation are necessary to spur development.
- Early planning or planning during a down market positions property and community for development when market rebounds
- Efficiency of commuting to major work centers makes location attractive

Additional Resources

http://www.villageoflagrange.com/index.aspx?nid=123

MIDDLETOWN, CONNECTICUT

Comparability

- Educational institution (Wesleyan College) located downtown
- Downtown bordered on one side by a river (Connecticut River)

- Slightly lower median household income ($59,966 in 2011) than Windsor

Background

- Downtown experienced a downturn in the early 1990s
- Vacancies on Main Street climbed to more than 60 percent with mass closings of stores
- Social services proliferated
- Connection between Wesleyan College, downtown and the river was lacking
- Little to no activity was present downtown on weekends and nights

Improvement Initiatives

- City established a Design Review and Preservation Board in 1998
- City formed a Business Improvement District (successful referendum of property owners) that provides continuous funding
- City changed zoning to require retail frontage on Main Street and to prohibit new curb cuts, new social services and store-front churches
- City established a facade improvement program
- City worked with Wesleyan to create the Green Street Art Center
- City supported numerous downtown projects

Outcome

- Opening of more than 30 new restaurants
- Establishment of 12-screen cinema
- New mixed-use developments including Landmark Square
- Rehabilitation of housing into the North End Artist Cooperative
- Creation of the Green Street Arts Center by Wesleyan University

Figure 48. Middletown, Connecticut

Source: https://www.downtownmiddletown.com/images/customer-files/DBD_MainStFall12_F090612_web.pdf

Lessons Learned

- Public-private partnership is key to revitalization.
- Ongoing stewardship and financing mechanisms are important for plan implementation.
- Innovative uses, such as a combination police station and restaurant, create new energy downtown.
- Destination uses - a children's museum, a new movie theatre, an arts center – attract visitors who support other local businesses.
- New Community events energize downtown.
- Simple steps to improve the visual appearance of the downtown are important for public perception of the area.

Additional Resources

http://www.cityofmiddletown.com/content/773/1834/default.aspx

http://www.wesleyan.edu/greenstreet/index.html

NORTH ADAMS, MASSACHUSETTS

Comparability

- Mass College of Liberal Arts within a mile of downtown
- Former railroad town - now Ashuwillticook Rail Trail

Background

- Sprague Electric Company purchased a former print works site in the downtown in 1942
- Sprague became a major research and development center where electrical components were produced
- Sprague closed in 1985 after competition from abroad resulted in decreased sales
- Local economy and population declined
- Unemployment rose

Improvement Initiatives

- Massachusetts Museum of Contemporary Art (MassMoCA) opened in 1999 on a brownfields site, the former Sprague plant
- Museum provided office and retail space for other businesses, including restaurants, law firms, photography studios and high-tech industries

Outcome

- Creation of a regional attraction with galleries, theater, outdoor cinema and performance courtyards
- Establishment as a more desirable place to live with increased property values
- Increased tax revenues

Figure 49. North Adams, Massachusetts

Source: http://www.massmoca.org/

Lessons Learned

- Reuse of a brownfields into a regional destination served as a catalyst for downtown revitalization.
- Initial expectations were for a stronger revitalization effect
- Long-time residents not always enthusiastic about changes

Additional Resources

http://createquity.com/2009/12/arts-policy-library-mass-moca-and-the-revitalization-of-north-adams.html

http://www.npr.org/2012/08/20/159357612/north-adams-mass-a-manufacturing-town-for-art

RAHWAY, NEW JERSEY

Comparability

- Similar population size to Windsor
- Slightly lower median household income than Windsor ($58,551 in 2010)
- Located near New Jersey Turnpike and Garden State Parkway
- Downtown Commuter Rail Station with service to New York City

Background

- Economic Decline in 1970's
- Path Transfer Station through Hoboken shortened travel time to New York City to 25 minutes
- Created opportunity for redevelopment

Improvement Initiatives

- $18 million NJ Transit Investment in station
- $1.5 million renovation of civic plaza
- Renovation of Union Arts Center
- $1.5 million redevelopment of dump site
- Waived Real Estate Fees for 10 years in return for 3% return on sales

Outcome

- 12th busiest NJ rail station
- 1,400 housing units within walking distance of station
- Dump site redeveloped into 87 townhouses
- Parcel across from station developed into 4,000 square feet of retail space with 8 apartments above
- 2007 Rahway Town Center TOD calls for 150,000 square ft. of retail space, 305 housing units, and 102 room hotel

Figure 50. Rahway, New Jersey

Source: http://www.mdot.maryland.gov/Office_of_Planning_and_Capital_Programming/Plans_Programs_Reports/Historical_Documents/Odenton_Case_Studies.pdf

Lessons Learned

- Upgrades to transit service that decrease travel time or are competitive with auto travel help spur development
- Investment in civic spaces may support redevelopment¬¬
- Local investment in infrastructure and implementation of programs or incentives to facilitate private TOD projects may be necessary
- Early planning or planning during a down market positions property and community for development when market rebounds
- Utilization of several funding sources and cooperation among government agencies and the public is necessary to facilitate TOD
- Need to find balance between promoting commuter location with parking to attract users to the service and transit-oriented, high-density development for growth

Additional Resources

http://www.cityofrahway.com/economic_development.htm

WALLINGFORD, CONNECTICUT

Comparability

- Residential neighborhoods surround the core of the town's center
- Educational institution (Choate Rosemary Hall) within walking distance of center
- Located near Interstate 91
- Downtown has an Amtrak station with passenger service (station is next to the town green)

Background

- Early industry was manufacturing, especially pewter and silver
- Business climate has diversified and includes technology, medical and health care companies

Improvement Initiatives

- Town helped establish a Main Streets program in 1987 called Wallingford Center, Inc. that works closely with the Town's Economic Development Department
- Town created incentives to businesses to move to the area, including a 10% Electric Rate Discount Program for businesses that locate in vacant space in the downtown
- Town made extensive streetscape improvements
- Wallingford Center, Inc. assembled an information packet that lists available properties, incentives, demographics and other information
- Wallingford Center, Inc. hosted - and continues to host - numerous community events
- Town is still discussing proposed IHZ Plan.

Outcome

- Many facade improvements made by business owners
- Opening of many new businesses, including a cluster of restaurants and antique shops
- Beautified streetscape (e.g., decorative lamps, streetscape furniture, brick-lined sidewalks, underground utilities)

Figure 51. Wallingford, Connecticut

Source: http://www.tollbrothers.com/CT/Estates_at_Wallingford#

Figure 52. Wallingford, Connecticut

Source: http://www.wallingfordcenterinc.com/minigallery/album1/images/swf1.jpg

Lessons Learned

- A Main Streets program became a strong partner with the town and helped spearhead downtown revitalization efforts.
- Public investments in streetscapes spurred private investment in building facade improvements.
- Attract businesses by emphasizing unique elements - in this case, the 10% Electric Rate Discount Program and a central location for transportation and an educated workforce.
- A comprehensive economic development website helps relocating businesses find relevant information.

- Ensure all stakeholders are on board with proposed changes - IHZ proposal has been in process for over three years.

Additional Resources

http://www.wallingfordcenterinc.com/

http://www.town.wallingford.ct.us/Content/Business_Assistance.asp

WALTHAM, MA

Comparability

- Downtown located by the Charles River
- Downtown has a commuter rail station
- City located on Interstate 95
- Relatively diverse population
- Similar median household income (estimated $69,717 in 2011)

Background

- City experienced a decline in manufacturing and service jobs over the last two decades
- Storefront and office vacancies increased
- Access and views of the river were limited

Improvement Initiatives

- City built a river walk on both sides of the river
- City made infrastructure improvements to enhance streetscapes, Waltham Common and the riverfront
- City established a parking facility to support a movie theater and downtown businesses
- City created a Riverfront Overlay District to encourage mixed-use and higher density development along the waterfront
- City worked with the Chamber of Commerce to support minority-owned businesses
- City supported the development of a mixed-use project on the waterfront (Cronin's Landing)

Outcome

- Significant decline in storefront vacancies
- Opening of new businesses, including many restaurants
- Growth of minority-owned businesses
- Improved public access to the river

Figure 53. Waltham, Massachusetts

Source: http://www.city-data.com/businesses/393486311-ponzu-fine-dining-waltham-ma.html

Lessons Learned

- Targeted support of minority-owned businesses spurred significant economic activity.
- Multiple activities and initiatives - from infrastructure improvements to zoning changes - were undertaken to revitalize the downtown.
- City infrastructure improvements made the river more accessible to the public.

Additional Resources

http://www.macdc.org/Final_Small_Cities_Report.pdf

http://www.walthamchamber.com/index.shtml

Regional Station Area Comparisons

SERVICE CHANGES

Passenger rail service to Windsor will improve over the next two decades. The service that connects Windsor to Springfield, New Haven, New York City, and Boston will increase through a program of improvements being undertaken throughout New England. Amtrak currently operates six round-trip trains over the NHHS corridor with five round-trip trains stopping in Windsor. One provides direct service to and from Springfield, MA, Windsor, Connecticut and points south of New Haven (New York City and Washington). The four other round-trip trains shuttle between Springfield and New

Haven, where the trains meet Amtrak Northeast Corridor trains to Boston and New York, Metro-North trains to New York, and Shoreline East trains to New London.

The long-term vision for the line through Windsor is for the frequency to increase from 10 to 25 daily trains with additional connections to Boston and Montreal. Service along the line would include 30 minute, bi-directional, peak-hour service. The actual number of trains that will stop in Windsor will be determined in the future.

In the more immediate future, service is planned to increase in 2016 to 17 round-trip trains with 11 to 12 of them stopping in Windsor. This will include a doubling of the shuttle services between Springfield and New Haven from four daily round-trips to eight daily round-trips and an increase of the regional Amtrak service between Springfield and New Haven that connects to other locations in New England (such as Boston, Greenfield, MA and White River Junction, VT). These regional services are anticipated to include two to three round-trips per day, all of which will stop in Windsor.

The increase in rail service to Windsor provides an opportunity to leverage the improved transportation efficiencies and connections to improve the desirability of Windsor Center. Although it is evident from the limited train boardings that currently occur at Windsor's station that rail service is not a highly desirable transportation option, this is likely to change with the increased service.

Successful transit-oriented development typically relies on a few primary attributes: a robust local real estate market, transit service desirability, design focused on the transit context, and planning support from area leaders.

As noted previously Windsor Center has the real estate market attributes that can support transit-oriented development and will soon have an improved rail service that will result in transit service desirability that could support additional development. The other two station area attributes (design focused on the transit context and planning support from area leaders) are within the control of the Town of Windsor and are the subject of the other chapters of this study. To provide examples of how these attributes have come together in other places a review of communities with other similar station attributes has been undertaken.

SIMILAR COMMUNITIES

Increased development in the area surrounding an improved passenger rail station is not a foregone conclusion. Although experience shows that there is potential for development impacts to station areas, this potential is greater if planning precedes or coincides with the investment. In order for Windsor to take full advantage of the potential benefits of investment in the rail corridor it is important to understand how the town and station area measure up against other commuter rail served communities. This comparison may

highlight some attributes that the Town of Windsor can leverage to increase its competitive advantage.

To gauge the economic competitiveness and opportunities for Windsor, important attributes of other station areas in the region have been collected. The identified station attributes include:

- Population and distance to major city;
- Station ridership;
- Service frequencies;
- Intermodal transit connectivity;
- Other station area attractors and linked development – stadiums, convention centers, universities, etc.;
- Market and tax incentives, zoning, policies.

Windsor, Connecticut had a 2010 population of 29,044. The train station is currently served by an average of 10 trains per day (5 round-trips) with an annual boarding volume of approximately 6,000 passengers. This ridership is low relative to rail stations in similar communities in the Northeast.

The limited number of train boardings appears to be due in part to the limited desirability of Windsor Station as compared to other rail station in terms of ease of access and train frequencies. The primary destination of rail passengers from Windsor is New York or other NY metropolitan area destinations. Since Windsor Station is not as easily accessed as other stations on the Springfield Line and the trains are not as frequent, many passengers opt to utilize other stations (such as New Haven) where train frequencies are significantly higher, even if it entails a further drive. The result of these train travel options is that the Windsor Station service area is generally limited to the Town of Windsor and more specifically the residents of the downtown and the immediately surrounding area. The planned increases in train frequency and travel speeds will make train travel from Windsor more desirable. Although travelers from outside of Windsor Center will still be unlikely to choose to board trains in Windsor, the desirability of Windsor Center as a residential location is likely to increase.

The following provides an overview of passenger rail stations in the Northeast with frequencies that compare to the current Windsor Station and how they compare to Windsor. The case studies are focused around attributes of planning for station area development. The stations examined include:

Limited Station Area Planning;

- Westborough, MA
- Orange County, NY

Development Focus;

- Abington, MA

Nearby Attractions (Educational);

- Exeter, NH
- Durham, NH
- South Orange, NJ

Other Towns in Connecticut considering transit-oriented development;

- Meriden, Connecticut
- Wallingford, Connecticut
- Windsor Locks, Connecticut.

LIMITED STATION AREA PLANNING

Middletown-Town of Wallkill Station, Orange County, NY

The Middletown-Town of Wallkill Station is a stop on the Metro-North Railroad's Port Jervis Line, a commuter line that connects with New Jersey Transit's Main Line at Suffern, New York, with connections to New York City at Secaucus and Hoboken, NJ. The 2010 census population of the closest town of Middletown was 28,086 and is also home to the State University of New York/Orange. On an average weekday, thirteen trains stop in Middletown, similar to the number of trains anticipated to stop in Windsor in the future. The train trip from Middletown to New York City is between two and a half to three hours with a transfer required along the route. This is a trip that is generally shorter than the trip between Windsor and New York City.

The station was built close to twenty years ago to accommodate growing demand on the Port Jervis Line from the increased residential development and the resultant increase in commuters. However when the station was built, no planning or accommodations were made for station-focused development. The zoning in the station area remains focused on encouraging large-scale shopping centers. Although land is available near the station and growth continues in the area, there has not been any station area development. Furthermore, development that has occurred in the station area is not connected to the station in any way.

This station area demonstrates the importance in planning and zoning if the goal of Windsor is to increase the development in Windsor Center.

Westborough Station, Westborough, MA

Westborough Station, which opened in 2002 is a stop on the Boston area's Worcester commuter rail line run by the MBTA. The 2010 census population

of Westborough was 18,272, and saw MBTA annual ridership of 169,344. On an average weekday, seventeen trains will stop in Westborough. The station is heavily trafficked due to its location at the junction of Northborough, Westborough and Shrewsbury. The majority of riders are commuters, given Boston's ninety minute train ride.

Westborough at this time does not provide any local bus options. The station is located in an area of town that is generally auto-dependent with few pedestrian facilities. In recent years, an additional parking lot was constructed to accommodate high volumes of motorists at the station.

Westborough Station provides another example of a passenger rail station where station area development was not contemplated in the development and planning of the station. Although the station opened a decade ago in a town and region experiencing commercial and residential growth, planning and zoning regulations were not modified to encourage station area development. Just this year, a decade after the station was built, a new 276 unit multi- and single-family development is being developed approximately a half-mile from the station, the first rail-focused development in the station area.

DEVELOPMENT FOCUS

Abington Station, Abington, MA

Abington, MA is a stop on the MBTA's Middleborough/Lakeville commuter rail line and had a 2010 population of 15,985. On average, twelve commuter trains stop in Abington. On a typical weekday, the MBTA estimates ridership at Abington at 845 passenger boardings, or close to 250,000 annual boardings.

Boston is the closest city to Abington, located forty-five minutes away by rail. Providence, RI is also approximately forty-five miles away, but the MBTA routes passengers through Boston to get there. There is no local bus service available at this time, and most passengers access the station via car. There is parking for over 400 cars. There are no notable attractions in Abington, and most commuter rail passengers are likely commuters.

The rail service to Abington was re-established fifteen years ago as part of the MBTA's Old Colony Service. In conjunction with the initiation of service, the Town of Abington established a transit supportive zoning district with the goal of encouraging development that compliments both the commuter rail station and the established surrounding residential areas. The concept was to provide a mix of small uses on well buffered sites to support the needs of commuters and adjacent residential development. The enacted zoning includes requirements to locate business parking outside of the front yard area and provide adequate pedestrian infrastructure and amenities. The town bylaws specify that any new residential developments must be mixed-use facilities, with residential components making up less than half the area.

Although the real estate market in Abington was robust at the time that the rail service was initiated, the approach that the Town of Abington used to encourage development around the station did not appear to have been utilized significantly. Even though there are close to 900 passengers board each day at the station, the ability of rail passengers alone to support development is not viable. The Abington Station area is just one example within the Northeast where experience has proven that economic development in a station area needs to include amenities in addition to the transit service.

NEARBY ATTRACTIONS (EDUCATIONAL)

Exeter Station, Exeter, NH

Exeter Station is a station stop on the Amtrak Downeaster line, a service between Brunswick, ME and Boston, MA that was initiated in 2001. The Town of Exeter had a 2010 population of 14,306, about half that of Windsor. There are approximately 46,000 passengers that board the Downeaster each year at Exeter, which is the busiest New Hampshire station on the route. Amtrak runs five daily trains along this route. Boston, the closest big city, is about an hour and a quarter train ride from Exeter. CoastBus runs one bus route through the city, stopping at the station and providing a connection to Portsmouth, NH.

The station is located within a neighborhood commercial area with commercial activities that serve the town and local neighborhoods. The station area is within walking distance to the downtown but is not an integral part of downtown Exeter, which is a vibrant town center area with characteristics similar to Windsor Center. There has not been a substantive effort by the town to increase development in the area, although there is interest in development/redevelopment to the degree that it is consistent with the surrounding neighborhoods. One example is the redevelopment of the Alrose Shoe factory into light-industrial workspaces and residential lofts, which are being heavily marketed for their proximity to the station as the Exeter Station Properties.

In a situation similar to Windsor Station, a large boarding school, Philips Exeter Academy, is located just a ten-minute walk from the station. The school, one of the largest employers in town, is situated in and around the downtown area. The school has embraced the station and rail service as an amenity for students, touting it on their website. In fact, many of the schools day students rely on the rail service to commute to school. The growing connection between the school and the rail service has increased the importance of the connection between the station and the downtown area. According to the Northern New England Passenger Rail Authority, approximately sixteen percent of all Downeaster riders are students, which are likely a combination of students from both Philips Exeter Academy and the University of New Hampshire, located near Durham Station.

Durham Station, Durham, NH

Durham Station is also located on the Amtrak Downeaster Line. Durham, NH had a 2010 population of 10,345. Development of the station area in Durham took a very different approach than those of the other case studies. In and around that Durham Station area, there is no parking offered, with most passengers arriving by shuttle bus or on foot. 27,860 boardings were recorded at Durham in 2012. The University of New Hampshire's main campus is located in Durham, making the city an attraction for Amtrak passengers. Surrounding the campus are local shops and cafes. The approach to limit parking in the station area has been a success due to students' propensity to walk and take transit coupled with the nearby development.

The town has recently made efforts to increase the number of residences in the station area by promoting the creation of mixed-use buildings. Amendments to the zoning code have allowed for higher densities and new parking stipulations in this district. Almost all commercial and industrial uses are allowed, with conditional uses extended towards educational or religious facilities, and parking infrastructure.

This station area provides evidence that passenger rail station areas can be successful even without dedicated station parking, especially when they are within walking distance of educational institutions.

South Orange, NJ

South Orange Station, in South Orange, NJ is a stop on both New Jersey Transit's Gladstone and the Morristown Lines, with ten to 20-minute headways during the peak period. The ride between South Orange and New York is about thirty minutes. In 2010, Orange reported a population of 16,198. Although the town has a smaller population and is significantly closer to New York, the station area provides a relevant case study for Windsor.

During the 1980's the Village of South Orange saw significant disinvestment, but with support from the state through New Jersey's Transit Villages Initiative, a host of governmental policy changes made redevelopment of the station area more attractive. The town took advantage of investment by the state in more frequent and faster train service by making changes to the local zoning and development approval process to foster development. Since that time, development in the station area has included more than 300 apartments, retail re-development, and improvements to the pedestrian environment. In addition, the village further supported the downtown area with the development of the 34,000 square-foot South Orange Performing Arts Center, built with support from nearby Seton Hall University. Together the station area improvements and performing arts center have proven to be successful in re-invigorating the village's downtown.

RAIL STATIONS IN CONNECTICUT

Meriden, Connecticut

Meriden, Connecticut had a 2010 population of 60,868, just over twice that of Windsor. Amtrak estimates annual boardings to be 17,242, the median of all Connecticut's Amtrak stations. On an average weekday, ten to twelve trains serve the station. Like Windsor, the Amtrak train station is conveniently located in Meriden's city center core and many residents, businesses and institutional uses have less than eight minutes walking time to the station. There are no public parking spaces located at the train station. Connecticut Transit operates three bus routes in the vicinity of the station. There are no particular large attractions in the Meriden station area.

Meriden's Amtrak station is located within their central commercial district. The district zoning regulations support retail businesses, offices, entertainment and cultural establishments, and their accessory uses (e.g. parking). Meriden is focused on leveraging the investment in the rail line to revitalize the station area through the modification of regulations for mixed-use commercial/residential buildings and is currently in the process of finalizing a new TOD master plan and several development plans for the station area.

Wallingford, Connecticut

Wallingford, Connecticut had a 2010 population of 45,135, 1.5 times that of Windsor. Amtrak estimates annual boardings of 9,074, the second lowest in Connecticut following Windsor. Like Windsor, Wallingford has ten weekday trains.

Wallingford is a twenty-five minute train ride from New Haven, and less than three hours from New York City. The station area is served by two Connecticut Transit bus routes. The station has approximately 100 parking spaces available for train passengers, but is also located in the downtown area, providing easy walking access to/from many destinations.

Wallingford holds limited appeal with outdoor enthusiasts for its well-known hiking trails. The largest employer is Gaylord Hospital, which provides to 4,600 jobs. Furthermore, Choate Rosemary Hall is adjacent to downtown with almost 900 students, making Wallingford similar to Windsor with Loomis Chafee nearby.

Wallingford has not developed a transit-oriented development plan for the station area, as the station is already located in an area with the general qualities of TOD. However the town is planning to establish an Incentive Housing Zone in the station area, with hopes of encouraging additional housing development.

Windsor Locks, Connecticut

Windsor Locks, Connecticut had a 2010 population of 12,498. Amtrak puts annual boardings at 9,246, which is 1.5 times that of Windsor. There is parking available on-site with fewer than fifty spaces. Accessibility to the station is generally limited to auto access, as the location is somewhat remote and surrounded by highways and the Connecticut River. On an average weekday, twelve trains stop at the station. There are no local bus connections available at this time.

Almost one-third of the total area of Windsor Locks' 9.2 square miles is Bradley International Airport, New England's second busiest airport (following Boston's Logan). The airport is the main attraction in this small town. Hamilton Sundstrand, an aerospace manufacturer, is headquartered in Windsor Locks and is one of the major sources of employment in town. Although current opportunities for transit-oriented development are significantly limited due to the station location, the town of Windsor Locks is undergoing a station area relocation planning process in advance of the implementation of rail line improvements. The goal of the effort is to move the station from its existing location to another location in the civic center for improved non-motorized access. The new station plan includes intersection improvements, new streetscapes, and redevelopment opportunities.

CASE STUDY REVIEW

From this review of comparable passenger rail stations in the Northeast serving similar size communities with similar train frequencies, it is clear that there are two station types. Most of these comparable stations are focused on simply providing access to the train service by providing ample parking and easy roadway access to station area parking lots. Examples of this type of station area development, which was common in the 1980s and 1990s, include the Westborough, MA and Middletown-Town of Wallkill, NY Stations. During that period, even towns such as Abington, MA that planned for station area development generally focused on supporting rail passengers needs. That approach began to change in the 1990s and 2000s and examples have been provided where host communities have leveraged connections with educational institutions and the downtown area to generally improve the vibrancy of the station area. Windsor Center closely compares to many of these station areas and, like many of these communities, can effectively leverage the investment being made in the rail line by increasing residential and mixed-use development within walking distance of the station. Lastly, examples have been provided regarding other communities along the line in Connecticut. Each community is focusing on making improvements to their station areas in their own way, while Meriden is focused on improving commercial development, Wallingford's focus is on housing and Windsor Locks focus is on station area connectivity.

SHARED COMMUTER PARK AND RIDE LOT CASE STUDIES

Shared Parking Arrangements: Portland TriCounty Metropolitan Transit Light Rail (TriMet)

TriMet operates 32 dedicated park and ride lots with another 30 lots provided through a shared-use arrangement with public and privately owned and operated parking facilities.

Figure 54. TRIMET

The majority of these facilities are church parking lots, but TriMet also has shared parking arrangements with other businesses and organizations, such as malls, cinemas, and major retailers. TriMet has a standard shared parking agreement with its public and private partners. In most cases, the agreement specifies that the private property owner is responsible for operating and maintaining the facilities. At the most subscribed lots, however, TriMet makes annual payments to the owner/operator to cover maintenance expenses related to use by transit patrons.

Joint Development: Washington, DC Metropolitan Area Transit Authority (WMATA)

Having long recognized the revenue and ridership benefits of TOD, WMATA is the most aggressive and innovative transit agency in the country in the pursuit and implementation of joint TOD on agency property. WMATA defines "joint development," as "a creative program through which property interests owned and/or controlled by WMATA are marketed to office, retail/commercial, recreational/entertainment and residential developers with the objective of developing transit-oriented development projects." Where pos-

sible, the agency seeks to establish shared parking arrangements with developers/property owners and their tenants that maximize efficiency in parking utilization.

Figure 55. Washington, DC WMATA

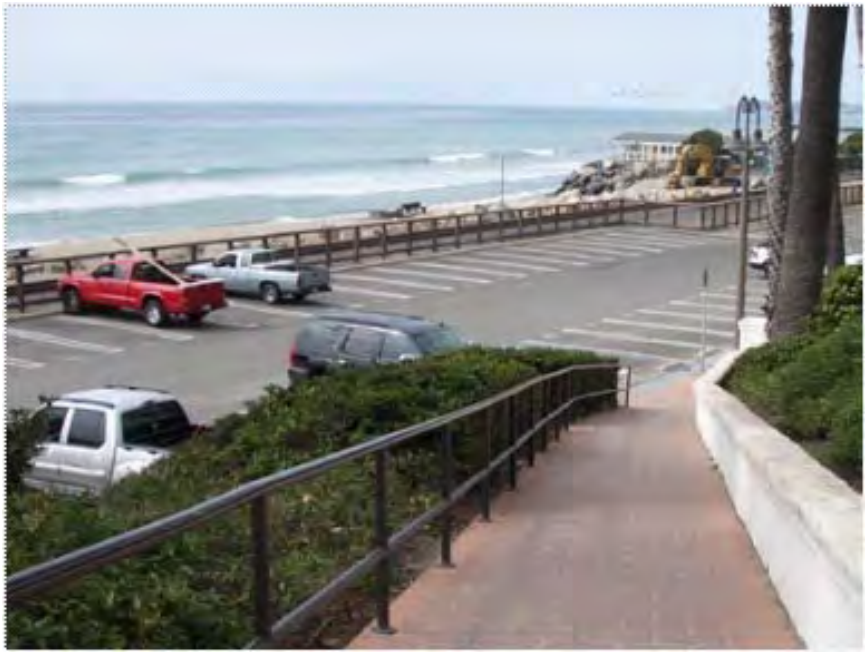
Recent joint development at the Rhode Island Avenue Metrorail Station in the District of Columbia is a case study in WMATA's innovative and coordinated approach to TOD and parking management. In 2003, a major mixed-use project with 274 residential units, and 75,000 square feet of commercial space was proposed for development at the station on land used at the time for commuter parking (surface lots). Given the station's location in a densely populated urban neighborhood, WMATA did not propose full replacement of existing commuter parking during development. Instead, the agency negotiated with the developer to replace 70% to 80% of the parking on-site, with most of that – 216 spaces – shared with the tenants of the new development on site.

Shared Parking: North Beach Parking Master Plan- San Clemente, CA

The North Beach district of San Clemente already has many of the elements of a vibrant, beach town. The City is poised for a period of growth that will add to the vitality of this neighborhood by introducing a significant amount of new retail, dining and entertainment uses. There are 397 total parking stalls in North Beach, which are composed of 300 off-street and 97 on-street spaces. Of the off-street spaces, 45 are reserved for private businesses and 255 are public spaces that represent a mixture of reserved and shared parking. While there has been an attempt to segregate parking spaces by user groups,

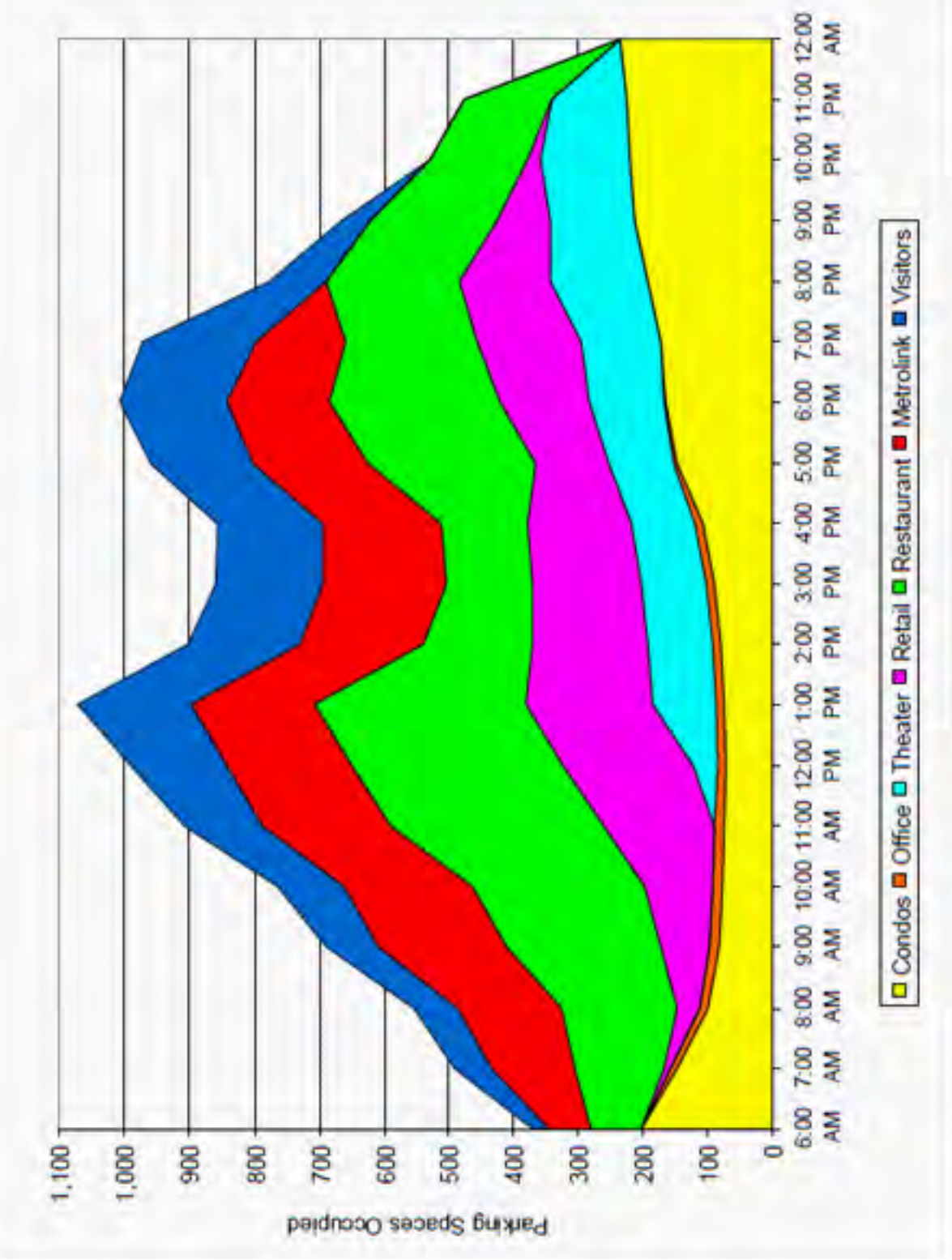
in reality, the majority of parking in North Beach is essentially shared, excluding private off-street parking used by businesses.

Figure 56. North Beach Parking Master Plan, San Clement, CA



The special arrangement currently in place between the City of San Clemente and Metrolink to provide a shared pool of 150 parking spaces for riders is an effective tool in offering commuters more mobility options. Both the City and Metrolink wish to preserve and encourage ridership, but there is a certain degree of angst among residents that vehicles parked for long periods of time should not enjoy beach-front parking. In order to serve Metrolink riders and promote transit use while balancing the needs of beach and trail users, half of the current Metrolink spaces should be moved north of El Camino Real. To offer riders an incentive to park further away, spaces north of El Camino Real will be free during roughly nine non-peak months of the year while those on Avenida Estacion will stay at $1 per day during those months.

Figure 57. Weekday Shared Parking Scenario



Appendix B: Regulatory Framework

WINDSOR CENTER

TRANSIT-ORIENTED DEVELOPMENT
Master Plan and Redevelopment Strategy

FIGURES

CONTENTS

APPENDIX B: REGULATORY FRAMEWORK

As part of the implementation of the goals of the TOD Master Plan, the consultant team recommends adding two new zoning districts near the station area. Section 1 provides a discussion of the allowable uses, dimensional standards, and the importance of the design review process for these two proposed districts. Section 2 provides draft design standards and guidelines.

Section 3 discusses the components of the street palette, including intersection types, street trees, lighting, and traffic calming measures.

1 DRAFT ZONING: VILLAGE DISTRICTS, USES AND DIMENSIONS

Village Districts

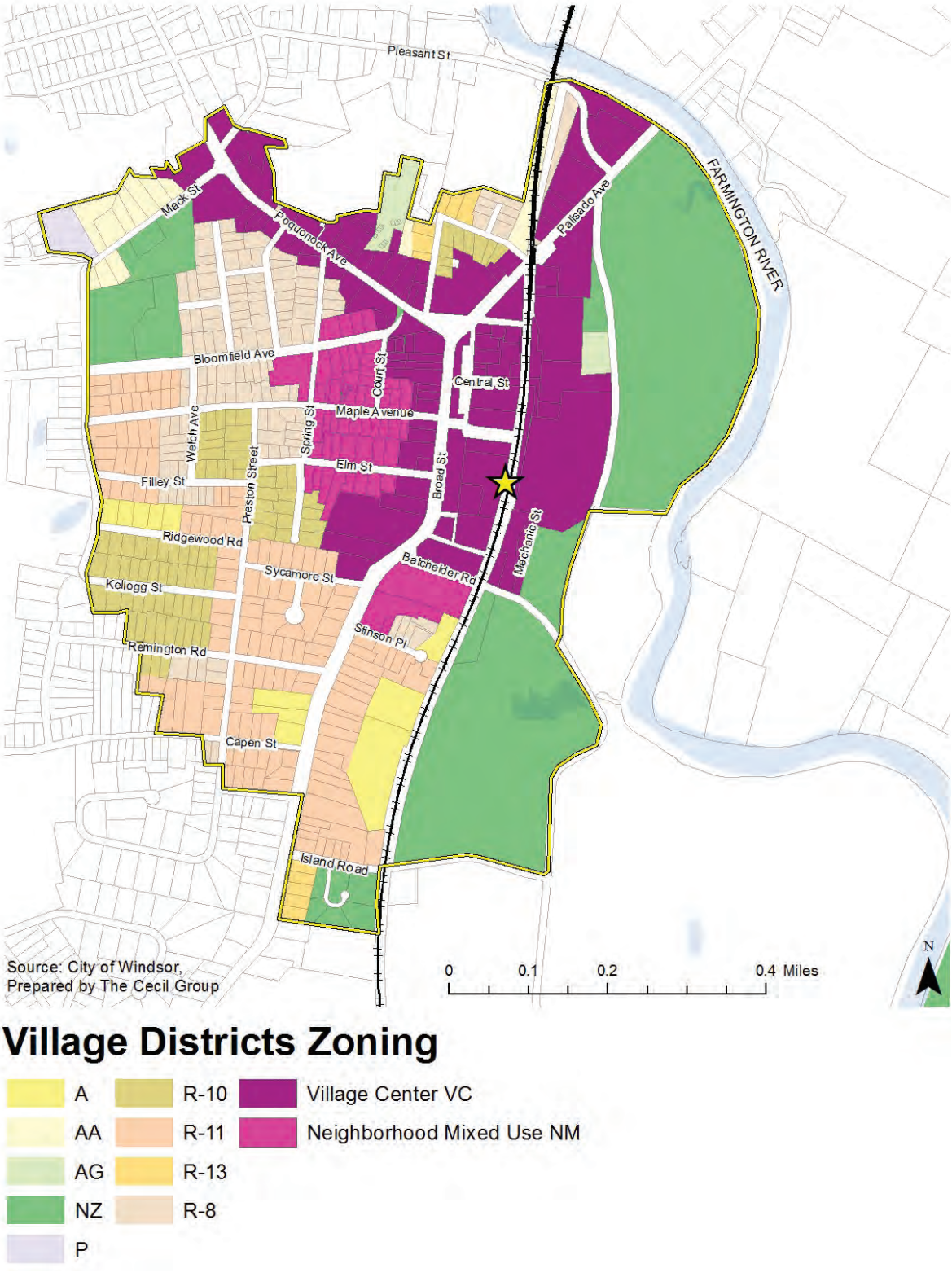
Under *Connecticut General Statutes 8-2j. Village Districts*, the Planning & Zoning Commission is allowed to establish village districts as part of the Town's zoning regulations.

The establishment of a Village Districts will use the regulatory language to encourage the conversion, conservation, and preservation of the Center's distinctive character, landscape, and historic structures. Several Connecticut towns and cities have adopted Villaget District regulations, giving these municipalities considerable control and flexibility in promoting strong economic, cultural, and civic elements in those districts.

Allowable Uses

Both of the new recommended zones, Village Center (VC) and Neighborhood Mixed-Use (NM) are mixed-use districts that will diversify and intensify activities around the station area. Within the study area, the new zones replace the existing zones of Business (B2), Industrial (I), Warehouse (W), and Residential High-Density (RHD), which was deleted in 2012 zoning revisions. The allowable uses common to both the VC and NM districts are on following pages.

Figure 1. Implementation Program Zoning with New Districts Village Center (VC) and Neighborhood Mixed-Use (NM)



- Accessory Use;
- Accessory Buildings;
- Farm Stands of Mobile or Temporary Construction;
- Home-Based Businesses (per Sec 4.4.6);
- Boat Docks;
- Commercial Vehicles;
- Dish Antennas;
- Driveways;
- Garage or Tag Sales;
- Off-Street Parking of Motor Vehicles;
- Raising of Small Livestock;
- Recreational Vehicles and Boats;
- Renting of Rooms;
- Swimming Pools & Hot Tubs;
- Tennis Courts;
- Permitted by Right;
- Single-Family Dwellings;
- Site Plan Required;
- Conversion of Existing Buildings;
- Professional Office, not in a Dwelling;
- Bed and Breakfast Establishments;
- Cluster Subdivisions;
- Flag Lots;
- Ground-Mounted Dish Antennas;
- Major Home-Based Businesses;
- Places of Assembly and Congregation;
- Temporary Conversions to Allow Accessory Apartments;
- Transfer of Residential Density;
- Housing and Health Facilities for Elderly and Handicapped Residents;
- Housing for Older Persons;
- Increasing Accessory Building Size;
- Non-Residential Uses Relating to Existing Community Facilities;
- Open Space Subdivisions;

- Professional Office in a Dwelling;
- Public and Quasi-Public Uses and Structures;
- Special Use, may require SP;
- Nonpublic Uses of Public and Quasi-Public Properties; and
- Live-Work (proposed new use description).

Specifically for the VC district, in addition to the common allowable uses for both Village Districts, the allowable uses for the Industrial district are included as well:

- Site Plan Required;
- Full-Service Hotels & Conference Centers;
- Garaged or Open Storage of Currently Registered School Buses;
- Hospitals;
- Industrial Development on Lots with Fewer than Two Acres;
- Limited Outdoor Storage of Materials or Products;
- Limited Repair and Service of Motor Vehicles or the Conversion of Previously Approved Limited Repair Facilities to a General Repair Facility;
- Limited Retail Sales;
- Livery Service;
- Oil Distribution;
- Private-Use Helistop;
- Sales Agency of New Automobiles or Commercial and Recreational Vehicles;
- Self-Storage and Outside Storage Facilities; and
- Wholesale and Storage Uses.

The allowable uses in the new zones are direct combination of all of the allowable uses from the Single-Family zones plus the B2 zone and the Public and Quasi-Public zone. In addition, the VC zone also includes all of the allowable uses from the I zone that it replaces to carry forward productive, entrepreneurial economic uses as a part of the overall mix. The creation of an additional use type, "Live-Work," is recommended. This use will create further opportunities for businesses and lifestyles within the downtown. The result is a flexible use area that may support mixed-uses across the district, and within a parcel or building, which should lead towards a lively and enriched part of the Town. The following Zoning Use Table provides a comparison of all uses and the zoning districts in which they are allowed.

Figure 2. Table of Zoning Uses

Zoning Use Table	*(A=Accessory Use; P=Permitted by Right; SP=Site Plan Required; SU=Special Use, may require SP)*													
	Zoning District Codes													
Use	*A*	*AA*	*R-8*	*R-10*	*R-11*	*R-13*	*B-2*	*P*	*I*	*W*	*AG*	*NZ*	*VC*	*NM*
Accessory Buildings	A	A	A	A	A	A					A		A	A
Farm Stands of Mobile or Temporary Construction	A	A	A	A	A	A					A		A	A
Home-Based Businesses (per Sec 4.4.6)	A	A	A	A	A	A					SU		A	A
Boat Docks	A	A	A	A	A	A							A	A
Commercial Vehicles	A	A	A	A	A	A							A	A
Dish Antennas	A	A	A	A	A	A							A	A
Driveways	A	A	A	A	A	A							A	A
Garage or Tag Sales	A	A	A	A	A	A							A	A
Off-Street Parking of Motor Vehicles	A	A	A	A	A	A							A	A
Raising of Small Livestock	A	A	A	A	A	A							A	A
Recreational Vehicles and Boats	A	A	A	A	A	A							A	A
Renting of Rooms	A	A	A	A	A	A							A	A
Swimming Pools & Hot Tubs	A	A	A	A	A	A							A	A
Tennis Courts	A	A	A	A	A	A							A	A
Single-Family Dwellings	P	P	P	P	P	P					P		P	P
Conversion of Existing Buildings	SU	SU	SU	SU	SU	SU	SU						SU	SU
Professional Office, not in a Dwelling (per Sec. 4.5.5)	SU	SU	SU	SU	SU	SU		P	SP	SU			SU	SU
Bed & Breakfast Establishments	SU	SU	SU	SU	SU	SU					SU		SU	SU
Cluster Subdivisions	SU	SU	SU	SU	SU	SU					SU		SU	SU
Flag Lots	SU	SU	SU	SU	SU	SU					SU		SU	SU
Ground-Mounted Dish Antennas	SU	SU	SU	SU	SU	SU					SU		SU	SU
Major Home-Based Businesses (per Sec. 4.5.4)	SU	SU	SU	SU	SU	SU					SU		SU	SU
Places of Assembly and Congregation	SU	SU	SU	SU	SU	SU					SU		SU	SU
Temporary Conversions to Allow Accessory Apartments	SU	SU	SU	SU	SU	SU					SU		SU	SU
Transfer of Residential Density	SU	SU	SU	SU	SU	SU					SU		SU	SU
Housing and Health Facilities for Elderly and Handicapped Residents	SU	SU	SU	SU	SU	SU							SU	SU
Housing for Older Persons	SU	SU	SU	SU	SU	SU							SU	SU
Increasing Accessory Building Size	SU	SU	SU	SU	SU	SU							SU	SU
Non-Residential Uses Relating to Existing Community Facilities	SU	SU	SU	SU	SU	SU							SU	SU

Zoning Use Table	*(A=Accessory Use; P=Permitted by Right; SP=Site Plan Required; SU=Special Use, may require SP)*													
	Zoning District Codes													
Use	*A*	*AA*	*R-8*	*R-10*	*R-11*	*R-13*	*B-2*	*P*	*I*	*W*	*AG*	*NZ*	*VC*	*NM*
Open Space Subdivisions	SU	SU	SU	SU	SU	SU							SU	SU
Professional Office in a Dwelling	SU	SU	SU	SU	SU	SU							SU	SU
Single-Family, Two-Family, and Multi-Family Dwellings	SU	SU	SU	SU	SU	SU							SU	SU
Off-Street Parking & Loading, Signs and Outdoor Lighting							A	A					A	A
Mechanical Amusement Devices							A		A				A	A
Outdoor Overnight Parking of Commercial Vehicles							A	A	A				A	A
Any Activity Incidental to the Operation of the Principal Use							A						A	A
General Office							P	SU	SP				P	P
Bank							P						P	P
Personal Service Establishment							P/SP	SU					P/SP	P/SP
Retail Store							P/SU						P/SU	P/SU
Commercial Recreational and Cultural Buildings & Facilities							SU		SU				SU	SU
Extended-Stay Hotels							SU		SU				SU	SU
Funeral Homes							SU		SU				SU	SU
Adult-Oriented Establishments							SU						SU	SU
Bowling Alley							SU						SU	SU
Car Rental and Taxi Services							SU						SU	SU
Development on Sites Greater than 2 Acres							SU						SU	SU
Establishments with Drive-Through Windows							SU						SU	SU
Hotels and All-Suite Hotels							SU						SU	SU
Indoor Repair of Household Appliances, Garden Equipment, Small Automotive Parts, etc.							SU						SU	SU
Limited Outdoor Retail Sales							SU						SU	SU
Pawn Shops, Tattooing, and/or Body-Piercing Establishments							SU						SU	SU
Printing, Publishing, and Reproduction Services							SU						SU	SU
Restaurants							SU						SU	SU
Theaters							SU						SU	SU

Zoning Use Table	(A=Accessory Use; P=Permitted by Right; SP=Site Plan Required; SU=Special Use, may require SP)													
	Zoning District Codes													
Use	A	AA	R-8	R-10	R-11	R-13	B-2	P	I	W	AG	NZ	VC	NM
Studios								SU					SU	SU
Computer Data Center									SP	SU			SP	
Corporate Office									SP	SU			SP	
Manufacturing, Fabricating, Compounding, Assembling, Packaging, Storage or Treatment of Articles, or their Wholesaling and Distribution									SP	SU			SP	
Research Laboratories									SP	SU			SP	
Wholesale and Storage Uses										SP			SP	
Commercial Kennels and Animal Hospitals									SU	SU	SU		SU	
Nursing Homes									SU		SU		SU	
Sale of Nursery Stock and Related Products									SU		SU		SU	
Buildings with a Height 60-80 Feet									SU				SU	
Film Studio									SU				SU	
Full-Service Hotels & Conference Centers									SU				SU	
Garaged or Open Storage of Currently Registered School Buses									SU				SU	
Hospitals									SU				SU	
Industrial Development on Lots with Fewer than Two Acres									SU				SU	
Limited Outdoor Storage of Materials or Products									SU	SU			SU	
Limited Repair and Service of Motor Vehicles or the Conversion of Previously Approved Limited Repair Facilities to a General Repair Facility									SU				SU	
Limited Retail Sales									SU				SU	
Livery Service									SU				SU	
Oil Distribution									SU	SU			SU	
Private-Use Helistop									SU				SU	
Sales Agency of New Automobiles or Commercial and Recreational Vehicles									SU				SU	
Self-Storage and Outside Storage Facilities									SU	SU			SU	
Accessory Farm Buildings											A			

Zoning Use Table	*(A=Accessory Use; P=Permitted by Right; SP=Site Plan Required; SU=Special Use, may require SP)*													
	Zoning District Codes													
Use	*A*	*AA*	*R-8*	*R-10*	*R-11*	*R-13*	*B-2*	*P*	*I*	*W*	*AG*	*NZ*	*VC*	*NM*
Housing for Permanent Workers and Camps or Living Quarters for Temporary Workers											A			
Pumping Stations, Water Lines, and Private Roads											A			
Warehouses, Processing Plants, Refrigeration Plants, and Other Incidental Uses											A			
Dwellings Occupied by the Owner, a Member of the Owner's Family Employed on the Farm, or by a Permanent Paid Employee											P			
Growing Field Crops, Flowers, Fruit, Nursery Stock, or Seeds											P			
Raising Livestock and Poultry											P			
Commercial Nurseries											SP			
Veterinarian Offices											SP			
Cemeteries											SU			
Clubs, Social, or Fraternal Organizations											SU			
Congregate Housing											SU			
Farm Stands of Permanent Construction											SU			
Garaged or Open Storage of Commercial Vehicles											SU			
Riding Clubs or Stables											SU			
Truck Terminals and Accessory Operations										SU				
Public and Quasi-Public Uses and Structures												SP	SP	SP
Nonpublic Uses of Public and Quasi-Public Properties												SU	SU	SU
Live-Work													SU	SU

Dimensions

The new zones mirror the ambitions and spatial dimensions of the existing Design Development areas (Center Core Area, Center Redevelopment Area, and Center Gateway Area), with the added benefit of the mandatory design review for developments. The new zones also mirror the ambitions and spatial dimensions of the Windsor Center Plan (Zoning Regulations, page A1-27) including the option for mixed-use development as shown in the Plan.

Figure 3. Summary of Zoning Dimensions

Dimensional Table		*Lot*		*Yards (ft)*			*Building*		
	Density	*Area*	*Width*	*Front*	*Side*	*Rear*	*Area*	*Coverage*	*Height*
	Units/Acre	*SF*	*SF*	*SF*	*SF*	*SF*	*SF*	*%*	*Stories*
Agricultural - AG	*0.3*	*130,680*	*150*	*40*	*15*	*25*	*--*	*15*	*2.5*
ttPublic and Quasi-Public - NZ	*1.6*	*27,500*	*100*				*1,300*		
Single-Family - AA									
Single-Family - A	*1.3*	*20,000*	*125*				*950*	*20*	
Single-Family - R-13	*2.2*	*12,750*	*85*		*10*	*20*		*25*	
Single-Family - R-11	*2.3*	*11,250*	*75*		*8*				
Single-Family - R-10	*2.7*	*9,750*	*65*	*30*				*30*	
Single-Family - R-8	*3*	*7,500*	*50*	*25*					
Professional - P	*--*	*15,000*	*100*	*40*	*30*	*50*	*3,000*	*25*	
Village Center – VC	*30*	*10,000*	*-*	*20*	*20*	*20*	*-*	*40*	*4*
Neighborhood Mixed Use – NM	*3*	*10,000*	*-*	*20*	*20*	*20*	*-*		*2.5*

These zoning dimensions were developed based upon the existing conditions in the zones, the Design Development allowances, and a review of the implementation of the village districts legislation by other Connecticut towns and cities, including Farmington, Ridgefield, Kent, Hamden, Brooklyn, and Portland.

Design Review

An important aspect of the Village District regulation is the requirement that all new construction and substantial reconstruction in view of public roadways be subject to review and recommendation by an expert contracted by and reporting to the Planning & Zoning Commission. The expert may be an architect or architectural firm, landscape architect, or planner who is a member of the American Institute of Certified Planners. The benefit of this regulatory framework is that it provides the Town with a strong control mechanism over developments within the transit-oriented development in a manner legislated by Connecticut state law, in addition to the Town's zoning regulations. Design Review has four principal objectives:

- Site planning and architectural design to maintain and enhance the character of the Village Districts and ensure sensitive development;
- Guidance and flexibility in the application of design standards;
- Communication and participation among developers, neighbors and the Town early in the design and siting of new or reconstructed commercial or mixed-use development; and
- Positive impact on the quality of life, non-motorized transportation permeability, and livability of the Village Districts.

Design Review is one of the components of the permit application, along with environmental review, building department review, and variances. Unlike some other components, projects subject to Design Review are brought before the Town Planning & Zoning Commission (by either a staff or appointed committee) for consideration only after staff and the Design Review Subcommittee have conducted a Preliminary Administrative Design Review. The Planning & Zoning Commission makes the final decision on Design Review.

2 DRAFT DESIGN STANDARDS AND GUIDELINES

Design standards give strength to the Village Districts by allowing the Town to deny an application that does not match the Town's goals. The designation allows for more control over structures, façades, landscaping, lighting, sidewalks, signs and general aesthetics while permitting a wider range of uses and mixes of uses than is currently in the zoning regulations.

Design standards must be consistent with the area's distinctive characteristics, such as architectural style, building materials, and building size to reflect local conditions and priorities. For the purposes of defining compatibility when drafting the design standards, it is important to identify the existing conditions of the physical aspects (building layout, streetscapes, traffic patterns, etc.) and architectural character (e.g., building styles, roof types, and building materials). Design standard research identifies patterns in the existing built environment that should be considered in the final design standards, which will have illustrations of structural features, streetscapes, and landscaping.

These draft design standards provide design requirements for all applicable projects. They shall not be applied to buildings that are older than 50 years at the date of application for design review as other guidelines exist for these buildings. Projects shall be approved if they meet the design standards and all other applicable guidelines and requirements.

Draft Standards Format

The following draft design standards have been prepared to assist the Town of Windsor implement recommendations of the TOD Master Plan. The design standards are intended to resolve an important gap between the Town's Zoning Ordinance and the community vision for Windsor Center – an active, walkable and vibrant Windsor Center – by providing an objective set of goals and criteria by which to both guide and judge future redevelopment. The goals of the TOD Master Plan are to improve the economic vitality and enhance the sense of place for this historic town center, and the criteria expressed by the design standards reinforce those goals.

The draft design standards include the following sections.

APPLICABILITY

The application of the Windsor Center Design Standards shall be linked to the establishment of a new zoning district with a defined geographic boundary within Windsor Center. Two new zoning districts – a Village Center (VC) zone and Neighborhood Mixed-Use (NM) zone – will be established at Windsor Center as part of the implementation recommendations of this

planning process and is a key component for administration of the design standards. This section also outlines review procedures, administration of the standards, and other applicable regulations, including the Town of Windsor Zoning Ordinance.

DESIGN PRINCIPLES

The design principles are high-level objectives that outline the intention of the design standards for Windsor Center. Adhering to the design principles is a prerequisite for complying with design standards or in proposing a compliance alternative. The design principles are the fundamental intentions of the design standards and reflect a translation of the community-driven Windsor Center planning process into objective and actionable statements against which a development proposal can reasonably be evaluated.

DESIGN STANDARDS

The Design Standards are the specific and detailed standards with which all projects within the Windsor Center Village Center (VC) district must comply. The standards outline requirements for the following topics – sites and blocks, building massing and form, building façades, landscape, and streetscape and sidewalks.

Draft Design Standards

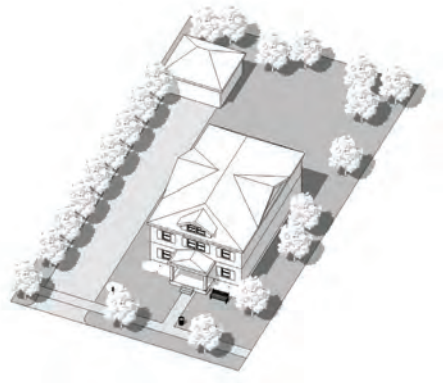
APPLICABILITY

Geographic Boundary

The Windsor Center Design Standards are intended to enhance development and redevelopment within walking distance of the Windsor Center Rail Station with a focus on the Town Center. The design standards apply to any property within the newly designated Village Center and Neighborhood Mixed-Use zones. Distinct, but complementary design standards provided for each. The two districts are described below:

- **VILLAGE CENTER** – The boundary for the new Village Center district would replace the existing Restricted Commercial Zone (RC) and add several adjacent parcels to the new district. It is intended to encompass the Town Center district focused upon Broad Street.

- **NEIGHBORHOOD MIXED-USE** – The Neighborhood Mixed-Use district is intended to be a buffer between the Town Center and the neighborhood to the west and would be bounded by Bloomfield Avenue to the north, Spring Street to the west and Sycamore Street to the south.



DESIGN REVIEW PROCESS

The design review process for the VC and NM zones and associated design guidelines shall be administered by the Town Planning & Zoning Commission and Planning Department. This review process will parallel the existing Design Development Area review process.

DESIGN REVIEW RESPONSIBILITIES

The Windsor Center Design Standards describe the essential characteristics required to improve Windsor Center consistent with the community vision developed through the planning process. The design standards are intended to guide positive change for the Town Center that is appropriate and complementary to the existing district. The design standards are to be followed by project proponents working with the Town when advancing new projects (new construction, renovation, and redevelopment) within the geographic boundaries described above.

OTHER APPLICABLE REGULATIONS

The Town of Windsor Zoning Regulations, updated May 25, 2012, remain in effect. The revisions referenced herein would be included in the zoning regulations through a public process of review with the Planning & Zoning Commission. The current regulations for parking and signage would still apply to these districts – specifically, under Section 3 – Site Development, Section 3.3.1.E Reduced Parking (page 3-10) and Section 3.7.3.A Windsor and Wilson Center Area Requirements (page 3-25).

DESIGN PRINCIPLES

The following design principles guide all of the design standards and are the basis for a compliance alternative decision by the Planning & Zoning Commission. A developer may propose a design solution not found in the design standards, but which does meet the design principles below. The Planning & Zoning Commission may agree to accept this design solution. The compliance alternative is used in situations where new technology, new design conventions, or new building practices allow a better solution that one outlined in these design standards or where some conflict in conditions and/or design occurs that could not be reasonably anticipated by the design standards. The design principles are as follows.

- **REINFORCE AN ACTIVE AND VIBRANT TOWN CENTER** – Promote ground floor uses that are retail, restaurant, service, and entertainment oriented commercial uses with mixed-use and residential uses of a density that will maximize the number of residents, visitors, and activity in the Town Center.
- **ENHANCE THE WALKABILITY OF THE TOWN CENTER** – Recognize that streets and parking areas are public spaces that are used by many modes of transportation including vehicles. Walkability of the Town Center should consider adequate sidewalk widths, places for seating, safe pedestrian crossings, reduced curb cuts on main streets and sidewalks, and on-street parking and landscape buffers to enhance the pedestrian environment.
- **REINFORCE CONTEXT-SENSITIVE TOWN CENTER DEVELOPMENT** – Encourage the rehabilitation and preservation of meaningful historic buildings in the Town Center and the integration of these buildings with redevelopment. New development should be appropriate to the scale and pattern of existing buildings in the Town Center and contribute to an overall sense of place and architectural character.
- **DEFINE STREET WALLS AND PUBLIC SPACES** – Reinforce a consistent disposition of buildings and parking on properties to create a sense of enclosure for public space and define continuity in the building street wall by providing active uses and façades. All parking, loading, and passive uses should be placed to the rear of buildings and screened from public frontages and views.
- **CREATE AND ENABLE A PARK-ONCE DISTRICT** – Enhance a pleasant and safe walking environment in the Town Center and encourage shared use parking agreements, reduced parking requirements and restrictions, and enhanced signage identifying locations of available parking.

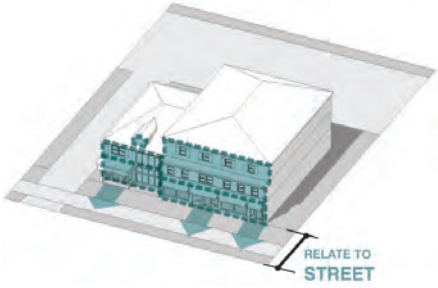
DESIGN STANDARDS – VILLAGE CENTER

Sites and Blocks

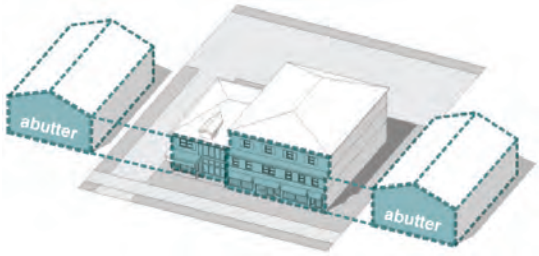
Windsor Center is characterized by a consistent pattern of blocks and a continuity of modestly scaled sites and buildings. Redevelopment and new development must retain this pattern of urban design to reinforce the character of the Center. The following characteristics focus upon the position of the building relative to the development parcel and surrounding block patterns.

BUILDING PLACEMENT – Buildings shall be placed on the site to define the edges of primary streets and public spaces. Building placement shall respect existing building, site, and block patterns and form continuity in these patterns with consistent setbacks. The building shall be placed to conceal parking at the rear or interior of the site.

BUILDING ORIENTATION – Buildings shall be oriented with the primary building façade facing the primary street frontage of the site. Building entrances, storefronts, and windows shall reinforce this orientation. Active uses shall be oriented to the street on the ground floor with the primary entry accessible at this location to reinforce a relationship to the street.



STREET WALL CONTINUITY ¬– A streetwall is a regular pattern of building frontages oriented to the street creates a perceived continuity of building façades along the street edge. The streetwall may be interrupted by access drives, space between buildings, or landscape, but the building façades shall be oriented to the street to create continuity with existing abutters.

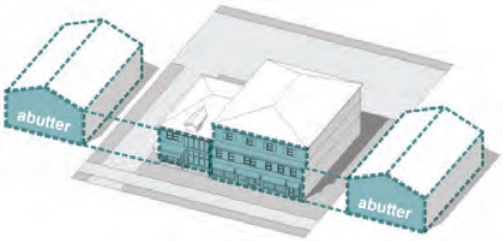


STREET CORNERS – Corner and gateway sites within the Town Center are of particular importance in defining a sense of place. Redevelopment at these important locations shall be configured to delineate all street edges that form the corner and to define the corner with an architectural treatment that visually anchors the intersection.

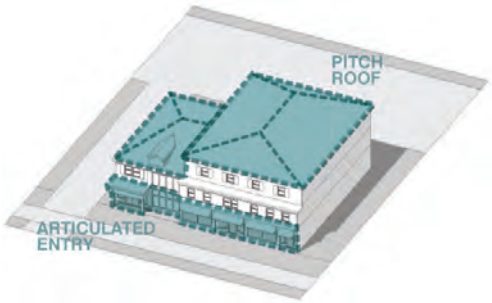
PARKING – Parking shall be placed at the interior of blocks and to the rear of buildings. Where parking is exposed to a secondary street frontage, the parking area shall have a landscape buffer of not less than 8 feet in width that is planted with trees and shrubs that will visually conceal parked vehicles. Parking shall be configured to allow shared parking in adjoining parking lots between abutting properties.

Building Massing and Form

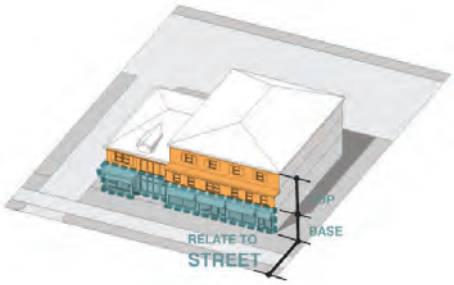
Windsor Center is composed of similarly scaled buildings that combine to form a comfortable pedestrian-oriented town center environment. New development and redevelopment shall be designed to reinforce this scale and to be visually harmonious with existing building patterns and form.



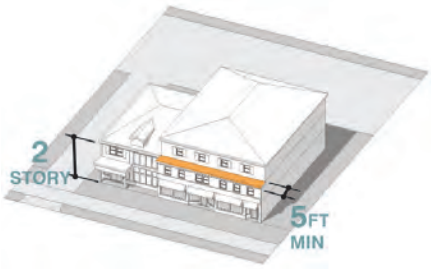
RELATIONSHIP TO EXISTING CONTEXT – Building massing and scale should be complementary to and respectful of existing building masses of abutters. Large building masses shall be broken down in scale through the articulation of building Façades with bays, windows, stepbacks, or other architectural components that provide visual interest.



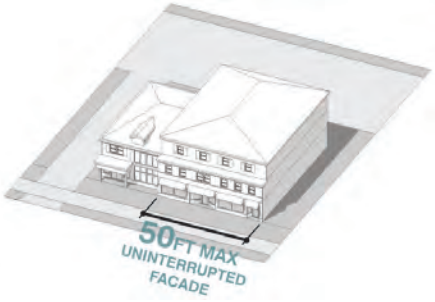
BUILDING FORM – The shape and massing of new and renovated buildings shall provide a balance of the composition of building height, story height, building width, and block width. The form and massing of buildings shall complement the scale and character of the existing Town Center. Ground floors shall be active and inviting with entries articulated with overhangs, awnings, or other components of visual interest. Roof forms of new and infill development shall be pitched to be complementary with the existing character of the Town Center.



SCALE – The perceived scale of buildings and façades shall reinforce the human scale of the district through the use of articulated building bases, a change in building materials, the placement of windows in a regular pattern, use of storefront window systems on the ground floor and punched window openings on upper floors, the articulation of building entries with canopies, porches or awnings, bay windows, dormers, and building height stepbacks.



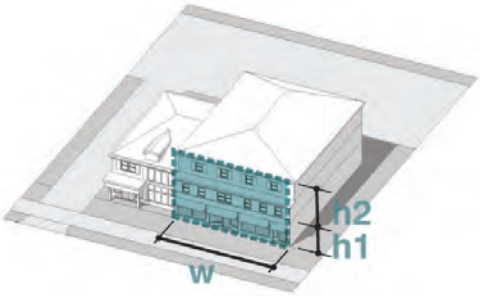
HEIGHT – Building height shall be in accordance with the maximum allowable height in each zoning district. The predominant character of the Town Center is of two and three-story building heights. New and infill development shall respect this existing context and place a façade stepback at the height of surrounding abutters if the new building height is taller than the existing context. This façade stepback shall be a minimum of 5 feet in depth. For example, if a new 3-story building was constructed adjacent to an existing 2-story building, a stepback of the front façade of no less than 5 feet would occur between the second and third story.



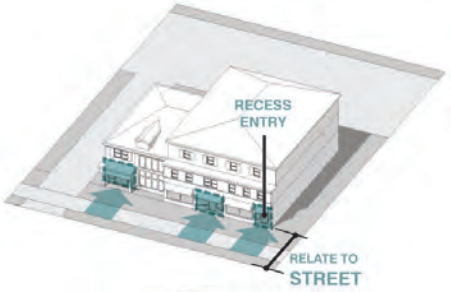
FAÇADE LENGTH AND ARTICULATION – The pattern of buildings in the Town Center is of a small scale character with relatively narrow primary façades and deep buildings. New and infill construction shall reinforce this pattern and rhythm of building façades with a maximum uninterrupted façade length of 50 feet. Any façade length longer than 50 feet shall have a stepback of a minimum of 5 feet in depth change in the plane of the façade.

Building Façades

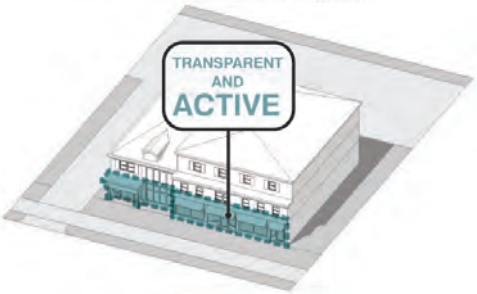
The buildings of Windsor Center create a relatively consistent precedent of architectural style with components that reinforce the district as a historic town center. Foremost among these architectural components are the façade materials, articulation of the ground floor and entries, cornice lines, and roof forms.



ARCHITECTURAL TREATMENTS AND FAÇADE PROPORTION – The primary building façade of new construction and infill shall be articulated with a base and a top. This division of the building façade shall be accomplished through a change in materials, change in color, change in the type of fenestration, or placement of architectural detail or trim. Architectural details include, but are not limited to, items such as the trim around entrances, corners, eaves, doors, and windows. Façade width (w) of a maximum uninterrupted length of 50 feet shall be more than façade height (h). Façade height shall also be broken into two components, base (h1) and top (h2).

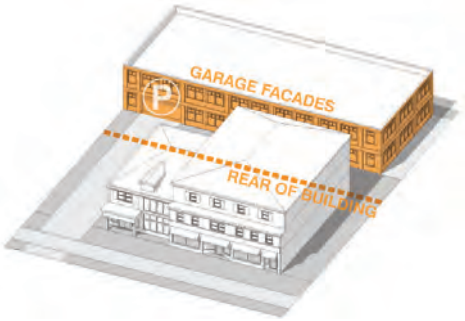


PLACEMENT AND TREATMENT OF ENTRIES – Primary building entries shall be oriented to the primary street on the primary façade of the building. The building entry shall be a feature of the architecture and provide protection from weather through the use of a canopy, overhang, porch, or awning. The building façade shall integrate separate entrances for multiple tenants and uses into a coordinated ground floor façade. Building and shop entries shall be recessed to provide a minimum depth equal to the width of the door to prevent doors from interrupting passage on the sidewalk.



GROUND LEVEL ARTICULATION – The ground floor shall be reinforced as an active and transparent use through the articulation of the ground floor. A ground floor storefront shall be provided with a minimum of 40% transparency oriented to the primary street. Upper floors of the primary building façade shall have a minimum of 25% transparency, as calculated by the area of the building façade to the area of fenestration.

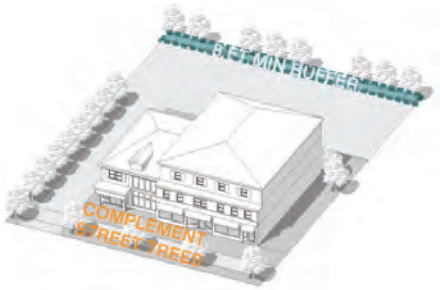
SIGNAGE – The size and location of any sign shall conform to the Town of Windsor Zoning Regulations. Signs for buildings with multiple tenants shall be integrated within the building façade at a consistent height coordinated with the design of the bays of the façade or storefront.



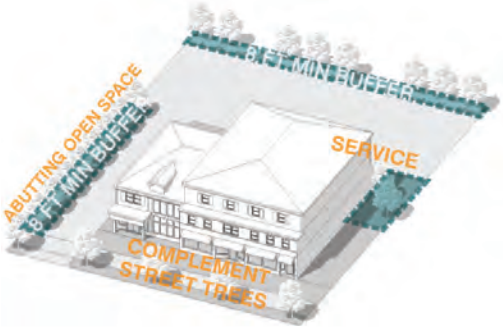
STRUCTURED PARKING – Where provided, structured parking shall be configured on the site to place active façade uses on the primary street to conceal the parking structure. Where structured parking creates a segment of street frontage, the parking structure shall be articulated with an architectural façade similar to that of the primary façade of the building to blend with the surrounding context.

Landscape

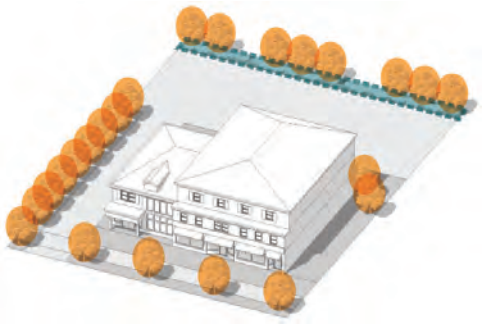
The existing landscape of Windsor Center creates a varied palette of older, mostly deciduous trees that define open spaces and street edges and punctuate regular patterns of grass lawns.



SITE AND STREET EDGES – Landscape on private property shall be used to supplement and enhance public street trees and streetscape plantings. Landscaping shall be used to define the street edge and to provide buffers at site edges to adjacent properties.



BUFFERS AND SCREENS – Landscape buffers shall be used to screen parking, loading, and service areas visible from public streets or open spaces. All views that could be associated with a negative impact should be screened with strategically selected and located landscape features. Screening may include architectural walls, fences, or other visual barriers with landscaping in accordance with Windsor Zoning Regulations.



TREES AND PLANTINGS – Trees, shrubs, and groundcover shall be selected to be appropriate to the conditions of a particular site and the climate of Windsor. The selection of street tree species shall ensure compatibility with neighboring conditions so as to reinforce continuity of the street edge and public realm identity.

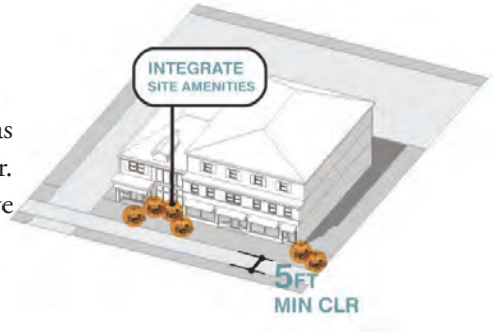
LANDSCAPE WITHIN PRE-EXISTING PARKING LOTS – Upon expansion of an existing parking lot containing twenty or more spaces, and/or alteration of a structure or change in uess, the entire existing parking lot shall be brought into compliance with landscape requirements, including screening visble portions of the parking area with plantings and adding landscape islands at ends of parking aisles and at corners of parking lot.

Streetscape and Sidewalks

The existing streetscape and sidewalks of Windsor Center provide a pleasant street and pedestrian environment. The walkability of the center should be reinforced with each new project.

SIDEWALK CONFIGURATION – Sidewalks shall have a minimum clear width of five feet. Sidewalks shall be widened to accommodate public amenities, street trees, benches, bike racks, trash receptacles, and other features. Sidewalks shall also be widened for private amenities and configurations. In some scenarios this widening may cause the sidewalk to encroach upon private property. At curb cuts for access drives, sidewalk treatments shall be continuous.

OUTDOOR CAFES – All outdoor sidewalk seating for private uses, such as outdoor cafés, shall be coordinated and approved by the Town of Windsor. Outdoor sidewalk seating must maintain minimum sidewalk clearance of five feet. All furnishings must be secured at night.



PUBLIC ART AND AMENITIES – Private open spaces shall be designed to be compatible with or complementary to the character of nearby public open spaces. Public art shall be used to define and punctuate open spaces. Street furniture and outdoor amenities shall also be provided in private open spaces.

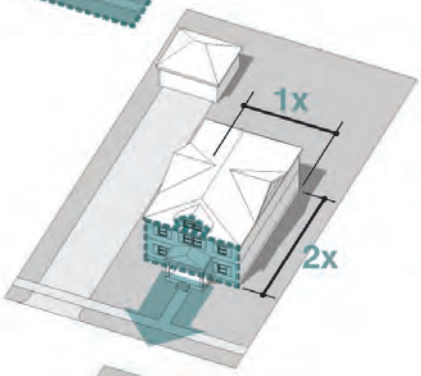
CURB CUTS – Access drives and curb cuts shall be minimized and combined wherever possible. Every curb cut shall provide a continuous and uninterrupted pedestrian walkway.

DESIGN STANDARDS – NEIGHBORHOOD MIXED USE

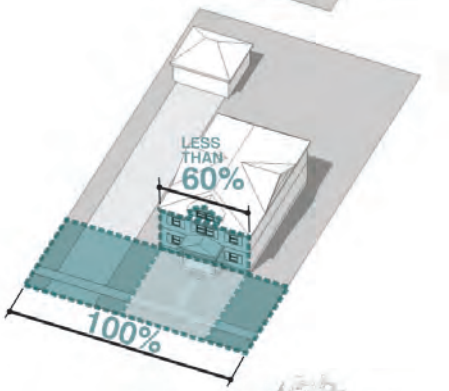
Sites and Blocks

The neighborhood transition areas are characterized by a consistent pattern of blocks and a continuity of modestly scaled sites and buildings with deep front landscaped setbacks and rear parking. Redevelopment and new development must retain this pattern of urban design to reinforce the residential character of these streets. The following characteristics focus upon the position of the building relative to the development parcel and surrounding block patterns.

BUILDING PLACEMENT – Building placement shall respect existing building, site, and block patterns and continue these patterns. The front setback of the building shall be consistent with the surrounding abutters and have similar landscape treatment. The building shall be placed to conceal parking at the rear or interior of the site.



BUILDING ORIENTATION – Buildings shall be oriented with the primary building façade facing the primary street frontage of the site. Building entrances and windows shall reinforce this orientation. Buildings shall be designed to be deeper than they are wide to reinforce this existing neighborhood pattern.

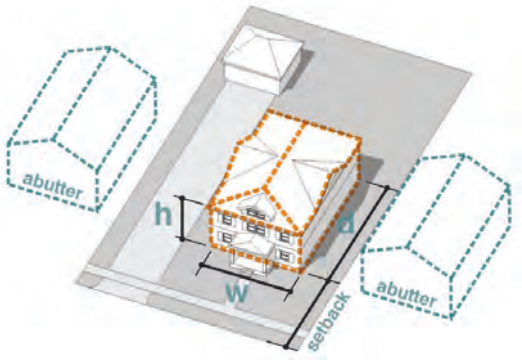


BALANCED BUILDING FRONTAGE ¬– A regular pattern of building frontages oriented to the street create a regular rhythm of building façades and landscape areas. The building frontage shall not occupy more than 60% of the lot frontage to retain this rhythm.

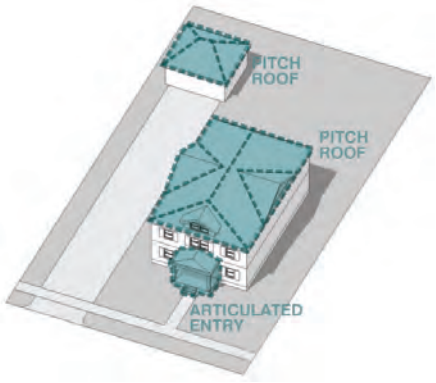
PARKING – Parking shall be placed at the interior of blocks and to the rear of buildings. Where parking is exposed to a secondary street frontage, the parking area shall have a landscape buffer of not less than 8 feet in width that is planted with trees and shrubs that will visually conceal parked vehicles. Access drives shall be located in the side yard.

Building Massing and Form

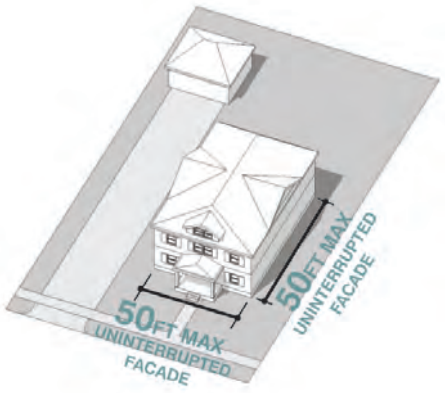
The neighborhood transition areas are composed of similarly scaled buildings that combine to form a comfortable pedestrian-oriented neighborhood environment. New development and redevelopment shall be designed to reinforce this scale and to be visually harmonious with existing building patterns and form.



RELATIONSHIP TO EXISTING CONTEXT – Building massing and scale should be complementary on abutting lots. Large building masses shall be broken down in scale through the articulation of building façades with bays, windows, stepbacks, or other architectural components that provide visual interest.



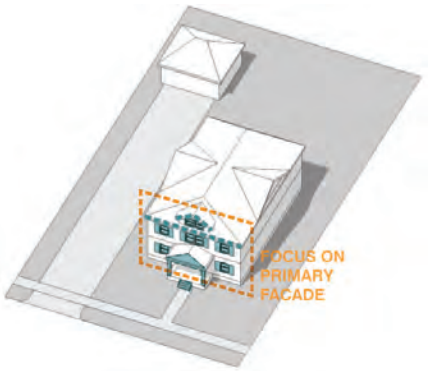
BUILDING FORM – The shape and massing of new and renovated buildings shall provide a balance of the composition of building height, story height, building width, and block width. The form and massing of buildings shall complement the scale and character of the existing neighborhood and shall reduce the scale of any large unarticulated building masses to reinforce the human scale of the district. Roof forms of new and infill development shall be pitched to be complementary with the existing character of the neighborhood.



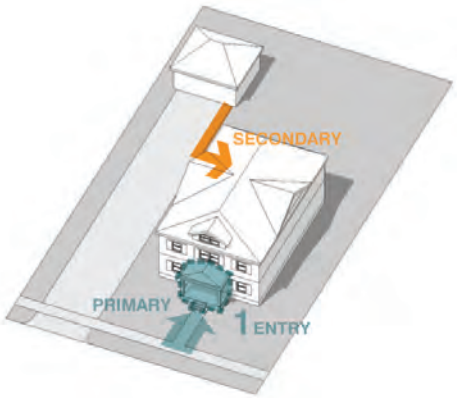
FAÇADE LENGTH AND ARTICULATION – The pattern of buildings in the neighborhood is of a small scale character with relatively narrow primary façades and deep buildings. New and infill construction shall reinforce this pattern and rhythm of building façades with a maximum uninterrupted façade length of 50 feet. Any façade length longer than 50 feet shall have a stepback of a minimum of 5 feet in depth.

Building Façades

The neighborhood transition areas create a relatively consisten precedent of architectural style with components that reinforce the district as a historic residential neighborhood. Foremost among these architectural components are the façade materials, articulation of the entries, cornice lines, and roof forms.



ARCHITECTURAL TREATMENTS AND FAÇADE PROPORTION – Include architectural details such as the trim around entrances, corners, eaves, doors and windows. These components shall be coordinated to be compatible with the character of the existing buildings in the immediate vicinity.



PLACEMENT AND TREATMENT OF ENTRIES – Primary building entries shall be oriented to the primary street on the primary façade of the building. The building entry shall be a feature of the architecture and provide protection from weather through the use of a canopy, overhang, or porch. The building façade shall integrate separate entrances for multiple tenants into a single coordinated ground floor entry.

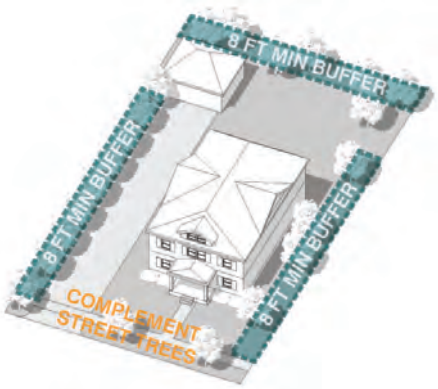
SIGNAGE – The size and location of any sign shall conform with the Town of Windsor Zoning Regulations. Any signage shall be subtly introduced into the building components and site landscape as to blend with the neighborhood character.

Landscape

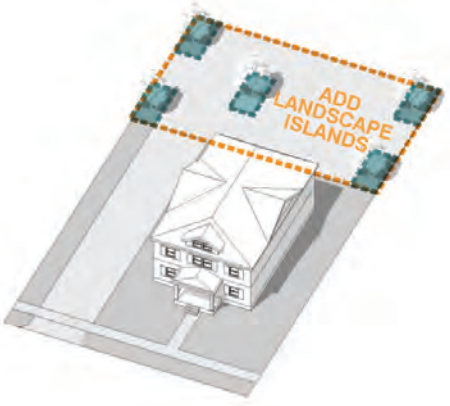
The neighborhood transition areas create a relatively consisten precedent of generous front grass lawns, shrubs and ornamental trees to anchor buildings on the site and older deciduous trees punctuating the landscape.

SITE AND STREET EDGES – Landscaping shall be used to define the street edge, to anchor the building on the site, and to buffer undesirable parking and service views at site edges.

BUFFERS AND SCREENS – Landscape buffers shall be used to screen parking, loading, and service areas visible from public streets or open spaces. All views that could be associated with a negative impact should be screened with strategically selected and located landscape features. Screening may include architectural walls, fences or other visual barriers in accordance with Windsor Zoning Regulations.

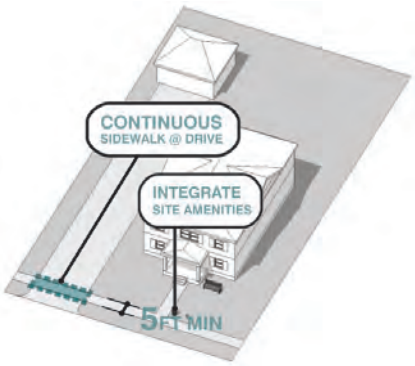


LANDSCAPE WITHIN PRE-EXISTING PARKING LOTS – Upon expansion of an existing parking lot continaing ten or more spaces, and/or alteration of a structure or change in uess, the entire existing parking lot shall be brought into compliance with landscape requirements, including screening visble portions of the parking area with plantings, adding landscape islands at ends of aisles and at corners of parking lot.



Streetscape and Sidewalks

The neighborhood transition areas have a consistent concrete sidewalk set in from the street with a grass landscape strip. The sidewalk is connected to building entries with matching concrete sidewalks.



SIDEWALK CONFIGURATION – Sidewalks shall have a minimum clear width of five feet. Sidewalks shall be widened to accommodate public amenities, street trees, benches, bike rack, trash receptacles, and other elements. Sidewalks shall also be widened for private amenities and configurations; in some scenarios, this may require the sidewalk to encroach upon the private property. Access drives and curb cuts shall be minimized and combined wherever possible. Every curb cut shall provide a continuous and uninterrupted pedestrian walkway.

3 DRAFT STREET PALETTE

The following section introduces plan components related to Windsor Center's streetscape. This section refers back the diagrammatic plan introduced in the TOD Master Plan, and expands upon the concept by elaborating on intersection types, street tree types, street lighting, and traffic calming.

For each of the topics, a table is presented containing descriptions of the recommendations, which relates to a map of the area showing how the menu of pieces is organized spatially in Windsor Center.

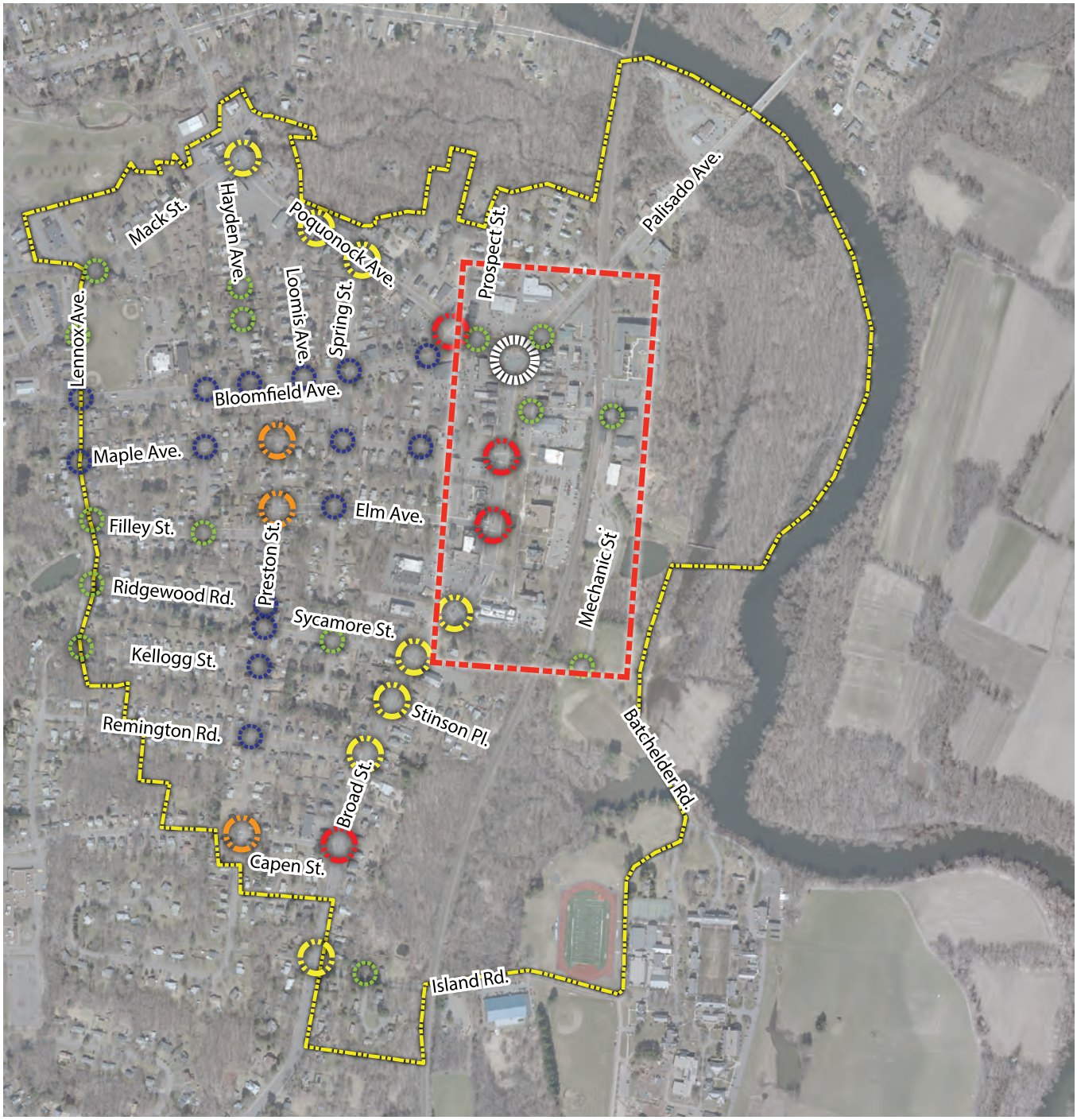
Intersection Types

Six intersection types have been identified within Windsor Center, and for each intersection type, a treatment is recommended.

Figure 4. Table of Intersection Types

INTERSECTION TYPE	DESCRIPTION / USE
Principal Access to Principal Access	Highest volume, most multimodal connections. See the Broad Street diagram.
Principal Access to Internal Collector / Residential	Traffic from residential pushed to main intersections with principal through-roads; these intersections should have curb extensions for traffic calming.
Principal Access to Residential Shared	Tertiary interactions on the principal streets, marked crosswalks.
Internal Collector/ Residential to Internal Residential	Interior residential intersections, dealing with internal street system, marked crosswalks.
Internal Collector/ Residential to Residential Shared	Non-main residential streets connecting to main circulation in residential area.
Residential Shared to Residential Shared	Smallest intersections for local circulation.

Figure 5. Intersection Types



Street Tree Types

Figure 6. Table of Street Tree Types

LOCATION	DESCRIPTION / USE
Broad Street and Historic Green	This historic preservation and enhancement zone is bounded by Batchelder Road to the south, Poquonock Avenue to the north and the building façades on the east and west side of Broad Street. The historic green should exhibit an increase in consistency of the existing elms while incorporating additional park trees from an approved list. The periphery trees located on the street edges should be placed amongst the existing trees while trying to fill the urban tree canopy from an approved tree list.
Poquonock Avenue and Broad Street	Regular street tree planting programs are to be implemented on these principal access streets within the study area right of way. Tree types are to be selected from an approved list and should remain consistent to each street's entirety in the study area.
Palisado Avenue	Due to the engineered grading of the roadway and bridges within the study area, Palisado Avenue is unable to physically handle street tree plantings in most locations. Street tree plantings are acceptable from the Broad Street intersection to 100' northwest of Union Street. The use of street trees at the start of the avenue should reflect the idea of a colonnade with an urban feeling as the street approaches the underpass.
TERM	**DEFINITION**
Neighborhood Percolation	Transitional street tree program which begins with consistently spaced street trees with strong vertical elements and gradually becomes more natural spacing past a one block extent on side streets. Tree types are to be selected from an approved list and should remain consistent to each street's entirety for a one block length east and west of Broad Street.
Transition Zones	A mixture of planted street trees from an approved list and naturally occurring trees within the right of way of the neighborhood streets.
Natural Forestry Zones	The trees in these zones should fit into the existing context and coincide with the Windsor Open Space and Agricultural Preservation Plan.
Approved Tree List	Park Tree Program: Elms (existing in park area), Sycamores, Oaks, Tulip Tree, Magnolia
	Street Tree Program: Maples, Honey Locust, Zelkova, Redbud, Pear, Hackberry
	Natural Forestry Zone: Pine, Fir, Spruce, Maple, Black Cherry, American Elm

Figure 7. Street Tree Types

Programmed Street Trees *(Both Sides of Street)*

Infill Street Trees *(To Match Existing Vegetation)*

Transitional Programmed Street Trees

Road Diet Study Area

Windsor T.O.D. Downtown Study Area

Natural Landscape Vegetation *(Existing and Proposed)*

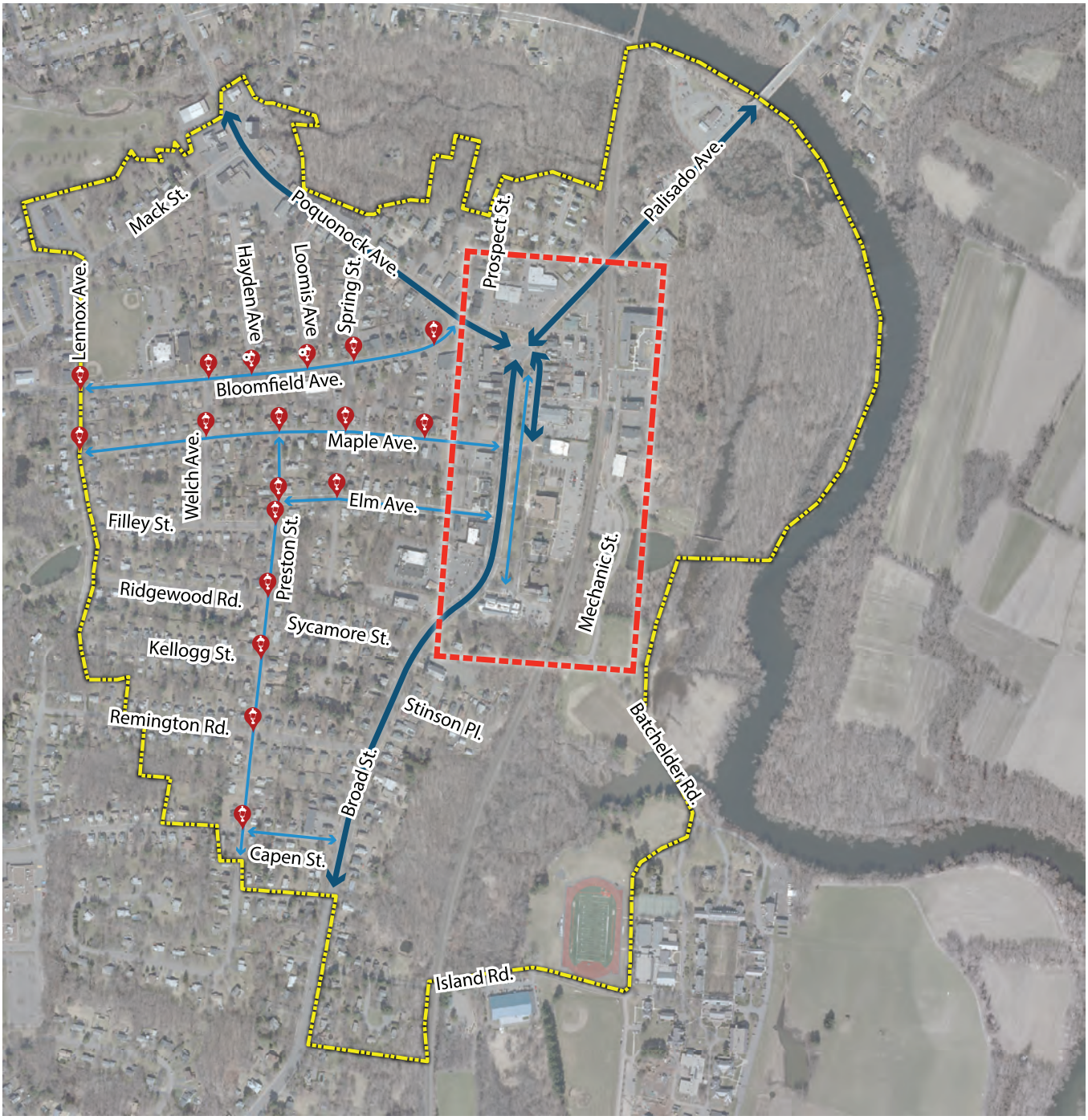
Transition Vegetation Zone

Lighting

Table 1. Table of Lighting Types

LOCATION	DESCRIPTION / USE	EXAMPLE
Broad Street Green	Decorative pedestrian light which coincide with or are similar to the existing style of the town's light fixtures.	
Principal Access Streets	Combination of decorative roadway and pedestrian oriented light fixtures which are located on the same post to reduce fixtures on sidewalks. Locations of use: Poquonock Avenue, Palisado Avenue, and Broad Street (excluding Broad Street Green areas).	
Internal Collector Streets	Decorative roadway light fixtures at intersections and pedestrian light fixtures between intersections.	
Internal Residential Streets	Decorative pedestrian light fixtures, height 14-16 feet, to illuminate the roadway and pedestrian crossings at the intersections of these back streets.	
Residential Shared	No street lighting installed in order to limit the amount of light pollution.	N/A

Figure 8. Lighting



Decorative Combination Roadway / Pedestrian Lighting Fixtures and Poles

Decorative Pedestrian Lighting Fixtures and Poles
(Banner Supported Poles in the Broad Street Green)

Decorative Roadway Lighting at Intersection

Road Diet Study Area

Windsor T.O.D. Downtown Study Area

Note: Fixture types should be coordinated with Town to match existing style

Traffic Calming

The map following this table provides the suggested locations for these traffic calming elements.

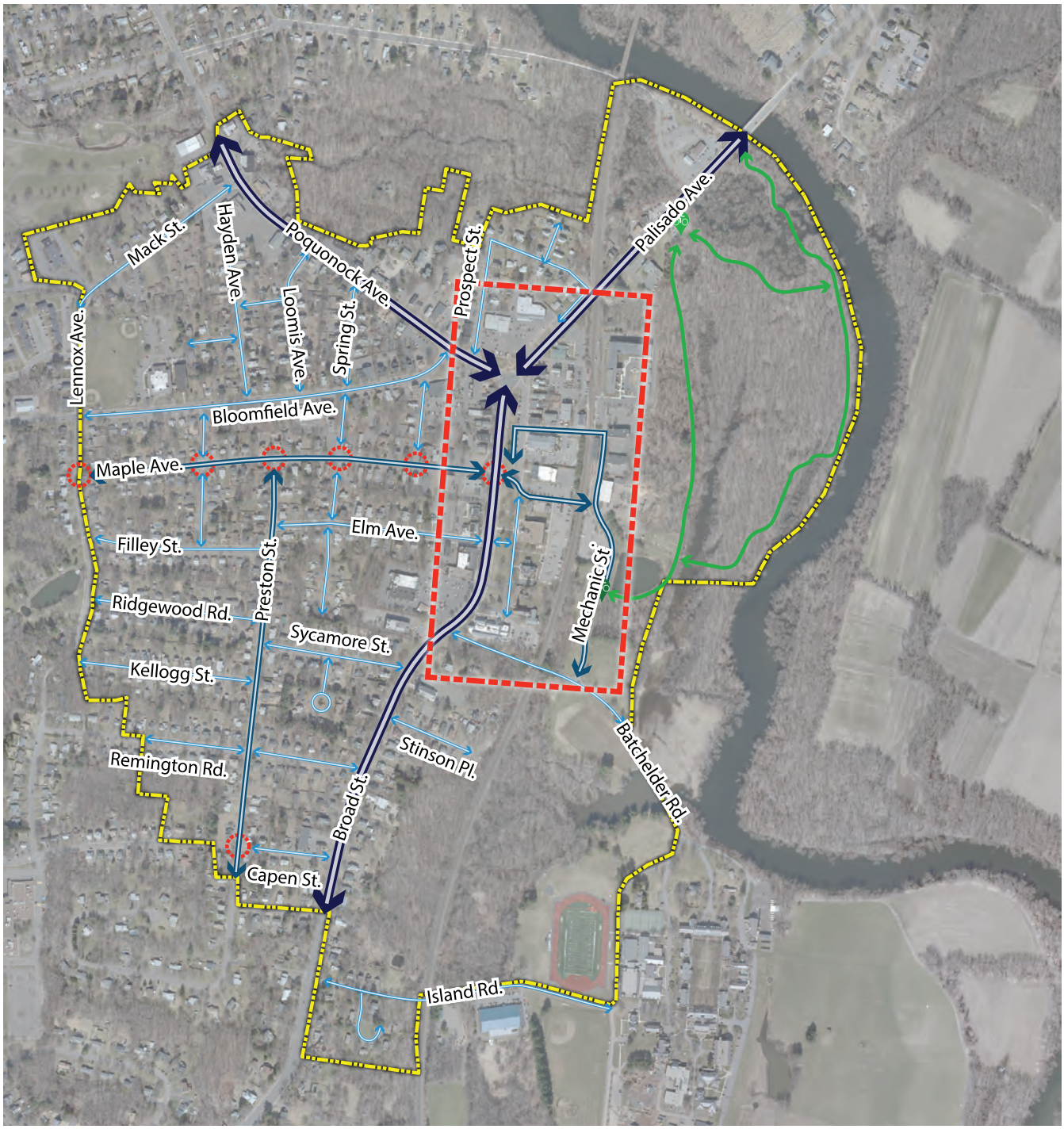
Table 2. Table of Traffic Calming Elements

TREATMENT	DESCRIPTION / USE	EXAMPLE
Road Diet	Definition: Travel lane reduction and redistribution of pavement to other uses for a safer and more efficient means of travel for vehicles and pedestrians. Location: Broad Street and Internal Residential Collector Streets.	Road Diet: Before and After  
Curb Extensions	Definition: Extensions of the curb line into the street, at street intersections, by reallocating a portion of street space to pedestrians or landscaping. Intended goal is to reduce speed of vehicular circulation by increasing the drivers' awareness of pedestrians and decrease crossing distances Location: Any roadway intersections with principal access and internal collector streets. Note: At yield streets, the roadway design should allow for two cars to enter and exit unobstructed once at the intersection.	Residential street curb extension  Principal access curb extension 

Mid Block Crossings	Definition: Additional crosswalk opportunities for pedestrians on larger (~500' length) town block spans. Should have warning lights to inform the driver of a pedestrian crossing. Location: Only on principal access route blocks that are in excess of 500' in length. Note: Should be used in collaboration with curb extensions,	Flashing Lit Crosswalk  Decorative Crosswalk 
Chokers	Definition: Curb extensions at midblock locations that narrow a street by widening the existing planting strip. One-lane chokers narrow the width to yield travel in one direction at a time. Location: On all internal residential streets. Note: Can be landscaped or hardscaped depending on the situation and surrounding context at the discretion of the Planning & Zoning Commission.	Residential yield street 
Marked Parking Zones	Definition: Painted or textured parking zones to narrow the field of vision of a driver. Location: On all residential streets. Note: Parking stalls are not to be delineated by parking stripes in neighborhood area except for area closer to Broad Street to keep a managed supply of on-street parking.	Marked parking zone  

Marked Crosswalk	Definition: Alerts drivers to the possibility of pedestrians crossing within the crosswalk markings and improves existing and future pedestrian crossings for safety and convenience for all users. Crosswalk locations should be consistent with existing and proposed sidewalks and create clear and concise desire lines across the roadway. Location: All intersections should have marked crosswalks which vary on location and intersection types Note: Principal access streets should utilize a unit paver, stamped, or polymer cement system to delineate crosswalk locations. Patterns and standards should meet ConnDOT standards if necessary. Note: Internal collector streets should employ a blend of stamped or polymer cement and the typical painted 12" reflective white stripe Note: All other intersections should typically be painted 12" reflective white stripe or an artistic design to reflect surrounding community (should have planning board support).	Brick Unit Paver / Stamped Concrete System  Blend of paint and polymer cement stamped   Decorative residential crosswalk  Standard residential crosswalk 

Figure 9. Windsor Town Center Pedestrian Circulation Improvements



Primary Pedestrian Circulation
Secondary Pedestrian Circulation
Tertiary Pedestrian Circulation
Trail Pedestrian Circulation
Pedestrain Center Study Area
Windsor T.O.D. Downtown Study Area

Proposed Trail Access Point
Existing Trail Access Point
Curb Extension
Traffic Calming

Note:
Provide marked crosswalks at all intersections.

Appendix C: Analysis of Development Alternatives

WINDSOR CENTER

TRANSIT-ORIENTED DEVELOPMENT

Master Plan and Redevelopment Strategy

FIGURES

CONTENTS

APPENDIX C: ANALYSIS OF DEVELOPMENT ALTERNATIVES

This appendix provides supplementary information about the topics discussed in the TOD Master Plan. Section C-1 identifies the three alternatives that were examined prior to deciding upon the preferred alternative discussed more fully in Section 2: Land Use and Development. Section C-2 looks at traffic models for Windsor Center and evaluates three possible alternatives. Section C-3 contains an analysis of alternative development scenarios used to evaluate the recommendations presented in the TOD Master Plan. Section C-4 has the pro forma analysis and data for the alternative development scenarios in Section C-3.

1 IDENTIFICATION OF POTENTIAL TARGET SITES

Development Scenario Methodology

The consultant team examined a range of development programs to examine the site capacity and financial feasibility of the redevelopment of a number of key sites in Windsor Center. These key sites were selected in consultation with the Steering Committee based upon the importance of each site in terms of its location in Windsor Center, the susceptibility of the site to future change, and the site's ability to unlock positive change in the future for Windsor Center.

Three-dimensional digital models of a range of potential development programs allowed the team to understand the parameters of the geometry of the sites. The team tested these potential development programs for financial feasibility by analyzing the potential costs of site preparation, demolition, and construction compared to the potential for revenue from commercial and residential rents and/or sale of the property after improvements. These analyses are hypothetical, but are useful for analyzing and understanding the feasibility and implications of redevelopment on the community's vision for Windsor Center. Each development scenario would require actions and investment by private property owners.

Criteria for the development programs from an economic perspective included:

- Any new development had to provide something different (of value) from its existing use to justify change and investment; and
- New construction and redevelopment had to respect the historic New England town center characteristics found in Windsor Center.

Each target site was evaluated based upon the following characteristics:

- Physical fit on the site;
- Potential development program; and
- Financial feasibility.

SITE EVALUATION MATRIX

The Site Evaluation Matrix (Figure 1) compared twelve sites using the following detailed characteristics:

- Current use and vacancy;
- Potential for additional density;
- Catalytic impact on other properties and center;
- Short term feasibility;
- Need for assembly;
- Match with market potential;
- Contribution to the pedestrian environment; and
- Property and site conditions.

Preferred Development Scenarios

Two sites were chosen to analyze further as the preferred development sites; the former Arthur's Drug site and the Central Street Block.

FORMER ARTHUR'S DRUG SITE

The study of alternative development scenarios at the former Arthur's Drug site showed that a moderate development program would be most successful under current market conditions. There is sufficient market demand for residential product within the town center that could support mixed-use retail with residential above, making this level of development financially feasible. Placing the building prominently at the corner to define the north end of the Windsor Green is important to completing a sense of place in the center. Concealing the parking and service areas at the rear of the building would improve the current site conditions. This type of massing and level of activity is important for this critical corner in Windsor Center.

The moderate redevelopment and building massing that is shown would reinforce the sense of place for Windsor Center and is financially feasible with the right development partners and tenants. More aggressive redevelopment of the site was less feasible within the present market conditions because the additional costs of demolition and site preparation would not able to be recouped by the projected level of revenue, even with expanded leasable space.

Figure 1. Evaluation Criteria Table

Site	Current Use and Vacancy		Potential for Additional Density		Catalytic Impact on Other Properties and Center		Short Term Feasbility		Need for Assembly		Match with Market Potential		Contribution to the Pedestrian Environment		Property and Site Conditions		Total Score	
	Score	Weight	Score	Weight	Score	Weight	Score	Weight	Score	Weight	Score	Weight	Score	Weight	Score	Weight	Total	Weighted Total
		1		1		1		1		1		1		1		1		
1. Poquonock Ave. Gateway	3	1	3	1	3	1	1	1	1	1	2	1	2	1	3	1	18	**18**
2. Poquonock Ave. Site	2	1	2	1	1	1	3	1	3	1	3	1	1	1	2	1	17	**17**
3. Former Arthur Drug	2	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	23	**23**
4. Farmers Market	3	1	2	1	1	1	3	1	3	1	2	1	1	1	2	1	17	**17**
5. Windsor Federal Block	2	1	1	1	2	1	2	1	3	1	2	1	3	1	2	1	17	**17**
6. Geissler's Block	3	1	2	1	3	1	3	1	3	1	3	1	3	1	2	1	22	**22**
7. Central St. Block	2	1	2	1	3	1	2	1	2	1	2	1	3	1	2	1	18	**18**
8. Station Area	1	1	2	1	3	1	2	1	2	1	2	1	3	1	2	1	17	**17**
9. Mechanic St. East	3	1	3	1	1	1	2	1	1	1	2	1	2	1	1	1	15	**15**
10. Mechanic St. West	3	1	3	1	1	1	2	1	1	1	2	1	2	1	1	1	15	**15**
11. Batchelder Rd. Site	2	1	2	1	1	1	1	1	1	1	1	1	2	1	2	1	12	**12**
12. Palisado Ave. Gateway	2	1	2	1	3	1	1	1	1	1	2	1	2	1	2	1	15	**15**
	1 Occupied, desired use 2 Occupied, underutil. 3 Largely vacant				1 Low impact 2 Medium impact 3 High impact		1 Not very feasible 2 Maybe feasible 3 Very feasible				1 No 2 Potential 3 Yes		1 Low contribution 2 Medium contribu 3 High contribution		1 Relatively good 2 Could use improvement 3 Needs major improvement			

CENTRAL STREET BLOCK

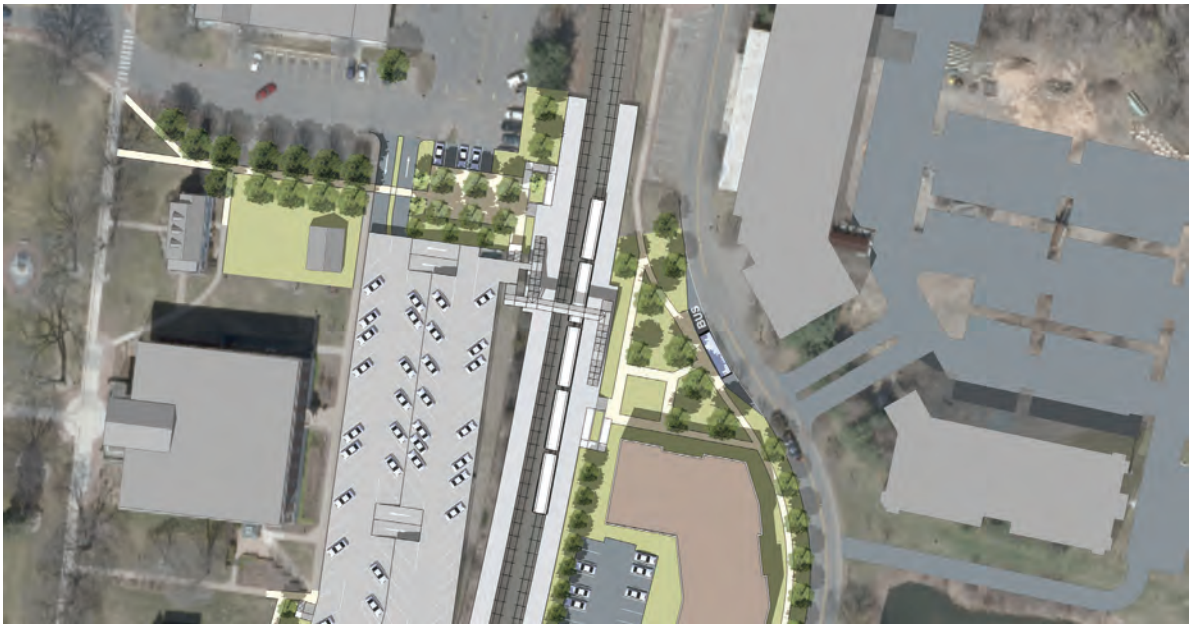
The study of alternative development scenarios at the Central Street Block site also showed that a moderate development program be most successful under current market conditions and would best retain the character and sense of place for Windsor Center. In this case, the development program would include infill construction and renovation and shared parking. The block is relatively built-out under its current conditions and would incur large costs in the demolition of existing buildings and site preparation for new construction. The amount of new leasable space resulting from this construction would not produce enough revenue to support that effort. An approach that is more financially feasible would retain most of the existing buildings, enhance the leasable space through renovation, façade improvements and strategic additions, and provide more efficient parking through shared parking agreements and an improved layout. This moderate approach to redevelopment maximizes the potential for active uses in Windsor Center and retains the town center character that is a large part of the sense of place in this area.

Station Area Alternatives

ALTERNATIVE A

This alternative provides a split level 2 to 3 story parking structure with approximately 260 spaces on the west side of the rail corridor, incorporates a bus stop on Broad Street, and includes a residential structure fronting on a small park/plaza area on the east side.

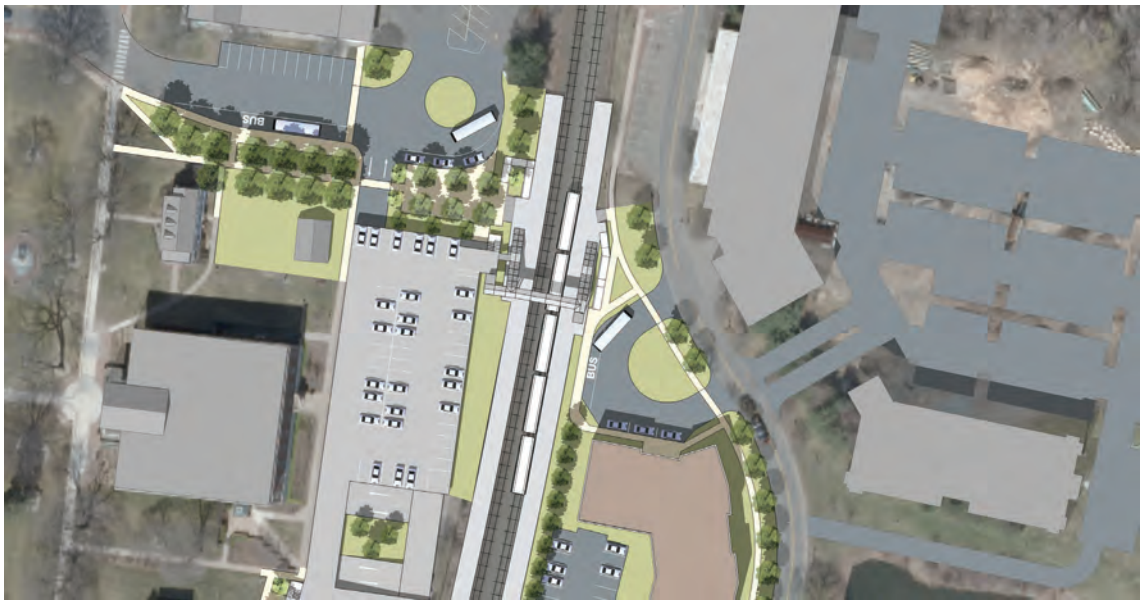
Figure 2. Alternative A



ALTERNATIVE B

Alternative B provides a parking deck with approximately 190 spaces on the west side of the rail corridor, accommodates a bus stop and turn-around on Maple Street, and includes a residential structure fronting on a loop road with bus drop off on the east side of the rail corridor.

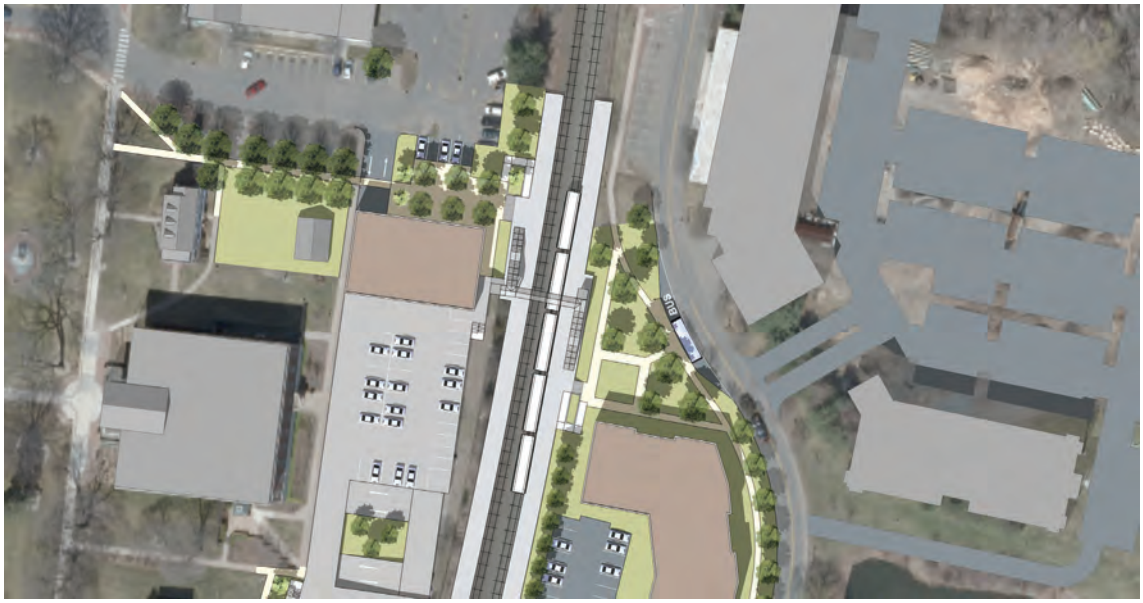
Figure 3. Alternative B



ALTERNATIVE C

Alternative C combines the east side development shown in Alternative A with a west side parking structure similar to Alternative B, but shortened to accommodate a liner building with ground floor non-residential uses and 2 levels of residential above.

Figure 4. Alternative C



THE PREFERRED ALTERNATIVE

The preferred alternative is a combination of Alternative A and Alternative B. The parking garage scheme from Alternative A is recommended together with the site plan from Alternative B. This alternative meets the community's vision in the following ways:

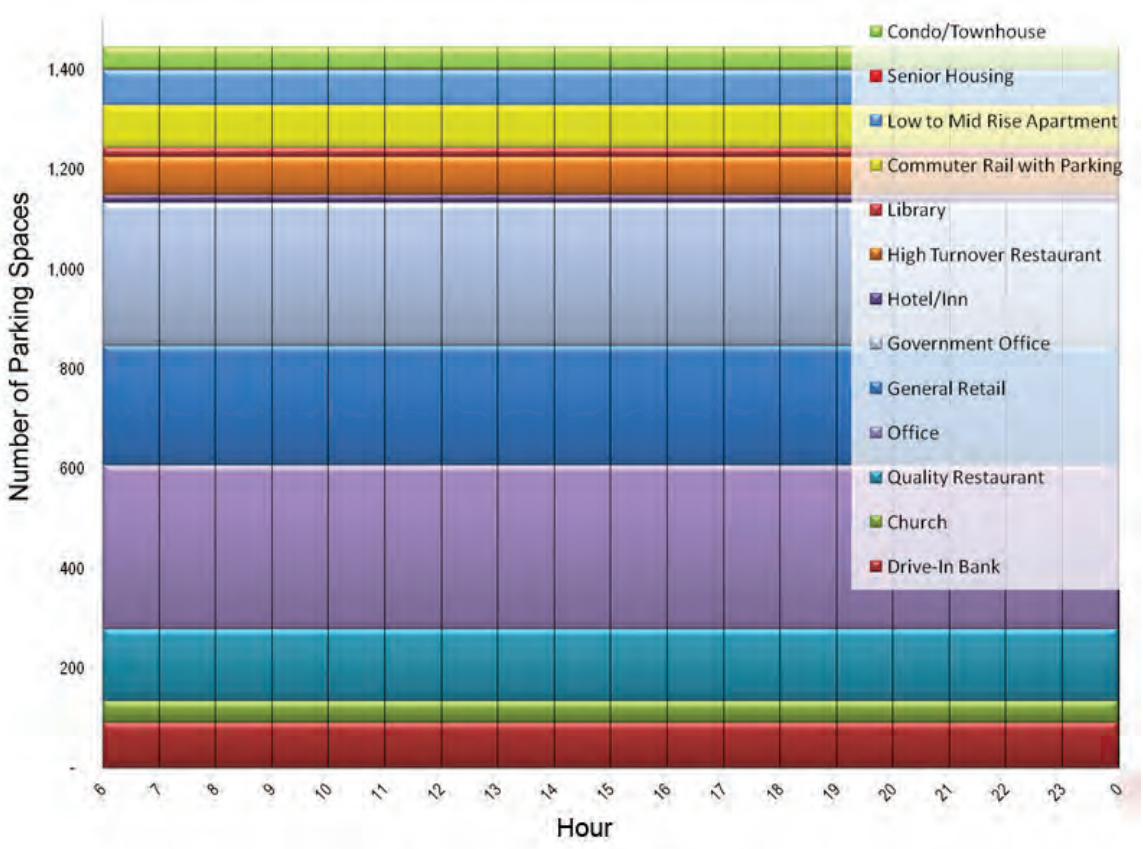
- **WALKABLE AND CONNECTED** – Improves pedestrian connections from the station to all areas of the station area including the River Trail and Loomis Chaffee;
- **VIBRANT WITH DIVERSE USES** – Provides opportunities for both residential and commercial development on sites that are currently dedicated to surface parking;
- **ACCESSIBLE AND SAFE** – Enhances rail access and drop-off by providing kiss and ride facilities and bus stops on both sides of the rail corridor. Provides the potential for a shared parking garage that can be used by rail passengers, existing town hall lot users and visitors of the new commercial development. Parking for new residential uses is included in the station area plan; and
- **ATTRACTIVE AND DISTINCTIVE** – Does not impact use or design of existing civic and historic buildings. Provides space for new active ground-floor use in the station area along Maple Avenue.

Figure 5. Preferred Alternatives for the former Arthur's Drug site, the Central Street Block and the Station Area

Windsor Center Development with Shared Use of Parking

In conjunction with the development scenarios developed for the former Arthur's Drug site, the Central Street Block, and the commuter lot directly adjacent to the station area, a preliminary shared parking analysis was completed for each of these areas, based on the totals shown in Figure 6.

Figure 6. ITE Parking by Land Use (Unshared) in Windsor Center with Proposed Developments



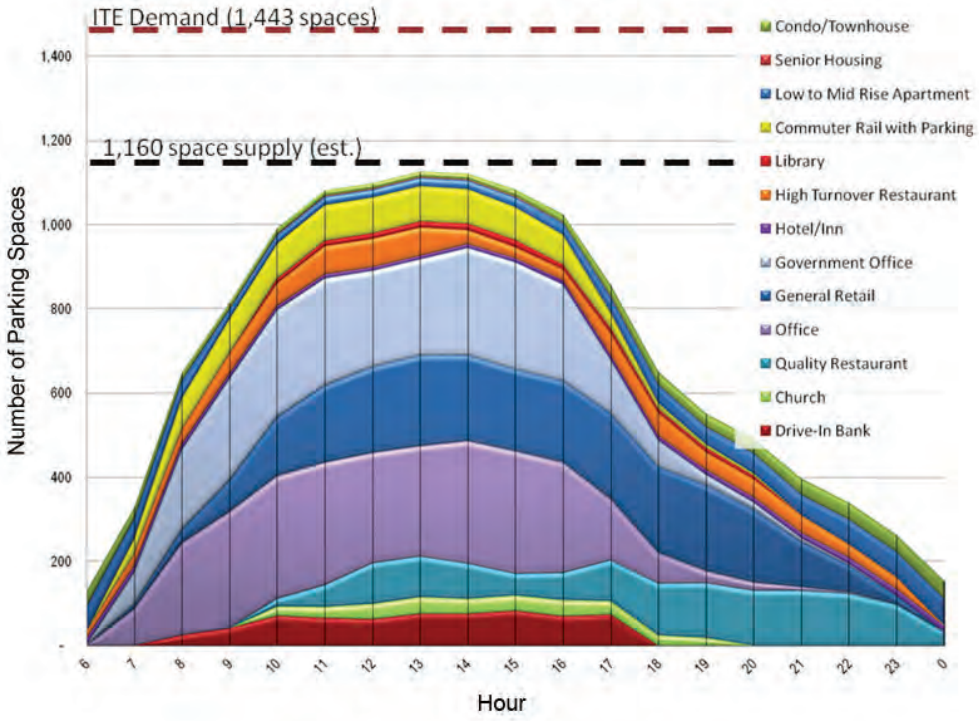
The analysis also assumes the added demand for commuter parking generated by the improved station and New Haven-Hartford-Springfield Rail Service.

Figure 7. Table of Windsor Center Preferred Development Alternative

DEVELOPMENT	RETAIL NSF	OFFICE NSF	RESIDENTIAL UNITS	TOTAL SQUARE FOOTAGE
Former Arthur's Drug site	38,438	0	16	57,638
Central Street Block	19,984	49,263	13	81,778
Station Area	0	0	31	134,000
Total	58,442	49,263	60	273,416

The build out analysis includes the development of the former Arthur's Drug site, Central Street Block, and the station area. Using flatline ITE parking generation rates, Windsor Center would theoretically generate a demand of about 1,443 parking spaces with the redevelopment of these three sites in the Town Center, as shown in Figure 14. There are approximately 1,160 parking spaces in existence today, meaning an additional 283 spaces would need to be built to accommodate the new infill development. However, when the shared parking model is applied to include the Town Center and these potential development sites, the theoretical demand is about 1,125 spaces. Providing opportunities to share parking would mean a difference of about 318 spaces from ITE standards as shown in Figure 8.

Figure 8. ITE Parking by Land Use (Shared) in Windsor Center with Proposed Developments



2 TRAFFIC MODEL AND ALTERNATIVES EVALUATION

Three alternative transportation concepts were created to help support the overall vision and goals for the Windsor Town Center Station Area. The framework for specific actions and recommendations include pedestrian and bicycle improvements, roadways and circulation improvements, and parking improvements.

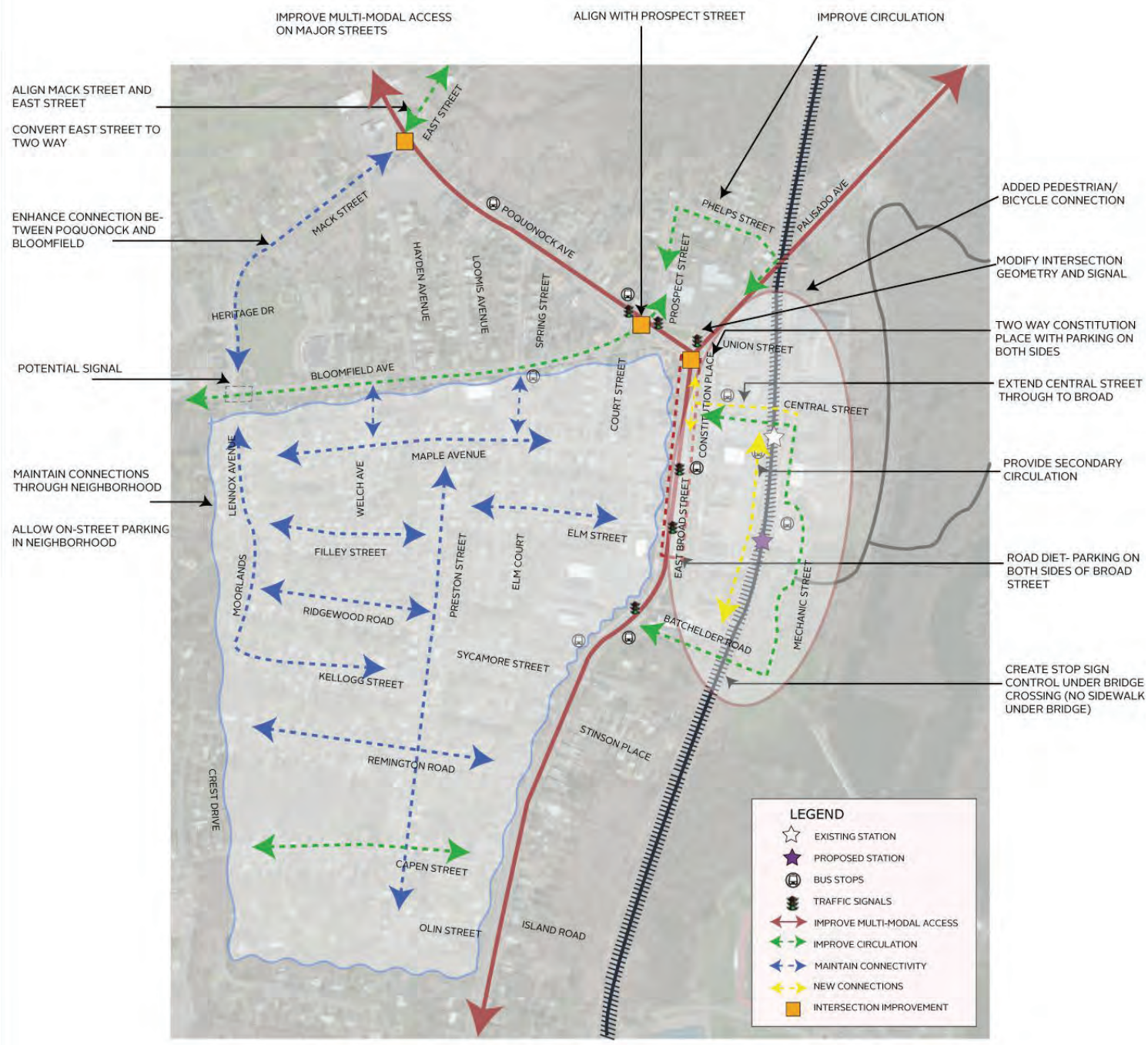
Alternative 1: Distributed Access Approach

The Distributed Access Approach provides the most connections on all roadways for all modes of transportation. Roadways are designed to distribute traffic throughout the Town Center through the improvement of roadway circulation and intersection reconfigurations. East of the railroad tracks, new roadways connections will create better circulation between the station area and areas east of Broad Street. There is also an emphasis on creating multimodal access and connections on major roadways such Palisado Avenue, Poquonock Avenue, and Broad Street and throughout the area adjacent to the proposed station area. On-street parking is also proposed along Broad Street, Constitution Way, and throughout the residential neighborhood. Overall the distributed access approach provides improved multi-modal access, enhances circulation opportunities, maintains connectivity throughout the residential neighborhoods, and supports on-street parking.

Alternative 2: Channel and Direct Approach

The concept behind the Channel and Direct approach is to improve and maintain multimodal access throughout major roadways, and provide the most direct access to Town Center destinations. The main goal is to facilitate and maintain vehicular traffic toward the business district and train station, while protecting residential street through the design of one-way street barrier that direct traffic away from these areas. This concept also improves traffic circulation to off-street parking lots and garages and supports on-street parking on residential streets adjacent to Broad Street through signage and wayfinding.

Figure 9. Distributed Access Approach



Alternative 3: Calming Approach

The final concept places the greatest emphasis on multimodal transportation options. This approach creates balanced streets that are suitable for all users of the road, by generally slowing and channeling vehicles to create a better environment for walking and biking. This includes the idea using traffic calming elements, including enforcing lower speed limits, to protect the residential

neighborhood, while improving pedestrian connectivity from these neighborhoods directly to the station area through the creation of a primary pedestrian corridor on Maple Street. Included are improved roadway alignments and travel lane road diets to support multimodal access and create better circulation throughout the area. Pedestrian facilities, such as sidewalks, should be created and completed throughout the Town Center, as should designated areas for on-street parking and shared off-street parking opportunities.

Figure 10. Channel and Direct Approach

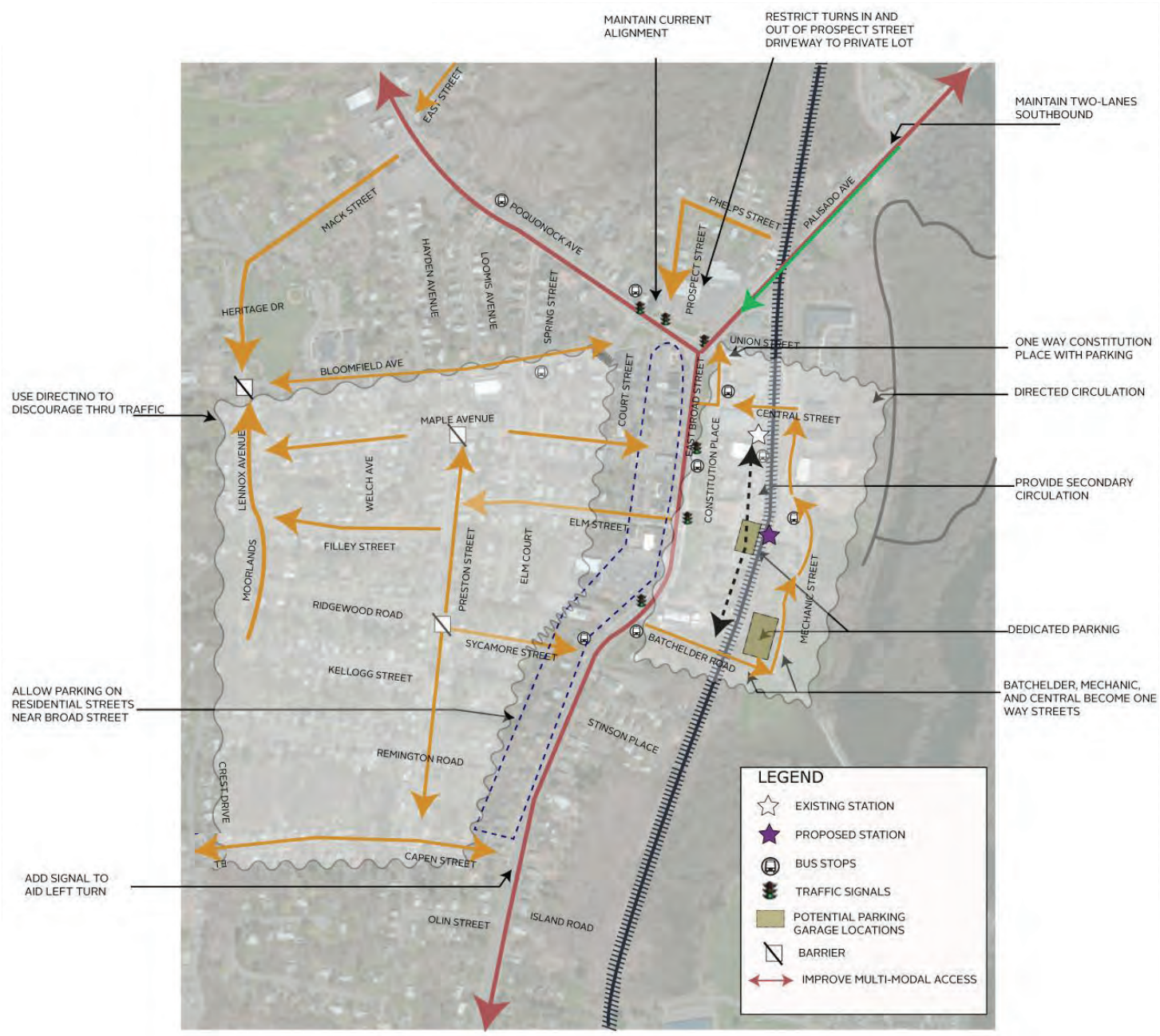
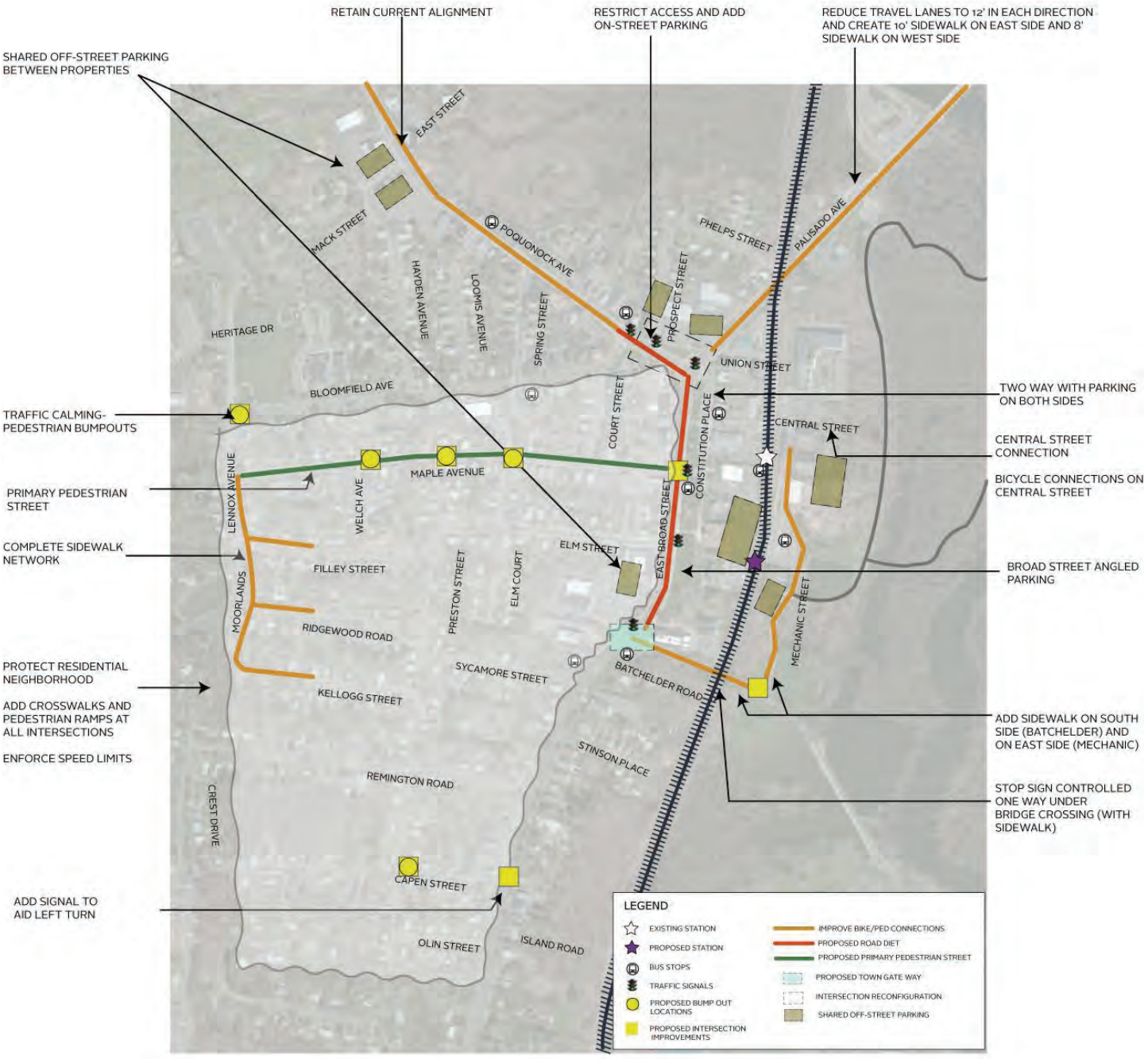


Figure 11. Calming Approach



Broad Street Layout Plans

The layout plans for Broad Street in Figures 12, 13, and 14 show how each alternative would be achieved. Figure 15 is the preferred approach.

Figure 12. Broad Street: Transportation Concept A

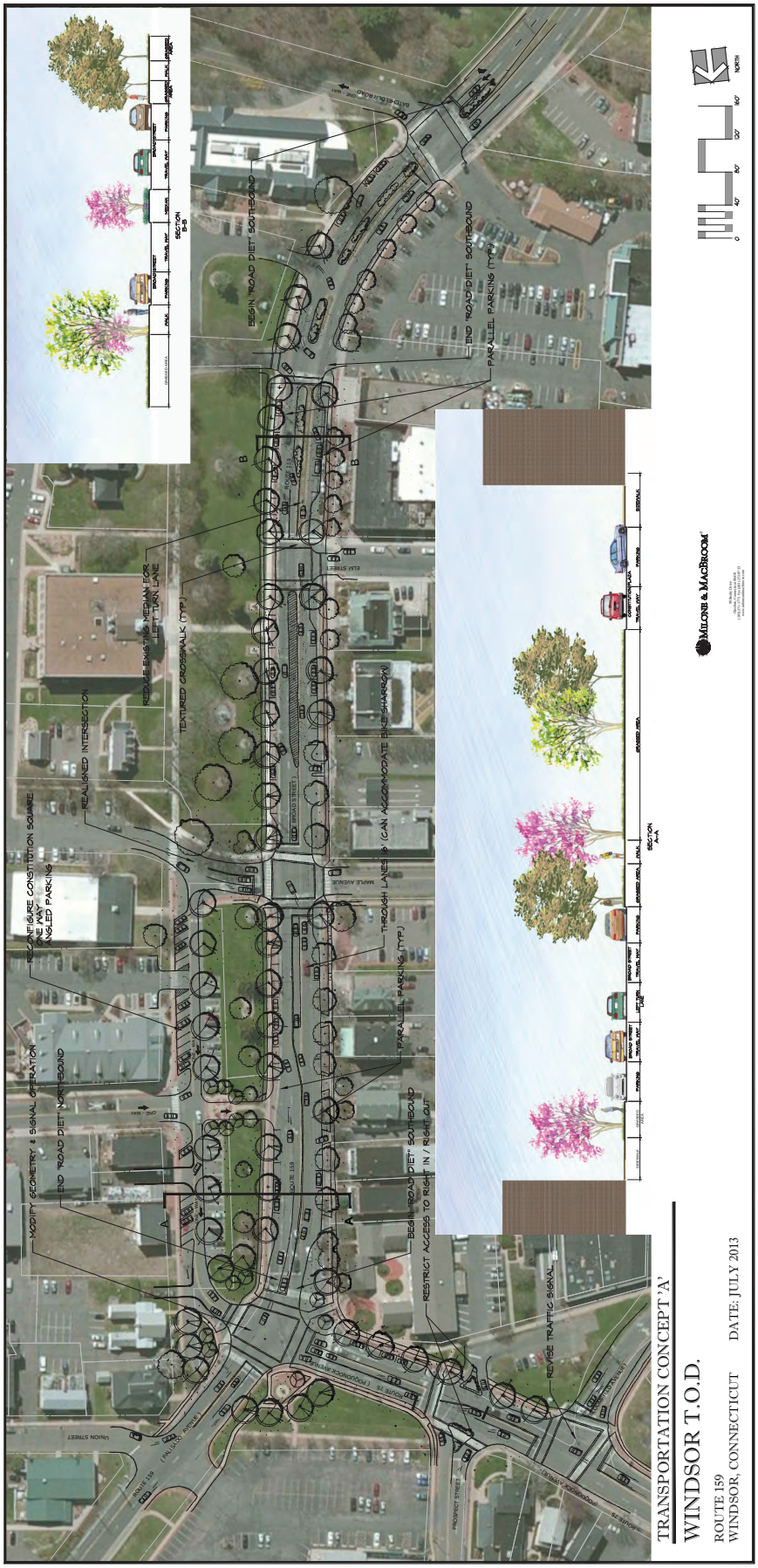


Figure 13. Broad Street: Transportation Concept B

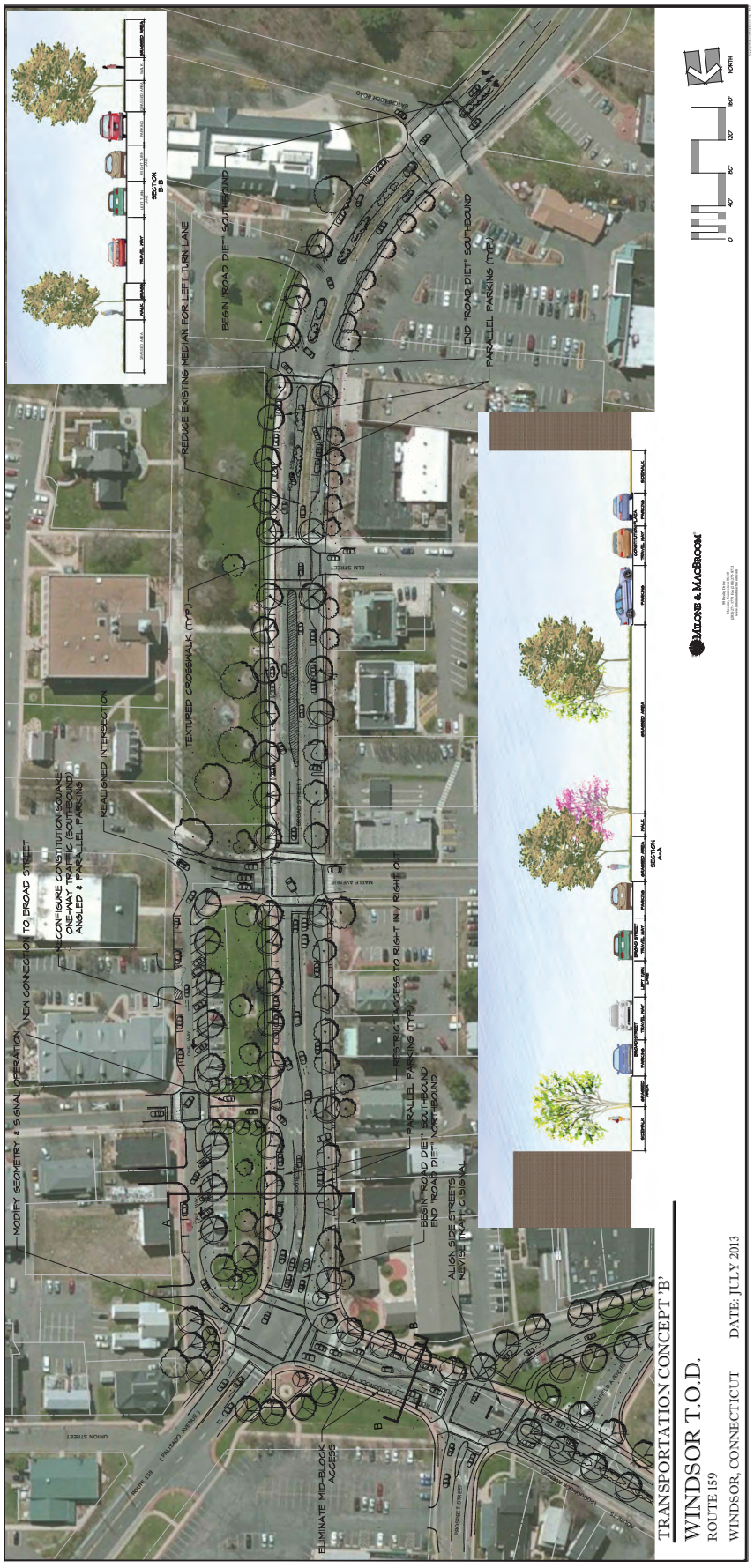


Figure 14. Broad Street: Transportation Concept C

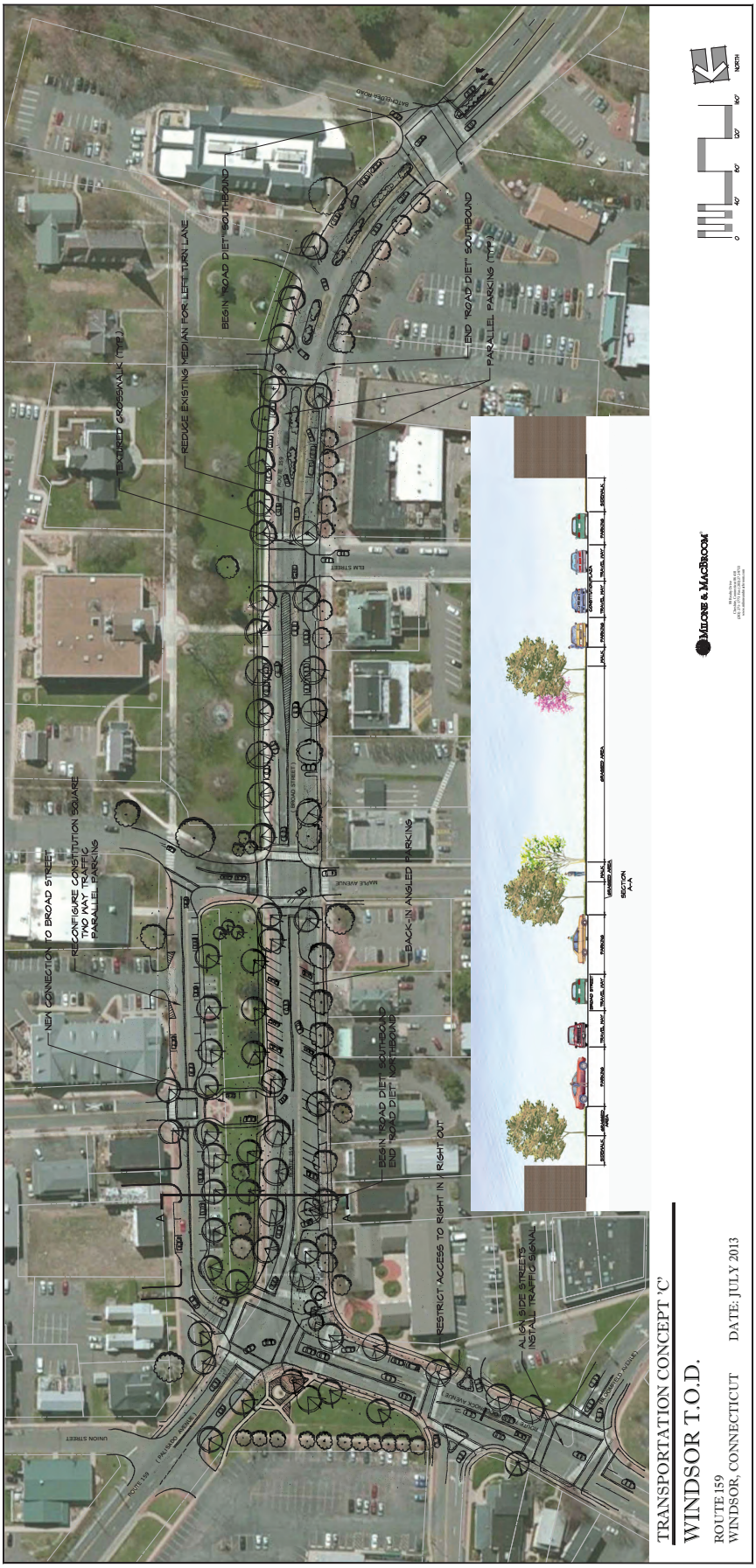
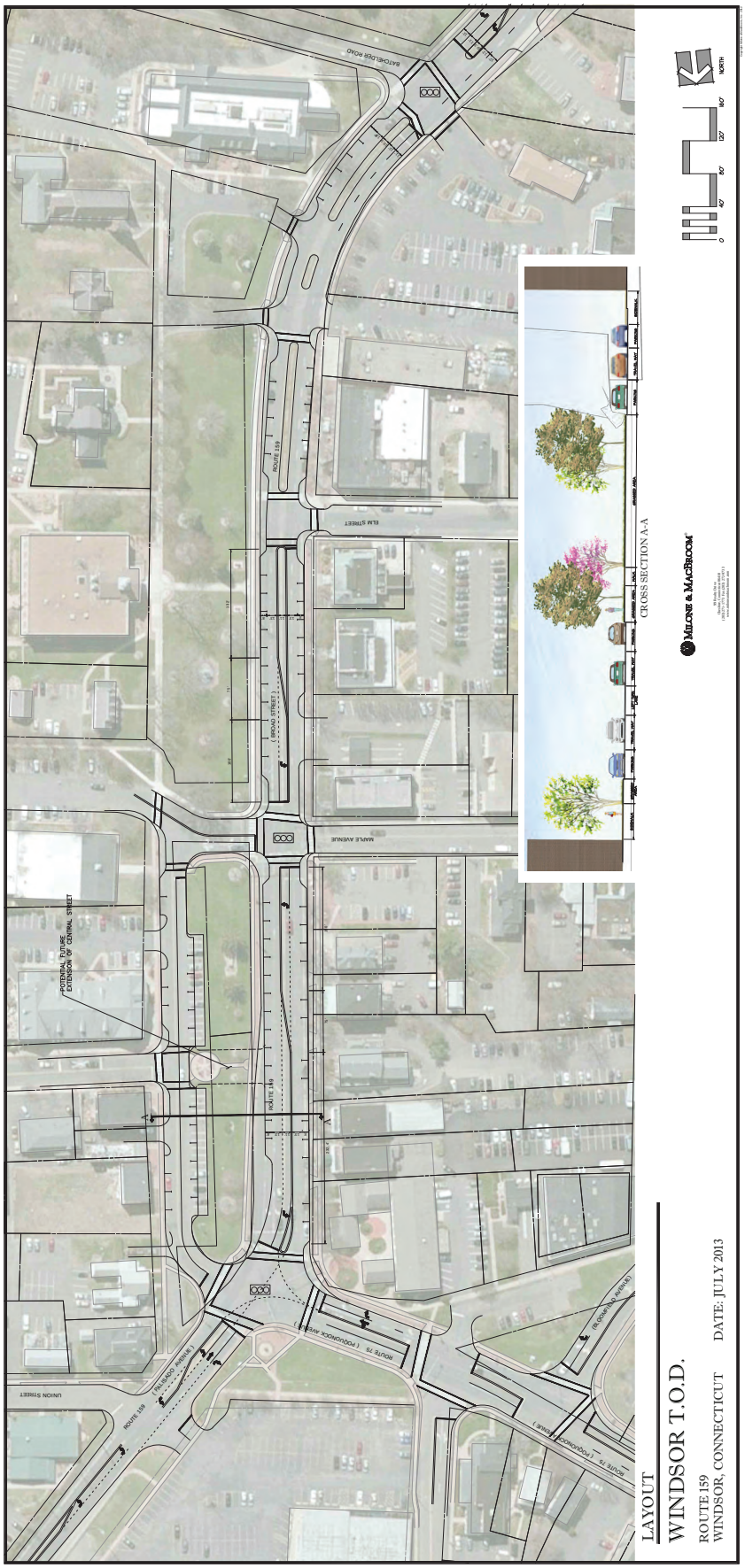


Figure 15. Broad Street: Preferred Concept



3 PRO FORMA ANALYSIS OF DEVELOPMENT ALTERNATIVES

This section contains an analysis of the most realistic and financially viable land use configurations and provides additional data about financial feasibility for the various alternatives. The financial analysis gives preference to incremental rehabilitation and expansion of existing buildings to maintain the Town Center atmosphere, but with a greater choice of uses and activities.

Three blocks have been isolated for particular emphasis in detailed recommendations: the former Arthur's Drug site, the Central Street Block, and the Station Area. This section addresses the economic rationale for strategies included in the TOD Master Plan.

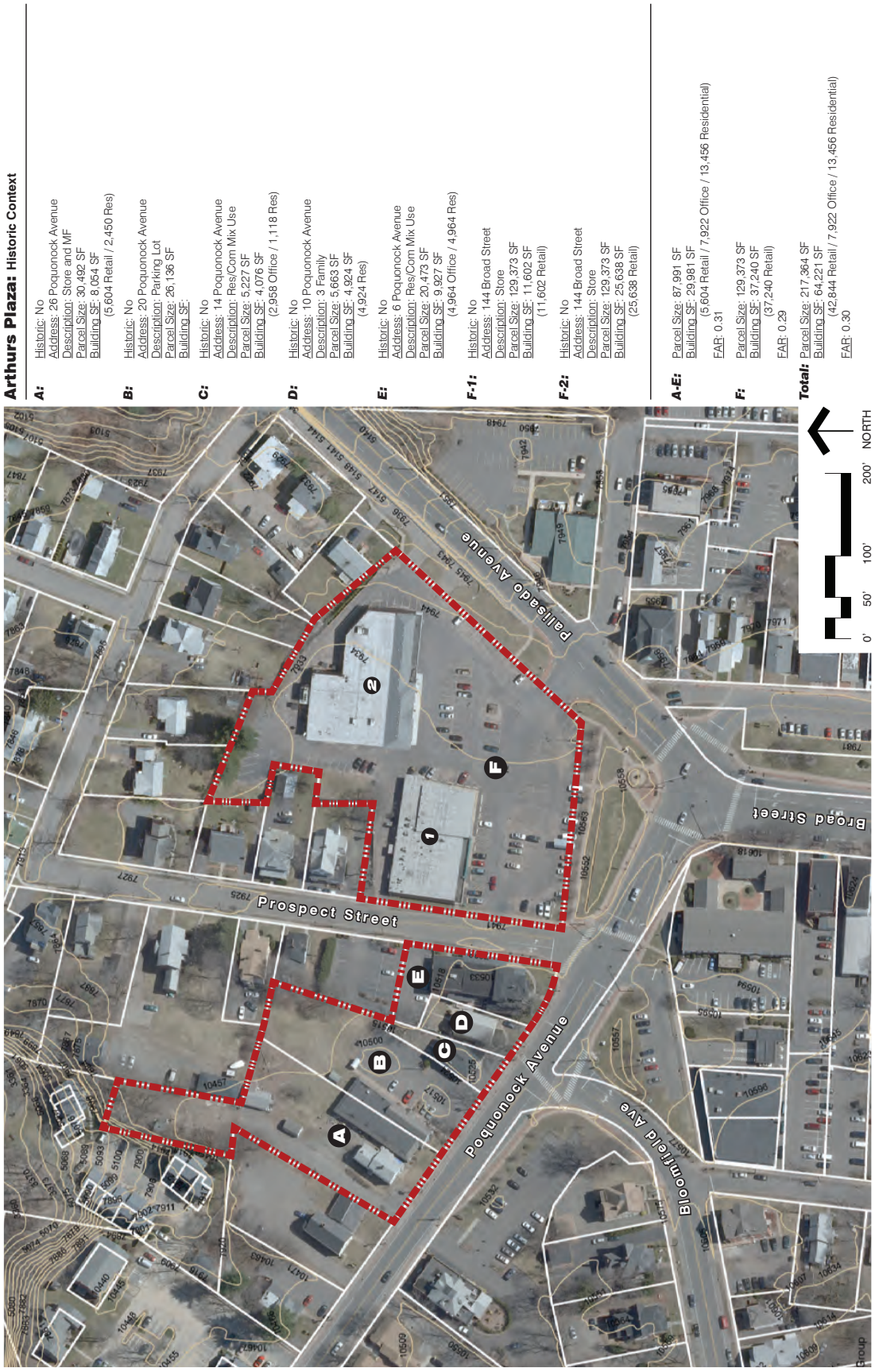
Target Site #1: Arthur's Plaza

As the corner with the most prominence and visibility, the use and urban design of this site is of great importance in establishing the look and feel for the new Windsor Center. The financial analysis examined five possible alternatives for this site.

- Alternative 0: Walgreens;
- Alternative 1: Modest Approach;
- Alternative 1-A: Apartments over Pharmacy;
- Alternative 1-B: Condominiums over Pharmacy;
- Alternative 2: "Maximize Housing Approach; and
- Alternative 3: Full Build-out.

Figure 16. Arthur's Plaza Photograph

Figure 17. Arthur's Plaza Site



ALTERNATIVE 0 WALGREENS

Assumptions

- Tear down one building
- Keep one existing building as one-story retail
- Build new 16,000 square foot, one-story retail building for pharmacy
- Assumed $14.50/square foot rents – could be much higher
- 1 year construction; 8 year hold; then sell
- Total project cost: $3 million

Initial Pro-forma Analysis

- IRR: 49%
- NPV: $2.7 million

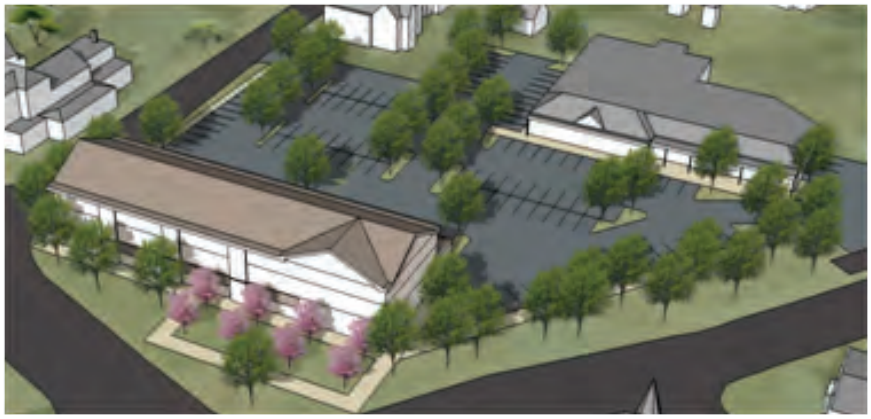
Findings and Observations

- This approach has excellent financial results for the owner and could be better as assumed rents were conservative
- A modest positive effect for the Town Center, with the building shielding the parking in the rear
- A larger and taller building mass would be more effective for anchoring this highly visible corner of the Town Center
- The second building could be a second phase effort to realize other longer term objectives

ALTERNATIVE 1: MODEST APPROACH

Alternative 1 has two sub-approaches, *Alternative 1-A: Apartments over Pharmacy* and *Alternative 1-B: Condominiums over Pharmacy*. Both approaches use the same development program, but have different assumptions and pro-forma results.

Figure 18. Arthur's Plaza Alternative 1



Development Program (Uses and Distribution)

- Replace existing building with proposed retail ground floor pharmacy and two stories of residential above
- Reconfigure parking and building location
- 12,000 square feet of demolition

ALTERNATIVE 1-A: APARTMENTS OVER PHARMACY

Assumptions

- Tear down Building 1, leave Building 2 as one-story retail
- Construct three-story building – first floor retail pharmacy and two floors residential rental apartments
- New building is same footprint as Alternative 1 – against berm
- Total project cost: $6.7 million

Initial Pro-forma Analysis

- IRR: 19%
- NPV: $1.3 million

ALTERNATIVE 1-B: CONDOMINIUMS OVER PHARMACY

Assumptions

- Same as 1-A, but condominiums instead of apartments on the two upper floors
- Sales price of 1,200 square feet condo at mill prices–around $200,000
- Project cost: $8.1 million

Initial Pro-forma Analysis

- IRR: 36%
- NPV: $2.4 million

Findings and Observations

- The overall financial results are comparable to just the pharmacy with no residential because the profit margins on the condominium sales are constrained by the resale values of the existing mill complex
- Higher margins may be possible with higher rents for the pharmacy and new condominium sales price-points
- Building 2 could still be a second phase of condos if this project goes well
- This phasing of smaller projects is preferred by banks at this time

ALTERNATIVE 2: MAXIMIZE HOUSING APPROACH

Figure 19. Arthur's Plaza Alternative 2

Development Program (Uses and Distribution)

- New development
- 20,390 square feet Retail
- 92 Residential Units
- 210 parking spaces provided

- 72,000 square feet of demolition

ALTERNATIVE 3 "FULL BUILD-OUT"

Figure 20. Arthur's Plaza Alternative 3

Development Program (Uses and Distribution)

- New development at street front
- Maximize parking at center/rear
- Demolition of about 72,000 square feet

RECOMMENDED ALTERNATIVE

An optimal solution for this site from an economic and urban design view point would be:

- Grant the existing building owner the conditional use permit to build a 2 to 3 story building with the drug store on the first floor. Condition the building to be in the proposed location against the berm. A CVS in Wakefield, Rhode Island has a Subway sandwich shop on a very small footprint within its store, with a small seating area, and it is open 24 hours per day.
- Allow the other single story building to remain and perhaps become a Phase 2 of retail relocated against Palisado Avenue, again with a 2 or 3 story building.
- Introduce the property owner to other residential developers, for example, Corporation for Independent Living. This firm completed the Mill complex across the street and has had a good working relationship with the town and knows the market.

Target Site #2: Central Street Block

Figure 21. Central Street Block Site

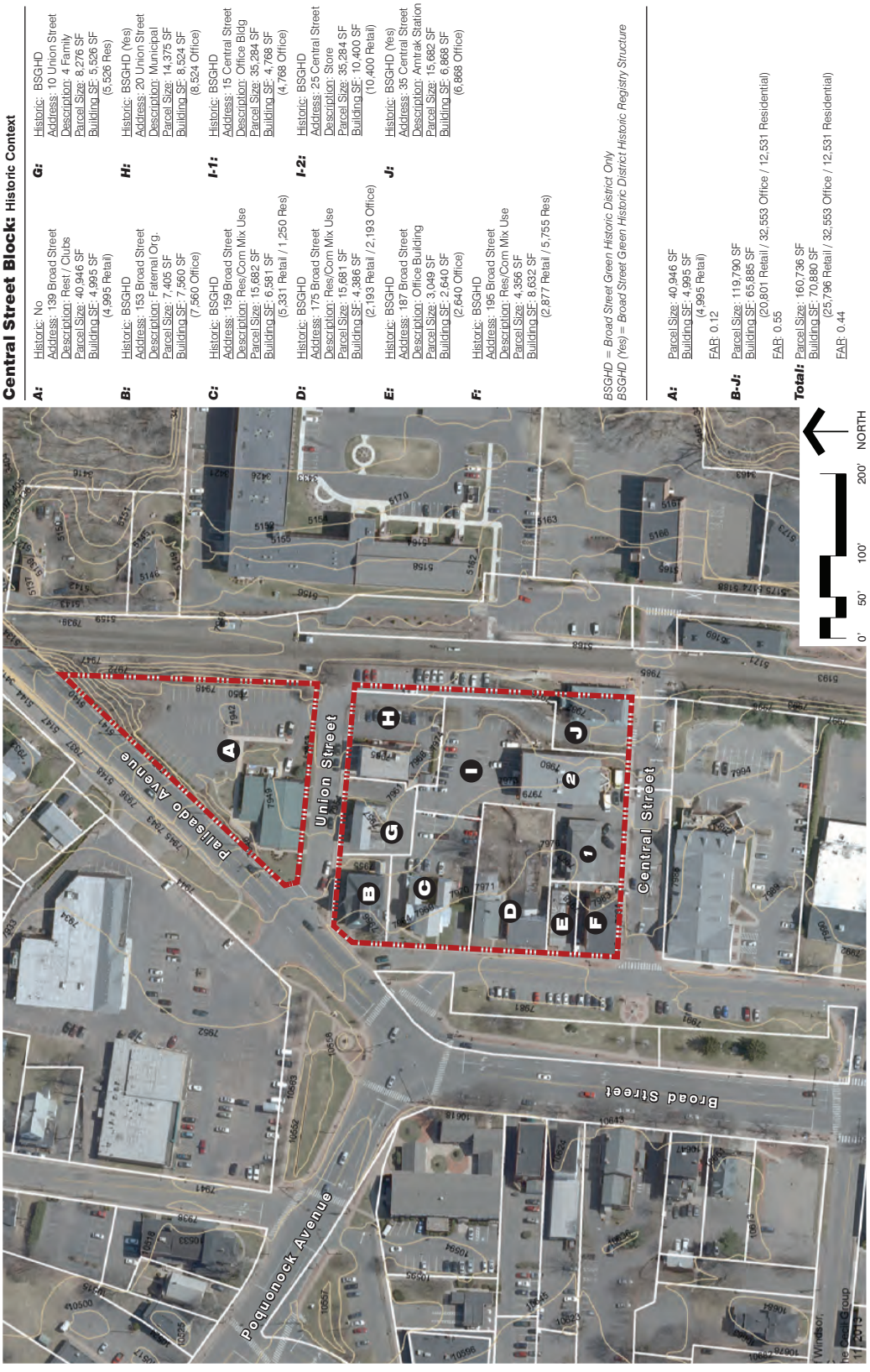


Figure 22. Central Street Block Photograph

ALTERNATIVE 1 "VILLAGE WITH EXISTING"

Figure 23. Central Street Block Alternative 1

Development Program (Uses and Distribution)

- Retain existing buildings, create additions

Initial Pro-forma Analysis

- IRR: Not calculable – no negative due to cash flow
- NPV: $9.4 million
- Construction Cost: $2.44 million
- 14,000 square feet improved of 82,000 square feet total
- No residential rent increases necessary

- New buildings could presumably charge higher rents

Findings and Observations

- Minimum change in existing feel
- Some buildings are fine as currently configured
- Strategic investment for improvements
- Maintain current ownership
- Other phased improvements possible as economics improve

ALTERNATIVE 2 "HYBRID APPROACH"

Figure 24. Central Street Block Alternative 2

Development Program (Uses and Distribution)

- Retain several existing buildings
- New development
- Rationalized central parking

Initial Pro-forma Analysis

- IRR: 20%
- NPV: $3.0 Million
- 78,000 square feet of 107,000 square feet is new
- Construction cost: $13.7 million
- Apartment rents are raised to $20/square feet

Findings and Observations

- Majority of buildings are demolished – current feel is gone – new feel could be an improvement coupled with other changes
- Current rent price points do not support wholesale replacement
- New replacement businesses at this scale are not obvious at increased rents

ALTERNATIVE 3 "FULL BUILD-OUT"

Figure 25. Central Street Block Alternative 3

Development Program (Uses and Distribution)

- Create super block
- 33,000 square feet Retail
- 107 Residential Units
- Demolition of 57,000 square feet

Initial Pro-forma Analysis

- IRR: 9%
- NPV: $742,000
- 144,000 square feet of 148,000 square feet total is new
- Construction cost: $23.8 million

Findings and Observations

- Unless there were an assemblage of ownership and a new concept or institution took over, it is unlikely a whole block would be demolished and rebuilt
- Financials don't work unless rents are raised more than currently warranted

- Larger scale residential demand for the next several years would be taken up by the proposed apartment complex on Mechanic Street

RECOMMENDED ALTERNATIVE

A cluster of restaurants is located here – a major draw for the center. These uses should be encouraged and their success a key emphasis going forward. In addition, one family owns a majority of the block and could marshal resources to generate a collective vision that could transform the block. At a minimum, the following is recommended to make the block most financially attractive and therefore feasible for rent increases:

- Parking could be improved if the interior of the block was reconfigured for joint parking, serving all the buildings in the block. This reconfiguration would create a more visually attractive interior to the block, thus contributing to its appeal to local clientele.
- Some planning has been started toward this objective. Initial estimates suggested that new curbs and gutters, landscaping and asphalt could be constructed for as little as $150,000. As summarized in Figure 25, the eight taxable properties within the block amount to approximately $2 million assessed valuation. A five year bond issue at 5 percent interest could be amortized with payments of $2,900 per month, or $1.45 per thousand assessed value per month for individual landowners. If capital costs were higher than $150,000, then monthly assessments would be proportionately higher. Table 1 summarizes tax assessment assumptions by parcel.
- The Town has a taxing district – the Fire District – that has the ability to levy and collect taxes for public purposes, currently only used for trash collection. Local business owners have suggested that this entity be used to fund the necessary site capital improvements.
- If this approach proves infeasible, the expense is relatively modest for the potential improvement of the block and other direct investment options from either businesses or the town.
- A third party developer may be attracted to purchasing development rights from specific property owners and then taking responsibility for building out "holes" in the development fabric, including completing the parking and landscaping improvements in the center of the block.

EXHIBIT 4-1 Central Union St. Parcels Assessments -- BID-5-30-13

1	2	3	4	5	6	7	8	9	10	11	12
Assumptions for Central Street Block Improvements											
	Improvement Costs		$ 150,000								
	Pay Back		1 year and 5 year options							1 year	5 year
	Interest Rate		6%							pay back	pay back
										$ 12,909	$ 2,899
										Per month	Per month
Owner Name	Street #	Street Name	Property Type	Appraised	Exemption	Assessed	Taxable	% of Taxable	150,000	6% loan	6% loan
WINDSOR MASONIC BUILDING	153	BROAD ST	Clubs/Lodges	397,600	-	278,460	Yes	0.13	19,928	$ 1,715	$ 385
ONE HUNDRED SIXTY-ONE BROAD ST LLC	159 - 163	BROAD ST	Retail/Apt Com	358,600	-	251,020	Yes	0.12	17,964	$ 1,546	$ 347
175-181 BROAD STREET LLC	175 - 181	BROAD ST	Office/Retail	317,900	-	222,530	Yes	0.11	15,926	$ 1,371	$ 308
PETERS MARY LOU &	187	BROAD ST	Office Bldg.	205,200	-	143,640	Yes	0.07	10,280	$ 885	$ 199
BG PARTNERSHIP	195 - 197	BROAD ST	Retail/Apt Com	351,000	-	245,700	Yes	0.12	17,584	$ 1,513	$ 340
SELIG BILL FORD INC	15-25	CENTRAL ST	Bldg.	415,600	-	290,920	Yes	0.14	20,820	$ 1,792	$ 402
NATIONAL RAILROAD (AMTRAK)	35	CENTRAL ST	Office Bldg.	338,600	-	237,020	No		-	$ -	$ -
SELIG BARBARA A	10 - 14	UNION ST	Multi Family	234,800	-	164,360	Yes	0.08	11,763	$ 1,012	$ 227
WINDSOR FIRE DISTRICT (UNION TAVERN)	20	UNION ST	Restaurant	552,400	-	386,680	No		-	$ -	$ -
NU-OP, LLC	139	BROAD ST	Restaurant	713,350		499,345	Yes	0.24	35,736	$ 3,075	$ 691
Total						2,719,675					
Non-taxable						623,700					
Net Taxable						2,095,975		1.00	150,000	$ 12,909	$ 2,899
Total Principal and Interest Paid										$ 154,908	$ 173,940
Appraised Value is market value as of 2008, last revaluation date. Includes land and real property improvements.											
TRA, 5/30/13											
Sources: Town of Windsor: Columns 1-8; TRA: Columns 9-12											

Figure 26. Central/Union Street Parcels Assessment

Target Site #3: Station Area

The Town Hall is perfectly located to allow multiple uses of its parking facilities to benefit to other functions of the Town Center; this is an resource that is currently untapped.

ALTERNATIVE 1

Figure 27. Station Area Alternative 1

Development Program (Uses and Distribution)

- Residential development on Mechanic Street
- Bus pull-out along Mechanic Street

ALTERNATIVE 2

Figure 28. Station Area Alternative 2

Development Program (Uses and Distribution)

- Residential development on Mechanic Street
- Kiss-and-ride and bus stop pullout

ALTERNATIVE 3

Figure 29. Station Area Alternative 3

Development Program (Uses and Distribution)

- Residential development on Mechanic Street
- Bus stop pullout at Mechanic Street
- Liner building at parking structure

Initial Pro-forma Analysis for Alternatives 1, 2 and 3

- IRRs: below 10% – too low to support demolition and rebuilding at this point
- Once other uses are introduced, such as a music venue at the Plaza Theater, other businesses will want to be there and will be willing to pay higher rents to support wholesale renovation
- In the interim, the Town should encourage phased improvements and solicitation of neighborhood retail that is not currently located in the center–to round out current offerings

RECOMMENDED ALTERNATIVE

The following changes are recommended:

- Transfer the proposed train station parking lot on the east side of the railroad tracks to the west side on a second story on the existing municipal at-grade lot.
- Apply for ConnDOT funding for the parking lot improvements that have other joint uses and economic development and quality of life benefits for the state and Windsor as well.

- Add pedestrian improvements to get to Broad Street
- Create parking for the newly renovated Plaza Theater and related restaurants.
- On the existing ConnDOT surface parking lot, allow for additional residential development that is similar in density to the proposed Windsor Station project across Mechanic Street.
- Encourage additional larger-scale residential south on Mechanic Street down to Batchelder Street.
- A new pedestrian bridge over the railroad tracks would enable passenger access to trains going in both directions, and also provide enhanced access from Loomis Chaffee School on the east side of the tracks to Windsor Center on the west side of the tracks. This pedestrian bridge would also tie pedestrian circulation into new residential development on the east side with new parking/bus depot configurations on the west side.

Detailed Pro Forma Analysis for the Priority Blocks

In order to assess the most feasible alternative development schemes, we performed detailed financial analysis using generally accepted investment measures and assumptions about pricing from local market analysis. Pro Forma Analysis

Applying the assumptions listed below, we modeled specific land use configurations for the two most critical blocks – the formers Arthur's Drug site and the Central Street/Union Street Block. The results are summarized in Figure 30 and Figure 32, and discussed in detail below.

PRO FORMA DEVELOPMENT ASSUMPTIONS

LAND USE MIX FOR EACH BLOCK – Provided by the Cecil Group with consulting team collaboration.

CONSTRUCTION COSTS – Total square feet of the building is multiplied by the construction cost for each land use type as follows:

- **Condominium:** $150/ square feet
- **Apartments:** $110/ square feet
- **Office:** $125/ square feet
- **Retail:** $125/ square feet
- **Building Demolition:** $5/ square feet

In addition to the hard costs, we have added a contingency fee of 16% of hard costs and project "soft costs" (permit fees, design fees, on- and off-site improvement costs, financing fees, etc.) of 23% of hard costs.

REVENUE GENERATION – only 80% of the total area will generate revenue and the rest will be common area that will need to be maintained by the property manager. Each property type will generate the following:

- **Condominium Sales:** $181/ square feet, per recent sales of Mechanic St. condo units
- **Apartment Rents:** $20/ square feet, per apartmentguide.com for new units
- **Office Rents:** $16.00/ square feet, per loopnet.com
- **Retail Rents:** $14.50/ square feet, per loopnet.com

OCCUPANCY – Buildings will take 9-12 months for permitting and construction (Year 0); revenue starts in the second year of the project (Year 1); Rental properties have a 5% vacancy factor for the entire term.

OPERATING EXPENSES – Operating or transaction costs by property type are as follows:

- **Condominium:** 5% transaction cost of sale cost
- **Apartments:** 30% of gross revenue
- **Office:** 30% of gross revenue
- **Retail:** 30% of gross revenue
- **Land Sale:** 9% transaction cost on sale

NET OPERATING INCOME – Defined as gross income minus expenses, not including financing costs or depreciation; NOI is the determining factor for the value generated on sale of the property in the beginning of the 8th year (see below–Value on Sale).

PROJECT FEASIBILITY – A development project is generally defined as feasible if the income stream from the project, plus any sale proceeds, has a net present value (NPV) in the range of 15% to 25% of costs. Higher percentage returns are obviously better. Projects lower than 15% will generally require a "subsidy" from some other source in order to offset development costs or increase annual cash flow.

PROJECT ABSORPTION – Condo sales, depending on size of the project will occur in second year (Year 1) after construction (Year 0); Apartment lease up, depending on the size of the project, is assumed to take one year.

PROJECT FINANCING – Project development costs will be financed by 20% developer equity and 80% bank financing through a mortgage at a 6% interest rate; the developer will pay interest only, no principal, until the project is sold. The mortgage is paid off upon sale at the end of the project term.

VALUE ON SALE – Condominium sales are on a square foot basis in the year following construction. Other property types are assumed to have matured to full (95%) occupancy with profitable cash flow (net operating income). Project sale value is based on applying a capitalization rate (cap rate) to the NOI in the year of sale. Cap rates vary depending on the market's appetite for different product types. They generally vary from 5.5% (most desirable) to 11%

or higher (less desirable) for leased up, good condition properties, that is, sale values of properties vary inversely to cap rates. We have assumed a cap rate of 7% for these projects for Windsor Center, due to Windsor being a suburb to a secondary market, that is, not a "Gateway" City, as are the likes of New York, Boston, Chicago, which would command the lowest cap rates (highest values) for the best performing properties. The value on sale is added to other annual income and discounted by the cost of money (the "discount rate') in order to determine the Net Present Value. The rationale here for applying a discount rate to the annual net cash flow is that funds received sooner are worth more than those received later.

THE FORMER ARTHUR'S DRUG SITE

The Cecil Group prepared the following alternatives for consideration:

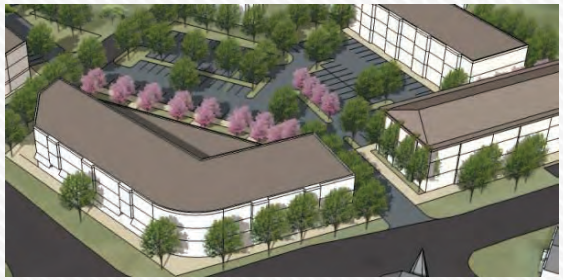
- **Alternative A:** Build Pharmacy only, no housing; retain the other existing retail building
- **Alternative B-1:** Build pharmacy with 1-2 story apartment building (rental) over; leave other building
- **Alternative B-2:** Build pharmacy with 2 stories of condominiums over; leave other building
- **Alternative C:** Build pharmacy; build out residential on rest of parcel
- **Alternative D:** Full Build-out

Conclusions

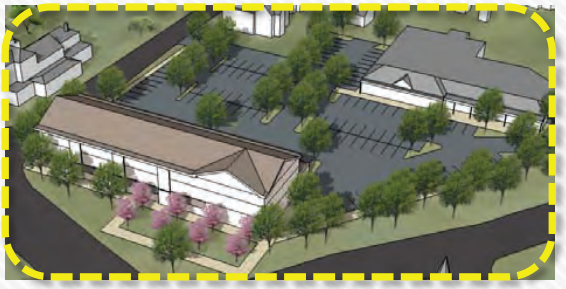
- Construction of the new pharmacy with only one story and retaining the other single story commercial building is the most profitable for the property owner.
- Construction of the new pharmacy with a second story of for-sale condominiums is the second most profitable.

Target Site: Arthur's Plaza: Alternatives Comparison

Alternative A



Alternative C



Alternative B1/B2

Alternative	Total Area GSF	Retail NSF	Office NSF	Residential Units	IRR	NPV
A	27,330	21,864	-	-	46%	$1.7M
B1	64,369	25,895	-	16 (rental)	23%	$1.9M
B2	64,369	25,895	-	16 (condo)	23%	$1.1M
C	122,536	20,390	20,390	48	25%	$3.8M*

*Requires "subsidy" from an outside source to offset costs

Figure 30. The Former Arthur's Drug Site Alternatives

CENTRAL STREET BLOCK

Figure 31. Central Street Block Photograph

Because of the multiple property ownership, this pro forma analysis has limitations. The conclusions would be valid only if someone were to purchase the entire block and apply the same financial analysis as laid out in the assumptions. This will not likely occur in that the existing uses are viable financially, that is, the buildings are in use and do not warrant wholesale changes. However, the analysis does have usefulness in understanding the relative feasibility of small, incremental changes in the block as opposed to larger-scale, wholesale changes in the block.

Conclusions

- Incremental additions to existing buildings or infill on existing lots are financially viable.
- Demolition of existing structures and new construction at much higher densities is not supported by current rents or demand for new space, at least in the short term.
- In the longer term, if the other destinations uses are realized and urban design/transportation improvements are made, larger-scale development may be financially viable in this block.

Target Site: Union/Central Street Block: Alternatives Comparison

Existing Conditions

Source: Bing Maps

Alternative 1

Alternative 3

Alternative 2

Alternative	Total Area GSF	Retail NSF	Office NSF	Residential Units	Total Parking
1	**76,000**	**19,000**	**41,000**	**0**	**167**
2	111,000	35,000	34,000	16	159
3	148,000	33,000	0	107	178

*IRR and NPV assume single ownership

Figure 32. Central Street Block Alternatives

Additional Data: Pro Forma Analysis of the Priority Blocks

Windsor Center TOD (7-13-13)

Arthur's Plaza

Alternative A : Build Pharmacy only, no housing; retain the other existing retail building

Assumptions

Tear down building 1. Keep Building 2 as one-story retail. Build new retail for Walgreens against berm.

Parking Cost ($) 0

Land Sale ($) 0

Subsidy will be provided on Year 3

All Residential Units Are for Rent, No Sale.

Residential SF/Unit: 1,200

NSF/GSF 80%

Resident Parking Ratio (#/Unit): 1.5

Retail Parking Ratio (#/NSF): 2 1/1000

Office Parking Ratio (#/NSF): 2 1/1000

Project Summary

O:_TR ADVISORS FILES\PROJECT FILES\Windsor TOD Feasibility-2012\Market Study\Pro-Formas

Parcel	Building	Building Stories	Building Footprint Area	Total Area GSF (Proposed)	Res. Units	Res. GSF	Res. NSF (1200 sf/ unit)	Retail GSF	Retail NSF	Office GSF	Office NSF	Total GSF (Calculated)	Total NSF	Resident Parking Need (1.5/unit)	Retail Parking Need (2/1000 sf)	Office Parking Need (2/1000 sf)	Total Parking Need	Total Surface Parking Provided	Total Structure Parking Provided	Parking Provided	Total SF of Demoliti on
East of Prospect	2 (Existing)	1	25,638	25,638	-	-	-	25,638	20,510	-	-	25,638	20,510	-	41	-	41			110	
Street	1	1	16,000	16,000	-	-	-	16,000	12,800	-	-	16,000	12,800	-	26	-	26				
Total				41,638	-	-	-	41,638	33,310	-	-	41,638	33,310	-	67	-	67	-	-	110	12,000

Pro Forma Analysis

1	Year	Totals	0	1	2	3	4	5	6	7	8	
2	Income Rates per SF, 3% Annual Inflation											
3	Condo Sales			0	0	0	0	0	0	0	0	
4	Apt. Rents			20.00	20.60	21.22	21.85	22.51	23.19	23.88	24.60	Estimated from Zillow.com and www.apartmentguide.com
5	Office Rents			16.00	16.48	16.97	17.48	18.01	18.55	19.10	19.68	Estimated from loopnet.com
6	Retail Rents (Building 2)		14.50	14.94	15.38	15.84	16.32	16.81	17.31	17.83	18.37	Estimated from loopnet.com
7	Retail Rents (Building 1)		14.50	14.94	15.38	15.84	16.32	16.81	17.31	17.83	18.37	Estimated from loopnet.com
8	Land Sale											
9	SF Rented, 50% occupancy 1st year, 5% Vacancy rate											
10		Gross	Net Rentable									
11	Condo Sales	-	-			-	-	-				
12	Apt. Rents	-	-	-	-	-	-	-	-	-	-	
13	Office Rents	-	-	-	-	-	-	-	-	-	-	
14	Retail Rents (2)	25,638	20,510	19,485	19,485	19,485	19,485	19,485	19,485	19,485	19,485	19,485
15	Retail Rents (1)	16,000	12,800	-	12,160	12,160	12,160	12,160	12,160	12,160	12,160	12,160
16	Basement/St	-	-	-	-	-	-	-	-	-	-	-
17	Subtotal	41,638	33,310									
18	Land Sale (AL)	-	-			-						
19	Total	41,638	33,310									
20	**Gross Income**											
21	Condo Sales					-	-	-				
22	Apt. Rents			-	-	-	-	-	-	-	-	
23	Office Rents			-	-	-	-	-	-	-	-	
24	Retail Rents (2)			282,531	291,007	299,737	308,729	317,991	327,531	337,357	347,477	357,902
25	Retail Rents (1)			-	181,610	181,610	187,058	192,670	198,450	204,403	210,535	216,851
26	Land Sale					-						
27	Total			282,531	472,616	481,346	495,787	510,660	525,980	541,760	558,012	574,753

28												
29				Totals	0	1	2	3	4	5	6	7	8
30	**Operating Expenses**												
31		Condo Sales	5%					-	-	-			
32		Apt. Rents	30%		-	-	-	-	-	-	-	-	-
33		Office Rents	30%		-	-	-	-	-	-	-	-	-
34		Retail Rents (2)	30%		84,759	87,302	89,921	92,619	95,397	98,259	101,207	104,243	107,370
35		Retail Rents (1)	30%		-	54,483	54,483	56,117	57,801	59,535	61,321	63,161	65,055
36		Land Sale	9%				-						
37		Total			84,759	141,785	144,404	148,736	153,198	157,794	162,528	167,404	172,426
38													
39	**Net Operating Income**				197,772	330,831	336,943	347,051	357,462	368,186	379,232	390,609	402,327
40													
41				Totals	0	1	2	3	4	5	6	7	8
42	**Capital Expenses**												
43	Land Acquisition												
44	Site Demolition												
45	Construction Costs ($ per SF)												
46		Condo	150	-			-	-	-				
47		Apartments	110	-	-	-							
48		Office	125	-		-	-						
49		Retail	125	2,000,000	2,000,000								
50		Demolition	5	60,000	60,000								
51	Total			2,060,000	2,060,000	-	-	-	-				
52	Contingency		16%	329,600	329,600	-	-	-	-	-	-	-	-
53				2,389,600	2,389,600	-	-	-	-	-	-	-	-
54	Soft Costs		23%	549,608	549,608	-	-	-	-	-	-	-	-
55	Total			2,939,208	2,939,208	-	-	-	-	-	-	-	-
56													
57	**Subsidies**												
58													
59				Totals	0	1	2	3	4	5	6	7	8
60	**Financing**												
61		Equity	20%	587,842	587,842	-	-	-	-	-	-	-	-
62		Debt	80%	2,351,366	2,351,366	-	-	-	-	-	-	-	-
63		Equity Payoff											
64		Cum Debt			2,351,366	2,351,366	2,351,366	2,351,366	2,351,366	2,351,366	2,351,366	2,351,366	2,351,366
65		Interest Only	6%		141,082	141,082	141,082	141,082	141,082	141,082	141,082	141,082	141,082
67		NOI (Line 39)			197,772	330,831	336,943	347,051	357,462	368,186	379,232	390,609	402,327
68	**Sale in Year 8 @ 7% Cap Rate**												5,747,529
72	**Cash Flow**				(531,152)	189,749	195,861	205,969	216,380	227,104	238,150	249,527	3,918,652
73		**NVP**	$2,716,971										
74		**IRR**	50%										

Windsor Center TOD (7-13-13)

Arthur's Plaza

Alternative B-1: Build pharmacy with 1-2 story apartment building (rental) over; leave other building

Assumptions Tear down building 1. Keep Building 2 as one-story retail. Build new 3-story building against berm. Build pharmacy on 1st floor, apt for rent on 2nd and 3rd floor

Parking Cost ($) 0
Land Sale ($) 0
Subsidy will be provided on Year 3
All Residential Units Are for Rent, No Sale.
Residential SF/Unit: 1,200
NSF/GSF 80%

Resident Parking Ratio (#/Unit): 1.5
Retail Parking Ratio (#/NSF): 2 1/1000
Office Parking Ratio (#/NSF): 2 1/1000

Project Summary

Parcel	Building	Building Stories	Building Footprint Area	Total Area GSF (Proposed)	Res. Units	Res. GSF	Res. NSF (1200 sf/ unit)	Retail GSF	Retail NSF	Office GSF	Office NSF	Total GSF (Calculated)	Total NSF	Resident Parking Need (1.5/unit)	Retail Parking Need (2/1000 sf)	Office Parking Need (2/1000 sf)	Total Parking Need	Total Surface Parking Provided	Total Structure Parking Provided	Parking Provided	Total SF of Demoliti on
East of Prospect	2 (Existing)	1	25,638	25,638	-	-	-	25,638	20,510	-	-	25,638	20,510	-	41	-	41			110	
Street	1	3	16,000	48,000	16	24,000	19,200	16,000	12,800	-	-	40,000	32,000	24	26	-	50				
Total				73,638	16	24,000	19,200	41,638	33,310	-	-	65,638	52,510	24	67	-	91	-	-	110	12,000

Pro Forma Analysis

1	Year	Totals	0	1	2	3	4	5	6	7	8	
2	Income Rates per SF, 3% Annual Inflation											
3	Condo Sales			0	0	0	0	0	0	0	0	
4	Apt. Rents			20.00	20.60	21.22	21.85	22.51	23.19	23.88	24.60	Estimated from Zillow.com and www.apartmentguide.com
5	Office Rents			16.00	16.48	16.97	17.48	18.01	18.55	19.10	19.68	Estimated from loopnet.com
6	Retail Rents (Building 2)		14.50	14.50	14.94	15.38	15.84	16.32	16.81	17.31	17.83	Estimated from loopnet.com
7	Retail Rents (Building 1)		14.50	14.50	14.94	15.38	15.84	16.32	16.81	17.31	17.83	Estimated from loopnet.com
8	Land Sale											
9	SF Rented, 50% occupancy 1st year, 5% Vacancy rate											
10		Gross	Net Rentable									
11	Condo Sales	-	-		-	-	-	-	-	-	-	
12	Apt. Rents	24,000	19,200		9,120	18,240	18,240	18,240	18,240	18,240	18,240	18,240
13	Office Rents	-	-		-	-	-	-	-	-	-	-
14	Retail Rents (2)	25,638	20,510	19,485	19,485	19,485	19,485	19,485	19,485	19,485	19,485	19,485
15	Retail Rents (1)	16,000	12,800	-	12,160	12,160	12,160	12,160	12,160	12,160	12,160	12,160
16	Basement/St	-	-		-	-	-	-	-	-	-	-
17	Subtotal	65,638	52,510									
18	Land Sale (AL)	-	-			-						
19	Total	65,638	52,510									
20	**Gross Income**											
21	Condo Sales						-	-	-			
22	Apt. Rents				182,400	375,744	387,016	398,627	410,586	422,903	435,590	448,658
23	Office Rents				-	-	-	-	-	-	-	-
24	Retail Rents (2)			282,531	282,531	291,007	299,737	308,729	317,991	327,531	337,357	347,477
25	Retail Rents (1)			-	176,320	176,320	181,610	187,058	192,670	198,450	204,403	210,535
26	Land Sale					-						
27	Total			282,531	641,251	843,071	868,363	894,414	921,246	948,883	977,350	1,006,670

				Totals	0	1	2	3	4	5	6	7	8
Operating Expenses													
	Condo Sales	5%						-	-	-			
	Apt. Rents	30%			-	54,720	112,723	116,105	119,588	123,176	126,871	130,677	134,597
	Office Rents	30%			-	-	-	-	-	-	-	-	-
	Retail Rents (2)	30%			84,759	84,759	87,302	89,921	92,619	95,397	98,259	101,207	104,243
	Retail Rents (1)	30%			-	52,896	52,896	54,483	56,117	57,801	59,535	61,321	63,161
	Land Sale	9%					-						
	Total				84,759	192,375	252,921	260,509	268,324	276,374	284,665	293,205	302,001
Net Operating Income					197,772	448,876	590,149	607,854	626,090	644,872	664,218	684,145	704,669
				Totals	0	1	2	3	4	5	6	7	8
Capital Expenses													
Land Acquisition													
Site Demolition													
Construction Costs ($ per SF)													
	Condo	150		-									
	Apartments	110		2,640,000	1,320,000	1,320,000							
	Office	125		-		-	-						
	Retail	125		2,000,000	2,000,000								
	Demolition	5		60,000	60,000								
Total				4,700,000	3,380,000	1,320,000	-	-	-				
Contingency		16%		752,000	540,800	211,200	-	-	-	-	-	-	-
				5,452,000	3,920,800	1,531,200	-	-	-	-	-	-	-
Soft Costs		23%		1,253,960	901,784	352,176	-	-	-	-	-	-	-
Total				6,705,960	4,822,584	1,883,376	-	-	-	-	-	-	-
Subsidies													
				Totals	0	1	2	3	4	5	6	7	8
Financing													
	Equity	20%		1,341,192	964,517	376,675	-	-	-	-	-	-	-
	Debt	80%		5,364,768	3,858,067	1,506,701	-	-	-	-	-	-	-
	Cum Debt				3,858,067	5,364,768	5,364,768	5,364,768	5,364,768	5,364,768	5,364,768	5,364,768	5,364,768
	Interest Only	6%			231,484	321,886	321,886	321,886	321,886	321,886	321,886	321,886	321,886
	NOI (Line 39)				197,772	448,876	590,149	607,854	626,090	644,872	664,218	684,145	704,669
Sale in Year 8 @ 7% Cap Rate													10,066,705
Cash Flow					(998,229)	(249,686)	268,263	285,968	304,204	322,986	342,332	362,259	5,467,503
	NVP	$3,116,234											
	IRR	32%											

Windsor Center TOD (7-13-13)

Arthur's Plaza

Alternative B-2: Build pharmacy with 2 stories of condominiums over; leave other building

Assumptions Tear down building 1. Keep Building 2 as one-story retail. Build new 3-story building against berm. Build pharmacy on 1st floor, condo for sale on 2nd and 3rd floor

Parking Cost ($)	0
Land Sale ($)	0
Subsidy will be provided on Year 3	
All Residential Units Are for Sale, No Rent	
Residential SF/Unit:	1,200
NSF/GSF	80%

Resident Parking Ratio (#/Unit):	1.5
Retail Parking Ratio (#/NSF):	2 1/1000
Office Parking Ratio (#/NSF):	2 1/1000

Project Summary

Parcel	Building	Building Stories	Building Footprint Area	Total Area GSF (Proposed)	Res. Units	Res. GSF	Res. NSF (1200 sf/ unit)	Retail GSF	Retail NSF	Office GSF	Office NSF	Total GSF (Calculated)	Total NSF	Resident Parking Need (1.5/unit)	Retail Parking Need (2/1000 sf)	Office Parking Need (2/1000 sf)	Total Parking Need	Total Surface Parking Provided	Total Structure Parking Provided	Parking Provided	Total SF of Demolition
East of Prospect	2 (Existing)	1	25,638	25,638	-	-	-	25,638	20,510	-	-	25,638	20,510	-	41	-	41			110	
Street	1	3	16,000	48,000	16	24,000	19,200	16,000	12,800	-	-	40,000	32,000	24	26	-	50				
Total				73,638	16	24,000	19,200	41,638	33,310	-	-	65,638	52,510	24	67	-	91	-	-	110	12,000

Pro Forma Analysis

	Year		Totals	0	1	2	3	4	5	6	7	8	
	Income Rates per SF, 3% Annual Inflation												
	Condo Sales				181	181							Estimated from Zillow.com
	Apt. Rents				20.00	20.60	21.22	21.85	22.51	23.19	23.88	24.60	Estimated from Zillow.com and www.apartmentguide.com
	Office Rents				16.00	16.48	16.97	17.48	18.01	18.55	19.10	19.68	Estimated from loopnet.com
	Retail Rents (Building 2)			14.50	14.94	15.38	15.84	16.32	16.81	17.31	17.83	18.37	Estimated from loopnet.com
	Retail Rents (Building 1)			14.50	14.50	14.94	15.38	15.84	16.32	16.81	17.31	17.83	Estimated from loopnet.com
	Land Sale												
	SF Rented, 50% occupancy 1st year, 5% Vacancy rate												
		Gross	Net Rentable										
	Condo Sales	24,000	19,200		9,600	9,600							
	Apt. Rents	-	-		-	-	-	-	-	-	-	-	
	Office Rents	-	-		-	-	-	-	-	-	-	-	
	Retail Rents (2)	25,638	20,510	19,485	19,485	19,485	19,485	19,485	19,485	19,485	19,485	19,485	
	Retail Rents (1)	16,000	12,800	-	12,160	12,160	12,160	12,160	12,160	12,160	12,160	12,160	
	Basement/St	-	-		-	-	-	-	-	-	-	-	
	Subtotal	65,638	52,510										
	Land Sale (AL)	-	-			-							
	Total	65,638	52,510										
	Gross Income												
	Condo Sales				1,733,550	1,733,550	-	-	-				
	Apt. Rents				-	-	-	-	-	-	-	-	
	Office Rents				-	-	-	-	-	-	-	-	
	Retail Rents (2)			282,531	291,007	299,737	308,729	317,991	327,531	337,357	347,477	357,902	
	Retail Rents (1)			-	176,320	176,320	181,610	187,058	192,670	198,450	204,403	210,535	
	Land Sale					-							
	Total			282,531	2,200,877	2,209,607	490,339	505,049	520,200	535,806	551,880	568,437	

29				Totals	0	1	2	3	4	5	6	7	8
30	**Operating Expenses**												
31		Condo Sales	5%			86,678	86,678	-	-	-	-	-	-
32		Apt. Rents	30%		-	-	-	-	-	-	-	-	-
33		Office Rents	30%		-	-	-	-	-	-	-	-	-
34		Retail Rents (2)	30%		84,759	87,302	89,921	92,619	95,397	98,259	101,207	104,243	107,370
35		Retail Rents (1)	30%		-	52,896	52,896	54,483	56,117	57,801	59,535	61,321	63,161
36		Land Sale	9%				-						
37		Total			84,759	226,876	229,495	147,102	151,515	156,060	160,742	165,564	170,531
38													
39	**Net Operating Income**				197,772	1,974,001	1,980,112	343,237	353,534	364,140	375,064	386,316	397,906
40													
41				Totals	0	1	2	3	4	5	6	7	8
42	**Capital Expenses**												
43	Land Acquisition												
44	Site Demolition												
45	Construction Costs ($ per SF)												
46		Condo	150	3,600,000	1,800,000	1,800,000							
47		Apartments	110	-	-	-	-						
48		Office	125	-		-	-						
49		Retail	125	2,000,000	2,000,000								
50		Demolition	5	60,000	60,000								
51	Total			5,660,000	3,860,000	1,800,000	-	-	-				
52	Contingency		16%	905,600	617,600	288,000	-	-	-	-	-	-	-
53				6,565,600	4,477,600	2,088,000	-	-	-	-	-	-	-
54	Soft Costs		23%	1,510,088	1,029,848	480,240	-	-	-	-	-	-	-
55	Total			8,075,688	5,507,448	2,568,240	-	-	-	-	-	-	-
56													
57	**Subsidies**												
58													
59				Totals	0	1	2	3	4	5	6	7	8
60	**Financing**												
61		Equity	20%	1,615,138	1,101,490	513,648	-	-	-	-	-	-	-
62		Debt	80%	6,460,550	4,405,958	2,054,592	-	-	-	-	-	-	-
63		Debt Reduction (from Condo Sales)				(2,054,592)	(2,054,592)						
64		Cum Debt			4,405,958	6,460,550	4,405,958	2,351,366	2,351,366	2,351,366	2,351,366	2,351,366	2,351,366
65		Interest Only	6%		264,358	387,633	264,358	141,082	141,082	141,082	141,082	141,082	141,082
67		NOI (Line 39)			197,772	1,974,001	1,980,112	343,237	353,534	364,140	375,064	386,316	397,906
68	**Sale in Year 8 @ 7% Cap Rate**												5,684,368
72	**Cash Flow**				(1,168,076)	1,072,720	(338,837)	202,155	212,452	223,058	233,982	245,234	3,846,649
73		**NVP**	$2,403,799										
74		**IRR**	37%										

Windsor Center TOD (7-13-13)

Arthur's Plaza

Alternative C: Build pharmacy; build out residential on rest of parcel

Assumptions

Parking Cost ($)	0
Land Sale ($)	0
Subsidy will be provided on Year 3	
All Residential Units Are for Rent, No Sale.	
Residential SF/Unit:	1,200
NSF/GSF	80%

Resident Parking Ratio (#/Unit):	1.5
Retail Parking Ratio (#/NSF):	2 1/1000
Office Parking Ratio (#/NSF):	2 1/1000

Project Summary

Parcel	Building	Building Stories	Building Footprint Area	Total Area GSF (Proposed)	Res. Units	Res. GSF	Res. NSF (1200 sf/ unit)	Retail GSF	Retail NSF	Office GSF	Office NSF	Total GSF (Calculated)	Total NSF	Resident Parking Need (1.5/unit)	Retail Parking Need (2/1000 sf)	Office Parking Need (2/1000 sf)	Total Parking Need	Total Surface Parking Provided	Total Structure Parking Provided	Parking Provided	Total SF of Demoliti on
East of	1	3	11,022	33,066	22	33,000	26,400	-	-	-	-	33,000	26,400	33	-	-	33			140	
Prospect	2	3	12,832	38,496	26	39,000	31,200	-	-	-	-	39,000	31,200	39	-	-	39				
Street	3	2	25,487	50,974	-	-	-	25,487	20,390	25,487	20,390	50,974	40,779	-	41	41	82			-	
West of	4	2	14,191	28,382	-	-	-	14,191	11,353	14,191	11,353	28,382	22,706	-	23	23	45			70	
Prospect	5	2	7,262	14,524	10	15,000	12,000	-	-	-	-	15,000	12,000	15	-	-	15			-	
Total				165,442	58	87,000	69,600	39,678	31,742	39,678	31,742	166,356	133,085	87	63	63	214	-	-	210	72,111

Pro Forma Analysis

1	Year		**Totals**	0	1	2	3	4	5	6	7	8
2	Income Rates per SF, 3% Annual Inflation											
3		Condo Sales			0	0	0	0	0	0	0	0
4		Apt. Rents			20.00	20.60	21.22	21.85	22.51	23.19	23.88	24.60
5		Office Rents			16.00	16.48	16.97	17.48	18.01	18.55	19.10	19.68
6		Retail Rents			14.50	14.94	15.38	15.84	16.32	16.81	17.31	17.83
7		Land Sale				7.20						
8	SF Rented, 50% occupancy 1st year, 5% Vacancy rate											
9			Gross	Net Rentable								
10		Condo Sales	-	-								
11		Apt. Rents	87,000	69,600	33,060	66,120	66,120	66,120	66,120	66,120	66,120	66,120
12		Office Rents	39,678	31,742	15,078	30,155	30,155	30,155	30,155	30,155	30,155	30,155
13		Retail Rents	39,678	31,742	15,078	30,155	30,155	30,155	30,155	30,155	30,155	30,155
14		Basement/St	-	-	-	-	-	-	-	-	-	-
15		Subtotal	166,356	133,085								
16		Land Sale (AL)	-	-								
17		Total	166,356	133,085								
18	**Gross Income**											
19		Condo Sales					-	-	-			
20		Apt. Rents			661,200	1,362,072	1,402,934	1,445,022	1,488,373	1,533,024	1,579,015	1,626,385
21		Office Rents			241,242	482,484	496,959	511,868	527,224	543,041	559,332	576,112
22		Retail Rents			218,626	437,252	450,369	463,880	477,797	492,130	506,894	522,101
23		Land Sale					-					
24		Total			1,121,068	2,281,808	2,350,262	2,420,770	2,493,393	2,568,195	2,645,241	2,724,598
25												

Estimated from Zillow.com and www.apartmentguide.com
Estimated from loopnet.com
Estimated from loopnet.com

				Totals	0	1	2	3	4	5	6	7	8
27	**Operating Expenses**												
28		Condo Sales	5%					-	-	-			
29		Apt. Rents	30%			198,360	408,622	420,880	433,507	446,512	459,907	473,704	487,916
30		Office Rents	30%			72,373	144,745	149,088	153,560	158,167	162,912	167,800	172,834
31		Retail Rents	30%			65,588	131,175	135,111	139,164	143,339	147,639	152,068	156,630
32		Land Sale	9%				-						
33		Total				336,320	684,542	705,079	726,231	748,018	770,459	793,572	817,379
34													
35	**Net Operating Income**				-	784,748	1,597,266	1,645,184	1,694,539	1,745,375	1,797,737	1,851,669	1,907,219
36													
37				**Totals**	0	1	2	3	4	5	6	7	8
38	**Capital Expenses**												
39	Land Acquisition												
40	Site Demolition												
41	Construction Costs ($ per SF)												
42		Condo	150	-			-	-	-				
43		Apartments	110	9,570,000	4,785,000	4,785,000							
44		Office	125	4,959,750		2,479,875	2,479,875						
45		Retail	125	4,959,750	4,959,750								
46		Demolition	5	360,555	360,555								
47	Total			19,850,055	10,105,305	7,264,875	2,479,875	-	-				
48	Contingency		16%	3,176,009	1,616,849	1,162,380	396,780	-	-	-	-	-	-
49				23,026,064	11,722,154	8,427,255	2,876,655	-	-	-	-	-	-
50	Soft Costs		23%	5,295,995	2,696,095	1,938,269	661,631	-	-	-	-	-	-
51	Total			28,322,058	14,418,249	10,365,524	3,538,286	-	-	-	-	-	-
52													
53	**Subsidies**							6,000,000					
54													
55				Totals	0	1	2	3	4	5	6	7	8
56	**Financing**												
57		Equity	20%	5,664,412	2,883,650	2,073,105	707,657	-	-	-	-	-	-
58		Debt	80%	22,657,647	11,534,599	8,292,419	2,830,629	-	-	-	-	-	-
59		Cum Debt			11,534,599	19,827,018	22,657,647	22,657,647	22,657,647	22,657,647	22,657,647	22,657,647	22,657,647
60		Interest Only	6%		692,076	1,189,621	1,359,459	1,359,459	1,359,459	1,359,459	1,359,459	1,359,459	1,359,459
62		NOI (Line 35)			-	784,748	1,597,266	1,645,184	1,694,539	1,745,375	1,797,737	1,851,669	1,907,219
63	**Sale in Year 8 @ 7% Cap Rate**												27,245,981
67	**Cash Flow**				(3,575,726)	(2,477,978)	(469,850)	6,285,725	335,080	385,916	438,278	492,210	5,683,854
68		**NVP**	$3,052,758										
69		**IRR**	18%										

Windsor Center TOD (7-13-13)
Arthur's Plaza
Alternative D: Full Build-out
Assumptions

Parking Cost ($)	0
Land Sale ($)	0
Subsidy will be provided on Year 3	
All Residential Units Are for Rent, No Sale.	
Residential SF/Unit:	1,200
NSF/GSF	80%

Resident Parking Ratio (#/Unit):	1.5
Retail Parking Ratio (#/NSF):	2 1/1000
Office Parking Ratio (#/NSF):	2 1/1000

Project Summary

Parcel	Building	Building Stories	Building Footprint Area	Total Area GSF (Proposed)	Res. Units	Res. GSF	Res. NSF (1200 sf/ unit)	Retail GSF	Retail NSF	Office GSF	Office NSF	Total GSF (Calculated)	Total NSF	Resident Parking Need (1.5/unit)	Retail Parking Need (2/1000 sf)	Office Parking Need (2/1000 sf)	Total Parking Need	Total Surface Parking Provided	Total Structure Parking Provided	Parking Provided	Total SF of Demoliti on
East of Prospect Street	1	3	8,886	26,658	15	22,500	18,000	-	-	-	-	22,500	18,000	23	-	-	23			15	
	2	3	7,788	23,364	16	24,000	19,200	-	-	-	-	24,000	19,200	24	-	-	24			127	
	3	3	12,715	38,145	17	25,500	20,400	12,715	10,172			38,215	30,572	26	20	-	46				
	4	3	11,854	35,562	16	24,000	19,200	11,854	9,483			35,854	28,683	24	19	-	43				
West of Prospect	5	3	14,341	43,023	19	28,500	22,800	14,341	11,473	-	-	42,841	34,273	29	23	-	51			118	
	6	3	14,611	43,833	29	43,500	34,800	-	-	-	-	43,500	34,800	44	-	-	44			-	
Total				210,585	112	168,000	134,400	38,910	31,128	-	-	206,910	165,528	168	62	-	230	-	-	260	72,111

Pro Forma Analysis

1	Year	Totals	0	1	2	3	4	5	6	7	8	
2	Income Rates per SF, 3% Annual Inflation											
3	Condo Sales			0	0	0	0	0	0	0	0	
4	Apt. Rents			20.00	20.60	21.22	21.85	22.51	23.19	23.88	24.60	Estimated from Zillow.com and www.apartmentguide.com
5	Office Rents			16.00	16.48	16.97	17.48	18.01	18.55	19.10	19.68	Estimated from loopnet.com
6	Retail Rents			14.50	14.94	15.38	15.84	16.32	16.81	17.31	17.83	Estimated from loopnet.com
7	Land Sale				7.20							
8	SF Rented, 50% occupancy 1st year, 5% Vacancy rate											
9		Gross	Net Rentable									
10	Condo Sales	-	-			-	-	-				
11	Apt. Rents	168,000	134,400	63,840	127,680	127,680	127,680	127,680	127,680	127,680	127,680	
12	Office Rents	-	-	-	-	-	-	-	-	-	-	
13	Retail Rents	38,910	31,128	14,786	29,572	29,572	29,572	29,572	29,572	29,572	29,572	
14	Basement/St	-	-	-	-	-	-	-	-	-	-	
15	Subtotal	206,910	165,528									
16	Land Sale (AL)	-	-		-							
17	Total	206,910	165,528									
18	**Gross Income**											
19	Condo Sales					-	-	-				
20	Apt. Rents			1,276,800	2,630,208	2,709,114	2,790,388	2,874,099	2,960,322	3,049,132	3,140,606	
21	Office Rents			-	-	-	-	-	-	-	-	
22	Retail Rents			214,394	428,788	441,652	454,901	468,548	482,605	497,083	511,996	
23	Land Sale				-							
24	Total			1,491,194	3,058,996	3,150,766	3,245,289	3,342,648	3,442,927	3,546,215	3,652,601	
25												

				Totals	0	1	2	3	4	5	6	7	8
26													
27	**Operating Expenses**												
28		Condo Sales	5%					-	-	-			
29		Apt. Rents	30%			383,040	789,062	812,734	837,116	862,230	888,097	914,740	942,182
30		Office Rents	30%			-	-	-	-	-	-	-	-
31		Retail Rents	30%			64,318	128,636	132,496	136,470	140,565	144,781	149,125	153,599
32		Land Sale	9%			-							
33		Total				447,358	917,699	945,230	973,587	1,002,794	1,032,878	1,063,864	1,095,780
34													
35	**Net Operating Income**				-	1,043,836	2,141,297	2,205,536	2,271,702	2,339,853	2,410,049	2,482,350	2,556,821
36													
37				**Totals**	0	1	2	3	4	5	6	7	8
38	**Capital Expenses**												
39	Land Acquisition												
40	Site Demolition												
41	Construction Costs ($ per SF)												
42		Condo	150	-									
43		Apartments	110	18,480,000	9,240,000	9,240,000							
44		Office	125	-		-							
45		Retail	125	4,863,750	4,863,750								
46		Demolition	5	360,555	360,555								
47	Total			23,704,305	14,464,305	9,240,000	-	-	-				
48	Contingency		16%	3,792,689	2,314,289	1,478,400	-	-	-	-	-	-	-
49				27,496,994	16,778,594	10,718,400	-	-	-	-	-	-	-
50	Soft Costs		23%	6,324,309	3,859,077	2,465,232	-	-	-	-	-	-	-
51	Total			33,821,302	20,637,670	13,183,632	-	-	-	-	-	-	-
52													
53	**Subsidies**							6,000,000					
54													
55				**Totals**	0	1	2	3	4	5	6	7	8
56	**Financing**												
57		Equity	20%	6,764,260	4,127,534	2,636,726	-	-	-	-	-	-	-
58		Debt	80%	27,057,042	16,510,136	10,546,906	-	-	-	-	-	-	-
59		Cum Debt			16,510,136	27,057,042	27,057,042	27,057,042	27,057,042	27,057,042	27,057,042	27,057,042	27,057,042
60		Interest Only	6%		990,608	1,623,423	1,623,423	1,623,423	1,623,423	1,623,423	1,623,423	1,623,423	1,623,423
62		NOI (Line 35)			-	1,043,836	2,141,297	2,205,536	2,271,702	2,339,853	2,410,049	2,482,350	2,556,821
63	**Sale in Year 8 @ 7% Cap Rate**												36,526,014
67	**Cash Flow**				(5,118,142)	(3,216,313)	517,875	6,582,114	648,280	716,431	786,627	858,928	11,335,769
68		**NVP**	$5,946,926										
69		**IRR**	20%										

Windsor Center TOD (5-30-13)
Central Street Block
Alternative 1 Village with Existing (NEW)
Assumptions

Parking Cost ($)	0
Land Sale ($)	0
Subsidy will be provided on Year 3	
All Residential Units Are for Rent, No Sale.	
Residential SF/Unit:	1,200
NSF/GSF	80%

Resident Parking Ratio (#/Unit):	1.5
Retail Parking Ratio (#/NSF):	2 1/1000
Office Parking Ratio (#/NSF):	2 1/1000

Project Summary O:_TR ADVISORS FILES\PROJECT FILES\Windsor TOD Feasibility-2012\Market Study\Pro-Formas

Parcel	Building	Building Stories	Building Footprint Area	Total Area GSF (Proposed)	Res. Units	Res. GSF	Res. NSF (1200 sf/ unit)	Retail GSF	Retail NSF	Office GSF	Office NSF	Total GSF (Calculated)	Total NSF	Resident Parking Need (1.5/unit)	Retail Parking Need (2/1000 sf)	Office Parking Need (2/1000 sf)	Total Parking Need	Total Surface Parking Provided	Total Structure Parking Provided	Parking Provided	Total SF of Demolition
North of Union Street	1 (Existing)	2	5,734	11,468	-	-	-	5,734	4,587	5,734	4,587	11,468	9,174	-	9	9	18			46	
South of Union Street	2 (Existing)	2	2,905	5,810	-	-	-	-	-	5,810	4,648	5,810	4,648	-	-	9	9			121	
	3 (Existing)	2	1,275	2,550	-					2,550	2,040	2,550	2,040	-	-	4	4				
	4 (Existing)	2	4,583	9,166	-					9,166	7,333	9,166	7,333	-	-	15	15				
	5 (Existing)	2	2,886	5,772	-					5,772	4,618	5,772	4,618	-	-	9	9				
	6 (Existing)	2	2,742	5,484	-	-	-	-	-	5,484	4,387	5,484	4,387	-	-	9	9			-	
	6 Addition	2	3,582	7,164				3,582	2,866	3,582	2,866	7,164	5,731	-	6	6	11				
	7 (Existing)	3	2,930	8,790				2,930	2,344	5,860	4,688	8,790	7,032	-	5	9	14				
	7 Addition	3	2,153	6,459	-	-	-	2,153	1,722	4,306	3,445	6,459	5,167	-	3	7	10			-	
	8 (Existing)	2	5,817	11,634	-	-	-	5,817	4,654	5,817	4,654	11,634	9,307	-	9	9	19			-	
	9 (Existing)	2	3,922	7,844	-	-	-	3,922	3,138	3,922	3,138	7,844	6,275	-	6	6	13			-	
Total				82,141	-	-	-	24,138	19,310	58,003	46,402	82,141	65,713	-	39	93	131	-	-	167	1,361

Pro Forma Analysis

1	Year		Totals	0	1	2	3	4	5	6	7	8
2	Income Rates per SF, 3% Annual Inflation											
3	Condo Sales				0	0	0	0	0	0	0	0
4	Apt. Rents			20.00	20.60	21.22	21.85	22.51	23.19	23.88	24.60	25.34
5	Office Rents			16.00	16.48	16.97	17.48	18.01	18.55	19.10	19.68	20.27
6	Retail Rents			14.50	14.94	15.38	15.84	16.32	16.81	17.31	17.83	18.37
7	Land Sale											
8	SF Rented, 50% occupancy 1st year, 5% Vacancy rate											
9		Gross	Net Rentable									
10	Condo Sales	-	-				-	-	-			
11	Apt. Rents	-	-	-	-	-	-	-	-	-	-	-
12	Office Rents	58,003	46,402	38,087	44,082	44,082	44,082	44,082	44,082	44,082	44,082	44,082
13	Retail Rents	24,138	19,310	13,986	18,345	18,345	18,345	18,345	18,345	18,345	18,345	18,345
14	Basement/St	-	-	-	-	-	-	-	-	-	-	-
15	Subtotal	82,141	65,713									
16	Land Sale (AL)	-	-			-						
17	Total	82,141	65,713									
18	**Gross Income**											
19	Condo Sales						-	-	-			
20	Apt. Rents			-	-	-	-	-	-	-	-	-
21	Office Rents			609,398	726,476	726,476	748,270	770,718	793,840	817,655	842,185	867,450
22	Retail Rents			202,801	273,981	273,981	282,200	290,666	299,386	308,368	317,619	327,147
23	Land Sale					-						
24	Total			812,199	1,000,457	1,000,457	1,030,470	1,061,385	1,093,226	1,126,023	1,159,804	1,194,598
25												

Estimated from Zillow.com and www.apartmentguide.com
Estimated from loopnet.com
Estimated from loopnet.com

				Totals	0	1	2	3	4	5	6	7	8
Operating Expenses													
	Condo Sales	5%											
	Apt. Rents	30%			-	-	-	-	-	-	-	-	-
	Office Rents	30%			182,820	217,943	217,943	224,481	231,216	238,152	245,297	252,655	260,235
	Retail Rents	30%			60,840	82,194	82,194	84,660	87,200	89,816	92,510	95,286	98,144
	Land Sale	9%					-						
	Total				243,660	300,137	300,137	309,141	318,415	327,968	337,807	347,941	358,379
Net Operating Income					568,540	700,320	700,320	721,329	742,969	765,258	788,216	811,863	836,218
				Totals	0	1	2	3	4	5	6	7	8
Capital Expenses													
Land Acquisition													
Site Demolition													
Construction Costs ($ per SF)													
	Condo	150	-										
	Apartments	110	-	-	-								
	Office	125	986,000	493,000	493,000								
	Retail	125	716,875	716,875									
	Demolition	5	6,805	6,805									
Total			1,709,680	1,216,680	493,000	-	-	-					
Contingency		16%	273,549	194,669	78,880	-	-	-	-	-	-	-	-
			1,983,229	1,411,349	571,880	-	-	-	-	-	-	-	-
Soft Costs		23%	456,143	324,610	131,532	-	-	-	-	-	-	-	-
Total			2,439,371	1,735,959	703,412	-	-	-	-	-	-	-	-
Subsidies													
				Totals	0	1	2	3	4	5	6	7	8
Financing													
	Equity	20%	487,874	347,192	140,682	-	-	-	-	-	-	-	-
	Debt	80%	1,951,497	1,388,767	562,730	-	-	-	-	-	-	-	-
	Cum Debt			1,388,767	1,951,497	1,951,497	1,951,497	1,951,497	1,951,497	1,951,497	1,951,497	1,951,497	1,951,497
	Interest Only	6%		83,326	117,090	117,090	117,090	117,090	117,090	117,090	117,090	117,090	117,090
	NOI (Line 35)			568,540	700,320	700,320	721,329	742,969	765,258	788,216	811,863	836,218	
Sale in Year 8 @ 7% Cap Rate													11,945,977
Cash Flow					138,022	442,547	583,230	604,239	625,879	648,168	671,126	694,773	11,432,737
	NVP	$9,371,696											
	IRR	#NUM!											

Windsor Center TOD (5-30-13)
Central Street Block
Alternative 2 Hybrid Approach
Assumptions

Parking Cost ($)	0
Land Sale ($)	0
Subsidy will be provided on Year 3	
All Residential Units Are for Rent, No Sale.	
Residential SF/Unit:	1,200
NSF/GSF	80%

Resident Parking Ratio (#/Unit):	1.5
Retail Parking Ratio (#/NSF):	2 1/1000
Office Parking Ratio (#/NSF):	2 1/1000

Project Summary

Parcel	Building	Building Stories	Building Footprint Area	Total Area GSF	Res. Units	Res. GSF	Res. NSF (1200 sf/ unit)	Retail GSF	Retail NSF	Office GSF	Office NSF	Total GSF	Total NSF	Resident Parking Need (1.5/unit)	Retail Parking Need (2/1000 sf)	Office Parking Need (2/1000 sf)	Total Parking Need	Total Surface Parking Provided	Total Structure Parking Provided	Parking Provided	Total SF of Demolition
North of Union Street	1 (Existing)	2	5,734	11,468	-	-	-	5,734	4,587	5,734	4,587	11,468	9,174	-	9	9	18			46	
South of Union Street	2 (Existing)	1	2,905	2,905	-	-	-	2,905	2,324.00	-	-	2,905	2,324	-	5	-	5			113	
	3	3	5,686	17,058	8	12,000	9,600	5,686	4,549	-	-	17,686	14,149	12	9	-	21			-	
	4 (Existing)	3	2,974	8,922	-	-	-	2,974	2,379	5,948	4,758	8,922	7,138	-	5	10	14			-	
	5 (Existing)	2	2,886	5,772	-	-	-	2,886	2,309	2,886	2,309	5,772	4,618	-	5	5	9			-	
	6	3	14,290	42,870	-	-	-	14,290	11,432	28,580	22,864	42,870	34,296	-	23	46	69				
	7	3	6,075	18,225	8	12,000	9,600	6,075	4,860	-	-	18,075	14,460	12	10	-	22				
	8 (Existing)	1	3,922	3,922	-	-	-	3,922	3,138	-	-	3,922	3,138	-	6	-	6			-	
Total				107,220	16	24,000	19,200	44,472	35,578	43,148	34,518	111,620	89,296	24	71	69	164	-	-	159	28,617

Pro Forma Analysis

1	Year	Totals	0	1	2	3	4	5	6	7	8	
2	Income Rates per SF, 3% Annual Inflation											
3	Condo Sales			0	0	0	0	0	0	0	0	
4	Apt. Rents			20.00	20.60	21.22	21.85	22.51	23.19	23.88	24.60	Estimated from Zillow.com and www.apartmentguide.com
5	Office Rents		16.00	16.48	16.97	17.48	18.01	18.55	19.10	19.68	20.27	Estimated from loopnet.com
6	Retail Rents		14.50	14.94	15.38	15.84	16.32	16.81	17.31	17.83	18.37	Estimated from loopnet.com
7	Land Sale											
8	SF Rented, 50% occupancy 1st year, 5% Vacancy rate											
9		Gross	Net Rentable									
10	Condo Sales	-	-			-	-	-				
11	Apt. Rents	24,000	19,200		9,120	18,240	18,240	18,240	18,240	18,240	18,240	18,240
12	Office Rents	43,148	34,518	11,072	21,932	32,792	32,792	32,792	32,792	32,792	32,792	32,792
13	Retail Rents	44,472	35,578	19,799	23,899	33,799	33,799	33,799	33,799	33,799	33,799	33,799
14	Basement/St	-	-		-	-	-	-	-	-	-	-
15	Subtotal	111,620	89,296									
16	Land Sale (AL)	-	-			-						
17	Total	111,620	89,296									
18	**Gross Income**											
19	Condo Sales						-	-	-			
20	Apt. Rents			-	182,400	375,744	387,016	398,627	410,586	422,903	435,590	448,658
21	Office Rents			177,147	361,441	540,420	556,633	573,332	590,532	608,248	626,495	645,290
22	Retail Rents			287,082	356,937	504,784	519,927	535,525	551,591	568,139	585,183	602,738
23	Land Sale					-						
24	Total			464,229	900,777	1,420,948	1,463,576	1,507,484	1,552,708	1,599,289	1,647,268	1,696,686
25												

				Totals	0	1	2	3	4	5	6	7	8
Operating Expenses													
	Condo Sales	5%						-	-	-			
	Apt. Rents	30%			-	54,720	112,723	116,105	119,588	123,176	126,871	130,677	134,597
	Office Rents	30%			53,144	108,432	162,126	166,990	171,999	177,159	182,474	187,948	193,587
	Retail Rents	30%			86,125	107,081	151,435	155,978	160,658	165,477	170,442	175,555	180,822
	Land Sale	9%					-						
	Total				139,269	270,233	426,284	439,073	452,245	465,812	479,787	494,180	509,006
Net Operating Income					324,960	630,544	994,664	1,024,503	1,055,239	1,086,896	1,119,503	1,153,088	1,187,680
				Totals	0	1	2	3	4	5	6	7	8
Capital Expenses													
Land Acquisition													
Site Demolition													
Construction Costs ($ per SF)													
	Condo	150		-			-	-	-				
	Apartments	110		2,640,000	1,320,000	1,320,000							
	Office	125		3,572,500	1,786,250	1,786,250							
	Retail	125		3,256,375	3,256,375								
	Demolition	5		143,085	143,085								
Total				9,611,960	6,505,710	3,106,250	-	-	-				
Contingency		16%		1,537,914	1,040,914	497,000	-	-	-	-	-	-	-
				11,149,874	7,546,624	3,603,250	-	-	-	-	-	-	-
Soft Costs		23%		2,564,471	1,735,723	828,748	-	-	-	-	-	-	-
Total				13,714,345	9,282,347	4,431,998	-	-	-	-	-	-	-
Subsidies													
				Totals	0	1	2	3	4	5	6	7	8
Financing													
	Equity	20%		2,742,869	1,856,469	886,400	-	-	-	-	-	-	-
	Debt	80%		10,971,476	7,425,878	3,545,598	-	-	-	-	-	-	-
	Cum Debt				7,425,878	10,971,476	10,971,476	10,971,476	10,971,476	10,971,476	10,971,476	10,971,476	10,971,476
	Interest Only	6%			445,553	658,289	658,289	658,289	658,289	658,289	658,289	658,289	658,289
	NOI (Line 35)				324,960	630,544	994,664	1,024,503	1,055,239	1,086,896	1,119,503	1,153,088	1,187,680
Sale in Year 8 @ 7% Cap Rate													16,966,862
Cash Flow					(1,977,062)	(914,144)	336,375	366,215	396,950	428,607	461,214	494,799	7,054,170
	NVP	$2,888,614											
	IRR	20%											

Windsor Center TOD (5-30-13)
Central Street Block
Alternative 3 Full Build-out
Assumptions

Parking Cost ($) 0
Land Sale ($) 0
Subsidy will be provided on Year 3
All Residential Units Are for Rent, No Sale.
Residential SF/Unit: 1,200
NSF/GSF 80%

Resident Parking Ratio (#/Unit): 1.5
Retail Parking Ratio (#/NSF): 2 1/1000
Office Parking Ratio (#/NSF): 2 1/1000

Project Summary

Parcel	Building	Building Stories	Building Footprint Area	Total Area GSF	Res. Units	Res. GSF	Res. NSF (1200 sf/ unit)	Retail GSF	Retail NSF	Office GSF	Office NSF	Total GSF	Total NSF	Resident Parking Need (1.5/unit)	Retail Parking Need (2/1000 sf)	Office Parking Need (2/1000 sf)	Total Parking Need	Total Surface Parking Provided	Total Structure Parking Provided	Parking Provided	Total SF of Demolition
North of Union Street	1	3	10,500	31,500	21	31,500	25,200	-	-	-	-	31,500	25,200	32	-	-	32				
	2	3	13,517	40,551	18	27,000	21,600	13,517	10,814			40,517	32,414								
South of Union Street	3	3	9,577	28,731	13	19,500	15,600	9,577	7,662	-	-	29,077	23,262	20	15	-	35			178	
	4	3	14,611	43,833	19	28,500	22,800	14,611	11,689	-	-	43,111	34,489	29	23	-	52			-	
	5 (Existing)	1	3,922	3,922	-	-	-	3,922	3,138	-	-	3,922	3,138	-	6	-	6			-	
Total				148,537	71	106,500	85,200	41,627	33,302	-	-	148,127	118,502	80	45	-	124	-	-	178	57,504

Pro Forma Analysis

1	Year		**Totals**	0	1	2	3	4	5	6	7	8	
2	Income Rates per SF, 3% Annual Inflation												
3	Condo Sales				0	0	0	0	0	0	0	0	
4	Apt. Rents				20.00	20.60	21.22	21.85	22.51	23.19	23.88	24.60	Estimated from Zillow.com and www.apartmentguide.com
5	Office Rents				16.00	16.48	16.97	17.48	18.01	18.55	19.10	19.68	Estimated from loopnet.com
6	Retail Rents			14.50	14.94	15.38	15.84	16.32	16.81	17.31	17.83	18.37	Estimated from loopnet.com
7	Land Sale												
8	SF Rented, 50% occupancy 1st year, 5% Vacancy rate												
9		Gross	Net Rentable										
10	Condo Sales	-	-				-	-	-				
11	Apt. Rents	106,500	85,200		40,470	80,940	80,940	80,940	80,940	80,940	80,940	80,940	
12	Office Rents	-	-		-	-	-	-	-	-	-	-	
13	Retail Rents	41,627	33,302	3,138	14,328	31,637	31,637	31,637	31,637	31,637	31,637	31,637	
14	Basement/St	-	-		-	-	-	-	-	-	-	-	
15	Subtotal	148,127	118,502										
16	Land Sale (AL)	-	-			-							
17	Total	148,127	118,502										
18	**Gross Income**												
19	Condo Sales						-	-	-				
20	Apt. Rents			-	809,400	1,667,364	1,717,385	1,768,906	1,821,974	1,876,633	1,932,932	1,990,920	
21	Office Rents			-	-	-	-	-	-	-	-	-	
22	Retail Rents			45,495	213,987	472,491	486,666	501,266	516,304	531,793	547,747	564,179	
23	Land Sale					-							
24	Total			45,495	1,023,387	2,139,855	2,204,051	2,270,173	2,338,278	2,408,426	2,480,679	2,555,099	
25													

				Totals	0	1	2	3	4	5	6	7	8
Operating Expenses													
	Condo Sales	5%						-	-	-			
	Apt. Rents	30%			-	242,820	500,209	515,215	530,672	546,592	562,990	579,880	597,276
	Office Rents	30%			-	-	-	-	-	-	-	-	-
	Retail Rents	30%			13,649	64,196	141,747	146,000	150,380	154,891	159,538	164,324	169,254
	Land Sale	9%					-						
	Total				13,649	307,016	641,957	661,215	681,052	701,483	722,528	744,204	766,530
Net Operating Income					31,847	716,371	1,497,899	1,542,836	1,589,121	1,636,794	1,685,898	1,736,475	1,788,570
				Totals	0	1	2	3	4	5	6	7	8
Capital Expenses													
Land Acquisition													
Site Demolition													
Construction Costs ($ per SF)													
	Condo	150		-									
	Apartments	110		11,715,000	5,857,500	5,857,500							
	Office	125		-	-	-	-						
	Retail	125		4,713,125	4,713,125								
	Demolition	5		287,520	287,520								
Total				16,715,645	10,858,145	5,857,500	-	-	-				
Contingency		16%		2,674,503	1,737,303	937,200	-	-	-	-	-	-	-
				19,390,148	12,595,448	6,794,700	-	-	-	-	-	-	-
Soft Costs		23%		4,459,734	2,896,953	1,562,781	-	-	-	-	-	-	-
Total				23,849,882	15,492,401	8,357,481	-	-	-	-	-	-	-
Subsidies													
				Totals	0	1	2	3	4	5	6	7	8
Financing													
	Equity	20%		4,769,976	3,098,480	1,671,496	-	-	-	-	-	-	-
	Debt	80%		19,079,906	12,393,921	6,685,985	-	-	-	-	-	-	-
	Cum Debt				12,393,921	19,079,906	19,079,906	19,079,906	19,079,906	19,079,906	19,079,906	19,079,906	19,079,906
	Interest Only	6%			743,635	1,144,794	1,144,794	1,144,794	1,144,794	1,144,794	1,144,794	1,144,794	1,144,794
	NOI (Line)				31,847	716,371	1,497,899	1,542,836	1,589,121	1,636,794	1,685,898	1,736,475	1,788,570
Sale in Year 8 @ 7% Cap Rate													25,550,993
Cash Flow					(3,810,269)	(2,099,920)	353,104	398,041	444,326	492,000	541,104	591,681	7,758,637
	NVP	$742,912											
	IRR	9%											

Appendix D: Tools and Resources

WINDSOR CENTER

TRANSIT-ORIENTED DEVELOPMENT
Master Plan and Redevelopment Strategy

CONTENTS

APPENDIX D: TOOLS AND RESOURCES

1 MARKETING

The Town, First Town Downtown and local businesses provide an excellent marketing resource for Windsor Center today. Additional marketing steps could take advantage of the expanding transit and the information assembled for this study to attract new businesses and patrons to the Center. Specific recommendations include the following:

- **OUTREACH PROGRAM FOR RESTAURANTS AND FOOD ESTABLISHMENTS** – A "matchmaking" initiative should be undertaken to actively identify potential restaurateurs or food-oriented establishments and pair them with potential landlords or developers for targeted properties.
- **REPAIR AND ADOPTION OF THE THEATER MARQUEE FOR PUBLIC ANNOUNCEMENTS** – The historic theater marquee at the Plaza Building should be refurbished with shared funding and an agreement among the property owners, stewardship organizations and the Town, and used to announce events in the Town Center, until a final tenant for the space is in place.
- **MARKETING OF THE THEATER SPACE FOR AN ENTERTAINMENT TENANT** – A concerted initiative should be undertaken to work with the property owner and pro-actively solicit, identify and secure a high quality tenant to use this unique space.
- **DEVELOPMENT INVENTORY** – A site-specific inventory of specific properties with redevelopment potential should be assembled with the cooperation of existing owner and be regularly updated as a communication tool for prospective buyers and investors in the future of the Town Center.

2 MUNICIPAL LAND AND FACILITIES

Innovative use of public land and facilities are integral aspects of the redevelopment and transit-oriented vision.

- **ALIGNING THE TOWN AND STATE APPROACHES TO THE STATION AREA DESIGN** – The Town needs to work closely with participating state agencies to approve the location and parking program for the station components and parking structure and advance the design process in concert, so that the final result optimizes transit-oriented development and economic benefits.
- **USE OF SURPLUS PUBLIC LAND TO SUPPORT DEVELOPMENT** – The current disposition of the former Town's park equipment garage and storage yard for multi-family housing is precisely the type of initiative that will help create value and vibrancy for the entire district. The Town should eventually repurpose the land adjacent to the new rail station for more Mechanic Street redevelopment. The Town should obtain excess land from the state at the intersection of Poquonock and Palisado Avenues, and then expand the potential for development on the adjacent site in keeping with the goals for the Center.

3 FUNDING AND FINANCING

This section includes potential sources of funding that may be available to implement the recommendations of the *TOD Master Plan*.

Special Assessment or Tax Increment "Mini-districts"

Working with property owners, the Town can organize special tax district mechanisms or tax increment financing that will channel a portion of future tax revenues to finance basic public parking, infrastructure or other improvements for target blocks or properties in concert with private sector redevelopment.

Tax increment financing is used when a developer proposes a project that will create new municipal property taxes after being built, but requires additional public infrastructure, such as a parking garage. In this case, the Town dedicates a percentage of the new taxes attributable to the development to a bond for financing the infrastructure improvements that will make that development possible. This mechanism defeats a "chicken-and-egg" problem that otherwise would hamper new developments by allowing the Town to pre-finance public infrastructure projects.

A Special Assessment District is another type of agreement for shared improvements for which property owners agree to pay additional tax. Within a Special Assessment District, the Town levies an additional charge against parcels that benefit from a public project. Historically, charges of this type have been levied against lands when drinking water or sewer lines are installed, and today has expanded to include all sorts of public infrastructure improvement.

While approaching these concepts, the Town may consider the Fire District, an existing municipal entity, which could be modified to achieve the financing goals.

Opportunities for Historic Tax Credit Financing

State or federal historic tax credit financing may be used to make some renovations feasible. The Town should sponsor a study of their potential in Windsor Center, and use advice or assistance that may be available through advocacy organizations such as the Connecticut Trust for Historic Preservation.

Façade and Signage Improvement Program

The Town can sponsor a program to provide low cost loans or grants to commercial properties for façade and signage improvements. This program would be most effective with participation by local banks and organizations.

Funding for Circulation Improvements

Advancing a project from its initial conceptual phase through actual implementation and construction is a challenging process. Many projects often fail to reach the implementation and construction phase due to a lack of available funds. In recent years, funding for a variety of different projects has become scarce, with many projects competing for a shrinking range of funds. In order to mitigate the potential for a lack of funds to impact a project's viability, it is important to identify an initial menu of potential funding programs and sources early in the project development process so that the chances for acquiring the needed funding are increased. The following are potential funding sources for improvements that will help make Windsor's TOD vision become a reality.

- **SMALL TOWN ECONOMIC ASSISTANCE PROGRAM (STEAP)** – This program, administered by the State of Connecticut's Office of Policy and Management (OPM), provides funding for projects that promote economic development, community conservation, and quality of life. These broad categories enable funding for a variety of projects in Connecticut's municipalities, including those related to transit-oriented development.
- **TOD BOND PROGRAM** – State of Connecticut – This program, also administered by the OPM, was created in 2007 to enable bond issuance for project-specific transit-oriented development capital expenses, to fund the planning of these projects, and to provide grants for transit-oriented development planning and policy implementation of between $250,000 and $1 million. However, the first round of funding was awarded in 2011, and no additional funding is available through this program at this time.
- **HOUSING INCENTIVE ZONE PROGRAM** – State of Connecticut – This is another program administered by OPM. The Housing Incentive Zone program provides grants for technical assistance and planning processes to determine locations for Incentive Housing Zones (IHZs). Higher density housing must be allowed in these zones, with 20% of the new units set aside as affordable to those households earning up to 80% of AMI. In addition, the program is structured to provide municipalities with cash payments of $2,000 per multi-family unit or $5,000 per single-family unit developed. OPM has recently announced the award of a new round of funding to Connecticut municipalities, with individual grants ranging from $17,800 to $20,000.
- **SURFACE TRANSPORTATION PROGRAM (STP)** – Urban Program – This program is one of the STPs with funding available for projects on minor arterials and collector roads in urban areas. Transit enhancements are just one of the types of projects that may receive funding through this program.
- **SURFACE TRANSPORTATION PROGRAM (STP)** – Transportation Alternatives – This fairly new federally funded program replaces the previous STP – Enhancement program. This program consolidates twelve previously eligible activities into six main eligible categories. The activities funded generally involve facilities for non-vehicular transportation (pedestrian,

bicycle and other non-motorized means of transportation), rails to trails conversions, community improvement and preservation projects and environmental mitigation.

- **CONGESTION MITIGATION AND AIR QUALITY (CMAQ)** – Created in 1991 as part of the Intermodal Surface Transportation Efficiency Act (ISTEA), this federally funded program provides funds for surface transportation projects that are designed to ease traffic congestion and improve air quality. Eligible projects included transit improvements, commuter parking facilities, traffic flow improvements, bicycle and pedestrian facilities, bicycle parking and bicycle encouragement projects, and direct emissions reduction projects.

Appendix E: Public Process

WINDSOR CENTER

TRANSIT-ORIENTED DEVELOPMENT

Master Plan and Redevelopment Strategy

FIGURES

CONTENTS

APPENDIX E: PUBLIC PROCESS

1 PUBLIC MEETING SUMMARIES

June 13, 2013 Public Workshop Break-out Discussion Summary

Town Hall Council Chamber, Thursday, June 13, 2013, 7 to 9 PM

The following summary notes were recorded by facilitators at a Public Workshop for the Windsor Center TOD Planning and Facilitation Program Study. The discussions followed a summary presentation of the Windsor Center Vision and Strategies given by Steve Cecil of The Cecil Group. The break-out group discussions with residents and business owners from Windsor engaged the community to discuss the strengths and weaknesses of the draft plan components. The conversations were facilitated by staff from The Cecil Group, Milone and MacBroom and Town of Windsor staff.

The discussion and resulting summary notes were broken into three major categories:

- What is good about the plan?
- What could modified to improve the plan?
- What is missing from the plan or should be added?

Within each of these categories we have classified and organized the topics of discussion as they relate to topics within the planning study (urban design, land use, circulation, complete streets and parking). The notations below are exactly what were recorded on the notepads at the meeting without additional interpretation or rewording. This shorthand reflects the rich discussions that occurred at the workshop.

WHAT IS REALLY GOOD?

Urban Design

- Walkability/pedestrian improvements
- Pedestrian bridge
- Underpass at Batchelder Road
- Mechanic Street development on the other side of tracks
- Unique facades

Land Use

- Combination – mixed-use concept
- Supplementary existing resources (historic)

- Distinctive, destination stores to attract a variety of people
- Containing center uses
- Diversity of uses buildings
- Business at Mack Street and Poquonock Avenue

Circulation

- Limiting cut through
- Central Street cut through
- Implementation strategy

Complete Streets

- Road diet on Broad Street
- Streetscape improvements on Poquonock Avenue
- Enhancing crossing character
- Use of different materials in street to delineate parking vs. traffic lanes
- Cleanup entrance corridors
- Central Focus on downtown – walkability

Parking

- Shared parking
- Raised parking
- Garage placement on "Town side"
- Additional on-street parking

WHAT SHOULD CHANGE?

Land Use

- Elaborate on transition zone

Circulation

- Post office drop off – Court Street
- Emergency/additional access to garage

Complete Streets

- More detail on streetscape (benches, lighting, etc)
- Bike rail gap @ Palisado Avenue

Parking

- Shared parking definition

WHAT TO ADD? WHAT DID WE MISS?

Urban Design

- North part of green (Central Avenue) to be made more active
- More information on sports complex
- Bicycle storage
- Washington Park
- Currently everything to do is outside Windsor
- Placemaking

Land Use

- How to achieve consensus with stakeholders
- Local shops that open at night
- Implementation incentives for partnerships for parking structure
- Preservation policies – strengthen neighborhood center (Broad Street Green)
- Senior facility potential
- Music facility
- Neighborhood market potential
- Convenient/quick food options
- Gift shop opportunities
- Dialogue between business owners and residents
- Emphasize the River as a recreation asset
- Plans for attracting certain uses
- What can the market support?

Circulation

- Shelter for pickup drop off area
- Train connections
- Master plan for trails and how the proposed changes adhere to that plan
- Bus frequency
- Church link

Complete Streets

- Bike lanes or sharrows
- Bike connectivity
- Signage

January 10, 2012
Visual Preference Survey

The purpose of this Visual Preference Survey was to capture the community's design preference for Windsor Center. The community was shown a series of images that were arranged into three categories: Housing (A), Mixed Use and Commercial Uses (B), and Streetscape and Transportation (C). As individuals viewed each image, he or she rated its appropriateness for Windsor Center. The rating scale runs from 1 to 5, with 1 being very desirable and 5 being very undesirable.

A PLACE TO LIVE

- Lower-density mixed-use development on Broad Street (2-story)
- Pedestrian-oriented mixed-use development (village character) at Arthur's Plaza
- Higher-density housing at Scully Corner and Arthur's Plaza
- Townhouses along Mechanic Street, Central Street, northern portion of Broad Street, and Scully Corner
- Single-family homes along Poquonock Avenue
- Wider sidewalks and angled parking on Broad Street
- Cycle track along the Green on the east side (potentially Poquonock and Palisado Avenues)
- Parking located behind buildings on Broad Street

TOWN-ORIENTED CENTER

- Lower-scale mixed-use development on Broad Street
- Mix of retail, restaurants and services on Broad Street (restaurants, dry cleaner, antiques, toys, bike shop, Jazz club, ice cream, book store, outside café, laundromat, etc.)
- Higher-density mixed-use development along Palisado Avenue and potentially Poquonock Avenue
- Mixed-use development (village scale and character) at Scully Corner and Arthur's Plaza
- Wider sidewalks on Broad Street
- Cycle track along the Green on the east side
- Roundabout at the intersection of Broad Street, Palisado Avenue and Poquonock Avenue
- Traffic calming on Broad Street

- Analogous places:
    * Northampton, MA (Broad Street)
    * Litchfield, CT (Arthur's Plaza)
    * Lake Tahoe, NV (Central Street block)

TOWN CENTER DESTINATION

- Mixed-use development (village scale) and/or landmark site at Arthur's Plaza
- Higher-density, mixed-use development at Scully Corner, Palisado Avenue site near river, and Mechanic Street site
- More commercial uses along Broad Street (restaurants, bakery, pasta shop, arts, specialty food, etc.)
- Destination at the Plaza Building (movie theater with food, musical theater, etc.)
- Bus and trolley links across the railroad tracks (existing crossing near station)
- Safe, well-lit parking around Broad Street area and behind buildings on Broad Street
- Wider sidewalk and angled parking along Broad Street
- Analogous places:
    * Church Street, Burlington, VT
    * Colchester
    * Main Street, Middletown, CT (along Broad Street)
    * Westfield, NJ
    * Grand Rapids

Figure 1. Visual Preference Survey Results: Housing

Figure 2. Visual Preference Survey Results: Mixed-Use and Commercial Uses

WINDSOR CENTER TRANSIT-ORIENTED DEVELOPMENT: Streetscape and Transportation

STREETS

Average Score: 1.93

Average Score: 3.28

Average Score: 3.55

Average Score: 2.12

PARKING

Average Score: 2.55

Average Score: 2.24

Average Score: 3.53

Average Score: 3.59

BICYCLE

Average Score: 2.79

Average Score: 1.93

Average Score: 3.41

Average Score: 1.44

PEDESTRIAN

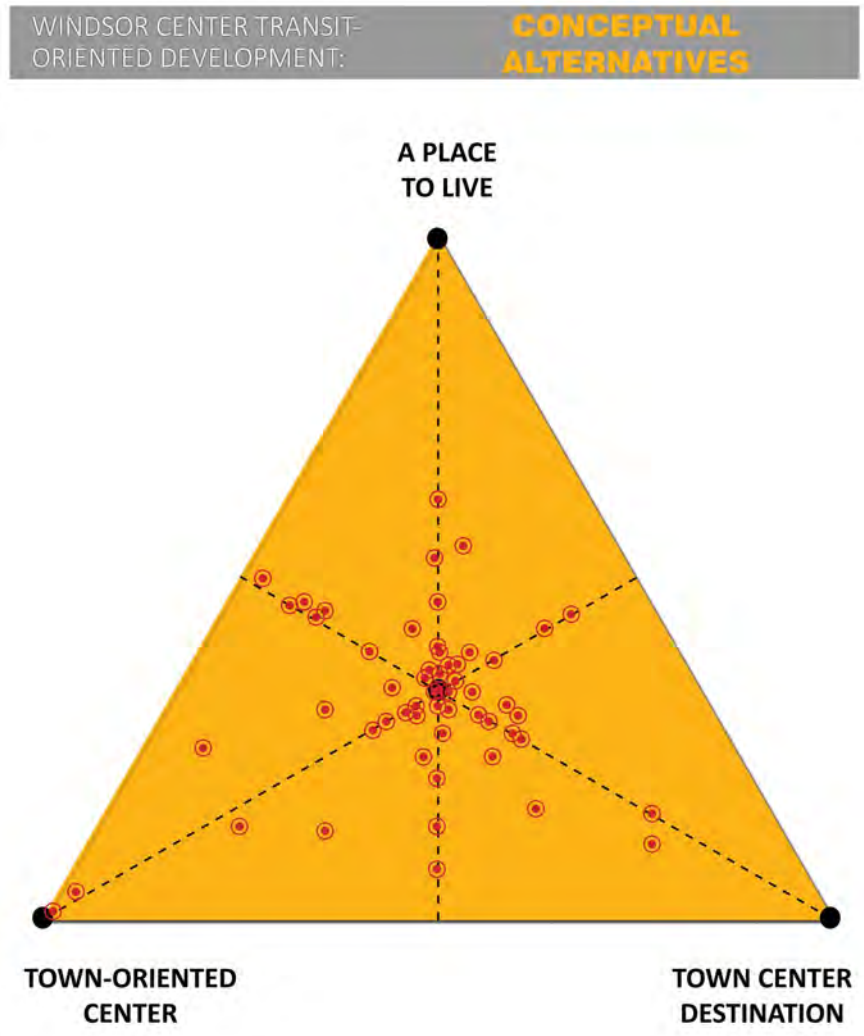
Average Score: 1.23

Average Score: 2.31

Average Score: 2.71

Average Score: 2.29

Figure 3. What Kind of Place Should Windsor Center Be?



November 14, 2012 Public Workshop

On November 14, approximately 70 people attended a public workshop for the Windsor Center Transit-Oriented Development (TOD) Planning and Facilitation Program at the Windsor Arts Center on Mechanic Street. The Town of Windsor and The Cecil Group facilitated the two-hour interactive workshop, which started at 7 p.m. The purpose of the workshop was to engage all community members and stakeholders in a discussion of goals and priorities for Windsor Center. The workshop built on studies that have been completed in the center, and it explored areas where consensus about the future of Windsor Center likely existed or where there were differing views.

The workshop began with Town Planner Eric Barz providing an overview of the Windsor Center TOD study. Then the consultant team – led by Steve Cecil, principal of The Cecil Group – gave a presentation that included major findings from its existing conditions and trends analysis.

During the workshop, attendees participated in two breakout group exercises. The attendees were divided into five groups, each led by a facilitator. The first exercise asked participants to identify aspects of Windsor Center (land uses, traffic/circulation, public realm elements, etc.) that should change and should not change. Each group was given an aerial map of Windsor Center to visual the area and make notes.

During the next group activity, participants were asked to identify their goals for Windsor Center. These goals were written down on large flip charts. Once the list was complete, each group member was given five "dots" to place next to the goals that they thought were most important. The goal was to solicit each group's priorities for Windsor Center. The goal that received the most votes (27 dots) was "add/integrate more culture and arts." The next two highest vote-getters were "establish more/variety of retail" with 24 dots and "attract activity" with 17 dots.

The following section contains a summary of the feedback that was collected during the breakout group sessions. These notes and graphics are not intended to provide a comprehensive account of all of the input received at the workshop but instead are meant to provide common themes of discussion and reveal major goals and priorities identified during the workshop.

MAPPING PERSPECTIVES EXERCISE

Some of the overall comments and discussion points from the groups have been summarized in the two maps on the following pages. The maps combine key ideas regarding aspects of Windsor Center that should be changed or should not be changed. It should be noted that many ideas were expressed, and the summary maps are an interpretation of these comments and may not reflect all of the points or occasional differing opinions that arose.

Figure 4. Areas that Should Not Change

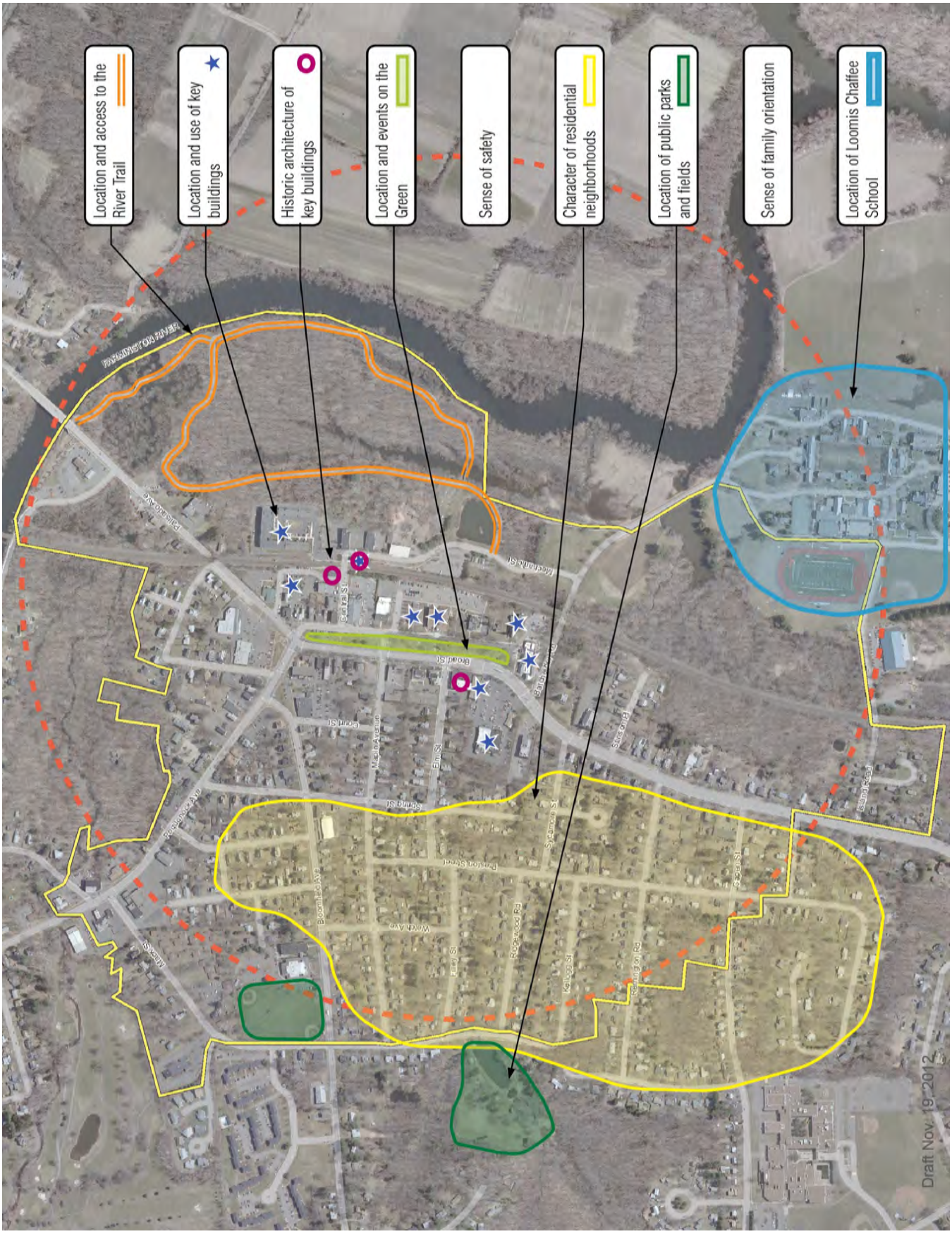


Figure 5. Areas that Should Change

Figure 6. Goals and Priorities Exercise Results

Goals and Priorities Exercise Results

- Add/integrate more culture and arts (destination)
- Establish more/variety of retail
- Attract activity
- Grow nighttime activity
- Develop more/variety of restaurants
- Maintain the small-town village character
- Create achievable short-term goals
- Fix eyesores (ugly buildings and blighted lots)
- Create access to and activities around the river
- Improve/clean up the gateways
- Establish an entertainment location
- Establish a theme to attract people
- Preserve architecture (historic)
- Improve parking
- Establish an architectural/design theme
- Encourage more foot traffic by creating more housing nearby
- Establish pedestrian and bicycle connections to the center
- Expand bike trails to go somewhere
- Develop more buildings and stores on main streets
- Underground utilities
- Establish traffic calming on Broad Street
- Become more business friendly
- Redevelop Arthurs Plaza
- Create a pleasant place to live
- Create housing for young professionals
- Create high-density housing that is affordable and attractive
- Develop sustainability (preserve open space, flood plains, etc.)
- Maintain/establish affordability for next generation
- Make the center pedestrian friendly
- Connect the Green to the River Trail
- Improve and establish more on-street parking
- Sustain family atmosphere
- Focus on economic development
- Improve multimodal accessibility
- Shop locally
- Establish a non-car connection to/from other areas of town (Day Hill)
- Make Windsor a destination for eating, shopping, lifestyle, etc.
- Create a beautiful place

- Activate the Green
- Serve and attract town residents
- Support the aging population
- Increase civic involvement
- Beautify the streetscape
- Add ornamental lighting
- Establish a façade improvement program
- Install a sidewalk between Loomis and the town center
- Complete the neighborhood sidewalk network

Maintain and encourage diversity
Create bike lanes on the roads
Serve and attract area visitors
Support residential character west of Broad Street
Add residential density east of the railroad tracts
Concentrate commercial uses in Windsor Center
Improve station areas
Develop town-scale development
Keep the bridge low at Palisado Avenue to keep trucks out
Establish more community communication and connection
Remain a bedroom community
Control traffic (cut-through) in the neighborhood
Move the dog pound

2 INTERVIEW TRANSCRIPTS

INTERVIEWS CONDUCTED BY HDR

Interviews with local real estate and economic development experts were conducted by The Cecil Group team to assess the "real world" context for development opportunities and to gather relevant data on specific development opportunities. These interviews considered the constraints to development (physical, policy, workforce, financial) and possible strategies to overcome these constraints. The following groups and individuals were interviewed as part of the regional context assessment:

- Windsor Chamber of Commerce
- First Town Downtown
- Mike Goman, Goman and York
- Jay Fisher, Goman and York
- Keith Kumnick, Colliers
- Sandra Johnson, MetroHartford Alliance

Overall, the interviews provided the following thoughts and insight related to economic development in Windsor Center:

- Proximity to New York City and Boston is a competitive advantage.
- Household income and population support development over time in Windsor Center.
- Town of Windsor is amenable to office development and warehouse/industrial development near the airport.
- Some regional experts indicated that more housing in Windsor Center would be advantageous.
- Town of Windsor seems to be concerned about the traffic implications of retail development.
- Windsor is really a submarket, not a retail node, and because of the river and location of the interstate, there are barriers that limit Windsor's natural retail catchment or trade area.
- Retail growth in Windsor should be anchored by restaurant traffic rather than traditional retail traffic.
- Retail operating costs are high in Connecticut, which limits expansion potential for this type of development.
- Developing a cluster of restaurants in Windsor Center should be a focus.
- Regional chains may be interested in this location.
- Smaller boutique type retail may also be supportable in Windsor Center.

- Windsor is viewed as a "well run town," although there are some concerns about the permitting process.
- While incentives to development are not given, the town works to make the process shorter and more defined.
- There is a perception that parking is difficult in Windsor Center – everyone wants to park at the front door of their destination and not walk.
- Limited municipal lots downtown.
- Some issues related to zoning – there is a requirement that you have specific parking on your property to supply your particular use.
- Healthy market for theater in Hartford generally.
- Black-box theater is a possibility in Windsor Center.
- A theater/smaller venue for live music could be supported.
- A restaurant or bar adjacent to a theater could help its financial viability.
- Windsor Center has a successful summer concert series and could consider extending the program through the rest of the year.
- Gyms or other recreational facilities do not generally pay much in rent, and they require easy access and substantial parking. This type of development may not be ideal for Windsor Center.
- Windsor Center is "very pretty" and pedestrian friendly, with a walkable green "if you have someplace to go."
- Improved lighting and signage, as well as other streetscape improvements in Windsor Center, would help spur downtown development.
- Design/street layout will be very important, in terms of spurring development in Windsor Center.
- In terms of passenger rail use, it was noted that people will drive to other areas of CT and then take the train into New York City because frequent service is available.
- Proximity to Bradley International Airport considered a competitive advantage regionally.
- Significant number of hotels to support business traveler.
- A shuttle connecting the Day Hill offices and hotels to the passenger rail station in Windsor Center is desirable.
- Demand exists for casual restaurants or "one step above" the casual restaurant in Windsor Center – someplace where you could take an out-of-town visitor or business colleague.
- Uncertainty in terms of the amount of developable property is available in Windsor Center.

INTERVIEWS CONDUCTED BY TRA

The following is a compilation of all the interviews with Windsor Center stakeholders as recorded in notes from those interviews. In an effort to encourage those being interviewed to be candid, no specific comments are credited to individuals. Points are summarized by location, retail/restaurants, residential, walkability/accessibility, parking, Loomis/Chaffee School, various funding sources, and future potential uses.

Location

- Windsor's location has its advantage and disadvantages: it is very accessible given the number of exits off I-91, however, this access allows residents to seek services elsewhere.
- The area is surrounded by major shopping towns. People in town can drive a short distance and get what they need as opposed to going to Windsor Center. Residents go to West Hartford to eat out. What is needed is to create a "critical mass" in the Center so there are more options.
- Windsor Center is a "service" downtown as opposed to a shopping/retail downtown. People visit the downtown to bank, go to the dentist, visit the library, etc.
- Windsor Center does not have a big regional draw, though people do come to scheduled events (Chili Festival, Shad Derby, etc) from all over.
- The river cuts off roughly ¼ of Windsor Center and creates flood plain constraints on nearly one half of the area. The market area east of the river is logistically excluded from accessing Windsor Center.

Retail/Restaurants

- Windsor Center used to have a lot more small shops, but they have gone out of business in part due to the recession.
- Business owners own the key parcels around the transit station and are willing to consider different configurations and new uses on their property.
- The center declined after Broad Street was reconfigured to accommodate thru traffic – around 1992 – they got the Town green, but isolated the retail with the circulation pattern.
- Biggest problems for downtown businesses:
    * Zoning that works (BBQ restaurant can't bring beer outside to largest seating area).
    * Signage to attract business (Bakery sign on side of building is illegal). Signage guidelines are counterproductive; seen as too strict and cumbersome.
    * Programs for façade/storefront improvements are in neighboring areas, but not in Windsor.

Residential

- Currently, there are few places for young professionals to live in Windsor – they have to come up I-91 from Manchester, South Windsor. There is a need for affordable housing for younger people in Windsor Center (apartments and condominiums). Employees working in Windsor who are in their early 20s to early 30s are going to Poquonock or surrounding towns to live (like Manchester).
- Day Hill office park has a lot of high tech businesses and insurance back-office workers; would probably love to live closer to work.
- The proposed apartment complex (Olde Windsor Station) would really change the place – create demand for more choices in the center. There could/should be some ground floor retail to appeal to residents and Loomis/Chaffee students and faculty in close proximity.
- Noted that there are several group homes in the area north of Broad Street, the area is very accepting of those with physical and mental handicaps – some work in local retail establishments.
- Windsor has nearly twice as many jobs as households – twice as many employees are commuting in as commuting out. The town really should be targeting them with choices besides the Day Hill new town project. Windsor Center could have it all for those looking for a walkable, small town life-style near a large metropolitan center.

Walkability and Accessibility

- The town should provide access to the River Trail – it is currently very difficult to access the River Trail from Windsor Center.
- Batchelder is a two-lane road without sidewalks that goes under the railroad tracks –not really safe.
- It is difficult and dangerous to cross Broad Street because the traffic moves very fast. The crosswalks are also in inconvenient locations. The intersection near Arthurs Plaza is very dangerous for pedestrians as are Bloomfield Avenue and Poquonock Avenue.
- Create a shuttle service that can move people throughout town and to and from Windsor Center. The current buses do not provide service that is frequent enough.
- The Chamber and FTDT are trying to figure out how to get people from Windsor Center (rail station) to the Day Hill Road area.

Parking

- Parking is an issue – there is not enough parking or it is not in the right place. There is a need for more spaces on nights and weekends.
- Some property owner/developer would like to work out some joint parking arrangement with the Plaza Building.
- Spaces behind CVS and Town Hall should be made available and safe to access.
- The library, in particular, lacks parking. The library effectively shares the parking lot behind its building with Grace Episcopal Church. Parking could potentially be added behind the church, but it would be very close to the railroad tracks.

Loomis Chaffee

- Historically, there has not much town involvement with Loomis Chaffee, but the town road does go through campus.
- The school is concerned about safety coming and going to the center on poorly lit and narrow streets with no sidewalks – there are currently poor connections to the Center.
- The walk to Geisler's Grocery Market is popular, but very dangerous because there is no sidewalk going through the underpass. The walk to the train station with luggage is also precarious because it is poorly lit and lacks sidewalks.
- The biggest vacant parcels in the TOD area are owned by the school. However, much of the campus floods when the river rises. Given proximity to the center, is there a suitable use on a portion of the open space on the Loomis Chaffee campus be used to benefit the town as well as the school?
- Are there joint funding opportunities for infrastructure improvements to connect to Windsor Center?

Various Funding Sources and Joint program

- Could the business groups – VFW and Rotary and others – pool resources and build a joint facility, thereby freeing up valuable parcels and land area along Broad Street for first floor retail?
- Façade improvement grants/program would be helpful.
- Streets in communities around Windsor are in better shape. Someone suggests that they are being maintained with state funds. Why Windsor can't obtain this money?
- Businesses do not always work together that well on important issues.
- According to some stakeholders, some businesses in Windsor Center are not particularly customer-service oriented.
- It is difficult to get businesses to work together or to be open to ideas and help from the Chamber (retail/restaurants in particular).

Future Potential Uses

- Currently no larger meeting place or hall in the center exists for corporate events; only place to meet is at Day Hill Road hotels.
- Hopes that renovation of the Plaza Theater block will reinvigorate the Center. Explore Plaza Theater as live music venue and recording studio for the region – local and regional bands, singing groups, stand-up comedy, etc. – and cater not just to the young professionals–but all age groups. A performance every night of some kind would generate the necessary "buzz;" build off the acoustics of the facility and the lack of competition for live music. Convert other neighboring buildings to complementary uses.
- Entertainment as a theme is key to the Center's future – it creates a good atmosphere for the demographic that want to live in places like Windsor Center.
- Other themes that were mentioned by many:
    * cultural events and venues
    * cultural activities/sports/activities for younger people
    * More restaurants and coffee shops
    * Music
    * Theater use and cinema
    * An indoor sports facility for sporting events for all ages
    * Tennis Academy
- Most of the larger parcels are in play, one way or another. However, the uses being contemplated may not be optimal.
- More mixed-use buildings and more housing choices – in size and design, like new apartments, and more group housing options.
- Windsor Center should ensure that existing businesses, like Windsor Federal Savings, can expand their footprint in the center and not be forced to relocate.
- One of the best buildings in the TOD area is the station itself and has been vacant, although it has recently being rehabbed for artist lofts.
- Suggested Interesting new businesses to consider:
    * Micro-brew pub
    * Small business incubator (shared equipment, conference rooms, etc.) or cooperative with central receptionist and shared conference room for one person shops (e.g., programmers)
    * Other educational institutions and book store
    * Natural food store and ethnic grocery store
    * Health fair (and health-related businesses)

Appendix F: Supplemental Economic Information

WINDSOR CENTER

TRANSIT-ORIENTED DEVELOPMENT
Master Plan and Redevelopment Strategy

Last Updated: January 3, 2013

Appendix F: Supplemental Economic Information

ESRI Market Profile, Windsor, CT

esri

Market Profile

Windsor, CT
Rings: 0.5, 1, 2 mile radii

Latitude: 41.85175
Longitude: -72.64351

	0.5 miles	1 mile	2 miles
Population Summary			
2000 Total Population	1,455	3,458	13,691
2010 Total Population	1,488	3,421	13,857
2012 Total Population	1,442	3,310	13,653
2012 Group Quarters	19	106	456
2017 Total Population	1,386	3,175	13,438
2012-2017 Annual Rate	-0.79%	-0.83%	-0.32%
Household Summary			
2000 Households	682	1,511	5,329
2000 Average Household Size	2.12	2.20	2.45
2010 Households	711	1,525	5,424
2010 Average Household Size	2.07	2.17	2.47
2012 Households	689	1,471	5,328
2012 Average Household Size	2.07	2.18	2.48
2017 Households	662	1,405	5,226
2017 Average Household Size	2.06	2.18	2.48
2012-2017 Annual Rate	-0.80%	-0.91%	-0.39%
2010 Families	352	882	3,560
2010 Average Family Size	2.92	2.85	3.05
2012 Families	341	849	3,497
2012 Average Family Size	2.90	2.85	3.05
2017 Families	324	807	3,418
2017 Average Family Size	2.92	2.87	3.06
2012-2017 Annual Rate	-0.98%	-1.03%	-0.46%
Housing Unit Summary			
2000 Housing Units	722	1,572	5,501
Owner Occupied Housing Units	47.0%	60.1%	71.4%
Renter Occupied Housing Units	47.5%	36.0%	25.5%
Vacant Housing Units	5.5%	3.9%	3.1%
2010 Housing Units	775	1,644	5,678
Owner Occupied Housing Units	49.5%	60.5%	71.3%
Renter Occupied Housing Units	42.2%	32.2%	24.2%
Vacant Housing Units	8.3%	7.2%	4.5%
2012 Housing Units	763	1,620	5,645
Owner Occupied Housing Units	47.8%	58.6%	70.1%
Renter Occupied Housing Units	42.5%	32.2%	24.3%
Vacant Housing Units	9.7%	9.2%	5.6%
2017 Housing Units	746	1,587	5,607
Owner Occupied Housing Units	46.9%	57.3%	69.5%
Renter Occupied Housing Units	41.8%	31.3%	23.7%
Vacant Housing Units	11.3%	11.5%	6.8%
Median Household Income			
2012	$45,144	$57,005	$66,575
2017	$52,786	$68,410	$78,556
Median Home Value			
2012	$186,157	$191,311	$193,084
2017	$193,485	$202,087	$203,410
Per Capita Income			
2012	$28,795	$33,359	$33,360
2017	$32,835	$38,321	$37,481
Median Age			
2010	42.3	44.2	42.0
2012	42.9	44.7	42.4
2017	43.5	45.5	43.0

Data Note: Household population includes persons not residing in group quarters. Average Household Size is the household population divided by total households. Persons in families include the householder and persons related to the householder by birth, marriage, or adoption. Per Capita Income represents the income received by all persons aged 15 years and over divided by the total population.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2012 and 2017. Esri converted Census 2000 data into 2010 geography.

January 31, 2013

Windsor, CT
Rings: 0.5, 1, 2 mile radii

Latitude: 41.85175
Longitude: -72.64351

	0.5 miles	1 mile	2 miles
2012 Households by Income			
Household Income Base	689	1,471	5,328
<$15,000	18.9%	11.8%	7.6%
$15,000 - $24,999	10.2%	9.2%	6.2%
$25,000 - $34,999	10.9%	9.2%	6.7%
$35,000 - $49,999	13.6%	12.7%	13.9%
$50,000 - $74,999	17.6%	19.2%	20.9%
$75,000 - $99,999	12.0%	12.9%	15.4%
$100,000 - $149,999	13.8%	14.9%	18.1%
$150,000 - $199,999	0.6%	5.8%	7.6%
$200,000+	2.5%	4.2%	3.6%
Average Household Income	$59,777	$75,765	$83,101
2017 Households by Income			
Household Income Base	662	1,405	5,226
<$15,000	18.4%	11.4%	7.0%
$15,000 - $24,999	8.3%	7.3%	4.8%
$25,000 - $34,999	9.4%	7.6%	5.4%
$35,000 - $49,999	11.5%	10.4%	11.2%
$50,000 - $74,999	16.0%	16.7%	17.7%
$75,000 - $99,999	16.5%	17.2%	19.9%
$100,000 - $149,999	16.3%	17.2%	20.3%
$150,000 - $199,999	0.8%	7.4%	9.6%
$200,000+	3.0%	4.9%	4.0%
Average Household Income	$68,228	$87,451	$93,836
2012 Owner Occupied Housing Units by Value			
Total	365	949	3,956
<$50,000	0.0%	0.3%	0.4%
$50,000 - $99,999	4.1%	3.6%	3.2%
$100,000 - $149,999	13.2%	14.4%	16.2%
$150,000 - $199,999	45.5%	38.3%	35.1%
$200,000 - $249,999	24.7%	27.4%	27.2%
$250,000 - $299,999	8.8%	10.7%	10.7%
$300,000 - $399,999	3.0%	4.0%	5.2%
$400,000 - $499,999	0.5%	0.7%	1.3%
$500,000 - $749,999	0.3%	0.4%	0.6%
$750,000 - $999,999	0.0%	0.1%	0.1%
$1,000,000 +	0.0%	0.0%	0.0%
Average Home Value	$193,892	$199,456	$203,293
2017 Owner Occupied Housing Units by Value			
Total	350	910	3,898
<$50,000	0.0%	0.2%	0.3%
$50,000 - $99,999	4.3%	3.7%	3.3%
$100,000 - $149,999	12.9%	13.8%	16.0%
$150,000 - $199,999	37.7%	31.0%	28.5%
$200,000 - $249,999	25.7%	27.8%	27.0%
$250,000 - $299,999	13.1%	15.6%	14.9%
$300,000 - $399,999	4.9%	5.8%	7.0%
$400,000 - $499,999	0.9%	1.0%	1.9%
$500,000 - $749,999	0.6%	0.8%	1.0%
$750,000 - $999,999	0.0%	0.2%	0.1%
$1,000,000 +	0.0%	0.0%	0.0%
Average Home Value	$204,144	$211,270	$214,432

Data Note: Income represents the preceding year, expressed in current dollars. Household income includes wage and salary earnings, interest dividends, net rents, pensions, SSI and welfare payments, child support, and alimony.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2012 and 2017. Esri converted Census 2000 data into 2010 geography.

January 31, 2013

Market Profile

Windsor, CT
Rings: 0.5, 1, 2 mile radii

Latitude: 41.85175
Longitude: -72.64351

	0.5 miles	1 mile	2 miles
2010 Population by Age			
Total	1,491	3,420	13,854
0 - 4	5.3%	5.0%	5.0%
5 - 9	5.0%	4.8%	5.3%
10 - 14	6.0%	5.9%	6.3%
15 - 24	10.4%	10.0%	12.3%
25 - 34	13.3%	12.3%	12.3%
35 - 44	13.3%	13.1%	12.8%
45 - 54	16.5%	16.2%	16.3%
55 - 64	14.4%	15.1%	13.9%
65 - 74	8.3%	8.0%	7.1%
75 - 84	4.7%	5.9%	5.3%
85 +	2.5%	3.7%	3.4%
18 +	79.4%	80.1%	78.9%
2012 Population by Age			
Total	1,442	3,308	13,651
0 - 4	5.3%	4.9%	4.9%
5 - 9	5.0%	4.8%	5.3%
10 - 14	5.8%	5.8%	6.2%
15 - 24	10.2%	9.8%	12.1%
25 - 34	13.5%	12.4%	12.4%
35 - 44	12.9%	12.7%	12.5%
45 - 54	16.1%	15.7%	15.8%
55 - 64	15.1%	15.7%	14.5%
65 - 74	8.8%	8.5%	7.5%
75 - 84	4.7%	5.9%	5.2%
85 +	2.6%	3.8%	3.5%
18 +	80.1%	80.7%	79.3%
2017 Population by Age			
Total	1,385	3,174	13,438
0 - 4	5.3%	4.9%	4.9%
5 - 9	4.9%	4.7%	5.3%
10 - 14	5.8%	5.8%	6.2%
15 - 24	9.6%	9.2%	11.4%
25 - 34	13.6%	12.4%	12.5%
35 - 44	12.5%	12.3%	12.1%
45 - 54	14.8%	14.5%	14.6%
55 - 64	15.6%	16.3%	15.1%
65 - 74	10.4%	10.0%	8.9%
75 - 84	4.8%	6.1%	5.4%
85 +	2.7%	3.9%	3.6%
18 +	80.5%	81.0%	79.5%
2010 Population by Sex			
Males	705	1,599	6,524
Females	783	1,822	7,333
2012 Population by Sex			
Males	686	1,552	6,450
Females	756	1,758	7,203
2017 Population by Sex			
Males	658	1,487	6,347
Females	727	1,687	7,091

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2012 and 2017. Esri converted Census 2000 data into 2010 geography.

January 31, 2013

Market Profile

Windsor, CT
Rings: 0.5, 1, 2 mile radii

Latitude: 41.85175
Longitude: -72.64351

	0.5 miles	1 mile	2 miles
2010 Population by Race/Ethnicity			
Total	1,488	3,422	13,857
White Alone	71.5%	69.6%	58.3%
Black Alone	18.8%	20.3%	30.8%
American Indian Alone	0.3%	0.3%	0.2%
Asian Alone	2.6%	3.6%	4.6%
Pacific Islander Alone	0.0%	0.0%	0.0%
Some Other Race Alone	3.2%	2.5%	2.9%
Two or More Races	3.6%	3.7%	3.1%
Hispanic Origin	7.8%	7.6%	8.3%
Diversity Index	53.2	54.7	63.0
2012 Population by Race/Ethnicity			
Total	1,442	3,309	13,652
White Alone	70.2%	68.3%	57.0%
Black Alone	19.3%	20.9%	31.5%
American Indian Alone	0.3%	0.3%	0.2%
Asian Alone	2.6%	3.7%	4.8%
Pacific Islander Alone	0.0%	0.0%	0.0%
Some Other Race Alone	3.5%	2.8%	3.2%
Two or More Races	3.9%	4.0%	3.3%
Hispanic Origin	8.5%	8.3%	8.9%
Diversity Index	55.1	56.6	64.3
2017 Population by Race/Ethnicity			
Total	1,386	3,175	13,437
White Alone	67.0%	65.1%	53.8%
Black Alone	21.0%	22.6%	33.2%
American Indian Alone	0.4%	0.3%	0.2%
Asian Alone	3.0%	4.2%	5.3%
Pacific Islander Alone	0.0%	0.0%	0.0%
Some Other Race Alone	4.2%	3.3%	3.8%
Two or More Races	4.4%	4.5%	3.7%
Hispanic Origin	10.2%	10.0%	10.6%
Diversity Index	59.7	61.0	67.4
2010 Population by Relationship and Household Type			
Total	1,488	3,421	13,857
In Households	98.7%	96.9%	96.7%
In Family Households	71.1%	75.3%	80.2%
Householder	23.6%	25.0%	25.8%
Spouse	15.5%	17.6%	18.4%
Child	26.8%	27.4%	30.3%
Other relative	3.1%	3.5%	3.8%
Nonrelative	2.2%	1.8%	2.0%
In Nonfamily Households	27.6%	21.6%	16.5%
In Group Quarters	1.3%	3.1%	3.3%
Institutionalized Population	0.1%	2.0%	2.8%
Noninstitutionalized Population	1.1%	1.1%	0.5%

Data Note: Persons of Hispanic Origin may be of any race. The Diversity Index measures the probability that two people from the same area will be from different race/ethnic groups.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2012 and 2017. Esri converted Census 2000 data into 2010 geography.

January 31, 2013

Windsor, CT
Rings: 0.5, 1, 2 mile radii

Latitude: 41.85175
Longitude: -72.64351

	0.5 miles	1 mile	2 miles
2010 Households by Type			
Total	710	1,526	5,424
Households with 1 Person	43.8%	35.6%	27.8%
Households with 2+ People	56.2%	64.4%	72.2%
Family Households	49.6%	57.8%	65.6%
Husband-wife Families	32.7%	40.5%	46.8%
With Related Children	13.4%	16.3%	19.5%
Other Family (No Spouse Present)	16.9%	17.2%	18.8%
Other Family with Male Householder	4.1%	3.8%	3.8%
With Related Children	2.5%	2.2%	2.0%
Other Family with Female Householder	13.0%	13.4%	15.0%
With Related Children	8.9%	8.5%	9.4%
Nonfamily Households	6.6%	6.6%	6.5%
All Households with Children	24.9%	27.0%	31.1%
Multigenerational Households	2.3%	2.7%	4.0%
Unmarried Partner Households	7.7%	7.0%	6.4%
Male-female	6.9%	6.3%	5.6%
Same-sex	0.8%	0.7%	0.8%
2010 Households by Size			
Total	711	1,524	5,423
1 Person Household	43.7%	35.6%	27.8%
2 Person Household	28.3%	31.8%	32.9%
3 Person Household	14.1%	15.7%	17.7%
4 Person Household	7.3%	9.9%	12.7%
5 Person Household	4.6%	4.9%	5.9%
6 Person Household	1.5%	1.5%	2.0%
7 + Person Household	0.4%	0.7%	1.0%
2010 Households by Tenure and Mortgage Status			
Total	711	1,525	5,424
Owner Occupied	54.0%	65.2%	74.6%
Owned with a Mortgage/Loan	40.5%	48.2%	57.0%
Owned Free and Clear	13.5%	17.1%	17.6%
Renter Occupied	46.0%	34.8%	25.4%

Data Note: Households with children include any households with people under age 18, related or not. Multigenerational households are families with 3 or more parent-child relationships. Unmarried partner households are usually classified as nonfamily households unless there is another member of the household related to the householder. Multigenerational and unmarried partner households are reported only to the tract level. Esri estimated block group data, which is used to estimate polygons or non-standard geography.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2012 and 2017. Esri converted Census 2000 data into 2010 geography.

January 31, 2013

Business Summary

Windsor, CT
Rings: 0.5, 1, 2 mile radii

Latitude: 41.85175
Longitude: -72.64351

Data for all businesses in area	0.5 miles	1 mile	2 miles
Total Businesses:	204	281	538
Total Employees:	1,314	2,451	6,832
Total Residential Population:	1,454	3,423	13,810
Employee/Residential Population Ratio:	0.90	0.72	0.50

	Businesses		Employees		Businesses		Employees		Businesses		Employees	
by SIC Codes	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Agriculture & Mining	3	1.5%	16	1.2%	6	2.0%	25	1.0%	21	3.9%	114	1.7%
Construction	7	3.6%	17	1.3%	10	3.4%	22	0.9%	27	5.1%	135	2.0%
Manufacturing	0	0.1%	1	0.1%	2	0.7%	126	5.1%	15	2.8%	917	13.4%
Transportation	3	1.4%	56	4.3%	4	1.5%	68	2.8%	10	1.8%	127	1.9%
Communication	1	0.4%	2	0.1%	2	0.8%	6	0.2%	3	0.6%	13	0.2%
Utility	1	0.5%	28	2.1%	2	0.6%	29	1.2%	3	0.5%	29	0.4%
Wholesale Trade	4	1.8%	18	1.4%	6	2.0%	29	1.2%	20	3.8%	303	4.4%
Retail Trade Summary	38	18.5%	292	22.3%	53	18.8%	498	20.3%	84	15.6%	816	12.0%
Home Improvement	1	0.4%	3	0.3%	2	0.7%	6	0.2%	3	0.6%	11	0.2%
General Merchandise Stores	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%	10	0.1%
Food Stores	2	0.9%	19	1.4%	5	1.6%	91	3.7%	12	2.2%	187	2.7%
Auto Dealers, Gas Stations, Auto Aftermarket	1	0.5%	38	2.9%	1	0.4%	38	1.6%	3	0.6%	99	1.4%
Apparel & Accessory Stores	2	1.0%	9	0.7%	2	0.7%	9	0.4%	3	0.5%	13	0.2%
Furniture & Home Furnishings	4	1.9%	8	0.6%	5	1.8%	17	0.7%	10	1.8%	34	0.5%
Eating & Drinking Places	15	7.4%	185	14.1%	19	6.9%	284	11.6%	27	5.0%	368	5.4%
Miscellaneous Retail	13	6.5%	31	2.3%	19	6.7%	53	2.1%	26	4.8%	95	1.4%
Finance, Insurance, Real Estate Summary	31	15.1%	265	20.1%	40	14.3%	348	14.2%	66	12.2%	633	9.3%
Banks, Savings & Lending Institutions	7	3.2%	104	7.9%	8	2.9%	116	4.7%	12	2.3%	164	2.4%
Securities Brokers	4	1.8%	9	0.7%	5	1.8%	11	0.5%	9	1.7%	54	0.8%
Insurance Carriers & Agents	5	2.5%	16	1.2%	8	2.7%	68	2.8%	17	3.1%	207	3.0%
Real Estate, Holding, Other Investment Offices	16	7.7%	136	10.3%	19	6.8%	152	6.2%	28	5.1%	208	3.0%
Services Summary	93	45.8%	529	40.3%	130	46.4%	1,146	46.7%	244	45.3%	3,485	51.0%
Hotels & Lodging	2	0.8%	10	0.8%	2	0.7%	11	0.5%	5	1.0%	145	2.1%
Automotive Services	5	2.2%	11	0.8%	5	1.9%	13	0.5%	8	1.5%	23	0.3%
Motion Pictures & Amusements	0	0.2%	1	0.1%	5	1.6%	37	1.5%	10	1.8%	74	1.1%
Health Services	16	7.6%	69	5.2%	23	8.3%	217	8.9%	35	6.5%	379	5.6%
Legal Services	4	2.0%	19	1.5%	6	2.0%	26	1.1%	8	1.5%	34	0.5%
Education Institutions & Libraries	5	2.6%	127	9.7%	9	3.1%	437	17.8%	14	2.6%	848	12.4%
Other Services	62	30.4%	292	22.2%	81	28.8%	404	16.5%	163	30.4%	1,982	29.0%
Government	21	10.2%	85	6.5%	23	8.2%	146	5.9%	26	4.9%	204	3.0%
Other	2	0.9%	6	0.4%	4	1.3%	9	0.4%	19	3.5%	53	0.8%
Totals	204	100%	1,314	100%	281	100%	2,451	100%	538	100%	6,832	100%

Business Summary

Windsor, CT
Rings: 0.5, 1, 2 mile radii

Latitude: 41.85175
Longitude: -72.64351

	Businesses		Employees		Businesses		Employees		Businesses		Employees	
by NAICS Codes	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Agriculture, Forestry, Fishing & Hunting	1	0.5%	1	0.1%	2	0.8%	4	0.1%	4	0.7%	11	0.2%
Mining	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Utilities	0	0.0%	0	0.0%	1	0.2%	1	0.0%	1	0.3%	1	0.0%
Construction	7	3.6%	17	1.3%	11	3.8%	33	1.3%	32	6.0%	159	2.3%
Manufacturing	1	0.6%	2	0.1%	4	1.3%	128	5.2%	18	3.3%	927	13.6%
Wholesale Trade	4	1.8%	18	1.4%	6	2.0%	29	1.2%	19	3.6%	302	4.4%
Retail Trade	22	10.7%	92	7.0%	32	11.4%	196	8.0%	54	9.9%	409	6.0%
Motor Vehicle & Parts Dealers	1	0.5%	38	2.9%	1	0.4%	38	1.6%	2	0.4%	93	1.4%
Furniture & Home Furnishings Stores	2	1.0%	4	0.3%	2	0.7%	4	0.2%	2	0.5%	7	0.1%
Electronics & Appliance Stores	1	0.4%	3	0.2%	2	0.8%	15	0.6%	6	1.2%	35	0.5%
Bldg Material & Garden Equipment & Supplies Dealers	1	0.4%	3	0.3%	2	0.7%	6	0.2%	4	0.8%	12	0.2%
Food & Beverage Stores	2	0.9%	11	0.9%	6	2.1%	84	3.4%	12	2.1%	161	2.4%
Health & Personal Care Stores	2	0.9%	4	0.3%	3	0.9%	11	0.4%	4	0.7%	23	0.3%
Gasoline Stations	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%	6	0.1%
Clothing & Clothing Accessories Stores	3	1.5%	12	0.9%	3	1.1%	12	0.5%	4	0.8%	17	0.3%
Sport Goods, Hobby, Book, & Music Stores	2	1.0%	2	0.2%	4	1.4%	9	0.4%	5	0.9%	15	0.2%
General Merchandise Stores	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%	10	0.1%
Miscellaneous Store Retailers	8	4.1%	15	1.1%	9	3.3%	17	0.7%	12	2.2%	29	0.4%
Nonstore Retailers	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Transportation & Warehousing	2	1.0%	54	4.1%	2	0.7%	54	2.2%	6	1.2%	106	1.6%
Information	4	1.9%	51	3.9%	5	1.9%	55	2.2%	10	1.9%	144	2.1%
Finance & Insurance	15	7.5%	129	9.8%	21	7.5%	195	8.0%	38	7.1%	440	6.4%
Central Bank/Credit Intermediation & Related Activities	7	3.2%	104	7.9%	8	2.9%	116	4.7%	12	2.3%	164	2.4%
Securities, Commodity Contracts & Other Financial	4	1.8%	9	0.7%	5	1.8%	11	0.5%	9	1.7%	54	0.8%
Insurance Carriers & Related Activities; Funds, Trusts &	5	2.5%	16	1.2%	8	2.7%	68	2.8%	17	3.2%	222	3.2%
Real Estate, Rental & Leasing	14	6.7%	127	9.6%	17	6.1%	138	5.6%	26	4.9%	193	2.8%
Professional, Scientific & Tech Services	20	9.6%	102	7.7%	24	8.6%	117	4.8%	58	10.8%	1,169	17.1%
Legal Services	4	2.0%	19	1.5%	6	2.0%	26	1.1%	8	1.5%	34	0.5%
Management of Companies & Enterprises	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Administrative & Support & Waste Management &	7	3.3%	75	5.7%	13	4.5%	98	4.0%	31	5.7%	203	3.0%
Educational Services	4	2.1%	84	6.4%	9	3.0%	396	16.1%	15	2.8%	810	11.9%
Health Care & Social Assistance	20	9.8%	105	8.0%	33	11.8%	316	12.9%	57	10.7%	777	11.4%
Arts, Entertainment & Recreation	2	1.1%	7	0.6%	7	2.3%	49	2.0%	11	2.0%	91	1.3%
Accommodation & Food Services	18	8.6%	211	16.0%	22	7.9%	312	12.7%	35	6.5%	549	8.0%
Accommodation	2	0.8%	10	0.8%	2	0.7%	11	0.5%	5	1.0%	145	2.1%
Food Services & Drinking Places	16	7.8%	200	15.3%	20	7.3%	301	12.3%	30	5.6%	404	5.9%
Other Services (except Public Administration)	41	20.0%	149	11.3%	47	16.8%	177	7.2%	77	14.2%	284	4.2%
Automotive Repair & Maintenance	3	1.3%	4	0.3%	4	1.3%	6	0.2%	5	0.9%	11	0.2%
Public Administration	21	10.2%	85	6.5%	23	8.2%	146	5.9%	26	4.9%	204	3.0%
Unclassified Establishments	2	0.9%	6	0.4%	4	1.3%	9	0.4%	19	3.5%	53	0.8%
Total	204	100%	1,314	100%	281	100%	2,451	100%	538	100%	6,832	100%

Real Estate Values

	Value	Range	30-day change	$/sqft	Last updated
Zestimate	$218,630	$166K – $249K	+$2,381	$168	06/10/2013
Rent Zestimate	$1,671/mo	$1.3K – $2K/mo	–	$1.29	06/10/2013
Owner tools	Post your own estimate				
Market guide	Zillow predicts 06095 home values will decrease 0.3% next year, compared to a 0.5% fall for Windsor as a whole.... more				

Zestimate | Rent Zestimate more ▾ 1 year | 5 years | **10 years**

Price History

View your 3 Bureau Credit Report

Date	Description	Price	Change	$/sqft	Source
03/10/1992	Sold	$138,000	–	$106	Public Record

Tax History

Year	Property taxes	Change	Tax assessment	Change
2012	$4,578	-0.3%	$163,800	–
2011	$4,591	9.0%	$163,800	10.4%
2010	$4,211	-9.3%	$148,386	-9.4%

more

Monthly Payment

Home price
$218,630

Percent down: 20%
($44k)

Program:
30yr fixed 3.688%

See personalized rates

Estimated Payment	$1,118
Principal & Interest	$824
Taxes	$228
Homeowners Insurance	$67
Mortgage Insurance	$0

Neighborhood

View larger map

Nearby Similar Sales

1332 Palisado Ave, Windsor, CT 06095
Sold on 12/24/2012: $165,000
Beds: 3 Sqft: 1207
Baths: 1.0 Lot: 27442

10 Somerset Dr, Windsor, CT 06095
Sold on 4/29/2013: $279,900
Beds: 3 Sqft: 1828
Baths: 2.5 Lot: 20038

314 S Center St, Windsor Locks, CT 06096
Sold on 9/17/2012: $289,900
Beds: 3 Sqft: 1651
Baths: 2.5 Lot: 28314

See sales similar to 1337 Palisado Ave

Windsor Center: Residential Properties For Rent

Half Mile Radius from Planned Station

5/18/2013

Address	Price/Mo	Beds	Baths	Sqft	Price per Sqft/Month	Price per Sqft/Year	Type	Year built
3 Dorchester Dr UNIT 3, Windsor, CT	**$1,100**	2	2	1,000	**$1.10**	**$13.20**	Condo	1985
250 Bloomfield Ave # 29-C, Windsor, CT	**$1,130**	2	1	930	**$1.22**	**$14.58**	House	1970
250 Bloomfield Ave # 35-D, Windsor, CT	**$1,015**	-	-	-	**-**	**-**	-	-
58 Poquonock Ave # 58, Windsor, CT	**$1,100**	-	1	1,100	**$1.00**	**$12.00**	Condo	1900
27 Maple Ave # A, Windsor, CT	**$1,200**	-	-	-	**-**	**-**	House	-
Maple Ave, Windsor, CT	**$2,500**	4	2.5	2,300	**$1.09**	**$13.04**	House	1912
250 Bloomfield Ave # 12-D, Windsor, CT	**$1,105**	1	1	600	**$1.84**	**$22.10**	House	1970
33 Mechanic St UNIT 107, Windsor, CT	**$1,750**	2	2	1,017	**$1.72**	**$20.65**	House	2006
Average (Excludes Highest and Lowest)					**$1.28**	**$15.37**		

Source: Zillow.com, access on May 18th, 2013

* Purple dots on the attached map

Windsor Center: Recently Sold Properties (Office, Retail & Industrial)

Half Mile Radius from Planned Station

10/10/2013

Address	Price	Building Size	Price/SF	Property Type	Property Sub-type	Property Use Type	Year Built	Lot Size	Features	Zoning Description
200 Bloomfield Avenue, Windsor, CT 06095	**$279,900**	2,400 SF	**$116.63**	Industrial	Flex Space	Vacant/Owner-User	-	31,799 SF	Electricity/Power	-
240 - 244 Bloomfield Avenue	**$550,000**	6,300 SF	**$87.30**	Office	-	-	1973	-	-	-
30 - 34 Maple Avenue	**$450,000**	8,189 SF	**$54.95**	Office	-	-	1872	-	-	-
144 Poquonock Ave, Windsor, CT	**$239,900**	7,772 SF	**$30.87**	Retail	Retail (Other)	Investment	-	-	-	-
147 Poquonock Ave. (Rte 75), Windsor, CT	**$390,000**	-	-	Retail	Neighborhood Center	Retail (land), Multifamily (land), Office (land)	1960	1.45 AC	Electricity/Power, Water,Telephone, Cable	B2

Source: loopnet.com and showcase.com, access on October 10, 2012

Windsor Center: Properties For Rent (Office, Retail & Industrial)

Half Mile Radius from Planned Station

5/18/2013

Address	Rent/SF/Yr	Available SF	Rent/Yr	Property Type	Term	Occupancy	Year Built
30 - 34 Maple Avenue, Suite: B1	**$12.00**	330	**$3,960.00**	Office	Negotiable	Vacant	1872
31 - 34 Maple Avenue, Suite: B2	**$12.00**	330	**$3,960.00**	Office	Negotiable	Vacant	1872
32 - 34 Maple Avenue, Suite: 34	**$16.00**	600	**$9,600.00**	Office	1-3 yrs	Vacant	1872
144 Poquonock Ave, Windsor, CT	6476 occupied/rented: convenience store w/10 yr step up rent. 800 sq.ft. rented as office space. 1588 apartment rental. 2500 sq.ft. occupied by owner of storefront business. 4000 sq.ft. available for lease						
Source: loopnet.com and showcase.com, access on October 10, 2012							
2152 Poquonock Ave, Windsor, CT 06095	**$9.60**	5,000	**$48,000.00**	Retail	60 Months	Vacant	1959
1075 Kennedy Road, Windsor, CT 06095	**$20.00**	6,840	**$136,800.00**	Retail		Vacant	

Source: loopnet.com , access on May 26, 2013

33 Mechanic St UNIT 217, Windsor, CT 06095

For Sale: $199,900

Price Cut (Feb 2): -$5,000

Zestimate®:$185,016

Est. Mortgage: $706/mo

See current rates on Zillow

A Bad Credit Score is 598, See Yours for $0

Bedrooms:	2 beds
Bathrooms:	2 baths
Condo:	1,107 sq ft
Lot:	Contact for details
Year Built:	2007
Last Sold:	Nov 2007 for $204,900
Heating Type:	Forced air

Photos | Map | Bird's Eye | Street View

View larger

Get more info | Save this home | Get updates | Email | more

Description

IMMACULATE!!!! 2 Bed/2Bath 2nd floor condo in the historic section of Windsor. Open floor plan with large windows, high ceilings, granite counters, SS appliances, hardwood floors, tiled bath. Close to train station and many restaurants too! MOVE RIGHT IN!

Days on Zillow 121	**Cooling** Central	**Parking** Unknown
Basement Type Unknown	**Fireplace** Unknown	**Floor Covering** Carpet, Hardwood, Tile

▾ More

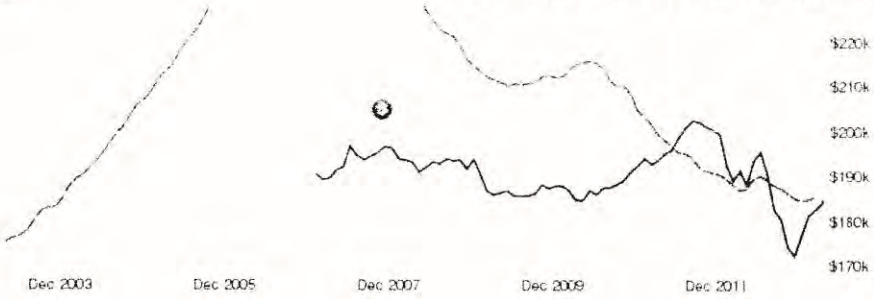
See data sources

Zestimates

	Value	Range	30-day change	$/sqft	Last updated
Zestimate	$185,016	$163K – $211K	-$306	$167	04/07/2013
Rent Zestimate	$1,445/mo	$1.1K – $1.8K/mo	–	$1.31	04/01/2013
Owner Estimate	Post your own estimate				
Agent Comment	You must sign-in and claim this listing in order to post a comment				
Market Guide	Among 06095 homes, this home is 7.9% more expensive than the mid-point(median) home, and is priced 46.3% more per square foot.				

Zestimate | Listing price | Rent Zestimate | more ▾ 1 year | 5 years | 10 years

Similar Homes for Sale



View your 3 Bureau Credit Report

206 Woodcarver UNIT 2...
For Sale: $194,777
Beds: 2 Sqft: 1526
Baths: 2.0 Lot: 6971

104 Chandler UNIT 104,...
For Sale: $229,900
Beds: 2 Sqft: 1382
Baths: 2.0 Lot: 16554

See listings near 33 Mechanic St UNIT 217

Nearby Similar Sales

33 Mechanic St UNIT 303, Windsor, CT 06...
Sold on 5/11/2012: $210,000
Beds: 2 Sqft: 1146
Baths: 2.0 Lot: --

33 Mechanic St UNIT 214, Windsor, CT 06...
Sold on 4/24/2012: $192,500
Beds: 2 Sqft: 1110
Baths: 2.0 Lot: --

33 Mechanic St UNIT 206, Windsor, CT 06...
Sold on 6/29/2012: $270,000
Beds: 3 Sqft: 1745
Baths: 3.0 Lot: --

See sales similar to 33 Mechanic St UNIT 217

Neighborhood

View larger map

(•) Home Values
( ) Listings

Featured Partners

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Check the answer with Equifax. Pull up your 3-bureau scores and reports.

CHASE
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Chase Mortgage Cash Back can save you thousands

Your Credit Score Online!
Freecreditscore.com
View Your Latest Score Online Instantly for $0

Nearby Schools in Windsor

	Grades	Distance	GreatSchools Rating
Windsor High (assigned)	9-12	1.1 mi	
Sage Park Middle (assigned)	6-8	1.3 mi	
Oliver Ellsworth School (assigned)	1-5	1.9 mi	
John F. Kennedy School (assigned)	1-5	2.3 mi	
St. Gabriel School	K-8	0.4 mi	
The Loomis Chaffee School	9-12	0.8 mi	
Praise, Power & Prayer Christian	K-12	1.0 mi	

5.4 Local Serving Retail

APPENDIX 5.4
LOCAL SERVICING RETAIL
WINDSOR CENTER, CT.

EXISTING ESTABLISHMENTS

Eating Places
- BBQ
- Subway
- Pizzeria
- Station Stop
- Indian Rest.
- Chinese Rest.
- Union St. Tavern
- Family Diner
- Bakery/coffee shop

Radio/TV/Comp/Music
- Plaza Building Store

Antiques/Used
- Central St. Auction House
- Other Collectable Shops

Food-Grocery
- Giessler's

Jewelry
- Seligs

Hardware
- Ace Hardware

Drug
- CVS

Banking
- Windsor Federal Savings

Realtor Offices

Other Destinations
- Plaza Theater
- Town Hall
- Library
- Post Office
- Train Station/Bus Depot
- Cultural Center Arts Building
- Church
- VFW Building

VACANCIES

Auto/Truck
- Vacant Dealership

Gas Station
- Vacant Gas Station

Plaza Building
- Store Fronts
- 400 Seat Theater

LOCAL SERVICES NOT PROVIDED

Auto Supply
Sporting Goods
Furniture
Boat/RV/Snow M
Home Furnishing
Lawn/Garden
Liquor
Gift
Building Material
Apparel
Specialty Foods
Food-Convenience
Appliance
Hobby/Toy
Department
Health and Wellness
Physical Fitness/Yoga
Book
Flower
Pet shop

Prepared by TR Advisors LLC
2/4/13

5.5 ESRI, Retail Leakage Study, Windsor Center

Retail MarketPlace Profile

Windsor, CT
Ring: 0.5 mile radius

Latitude: 41.85175
Longitude: -72.64351

Summary Demographics	
2010 Population	1,494
2010 Households	700
2010 Median Disposable Income	$37,508
2010 Per Capita Income	$26,457

Industry Summary	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplu Factor	Number of
Total Retail Trade and Food & Drink	44-	$14,671,101	$57,169,615	-$42,498,514	-59.2	44
Total Retail Trade	44-45	$12,420,761	$49,355,921	-$36,935,160	-59.8	28
Total Food & Drink	722	$2,250,341	$7,813,695	-$5,563,354	-55.3	16
Industry Group	**NAICS**	**Demand (Retail Potential)**	**Supply (Retail Sales)**	**Retail Gap**	**Leakage/Surplu Factor**	**Number of**
Motor Vehicle & Parts Dealers	441	$2,878,908	$25,000,168	-$22,121,260	-79.3	2
Automobile Dealers	4411	$2,468,835	$25,000,168	-$22,531,333	-82.0	2
Other Motor Vehicle Dealers	4412	$205,741	$0	$205,741	100.0	0
Auto Parts, Accessories & Tire Stores	4413	$204,332	$0	$204,332	100.0	0
Furniture & Home Furnishings Stores	442	$423,350	$370,186	$53,163	6.7	2
Furniture Stores	4421	$287,837	$0	$287,837	100.0	0
Home Furnishings Stores	4422	$135,513	$370,186	-$234,674	-46.4	2
Electronics & Appliance Stores	4431	$376,113	$962,588	-$586,474	-43.8	3
Bldg Materials, Garden Equip. & Supply Stores	444	$496,255	$283,607	$212,649	27.3	2
Bldg Material & Supplies Dealers	4441	$456,389	$282,841	$173,548	23.5	2
Lawn & Garden Equip & Supply Stores	4442	$39,866	$766	$39,100	96.2	0
Food & Beverage Stores	445	$2,495,952	$18,739,654	-$16,243,702	-76.5	3
Grocery Stores	4451	$2,240,699	$17,387,030	-$15,146,331	-77.2	2
Specialty Food Stores	4452	$28,254	$0	$28,254	100.0	0
Beer, Wine & Liquor Stores	4453	$226,998	$1,352,624	-$1,125,626	-71.3	1
Health & Personal Care Stores	446,4461	$858,700	$2,047,835	-$1,189,135	-40.9	3
Gasoline Stations	447,4471	$1,925,837	$430,694	$1,495,143	63.4	0
Clothing & Clothing Accessories Stores	448	$706,156	$255,644	$450,513	46.8	1
Clothing Stores	4481	$564,203	$9,035	$555,168	96.8	0
Shoe Stores	4482	$51,119	$0	$51,119	100.0	0
Jewelry, Luggage & Leather Goods Stores	4483	$90,834	$246,609	-$155,775	-46.2	1
Sporting Goods, Hobby, Book & Music Stores	451	$164,038	$84,876	$79,162	31.8	2
Sporting Goods/Hobby/Musical Instr Stores	4511	$107,085	$84,876	$22,209	11.6	2
Book, Periodical & Music Stores	4512	$56,953	$0	$56,953	100.0	0
General Merchandise Stores	452	$1,261,415	$0	$1,261,415	100.0	0
Department Stores Excluding Leased Depts.	4521	$498,345	$0	$498,345	100.0	0
Other General Merchandise Stores	4529	$763,070	$0	$763,070	100.0	0
Miscellaneous Store Retailers	453	$207,149	$1,180,669	-$973,520	-70.1	10
Florists	4531	$15,014	$77,455	-$62,441	-67.5	1
Office Supplies, Stationery & Gift Stores	4532	$59,151	$44,904	$14,247	13.7	1
Used Merchandise Stores	4533	$5,893	$77,223	-$71,330	-85.8	4
Other Miscellaneous Store Retailers	4539	$127,090	$981,087	-$853,997	-77.1	4
Nonstore Retailers	454	$626,888	$0	$626,888	100.0	0
Electronic Shopping & Mail-Order Houses	4541	$371,059	$0	$371,059	100.0	0
Vending Machine Operators	4542	$71,982	$0	$71,982	100.0	0
Direct Selling Establishments	4543	$183,847	$0	$183,847	100.0	0
Food Services & Drinking Places	722	$2,250,341	$7,813,695	-$5,563,354	-55.3	16
Full-Service Restaurants	7221	$842,274	$3,739,146	-$2,896,873	-63.2	10
Limited-Service Eating Places	7222	$1,197,426	$2,049,388	-$851,962	-26.2	4
Special Food Services	7223	$187,447	$881,247	-$693,800	-64.9	1
Drinking Places - Alcoholic Beverages	7224	$23,193	$1,143,913	-$1,120,720	-96.0	1

Data Note: Supply (retail sales) estimates sales to consumers by establishments. Sales to businesses are excluded. Demand (retail potential) estimates the expected amount spent by consumers at retail establishments. Supply and demand estimates are in current dollars. The Leakage/Surplus Factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents 'leakage' of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area. The Retail Gap represents the difference between Retail Potential and Retail Sales. Esri uses the North American Industry Classification System (NAICS) to classify businesses by their primary type of economic activity. Retail establishments are classified into 27 industry groups in the Retail Trade sector, as well as four industry groups within the Food Services & Drinking Establishments subsector. For more information on the Retail MarketPlace data, please view the methodology statement at http://www.esri.com/library/whitepapers/pdfs/esri-data-retail-marketplace.pdf.

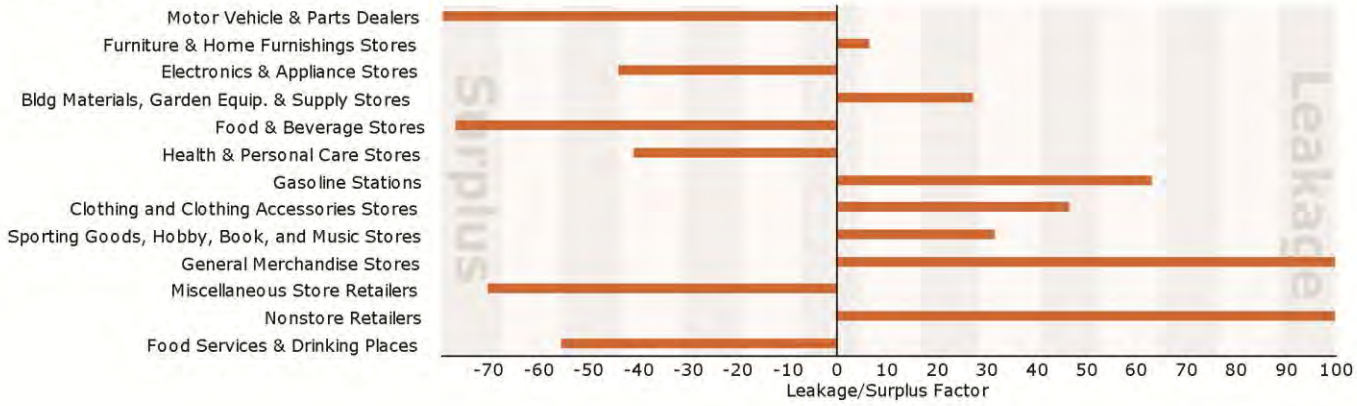
Source: Esri and Infogroup

Retail MarketPlace Profile

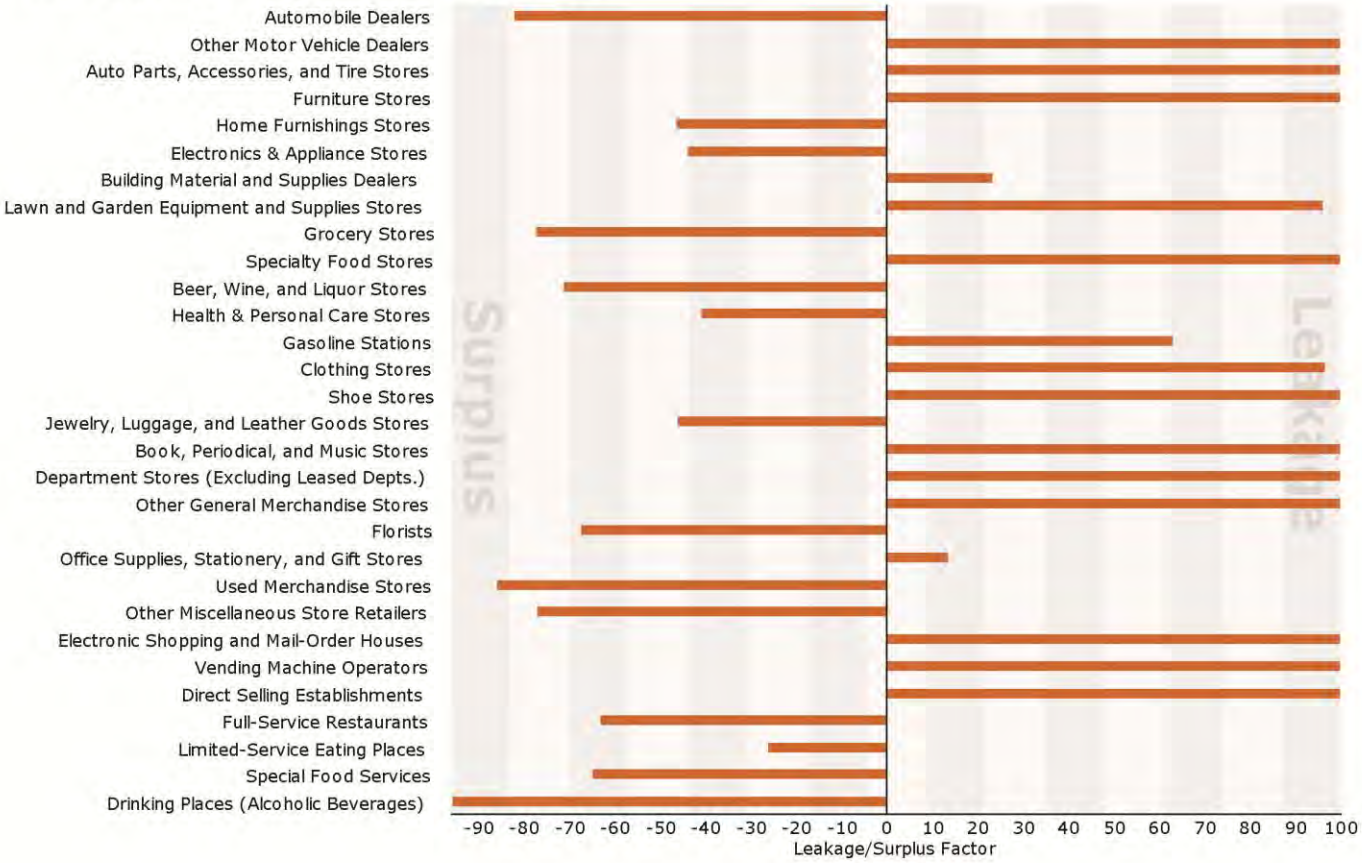
Windsor, CT
Ring: 0.5 mile radius

Latitude: 41.85175
Longitude: -72.64351

Leakage/Surplus Factor by Industry Subsector



Leakage/Surplus Factor by Industry Group



Source: Esri and Infogroup

Retail MarketPlace Profile

Windsor, CT
Ring: 1 mile radius

Latitude: 41.85175
Longitude: -72.64351

Summary Demographics						
2010 Population						3,496
2010 Households						1,564
2010 Median Disposable Income						$41,944
2010 Per Capita Income						$29,645
Industry Summary	**NAICS**	**Demand (Retail Potential)**	**Supply (Retail Sales)**	**Retail Gap**	**Leakage/Surplu Factor**	**Number of**
Total Retail Trade and Food & Drink	44-	$39,331,915	$73,791,178	-$34,459,263	-30.5	59
Total Retail Trade	44-45	$33,314,228	$60,745,511	-$27,431,283	-29.2	39
Total Food & Drink	722	$6,017,687	$13,045,667	-$7,027,980	-36.9	20
Industry Group	**NAICS**	**Demand (Retail Potential)**	**Supply (Retail Sales)**	**Retail Gap**	**Leakage/Surplu Factor**	**Number of**
Motor Vehicle & Parts Dealers	441	$7,701,778	$25,000,168	-$17,298,390	-52.9	2
Automobile Dealers	4411	$6,584,065	$25,000,168	-$18,416,103	-58.3	2
Other Motor Vehicle Dealers	4412	$569,210	$0	$569,210	100.0	0
Auto Parts, Accessories & Tire Stores	4413	$548,504	$0	$548,504	100.0	0
Furniture & Home Furnishings Stores	442	$1,162,568	$489,442	$673,126	40.7	3
Furniture Stores	4421	$788,793	$0	$788,793	100.0	0
Home Furnishings Stores	4422	$373,775	$489,442	-$115,667	-13.4	3
Electronics & Appliance Stores	4431	$1,015,867	$2,164,676	-$1,148,810	-36.1	5
Bldg Materials, Garden Equip. & Supply Stores	444	$1,418,625	$312,846	$1,105,779	63.9	3
Bldg Material & Supplies Dealers	4441	$1,305,882	$292,165	$1,013,717	63.4	2
Lawn & Garden Equip & Supply Stores	4442	$112,743	$20,681	$92,061	69.0	1
Food & Beverage Stores	445	$6,639,758	$20,570,006	-$13,930,248	-51.2	6
Grocery Stores	4451	$5,961,873	$18,997,294	-$13,035,421	-52.2	3
Specialty Food Stores	4452	$75,215	$0	$75,215	100.0	0
Beer, Wine & Liquor Stores	4453	$602,670	$1,572,712	-$970,041	-44.6	2
Health & Personal Care Stores	446,4461	$2,286,714	$2,757,886	-$471,172	-9.3	4
Gasoline Stations	447,4471	$5,079,838	$7,321,788	-$2,241,949	-18.1	1
Clothing & Clothing Accessories Stores	448	$1,897,324	$490,546	$1,406,778	58.9	2
Clothing Stores	4481	$1,512,309	$243,937	$1,268,372	72.2	1
Shoe Stores	4482	$135,146	$0	$135,146	100.0	0
Jewelry, Luggage & Leather Goods Stores	4483	$249,869	$246,609	$3,260	0.7	1
Sporting Goods, Hobby, Book & Music Stores	451	$438,588	$373,789	$64,799	8.0	4
Sporting Goods/Hobby/Musical Instr Stores	4511	$289,015	$373,789	-$84,775	-12.8	4
Book, Periodical & Music Stores	4512	$149,573	$0	$149,573	100.0	0
General Merchandise Stores	452	$3,383,753	$0	$3,383,753	100.0	0
Department Stores Excluding Leased Depts.	4521	$1,341,583	$0	$1,341,583	100.0	0
Other General Merchandise Stores	4529	$2,042,170	$0	$2,042,170	100.0	0
Miscellaneous Store Retailers	453	$561,527	$1,264,364	-$702,837	-38.5	11
Florists	4531	$42,564	$77,455	-$34,891	-29.1	1
Office Supplies, Stationery & Gift Stores	4532	$160,572	$44,904	$115,668	56.3	1
Used Merchandise Stores	4533	$15,900	$77,223	-$61,323	-65.9	4
Other Miscellaneous Store Retailers	4539	$342,491	$1,064,782	-$722,291	-51.3	5
Nonstore Retailers	454	$1,727,888	$0	$1,727,888	100.0	0
Electronic Shopping & Mail-Order Houses	4541	$989,806	$0	$989,806	100.0	0
Vending Machine Operators	4542	$192,054	$0	$192,054	100.0	0
Direct Selling Establishments	4543	$546,028	$0	$546,028	100.0	0
Food Services & Drinking Places	722	$6,017,687	$13,045,667	-$7,027,980	-36.9	20
Full-Service Restaurants	7221	$2,257,954	$4,248,545	-$1,990,591	-30.6	11
Limited-Service Eating Places	7222	$3,198,296	$6,771,962	-$3,573,666	-35.8	7
Special Food Services	7223	$500,788	$881,247	-$380,459	-27.5	1
Drinking Places - Alcoholic Beverages	7224	$60,648	$1,143,913	-$1,083,265	-89.9	1

Data Note: Supply (retail sales) estimates sales to consumers by establishments. Sales to businesses are excluded. Demand (retail potential) estimates the expected amount spent by consumers at retail establishments. Supply and demand estimates are in current dollars. The Leakage/Surplus Factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents 'leakage' of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area. The Retail Gap represents the difference between Retail Potential and Retail Sales. Esri uses the North American Industry Classification System (NAICS) to classify businesses by their primary type of economic activity. Retail establishments are classified into 27 industry groups in the Retail Trade sector, as well as four industry groups within the Food Services & Drinking Establishments subsector. For more information on the Retail MarketPlace data, please view the methodology statement at http://www.esri.com/library/whitepapers/pdfs/esri-data-retail-marketplace.pdf.

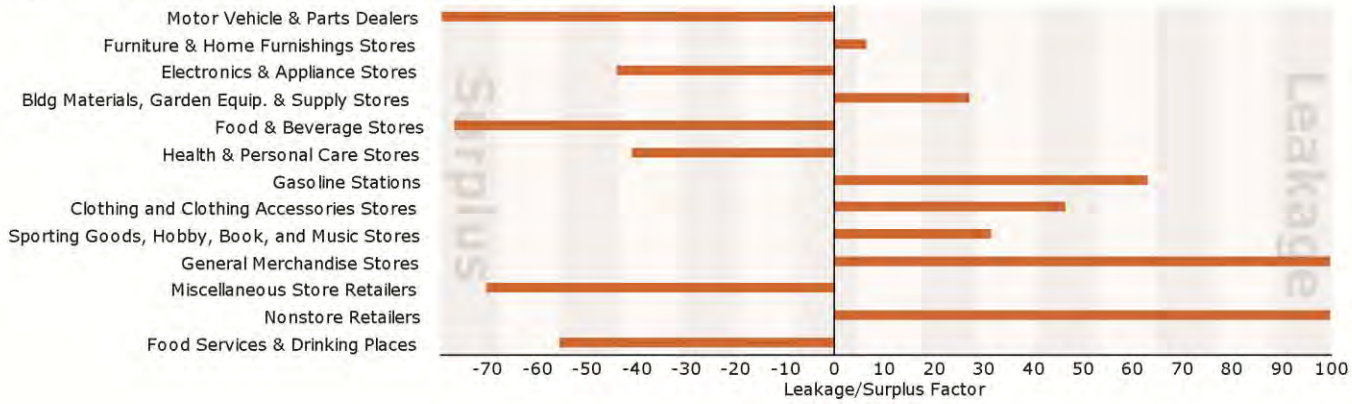
Source: Esri and Infogroup

Retail MarketPlace Profile

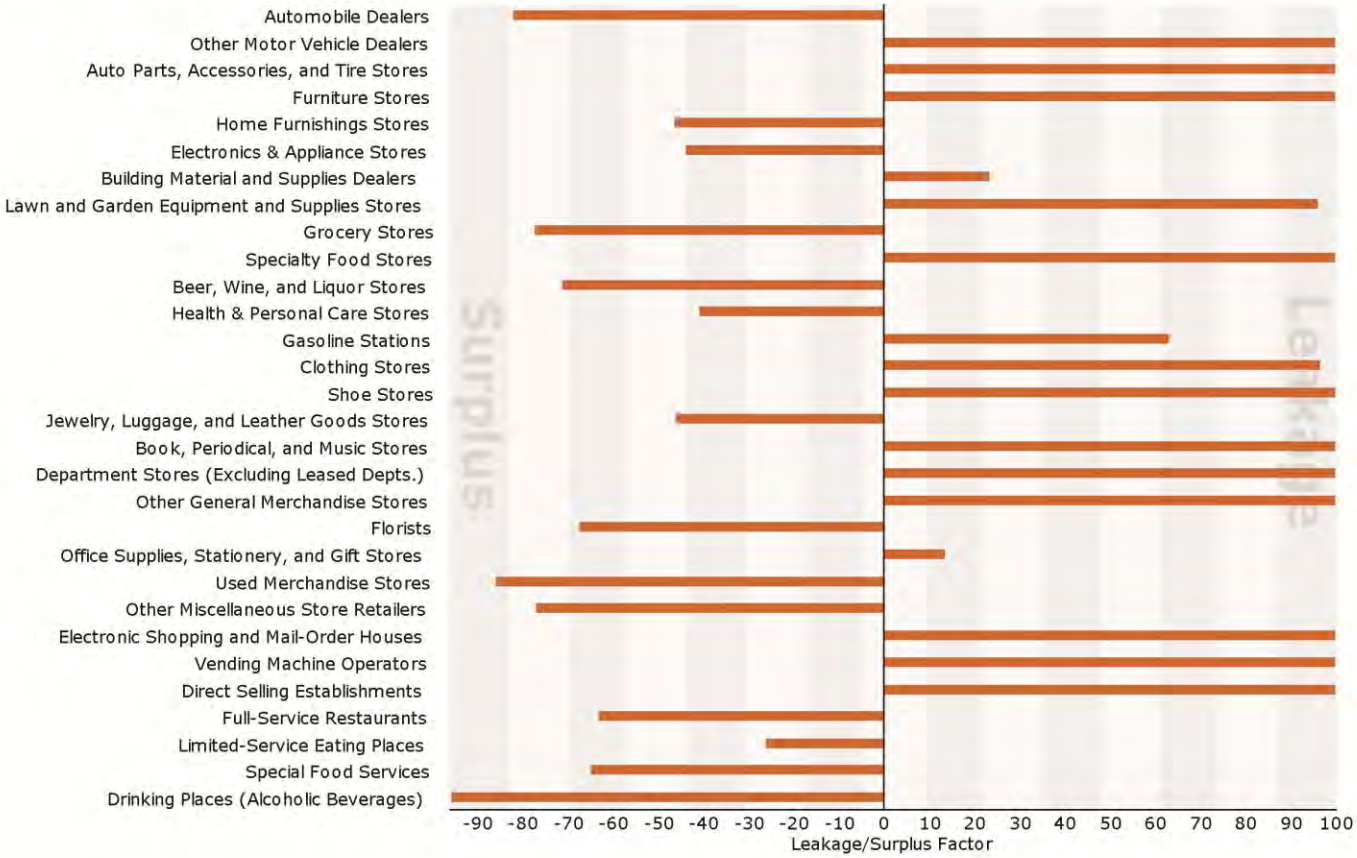
Windsor, CT
Ring: 0.5 mile radius

Latitude: 41.85175
Longitude: -72.64351

Leakage/Surplus Factor by Industry Subsector



Leakage/Surplus Factor by Industry Group



Retail MarketPlace Profile

Windsor, CT
Ring: 2 mile radius

Latitude: 41.85175
Longitude: -72.64351

Summary Demographics	
2010 Population	13,375
2010 Households	5,234
2010 Median Disposable Income	$51,923
2010 Per Capita Income	$32,410

Industry Summary	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplu Factor	Number of
Total Retail Trade and Food & Drink	44-	$154,861,742	$126,822,432	$28,039,309	10.0	87
Total Retail Trade	44-45	$131,285,844	$109,111,798	$22,174,046	9.2	60
Total Food & Drink	722	$23,575,898	$17,710,634	$5,865,263	14.2	27

Industry Group	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplu Factor	Number of
Motor Vehicle & Parts Dealers	441	$30,721,435	$38,276,106	-$7,554,671	-10.9	3
Automobile Dealers	4411	$26,240,542	$30,936,259	-$4,695,717	-8.2	2
Other Motor Vehicle Dealers	4412	$2,317,525	$7,280,420	-$4,962,895	-51.7	0
Auto Parts, Accessories & Tire Stores	4413	$2,163,368	$59,427	$2,103,942	94.7	0
Furniture & Home Furnishings Stores	442	$4,652,984	$748,177	$3,904,808	72.3	3
Furniture Stores	4421	$3,157,950	$103,747	$3,054,204	93.6	0
Home Furnishings Stores	4422	$1,495,034	$644,430	$850,604	39.8	3
Electronics & Appliance Stores	4431	$4,035,085	$6,940,178	-$2,905,093	-26.5	9
Bldg Materials, Garden Equip. & Supply Stores	444	$5,743,862	$674,263	$5,069,599	79.0	6
Bldg Material & Supplies Dealers	4441	$5,282,237	$529,594	$4,752,642	81.8	4
Lawn & Garden Equip & Supply Stores	4442	$461,625	$144,669	$316,956	52.3	1
Food & Beverage Stores	445	$25,774,897	$22,518,186	$3,256,711	6.7	8
Grocery Stores	4451	$23,130,697	$20,844,601	$2,286,096	5.2	5
Specialty Food Stores	4452	$291,337	$0	$291,337	100.0	0
Beer, Wine & Liquor Stores	4453	$2,352,863	$1,673,585	$679,278	16.9	3
Health & Personal Care Stores	446,4461	$8,988,799	$3,304,513	$5,684,286	46.2	5
Gasoline Stations	447,4471	$19,973,758	$30,229,534	-$10,255,776	-20.4	3
Clothing & Clothing Accessories Stores	448	$7,443,644	$648,051	$6,795,593	84.0	2
Clothing Stores	4481	$5,932,889	$401,442	$5,531,447	87.3	1
Shoe Stores	4482	$525,120	$0	$525,120	100.0	0
Jewelry, Luggage & Leather Goods Stores	4483	$985,635	$246,609	$739,026	60.0	1
Sporting Goods, Hobby, Book & Music Stores	451	$1,723,628	$1,526,128	$197,500	6.1	6
Sporting Goods/Hobby/Musical Instr Stores	4511	$1,141,977	$540,420	$601,557	35.8	5
Book, Periodical & Music Stores	4512	$581,651	$985,708	-$404,056	-25.8	1
General Merchandise Stores	452	$13,281,085	$5,464	$13,275,621	99.9	0
Department Stores Excluding Leased Depts.	4521	$5,283,407	$5,464	$5,277,943	99.8	0
Other General Merchandise Stores	4529	$7,997,678	$0	$7,997,678	100.0	0
Miscellaneous Store Retailers	453	$2,225,037	$1,914,525	$310,512	7.5	15
Florists	4531	$174,622	$77,455	$97,167	38.5	1
Office Supplies, Stationery & Gift Stores	4532	$635,190	$482,477	$152,713	13.7	2
Used Merchandise Stores	4533	$62,662	$77,223	-$14,561	-10.4	4
Other Miscellaneous Store Retailers	4539	$1,352,563	$1,277,370	$75,193	2.9	7
Nonstore Retailers	454	$6,721,629	$2,326,672	$4,394,957	48.6	0
Electronic Shopping & Mail-Order Houses	4541	$3,879,893	$176,270	$3,703,624	91.3	0
Vending Machine Operators	4542	$749,519	$0	$749,519	100.0	0
Direct Selling Establishments	4543	$2,092,217	$2,150,403	-$58,186	-1.4	0
Food Services & Drinking Places	722	$23,575,898	$17,710,634	$5,865,263	14.2	27
Full-Service Restaurants	7221	$8,843,839	$4,657,889	$4,185,951	31.0	13
Limited-Service Eating Places	7222	$12,537,584	$10,936,450	$1,601,134	6.8	12
Special Food Services	7223	$1,963,977	$972,383	$991,594	33.8	1
Drinking Places - Alcoholic Beverages	7224	$230,498	$1,143,913	-$913,415	-66.5	1

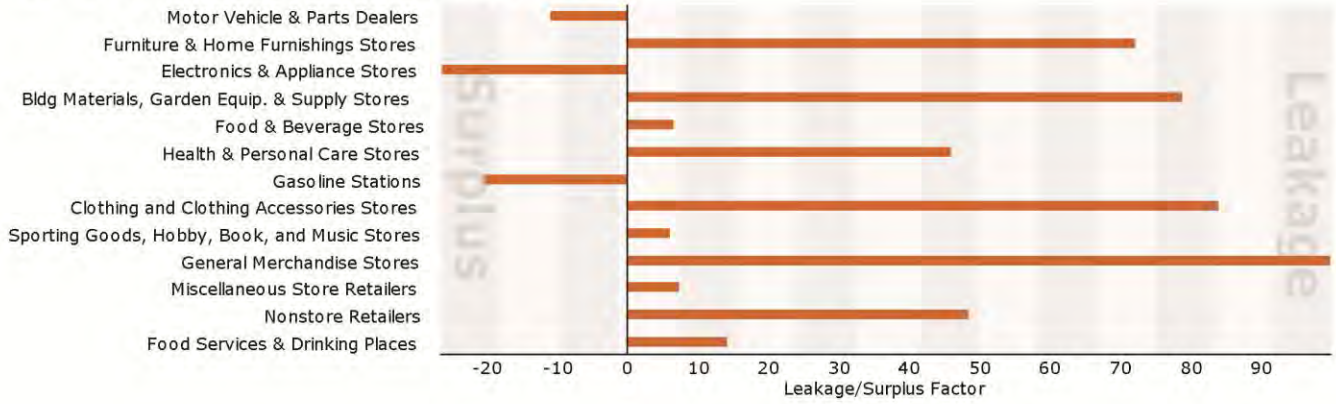
Data Note: Supply (retail sales) estimates sales to consumers by establishments. Sales to businesses are excluded. Demand (retail potential) estimates the expected amount spent by consumers at retail establishments. Supply and demand estimates are in current dollars. The Leakage/Surplus Factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents 'leakage' of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area. The Retail Gap represents the difference between Retail Potential and Retail Sales. Esri uses the North American Industry Classification System (NAICS) to classify businesses by their primary type of economic activity. Retail establishments are classified into 27 industry groups in the Retail Trade sector, as well as four industry groups within the Food Services & Drinking Establishments subsector. For more information on the Retail MarketPlace data, please view the methodology statement at http://www.esri.com/library/whitepapers/pdfs/esri-data-retail-marketplace.pdf.

Retail MarketPlace Profile

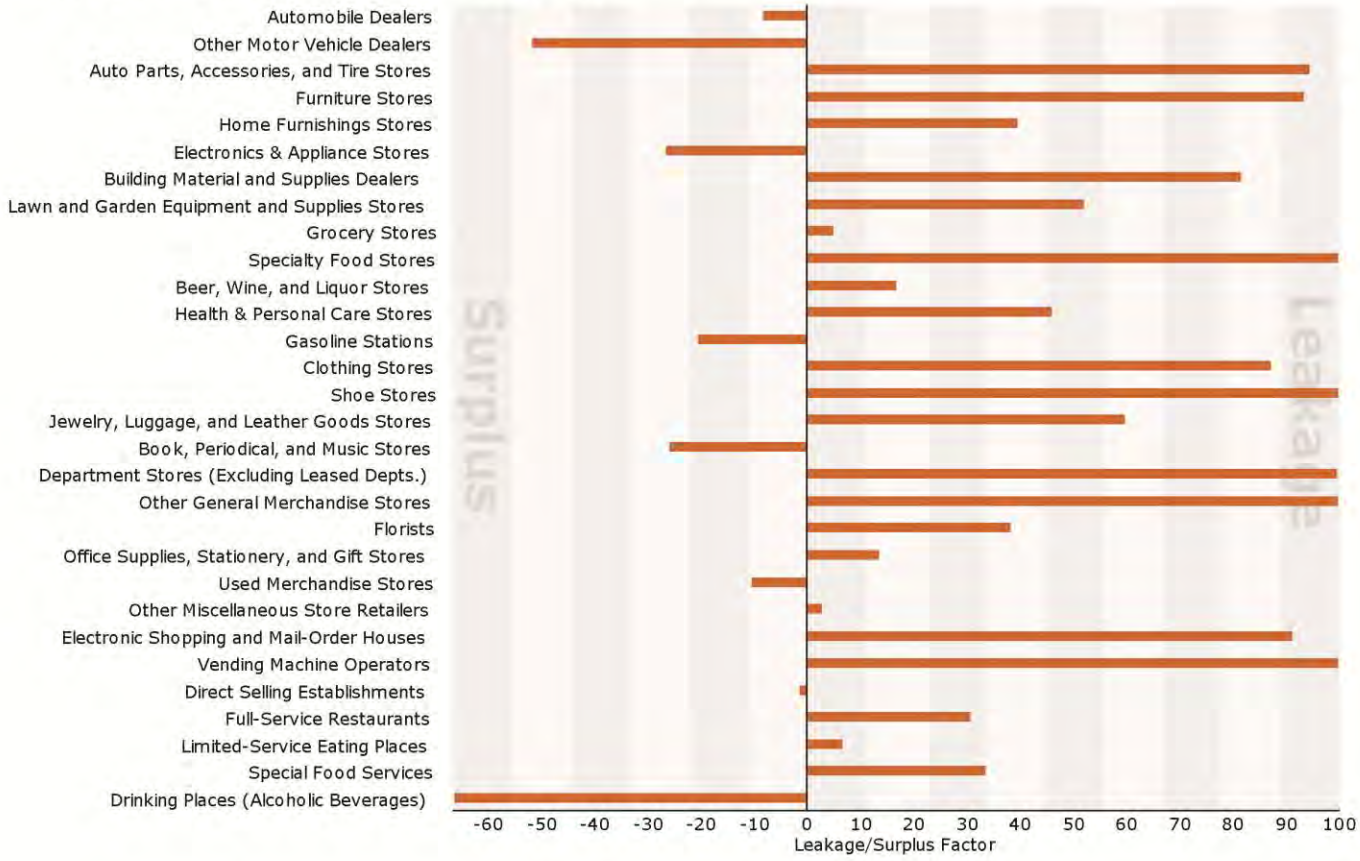
Windsor, CT
Ring: 2 mile radius

Latitude: 41.85175
Longitude: -72.64351

Leakage/Surplus Factor by Industry Subsector



Leakage/Surplus Factor by Industry Group



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Appendix G: Traffic Data

WINDSOR CENTER

TRANSIT-ORIENTED DEVELOPMENT

Master Plan and Redevelopment Strategy

APPENDIX

TRAFFIC CIRCULATION ANALYSIS WORKSHEETS

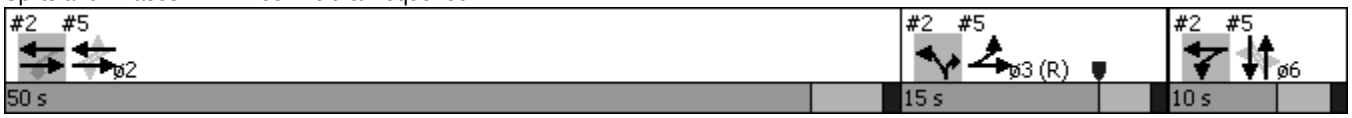
PREFERRED CONCEPT

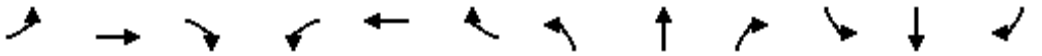
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	341	11	121	263	16	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		120	75		0	150
Storage Lanes		1	0		1	1
Taper Length (ft)			50		25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor		0.97		1.00	0.98	
Frt		0.850				0.850
Flt Protected				0.985	0.950	
Satd. Flow (prot)	1863	1583	0	3486	1770	1583
Flt Permitted				0.736	0.950	
Satd. Flow (perm)	1863	1529	0	2601	1733	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		12				204
Link Speed (mph)	30			30	30	
Link Distance (ft)	280			141	1095	
Travel Time (s)	6.4			3.2	24.9	
Confl. Peds. (#/hr)		10	10		10	10
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	379	12	134	292	18	204
Shared Lane Traffic (%)						
Lane Group Flow (vph)	379	12	0	426	18	204
Turn Type	NA	Perm	D.P+P	NA	NA	Prot
Protected Phases	2		6	2 6	3	3
Permitted Phases		2	2			
Detector Phase	2	2	6		3	3
Switch Phase						
Minimum Initial (s)	15.0	15.0	6.0		7.0	7.0
Minimum Split (s)	20.0	20.0	10.0		11.0	11.0
Total Split (s)	50.0	50.0	10.0		15.0	15.0
Total Split (%)	66.7%	66.7%	13.3%		20.0%	20.0%
Maximum Green (s)	45.0	45.0	6.0		11.0	11.0
Yellow Time (s)	4.0	4.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0			4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	1.0		1.0	1.0
Recall Mode	Max	Max	None		C-Max	C-Max
Act Effct Green (s)	45.0	45.0		48.0	15.0	15.0
Actuated g/C Ratio	0.60	0.60		0.64	0.20	0.20
v/c Ratio	0.34	0.01		0.25	0.05	0.42
Control Delay	8.6	3.4		2.0	28.0	7.9
Queue Delay	0.0	0.0		0.3	0.0	0.0
Total Delay	8.6	3.4		2.3	28.0	7.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A	A		A	C	A
Approach Delay	8.4			2.3	9.6	
Approach LOS	A			A	A	
Stops (vph)	160	3		41	15	30
Fuel Used(gal)	3	0		1	0	2
CO Emissions (g/hr)	243	6		56	22	142
NOx Emissions (g/hr)	47	1		11	4	28
VOC Emissions (g/hr)	56	1		13	5	33
Dilemma Vehicles (#)	0	0		0	0	0
Queue Length 50th (ft)	79	0		7	7	0
Queue Length 95th (ft)	127	6		15	25	55
Internal Link Dist (ft)	200			61	1015	
Turn Bay Length (ft)		120				150
Base Capacity (vph)	1117	922		1700	353	480
Starvation Cap Reductn	0	0		712	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.34	0.01		0.43	0.05	0.42

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 67 (89%), Referenced to phase 3:NBL, Start of Yellow			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 6.2		Intersection LOS: A	
Intersection Capacity Utilization 47.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bloomfield & Poquonock



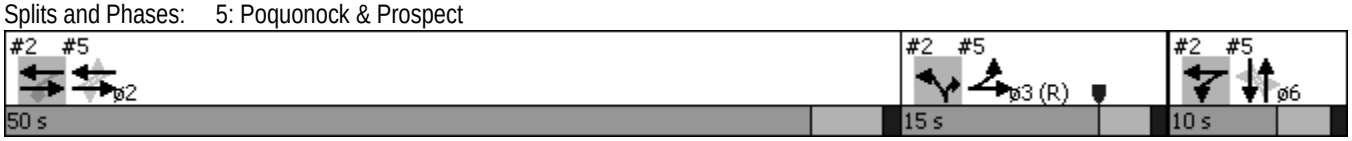


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	483	26	21	357	5	5	1	5	11	1	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	75		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.93		0.94	0.93	
Frt		0.993			0.998			0.938			0.855	
Flt Protected		0.998			0.997			0.977		0.950		
Satd. Flow (prot)	0	1843	0	0	3520	0	0	1609	0	1770	1478	0
Flt Permitted		0.990			0.915			0.838				
Satd. Flow (perm)	0	1828	0	0	3230	0	0	1357	0	1748	1478	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			3			6			29	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		141			219			141			334	
Travel Time (s)		3.2			5.0			3.2			7.6	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	18	537	29	23	397	6	6	1	6	12	1	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	584	0	0	426	0	0	13	0	12	30	0
Turn Type	D.P+P	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	2 3			2			6			6	
Permitted Phases	2			2			6			6		
Detector Phase				2	2		6	6		6	6	
Switch Phase												
Minimum Initial (s)	7.0			15.0	15.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	11.0			20.0	20.0		10.0	10.0		10.0	10.0	
Total Split (s)	15.0			50.0	50.0		10.0	10.0		10.0	10.0	
Total Split (%)	20.0%			66.7%	66.7%		13.3%	13.3%		13.3%	13.3%	
Maximum Green (s)	11.0			45.0	45.0		6.0	6.0		6.0	6.0	
Yellow Time (s)	3.0			4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0			1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)					0.0			0.0		0.0	0.0	
Total Lost Time (s)					5.0			4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			3.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode	C-Max			Max	Max		None	None		None	None	
Act Effct Green (s)		59.0			45.0			6.0		6.0	6.0	
Actuated g/C Ratio		0.79			0.60			0.08		0.08	0.08	
v/c Ratio		0.40			0.22			0.11		0.09	0.21	
Control Delay		1.5			7.5			27.5		33.5	17.1	
Queue Delay		0.2			0.7			0.0		0.0	0.0	
Total Delay		1.7			8.2			27.5		33.5	17.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			C		C	B	
Approach Delay		1.7			8.2			27.5			21.8	
Approach LOS		A			A			C			C	
Stops (vph)		53			136			11		13	12	
Fuel Used(gal)		1			2			0		0	0	
CO Emissions (g/hr)		72			139			10		12	16	
NOx Emissions (g/hr)		14			27			2		2	3	
VOC Emissions (g/hr)		17			32			2		3	4	
Dilemma Vehicles (#)		0			0			0		0	0	
Queue Length 50th (ft)		14			32			3		5	0	
Queue Length 95th (ft)		14			68			19		21	25	
Internal Link Dist (ft)		61			139			61			254	
Turn Bay Length (ft)										75		
Base Capacity (vph)		1442			1939			114		139	144	
Starvation Cap Reductn		244			1128			0		0	0	
Spillback Cap Reductn		116			0			0		0	0	
Storage Cap Reductn		0			0			0		0	0	
Reduced v/c Ratio		0.49			0.53			0.11		0.09	0.21	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 67 (89%), Referenced to phase 3:NBL, Start of Yellow			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 5.4		Intersection LOS: A	
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Poquonock & Prospect

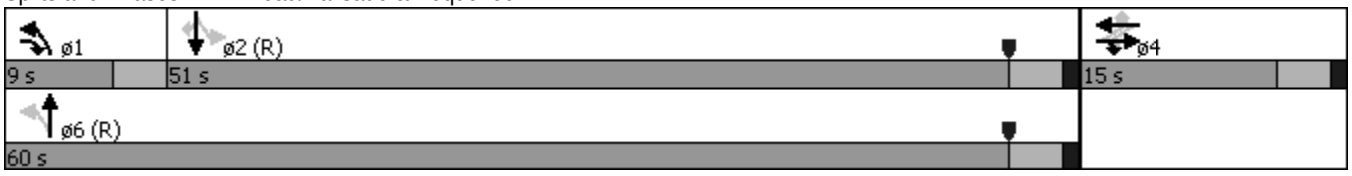


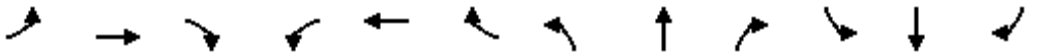
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	42	362	11	47	16	194	210	11	42	609	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		50	270		0	50		75
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	50			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			1.00	0.92	1.00	1.00		0.99		0.98
Frt			0.850			0.850		0.993				0.850
Flt Protected		0.967			0.991		0.950			0.950		
Satd. Flow (prot)	0	1801	1385	0	1615	1385	1770	1616	0	1770	1863	1583
Flt Permitted		0.753			0.930		0.283			0.607		
Satd. Flow (perm)	0	1372	1385	0	1509	1278	526	1616	0	1124	1863	1551
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			256			58						120
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		219			324			513			1372	
Travel Time (s)		5.0			7.4			11.7			31.2	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)			5	5	5	5		5	5			
Adj. Flow (vph)	106	47	402	12	52	18	216	233	12	47	677	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	153	402	0	64	18	216	245	0	47	677	158
Turn Type	Perm	NA	pt+ov	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm
Protected Phases		4	1 4		4		1	6			2	
Permitted Phases	4			4		4	6			2		2
Detector Phase	4	4	4	4	4	4	1	6		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	15.0		15.0	15.0	15.0
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	8.0	21.0		21.0	21.0	21.0
Total Split (s)	15.0	15.0		15.0	15.0	15.0	9.0	60.0		51.0	51.0	51.0
Total Split (%)	20.0%	20.0%		20.0%	20.0%	20.0%	12.0%	80.0%		68.0%	68.0%	68.0%
Maximum Green (s)	11.0	11.0		11.0	11.0	11.0	6.0	56.0		47.0	47.0	47.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	0.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0			4.0	4.0	3.0	4.0		4.0	4.0	4.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	1.5	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Min		C-Min	C-Min	C-Min
Act Effct Green (s)		10.6	20.4		10.6	10.6	57.4	56.4		47.6	47.6	47.6
Actuated g/C Ratio		0.14	0.27		0.14	0.14	0.77	0.75		0.63	0.63	0.63
v/c Ratio		0.79	0.72		0.30	0.08	0.43	0.20		0.07	0.57	0.15
Control Delay		54.9	13.0		32.8	0.7	8.0	5.0		5.8	10.4	2.3
Queue Delay		0.0	3.2		0.0	0.0	0.0	0.0		0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		54.9	16.2		32.8	0.7	8.0	5.0		5.8	10.4	2.3
LOS		D	B		C	A	A	A		A	B	A
Approach Delay		26.9			25.7			6.4			8.7	
Approach LOS		C			C			A			A	
Stops (vph)		112	103		52	0	71	72		16	333	18
Fuel Used(gal)		2	2		1	0	1	1		1	10	2
CO Emissions (g/hr)		168	150		57	3	104	105		41	674	118
NOx Emissions (g/hr)		33	29		11	1	20	20		8	131	23
VOC Emissions (g/hr)		39	35		13	1	24	24		10	156	27
Dilemma Vehicles (#)		0	0		0	0	0	0		0	0	0
Queue Length 50th (ft)		47	17		26	0	45	56		8	162	6
Queue Length 95th (ft)		#165	8		62	m1	42	29		19	254	26
Internal Link Dist (ft)		139			244			433			1292	
Turn Bay Length (ft)						50	270			50		75
Base Capacity (vph)		201	560		221	236	502	1216		714	1183	1028
Starvation Cap Reductn		0	83		0	0	0	0		0	0	0
Spillback Cap Reductn		0	0		0	0	0	0		0	0	0
Storage Cap Reductn		0	0		0	0	0	0		0	0	0
Reduced v/c Ratio		0.76	0.84		0.29	0.08	0.43	0.20		0.07	0.57	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 33 (44%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 69.7%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 1: Broad/Palisado & Poquonock



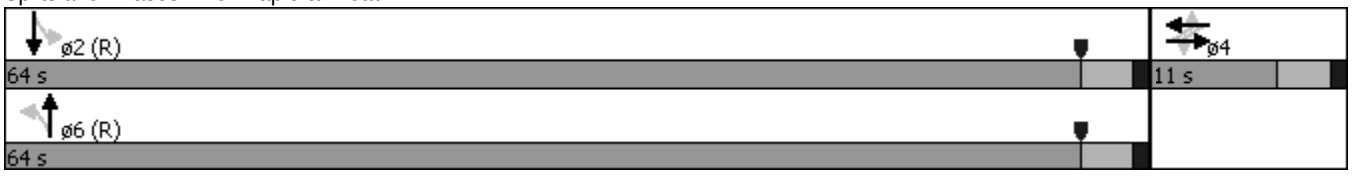


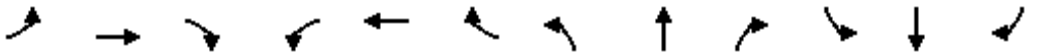
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	16	21	47	11	11	32	394	105	26	956	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.94		0.95	0.94		1.00	0.99		1.00	1.00	
Frt		0.941			0.925			0.968			0.995	
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1444	0	1770	1628	0	1770	1568	0	1770	1620	0
Flt Permitted		0.915		0.939			0.197			0.441		
Satd. Flow (perm)	0	1321	0	1667	1628	0	367	1568	0	819	1620	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			12			64			8	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		408			138			579			513	
Travel Time (s)		9.3			3.1			13.2			11.7	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)	5	5	5					5	5		5	5
Adj. Flow (vph)	12	18	23	52	12	12	36	438	117	29	1062	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	53	0	52	24	0	36	555	0	29	1098	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			6			2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4							
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		21.0	21.0		21.0	21.0	
Total Split (s)	11.0	11.0		11.0	11.0		64.0	64.0		64.0	64.0	
Total Split (%)	14.7%	14.7%		14.7%	14.7%		85.3%	85.3%		85.3%	85.3%	
Maximum Green (s)	7.0	7.0		7.0	7.0		60.0	60.0		60.0	60.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5	2.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		7.0		7.0	7.0		63.0	63.0		63.0	63.0	
Actuated g/C Ratio		0.09		0.09	0.09		0.84	0.84		0.84	0.84	
v/c Ratio		0.37		0.34	0.15		0.12	0.42		0.04	0.81	
Control Delay		28.9		38.2	24.1		2.5	2.9		1.3	9.2	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		28.9		38.2	24.1		2.5	2.9		1.3	9.2	
LOS		C		D	C		A	A		A	A	
Approach Delay		28.9			33.7			2.9			9.0	
Approach LOS		C			C			A			A	
Stops (vph)		31		45	16		6	114		4	408	
Fuel Used(gal)		1		1	0		0	4		0	8	
CO Emissions (g/hr)		42		46	15		19	309		9	563	
NOx Emissions (g/hr)		8		9	3		4	60		2	110	
VOC Emissions (g/hr)		10		11	4		4	72		2	131	
Dilemma Vehicles (#)		0		0	0		0	0		0	0	
Queue Length 50th (ft)		13		23	5		2	42		1	131	
Queue Length 95th (ft)		46		56	27		m7	70		m3	#66	
Internal Link Dist (ft)		328			58			499			433	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		144		155	162		308	1327		688	1362	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.37		0.34	0.15		0.12	0.42		0.04	0.81	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 17 (23%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 8.6		Intersection LOS: A	
Intersection Capacity Utilization 68.8%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 9: Maple & Broad



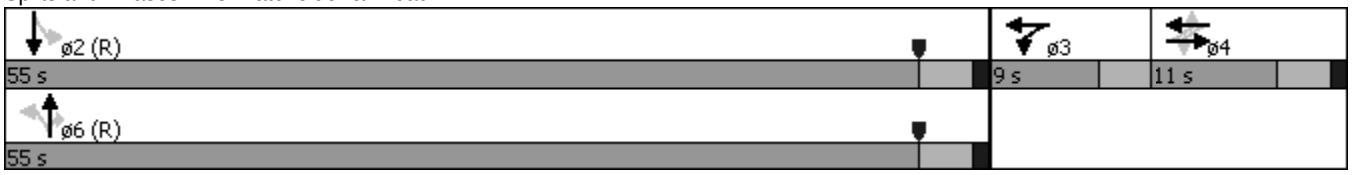


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	5	26	74	5	11	26	525	47	32	977	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.95			0.98		1.00		0.97		1.00	
Frt		0.917			0.984				0.850		0.998	
Flt Protected		0.987			0.961		0.950				0.998	
Satd. Flow (prot)	0	1617	0	0	1747	0	1770	1863	1583	0	3524	0
Flt Permitted		0.881			0.888		0.220				0.925	
Satd. Flow (perm)	0	1426	0	0	1593	0	409	1863	1532	0	3266	0
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									58			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		161			509			508			317	
Travel Time (s)		3.7			11.6			11.5			7.2	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	12	6	29	82	6	12	29	583	52	36	1086	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	100	0	29	583	52	0	1134	0
Turn Type	Perm	NA		D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	3 4			6			2	
Permitted Phases	4			4			6		6	2		
Detector Phase	4	4		3	3 4							
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			15.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	9.0	9.0		8.0			21.0	21.0	21.0	21.0	21.0	
Total Split (s)	11.0	11.0		9.0			55.0	55.0	55.0	55.0	55.0	
Total Split (%)	14.7%	14.7%		12.0%			73.3%	73.3%	73.3%	73.3%	73.3%	
Maximum Green (s)	7.0	7.0		6.0			51.0	51.0	51.0	51.0	51.0	
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0			1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0					0.0	0.0	0.0		0.0	
Total Lost Time (s)		4.0					4.0	4.0	4.0		4.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?				Yes								
Vehicle Extension (s)	2.5	2.5		3.0			3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None			C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)		6.4			12.2		56.0	56.0	56.0		56.0	
Actuated g/C Ratio		0.09			0.16		0.75	0.75	0.75		0.75	
v/c Ratio		0.39			0.37		0.10	0.42	0.04		0.46	
Control Delay		41.8			28.7		5.0	6.1	1.2		3.9	
Queue Delay		0.0			0.0		0.0	0.0	0.0		0.0	
Total Delay		41.8			28.7		5.0	6.1	1.2		3.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D			C		A	A	A		A	
Approach Delay		41.8			28.7			5.6			3.9	
Approach LOS		D			C			A			A	
Stops (vph)		40			75		9	199	4		225	
Fuel Used(gal)		1			1		0	4	0		9	
CO Emissions (g/hr)		44			91		13	268	15		643	
NOx Emissions (g/hr)		9			18		2	52	3		125	
VOC Emissions (g/hr)		10			21		3	62	4		149	
Dilemma Vehicles (#)		0			0		0	0	0		0	
Queue Length 50th (ft)		21			38		4	106	0		60	
Queue Length 95th (ft)		53			78		13	165	8		96	
Internal Link Dist (ft)		81			429			428			237	
Turn Bay Length (ft)							50					
Base Capacity (vph)		133			284		305	1391	1159		2440	
Starvation Cap Reductn		0			0		0	0	0		0	
Spillback Cap Reductn		0			0		0	0	0		0	
Storage Cap Reductn		0			0		0	0	0		0	
Reduced v/c Ratio		0.35			0.35		0.10	0.42	0.04		0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 25 (33%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 6.7		Intersection LOS: A	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 8: Batchelder & Broad

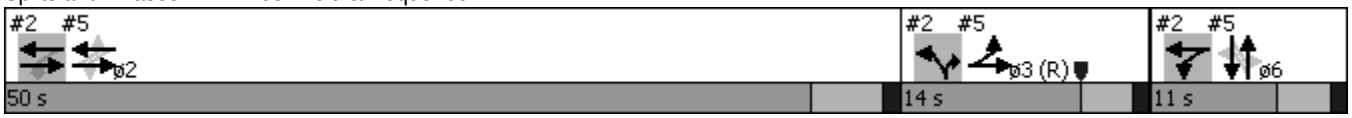


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	415	26	105	347	37	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		120	75		0	150
Storage Lanes		1	0		1	1
Taper Length (ft)			50		25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor		0.97		1.00	0.98	
Frt		0.850				0.850
Flt Protected				0.989	0.950	
Satd. Flow (prot)	1863	1583	0	3500	1770	1583
Flt Permitted				0.752	0.950	
Satd. Flow (perm)	1863	1529	0	2659	1730	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29				222
Link Speed (mph)	30			30	30	
Link Distance (ft)	286			149	1176	
Travel Time (s)	6.5			3.4	26.7	
Confl. Peds. (#/hr)		10	10		10	10
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	461	29	117	386	41	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	461	29	0	503	41	222
Turn Type	NA	Perm	D.P+P	NA	NA	Prot
Protected Phases	2		6	2 6	3	3
Permitted Phases		2	2			
Detector Phase	2	2	6		3	3
Switch Phase						
Minimum Initial (s)	15.0	15.0	7.0		7.0	7.0
Minimum Split (s)	20.0	20.0	11.0		11.0	11.0
Total Split (s)	50.0	50.0	11.0		14.0	14.0
Total Split (%)	66.7%	66.7%	14.7%		18.7%	18.7%
Maximum Green (s)	45.0	45.0	7.0		10.0	10.0
Yellow Time (s)	4.0	4.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0			4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	1.0		1.0	1.0
Recall Mode	Max	Max	None		C-Max	C-Max
Act Effct Green (s)	45.0	45.0		48.6	14.4	14.4
Actuated g/C Ratio	0.60	0.60		0.65	0.19	0.19
v/c Ratio	0.41	0.03		0.29	0.12	0.46
Control Delay	9.4	2.6		1.3	29.4	8.3
Queue Delay	0.0	0.0		0.3	0.0	0.0
Total Delay	9.4	2.6		1.6	29.4	8.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A	A		A	C	A
Approach Delay	9.0			1.6	11.5	
Approach LOS	A			A	B	
Stops (vph)	206	4		39	33	32
Fuel Used(gal)	5	0		1	1	2
CO Emissions (g/hr)	337	15		60	52	164
NOx Emissions (g/hr)	66	3		12	10	32
VOC Emissions (g/hr)	78	4		14	12	38
Dilemma Vehicles (#)	0	0		0	0	0
Queue Length 50th (ft)	102	0		4	17	0
Queue Length 95th (ft)	161	9		4	45	59
Internal Link Dist (ft)	206			69	1096	
Turn Bay Length (ft)		120				150
Base Capacity (vph)	1117	929		1763	340	483
Starvation Cap Reductn	0	0		673	0	0
Spillback Cap Reductn	1	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.41	0.03		0.46	0.12	0.46

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 20 (27%), Referenced to phase 3:NBL, Start of Yellow			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 6.6		Intersection LOS: A	
Intersection Capacity Utilization 52.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bloomfield & Poquonock

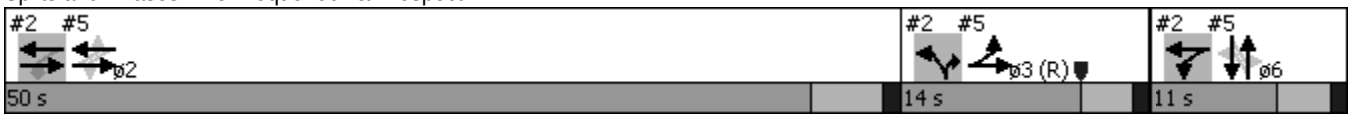


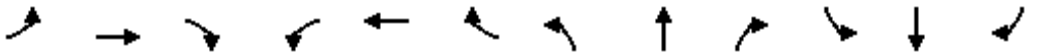
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	530	26	16	404	11	5	1	5	11	5	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	75		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25			25			25			50		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.94		0.95	0.94	
Frt		0.994			0.996			0.938			0.867	
Flt Protected		0.995			0.998			0.977		0.950		
Satd. Flow (prot)	0	1840	0	0	3515	0	0	1620	0	1770	1520	0
Flt Permitted		0.920			0.925			0.826		0.952		
Satd. Flow (perm)	0	1701	0	0	3258	0	0	1351	0	1680	1520	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			6			6			47	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		149			220			141			334	
Travel Time (s)		3.4			5.0			3.2			7.6	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	70	589	29	18	449	12	6	1	6	12	6	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	688	0	0	479	0	0	13	0	12	53	0
Turn Type	D.P+P	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	3	2 3			2			6			6	
Permitted Phases	2			2			6			6		
Detector Phase				2	2		6	6		6	6	
Switch Phase												
Minimum Initial (s)	7.0			15.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.0			20.0	20.0		11.0	11.0		11.0	11.0	
Total Split (s)	14.0			50.0	50.0		11.0	11.0		11.0	11.0	
Total Split (%)	18.7%			66.7%	66.7%		14.7%	14.7%		14.7%	14.7%	
Maximum Green (s)	10.0			45.0	45.0		7.0	7.0		7.0	7.0	
Yellow Time (s)	3.0			4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0			1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)					0.0			0.0		0.0	0.0	
Total Lost Time (s)					5.0			4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			3.0	3.0		1.0	1.0		1.0	1.0	
Recall Mode	C-Max			Max	Max		None	None		None	None	
Act Effct Green (s)		58.4			45.0			7.0		7.0	7.0	
Actuated g/C Ratio		0.78			0.60			0.09		0.09	0.09	
v/c Ratio		0.51			0.24			0.10		0.08	0.29	
Control Delay		2.5			6.8			26.2		32.4	16.5	
Queue Delay		0.1			0.7			0.0		0.0	0.0	
Total Delay		2.6			7.6			26.2		32.4	16.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			C		C	B	
Approach Delay		2.6			7.6			26.3			19.4	
Approach LOS		A			A			C			B	
Stops (vph)		93			188			11		13	18	
Fuel Used(gal)		2			2			0		0	0	
CO Emissions (g/hr)		108			166			10		12	27	
NOx Emissions (g/hr)		21			32			2		2	5	
VOC Emissions (g/hr)		25			39			2		3	6	
Dilemma Vehicles (#)		0			0			0		0	0	
Queue Length 50th (ft)		17			50			3		5	3	
Queue Length 95th (ft)		27			78			19		20	34	
Internal Link Dist (ft)		69			140			61			254	
Turn Bay Length (ft)										75		
Base Capacity (vph)		1351			1957			131		156	184	
Starvation Cap Reductn		32			1104			0		0	0	
Spillback Cap Reductn		110			0			0		0	0	
Storage Cap Reductn		0			0			0		0	0	
Reduced v/c Ratio		0.55			0.56			0.10		0.08	0.29	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 20 (27%), Referenced to phase 3:NBL, Start of Yellow			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 5.6		Intersection LOS: A	
Intersection Capacity Utilization 63.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: Poquonock & Prospect



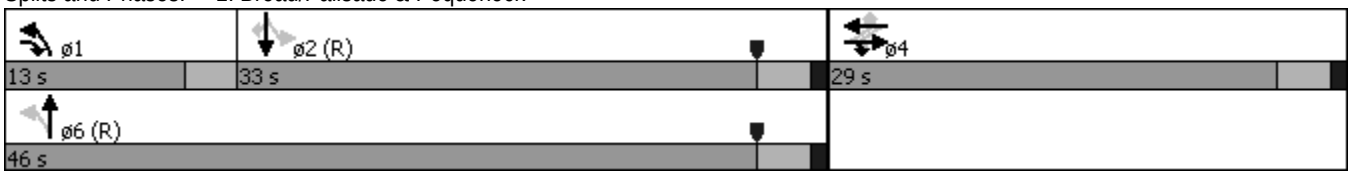


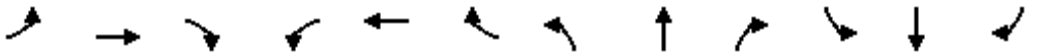
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	58	368	5	105	68	247	347	5	26	273	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		50	270		0	50		75
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	50			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00	0.95	1.00	1.00		0.99		0.97
Frt			0.850			0.850		0.998				0.850
Flt Protected		0.966			0.998		0.950			0.950		
Satd. Flow (prot)	0	1799	1346	0	1580	1346	1770	1579	0	1770	1863	1583
Flt Permitted		0.708			0.985		0.483			0.530		
Satd. Flow (perm)	0	1307	1346	0	1559	1284	897	1579	0	980	1863	1543
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			370			76						93
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		220			346			532			1431	
Travel Time (s)		5.0			7.9			12.1			32.5	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)			10	10	10	10		10	10			
Adj. Flow (vph)	152	64	409	6	117	76	274	386	6	29	303	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	216	409	0	123	76	274	392	0	29	303	93
Turn Type	Perm	NA	pt+ov	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm
Protected Phases		4	1 4		4		1	6			2	
Permitted Phases	4			4		4	6			2		2
Detector Phase	4	4	4	4	4	4	1	6		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	15.0		15.0	15.0	15.0
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	8.0	21.0		21.0	21.0	21.0
Total Split (s)	29.0	29.0		29.0	29.0	29.0	13.0	46.0		33.0	33.0	33.0
Total Split (%)	38.7%	38.7%		38.7%	38.7%	38.7%	17.3%	61.3%		44.0%	44.0%	44.0%
Maximum Green (s)	25.0	25.0		25.0	25.0	25.0	10.0	42.0		29.0	29.0	29.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	0.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.0			4.0	4.0	3.0	4.0		4.0	4.0	4.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	1.5	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Min		C-Min	C-Min	C-Min
Act Effct Green (s)		18.0	30.2		18.0	18.0	50.0	49.0		37.8	37.8	37.8
Actuated g/C Ratio		0.24	0.40		0.24	0.24	0.67	0.65		0.50	0.50	0.50
v/c Ratio		0.69	0.54		0.33	0.21	0.39	0.38		0.06	0.32	0.11
Control Delay		31.1	7.1		24.5	6.8	5.1	5.2		13.4	14.3	4.0
Queue Delay		0.9	1.4		0.0	0.0	0.0	0.0		0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		32.1	8.6		24.5	6.8	5.1	5.2		13.4	14.3	4.0
LOS		C	A		C	A	A	A		B	B	A
Approach Delay		16.7			17.7			5.2			12.0	
Approach LOS		B			B			A			B	
Stops (vph)		172	150		85	14	73	123		17	167	14
Fuel Used(gal)		3	2		1	0	2	3		0	5	1
CO Emissions (g/hr)		176	139		92	25	118	176		32	333	76
NOx Emissions (g/hr)		34	27		18	5	23	34		6	65	15
VOC Emissions (g/hr)		41	32		21	6	27	41		7	77	18
Dilemma Vehicles (#)		0	0		0	0	0	0		0	0	0
Queue Length 50th (ft)		91	58		48	1	29	55		7	81	0
Queue Length 95th (ft)		155	137		m78	m25	83	115		25	165	27
Internal Link Dist (ft)		140			266			452			1351	
Turn Bay Length (ft)						50	270			50		75
Base Capacity (vph)		435	781		519	478	714	1032		493	938	822
Starvation Cap Reductn		72	202		0	0	0	0		0	0	0
Spillback Cap Reductn		0	0		0	0	0	0		0	0	0
Storage Cap Reductn		0	0		0	0	0	0		0	0	0
Reduced v/c Ratio		0.60	0.71		0.24	0.16	0.38	0.38		0.06	0.32	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 65 (87%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 11.8		Intersection LOS: B	
Intersection Capacity Utilization 58.4%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 1: Broad/Palisado & Poquonock



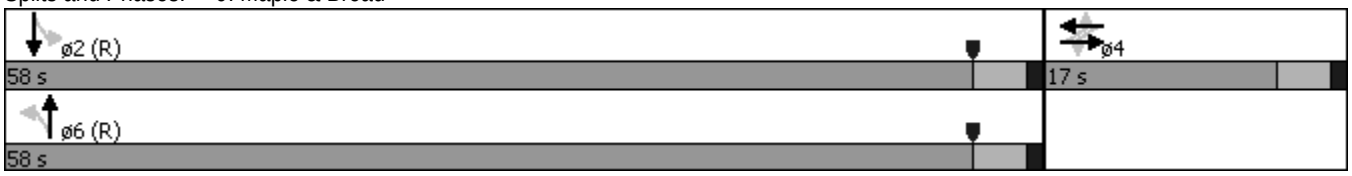


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	21	32	105	26	21	42	562	105	42	583	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.96		0.98	0.97		1.00	0.99		1.00	1.00	
Frt		0.937			0.934			0.976			0.991	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1418	0	1770	1687	0	1770	1538	0	1770	1566	0
Flt Permitted		0.921		0.760			0.358			0.332		
Satd. Flow (perm)	0	1314	0	1382	1687	0	665	1538	0	617	1566	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			23			32			11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		358			151			619			532	
Travel Time (s)		8.1			3.4			14.1			12.1	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)	10	10	10					10	10		10	10
Adj. Flow (vph)	18	23	36	117	29	23	47	624	117	47	648	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	117	52	0	47	741	0	47	689	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			6			2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4							
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		21.0	21.0		21.0	21.0	
Total Split (s)	17.0	17.0		17.0	17.0		58.0	58.0		58.0	58.0	
Total Split (%)	22.7%	22.7%		22.7%	22.7%		77.3%	77.3%		77.3%	77.3%	
Maximum Green (s)	13.0	13.0		13.0	13.0		54.0	54.0		54.0	54.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5	2.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		10.3		10.3	10.3		59.7	59.7		59.7	59.7	
Actuated g/C Ratio		0.14		0.14	0.14		0.80	0.80		0.80	0.80	
v/c Ratio		0.36		0.62	0.21		0.09	0.60		0.10	0.55	
Control Delay		22.4		44.2	19.9		2.8	6.0		4.0	7.4	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		22.4		44.2	19.9		2.8	6.0		4.0	7.5	
LOS		C		D	B		A	A		A	A	
Approach Delay		22.4			36.7			5.8			7.3	
Approach LOS		C			D			A			A	
Stops (vph)		38		97	28		9	199		13	296	
Fuel Used(gal)		1		2	0		0	7		0	5	
CO Emissions (g/hr)		50		112	28		27	476		20	360	
NOx Emissions (g/hr)		10		22	5		5	93		4	70	
VOC Emissions (g/hr)		12		26	6		6	110		5	83	
Dilemma Vehicles (#)		0		0	0		0	0		0	0	
Queue Length 50th (ft)		17		52	12		4	72		2	44	
Queue Length 95th (ft)		53		100	41		m8	136		m20	277	
Internal Link Dist (ft)		278			71			539			452	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		257		239	311		529	1230		490	1247	
Starvation Cap Reductn		0		0	0		0	0		0	63	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.30		0.49	0.17		0.09	0.60		0.10	0.58	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 37 (49%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 10.1		Intersection LOS: B	
Intersection Capacity Utilization 55.3%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 9: Maple & Broad



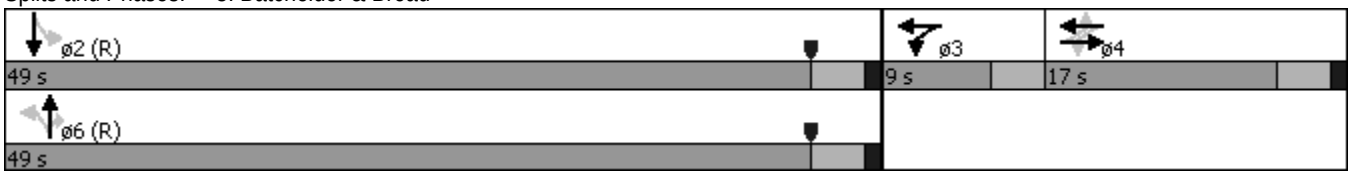
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	11	95	126	11	42	100	604	37	16	672	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.97			0.98		1.00		0.97		1.00	
Frt		0.910			0.968				0.850		0.999	
Flt Protected		0.987			0.966		0.950				0.999	
Satd. Flow (prot)	0	1627	0	0	1720	0	1770	1863	1583	0	3531	0
Flt Permitted		0.864			0.606		0.327				0.937	
Satd. Flow (perm)	0	1416	0	0	1073	0	607	1863	1529	0	3312	0
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									58			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		139			535			465			321	
Travel Time (s)		3.2			12.2			10.6			7.3	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	41	12	106	140	12	47	111	671	41	18	747	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	159	0	0	199	0	111	671	41	0	771	0
Turn Type	Perm	NA		D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	3 4			6			2	
Permitted Phases	4			4			6		6	2		
Detector Phase	4	4		3	3 4							
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			15.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	9.0	9.0		8.0			21.0	21.0	21.0	21.0	21.0	
Total Split (s)	17.0	17.0		9.0			49.0	49.0	49.0	49.0	49.0	
Total Split (%)	22.7%	22.7%		12.0%			65.3%	65.3%	65.3%	65.3%	65.3%	
Maximum Green (s)	13.0	13.0		6.0			45.0	45.0	45.0	45.0	45.0	
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0			1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0					0.0	0.0	0.0		0.0	
Total Lost Time (s)		4.0					4.0	4.0	4.0		4.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5			3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None			C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)		11.4			18.4		46.6	46.6	46.6		46.6	
Actuated g/C Ratio		0.15			0.25		0.62	0.62	0.62		0.62	
v/c Ratio		0.74			0.63		0.29	0.58	0.04		0.37	
Control Delay		51.3			32.1		9.8	11.4	1.4		6.1	
Queue Delay		0.0			0.0		0.0	0.0	0.0		0.0	
Total Delay		51.3			32.1		9.8	11.4	1.4		6.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D			C		A	B	A		A	
Approach Delay		51.3			32.1			10.7			6.1	
Approach LOS		D			C			B			A	
Stops (vph)		129			154		47	347	3		257	
Fuel Used(gal)		2			3		1	6	0		7	
CO Emissions (g/hr)		165			193		57	385	11		515	
NOx Emissions (g/hr)		32			38		11	75	2		100	
VOC Emissions (g/hr)		38			45		13	89	3		119	
Dilemma Vehicles (#)		0			0		0	0	0		0	
Queue Length 50th (ft)		70			72		23	175	0		73	
Queue Length 95th (ft)		#148			128		53	272	8		85	
Internal Link Dist (ft)		59			455			385			241	
Turn Bay Length (ft)							50					
Base Capacity (vph)		245			337		377	1156	971		2057	
Starvation Cap Reductn		0			0		0	0	0		0	
Spillback Cap Reductn		0			0		0	0	0		0	
Storage Cap Reductn		0			0		0	0	0		0	
Reduced v/c Ratio		0.65			0.59		0.29	0.58	0.04		0.37	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 32 (43%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 14.4 Intersection LOS: B
Intersection Capacity Utilization 78.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Batchelder & Broad



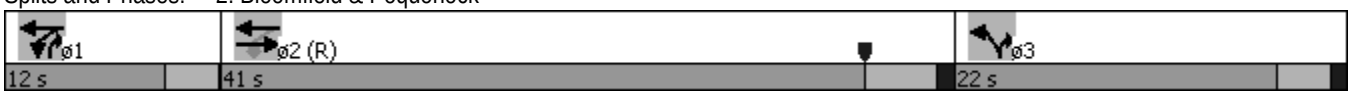
CONCEPT A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	341	11	143	258	21	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		120	75		0	150
Storage Lanes		1	0		1	1
Taper Length (ft)			50		25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor		0.96		1.00	0.99	
Frt		0.850				0.850
Flt Protected				0.982	0.950	
Satd. Flow (prot)	1863	1583	0	3476	1770	1583
Flt Permitted				0.724	0.950	
Satd. Flow (perm)	1863	1523	0	2558	1747	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		12				204
Link Speed (mph)	30			30	30	
Link Distance (ft)	280			141	1095	
Travel Time (s)	6.4			3.2	24.9	
Confl. Peds. (#/hr)		10	10		10	10
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	379	12	159	287	23	204
Shared Lane Traffic (%)						
Lane Group Flow (vph)	379	12	0	446	23	204
Turn Type	NA	Perm	D.P+P	NA	NA	pt+ov
Protected Phases	2		1	1 2	3	1 3
Permitted Phases		2	2			
Detector Phase	2		1		3	3
Switch Phase						
Minimum Initial (s)	15.0	15.0	6.0		7.0	
Minimum Split (s)	20.0	20.0	10.0		11.0	
Total Split (s)	41.0	41.0	12.0		22.0	
Total Split (%)	54.7%	54.7%	16.0%		29.3%	
Maximum Green (s)	36.0	36.0	8.9		18.0	
Yellow Time (s)	4.0	4.0	3.0		3.0	
All-Red Time (s)	1.0	1.0	0.1		1.0	
Lost Time Adjust (s)	0.0	0.0			0.0	
Total Lost Time (s)	5.0	5.0			4.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	1.0		1.0	
Recall Mode	C-Min	C-Min	None		None	
Act Effct Green (s)	58.2	58.2		60.1	7.8	8.7
Actuated g/C Ratio	0.78	0.78		0.80	0.10	0.12
v/c Ratio	0.26	0.01		0.22	0.13	0.56
Control Delay	3.0	1.4		1.7	31.3	11.4
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	3.0	1.4		1.7	31.3	11.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A	A		A	C	B
Approach Delay	3.0			1.7	13.4	
Approach LOS	A			A	B	
Stops (vph)	85	1		61	21	32
Fuel Used(gal)	3	0		1	0	2
CO Emissions (g/hr)	187	5		64	30	152
NOx Emissions (g/hr)	36	1		13	6	30
VOC Emissions (g/hr)	43	1		15	7	35
Dilemma Vehicles (#)	0	0		0	0	0
Queue Length 50th (ft)	33	0		9	10	0
Queue Length 95th (ft)	74	3		30	29	54
Internal Link Dist (ft)	200			61	1015	
Turn Bay Length (ft)		120				150
Base Capacity (vph)	1446	1184		2050	424	551
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.26	0.01		0.22	0.05	0.37

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 16 (21%), Referenced to phase 2:EBWB, Start of Yellow			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 4.7		Intersection LOS: A	
Intersection Capacity Utilization 45.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bloomfield & Poquonock



Intersection	
Intersection Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	499	26	0	378	5	0	0	6	0	0	27
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		0	0		0	0		0	75		0
Median Width		5			12			0			0	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	554	29	0	420	6	0	0	7	0	0	30
Number of Lanes	0	1	0	0	1	0	0	0	1	0	0	1

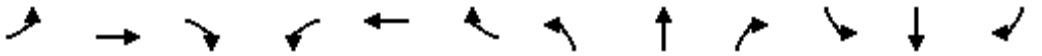
Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	436	0	0	593	0	0	1012	1015	589	1012	1026	443
Stage 1	-	-	-	-	-	-	579	579	-	433	433	-
Stage 2	-	-	-	-	-	-	433	436	-	579	593	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1124	-	-	983	-	-	218	238	508	218	235	615
Stage 1	-	-	-	-	-	-	501	501	-	601	582	-
Stage 2	-	-	-	-	-	-	601	580	-	501	493	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1115	-	-	975	-	-	204	234	500	212	231	605
Mov Capacity-2 Maneuver	-	-	-	-	-	-	204	234	-	212	231	-
Stage 1	-	-	-	-	-	-	497	497	-	596	577	-
Stage 2	-	-	-	-	-	-	566	575	-	490	489	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.3	11.3
HCM LOS	-	-	B	B

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Cap, veh/h	500	1115	-	-	975	-	-	605
HCM Control Delay, s	12.3	0	-	-	0	-	-	11.3
HCM Lane V/C Ratio	0.01	-	-	-	-	-	-	0.05
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th-tile Q, veh	0.0	0.0	-	-	0.0	-	-	0.2

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

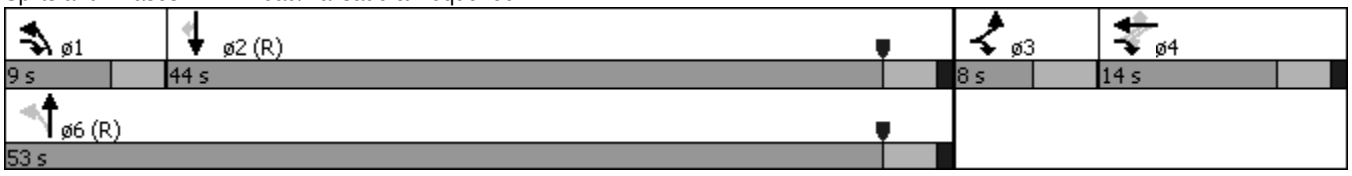


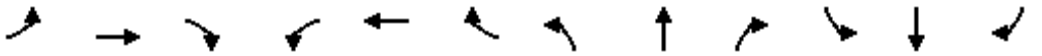
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	0	396	5	47	10	194	216	0	0	660	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		50	0		0	50		75
Storage Lanes	1		1	0		1	1		0	0		1
Taper Length (ft)	50			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98				1.00	0.92	1.00					0.96
Frt			0.850			0.850						0.850
Flt Protected	0.950				0.995		0.950					
Satd. Flow (prot)	1770	0	1385	0	1622	1385	1770	1630	0	0	1863	1583
Flt Permitted	0.719				0.995		0.180					
Satd. Flow (perm)	1307	0	1385	0	1615	1270	335	1630	0	0	1863	1526
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			171			112						112
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		219			324			251			1372	
Travel Time (s)		5.0			7.4			5.7			31.2	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)			5	5	5	5		5	5			
Adj. Flow (vph)	122	0	440	6	52	11	216	240	0	0	733	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	0	440	0	58	11	216	240	0	0	733	158
Turn Type	D.P+P		custom	Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases	3		1 3 4		4		1	6			2	
Permitted Phases	4			4		4	6					2
Detector Phase	3		4	4	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	4.0			5.0	5.0	5.0	5.0	15.0			15.0	15.0
Minimum Split (s)	8.0			9.0	9.0	9.0	8.1	21.0			21.0	21.0
Total Split (s)	8.0			14.0	14.0	14.0	9.0	53.0			44.0	44.0
Total Split (%)	10.7%			18.7%	18.7%	18.7%	12.0%	70.7%			58.7%	58.7%
Maximum Green (s)	4.4			10.0	10.0	10.0	5.9	49.0			40.0	40.0
Yellow Time (s)	3.5			3.0	3.0	3.0	3.0	3.0			3.0	3.0
All-Red Time (s)	0.1			1.0	1.0	1.0	0.1	1.0			1.0	1.0
Lost Time Adjust (s)	0.0				0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)	3.6				4.0	4.0	3.1	4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0			3.0	3.0	3.0	1.5	3.0			3.0	3.0
Recall Mode	None			None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)	14.9		27.1		9.1	9.1	50.5	49.6			40.8	40.8
Actuated g/C Ratio	0.20		0.36		0.12	0.12	0.67	0.66			0.54	0.54
v/c Ratio	0.41		0.72		0.30	0.04	0.64	0.22			0.72	0.18
Control Delay	26.9		18.2		34.1	0.3	19.8	8.2			18.9	4.0
Queue Delay	0.0		0.4		0.0	0.0	0.0	0.0			0.3	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	26.9		18.6		34.1	0.3	19.8	8.2			19.2	4.0
LOS	C		B		C	A	B	A			B	A
Approach Delay					28.7			13.7			16.5	
Approach LOS					C			B			B	
Stops (vph)	88		194		47	0	95	86			494	27
Fuel Used(gal)	1		3		1	0	2	1			12	2
CO Emissions (g/hr)	89		225		53	2	118	88			862	125
NOx Emissions (g/hr)	17		44		10	0	23	17			168	24
VOC Emissions (g/hr)	21		52		12	0	27	20			200	29
Dilemma Vehicles (#)	0		0		0	0	0	0			0	0
Queue Length 50th (ft)	42		77		25	0	50	56			281	11
Queue Length 95th (ft)	80		101		58	m0	#72	79			381	36
Internal Link Dist (ft)		139			244			171			1292	
Turn Bay Length (ft)	150					50						75
Base Capacity (vph)	300		593		215	266	338	1101			1039	901
Starvation Cap Reductn	0		18		0	0	0	0			0	0
Spillback Cap Reductn	0		4		0	0	0	0			46	0
Storage Cap Reductn	0		0		0	0	0	0			0	0
Reduced v/c Ratio	0.41		0.77		0.27	0.04	0.64	0.22			0.74	0.18

Intersection Summary	
Area Type:	Other
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 8 (11%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 17.4	Intersection LOS: B
Intersection Capacity Utilization 74.5%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 1: Broad/Palisado & Poquonock





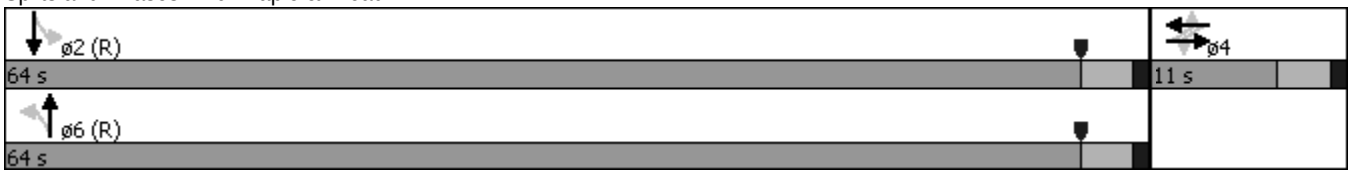
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	16	21	12	6	11	27	388	30	75	1065	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.94		0.95	0.93		1.00	1.00		1.00	1.00	
Frt		0.941			0.905			0.989			0.994	
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1444	0	1770	1569	0	1770	1608	0	1770	1618	0
Flt Permitted		0.916		0.996			0.156			0.495		
Satd. Flow (perm)	0	1322	0	1768	1569	0	290	1608	0	919	1618	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			12			18			10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		408			138			579			262	
Travel Time (s)		9.3			3.1			13.2			6.0	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)	5	5	5					5	5		5	5
Adj. Flow (vph)	12	18	23	13	7	12	30	431	33	83	1183	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	53	0	13	19	0	30	464	0	83	1230	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			6			2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4							
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		21.0	21.0		21.0	21.0	
Total Split (s)	11.0	11.0		11.0	11.0		64.0	64.0		64.0	64.0	
Total Split (%)	14.7%	14.7%		14.7%	14.7%		85.3%	85.3%		85.3%	85.3%	
Maximum Green (s)	7.0	7.0		7.0	7.0		60.0	60.0		60.0	60.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5	2.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		7.0		7.0	7.0		66.0	66.0		66.0	66.0	
Actuated g/C Ratio		0.09		0.09	0.09		0.88	0.88		0.88	0.88	
v/c Ratio		0.37		0.08	0.12		0.12	0.33		0.10	0.86	
Control Delay		28.9		32.3	22.4		2.7	2.2		1.4	12.6	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		28.9		32.3	22.4		2.7	2.2		1.4	12.6	
LOS		C		C	C		A	A		A	B	
Approach Delay		28.9			26.4			2.2			11.9	
Approach LOS		C			C			A			B	
Stops (vph)		31		14	12		5	74		9	403	
Fuel Used(gal)		1		0	0		0	4		0	7	
CO Emissions (g/hr)		42		12	11		16	246		16	512	
NOx Emissions (g/hr)		8		2	2		3	48		3	100	
VOC Emissions (g/hr)		10		3	3		4	57		4	119	
Dilemma Vehicles (#)		0		0	0		0	0		0	0	
Queue Length 50th (ft)		13		6	3		2	37		4	204	
Queue Length 95th (ft)		46		22	22		7	61		m7	#801	
Internal Link Dist (ft)		328			58			499			182	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		144		165	157		255	1417		809	1425	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.37		0.08	0.12		0.12	0.33		0.10	0.86	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 13 (17%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 10.1 Intersection LOS: B
Intersection Capacity Utilization 78.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Maple & Broad



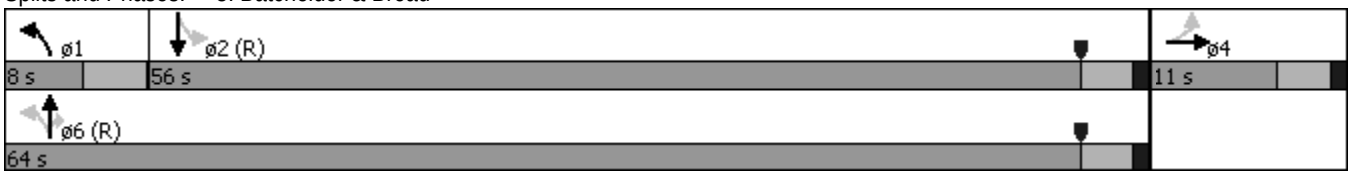
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	5	26	0	0	0	26	440	133	66	1017	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.95					1.00		0.97		1.00	
Frt		0.917							0.850		0.999	
Flt Protected		0.987					0.950				0.997	
Satd. Flow (prot)	0	1617	0	0	0	0	1770	1863	1583	0	3524	0
Flt Permitted		0.987					0.196				0.892	
Satd. Flow (perm)	0	1595	0	0	0	0	365	1863	1535	0	3152	0
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									148			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		161			509			508			317	
Travel Time (s)		3.7			11.6			11.5			7.2	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	12	6	29	0	0	0	29	489	148	73	1130	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	0	0	29	489	148	0	1215	0
Turn Type	Perm	NA					pm+pt	NA	Perm	Perm	NA	
Protected Phases		4					1	6			2	
Permitted Phases	4						6		6	2		
Detector Phase	4	4					1					
Switch Phase												
Minimum Initial (s)	5.0	5.0					4.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	9.0	9.0					8.0	21.0	21.0	21.0	21.0	
Total Split (s)	11.0	11.0					8.0	64.0	64.0	56.0	56.0	
Total Split (%)	14.7%	14.7%					10.7%	85.3%	85.3%	74.7%	74.7%	
Maximum Green (s)	7.0	7.0					4.4	60.0	60.0	52.0	52.0	
Yellow Time (s)	3.0	3.0					3.5	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0					0.1	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0					0.0	0.0	0.0		0.0	
Total Lost Time (s)		4.0					3.6	4.0	4.0		4.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5					3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None					None	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)		6.3					64.8	66.0	66.0		62.8	
Actuated g/C Ratio		0.08					0.86	0.88	0.88		0.84	
v/c Ratio		0.35					0.07	0.30	0.11		0.46	
Control Delay		39.6					1.7	2.0	0.5		1.4	
Queue Delay		0.0					0.0	0.0	0.0		0.0	
Total Delay		39.6					1.7	2.0	0.5		1.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D					A	A	A		A	
Approach Delay		39.6						1.7			1.4	
Approach LOS		D						A			A	
Stops (vph)		40					5	74	4		148	
Fuel Used(gal)		1					0	2	1		9	
CO Emissions (g/hr)		43					10	163	39		613	
NOx Emissions (g/hr)		8					2	32	8		119	
VOC Emissions (g/hr)		10					2	38	9		142	
Dilemma Vehicles (#)		0					0	0	0		0	
Queue Length 50th (ft)		21					2	41	0		7	
Queue Length 95th (ft)		52					5	65	7		m60	
Internal Link Dist (ft)		81			429			428			237	
Turn Bay Length (ft)							50					
Base Capacity (vph)		148					397	1640	1369		2640	
Starvation Cap Reductn		0					0	0	0		0	
Spillback Cap Reductn		0					0	0	0		0	
Storage Cap Reductn		0					0	0	0		0	
Reduced v/c Ratio		0.32					0.07	0.30	0.11		0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 34 (45%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 2.4		Intersection LOS: A	
Intersection Capacity Utilization 73.3%		ICU Level of Service D	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Batchelder & Broad

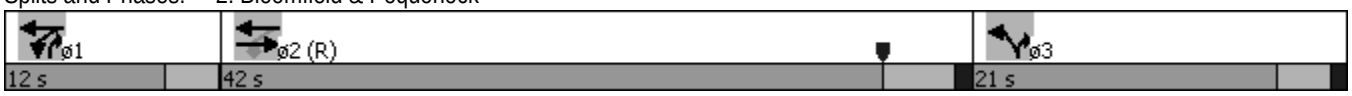


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	415	26	126	342	42	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		120	75		0	150
Storage Lanes		1	0		1	1
Taper Length (ft)			50		25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor		0.96		1.00	0.99	
Frt		0.850				0.850
Flt Protected				0.987	0.950	
Satd. Flow (prot)	1863	1583	0	3493	1770	1583
Flt Permitted				0.742	0.950	
Satd. Flow (perm)	1863	1524	0	2623	1746	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29				222
Link Speed (mph)	30			30	30	
Link Distance (ft)	286			149	1176	
Travel Time (s)	6.5			3.4	26.7	
Confl. Peds. (#/hr)		10	10		10	10
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	461	29	140	380	47	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	461	29	0	520	47	222
Turn Type	NA	Perm	D.P+P	NA	NA	pt+ov
Protected Phases	2		1	1 2	3	1 3
Permitted Phases		2	2			
Detector Phase	2		1		3	3
Switch Phase						
Minimum Initial (s)	15.0	15.0	7.0		7.0	
Minimum Split (s)	20.0	20.0	11.0		11.0	
Total Split (s)	42.0	42.0	12.0		21.0	
Total Split (%)	56.0%	56.0%	16.0%		28.0%	
Maximum Green (s)	37.0	37.0	8.9		17.0	
Yellow Time (s)	4.0	4.0	3.0		3.0	
All-Red Time (s)	1.0	1.0	0.1		1.0	
Lost Time Adjust (s)	0.0	0.0			0.0	
Total Lost Time (s)	5.0	5.0			4.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	1.0		1.0	
Recall Mode	C-Min	C-Min	None		None	
Act Effct Green (s)	58.2	58.2		60.1	7.8	8.7
Actuated g/C Ratio	0.78	0.78		0.80	0.10	0.12
v/c Ratio	0.32	0.02		0.25	0.25	0.58
Control Delay	3.4	1.1		2.3	33.8	11.4
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	3.4	1.1		2.3	33.8	11.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A	A		A	C	B
Approach Delay	3.2			2.3	15.3	
Approach LOS	A			A	B	
Stops (vph)	109	3		99	39	32
Fuel Used(gal)	4	0		1	1	2
CO Emissions (g/hr)	264	14		92	62	173
NOx Emissions (g/hr)	51	3		18	12	34
VOC Emissions (g/hr)	61	3		21	14	40
Dilemma Vehicles (#)	0	0		0	0	0
Queue Length 50th (ft)	43	0		19	21	0
Queue Length 95th (ft)	95	5		43	48	56
Internal Link Dist (ft)	206			69	1096	
Turn Bay Length (ft)		120				150
Base Capacity (vph)	1444	1188		2100	401	546
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.32	0.02		0.25	0.12	0.41

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 5 (7%), Referenced to phase 2:EBWB, Start of Yellow			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 5.4		Intersection LOS: A	
Intersection Capacity Utilization 51.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bloomfield & Poquonock



Intersection	
Intersection Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	593	26	0	420	11	0	0	6	0	0	47
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		0	0		0	0		0	75		0
Median Width		5			12			0			0	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	659	29	0	467	12	0	0	7	0	0	52
Number of Lanes	0	1	0	0	1	0	0	0	1	0	0	1

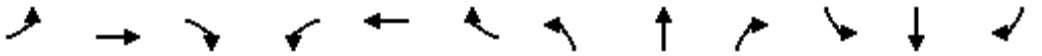
Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	489	0	0	698	0	0	1166	1172	693	1166	1181	493
Stage 1	-	-	-	-	-	-	683	683	-	483	483	-
Stage 2	-	-	-	-	-	-	483	489	-	683	698	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1074	-	-	898	-	-	171	192	443	171	190	576
Stage 1	-	-	-	-	-	-	439	449	-	565	553	-
Stage 2	-	-	-	-	-	-	565	549	-	439	442	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1065	-	-	891	-	-	153	189	436	166	187	566
Mov Capacity-2 Maneuver	-	-	-	-	-	-	153	189	-	166	187	-
Stage 1	-	-	-	-	-	-	435	445	-	560	548	-
Stage 2	-	-	-	-	-	-	509	544	-	429	438	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	13.4	12
HCM LOS	-	-	B	B

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Cap, veh/h	436	1065	-	-	891	-	-	566
HCM Control Delay, s	13.4	0	-	-	0	-	-	12
HCM Lane V/C Ratio	0.01	-	-	-	-	-	-	0.09
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th-tile Q, veh	0.0	0.0	-	-	0.0	-	-	0.3

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

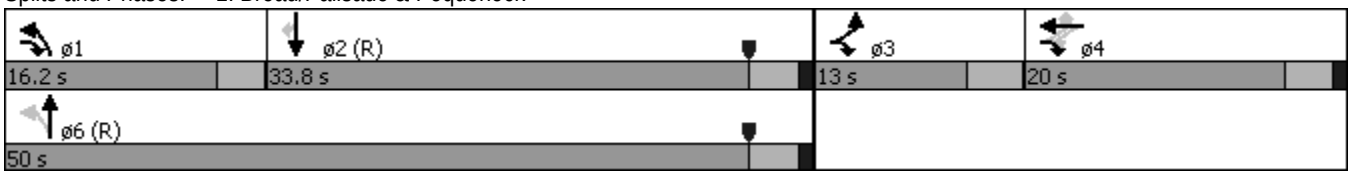


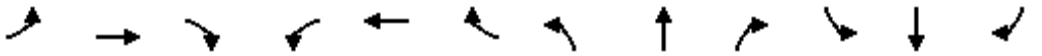
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	0	400	5	110	58	242	357	0	0	308	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		50	0		0	50		75
Storage Lanes	1		1	0		1	1		0	0		1
Taper Length (ft)	50			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99				1.00	0.94	1.00					0.96
Frt			0.850			0.850						0.850
Flt Protected	0.950				0.998		0.950					
Satd. Flow (prot)	1770	0	1346	0	1580	1346	1770	1583	0	0	1863	1583
Flt Permitted	0.594				0.998		0.397					
Satd. Flow (perm)	1092	0	1346	0	1578	1260	736	1583	0	0	1863	1514
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			294			101						101
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		220			346			271			1431	
Travel Time (s)		5.0			7.9			6.2			32.5	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)			10	10	10	10		10	10			
Adj. Flow (vph)	222	0	444	6	122	64	269	397	0	0	342	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	222	0	444	0	128	64	269	397	0	0	342	93
Turn Type	D.P+P		custom	Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases	3		1 3 4		4		1	6			2	
Permitted Phases	4			4		4	6					2
Detector Phase	3		4	4	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	4.0			5.0	5.0	5.0	5.0	15.0			15.0	15.0
Minimum Split (s)	8.0			9.0	9.0	9.0	8.1	21.0			21.0	21.0
Total Split (s)	13.0			20.0	20.0	20.0	16.2	50.0			33.8	33.8
Total Split (%)	15.7%			24.1%	24.1%	24.1%	19.5%	60.2%			40.7%	40.7%
Maximum Green (s)	9.4			16.0	16.0	16.0	13.1	46.0			29.8	29.8
Yellow Time (s)	3.5			3.0	3.0	3.0	3.0	3.0			3.0	3.0
All-Red Time (s)	0.1			1.0	1.0	1.0	0.1	1.0			1.0	1.0
Lost Time Adjust (s)	0.0				0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)	3.6				4.0	4.0	3.1	4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0			3.0	3.0	3.0	1.5	3.0			3.0	3.0
Recall Mode	None			None	None	None	None	C-Min			C-Min	C-Min
Act Effct Green (s)	24.4		42.0		12.0	12.0	48.3	47.4			33.9	33.9
Actuated g/C Ratio	0.29		0.51		0.14	0.14	0.58	0.57			0.41	0.41
v/c Ratio	0.53		0.54		0.56	0.24	0.48	0.44			0.45	0.14
Control Delay	25.0		6.1		42.0	4.8	12.7	13.2			22.3	4.5
Queue Delay	0.0		0.8		0.0	0.0	0.0	0.0			0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	25.0		6.9		42.0	4.8	12.7	13.2			22.3	4.5
LOS	C		A		D	A	B	B			C	A
Approach Delay					29.6			13.0			18.5	
Approach LOS					C			B			B	
Stops (vph)	148		84		103	5	118	203			226	12
Fuel Used(gal)	2		2		2	0	2	3			6	1
CO Emissions (g/hr)	152		115		130	17	125	198			425	76
NOx Emissions (g/hr)	30		22		25	3	24	39			83	15
VOC Emissions (g/hr)	35		27		30	4	29	46			99	18
Dilemma Vehicles (#)	0		0		0	0	0	0			0	0
Queue Length 50th (ft)	84		39		63	0	66	113			130	0
Queue Length 95th (ft)	136		92		112	15	116	194			226	27
Internal Link Dist (ft)		140			266			191			1351	
Turn Bay Length (ft)	150					50						75
Base Capacity (vph)	420		821		304	324	591	926			789	699
Starvation Cap Reductn	0		155		0	0	0	0			0	0
Spillback Cap Reductn	0		0		0	0	0	0			0	0
Storage Cap Reductn	0		0		0	0	0	0			0	0
Reduced v/c Ratio	0.53		0.67		0.42	0.20	0.46	0.43			0.43	0.13

Intersection Summary	
Area Type:	Other
Cycle Length: 83	
Actuated Cycle Length: 83	
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 58.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Broad/Palisado & Poquonock



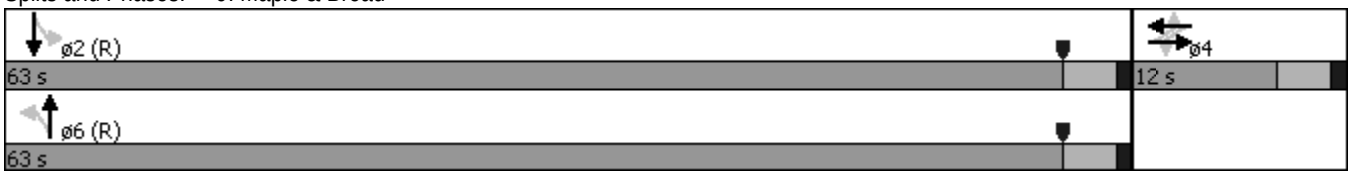


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	21	32	50	16	21	30	527	30	90	745	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.94		0.96	0.94		1.00	1.00		1.00	1.00	
Frt		0.937			0.916			0.992			0.989	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1398	0	1770	1611	0	1770	1568	0	1770	1562	0
Flt Permitted		0.907		0.758			0.279			0.406		
Satd. Flow (perm)	0	1270	0	1361	1611	0	519	1568	0	754	1562	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			23			13			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		358			151			619			260	
Travel Time (s)		8.1			3.4			14.1			5.9	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)	10	10	10					10	10		10	10
Adj. Flow (vph)	18	23	36	56	18	23	33	586	33	100	828	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	56	41	0	33	619	0	100	894	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			6			2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4							
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		21.0	21.0		21.0	21.0	
Total Split (s)	12.0	12.0		12.0	12.0		63.0	63.0		63.0	63.0	
Total Split (%)	16.0%	16.0%		16.0%	16.0%		84.0%	84.0%		84.0%	84.0%	
Maximum Green (s)	8.0	8.0		8.0	8.0		59.0	59.0		59.0	59.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5	2.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		7.5		7.5	7.5		62.5	62.5		62.5	62.5	
Actuated g/C Ratio		0.10		0.10	0.10		0.83	0.83		0.83	0.83	
v/c Ratio		0.48		0.41	0.23		0.08	0.47		0.16	0.69	
Control Delay		30.6		41.2	21.8		2.1	3.9		2.5	6.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		30.6		41.2	21.8		2.1	3.9		2.5	7.5	
LOS		C		D	C		A	A		A	A	
Approach Delay		30.6			33.0			3.8			7.0	
Approach LOS		C			C			A			A	
Stops (vph)		40		47	22		5	163		19	333	
Fuel Used(gal)		1		1	0		0	5		0	5	
CO Emissions (g/hr)		59		52	23		18	379		23	322	
NOx Emissions (g/hr)		11		10	4		4	74		5	63	
VOC Emissions (g/hr)		14		12	5		4	88		5	75	
Dilemma Vehicles (#)		0		0	0		0	0		0	0	
Queue Length 50th (ft)		18		25	8		2	58		8	132	
Queue Length 95th (ft)		58		59	36		m6	102		18	262	
Internal Link Dist (ft)		278			71			539			180	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		167		145	192		432	1309		628	1305	
Starvation Cap Reductn		0		0	0		0	0		0	138	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.46		0.39	0.21		0.08	0.47		0.16	0.77	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 35 (47%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 76.5%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 9: Maple & Broad

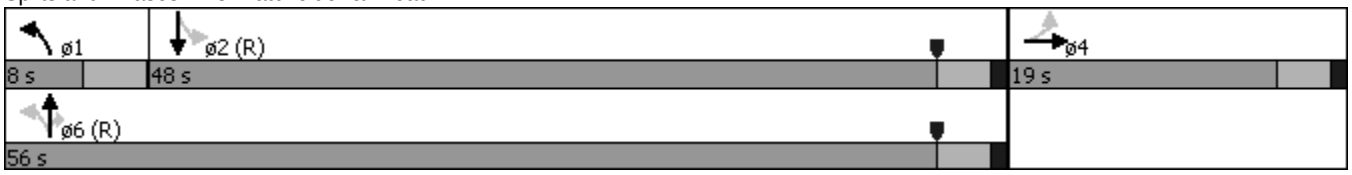


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	11	95	0	0	0	100	524	117	50	745	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.97					1.00		0.97		1.00	
Frt		0.910							0.850		0.998	
Flt Protected		0.987					0.950				0.997	
Satd. Flow (prot)	0	1631	0	0	0	0	1770	1863	1583	0	3520	0
Flt Permitted		0.987					0.263				0.888	
Satd. Flow (perm)	0	1621	0	0	0	0	489	1863	1532	0	3134	0
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									130			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		139			535			465			321	
Travel Time (s)		3.2			12.2			10.6			7.3	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	41	12	106	0	0	0	111	582	130	56	828	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	159	0	0	0	0	111	582	130	0	895	0
Turn Type	Perm	NA					pm+pt	NA	Perm	Perm	NA	
Protected Phases		4					1	6			2	
Permitted Phases	4						6		6	2		
Detector Phase	4	4					1					
Switch Phase												
Minimum Initial (s)	5.0	5.0					4.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	9.0	9.0					8.0	21.0	21.0	21.0	21.0	
Total Split (s)	19.0	19.0					8.0	56.0	56.0	48.0	48.0	
Total Split (%)	25.3%	25.3%					10.7%	74.7%	74.7%	64.0%	64.0%	
Maximum Green (s)	15.0	15.0					4.4	52.0	52.0	44.0	44.0	
Yellow Time (s)	3.0	3.0					3.5	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0					0.1	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0					0.0	0.0	0.0		0.0	
Total Lost Time (s)		4.0					3.6	4.0	4.0		4.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5					3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None					None	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)		11.5					55.9	55.5	55.5		49.1	
Actuated g/C Ratio		0.15					0.75	0.74	0.74		0.65	
v/c Ratio		0.64					0.25	0.42	0.11		0.44	
Control Delay		41.1					4.6	5.3	1.0		5.8	
Queue Delay		0.0					0.0	0.0	0.0		0.0	
Total Delay		41.1					4.6	5.3	1.0		5.8	

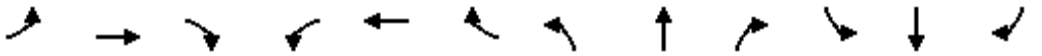
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D					A	A	A		A	
Approach Delay		41.1						4.5			5.8	
Approach LOS		D						A			A	
Stops (vph)		129					26	186	7		289	
Fuel Used(gal)		2					1	3	0		8	
CO Emissions (g/hr)		144					42	244	34		591	
NOx Emissions (g/hr)		28					8	47	7		115	
VOC Emissions (g/hr)		33					10	57	8		137	
Dilemma Vehicles (#)		0					0	0	0		0	
Queue Length 50th (ft)		70					11	82	0		56	
Queue Length 95th (ft)		123					27	156	13		105	
Internal Link Dist (ft)		59			455			385			241	
Turn Bay Length (ft)							50					
Base Capacity (vph)		324					439	1377	1166		2050	
Starvation Cap Reductn		0					0	0	0		0	
Spillback Cap Reductn		0					0	0	0		0	
Storage Cap Reductn		0					0	0	0		0	
Reduced v/c Ratio		0.49					0.25	0.42	0.11		0.44	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 45 (60%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 75.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 8: Batchelder & Broad



CONCEPT B

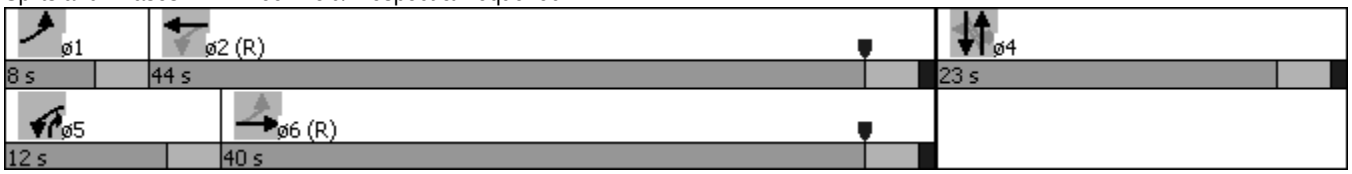


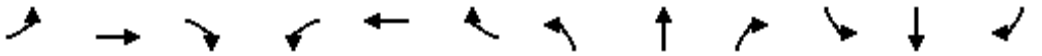
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	315	37	134	244	5	21	7	183	11	9	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	40		0	0		150	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00			0.99	0.96		0.97	
Frt		0.984			0.997				0.850		0.936	
Flt Protected	0.950			0.950				0.964			0.986	
Satd. Flow (prot)	1770	1826	0	1770	1856	0	0	1796	1583	0	1675	0
Flt Permitted	0.589			0.473				0.775			0.914	
Satd. Flow (perm)	1090	1826	0	877	1856	0	0	1424	1515	0	1544	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			2				203		20	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		699			228			359			262	
Travel Time (s)		19.1			6.2			9.8			7.1	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	350	41	149	271	6	23	8	203	12	10	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	391	0	149	277	0	0	31	203	0	42	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	5		4	
Permitted Phases	6			2			4		4	4		
Detector Phase	1			5			4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		7.0	7.0	5.0	7.0	7.0	
Minimum Split (s)	8.0	20.0		8.0	20.0		11.0	11.0	8.0	11.0	11.0	
Total Split (s)	8.0	40.0		12.0	44.0		23.0	23.0	12.0	23.0	23.0	
Total Split (%)	10.7%	53.3%		16.0%	58.7%		30.7%	30.7%	16.0%	30.7%	30.7%	
Maximum Green (s)	5.0	36.0		9.0	40.0		19.0	19.0	9.0	19.0	19.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.0	1.0		0.0	1.0		1.0	1.0	0.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0			4.0	3.0		4.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	3.0		1.5	3.0		3.0	3.0	1.5	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Act Effct Green (s)	56.3	50.3		59.8	57.4			8.0	14.7		8.0	
Actuated g/C Ratio	0.75	0.67		0.80	0.77			0.11	0.20		0.11	
v/c Ratio	0.01	0.32		0.19	0.20			0.20	0.44		0.23	
Control Delay	2.1	6.3		2.4	3.3			33.0	6.7		22.3	
Queue Delay	0.0	0.0		0.4	0.8			0.0	0.0		0.0	
Total Delay	2.1	6.3		2.8	4.2			33.0	6.7		22.3	
LOS	A	A		A	A			C	A		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.2			3.7			10.2			22.3	
Approach LOS		A			A			B			C	
Stops (vph)	3	135		25	63			27	25		24	
Fuel Used(gal)	0	3		0	1			0	1		0	
CO Emissions (g/hr)	5	214		29	63			26	63		24	
NOx Emissions (g/hr)	1	42		6	12			5	12		5	
VOC Emissions (g/hr)	1	50		7	14			6	15		6	
Dilemma Vehicles (#)	0	0		0	0			0	0		0	
Queue Length 50th (ft)	1	58		11	26			14	0		10	
Queue Length 95th (ft)	4	126		23	70			36	44		36	
Internal Link Dist (ft)		619			148			279			182	
Turn Bay Length (ft)	100			40					150			
Base Capacity (vph)	863	1227		808	1420			360	566		406	
Starvation Cap Reductn	0	0		345	854			0	0		0	
Spillback Cap Reductn	0	28		0	0			0	2		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.01	0.33		0.32	0.49			0.09	0.36		0.10	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 51 (68%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 6.7		Intersection LOS: A	
Intersection Capacity Utilization 47.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bloomfield/Prospect & Poquonock



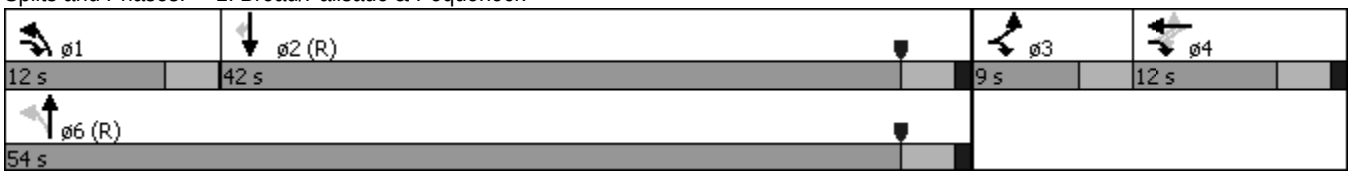


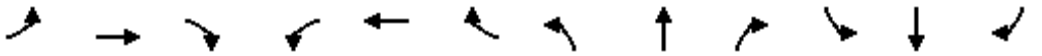
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	0	404	5	47	10	194	216	0	0	651	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	15	15	15	11	13	13	12	12	12
Storage Length (ft)	80		0	0		50	0		0	75		75
Storage Lanes	1		1	1		1	1		0	0		1
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98			0.95	0.98		1.00					0.96
Frt			0.850		0.974							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1770	0	1432	1703	1716	0	1711	1684	0	0	1863	1583
Flt Permitted	0.716			0.950			0.194					
Satd. Flow (perm)	1301	0	1432	1623	1716	0	349	1684	0	0	1863	1525
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			158		11							105
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		228			324			260			1372	
Travel Time (s)		6.2			8.8			7.1			37.4	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			5	5	5	5		5	5			
Adj. Flow (vph)	106	0	449	6	52	11	216	240	0	0	723	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	0	449	6	63	0	216	240	0	0	723	158
Turn Type	D.P+P		custom	Perm	NA		pm+pt	NA			NA	Perm
Protected Phases	3		1 3 4		4		1	6			2	
Permitted Phases	4			4			6					2
Detector Phase	3		4	4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)	5.0			5.0	5.0		5.0	15.0			15.0	15.0
Minimum Split (s)	9.0			9.0	9.0		8.1	21.0			21.0	21.0
Total Split (s)	9.0			12.0	12.0		12.0	54.0			42.0	42.0
Total Split (%)	12.0%			16.0%	16.0%		16.0%	72.0%			56.0%	56.0%
Maximum Green (s)	5.9			8.0	8.0		8.9	50.0			38.0	38.0
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)	0.1			1.0	1.0		0.1	1.0			1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)	3.1			4.0	4.0		3.1	4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5			3.0	3.0		1.5	3.0			3.0	3.0
Recall Mode	None			None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)	13.6		26.5	8.0	8.0		52.7	51.8			41.4	41.4
Actuated g/C Ratio	0.18		0.35	0.11	0.11		0.70	0.69			0.55	0.55
v/c Ratio	0.39		0.74	0.03	0.33		0.57	0.21			0.70	0.18
Control Delay	25.2		19.3	30.6	31.8		12.8	3.2			18.3	4.5
Queue Delay	0.0		4.9	0.0	0.0		0.0	0.0			0.1	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	25.2		24.2	30.6	31.8		12.8	3.2			18.5	4.5
LOS	C		C	C	C		B	A			B	A
Approach Delay					31.7			7.7			16.0	
Approach LOS					C			A			B	
Stops (vph)	63		192	8	46		90	59			475	30
Fuel Used(gal)	1		3	0	1		1	1			12	2
CO Emissions (g/hr)	64		217	5	49		90	59			829	133
NOx Emissions (g/hr)	12		42	1	10		17	11			161	26
VOC Emissions (g/hr)	15		50	1	11		21	14			192	31
Dilemma Vehicles (#)	0		0	0	0		0	0			0	0
Queue Length 50th (ft)	33		61	3	23		6	7			243	11
Queue Length 95th (ft)	62		102	13	58		85	63			397	40
Internal Link Dist (ft)		148			244			180			1292	
Turn Bay Length (ft)	80											75
Base Capacity (vph)	273		608	173	192		406	1162			1028	888
Starvation Cap Reductn	0		102	0	0		0	0			0	0
Spillback Cap Reductn	0		2	0	0		0	0			24	0
Storage Cap Reductn	0		0	0	0		0	0			0	0
Reduced v/c Ratio	0.39		0.89	0.03	0.33		0.53	0.21			0.72	0.18

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 3 (4%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 17.0		Intersection LOS: B	
Intersection Capacity Utilization 74.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Broad/Palisado & Poquonock



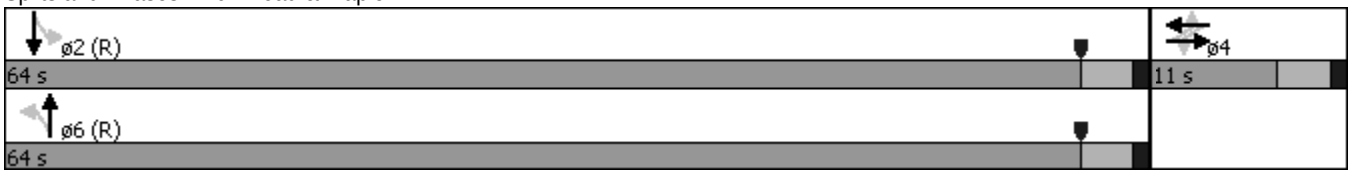


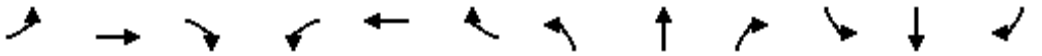
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	16	21	12	6	11	32	454	45	26	991	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.94		0.95	0.93		1.00	1.00		1.00	1.00	
Frt		0.941			0.905			0.986			0.995	
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1493	0	1770	1516	0	1770	1603	0	1770	1620	0
Flt Permitted		0.916		0.996			0.191			0.446		
Satd. Flow (perm)	0	1366	0	1768	1516	0	355	1603	0	828	1620	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			12			24			9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		408			138			579			253	
Travel Time (s)		11.1			3.8			15.8			6.9	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)	5	5	5					5	5		5	5
Adj. Flow (vph)	12	18	23	13	7	12	36	504	50	29	1101	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	53	0	13	19	0	36	554	0	29	1142	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			6			2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4							
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		21.0	21.0		21.0	21.0	
Total Split (s)	11.0	11.0		11.0	11.0		64.0	64.0		64.0	64.0	
Total Split (%)	14.7%	14.7%		14.7%	14.7%		85.3%	85.3%		85.3%	85.3%	
Maximum Green (s)	7.0	7.0		7.0	7.0		60.0	60.0		60.0	60.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5	2.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		7.0		7.0	7.0		66.0	66.0		66.0	66.0	
Actuated g/C Ratio		0.09		0.09	0.09		0.88	0.88		0.88	0.88	
v/c Ratio		0.36		0.08	0.12		0.12	0.39		0.04	0.80	
Control Delay		28.4		32.3	22.5		3.5	3.5		1.3	8.5	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		28.4		32.3	22.5		3.5	3.5		1.3	8.9	
LOS		C		C	C		A	A		A	A	
Approach Delay		28.4			26.5			3.5			8.7	
Approach LOS		C			C			A			A	
Stops (vph)		31		14	12		9	124		4	320	
Fuel Used(gal)		1		0	0		0	5		0	5	
CO Emissions (g/hr)		39		10	10		21	324		5	366	
NOx Emissions (g/hr)		8		2	2		4	63		1	71	
VOC Emissions (g/hr)		9		2	2		5	75		1	85	
Dilemma Vehicles (#)		0		0	0		0	0		0	0	
Queue Length 50th (ft)		13		6	3		3	47		2	164	
Queue Length 95th (ft)		46		22	22		m12	152		m2	#706	
Internal Link Dist (ft)		328			58			499			173	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		148		165	152		312	1413		728	1426	
Starvation Cap Reductn		0		0	0		0	0		0	44	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.36		0.08	0.13		0.12	0.39		0.04	0.83	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 14 (19%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 7.9		Intersection LOS: A	
Intersection Capacity Utilization 71.0%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 9: Broad & Maple



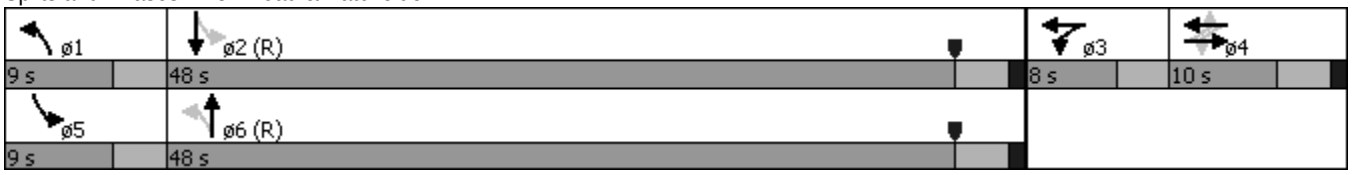


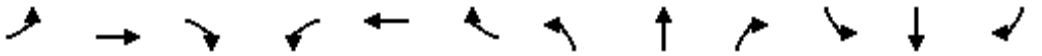
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	5	26	74	5	11	26	525	47	32	977	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	11	11	11
Storage Length (ft)	0		0	0		0	0		0	75		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.94			0.98		1.00	1.00			1.00	
Frt		0.917			0.984			0.988			0.998	
Flt Protected		0.987			0.961		0.950				0.998	
Satd. Flow (prot)	0	1608	0	0	1629	0	1770	1835	0	0	3406	0
Flt Permitted		0.881			0.914		0.196				0.922	
Satd. Flow (perm)	0	1415	0	0	1525	0	365	1835	0	0	3147	0
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)								10				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		161			509			508			317	
Travel Time (s)		4.4			13.9			13.9			8.6	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	6	29	82	6	12	29	583	52	36	1086	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	100	0	29	635	0	0	1134	0
Turn Type	Perm	NA		D.P+P	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	3 4		1	6		5	2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		3	3 4		1			5		
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			5.0	15.0		5.0	15.0	
Minimum Split (s)	9.0	9.0		8.0			9.0	21.0		9.0	21.0	
Total Split (s)	10.0	10.0		8.0			9.0	48.0		9.0	48.0	
Total Split (%)	13.3%	13.3%		10.7%			12.0%	64.0%		12.0%	64.0%	
Maximum Green (s)	6.0	6.0		5.0			6.0	44.0		6.0	44.0	
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0			0.0	1.0		0.0	1.0	
Lost Time Adjust (s)		0.0					0.0	0.0			0.0	
Total Lost Time (s)		4.0					3.0	4.0			4.0	
Lead/Lag	Lag	Lag		Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?				Yes								
Vehicle Extension (s)	2.5	2.5		3.0			2.5	3.0		2.5	3.0	
Recall Mode	None	None		None			None	C-Max		None	C-Max	
Act Effct Green (s)		5.8			10.8		57.6	57.4			53.9	
Actuated g/C Ratio		0.08			0.14		0.77	0.77			0.72	
v/c Ratio		0.43			0.44		0.08	0.45			0.50	
Control Delay		45.5			33.1		3.4	5.6			4.9	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		45.5			33.1		3.4	5.6			4.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D			C		A	A			A	
Approach Delay		45.5			33.1			5.5			4.9	
Approach LOS		D			C			A			A	
Stops (vph)		42			80		6	205			314	
Fuel Used(gal)		1			1		0	4			10	
CO Emissions (g/hr)		43			91		11	273			700	
NOx Emissions (g/hr)		8			18		2	53			136	
VOC Emissions (g/hr)		10			21		2	63			162	
Dilemma Vehicles (#)		0			0		0	0			0	
Queue Length 50th (ft)		21			40		3	105			23	
Queue Length 95th (ft)		54			82		9	166			153	
Internal Link Dist (ft)		81			429			428			237	
Turn Bay Length (ft)												
Base Capacity (vph)		113			230		393	1407			2262	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.42			0.43		0.07	0.45			0.50	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 31 (41%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 7.5		Intersection LOS: A	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 8: Broad & Batchelder



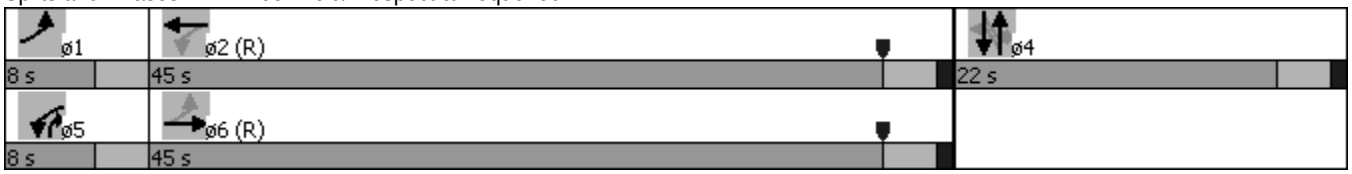


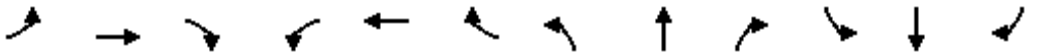
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	385	52	111	309	11	42	22	180	10	15	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	40		0	0		150	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99	0.95		0.97	
Frt		0.982			0.995				0.850		0.924	
Flt Protected	0.950			0.950				0.968			0.991	
Satd. Flow (prot)	1770	1821	0	1770	1851	0	0	1803	1583	0	1652	0
Flt Permitted	0.501			0.486				0.833			0.945	
Satd. Flow (perm)	929	1821	0	902	1851	0	0	1532	1508	0	1571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			4				200		36	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		737			226			375			292	
Travel Time (s)		20.1			6.2			10.2			8.0	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	428	58	123	343	12	47	24	200	11	17	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	486	0	123	355	0	0	71	200	0	64	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	5		4	
Permitted Phases	6			2			4		4	4		
Detector Phase	1			2			4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		7.0	7.0	5.0	7.0	7.0	
Minimum Split (s)	8.0	20.0		8.0	20.0		11.0	11.0	8.0	11.0	11.0	
Total Split (s)	8.0	45.0		8.0	45.0		22.0	22.0	8.0	22.0	22.0	
Total Split (%)	10.7%	60.0%		10.7%	60.0%		29.3%	29.3%	10.7%	29.3%	29.3%	
Maximum Green (s)	5.0	41.0		5.0	41.0		18.0	18.0	5.0	18.0	18.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.0	1.0		0.0	1.0		1.0	1.0	0.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	3.0	4.0		3.0	4.0			4.0	3.0		4.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	3.0		1.5	3.0		3.0	3.0	1.5	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Act Effct Green (s)	58.7	57.7		53.9	52.9			9.3	10.3		9.3	
Actuated g/C Ratio	0.78	0.77		0.72	0.71			0.12	0.14		0.12	
v/c Ratio	0.06	0.35		0.19	0.27			0.37	0.53		0.28	
Control Delay	2.4	3.7		4.1	4.1			35.1	10.1		19.0	
Queue Delay	0.0	0.0		0.4	0.5			0.0	0.0		0.0	
Total Delay	2.4	3.7		4.5	4.6			35.1	10.1		19.0	
LOS	A	A		A	A			D	B		B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		3.6			4.5			16.6			19.0	
Approach LOS		A			A			B			B	
Stops (vph)	10	122		22	66			58	30		29	
Fuel Used(gal)	0	4		0	1			1	1		0	
CO Emissions (g/hr)	23	248		27	79			62	74		34	
NOx Emissions (g/hr)	4	48		5	15			12	14		7	
VOC Emissions (g/hr)	5	57		6	18			14	17		8	
Dilemma Vehicles (#)	0	0		0	0			0	0		0	
Queue Length 50th (ft)	3	49		9	27			31	0		12	
Queue Length 95th (ft)	12	104		29	70			65	52		44	
Internal Link Dist (ft)		657			146			295			212	
Turn Bay Length (ft)	100			40					150			
Base Capacity (vph)	782	1403		647	1305			367	531		404	
Starvation Cap Reductn	0	0		236	554			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.06	0.35		0.30	0.47			0.19	0.38		0.16	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 72 (96%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 7.3		Intersection LOS: A	
Intersection Capacity Utilization 51.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bloomfield/Prospect & Poquonock



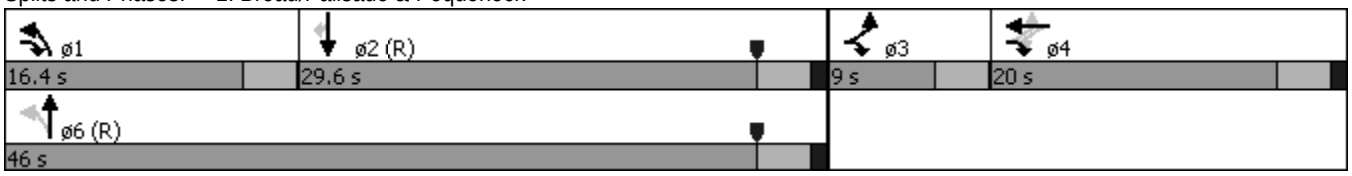


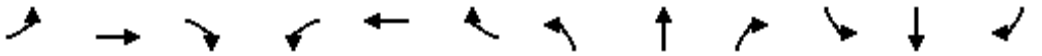
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	140	0	430	5	105	48	247	367	0	0	299	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	15	15	15	11	13	13	12	12	12
Storage Length (ft)	80		0	0		50	0		0	75		75
Storage Lanes	1		1	1		1	1		0	0		1
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99			0.98	0.98		1.00					0.95
Frt			0.850		0.953							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1770	0	1391	1655	1629	0	1711	1636	0	0	1863	1583
Flt Permitted	0.505			0.950			0.433					
Satd. Flow (perm)	929	0	1391	1616	1629	0	776	1636	0	0	1863	1512
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			285		28							105
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		226			348			276			1431	
Travel Time (s)		6.2			9.5			7.5			39.0	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			10	10	10	10		10	10			
Adj. Flow (vph)	156	0	478	6	117	53	274	408	0	0	332	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	0	478	6	170	0	274	408	0	0	332	93
Turn Type	D.P+P		custom	Perm	NA		pm+pt	NA			NA	Perm
Protected Phases	3		1 3 4		4		1	6			2	
Permitted Phases	4			4			6					2
Detector Phase	3		4	4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)	5.0			5.0	5.0		5.0	15.0			15.0	15.0
Minimum Split (s)	9.0			9.0	9.0		8.1	21.0			21.0	21.0
Total Split (s)	9.0			20.0	20.0		16.4	46.0			29.6	29.6
Total Split (%)	12.0%			26.7%	26.7%		21.9%	61.3%			39.5%	39.5%
Maximum Green (s)	5.9			16.0	16.0		13.3	42.0			25.6	25.6
Yellow Time (s)	3.0			3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)	0.1			1.0	1.0		0.1	1.0			1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)	3.1			4.0	4.0		3.1	4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead				Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5			3.0	3.0		1.5	3.0			3.0	3.0
Recall Mode	None			None	None		None	C-Min			C-Min	C-Min
Act Effct Green (s)	18.5		34.2	11.7	11.7		47.2	46.3			33.7	33.7
Actuated g/C Ratio	0.25		0.46	0.16	0.16		0.63	0.62			0.45	0.45
v/c Ratio	0.53		0.61	0.02	0.61		0.45	0.40			0.40	0.13
Control Delay	25.2		7.1	24.4	33.4		6.1	5.7			17.6	3.8
Queue Delay	0.0		1.3	0.0	0.0		0.0	0.0			0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	25.2		8.4	24.4	33.4		6.1	5.7			17.6	3.8
LOS	C		A	C	C		A	A			B	A
Approach Delay					33.1			5.9			14.6	
Approach LOS					C			A			B	
Stops (vph)	97		91	6	115		69	120			204	12
Fuel Used(gal)	1		2	0	2		1	2			6	1
CO Emissions (g/hr)	95		126	4	135		81	122			385	79
NOx Emissions (g/hr)	19		24	1	26		16	24			75	15
VOC Emissions (g/hr)	22		29	1	31		19	28			89	18
Dilemma Vehicles (#)	0		0	0	0		0	0			0	0
Queue Length 50th (ft)	55		49	2	62		33	53			99	0
Queue Length 95th (ft)	81		71	12	114		59	93			198	25
Internal Link Dist (ft)		146			268			196			1351	
Turn Bay Length (ft)	80											75
Base Capacity (vph)	295		785	344	369		654	1010			837	737
Starvation Cap Reductn	0		141	0	0		0	0			0	0
Spillback Cap Reductn	0		0	0	0		0	0			0	0
Storage Cap Reductn	0		0	0	0		0	0			0	0
Reduced v/c Ratio	0.53		0.74	0.02	0.46		0.42	0.40			0.40	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 13 (17%), Referenced to phase 2:SBT and 6:NBTL, Start of Yellow			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 59.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Broad/Palisado & Poquonock



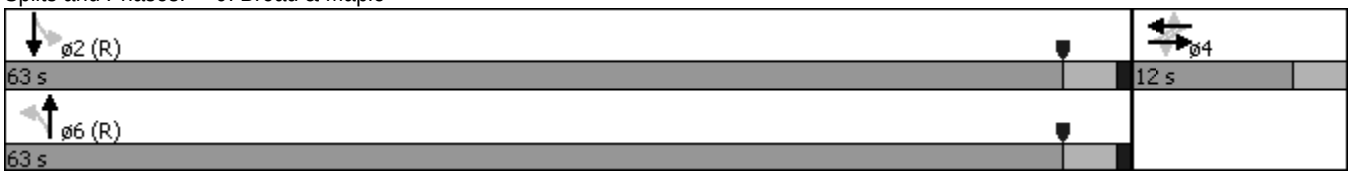


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	21	32	50	16	21	42	622	45	42	638	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	12	11	11	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.95		0.97	0.95		1.00	1.00		1.00	1.00	
Frt		0.937			0.916			0.990			0.990	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1450	0	1770	1565	0	1770	1564	0	1770	1564	0
Flt Permitted		0.921		0.679			0.340			0.349		
Satd. Flow (perm)	0	1339	0	1225	1565	0	632	1564	0	649	1564	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			23			16			17	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		358			151			619			255	
Travel Time (s)		9.8			4.1			16.9			7.0	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)	10	10	10					10	10		10	10
Adj. Flow (vph)	18	23	36	56	18	23	47	691	50	47	709	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	56	41	0	47	741	0	47	761	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			6			2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4							
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		21.0	21.0		21.0	21.0	
Total Split (s)	12.0	12.0		12.0	12.0		63.0	63.0		63.0	63.0	
Total Split (%)	16.0%	16.0%		16.0%	16.0%		84.0%	84.0%		84.0%	84.0%	
Maximum Green (s)	8.9	8.9		8.9	8.9		59.0	59.0		59.0	59.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.1	0.1		0.1	0.1		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		3.1		3.1	3.1		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5	2.5		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		7.9		7.9	7.9		62.8	62.8		62.8	62.8	
Actuated g/C Ratio		0.11		0.11	0.11		0.84	0.84		0.84	0.84	
v/c Ratio		0.45		0.44	0.22		0.09	0.56		0.09	0.58	
Control Delay		27.9		42.2	21.2		1.7	3.4		2.5	6.2	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		27.9		42.2	21.2		1.7	3.4		2.5	6.4	
LOS		C		D	C		A	A		A	A	
Approach Delay		27.9			33.3			3.3			6.1	
Approach LOS		C			C			A			A	
Stops (vph)		39		47	21		6	113		10	284	
Fuel Used(gal)		1		1	0		0	6		0	3	
CO Emissions (g/hr)		53		47	20		26	436		11	241	
NOx Emissions (g/hr)		10		9	4		5	85		2	47	
VOC Emissions (g/hr)		12		11	5		6	101		2	56	
Dilemma Vehicles (#)		0		0	0		0	0		0	0	
Queue Length 50th (ft)		18		25	8		3	52		3	99	
Queue Length 95th (ft)		57		59	35		m5	70		m4	269	
Internal Link Dist (ft)		278			71			539			175	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		190		145	205		529	1312		543	1313	
Starvation Cap Reductn		0		0	0		0	0		0	85	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.41		0.39	0.20		0.09	0.56		0.09	0.62	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 66 (88%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 7.3		Intersection LOS: A	
Intersection Capacity Utilization 54.3%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 9: Broad & Maple



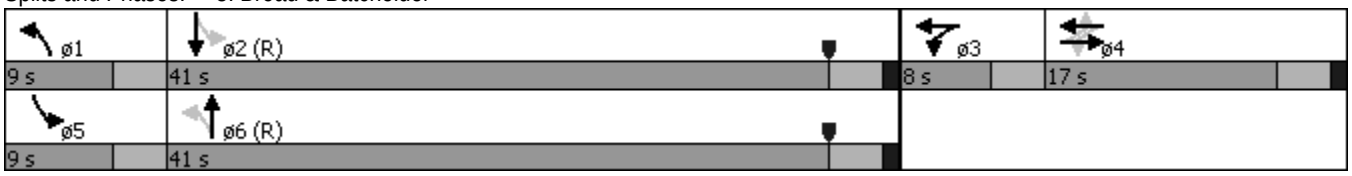
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	11	95	126	11	42	100	604	37	16	672	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	11	11	11
Storage Length (ft)	0		0	0		0	0		0	75		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.97			0.98		1.00	1.00			1.00	
Frt		0.910			0.968			0.991			0.999	
Flt Protected		0.987			0.966		0.950				0.999	
Satd. Flow (prot)	0	1627	0	0	1604	0	1770	1842	0	0	3413	0
Flt Permitted		0.864			0.594		0.282				0.935	
Satd. Flow (perm)	0	1416	0	0	981	0	524	1842	0	0	3195	0
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)								6				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		139			535			465			321	
Travel Time (s)		3.8			14.6			12.7			8.8	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	12	106	140	12	47	111	671	41	18	747	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	159	0	0	199	0	111	712	0	0	771	0
Turn Type	Perm	NA		D.P+P	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	3 4		1	6		5	2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		3	3 4		1			5		
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			5.0	15.0		5.0	15.0	
Minimum Split (s)	9.0	9.0		8.0			9.0	21.0		9.0	21.0	
Total Split (s)	17.0	17.0		8.0			9.0	41.0		9.0	41.0	
Total Split (%)	22.7%	22.7%		10.7%			12.0%	54.7%		12.0%	54.7%	
Maximum Green (s)	13.0	13.0		5.0			6.0	37.0		6.0	37.0	
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0			0.0	1.0		0.0	1.0	
Lost Time Adjust (s)		0.0					0.0	0.0			0.0	
Total Lost Time (s)		4.0					3.0	4.0			4.0	
Lead/Lag	Lag	Lag		Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5			2.5	3.0		2.5	3.0	
Recall Mode	None	None		None			None	C-Max		None	C-Max	
Act Effct Green (s)		11.4			17.4		48.6	47.6			40.4	
Actuated g/C Ratio		0.15			0.23		0.65	0.63			0.54	
v/c Ratio		0.74			0.74		0.25	0.61			0.45	
Control Delay		51.3			42.1		6.9	11.3			11.8	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		51.3			42.1		6.9	11.3			11.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D			D		A	B			B	
Approach Delay		51.3			42.1			10.7			11.8	
Approach LOS		D			D			B			B	
Stops (vph)		129			157		36	367			363	
Fuel Used(gal)		2			3		1	5			9	
CO Emissions (g/hr)		151			206		47	379			602	
NOx Emissions (g/hr)		29			40		9	74			117	
VOC Emissions (g/hr)		35			48		11	88			140	
Dilemma Vehicles (#)		0			0		0	0			0	
Queue Length 50th (ft)		70			74		18	184			100	
Queue Length 95th (ft)		#148			#152		36	287			147	
Internal Link Dist (ft)		59			455			385			241	
Turn Bay Length (ft)												
Base Capacity (vph)		245			290		439	1171			1720	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.65			0.69		0.25	0.61			0.45	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 52 (69%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 17.6 Intersection LOS: B
Intersection Capacity Utilization 80.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Broad & Batchelder



CONCEPT C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	341	11	143	258	21	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		120	75		0	150
Storage Lanes		1	0		1	1
Taper Length (ft)			50		25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor		0.96		1.00	0.99	
Frt		0.850				0.850
Flt Protected				0.982	0.950	
Satd. Flow (prot)	1863	1583	0	3476	1770	1583
Flt Permitted				0.724	0.950	
Satd. Flow (perm)	1863	1523	0	2558	1747	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		12				204
Link Speed (mph)	30			30	30	
Link Distance (ft)	280			141	1095	
Travel Time (s)	6.4			3.2	24.9	
Confl. Peds. (#/hr)		10	10		10	10
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	379	12	159	287	23	204
Shared Lane Traffic (%)						
Lane Group Flow (vph)	379	12	0	446	23	204
Turn Type	NA	Perm	D.P+P	NA	NA	pt+ov
Protected Phases	2		1	1 2	3	1 3
Permitted Phases		2	2			
Detector Phase	2		1		3	3
Switch Phase						
Minimum Initial (s)	15.0	15.0	6.0		7.0	
Minimum Split (s)	20.0	20.0	10.0		11.0	
Total Split (s)	41.0	41.0	12.0		22.0	
Total Split (%)	54.7%	54.7%	16.0%		29.3%	
Maximum Green (s)	36.0	36.0	8.9		18.0	
Yellow Time (s)	4.0	4.0	3.0		3.0	
All-Red Time (s)	1.0	1.0	0.1		1.0	
Lost Time Adjust (s)	0.0	0.0			0.0	
Total Lost Time (s)	5.0	5.0			4.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	1.0		1.0	
Recall Mode	C-Min	C-Min	None		None	
Act Effct Green (s)	58.2	58.2		60.1	7.8	8.7
Actuated g/C Ratio	0.78	0.78		0.80	0.10	0.12
v/c Ratio	0.26	0.01		0.22	0.13	0.56
Control Delay	3.0	1.4		1.7	31.3	11.4
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	3.0	1.4		1.7	31.3	11.4
LOS	A	A		A	C	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach Delay	3.0			1.7	13.4	
Approach LOS	A			A	B	
Stops (vph)	85	1		58	21	32
Fuel Used(gal)	3	0		1	0	2
CO Emissions (g/hr)	187	5		63	30	152
NOx Emissions (g/hr)	36	1		12	6	30
VOC Emissions (g/hr)	43	1		15	7	35
Dilemma Vehicles (#)	0	0		0	0	0
Queue Length 50th (ft)	33	0		7	10	0
Queue Length 95th (ft)	74	3		35	29	54
Internal Link Dist (ft)	200			61	1015	
Turn Bay Length (ft)		120				150
Base Capacity (vph)	1446	1184		2050	424	551
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.26	0.01		0.22	0.05	0.37

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 16 (21%), Referenced to phase 2:EBWB, Start of Yellow			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 4.7		Intersection LOS: A	
Intersection Capacity Utilization 45.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Bloomfield & Poquonock

Intersection	
Intersection Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	499	26	0	378	5	0	0	6	0	0	27
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		0	0		0	0		0	75		0
Median Width		5			12			0			0	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	554	29	0	420	6	0	0	7	0	0	30
Number of Lanes	0	1	0	0	1	0	0	0	1	0	0	1

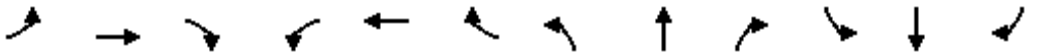
Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	436	0	0	593	0	0	1012	1015	589	1012	1026	443
Stage 1	-	-	-	-	-	-	579	579	-	433	433	-
Stage 2	-	-	-	-	-	-	433	436	-	579	593	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1124	-	-	983	-	-	218	238	508	218	235	615
Stage 1	-	-	-	-	-	-	501	501	-	601	582	-
Stage 2	-	-	-	-	-	-	601	580	-	501	493	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1115	-	-	975	-	-	204	234	500	212	231	605
Mov Capacity-2 Maneuver	-	-	-	-	-	-	204	234	-	212	231	-
Stage 1	-	-	-	-	-	-	497	497	-	596	577	-
Stage 2	-	-	-	-	-	-	566	575	-	490	489	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.3	11.3
HCM LOS	-	-	B	B

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Cap, veh/h	500	1115	-	-	975	-	-	605
HCM Control Delay, s	12.3	0	-	-	0	-	-	11.3
HCM Lane V/C Ratio	0.01	-	-	-	-	-	-	0.05
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th-tile Q, veh	0.0	0.0	-	-	0.0	-	-	0.2

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

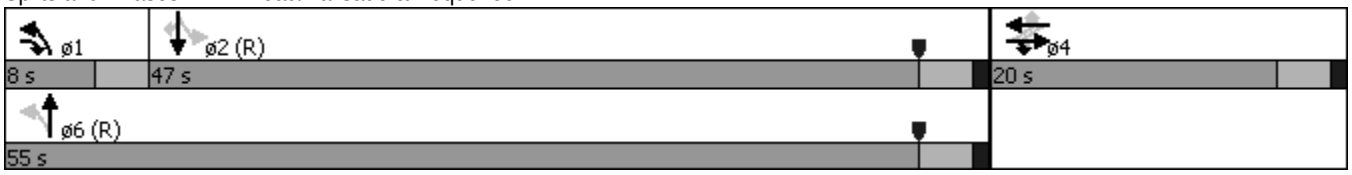


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	112	40	354	5	47	10	194	216	5	43	617	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		50	0		150	50		75
Storage Lanes	1		1	0		1	1		1	0		1
Taper Length (ft)	50			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			1.00	0.94	1.00	1.00			1.00	0.97
Frt			0.850			0.850		0.996				0.850
Flt Protected		0.964			0.995		0.950				0.997	
Satd. Flow (prot)	0	1796	1385	0	1622	1385	1770	1854	0	0	1857	1583
Flt Permitted		0.745			0.968		0.234				0.968	
Satd. Flow (perm)	0	1366	1385	0	1575	1302	435	1854	0	0	1802	1528
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			218			58						97
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		219			324			258			1372	
Travel Time (s)		5.0			7.4			5.9			31.2	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			5	5	5	5						
Adj. Flow (vph)	124	44	393	6	52	11	216	240	6	48	686	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	168	393	0	58	11	216	246	0	0	734	158
Turn Type	Perm	NA	pt+ov	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm
Protected Phases		4	1 4		4		1	6			2	
Permitted Phases	4			4		4	6			2		2
Detector Phase	4	4	4	4	4	4	1	6		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	15.0		15.0	15.0	15.0
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	8.0	21.0		21.0	21.0	21.0
Total Split (s)	20.0	20.0		20.0	20.0	20.0	8.0	55.0		47.0	47.0	47.0
Total Split (%)	26.7%	26.7%		26.7%	26.7%	26.7%	10.7%	73.3%		62.7%	62.7%	62.7%
Maximum Green (s)	16.0	16.0		16.0	16.0	16.0	5.0	51.0		43.0	43.0	43.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	0.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)		4.0			4.0	4.0	3.0	4.0			4.0	4.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	1.5	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Min		C-Min	C-Min	C-Min
Act Effct Green (s)		13.3	22.3		13.3	13.3	54.7	53.7			45.7	45.7
Actuated g/C Ratio		0.18	0.30		0.18	0.18	0.73	0.72			0.61	0.61
v/c Ratio		0.69	0.70		0.21	0.04	0.53	0.19			0.67	0.16
Control Delay		42.0	15.8		26.9	0.3	12.3	5.4			14.3	3.7
Queue Delay		0.0	1.0		0.0	0.0	0.0	0.0			0.0	0.0
Total Delay		42.0	16.8		26.9	0.3	12.3	5.4			14.3	3.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D	B		C	A	B	A			B	A
Approach Delay		24.3			22.7			8.6			12.4	
Approach LOS		C			C			A			B	
Stops (vph)		135	217		43	0	103	87			433	28
Fuel Used(gal)		2	3		1	0	1	1			11	2
CO Emissions (g/hr)		160	205		46	2	101	82			796	124
NOx Emissions (g/hr)		31	40		9	0	20	16			155	24
VOC Emissions (g/hr)		37	48		11	0	23	19			184	29
Dilemma Vehicles (#)		0	0		0	0	0	0			0	0
Queue Length 50th (ft)		61	45		23	0	56	64			210	11
Queue Length 95th (ft)		135	170		53	0	61	46			355	35
Internal Link Dist (ft)		139			244			178			1292	
Turn Bay Length (ft)						50						75
Base Capacity (vph)		291	561		336	323	406	1327			1097	968
Starvation Cap Reductn		0	7		0	0	0	0			0	0
Spillback Cap Reductn		0	44		0	0	0	0			0	0
Storage Cap Reductn		0	0		0	0	0	0			0	0
Reduced v/c Ratio		0.58	0.76		0.17	0.03	0.53	0.19			0.67	0.16

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 27 (36%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 15.2		Intersection LOS: B	
Intersection Capacity Utilization 72.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Broad/Palisado & Poquonock



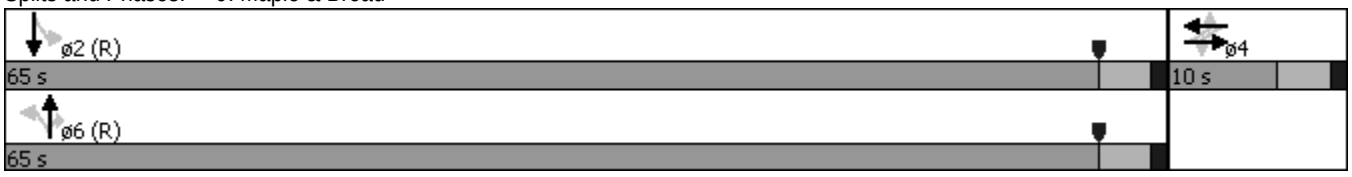
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	16	21	27	11	11	32	454	45	26	976	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			100			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.93		0.95	0.94			1.00	0.97		1.00	
Frt		0.941			0.925				0.850		0.996	
Flt Protected		0.989		0.950				0.997			0.999	
Satd. Flow (prot)	0	1435	0	1770	1616	0	0	1625	1385	0	1620	0
Flt Permitted		0.915		0.967				0.896			0.982	
Satd. Flow (perm)	0	1309	0	1704	1616	0	0	1460	1343	0	1593	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			12				50		8	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		408			138			579			255	
Travel Time (s)		9.3			3.1			13.2			5.8	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)	5	5	5					5	5	5	5	5
Adj. Flow (vph)	12	18	23	30	12	12	36	504	50	29	1084	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	53	0	30	24	0	0	540	50	0	1149	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			6			2	
Permitted Phases	4			4			6		6	2		
Detector Phase	4	4		4	4				6			
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		15.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		21.0	21.0	21.0	21.0	21.0	
Total Split (s)	10.0	10.0		10.0	10.0		65.0	65.0	65.0	65.0	65.0	
Total Split (%)	13.3%	13.3%		13.3%	13.3%		86.7%	86.7%	86.7%	86.7%	86.7%	
Maximum Green (s)	6.0	6.0		6.0	6.0		61.0	61.0	61.0	61.0	61.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5	2.5		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)		6.0		6.0	6.0			63.8	63.8		63.8	
Actuated g/C Ratio		0.08		0.08	0.08			0.85	0.85		0.85	
v/c Ratio		0.42		0.22	0.17			0.43	0.04		0.85	
Control Delay		32.6		36.5	25.5			5.0	1.1		11.9	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.1	
Total Delay		32.6		36.5	25.5			5.0	1.1		12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C		D	C			A	A		B	
Approach Delay		32.6			31.6			4.7			12.0	
Approach LOS		C			C			A			B	
Stops (vph)		31		28	16			167	5		435	
Fuel Used(gal)		1		0	0			5	0		7	
CO Emissions (g/hr)		45		27	16			337	25		487	
NOx Emissions (g/hr)		9		5	3			65	5		95	
VOC Emissions (g/hr)		10		6	4			78	6		113	
Dilemma Vehicles (#)		0		0	0			0	0		0	
Queue Length 50th (ft)		13		13	5			45	0		155	
Queue Length 95th (ft)		47		38	27			176	m10		#715	
Internal Link Dist (ft)		328			58			499			175	
Turn Bay Length (ft)												
Base Capacity (vph)		125		136	140			1242	1149		1356	
Starvation Cap Reductn		0		0	0			0	0		7	
Spillback Cap Reductn		0		0	0			0	0		0	
Storage Cap Reductn		0		0	0			0	0		0	
Reduced v/c Ratio		0.42		0.22	0.17			0.43	0.04		0.85	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 17 (23%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 90.9%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Maple & Broad

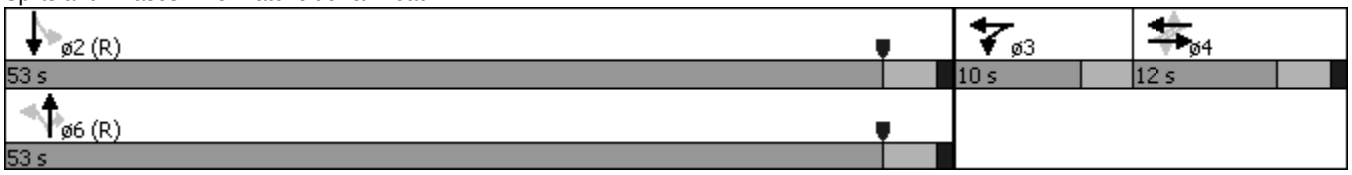


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	5	26	74	5	11	26	525	47	32	977	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.95			0.98		1.00		0.97		1.00	
Frt		0.917			0.984				0.850		0.998	
Flt Protected		0.987			0.961		0.950				0.998	
Satd. Flow (prot)	0	1624	0	0	1748	0	1770	1863	1583	0	3524	0
Flt Permitted		0.881			0.807		0.217				0.925	
Satd. Flow (perm)	0	1435	0	0	1451	0	404	1863	1531	0	3266	0
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									58			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		161			509			508			317	
Travel Time (s)		3.7			11.6			11.5			7.2	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	6	29	82	6	12	29	583	52	36	1086	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	100	0	29	583	52	0	1134	0
Turn Type	Perm	NA		D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	3 4			6			2	
Permitted Phases	4			4			6		6	2		
Detector Phase	4	4		3	3 4							
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			15.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	9.0	9.0		8.0			21.0	21.0	21.0	21.0	21.0	
Total Split (s)	12.0	12.0		10.0			53.0	53.0	53.0	53.0	53.0	
Total Split (%)	16.0%	16.0%		13.3%			70.7%	70.7%	70.7%	70.7%	70.7%	
Maximum Green (s)	8.0	8.0		7.0			49.0	49.0	49.0	49.0	49.0	
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0			1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0					0.0	0.0	0.0		0.0	
Total Lost Time (s)		4.0					4.0	4.0	4.0		4.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?				Yes								
Vehicle Extension (s)	2.5	2.5		3.0			3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None			C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)		6.8			13.4		54.9	54.9	54.9		54.9	
Actuated g/C Ratio		0.09			0.18		0.73	0.73	0.73		0.73	
v/c Ratio		0.36			0.35		0.10	0.43	0.05		0.47	
Control Delay		39.7			26.8		5.8	6.8	1.4		3.8	
Queue Delay		0.0			0.0		0.0	0.0	0.0		0.0	
Total Delay		39.7			26.8		5.8	6.8	1.4		3.8	
LOS		D			C		A	A	A		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		39.7			26.8			6.4			3.8	
Approach LOS		D			C			A			A	
Stops (vph)		40			71		11	214	5		284	
Fuel Used(gal)		1			1		0	4	0		9	
CO Emissions (g/hr)		43			87		14	279	16		663	
NOx Emissions (g/hr)		8			17		3	54	3		129	
VOC Emissions (g/hr)		10			20		3	65	4		154	
Dilemma Vehicles (#)		0			0		0	0	0		0	
Queue Length 50th (ft)		21			38		4	112	0		62	
Queue Length 95th (ft)		52			75		14	183	9		m98	
Internal Link Dist (ft)		81			429			428			237	
Turn Bay Length (ft)							50					
Base Capacity (vph)		153			310		295	1363	1135		2388	
Starvation Cap Reductn		0			0		0	0	0		0	
Spillback Cap Reductn		0			0		0	0	0		0	
Storage Cap Reductn		0			0		0	0	0		0	
Reduced v/c Ratio		0.31			0.32		0.10	0.43	0.05		0.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 32 (43%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 6.7		Intersection LOS: A	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 8: Batchelder & Broad



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	420	26	126	342	42	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		120	75		0	150
Storage Lanes		1	0		1	1
Taper Length (ft)			50		25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor		0.96		1.00	0.99	
Frt		0.850				0.850
Flt Protected				0.987	0.950	
Satd. Flow (prot)	1863	1583	0	3493	1770	1583
Flt Permitted				0.741	0.950	
Satd. Flow (perm)	1863	1524	0	2620	1746	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29				222
Link Speed (mph)	30			30	30	
Link Distance (ft)	286			149	1176	
Travel Time (s)	6.5			3.4	26.7	
Confl. Peds. (#/hr)		10	10		10	10
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	467	29	140	380	47	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	467	29	0	520	47	222
Turn Type	NA	Perm	D.P+P	NA	NA	pt+ov
Protected Phases	2		1	1 2	3	1 3
Permitted Phases		2	2			
Detector Phase	2		1		3	3
Switch Phase						
Minimum Initial (s)	15.0	15.0	7.0		7.0	
Minimum Split (s)	20.0	20.0	11.0		11.0	
Total Split (s)	42.0	42.0	12.0		21.0	
Total Split (%)	56.0%	56.0%	16.0%		28.0%	
Maximum Green (s)	37.0	37.0	8.9		17.0	
Yellow Time (s)	4.0	4.0	3.0		3.0	
All-Red Time (s)	1.0	1.0	0.1		1.0	
Lost Time Adjust (s)	0.0	0.0			0.0	
Total Lost Time (s)	5.0	5.0			4.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	1.0		1.0	
Recall Mode	C-Min	C-Min	None		None	
Act Effct Green (s)	58.2	58.2		60.1	7.8	8.7
Actuated g/C Ratio	0.78	0.78		0.80	0.10	0.12
v/c Ratio	0.32	0.02		0.25	0.25	0.58
Control Delay	3.4	1.1		1.7	33.8	11.4
Queue Delay	0.0	0.0		0.0	0.0	0.0
Total Delay	3.4	1.1		1.7	33.8	11.4
LOS	A	A		A	C	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach Delay	3.3			1.7	15.3	
Approach LOS	A			A	B	
Stops (vph)	112	3		78	39	32
Fuel Used(gal)	4	0		1	1	2
CO Emissions (g/hr)	268	14		80	62	173
NOx Emissions (g/hr)	52	3		16	12	34
VOC Emissions (g/hr)	62	3		18	14	40
Dilemma Vehicles (#)	0	0		0	0	0
Queue Length 50th (ft)	43	0		10	21	0
Queue Length 95th (ft)	97	5		35	48	56
Internal Link Dist (ft)	206			69	1096	
Turn Bay Length (ft)		120				150
Base Capacity (vph)	1444	1188		2098	401	546
Starvation Cap Reductn	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0
Reduced v/c Ratio	0.32	0.02		0.25	0.12	0.41

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 12 (16%), Referenced to phase 2:EBWB, Start of Yellow			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 5.2		Intersection LOS: A	
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Bloomfield & Poquonock

Intersection	
Intersection Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	600	26	0	425	11	0	0	10	0	0	47
Conflicting Peds, #/hr	10	0	10	10	0	10	10	0	10	10	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		0	0		0	0		0	75		0
Median Width		5			12			0			0	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	667	29	0	472	12	0	0	11	0	0	52
Number of Lanes	0	1	0	0	1	0	0	0	1	0	0	1

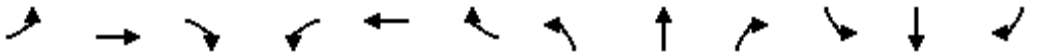
Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	494	0	0	706	0	0	1179	1185	701	1179	1194	498
Stage 1	-	-	-	-	-	-	691	691	-	488	488	-
Stage 2	-	-	-	-	-	-	488	494	-	691	706	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1070	-	-	892	-	-	167	189	439	167	187	572
Stage 1	-	-	-	-	-	-	435	446	-	561	550	-
Stage 2	-	-	-	-	-	-	561	546	-	435	439	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1061	-	-	885	-	-	149	186	432	160	184	563
Mov Capacity-2 Maneuver	-	-	-	-	-	-	149	186	-	160	184	-
Stage 1	-	-	-	-	-	-	431	442	-	556	545	-
Stage 2	-	-	-	-	-	-	505	541	-	420	435	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	13.6	12
HCM LOS	-	-	B	B

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Cap, veh/h	432	1061	-	-	885	-	-	563
HCM Control Delay, s	13.6	0	-	-	0	-	-	12
HCM Lane V/C Ratio	0.03	-	-	-	-	-	-	0.09
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th-tile Q, veh	0.1	0.0	-	-	0.0	-	-	0.3

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

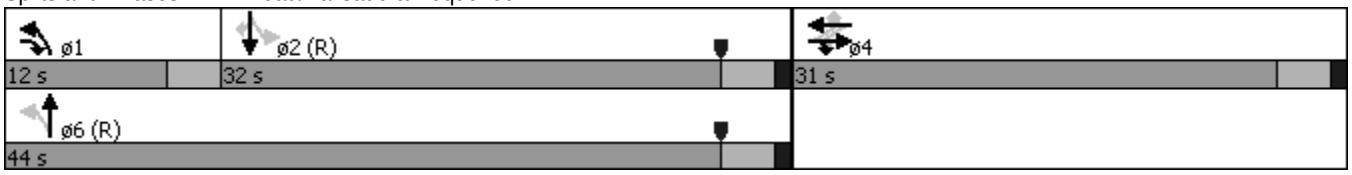


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	55	360	5	105	48	247	367	5	27	280	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		50	0		150	50		75
Storage Lanes	1		1	0		1	1		1	0		1
Taper Length (ft)	50			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00	0.96	0.99	1.00			1.00	0.96
Frt			0.850			0.850		0.998				0.850
Flt Protected		0.962			0.998		0.950				0.996	
Satd. Flow (prot)	0	1792	1346	0	1580	1346	1770	1858	0	0	1855	1583
Flt Permitted		0.692			0.984		0.430				0.948	
Satd. Flow (perm)	0	1277	1346	0	1557	1287	797	1858	0	0	1765	1515
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			345			58						84
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		220			346			272			1431	
Travel Time (s)		5.0			7.9			6.2			32.5	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)			10	10	10	10						
Adj. Flow (vph)	222	61	400	6	117	53	274	408	6	30	311	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	283	400	0	123	53	274	414	0	0	341	93
Turn Type	Perm	NA	pt+ov	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm
Protected Phases		4	1 4		4		1	6			2	
Permitted Phases	4			4		4	6			2		2
Detector Phase	4	4	4	4	4	4	1	6		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	15.0		15.0	15.0	15.0
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	8.0	21.0		21.0	21.0	21.0
Total Split (s)	31.0	31.0		31.0	31.0	31.0	12.0	44.0		32.0	32.0	32.0
Total Split (%)	41.3%	41.3%		41.3%	41.3%	41.3%	16.0%	58.7%		42.7%	42.7%	42.7%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	9.0	40.0		28.0	28.0	28.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	0.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)		4.0			4.0	4.0	3.0	4.0			4.0	4.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	1.5	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Min		C-Min	C-Min	C-Min
Act Effct Green (s)		21.5	33.6		21.5	21.5	46.5	45.5			34.4	34.4
Actuated g/C Ratio		0.29	0.45		0.29	0.29	0.62	0.61			0.46	0.46
v/c Ratio		0.77	0.50		0.28	0.13	0.46	0.37			0.42	0.13
Control Delay		36.3	3.5		20.7	5.4	9.7	9.5			17.6	5.2
Queue Delay		0.0	0.2		0.0	0.0	0.0	0.0			0.0	0.0
Total Delay		36.3	3.7		20.7	5.4	9.7	9.5			17.6	5.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D	A		C	A	A	A			B	A
Approach Delay		17.2			16.0			9.6			14.9	
Approach LOS		B			B			A			B	
Stops (vph)		210	34		79	10	98	163			210	16
Fuel Used(gal)		3	1		1	0	2	2			6	1
CO Emissions (g/hr)		243	74		84	17	109	169			397	78
NOx Emissions (g/hr)		47	14		16	3	21	33			77	15
VOC Emissions (g/hr)		56	17		19	4	25	39			92	18
Dilemma Vehicles (#)		0	0		0	0	0	0			0	0
Queue Length 50th (ft)		100	12		43	0	35	58			108	2
Queue Length 95th (ft)		193	16		76	20	122	181			197	30
Internal Link Dist (ft)		140			266			192			1351	
Turn Bay Length (ft)						50						75
Base Capacity (vph)		459	800		560	500	610	1126			810	740
Starvation Cap Reductn		0	66		0	0	0	0			0	0
Spillback Cap Reductn		0	0		0	0	0	0			0	0
Storage Cap Reductn		0	0		0	0	0	0			0	0
Reduced v/c Ratio		0.62	0.54		0.22	0.11	0.45	0.37			0.42	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 12 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 66.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Broad/Palisado & Poquonock



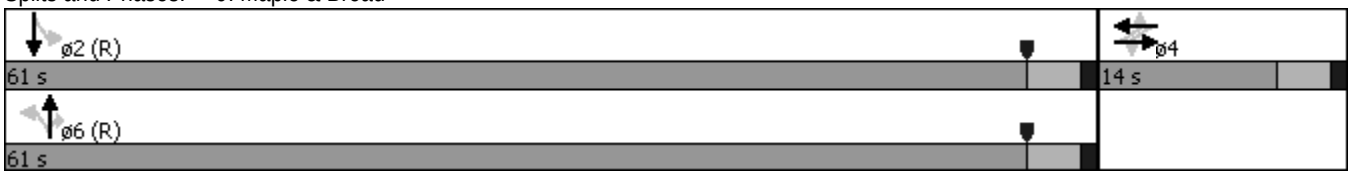
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	21	32	75	26	21	42	622	45	42	613	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	1		0	1		1	0		0
Taper Length (ft)	25			25			100			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.95		0.97	0.96			1.00	0.97		1.00	
Frt		0.937			0.934				0.850		0.993	
Flt Protected		0.988		0.950				0.997			0.997	
Satd. Flow (prot)	0	1409	0	1770	1676	0	0	1579	1346	0	1565	0
Flt Permitted		0.911		0.759				0.928			0.933	
Satd. Flow (perm)	0	1288	0	1371	1676	0	0	1469	1304	0	1464	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			23				50		11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		358			151			619			259	
Travel Time (s)		8.1			3.4			14.1			5.9	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Parking (#/hr)	10	10	10					10	10	10	10	10
Adj. Flow (vph)	18	23	36	83	29	23	47	691	50	47	681	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	83	52	0	0	738	50	0	769	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			6			2	
Permitted Phases	4			4			6		6	2		
Detector Phase	4	4		4	4				6			
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		15.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		21.0	21.0	21.0	21.0	21.0	
Total Split (s)	14.0	14.0		14.0	14.0		61.0	61.0	61.0	61.0	61.0	
Total Split (%)	18.7%	18.7%		18.7%	18.7%		81.3%	81.3%	81.3%	81.3%	81.3%	
Maximum Green (s)	10.0	10.0		10.0	10.0		57.0	57.0	57.0	57.0	57.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5	2.5		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)		8.4		8.4	8.4			61.4	61.4		61.4	
Actuated g/C Ratio		0.11		0.11	0.11			0.82	0.82		0.82	
v/c Ratio		0.44		0.55	0.25			0.61	0.05		0.64	
Control Delay		27.0		44.8	22.5			10.1	2.2		5.9	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.1	
Total Delay		27.0		44.8	22.5			10.1	2.2		6.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C		D	C			B	A		A	
Approach Delay		27.0			36.2			9.6			6.0	
Approach LOS		C			D			A			A	
Stops (vph)		39		70	28			311	9		278	
Fuel Used(gal)		1		1	0			8	0		4	
CO Emissions (g/hr)		55		81	30			555	28		263	
NOx Emissions (g/hr)		11		16	6			108	5		51	
VOC Emissions (g/hr)		13		19	7			129	6		61	
Dilemma Vehicles (#)		0		0	0			0	0		0	
Queue Length 50th (ft)		18		37	12			153	0		217	
Queue Length 95th (ft)		56		78	43			290	m9		104	
Internal Link Dist (ft)		278			71			539			179	
Turn Bay Length (ft)												
Base Capacity (vph)		202		182	243			1203	1077		1201	
Starvation Cap Reductn		0		0	0			0	0		39	
Spillback Cap Reductn		0		0	0			0	0		0	
Storage Cap Reductn		0		0	0			0	0		0	
Reduced v/c Ratio		0.38		0.46	0.21			0.61	0.05		0.66	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 36 (48%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 10.8 Intersection LOS: B
Intersection Capacity Utilization 87.0% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Maple & Broad

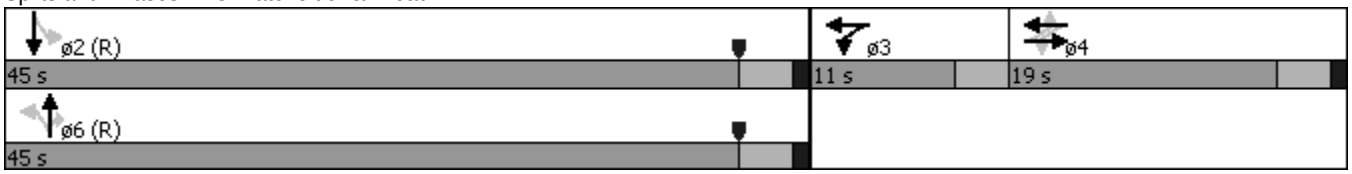


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	11	95	126	11	42	100	604	37	16	672	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.97			0.98		1.00		0.96		1.00	
Frt		0.910			0.968				0.850		0.999	
Flt Protected		0.987			0.966		0.950				0.999	
Satd. Flow (prot)	0	1631	0	0	1722	0	1770	1863	1583	0	3531	0
Flt Permitted		0.867			0.642		0.319				0.937	
Satd. Flow (perm)	0	1426	0	0	1139	0	592	1863	1527	0	3312	0
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									58			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		139			535			465			321	
Travel Time (s)		3.2			12.2			10.6			7.3	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			10			10			10			10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	12	106	140	12	47	111	671	41	18	747	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	159	0	0	199	0	111	671	41	0	771	0
Turn Type	Perm	NA		D.P+P	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	3 4			6			2	
Permitted Phases	4			4			6		6	2		
Detector Phase	4	4		3	3 4							
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			15.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	9.0	9.0		8.0			21.0	21.0	21.0	21.0	21.0	
Total Split (s)	19.0	19.0		11.0			45.0	45.0	45.0	45.0	45.0	
Total Split (%)	25.3%	25.3%		14.7%			60.0%	60.0%	60.0%	60.0%	60.0%	
Maximum Green (s)	15.0	15.0		8.0			41.0	41.0	41.0	41.0	41.0	
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		0.0			1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0					0.0	0.0	0.0		0.0	
Total Lost Time (s)		4.0					4.0	4.0	4.0		4.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5			3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None			C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)		12.0			20.8		44.2	44.2	44.2		44.2	
Actuated g/C Ratio		0.16			0.28		0.59	0.59	0.59		0.59	
v/c Ratio		0.70			0.53		0.32	0.61	0.04		0.40	
Control Delay		45.5			24.8		12.2	13.8	1.7		7.0	
Queue Delay		0.0			0.0		0.0	0.0	0.0		0.0	
Total Delay		45.5			24.8		12.2	13.8	1.7		7.0	
LOS		D			C		B	B	A		A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		45.5			24.8			12.9			7.0	
Approach LOS		D			C			B			A	
Stops (vph)		130			137		54	384	4		282	
Fuel Used(gal)		2			2		1	6	0		8	
CO Emissions (g/hr)		154			168		64	420	12		533	
NOx Emissions (g/hr)		30			33		12	82	2		104	
VOC Emissions (g/hr)		36			39		15	97	3		124	
Dilemma Vehicles (#)		0			0		0	0	0		0	
Queue Length 50th (ft)		70			69		24	188	0		61	
Queue Length 95th (ft)		127			117		62	317	9		102	
Internal Link Dist (ft)		59			455			385			241	
Turn Bay Length (ft)							50					
Base Capacity (vph)		285			426		348	1097	924		1951	
Starvation Cap Reductn		0			0		0	0	0		0	
Spillback Cap Reductn		0			0		0	0	0		0	
Storage Cap Reductn		0			0		0	0	0		0	
Reduced v/c Ratio		0.56			0.47		0.32	0.61	0.04		0.40	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 40 (53%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 78.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 8: Batchelder & Broad



LEVEL OF SERVICE

FOR

SIGNALIZED INTERSECTIONS

Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-min analysis period. Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group. The criteria are given below.

LEVEL-OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS	
LEVEL OF SERVICE	**AVERAGE CONTROL DELAY (sec/veh)**
A	$\leq$ 10
B	> 10 AND $\leq$ 20
C	> 20 AND $\leq$ 35
D	> 35 AND $\leq$ 55
E	> 55 AND $\leq$ 80
F	> 80

Specific descriptions of each LOS for signalized intersections are provided below:

Level of Service A describes operations with very low control delay, up to 10 s/veh. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with delay greater than 10 and up to 20 s/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 s/veh. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 s/veh. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operations with control delay greater than 55 and up to 80 s/veh. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 s/veh. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

Reference: Highway Capacity Manual 2000, Transportation Research Board, 2000.

LEVEL OF SERVICE
FOR TWO-WAY
STOP SIGN CONTROLLED INTERSECTIONS

The level of service for a TWSC (two-way stop controlled) intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS criteria are given in the Table**.** LOS criteria are given below:

LEVEL-OF SERVICE CRITERIA FOR TWSC INTERSECTIONS	
LEVEL OF SERVICE	**AVERAGE CONTROL DELAY (s/veh)**
A	**≤ 10**
B	**> 10 AND ≤ 15**
C	**> 15 AND ≤ 25**
D	**> 25 AND ≤ 35**
E	**> 35 AND ≤ 50**
F	**> 50**

Reference: Highway Capacity Manual 2000, Transportation Research Board, 2000.