Noroton Heights Station Area Study
Analysis and Recommendations
October 2018

WESTCOG

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Figure 1: Regional Context Map

REGIONAL CONTEXT
Noroton Heights Station Area Study

1. Introduction

a. Background & Purpose

Western Connecticut Council of Governments (WestCOG) received funding from the Federal Highway Administration and Connecticut Department of Transportation (CTDOT) to prepare a plan for transportation, mobility, and parking improvements to the Noroton Heights train station and the surrounding area in the Town of Darien, Connecticut. The purpose of the plan is to support economic growth and development by promoting sustainable mobility and leveraging the transit-oriented assets surrounding the station. The study area for this plan is the area within approximately one-half mile of the Noroton Heights train station in Darien, Connecticut (see Figure 2 on page 6).

b. Objectives

The following are the objectives of this planning process:

1. Identify goals and objectives that will guide the development and implementation of the plan.

2. Engage the public and provide opportunities for meaningful involvement throughout the study.

3. Inventory existing conditions to understand existing mobility and parking conditions in the station area, including access to, operations of, the functionality of, and the condition of the Noroton Heights train station.

4. Recommend potential physical and operational improvements that address existing deficiencies and meet the projected demand from future growth, including from proposed developments.

5. Develop strategies that lead to sustainable mobility and parking conditions, and that support transit-oriented development (TOD) within the area.

6. Produce a final implementation strategy to guide recommended improvements.

c. Project Partners

The project is being performed under the direction of WestCOG, in cooperation with the Town of Darien and CTDOT. The study process includes a series of working and review meetings with the Technical Advisory Committee (TAC), which included an on-site walking tour.

Figure 2: Local Context Map with Study Area Highlighted

LOCAL CONTEXT
Noroton Heights Station Area Study

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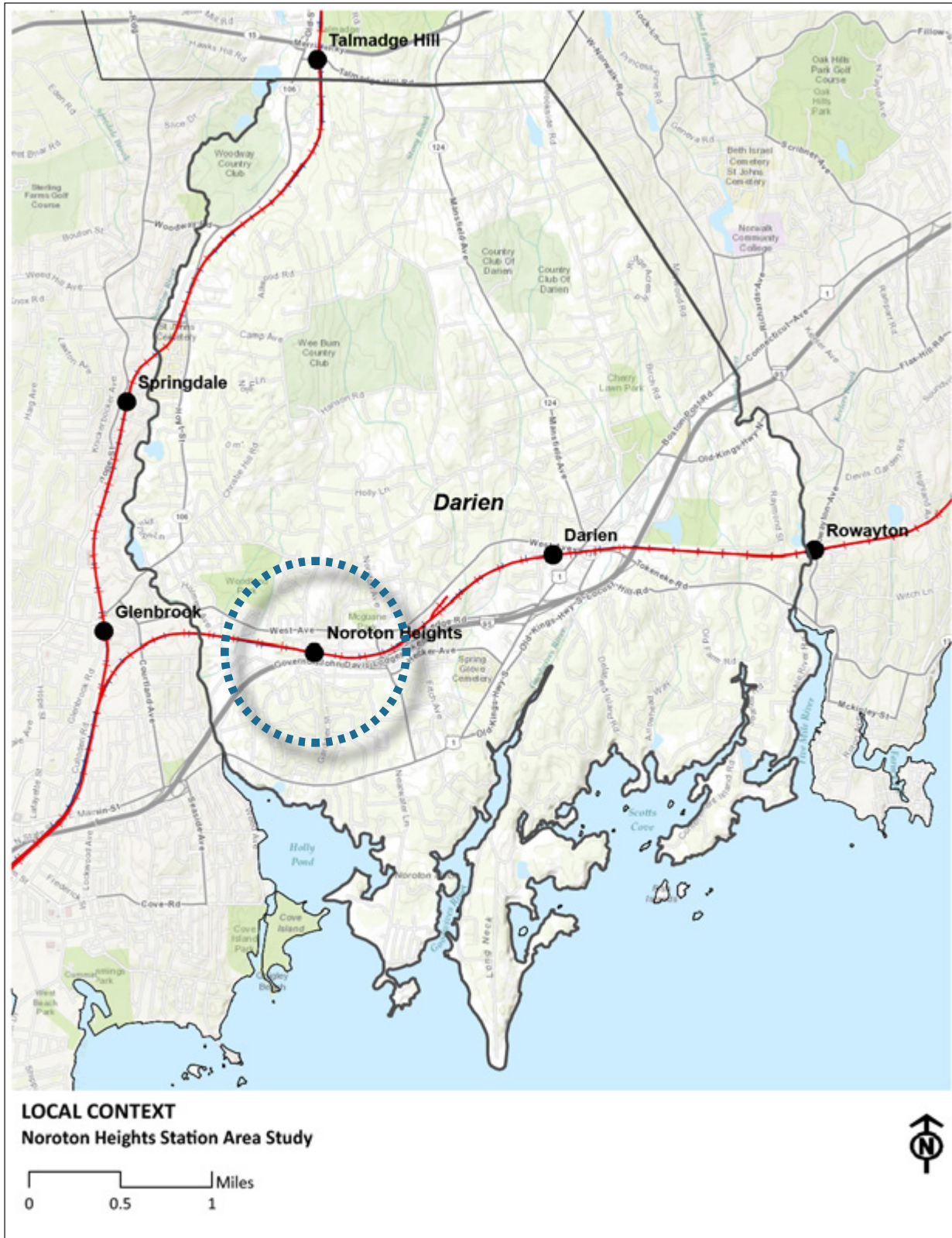
2. Analysis of Existing Conditions

This section includes an analysis of existing conditions that was based on the review of existing conditions and input from the TAC (see Appendix A for TAC Meeting Minutes). The analysis was focused on three areas: deficiencies in the north side parking areas, circulation, station building and platforms, and ADA compliance; potential TOD opportunities; and traffic impacts associated with the three proposed developments. The chapter concludes with a Smart Growth/TOD "Audit" that entails a review of existing regulatory documents and the proposed site plans, to assess whether the study area is adhering to Smart Growth/TOD principles and concepts, and identify specific obstacles, deficiencies, and opportunities.

a. Station Area Deficiencies

Parking Areas

The parking areas on the north side (inbound to Manhattan) are constrained by a narrow right-of-way (ROW) between the Metro North railroad tracks and Heights Road. In addition, the topography and relationship between the parking area which is relatively flat, and Heights Road poses a challenge for access and circulation between the Station and surrounding streets. Heights Road is higher in elevation than the parking lot at both ends (i.e. near Hollow Tree Ridge Road and again near Noroton Avenue), but dips below the grade of the parking lot between Edgerton Street and the entrance opposite Citibank/Equinox.

The existing configuration accommodates these changes in grade through a landscaped berm/buffer between the parking area and Heights Road.

There are also two transmission towers supporting the power lines within the parking area ROW adjacent to Heights Road.

It should be noted that the the Darien DPW is currently working on plans to address drainage problems in the parking areas, as well as parking lot guiderail and sidewalk (near Post 53) improvements.

Circulation

In general, the parking areas do not provide inadequate informational signs and wayfinding, confusing circulation patterns, and poor pedestrian access to/from, and within, the lots. The north side parking area is difficult and confusing to navigate, especially for people not familiar with the lot. There are no signs indicating the type of parking available at any of the three lot entrances. The 15-minute parking area is indicated by two small signs attached to the platform railing. All of the access points create T-intersections along Heights Road that are not aligned with existing streets. Pedestrian access to the station is via two crosswalks on Heights Road. One is at the Hollow Tree Ridge Road intersection, and the other at Edgerton Street. Neither of these crosswalks line up directly with driveways to the station or desire lines, which results in many mid-block pedestrian crossings at unmarked locations. Along Heights Road there are three access points to/from this long, continuous parking lot, none of which have any crosswalks (see Figure 3):

- The western access point is an entrance only, and leads to a long one-way eastbound driveway utilized for kiss-n-ride activity.

- The center access point is actually two exit drives adjacent to each other. One exit is intended for the kiss-n-ride driveway exits, while the other is intended for parking area exits.

- The eastern access point allows entries and exits.

Figure 3: Existing Station Access and Circulation

Station Building and Platforms

The station building is approximately 1,000 sq. ft. and is functionally obsolete with a small, narrow and outdated waiting area, bathrooms, and coffee shop. The building is generally in poor condition requiring constant maintenance (e.g. exposed wiring, lack of heat), and only provides access from the platform with no direct entrance/access from the parking area or drop-off zone.

In addition, while CTDOT is currently replacing the existing platforms at the station, the existing canopy on the westbound platform is in poor condition and should be replaced.

ADA Compliance

The station has virtually no ADA access provisions. There is only one ADA ramp located on each platform. There is no ADA access from one platform to the other, nor are there any ADA compliant infrastructure on the surrounding sidewalks that border the station area. The station building and bathrooms are also not accessible.

b. Potential TOD Opportunities

There are few potential development opportunities within a half mile walk from the Noroton Heights train station. As indicated in the existing conditions report, three primary sites are already in the process of being redeveloped. These include:

- Hollow Tree Self Storage (under construction)

- Noroton Heights Shopping Center (application recently approved)

- Federal Realty (application recently approved)

The remaining opportunities include the following two locations:

- Redevelopment of the Noroton Heights train station, which would include re-use of the existing station parking areas.

- Redevelopment of existing parcels along Heights Road, particularly the parcels at the corner of Heights Road and Edgerton Street (see Figure 4). This area was identified as a redevelopment opportunity that could potentially provide improved transition and context between Noroton Heights Train Station and the two proposed development projects directly adjacent (i.e. Noroton Heights Shopping Center and Federal Realty).

Figure 4: Heights Road TOD Opportunities

A preliminary analysis of the two corner parcels was conducted to assess the feasibility of redeveloping these properties. The preliminary analysis included the following assumptions and findings:

Assumptions

- Parcels would be developed by existing or other private developers without public assistance.

- The story height should be consistent with existing applications.

- On-site parking would be provided for each parcel. Parking will need to be supplied at-grade or above grade due to the flood zone (i.e. below-grade parking is not assumed to be feasible). For purposes of this analysis, and following best practices for TOD, parking is assumed to wrap the buildings along one or both sides. Buildings will maintain a frontage along Heights Road and Edgerton Street.

Findings

The Economic and Real Estate Market Analysis (see Appendix B) indicates sufficient demand for multi-unit residential development and medical-related office space. There is also demand for convenience retail, personal services, and non-chain restaurants, but these are not recommended due to existing development applications. Medical offices are currently limited within the station area.

- Together the parcels could provide approximately 42,000 square feet of gross leasable area (GLA).

Table 1 below summarizes calculations for the assumed development program.

▪ A total of 98 parking spaces for this assumed program would be required based on the Urban Land Institute's Shared Parking Model. (See Table 2 below for parking estimate).

▪ Significant traffic impacts would not be experienced based on this assumed program and location. (See traffic assessment below for details of methodology and impacts). Assume 800 sq. ft. units.

Table 1: Development Summary

	Footprint	GLA (3 Stories	Medical	Apartments
Parcel 1	9,750	29,250	9,750	20
Parcel 2	4,250	12,750	4,250	10
Total		42,0001	14,000	30

Table 2 Parking Demand Estimate

Land Use	Project Data Quantity	Unit	Weekday Base Rate	Project Rate	Unit	Weekend Base Rate	Project Rate	Unit	Weekday Peak Hr Adj 10 AM	Weekday Peak Mo Adj January	Estimated Parking Demand	Weekend Peak Hr Adj 10 AM	Weekend Peak Mo Adj January	Estimated Parking Demand
Residential, Rental, Shared Spaces	30	units	1.50	1.50	/unit	1.50	1.50	/unit	0.75	1.00	34	0.75	1.00	34
Reserved		sp/unit	0	0	/unit	0	0	/unit	1.00	1.00	0	1.00	1.00	0
Guest		units	0	0	/unit	0	0	/unit	0.20	1.00	1	0.20	1.00	1
Medical/Dental Office	14,000	sf GLA	3.00	3.00	/ksf GLA	3.00	3.00	/ksf GLA	1.00	1.00	42	1.00	1.00	42
Employee			1.50	1.50	/ksf GLA	1.50	1.50	/ksf GLA	1.00	1.00	21	1.00	1.00	21
									Customer		43	Customer		43
									Employee		55	Employee		55
									Reserved		0	Reserved		0
									Total		98	Total		98

Shared Parking Reduction   13%   13%

c. Traffic Impact Assessment

The traffic impact assessment assumed future conditions with the three proposed developments (Hollow Tree Self Storage, Noroton Heights Shopping Center and Federal Realty) fully occupied and operational. Therefore the approved traffic study for the Federal Realty development was used as the base condition for this traffic impact assessment. Note that the Federal Realty traffic study also included the additional traffic from the Noroton Heights Shopping Center proposed development. Trip generation rates and trip assignments were also based on the assumptions of the past traffic studies associated with the two development applications. Table 3 and Table 4 summarize the assumed trip generation rates and estimated new vehicle trips.

Table 3: Trip Generation Rates

Table 4: TOD Generated Vehicle Trip

Description/ITE Code	Units	ITE Vehicle Trip Generation Rates							Expected Units
		Weekday	AM	PM	AM In	AM Out	PM In	PM Out	
Apartment 220	DU	6.65	0.51	0.62	20%	80%	65%	35%	50.0
Medical Dental Office 720	KSF^2	36.13	2.39	3.57	79%	21%	28%	72%	15.0

The additional TOD generated trips were added to the future estimated peak hour traffic network and

Description/ITE Code	Expected Units	Total Generated Trips			Total Distribution of Generated Trips			
		Daily	AM Hour	PM Hour	AM In	AM Out	PM In	PM Out
Apartment 220	**50.0**	333	26	31	5	20	20	11
Medical Dental Office 720	**15.0**	542	36	54	28	8	15	39
Subtotal		874	61	85	33	28	35	49
15% Transit/Walk & Internal Capture		(131)	(9)	(13)	(5)	(4)	(5)	(7)
Total New Trips		**743**	**52**	**72**	**28**	**24**	**30**	**42**

Synchro analysis model. No significant impacts were identified, however Hollow Tree Ridge Road intersections were found to be approaching the limit of efficient and safe operations. While capacity and level-of–service were found to be generally acceptable, average and 95 percentile queues were found to be reaching the available storage limits between the intersections at Heights Road and Avalon Driveway. This was found to be the limiting factor in terms of ability to accommodate additional traffic in the study area. Table 6 summarizes the traffic assessment at these critical locations.

Table 5: Summary of Traffic Assessment at Hollow Tree Ridge Road Intersections

Intersection	Storage Length (feet)	Queues (feet)	V/C Ratio	LOS
Heights Road				
• Northbound	125	44/m54	0.59	C
• Southbound	400	116/m170	0.56	B
• Westbound Left	210	74/139	0.51	C
• Westbound Right	210	101/**#233**	0.73	D
Avalon Driveway				
• Northbound	500	169/#322	**0.96**	**E**
• Southbound	150	102/**149**	0.58	B
• Westbound	170	22/44	0.11	B
• Eastbound	100	32/55	0.17	C

Queues = Average / 95th Percentile
V/C Ratio = Volume to Capacity Ratio
LOS = Level of Service (LOS A-D commonly acceptable, LOS E reaching limits of drivers expectations, LOS F failure)
m indicates 95th percentile queue is metered by upstream signal
symbol indicates queue length exceeds capacity

d. Smart Growth/TOD "Audit"

As part of the study, a Smart Growth/TOD "Audit" was conducted that reviewed how smart growth/ TOD principles and concepts are being adhered to within the study area and identify specific obstacles, deficiencies, and opportunities. The review was accomplished by examining existing regulatory documents as well as the current development applications which are being proposed for sites within the study area.

A review of the Darien's zoning regulations and map indicates that the majority of the study area (between West Avenue on the north, Heights Road on the south, Noroton Avenue on the east and Hollow Tree Ridge Road on the west) lies within the DC (Designed Commercial) Zone. Overlaid on top of this zone is the NHR (Noroton Heights Redevelopment) zoning overlay which was established in 2010 to maintain the existing retail foundation of the Noroton Heights commercial district while encouraging the development of business and professional offices and dwelling units, including affordable units, in recognition of the zone's

proximity to mass transit and Interstate 95. While not specifically identified as a transit oriented overlay zone, the intent of the NHR is to promote the principles of smart growth and TOD by offering a broader range of housing and office space with convenient access to transportation, fostering pedestrian activity as fully as is practicable, and reducing reliance on individual motor vehicles to access the retail businesses.

The NHR indicates that a special permit is needed for all new development in the zone, and that It is imperative that new development properly manage and enhance stormwater management. No development or redevelopment will be permitted if it results in increased adverse stormwater impacts on adjacent properties or adjacent streets. In addition, any development or redevelopment must address drainage, and traffic and pedestrian safety issues in the area.

Permitted principal uses in the NHR include commercial sales and services, businesses and professional offices (located on the upper floors of a structure), and public and semi-public buildings, while permitted uses that require special permits include:

- All new site development and redevelopment under Section 680 of the Zoning Regulations.

- Business and Professional Offices on the first floor provided they are limited to those service types of uses such as real estate, insurance, and securities brokerages; leasing; mortgage banking; banking; travel services and the like.

- Public and semi-public uses.

- Protected Town Landmarks.

- Restaurants.

- Any permitted use involving the sale of prepared foods whether intended for consumption on or off the premises.

- Dwelling units located on upper floors.

- Indoor recreation facilities.

- Personal Service Businesses.

While the NHR does not provide any design guidelines/regulations regarding sidewalks, driveways, streetscape, or signage which are often included in TOD overlay districts, regulations on parking are provided which include allowing joint parking where two or more uses occur on a single lot (however due to the lack of municipal parking or on-street parking within the NHR, the P&Z Commission may waive only up to a maximum of fifty percent (50%) of the parking required per Section 904 of the zoning code), allowing structured parking (approved by special permit), and providing specific parking design specifications.

As indicated at the beginning of the section, the final step in the Smart Growth/TOD "Audit" involved examining the current development applications (all have been which approved by P&Z) which are being proposed for sites within the study area. A review of each of these applications was included as part of the Existing Conditions Report and is repeated below along with additional comments on how well each application meets Smart Growth/TOD principles and concepts, and possible improvements to each plan.

Noroton Heights Shopping Center, Inc.

The Noroton Heights Shopping Center, Inc. will redevelop the existing site at 346 Heights Road with a mixed-use building (approx. 8,600 sq. ft. of restaurant space, 24,000 sq.ft. of retail space, and 82,000 sq. ft. of residential units) that includes reconfigured parking, internal traffic circulation, and a new public plaza. The plan eliminates the driveway from Hollow Tree Ridge Road and relocates the driveway on Heights Road to align opposite the western entrance to the train station kiss-n-ride driveway, creating a four-way intersection with crosswalks. Sidewalks along with parallel parking are to be provided on Heights Road. The plan also includes the addition of a right-turn lane on the Heights Road approach to Hollow Tree Ridge Road.

With respect to traffic and parking, the traffic study for the development application concluded that peak parking demand on the site will be 393 parking spaces, which is less than the proposed parking supply of 402 spaces, and that additional traffic caused by the development will not have an impact to traffic operations in the area. It should also be noted that 37 of the parking spaces provided will be underground, while the rest will be surface parking.

A review of the plans clearly show the intent to create a transit-focused mixed use development with an improved street grid and pedestrian connections, as well as the use of underground parking.

Federal Realty

Federal Realty will redevelop the existing Stop & Shop and surrounding parking areas with 87,400 sq. ft. of new retail space and 90 dwelling units. The current commercial space is approximately 96,500 sq. ft. While the gym, bank, and office would remain, new buildings with retail ground floors and residential above would be located along West Avenue, while retail would line Heights Road. A total of 680 parking spaces would be provided, which is more than what is currently on the site (547 spaces).

The plan increases the density of the site, and provides for improved pedestrian connections between the buildings and the surrounding neighborhoods including the train station, but surface parking still dominates the interior of the site. Additional structured parking could have been utilized to reduce surface parking and the amount of impervious surface while creating the opportunity for other uses including open space. Finally, in reviewing the plans, it is recommended that a bike ramp be implemented adjacent to the proposed stairway (path) connecting the north side of the development to West Access to increase bicycle accessibility.

Hollow Tree Self Storage

A new, 104,000 sq. ft. facility is being constructed at 131 Hollow Tree Ridge Road that will include more than 700 self storage units and two apartments for live-in property managers. Space will be dedicated for recreational vehicles (RVs), boats, and wine storage. The facility will have a solar carport, with the energy produced used to power the facility. The facility will lease 16 parking spaces to the Town as commuter parking spaces for the Noroton Heights train station. Vehicular access to the site will be provided from the driveway of the Avalon development. There are no anticipated traffic impacts from the development of the site as designed.

Self storage uses are not typically found in TOD areas. However, this development, while within ¼ mile of the train station is actually located outside of the NHR in an area zoned 3.7 AH. While the original intent of this zone was to create an opportunity for affordable housing, development limitations (e.g. lack of access to public sewer) has led to the zoning being amended for this use.

3. Preliminary Opportunities/Options

Based on findings from the Existing Conditions Report, discussions with the TAC (see Appendix A for meeting minutes), the results of Chapters 1 and 2 of this report, and public input from a visioning session conducted on May 11, 2017 (see Appendix C for meeting minutes), a number of preliminary opportunites/options related to parking, roadway, and station improvements were identified.

These opportunities/options were then presented at a public meeting held on January 18, 2018 (see Appendix C for meeting minutes), Utilizing input from that meeting along with follow up discussions with the TAC, the opportunities/options were categorized into those that were suppported and should be advanced further and those that were not currently supported but could be revisited in the future. A listing of all of these options is shown below. Additional detail along with supporting graphics for all of the supported oppportunies/options is provided in the final chapter of this report.

a. Parking Improvements

Supported Opportunities/Options

- Redistribute permits vs pay-per-day parking opportunities
- Expand drop-off areas
- Provide expanded covered bicycle/scooter parking area
- Include Electric Vehicle (EV) charging stations
- Expand/Connect Areas 2/3

Non Supported Opportunities/Options

- **Institute Preferred Parking for Carpools**. While establishing priority carpool parking areas for permit holders was initially considered and supported by some members of the public, it was decided that it would be too difficult to enforce and may result in underutilized spaces.
- **Construct a Parking Deck**. The majority of participatns were not in favor of constructing a parking deck to increase the supply of parking at the station. However, if a deck were to be constructed, Area 2 was identified as the most favorable site due to terrain and connectivity (see Figure 5).

Figure 5: Potenial Parking Deck on Area 2
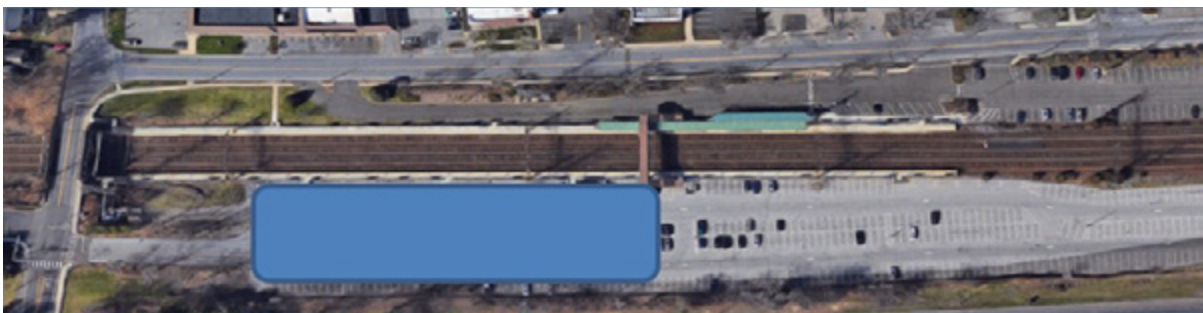
b. Off-Site Improvements

Supported Opportunities/Options

- Pedestrian infrastructure
  - Install Sidewalk
  - Install Crosswalks
- Provide geometric improvements at Noroton Avenue and Heights Road & Noroton Avenue and Ledge Road
- Improve signal operations
- Improve bus facilities/locations
  - Consolidate stop locations
  - Install shelters
- Add Bicycle facilities
- Develop Heights Road as a Shared Street
- Reconfigure parking along Heights Road

Future Considerations

- **Construct a Roundabout**. The construction of a roundabout was explored to improve traffic flow at the intersection of Heights Road and Edgerton Street. However, as shown in Figure 6, there is not enough right-of-way space to support its design.

Figure 6: Proposed Roundabout at Heights Road and Edgerton Street

c. Station Improvements

Supported Opportunities/Options

- Improve ADA access throughout the station
  - Crossings between platforms
  - Pedestrian overpass
  - To/from Hollow Tree Ridge Road
  - Throughout parking areas and adjacent streets
- Install Sidewalks
  - Parking to platforms
  - Post 53/Parking Area to Noroton Avenue
- Improve and expand platform canopies
- Improve lighting and security
- Relocate and ReplaceStation Building

Non Supported Opportunities/Options

- **Construct additional pedestrian bridge**. The majority of the public indicated that the existing pedestrian bridge was sufficient and that rather provide an additional crossing, money should be spent on renovating the existing structure.
- **Implement bike share**. There are not enough people to support a bike share program in the study area.
- **Implement shuttle service**. There are not enough people in the residential neighborhoods surrounding the study area to support a shuttle service.

In addition to the opportunities/options listed above, the potential for TOD at the two remaining parcels across from the train tation was discussed at the January 1, 2018 public meeting. The general consensus among participants was that while the Economic and Real Estate Analysis indicated that there is demand for additional residential multi-unit development as well as medical-related office space, it was better to wait to see how the planned developments work before determining what needs to be developed on the remaining parcels. Future uses that were suggested included open space, a coffee shop, and a restaurant. All of the participants were in agreement that whatever is built on the remaining parcels should be aesthetically similar to the surroundings.

4. Implementation Strategies

The final chapter of the report provides detail on each of the supported opportunities/options. The opportunities/options have been organized into two types of strategies; those that impact the station and parking, and those that are related to mobility (off-site improvements). A written description of each strategy is provided below along with associated graphics. Following the written description is an implementation table that highlights preliminary steps, benefits, implementation partners, how the projects are linked, and estimated costs.

The strategies are coded by category and with corresponding letters as follows:

- Station/Parking (SP)
- Mobility (Off-Site) (M)

Based on input from the TAC, the chapter concludes with a table indicating the timeline for implementation of the strategies broken down as follows:

- Short-Term (should be implemented within 3 years)
- Mid-Term (should be implemented within the next 3 to 5 years)
- Long-Term (should be considered/implemented after 5 or more year)

It should be noted that a number of opportunities fall into multiple time periods as they require a significant level of additional planning, coordination, and/or funding.

SP1: Restribute Permits vs. Pay-Per-Day Parking Opportunities

Given that there are a number of underutilized permit spaces in Area 2 and a significant amount of current pay-per-day parkers who are likely on the permit wait list, the Town should look to sell additional permits and make some of pay -per day spaces in Area 1 permit spaces which would better match supply vs. demand. The Town should monitor and review the daily distribution of payment methods, and pay by app share to determine the specific number of additional permits that could be sold as well as how many daily spaces could be converted to permit spaces. If this policy were enacted, the Town would also need to monitor its impact on revenue which could decrease due to less fees generated from pay-per-day parking.

SP2: Provide Expanded Covered & Secure Bicycle/Scooter Parking Area

Bicyclists who attended the visioning session and public meeting expressed frustration with the limited and insecure bicycle parking currently located at the station. Bicycle parking is a relatively easy and low cost-way to encourage biking and relieve some of the car parking pressure facing the train station.

Secure bicycle parking tends to be a barrier for many cyclists, so providing secure parking often increases bicycle ridership. Enhanced bicycle parking facilities could range from covered racks to protect users from the elements to enclosed bicycle parking facilities to provide an increased measure of security. If demand is high enough, additional services can be offered in bicycle depots, which are enclosed storage units with membership-only access and video surveillance, or even a staffed parking area that also offers bike repair

or rental options during peak times.

Regardless of the level of bike parking implemented, the racks should be located (see SP8 for proposed location) where there is convenient access to the train platform and the parking should continue to be provided for free (see Figure 7 for examples of bicycle parking, including storage lockers and covered bicycle parking).

Scooters are another mode community members use to access the station. Similar to bicycle use to the station, scooters require less space for parking, so priority parking areas should be provided. This could be done either as self-serve parking areas or similar to the bicycle depot concept. Combining scooter and bicycle parking into a dual mode, an enclosed parking area could be even more viable with dedicated secure parking space alotted for scooters as well as bicycles.

Figure 7: Examples of Bicycle Parking

SP3: Include Electric Vehicle Charging Stations

Electric vehicle charging stations should be installed at the Noroton Heights train station to help reduce greenhouse gas emissions and help make the environment greener and more sustainable. The Town should look to the State of Connecticut's EVConnecticut program (managed by CTDEEP) which provides information on the design and siting of electric vehicle supply equipment, and in the past has provided incentives and rebates to municipalities to reduce the initial cost of electric vehicle chargers. Currently within Connecticut, rail station parking facilities in Bethel, New Haven, Branchville, Stamford, Greens Farm, and Westport, are all equipped with level 2 charging stations (which take 4 to 8 hours to charge a vehicle).

SP4: Improve ADA Access

Ramps currently connect the parking lots to the platforms, but improvements are required to provide access between the two sides of the station via Hollow Tree Ridge Road. Due to the length of the ramps that would be required to reach from the grade of Hollow Tree Ridge Road down to the grade of the station platform, a design process would be required to design and accurately estimate the cost.

The ADA parking stalls on the north side of the station should have access aisles adjacent to each ADA parking stall. In order to ensure that adequate ADA parking is available at the station, a full analysis of ADA stalls required should be undertaken when the parking stalls on the north side of the station are upgraded with access aisles.

SP5: Install Sidewalks

The general strategy within the parking lots was to include sidewalks around the peripheries (see Figures 11 to 13) , where possible, to create a continuous walkway from parking areas to the platforms. The feasibility was mainly determined by the available drive aisle and/or adjacent right-of-way available. Parking Area 1 has two rows of parking with a wide drive aisle, which would allow sidewalks to be installed on the outside of each row of parking. These sidewalks would also serve ADA parking spaces.

Figure 8: Rendering of Proposed Sidewalk Connecting Parking Area 2 and 3

Parking Area 3 is relatively far from the platform access points, and requires pedestrians to walk in a wide, two-way drive aisle that connects to the platform via Parking Area 2. To facilitate this connection, a sidewalk is proposed that extends from Parking Area 3 to the platform entrance.

SP6: Improve and Expand Platform Canopies

Many participants at the public meeting indicated that the current canopy on the westbound side of the platform provides insufficient protection during inclement weather and should be replaced, as well as expanded to cover the entire length of the platform (a distance of approximately 850ft). In addition, most indicated that a canopy should also be provided on the eastbound side of the station where no currently exists. The Town should work with CTDOT and Metro North to identify funding for this improvement. Figure 9 is an example of a new canopy at the train station in West Haven.

Figure 9: Canopy at West Haven Train Station

SP7: Expand Drop-Off Areas

The current kiss-n-ride area (in Area 1) on the northbound side of the station is located along the long one-way eastbound driveway west of the station building. However, this area has no formal markings or signs designating this as its use. On the southbound side of the station (in Area 2), commuters utilize the drive aisle adjacent to the eastbound platform as a kiss-n-ride location. Again, this area has no formal markings or signs designating this as its use. Each of these areas experiences a significant amount of kiss-n-ride activity.

The Town in coordination with CTDOT should look to formalize and expand the drop-off area on the northbound side of the station to meet the demand and make it safer and more convenient for commuters to get dropped off and picked up. This formalized area which now includes a walkway/sidewalk with connection to the station building are shown as part of the station options detailed in SP8. On the south side of the station, a formalized area is not feasible as it would require the elimination of permit spaced located adjacent to the platform.

SP8: Relocate and Replace Station Building

Three preliminary options have been developed for the north side parking and station. Each of the options addresses the existing deficiencies identified in the previous chapters including: ADA compliant infrastructure and access throughout the north side station area; improved vehicular circulation patterns;

designated walkways and crosswalks that match desire lines; consolidation and realignment of access drives; improved intermodal connectivity with buses; and an improved station building larger than the existing building (which is approximately 1,000 sq.ft.).

The station building is assumed to include ADA access, bathrooms, ticket vending machines (TVMs), waiting/seating area, and full service café with kitchen. The station building is also assumed to be co-located with a new ADA compliant overpass to connect both platforms and provide access to/from parking areas and the surrounding neighborhood. The plaza areas would also include bike/scooter parking areas (currently not shown).

The north side parking areas and drive aisles are assumed to be regraded to eliminate the landscape berm which would be replaced by retaining walls where necessary.

All alternatives also include 62 new spaces on the south side which are possible once the storage building is removed and area regraded to connect Parking Areas 2 and 3 (SP9).

The major difference for each option is the location of the station building and corresponding parking/drive aisles. Table 7 summarizes the changes in parking supply for each option. All options include the consolidation of the south side parking areas (Areas 2 and 3) into one large lot. Each of the options are described below (see Figures 10 through Figure 12 on the following pages).

Table 6: Change in Parking Supply

OPTION	PARKING							
	AREA 1A	AREA 1B	AREA 2	AREA 3	NEW NORTH	NEW SOUTH	TOTAL	+/-
EXISTING	218	16	442	105				
1	167	27	442	105	29	62	832	51
2	167	17	442	105	29	62	822	41
3	167	8	442	105	48	62	832	51
4	163	13	442	105	64	62	848	67

- **Option 1: Station Building in Same Location** proposes a new building in the same location as the existing building. The building would be larger (approx. 3,750 sq.ft.) to accommodate improved service and amenities. The parking areas would be reconfigured to provide new spaces at the western end of the platforms adjacent to the kiss-n-ride lane. Expanded plazas, driveway and crosswalks would provide access and service to the Station Building and platforms directly from the Heights Road sde of the building.

- **Option 2: Station Building Relocated Directly East** proposes a new building (approx. 9,000 sq. ft.) adjacent to the existing structure. The building would overlap the eastern end of the platform, but would be more centralized to all parking spaces, as well as closer to Edgerton Street. The eastbound bus stop would also move closer to Edgerton to begin to create a sense of an intermodal center and improved connections and awareness of potential transfers and mode choice.

- **Option 3 Station Building at East End of Platform** proposes a new station building (approx. 6,000 sq. ft.) at the east of the platform, and adjacent to Edgerton Street. This option also illustrates a generous plaza that creates two separate parking areas and circulation aisles. The concept provides improved frontage with Heights Road and integrates with the surrounding development. A new roundabout feature is introduced to accommodate kiss-n-ride activity, in addition to the longer drive aisle to the west. The longer drive aisle along the platforms is envisioned as commuter kiss-n-ride activity, while the roundabout is envisioned for use by less frequent users who would need to access the Station for more information and TVM's.

Whichever option is selected to be advanced, a number of additional strategies should be considered when redesigning the station area. These include improved lighting and security (e.g. LED lighting and blue light security stations), heated shelters along the platforms, and the use of green infrastructure such as permeable or semi-permeable paving and porous design techniques to reduce stormwater runoff volume, and solar panels on the renovated and/or new station building to reduce energy costs.
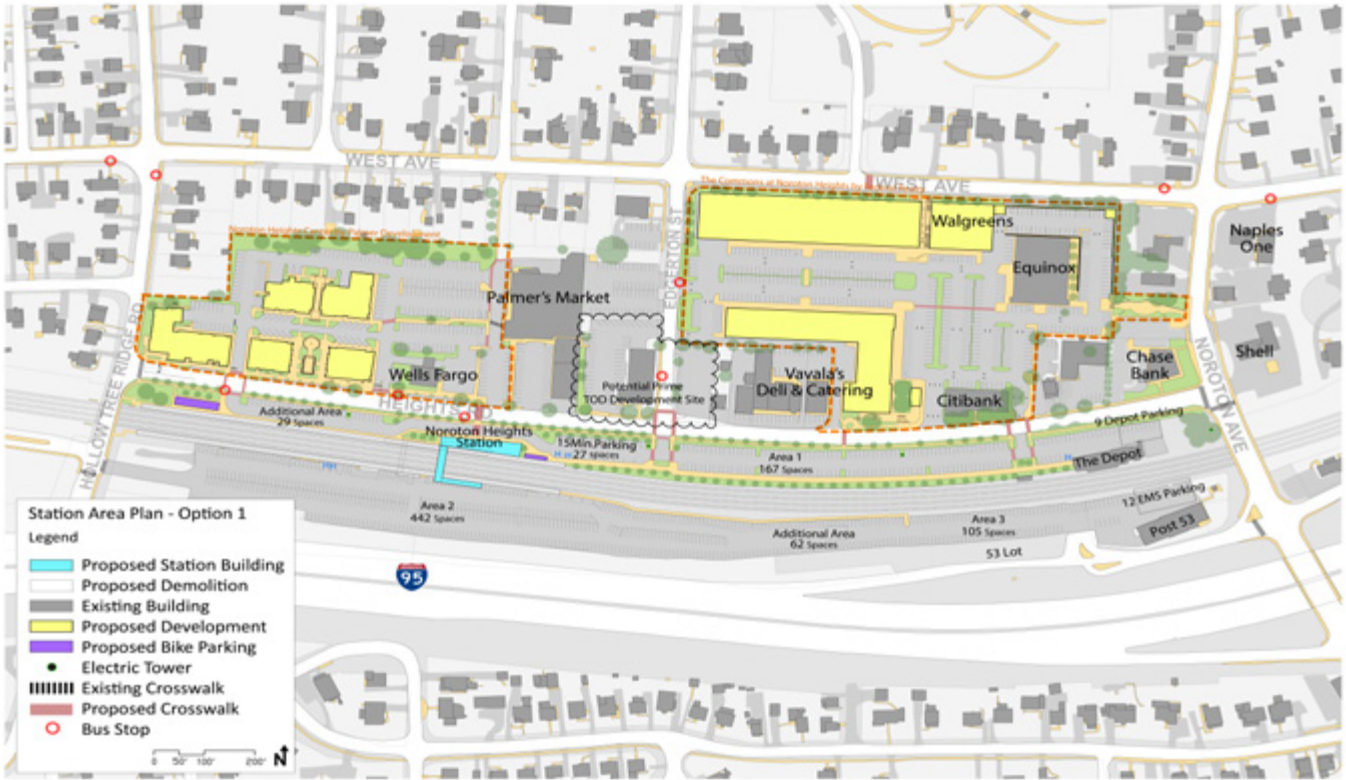
Figure 10: Option 1: Station Building in Same Location

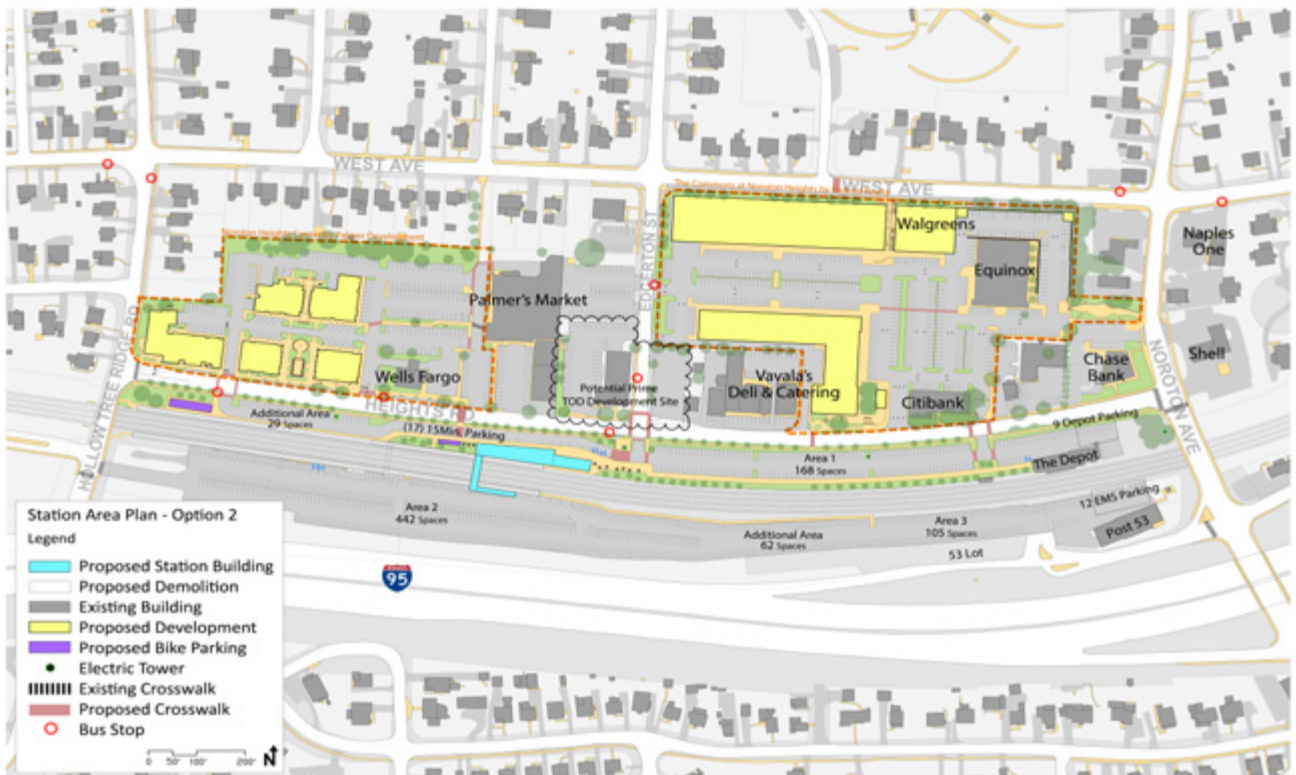Figure 11: Option 2: Station Building Relocated Directly East

Figure 12: Option 3: Station Building at East End of Platform

SP9: Expand/Connect Areas 2&3

To improve parking supply and provide for better circulation in the parking lots south of the station, the Town should consider converting Areas 2 and 3 into one large parking lot (SP 7: see Figures 10 to 13). The conversion would require the demolition of the existing storage building, excavation, regrading, paving, and then striping of the new parking spaces. The benefits of the conversion would be the addition of approximately 62 spaces, increased revenue, as well as improved circulation, as the narrow driveway between the two lots would be eliminated.

b. Mobility (Off-Site) Improvements

M1: Pedestrian improvements

The existing pedestrian network surrounding the station area includes approximately 4,400 linear feet of asphalt walkways, which have been installed over time to provide an informal pedestrian space in place of a sidewalk. These asphalt walkways are not ADA compliant, and are often at the same grade as the roadway, as opposed to raised which is typical of standard sidewalks. Sidewalks are completely missing for approximately 9,700 linear feet of roadside space.

At these locations, standard sidewalks with curbs should be installed, with ADA compliant pedestrian ramps at intersections to create a complete and continuous, accessible pedestrian network. High-visibility crosswalks and push-button actuated pedestrian countdown signal heads should also accompany each signalized intersection to complete the pedestrian network (see Figure 14).

Figure 13: Proposed Pedestrian Improvements

M2: Make Geometric Improvements at the Intersections of Noroton Avenue and Heights Road and Noroton Avenue and Ledge Road

As shown in the traffic analysis provided in the Existing Conditions Report, certain movements at Noroton Avenue and Heights Road and Noroton Avenue and Ledge Road are beginning to operate at unacceptable levels. These include:

- Noroton Avenue/Heights Road: The southbound left-through lane experiences 95th percentile queues close to the available storage during the morning peak.

- Noroton Avenue/Ledge Road: Several movements are approaching acceptable thresholds. The westbound movement is approaching capacity with a v/c of 0.85 (Note: traffic was observed in the field to intermittently operate above capacity for short periods of times, where the queue of vehicle could not be processed in a single cycle). The northbound and southbound approaches queues are approaching, and at times exceed, the available storage. The southbound through-right lane is approaching capacity.

To help alleviate these conditions and improve traffic flow as well as vehicular safety the following geometric improvements are recommended:

- Noroton Avenue/Heights Road: Restriping the southbound through lane to allow left turns. Restriping the southbound right turn lane to allow through movements (see Figure 15).

- Norton Avenue/Ledge Road: Restriping the southbound left turn lane to allow through movements (see Figure 16).

Figure 14: Existing vs. Proposed Lane Geometry at Noroton Avenue and Heights Road
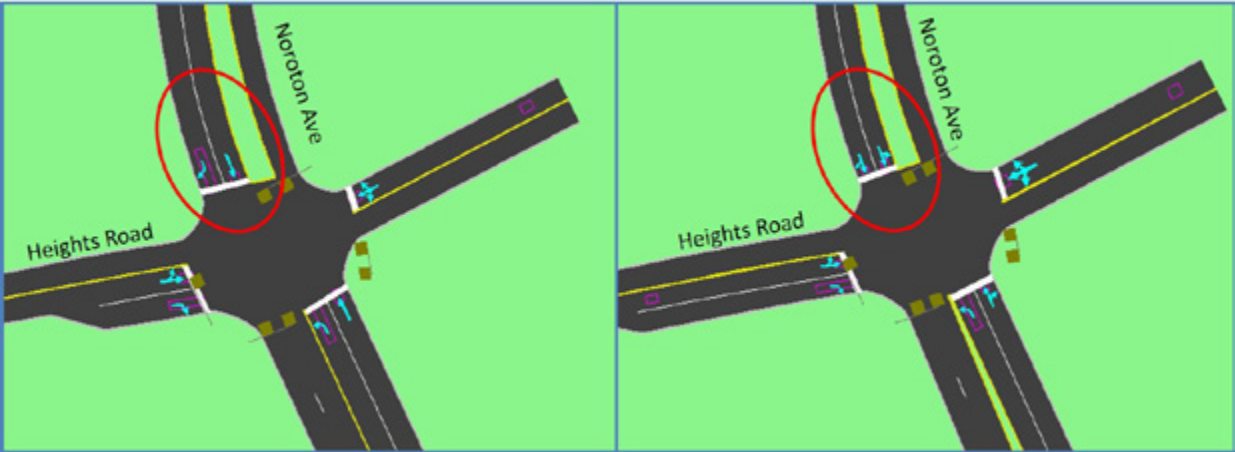
It should be noted that the above improvements are being addressed by Federal Realty as part of their new development. In addition, the Town in partnership with WestCOG and the State of CT, is currently advancing plans for the design of an improved Norton & West Ave. intersection.

Figure 15: Existing vs. Proposed Lane Geometry at Noroton Avenue and Ledge Road
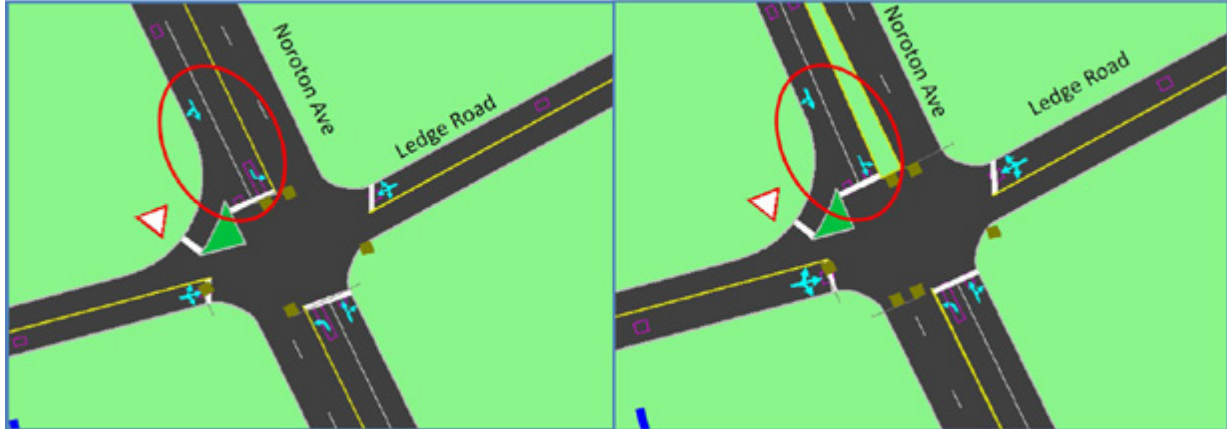
M3: Improve Traffic Signal Operations

Traffic signals along the coordinated sections of Noroton Avenue and Hollow Tree Ridge Road operate on 95 second cycles, while those along West Avenue operate on 60 second or 90 second cycles (see Figure 17). Since West Avenue is not coordinated with the intersections to the south at Heights Road, the flow of traffic and vehicle platoons are interrupted, which results in system inefficiencies.

In addition, the signals operate on the same plan all hours of the day and week. There are no "time-of-day" plans that adjust the signal timings based on time-of-day peak movements and approaches.

Conditions at these intersections should be improved by adjusting cycle lengths so all signals operate on the same cycle length. In addition, time-of-day plans that favor the peak direction movements through each corridor, especially along Noroton Avenue should be considered.

Figure 16: Existing Traffic Signal Cycle Lengths

M4: Improve Bus Facilities/Locations

The existing service Route 344 Glenbrook Road service provides access to both Darien and Stamford's town centers at 20-40 minute peak frequencies. The presence of local bus service, along with access to the train station, indicates that current and future residents of the study area may be able to have a "car-lite" lifestyle.

CTtransit currently picks up passengers at nine stops in the study area. As discussed in previous sections, these stops have relatively low ridership. Stop consolidation may be one option to speed up service, but this would need to be studied in light of the system as a whole.

For the time being, this study recommends that the three most used stops should receive amenities to improve the comfort of passengers. The amenities for all three of the stops should include seating, a shelter, bus route information, and a trash can. The three stops include:

- The stop located west of the Stop & Shop on Edgerton Street (labeled Stop 4 in Figure 18)
- The stop on the south side of Heights Road at the train station (labeled Stop 3 in Figure 18)
- The stop on the north side of Heights road at the train station (labeled Stop 7 in Figure 18)

Before these enhancements are added, CTtransit, the Town, and CTDOT need to coordinate on the station configuration. If a station option is selected that moves the station building closer to Edgerton Street, it is recommended that the stop on the south side of Heights Road also be moved closer to Edgerton Street. This would help improve intermodal connectivity.

Figure 17: Existing Bus Stops

M5: Add Bicycle Facilities

Members of the Noroton Heights community who attended the visioning session and/or public meeting requested a safe, connected bike network to improve access to the station and provide an alternative to driving during the congested peak rush hours. Adding bike facilities also will help the new members of the community—the development's new tenants—access Darien's amenities.

The streets in the study area are mostly too narrow to accommodate bike lanes. On these streets, which include Noroton Avenue, West Avenue, Edgerton Street, and Hollow Tree Ridge Road, bike sharrows should be implemented. These sharrows will work to guide people on bicycles to the train station and surrounding community destinations while signaling to drivers that the roadway is shared with other users. To further emphasize the presence of bicyclist, "Share the Road" signage should be added to encourage slower speeds and increase driver awareness. Bicycle wayfinding signage should also be implemented to improve navigation throughout the neighborhood.

Heights Road is wide enough to implement a bike lane with the exception of the hill near Noroton Avenue. In many hilly areas with narrow cross sections, sharrows are placed on the downhill lane because bicyclists heading down the hill maintain a speed comparable to the speed limit. The uphill portion (the eastbound lane) should maintain the bike lane because bicyclists will be traveling at slower speeds than cars and will benefit from the added sense of safety a bike lane provides.

As an alternative recommendation for Heights Road, the Noroton Heights community showed interest in a "shared street" concept (M6).

Figure 18: Proposed Bicycle Network

M6: Develop Heights Road as a Shared Street

A large number of participants at the public meeting indicated that they were in favor of redesigning Heights Road near the intersection with Edgerton Street as a shared street. Shared streets are an approach to designing streets that minimizes demarcations between vehicle traffic and pedestrians, often by removing features such as curbs, road surface markings, traffic signs, and regulations. Shared streets are typically designed on narrower streets in town and city centers. One of the main purposes of creating a shared street is to create flexible spaces that pedestrians, bicyclists, and vehicles can use together safely. Shared streets can be regulated to allow or prohibit certain kinds of traffic at specific times.

On a typical street, pedestrians and vehicles are separated, with pedestrians restricted to traveling on sidewalks and vehicles traveling on the roadway, which is separated from sidewalks by elevated curbs, at a much faster speed. Curbs demarcate the separation between pedestrian and vehicular space. On shared streets, such formal separation typically does not exist; the street is on one consistent plane. The vehicular speed limit is lowered to a slow speed. The redesign can take many forms and the cost to implement can vary depending on how much of the street is reconstructed, the type of materials selected, and the extent to which drainage and other utilities are affected. On-street parking can be delineated by pavement treatments and/or placement of objects such as trees, bollards and/or blocks of stone. Figures 20 shows several examples of shared streets from the United States and Europe.

Figure 19: Examples of Shared Streets

M7: Reconfigure Parking along Heights Road

One of the recommendations that came out of the public meeting was to reconfigure the parking lot along Heights Road adjacent to Valvala' s Deli and Catering to make the area safer for pedestrians and motorists. At the meeting the concept discussed included utilizing parallel parking in front of the deli to allow for continuous sidewalk on the north side of Heights Road. Access to the lot would be provided at two entrance/exits which would improve access management along Heights Road.

However, a closer examination of the dimensions of the lot revealed that there is not enough space to provide a sidewalk, an adequately wide drive isle, and wide enough entrances/exits for vehicles turning into or out of the lot.

An alternative design (see Figure 21), includes a sidewalk/walkway adjacent to the storefronts as a buffer to the parking lot. This sidewalk/walkway connects to the street edge on the eastern side of the lot where pedestrians can utilize a new crosswalk to cross to the south side of Heights Road. The sidewalk also connects to additional proposed sidewalk west of the lot via a new crosswalk which is located across an existing driveway entrance. The redesign of the lot maintains the current number of parking spaces (16).

As the lot is located on private property, the Town would need the cooperation of property owners to undertake its redesign.

Figure 20: Reconfigured Parking Lot Adjacent to Varvala's Deli

M8: Improve Navigation/Wayfinding

Wayfinding represents a person's experience of navigating to and through a place, whether through a single building, an airport or campus, a neighborhood, or an entire city. Wayfinding aids cue people in on their location and help them navigate to other locations. Iconic landmarks and architectural styles serve as wayfinding aids, as do more intentional wayfinding elements such as gateways and directional signs.

Despite being located near an interchange of I-95 and hosting a commuter rail station, the Noroton Heights Station area currently has only a few directional signs. Businesses, workers, visitors, and even residents can benefit from having more wayfinding aids. The goals for improving the navigability of the area should be defined clearly because they impact the locations, types, and messages of wayfinding elements. Among the goals Darien might consider are to direct motorists to the train station and its parking areas (making clear the difference between the existing station building and the The Depot - the old station building) and to direct motorists to major interstate highways (i.e., I-95). The needs of motorists, pedestrians, and bicyclists should be considered during the development of a wayfinding system, but the audience depends on the area's unique needs and priorities.

Independent institutions and facilities (e.g., Metro North Railroad) that would benefit from being listed on signs should be consulted during the planning stages about their sign and navigation needs. Some organizations could possibly allocate funding toward collectively implementing an integrated wayfinding system.

The designing of wayfinding elements such as directional signs provides an opportunity to incorporate motifs, images, and themes that celebrate the identify of Noroton Heights. Gateway elements can be signs, but they can also be specially-designed architectural and landscape features. They can also include artist-designed elements that brighten the streetscape.

Figure 21: A proposed wayfinding system for Irvington, NY, which has a Metro North rail station

c. Implementation Tables

Table 7: Station/Parking Strategies

#	PROJECT	PRELIMINARY STEPS	POTENTIAL BENEFITS	IMPLEMENTERS + PARNTERS	RELATED PROJECTS	EST. LEVEL OF INVESTMENT
STATION/PARKING STRATEGIES						
SP1	**Redistribute Permits vs. Pay-Per-Day Parking Opportunities**	• Review /monitor daily distribution of payment methods, and pay-by-app monthly share • Update policies and website	• Match supply and demand • Customer Service • Might reduce revenue	**Town**	SP8, SP9	TBD (will include cost of new signs indicating permit spaces)
SP2	**Provide Expanded Covered & Secure Bicycle/Scooter Parking Area**	• Purchase and install bicycle racks • Designate new/expanded areas • Construct	• Accommodate and induce scooter/bicycle trips • Security • Weather protection	**Town** + CTDOT	SP8	$250 per rack or a total of $500 to 600 per rack including construction costs. Bike lockers are about $2,200 per unit.[1]
SP3	**Include Electric Vehicle Charging Stations**	• Identify spaces • Coordinate with CTDOT and DEEP	• Promote sustainable transportation	**Town** + CTDOT + CT DEEP	SP8, SP9	$500 to $2,600 (cost per charge station) + $10,000 to $15,000 per charge station for installation)[2]
SP4	**Improve ADA Access**	• Coordinate with CTDOT • Conduct additional analysis, survey, preliminary design	• Equitable access for all users • Compliance	**Town** + CTDOT	SP5, SP8, SP9	TBD following additional analysis & survey work
SP5	**Install Sidewalks** • **Parking Lots to Platforms** • **Post 53/Parking Area 3 to Noroton Avenue**	• Coordinate with CTDOT • Survey, Preliminary Plan	• Provides for increased and safer pedestrian accessibility to station	**Town** + CTDOT	SP4, SP8, SP9	$269,750[3]
SP6	**Improve and Expand Platform Canopies**	• Coordinate with CTDOT • (Was not included in Platform project)	• Provides for additional protection for commuters during inclement weather	**Town** + CTDOT + Metro North	SP8	$4,000,000 per platform[4]
SP7	**Expand Drop-off Areas**	• Coordinate with CTDOT • Plan, Design	• Meet demands	**Town** + CTDOT	SP8	see SP5
SP8	**Relocate and Replace Station Building**	• Coordinate with CTDOT and Metro North • Conceptual Design, Survey, Preliminary Design	• Modernize, provide amenities • State of good repair • Compliance	**Town** + CTDOT + Metro North	SP1-7	Option 1: $1,687,500[5] Option 2: $4,050,000[6] Option 3: $2,700,000[7] Renovation of Existing Station - $350,000[8]
SP9	**Expand/Connect Areas 2 & 3**	• Coordinate with CTDOT • Survey, Preliminary design	• Expanded supply • Increase revenue • Improve circulation	**Town** + CTDOT	SP1, SP3-SP5	$330,000[9]

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[1] Source: UNC Highway Safety Research Center. Costs for Pedestrian and Bicyclist Infrastructure Improvements: A Resource for Researchers, Engineers, Planners, and General Public. http://www.pedbikeinfo.org/cms/downloads/Countermeasure%20Costs_Report_Nov2013.pdf

[2] Source: http://www.sustainablejersey.com

[3] See Table 10

[4] Assumes new 850ft canopies on each platform. Source: 320ft of new canopies were completed for Glenbrook Station in Stamford at a cost of $1.7M in 2014.

Table 8: Mobility (Off-Site) Improvements

#	PROJECT	PRELIMINARY STEPS	POTENTIAL BENEFITS	IMPLEMENTERS + PARTNERS	RELATED PROJECTS	EST. LEVEL OF INVESTMENT
MOBILITY (OFF-SITE) IMPROVEMENTS						
M1	**Pedestrian Infrastructure** • **Install sidewalks** • **Install crosswalks** • **Install pedestrian ramps**	• Survey, Preliminary Design	• Provides for increased and safer pedestrian accessibility to station	**Town** + Property Owners		$2,541,045[10]
M2	**Construct Geometric Improvements at Intersections of Noroton Avenue and Heights Road and Norton Avenue and Ledge Road**	• Coordinate with property owners	• Improve traffic operations	**Town** + Property Owners + CTDOT		Noroton Avenue/Heights Road: $1,440[11] Noroton Avenue/Ledge Road: $775[12]
M3	**Improve Traffic Signal Operations**	• Conduct traffic study • Identify coordinated signal plan	• Efficiency/improved traffic operations	**Town** + CTDOT + Developers		N/A (to be addressed as part of new development)
M4	**Improve Bus Facilities / Locations** • **Consolidate stop locations** • **Install shelters**	• Coordinate with CTTransit • Study stop consolidation with respect to the system as a whole	• Promote and accommodate transit use and transfers • Improve mobility for existing and new users	**Town** + CTDOT + CTTransit	M6	Cost per bus shelter (including seating) - $10,000 to $12,000 [13]
M5	**Add Bicycle Facilities**	• Survey, Preliminary Design	• Improve mobility • Safety	**Town**	M6, M7	Sharrows and Signs: $7,920 Bike Lane on Heights Road: $5,740 (see Table 11)

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[5] Proposed 3,750 sq.ft station building * $450 per square foot cost for new construction. Cost does not include site work or cost of pedestrian bridge. Source: NV5

[6] Proposed 9,000 sq.ft station building * $450 per square foot cost for new construction. Cost does not include site work or cost of pedestrian bridge. Source: NV5

[7] Proposed 6,000 sq.ft station building * $450 per square foot cost for new construction. Cost does not include site work or cost of pedestrian bridge. Source: NV5

[8] Existing 1,000 sq.ft. station * $350 per square foot cost for renovations. Renovations assumed to include insulated windows, interior and exterior lighting, plumbing and electrical upgrades, ceiling, façade, and foundation work, a new bathroom, new heating and cooling systems, and new floors, as well as bringing the building up to ADA compliance. Source: NV5

[9] Area of expanded lot is approximately .44 acres. 150 spaces per acre * .44 acres * $5,000 per space construction cost for surface parking = $330,000. Cost does not include demolition of existing structure. Source for spaces per acre and cost per space: Transportation Cost and Benefit Analysis II – Parking Costs, Victoria Transport Policy Institute (www.vtpi.org), April 2018

[10] See Table 10

[11] $400 to remove existing markings ($1.00 sq.ft. * approximately 400 sq.ft of existing markings) * cost of 8 new markings ($130 per marking). Source: NV5 and CTDOT 2017 Cost Estimating Guidelines

[12] $255 to remove existing markings ($1.00 sq. ft. * approximately 255 sq. ft. of existing markings) * cost of 4 new markings ($130 per marking) Source: NV5 and CTDOT 2017 Cost Estimating Guidelines

[13] FHI

#	PROJECT	PRELIMINARY STEPS	POTENTIAL BENEFITS	IMPLEMENTERS + PARNTERS	RELATED PROJECTS	EST. LEVEL OF INVESTMENT
M6	**Develop Heights Road as a Shared Street**	• Coordinate with property owners • Conceptual Design, Survey, Preliminary Design	• Placemaking • Pedestrian and vehicular safety	**Town** + Property Owners	M7, SP8	Typical treatments and costs for shared streets[14] • Replacing Speed Limit Signs: $225 • Speed humps/bumps: $2,000 • High visibility crosswalks: $1,800 • Curb extensions: − Single: $15,000 − Double: $20,000 • Raised pedestrian crossings: $50,000 • Raised intersections: $150,000 to $200,000 • Patterned crosswalks: $9.68 per sq. ft.
M7	**Reconfigure Parking along Heights Road**	• Cooperation/Agreement with Property Owners • Survey, Preliminary Design	• Placemaking • Pedestrian and vehicular Safety	**Town** + Property Owners	**M6, SP8**	$60,000[15]
M8	**Improve Navigation/Wayfinding**	• Inventory existing signs; identify locations and messages for new directional signs • Consider developing a more formal wayfinding system • Coordinate with Metro North and CTDOT	• Placemaking • Improve motorist navigation and circulation	**Town** + CTDOT + Metro North + Developers		• Standard directional sign mounted on metal post: $500 to $1,000 ea. • Custom-designed wayfinding sign on post: at least $3,000 ea.

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[14] NV5, Cost for Pedestrian and Bicyclist Infrastructure Improvements, UNC Highway Safety Research Center, January 2013, and CTDOT 2017 Cost Estimating Guidelines.

[15] Capital cost of $8,000 ($20 per sq. yard assuming a 2" thick asphalt base * approximately 400 sq. yards) for repaving + $64 for restriping ($4 per space assuming a 4"marking (16 spaces) + $48,000 for sidewalks/walkways ($20 per sq. ft. construction cost of new sidewalk X approximately 2,000 sq. ft. + 40 lf construction cost of curb * approximately 200 lf) + $4,000 for landscaping. Additional costs associated with drainage, lighting, and signage may also need to be included when determining the final cost. Source: NV5 and CTDOT 2017 Cost Estimating Guidelines.

Table 9: Cost Estimates for On- and Off-Site Pedestrian Improvements

ITEM	QUANT.	UNIT	UNIT COST	EXT. COST	EXT. COST w/Contingency	SOURCE
OFF-SITE PEDESTRIAN IMPROVEMENTS (M1)						
Pedestrian Ramps	26	EA	$ 950	$ 24,700	$ 32,110	CTDOT Cost Estimating Guidelines 2017
Pedestrian Countdown Signal	16	EA	$ 2,900	$ 46,400	$ 60,320	NV5
New Sidewalk	48,500	SF	$ 20	$ 970,000	$ 1,261,000	CTDOT Cost Estimating Guidelines 2017
Walkway Upgrade to Sidewalk	22,000	SF	$ 15	$ 330,000	$ 429,000	NV5
Curb (for all new and upgraded sidewalk)	14,100	LF	$ 40	$ 564,000	$ 733,200	CTDOT Cost Estimating Guidelines 2017
High-visibility Crosswalk	23	EA	$ 850	$ 19,550	$ 25,415	NV5
SUBTOTAL				$ 1,954,650	$ 2,541,045	
ON-SITE PEDESTRIAN IMPROVEMENTS (SP5)						
Walkway in Parking Area 1*	6,875	SF	$ 20	$ 137,500	$ 178,750	CTDOT Cost Estimating Guidelines 2017
Walkway between Parking Areas 2 and 3	3,500	SF	$ 20	$ 70,000	$ 91,000	CTDOT Cost Estimating Guidelines 2017
ADA Ped Ramp: Hollow Tree Ridge Road to WB platform	1	EA	-	-	VARIES	
ADA Ped Ramp: Hollow Tree Ridge Road to EB platform	1	EA	-	-	VARIES	
SUBTOTAL				$ 207,500	$ 269,750	
Cost does not include proposed plaza east of the station building						

OFF-SITE SIDEWALK BREAKDOWN BY STREET

New Sidewalk

West Ave	13,500	SF
Noroton Ave	4,000	SF
Hollow Tree Ridge Rd	8,500	SF
Edgerton St	12,000	SF
Heights Rd	10,500	SF
TOTAL New Sidewalk	**48,500**	**SF**

Walkway Upgrade to Sidewalk

West Ave	10,000	SF
Noroton Ave	1,500	SF
Hollow Tree Ridge Rd	8,500	SF
Edgerton St	2,000	SF
TOTAL Walkway Upgrade	**22,000**	**SF**

Table 10: Cost Estimates for Bicycle Facilities

DETAIL - BIKE IMPROVEMENT LOCATIONS & COSTS

Segment	Recommendation	Distance	Cost
West Avenue between Hollow Tree Ridge Road & Noroton Avenue	Bike sharrows & signs	.39 miles	$3,120
Hollow Tree Ridge Road between Linden Avenue & West Avenue	Bike sharrows & signs	.25 miles	$2,000
Noroton Avenue between Maple Street & West Avenue	Bike sharrows & signs	.24 miles	$1,920
Edgerton Street between Heights Road & West Avenue	Bike sharrows & signs	.11 miles	$880
Heights Road between Hollow Tree Ridge Road & Noroton Avenue	Bike lanes & signs	.41 miles	$5,740
		Total	$13,660

Table 11: Implementation Timeline

#	PROJECT	Phasing		
		Short (0 to 3 years)	Mid (3 to 5 years)	Long (5+ years)
STATION/PARKING STRATEGIES				
SP1	Redistribute Permits vs. Pay-Per-Day Parking Opportunities	▪		
SP5	Install Sidewalks	▪		
SP9	Expand/Connect Areas 2 & 3	▪		
SP2	Provide Expanded Covered & Secure Bicycle/Scooter Parking Area		▪	
SP3	Include Electric Vehicle Charging Stations		▪	
SP4	Improve ADA Access		▪	
SP6	Improve and Expand Platform Canopies		▪	
SP7	Expand Drop-off Areas		▪	
SP8	Relocate and Replace Station Building		▪	
MOBILITY (OFF-SITE) IMPROVEMENTS				
M1	Pedestrian Infrastructure	▪	▪	▪
M8	Improve Navigation/Wayfinding	▪	▪	
M2	Construct Geometric Improvements at Intersections of Noroton Avenue and Heights Road and Norton Avenue and Ledge Road		▪	
M3	Improve Traffic Signal Operations		▪	
M5	Add Bicycle Facilities		▪	
M4	Improve Bus Facilities / Locations		▪	▪
M7	Reconfigure Parking along Heights Road		▪	▪
M6	Develop Heights Road as a Shared Street			▪

Appendices

Appendix A: TAC Meeting Minutes

Appendix B: Economic & Real Estate Analysis

Appendix C: Visioning & Public Meeting Minutes

APPENDIX A: TAC MEETING MINUTES

NOROTON HEIGHTS
— Station Area Study —

MEETING SNAPSHOT

Kickoff Meeting

Tuesday, September 27, 2016, 10:00 a.m.

at Darien Town Hall

Attendees:

Jayme Stevenson	First Selectman	203-656-7386	jstevenson@darienct.gov
Edward Gentile	Public Works	203-656-7364	egentile@darienct.gov
Jeremy Ginsberg	Planning and Zoning	203-656-7351	jginsberg@darienct.gov
Kristin Hadjstylianos	WestCOG	203-965-4972	kHadjstylianos@westcog.org
Rob Sachnin	WestCOG	203-965-4971	rsachnin@westcog.org
Greg Del Rio	RBA	516-754-9980	gdelrio@rbagroup.com
Victor Minerva	RBA	203-956-0513	vminerva@rbagroup.com
Neil Desai	RBA	646-300-7181	ndesai@rbagroup.com
Chris Henry	FHI	917-933-7442	chenry@fhiplan.com
Todd Poole	4Ward Planning	267-480-7133	tpoole@landuseimpacts.com

Purpose:

Project Kick-off meeting to introduce the Technical Advisory Committee to the project, and review project approach, vision, goals and objectives. In addition, project logistics, schedule, and coordination issues were discussed.

Action Items:

☐ **GIS Data.** WestCOG to provide RBA with GIS data for Darien.

☐ **Traffic data –** Darien to contact developers to check if traffic data and analysis is available. RBA to check with CTDOT on available data.

☐ **Website.** RBA to follow-up with WestCOG and Darien on website task.

☐ **Media Releases**. WestCOG to prepare/coordinate media releases at appropriate intervals during the study.

☐ **Stakeholders** – WestCOG to take lead in identifying Stakeholders and establishing contact information, as well as scheduling interviews in a central place and timeframe.

NOROTON HEIGHTS
— Station Area Study —

Key Decisions:

✓ **Name of Study**. Darien officials and staff agreed that the name of the study should be the "Noroton Heights Station Area Study" to be clearer to the public about the general extent and nature of the study.

✓ **Stakeholders**. Darien officials and staff indicated that stakeholders will likely consist of the following:

- o CTDOT
- o Residents
- o Commuters
- o Pedestrian Infrastructure Advisory Committee
- o Developers
- o Middlesex Middle School
- o Traffic Authority
- o RTM Subcommittee (including the Board of Finance and the Board of Selectman).

Topics/Points Raised:

➔ **Presentation**. Greg Del Rio delivered a presentation describing the general approach to the study. [Click here](#) to download and view the presentation.

➔ **Noroton Heights Station Advantages**. Commuters from other towns come to Noroton Heights because it has favorable access from I-95 and non-permit parking. However, growing the capacity of the station would increase traffic and not provide other tangible benefits the town.

➔ **General Study Objectives/Hoped-For Outcomes.** Attendees provided input from their perspectives on issues, as well as the goals, objectives and desired outcomes of the project.

- o Ms. Stevenson:
    - ▪ Aspire to be proactive as opposed to reactive to development proposals, and forward-thinking in terms of amenities for commuters
    - ▪ Improve interaction and expectations with developers
    - ▪ Manage traffic impacts
    - ▪ School considerations
    - ▪ Consider expanding commuter parking (e.g. structure on south side)
    - ▪ Investigate improved connections to/from I-95 ramps

- o Mr. Gentile:
    - Need to plan out implementable infrastructure and site improvements that can be made in conjunction with development.
    - Concerned over potential impacts, and identify ways and means to control potential State development opportunities.
    - Recommendations for reviewing site plans.
    - Consider RAD/TIF models and variations on the TIF (e.g., Pay-As-You- Go TIF)
- o Mr. Ginsburg:
    - Focus on how this could be good for the town versus focusing on how this could be good for CTDOT.
- o Mr. Sachnin:
    - Ensure that local objectives match regional objectives focusing on safe and non-motorized multi-modal and infrastructure improvements
    - Existing gaps in enhancement funding. One-month window of opportunity to identify and include programmed improvements.
    - CMAQ funding
- o Ms. Hadjstylianos:
    - Observe variations in station area use by time of day, weekday vs. weekend.

➔ **Redevelopment Proposals**. There are several redevelopment proposals underway, however, there are no details at this time, except for one application to develop a Self-storage facility adjacent to Avalon property on Hollow Tree Ridge Road.

➔ **CTDOT Plans**. Concern among station towns that CTDOT will try to maximize revenue from land through unilateral development of rail station property would negatively impact local businesses.

NOROTON HEIGHTS
— Station Area Study —

MEETING SNAPSHOT

TAC Meeting #1

October 31, 2016, 10:00 a.m.

at Darien Town Hall

Attendees:

Jayme Stevenson	First Selectman	203-656-7386	jstevenson@darienct.gov
Edward Gentile	Public Works	203-656-7364	egentile@darienct.gov
Jeremy Ginsberg	Planning and Zoning	203-656-7351	jginsberg@darienct.gov
Kristin Hadjstylianos	WestCOG	203-965-4972	kHadjstylianos@westcog.org
Greg Del Rio	RBA	516-754-9980	gdelrio@rbagroup.com
Victor Minerva	RBA	203-956-0513	vminerva@rbagroup.com
Graig Bordiere	CTDOT – Rail Ops	203-497-3356	graig.bordiere@ct.gov
Don Anderson	Darien Police Dept.	203-662-5312	danderson@darienct.gov
Michael Ahillen	FHI	917-933-7444	mahillen@fhiplan.com
Anna Bergeron	CTDOT	860-594-2140	anna.bergeron@ct.gov
Fred Doneit	Planning & Zoning	203-656-7351	fdoneit@darienct.gov

Purpose:

TAC Meeting #1 to introduce additional TAC members to the project, update the TAC on the status of the project, and conduct a walking tour of the study area identifying issues and opportunities.

Topics/Points Raised:

➔ **Presentation**. Greg Del Rio delivered a presentation focusing on the information and data that has been collected to date including environmental, land use, transit, traffic, and parking data. See attached handout.

➔ **Status list** of requested Data and Information was shared with the group. See attached.

➔ **Issues/Opportunities raised during walking tour of study area:**

   o Flooding – Flooding and drainage are a major issue at Heights Road near its intersection with Edgerton St. Developers are aware of this problem but study should address this as well.

   o Rail Station Parking annual permit fees are being increased from $345 to $400.

NOROTON HEIGHTS
— Station Area Study —

MEETING SNAPSHOT

TAC Meeting #2

March 1, 2017, 10:00 a.m.

at Darien Town Hall

Attendees:

Jayme Stevenson	First Selectman	203-656-7386	jstevenson@darienct.gov
Edward Gentile	Public Works	203-656-7364	egentile@darienct.gov
Jeremy Ginsberg	Planning and Zoning	203-656-7351	jginsberg@darienct.gov
Kristin Hadjstylianos	WestCOG	203-965-4972	kHadjstylianos@westcog.org
Greg Del Rio	RBA	516-754-9980	gdelrio@rbagroup.com
Victor Minerva	RBA	203-956-0513	vminerva@rbagroup.com
Graig Bordiere	CTDOT – Rail Ops	203-497-3356	graig.bordiere@ct.gov
Don Anderson	Darien Police Dept.	203-662-5312	danderson@darienct.gov
Michael Ahillen	FHI	917-933-7444	mahillen@fhiplan.com
Roxanne Fromson	CTDOT	860-594-2038	roxanne.fromson@ct.gov
Fred Doneit	Planning & Zoning	203-656-7351	fdoneit@darienct.gov

Purpose:

TAC Meeting #2 to present the results/finding from the Review of Existing Conditions Report and discuss next steps.

Topics/Points Raised:

➔ **Presentation**. The NV5 Team delivered a presentation focusing on the results and findings from the Review of Existing Conditions Report, highlighting the following areas: Economic and Real Estate (Analysis and Development Proposals) , Environmental, Transit, Parking, Traffic, Commuter Survey.

➔ **Comments on the findings/results in the Presentation and the Report**

   o It was noted that although the Socio Economic Trend analysis pointed to growth in Non Family Households, an aging population, and the need for smaller housing units and more rentals units, Darien is still a strong draw for families looking for typical homes on large lots because of the strong school system and proximity to New York.

NOROTON HEIGHTS
— Station Area Study —

- o Residents of the existing affordable housing complex which is located near the station are not using transit (according to a survey), which does not fit the typical pattern associated with TOD.

- o It was agreed that the Palmers Plan is a good representation of TOD while it is hard to judge the Federal Realty Plan until there is more detailed drawings.

- o On the Environmental Conditions Map, it was noted that Life Study Fellowship Foundation is not a place of worship, and that Fresh Green Light is simply a driving school.

- o Converting parking spaces on Hollow Tree Ridge Road bridge to long term commuter parking is a non starter and should be removed as a recommendation.

- o There is a need to improve pedestrian connections, as well as the traffic flow near Middlesex School, particularly during arrival and departure times. WestCOG and NV5 are trying to set up a meeting with the school to discuss these issues.

- o All of the tables in the Review of Existing Conditions should have dates.

➔ Next Steps

- o Jeremy Ginsburg will supply a list of stakeholders to WestCOG and NV5 to be interviewed.

- o The Community Visioning Session will be scheduled for April. WestCOG will discuss with the Town and NV5 regarding the location (venue) and specific date. The session will provide a general overview of the study, existing challenges in the area, and to engage the group in a larger discussion of potential recommendations. The feedback from this meeting will help the project team in the development of the study's recommendations.

NOROTON HEIGHTS
— Station Area Study —

MEETING SNAPSHOT

TAC Meeting #3

October 11, 2017, 10:30 a.m.

at Darien Town Hall

Attendees:

Jayme Stevenson	First Selectman	203-656-7386	jstevenson@darienct.gov
Edward Gentile	Public Works	203-656-7364	egentile@darienct.gov
Jeremy Ginsberg	Planning and Zoning	203-656-7351	jginsberg@darienct.gov
Don Anderson	Darien Police Dept.	203-662-5312	danderson@darienct.gov
Fred Doneit	Planning & Zoning	203-656-7351	fdoneit@darienct.gov
Craig Bordiere	CTDOT – Rail Ops	203-497-3356	craig.bordiere@ct.gov
Anna Bergeron	CTDOT	860-594-2038	anna.Bergeron@ct.gov
Kristin Hadjstylianos	WestCOG	203-965-4972	kHadjstylianos@westcog.org
Robert Sachin	WestCOG	203-965-4972	rsachnin@westcog.org
Greg Del Rio	NV5	516-754-9980	gregory.delrio@nv5.com
Michael Ahillen	FHI	917-933-7444	mahillen@fhiplan.com
Todd Poole	4Ward Planning	646.383.3611	tpoole@landuseimpacts.com

Purpose:

TAC Meeting #3 to present the Preliminary Implementation Alternatives and discuss next steps.

Topics/Points Raised:

➔ **Presentation.** See attached for the PowerPoint presentation was provided to guide the meeting including discussion of: station alternatives, offsite improvements, and parking policy. A summary of recommendations from the May 11th Visioning Session was provided highlighting the concepts and ideas that were to be addressed in ongoing recommendations and alternatives. The following summarizes the TAC's comments regarding the Visioning Session Summary:

- ▪ Parking Deck – Do not preclude the implementation of a parking deck until analyses of development potential is completed, i.e. financial, parking, and traffic impact analysis.

- ▪ Roundabout – Provide an analysis (schematic overlay) illustrating minimum roundabout dimensions at the intersection of Heights Road and Edgerton Street.

- **Sharrows** – The TAC requested more information on the implementation of Sharrows on local streets.

- **Electric Vehicle (EV) Charging Stations** - The TAC requested that the NV5 team investigate existing EV implementations at train stations to assess their effectiveness, use, and policies.

- **Solar Canopies** - The TAC requested that NV5 team investigate existing EV implementations at train stations to assess their effectiveness, use, and policies.

- **Autonomous Vehicles** - Do not preclude accommodation of AV's in the recommended alternatives for station parking.

- **Affordable Housing** – TAC to provide guidance on inclusion of affordable housing in the real estate analysis and implementation recommendations. It was noted that if Federal or State funding is part of the agreement for Station development, then a portion of the housing will likely be required to be Affordable Housing.

- **Development Alternatives** – NV5 Team to provide recommendations on conditions limiting development including recommended parking ratios for TOD, and potential traffic impacts.

- **Development Recommendations** – The TAC had some concerns regarding potential development on the Station property including issues such as: implications of State-owned property; size and type of development, and types of agreements and financing to implement development. NV5 team will summarize the recommended development scenario to address these concerns. The preliminary recommendation based on initial Market, Parking, and Traffic analyses is approximately 10,000 sf Health Care/Social Assistance type office space, plus approximately 30,000 sf of residential units (30-40 units).

➔ **Station Alternatives**.

➔ **Next Steps**

  o DPW to provide updated traffic studies, including recommendations for improved signal system and coordination.

  o NV5 team to provide feedback on implementation and feasibility of a roundabout, as well as sharrows.

  o NV5 team to investigate EV charging stations and Solar Canopies at other train stations.

  o NV5 Team to provide summary of development scenario (including summary of Meriden TOD plans as comparable).

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o TAC to provide guidance on Affordable Housing

o The next Community Meeting/Design Charrette will be scheduled for November. WestCOG will discuss with the Town and NV5 regarding the location (venue) and specific date. The session will provide quick summary of existing deficiencies and identify the improvement alternatives developed to date. Breakout groups will be formed to engage the group in discussion of potential design recommendations including Station Alternatives, Development Alternatives, Off-site transportation improvements, and Design of Heights Road. The feedback from this meeting will help the project team in the development of the study's recommendations.

NOROTON HEIGHTS
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o Town is willing to fund a new station building. The station is currently lacking amenities (heat, new bathrooms, etc.). The station patron survey should include question about amenities.

o Projected future increase in Metro North rail service should consider increase in ridership which will impact parking and traffic.

o Route 355 Bus - Need to look at bus stop locations, compare to ridership, and possibly consolidate, relocate, or eliminate some stops.

o Consider reconfiguration of Heights Road to provide pedestrian crossing at Donut Shop.

o A number of the retail parking lots could be consolidated to provide better traffic flow.

o Edgerton dirt lot currently used for commuter parking. Questions were asked about: lot ownership? Do patrons pay and is there any control?

o Missing sidewalks, crosswalks and pedestrian connections in a number of locations including portions of Edgerton Street, the south side of West Avenue, and within the parking lot in front of Equinox.

o Identify and recommend improved pedestrian connections to/from/within commercial uses; e.g. consider ramp/stairs from West Avenue to northeast corner of Stop & Shop parking lot.

o Improved pedestrian connection should be provided across West Avenue and into McGuane Park.

o Investigate implementing sidewalks along Edgerton north of West Avenue to Elm Street

o Regarding intermittent diversions that occur when there are incidents on I-95, report could mention "Managed-Use "lanes as a potential mitigation technique.

o The use of HAWK pedestrian crossings should be investigated at uncontrolled pedestrian crossings.

NOROTON HEIGHTS

— Station Area Study —

MEETING SNAPSHOT

TAC Meeting #4

August 1ˢᵗ, 2018

at Darien Town Hall, Room 213

Attendees:

Jayme Stevenson	First Selectman	203-656-7386	jstevenson@darienct.gov
Edward Gentile	Public Works	203-656-7364	egentile@darienct.gov
Jeremy Ginsberg	Planning and Zoning	203-656-7351	jginsberg@darienct.gov
Kristin Hadjstylianos	WestCOG	475-323-2073	kHadjstylianos@westcog.org
Greg Del Rio	NV5	516-754-9980	gdelrio@rbagroup.com
Victor Minerva	NV5	203-956-0513	vminerva@rbagroup.com
Graig Bordiere	CTDOT – Rail Ops	203-497-3356	graig.bordiere@ct.gov

Purpose:

The purpose of TAC Meeting #4 was to review the Analysis and Recommendations Report and finalize the next steps in the study.

Topics/Points Raised:

➔ **Comments**. Comments to the report were provided by each member of the TAC. In addition, TAC members provided input into how the strategies should be phased (short, mid, or long term). NV5 indicated that they would address each of the comments and develop an implementation table (based on the TAC's prioritization of strategies) as part of a revised draft. Some of the major comments discussed included:

  o Noting the deterioration of the existing canopy

  o Adding a brief discussion of the Town's plans to improve drainage at the station

  o Updating the development plans to note that they are all approved by P&Z

  o Adding some additional description about bicycle parking and that it also needs to be secure

  o Changing the recommendation to Relocate and/or Improve Station Building to Relocate and Replace Station Building

    o   Noting that the strategy recommending geometric improvements to Noroton Ave./Heights Rd. and Noroton Ave/Ledge Rd. are being dealt with by Federal Realty as part of their development plan.

➔ *Topics/Points Raised:*

➔ **Revised Draft and Final Analysis and Recommendations Report.** NV5 will produce a revised draft report and distribute to the TAC for final comments. NV5 will address any final comments and then produce the Final Report.   NV5 will produce 12 copies of the Final Report, as well as a digital version to be posted on-line with all related appendices.

➔ **Presentation to BOS**. A presentation will be made to the BOS on September 24th focusing on the Analysis and Recommendations Report.
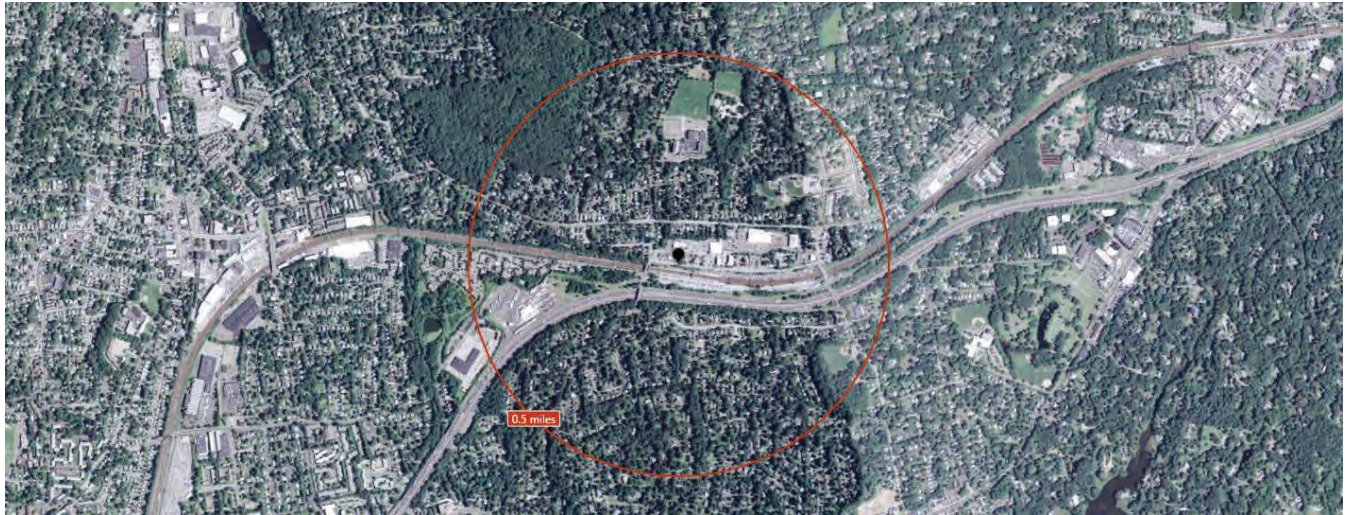
APPENDIX B: ECONOMIC AND MARKET ANALYSIS

Noroton Heights Train Station Study

Darien, Connecticut

November 28, 2016

ECONOMIC AND REAL ESTATE ANALYSIS FOR SUSTAINABLE LAND USE OUTCOMES™

DRAFT: FOR INTERNAL REVIEW ONLY

Table of Contents

Executive Summary

ECONOMIC AND REAL ESTATE ANALYSIS FOR SUSTAINABLE LAND USE OUTCOMES ™

Background: Project Scope

Serving on a team with the RBA Group, 4ward Planning was commissioned by WestCOG, the Town of Darien, and the Connecticut Department of Transportation to conduct a market and financial feasibility analysis in support of the Darien Noroton Heights Train Station Study. Our market analysis will examine area trends influencing the Noroton Heights Train Station located in Darien, Connecticut – particularly those within a half-mile radius of the station (the Study Area). This market analysis entails an examination of socio-economic and labor and industry trends and projections that will allow 4ward Planning to identify and evaluate market-receptive, actionable improvements for the station and surrounding area.

PHASE I
Comprehensive Market Analysis
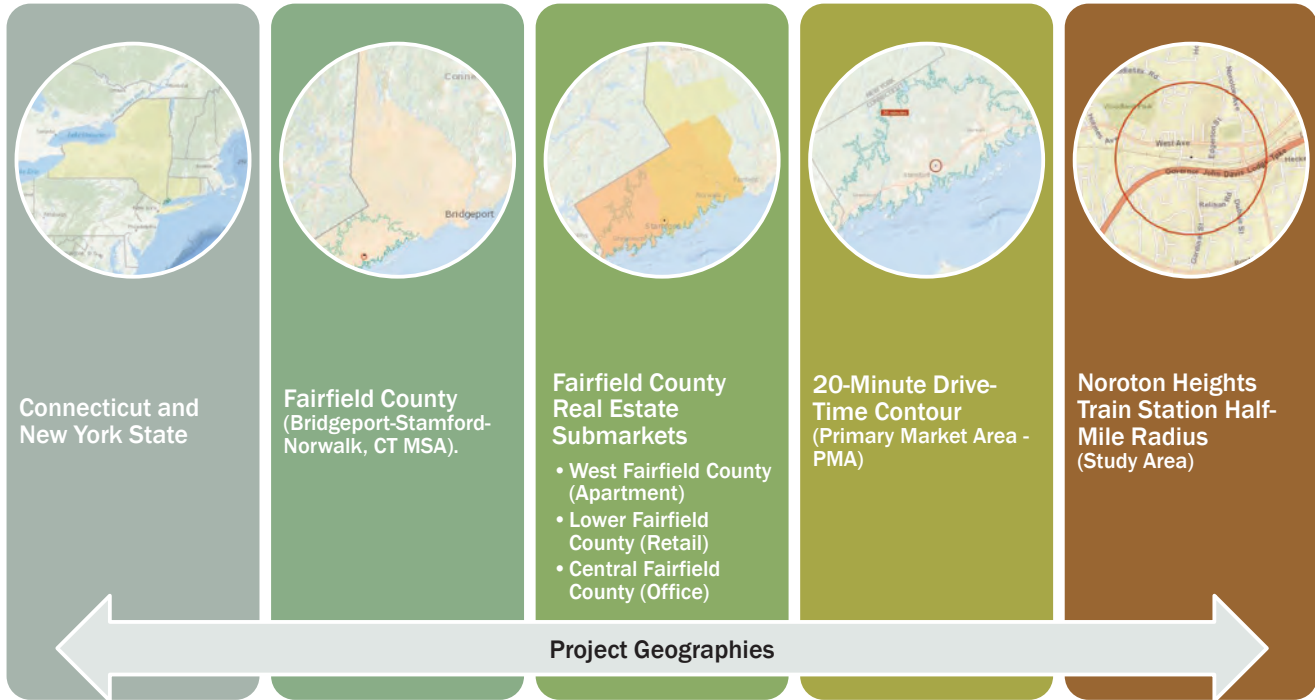
PHASE II
Demand and Feasibility Analysis

- Socio-Economic Trends Analysis
- Labor and Industry Trends Analysis
- Real Estate Trends Analysis

- Real Estate Supply/Demand Analysis
- Financial Feasibility Analysis

Background: Geographies

This report provides an overview of socio-economic, labor and industry, and real estate trends utilizing the following geographies:

Connecticut and New York State

Fairfield County (Bridgeport-Stamford-Norwalk, CT MSA).

Fairfield County Real Estate Submarkets
- West Fairfield County (Apartment)
- Lower Fairfield County (Retail)
- Central Fairfield County (Office)

20-Minute Drive-Time Contour (Primary Market Area - PMA)

Noroton Heights Train Station Half-Mile Radius (Study Area)

Project Geographies

Takeaways: Comprehensive Market Analysis

The examination of socio-economic, labor and industry, and real estate trends and projections is an important step in identifying market-receptive redevelopment improvements for the Noroton Heights Train Station and surrounding area.

Based on modest household growth projections (0.8 percent) and the multifamily development pipeline (951 multifamily units under construction) within the 20-minute PMA, there will be an estimated net housing demand for approximately 12,630 new dwelling units within the PMA by 2025. Assuming between five and 10 percent of net housing demand within the PMA could be captured within a half-mile of the train station, the Study Area could adequately support the development of between 630 and 1,260 additional residential units by 2025.

Outside of the Study Area, the projected growth in non-family households, and prevalence of a young workforce and an aging Baby Boomer population - locally and nationally - are among demographic shifts that will impact housing demand in the coming years (meaning increased demand for smaller housing units and more rental units). According to Reis, studio units, in particular, are expected to experience the greatest rising annualized rent growth within the apartment submarket, as increased demand outstrips existing supply. According to the top five Tapestry Segments, approximately 46 percent of PMA households have some preference for living in multifamily housing, particularly rental.

With approximately 58 out of every 100 PMA workers commuting from outside the area, much of this pent-up net housing demand is projected to come from local area workers who have not found suitable housing close to their places of employment. Furthermore, the substantial projected growth in both mid- and high-wage industries yields a good outlook for increased demand for multifamily housing options appealing to a range of income levels and diversity of occupations (i.e., entry-level home care positions to highly skilled roles for doctors, teachers, professors, and instructors).

Takeaways: Comprehensive Market Analysis (continued)

Successful multifamily housing development in the Study Area should consider the needs and preferences of prominent socio-economic groups in the region. While higher-end, multifamily units with ample on-site amenities or in proximity to transit should appeal to the influx of professionals in high-paying occupations, the relatively large share of cost-burdened households in Darien (particularly renter-occupied) indicates that new multifamily housing in the Study Area has the opportunity to address the existing imbalance between the demand for affordable housing and local supply.

Based on the office supply/demand analysis, there will be net new demand for nearly 1.4 million square feet of office space within the 20-minute PMA by 2025. While there will likely be new demand for new office space within the PMA, particularly from the Health Care and Social Assistance and Professional, Scientific, and Technical Services sectors, much of this new demand could be accommodated within the PMA's ample supply of vacant office space (nearly 6.8 million square feet). Based on the retail supply/demand analysis, there may

be sufficient unmet retail demand within the half-mile Study Area to support the development of a full-service restaurant. Within the 20-minute PMA, there is sufficient unmet demand within a variety of retail categories (in limited-service eating places, in particular), which could, potentially, be captured within the Study Area. However, similar to office, given the ample supply of existing vacant retail space within the PMA (1.8 million square feet), new mixed-use retail development within the Study Area should be limited to targeting the convenience retail needs of Study Area residents, workers, and transit commuters.

Nearly half of all hotels; 40 percent of all primary jobs; and 34 percent of all art, entertainment, and recreation businesses within the PMA are located within neighboring Stamford. Despite relatively high traffic volumes within the half-mile Study Area (144,100 to 152,100 vehicles per day along I-95), the existing clustering of hotels, jobs, and businesses within the PMA suggest that there is likely insufficient demand to support new hotel development within the Study Area.

Socio-Economic Trends Analysis

ECONOMIC AND REAL ESTATE ANALYSIS FOR SUSTAINABLE LAND USE OUTCOMES ™

4WARD PLANNING

DRAFT: FOR INTERNAL REVIEW ONLY

Key Findings: Socio-Economic Trends Analysis

Growth in non-family households and an aging adult population

Outside of the half-mile Study Area, the projected growth in non-family households will outpace family households, reflecting the trend among young adults to delay marriage and family rearing, and an aging adult population - particularly Empty Nesters (aged 55 to 74) and mostly retired residents (aged 74 and over). These trends - a prevalence of young workforce and an aging Baby Boomer population - are among demographic shifts that will impact housing demand in the coming years (meaning smaller housing units and more rental units).

Relatively high educational levels and incomes

In 2016, approximately 73 percent of Study Area residents and 54 percent of the 20-minute PMA residents ages 25 years and older had a bachelor's degree or higher level of education. Estimated 2016 median household income in the Study Area ($169,407) is significantly higher than that in the 20-Minute PMA ($90,962) and Fairfield County ($86,233), overall. Households earning more than $100,000 per year are estimated to increase the fastest across all geographies over the next five years.

Demand for multifamily rental housing

According to the top five Tapestry Segments (a proxy term for distinct socio-economic consumer groups), approximately 46 percent of households within the 20-minute PMA have some preference for living in multifamily housing, particularly rental housing. Successful multifamily housing development in the Study Area should consider the needs and preferences of these predominant socio-economic groups.

Methodology: Socio-Economic Trends Analysis

4ward Planning examined socio-economic trends to comparatively analyze the Noroton Heights Train Station Study's market area and surrounding region. The geographic areas studied include:

- **Half-Mile Radius** (the Study Area),
- **20-minute PMA** (Primary Market Area [PMA]),
- **Fairfield County** (synonymous with the Bridgeport-Stamford-Norwalk, CT Metropolitan Statistical Area [MSA]).

The analysis and recommendations that follow are based on a combination of quantitative and qualitative techniques. Quantitative analysis is underpinned by both public and proprietary data sources, including U.S. Census-based data and Esri's Community Analyst, a socio-economic data analysis tool. Estimated and projected socio-economic trends examined include population, households, educational attainment, age cohort characteristics, household income, residential tenure (own vs. rent), and household consumer expenditures.

Findings generated from these analyses are critical for understanding regional trends that will influence prospective market-receptive, actionable improvements for the station and surrounding area.

Study Geographies
- Half-Mile Study Area
- 20-minute PMA
- Fairfield County

Socio-Economic Trends
- Population
- Age
- Income
- Housing
- Education
- Etc.

Identify Market Opportunities
- Regional Trends
- Market Drivers
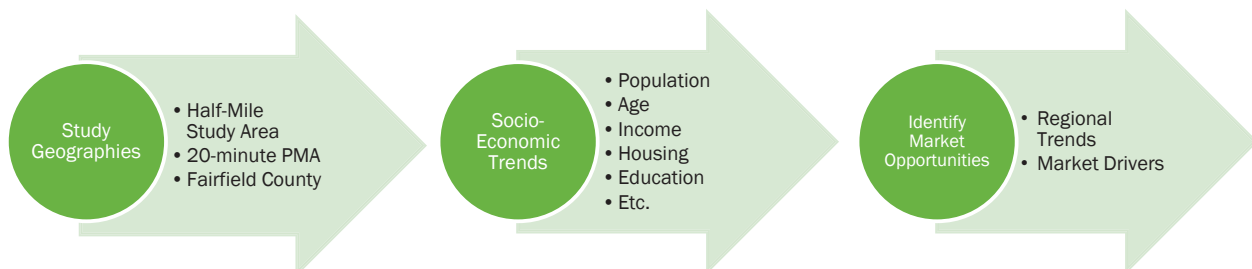
Glossary of Terms: Socio-Economic Trends Analysis

<u>Baby Boomer:</u> A person born between 1946 and 1964 (ages 51 to 70 years old in 2016), after the end of World War II, when birth rates spiked.

<u>Empty Nester Household:</u> A household in which one or more parents live after the children have left home.

<u>Family Household:</u> A family is a group of two or more people (one of whom is the householder) related by birth, marriage, or adoption and residing together; all such people are considered members of one family.

<u>Flat and Moderate Growth:</u> 4ward Planning defines flat growth as an annualized rate of change between (-)0.75 and 0.75 percent, and moderate growth as an annualized rate of change less or greater than (-)0.75 and (-)1.5 percent.

<u>Household:</u> A household consists of all the people who occupy a housing unit. A house, apartment, or other group of rooms or a single room, is regarded as a housing unit when occupied or intended for occupancy as a separate living quarter. The count of households excludes group quarters and institutions.

<u>Non-Family Household:</u> A non-family household consists of a householder living alone (a one-person household) or a householder sharing the home exclusively with people to whom he/she is not related.

<u>Primary Market Area (PMA):</u> A Primary Market Area is the immediate area surrounding the study area for goods, services, and other factors.

Source: US Census Bureau

Key Findings by Study Area, 2016

	Half-Mile Study Area	20-Minute Drive Time	Fairfield County
Population:	3,384	334,435	953,619
Total Households:	1,135	124,711	345,105
Median Age:	38.3	39.2	40.3
Median Household Income:	$169,407	$90,962	$86,233
Percent of Household Incomes >$75,000:	80%	58%	56%
Percent Owner-Occupied Housing:	69%	54%	61%

Near-Term Population Growth

As shown in the chart and table below, compared to previous years, population growth within both the half-mile Study Area and the 20-minute PMA is expected to slow, growing at 1.0 and 0.9 percent per year, respectively, over the next five years (a rate higher than the County, overall). By 2021, the 20-minute PMA is expected to increase by approximately 15,200 persons.

		2.39% to 3.21%
		1.75% to 2.38%
		1.25% to 1.74%
		0.68% to 1.24%
		-0.13% to 0.67%
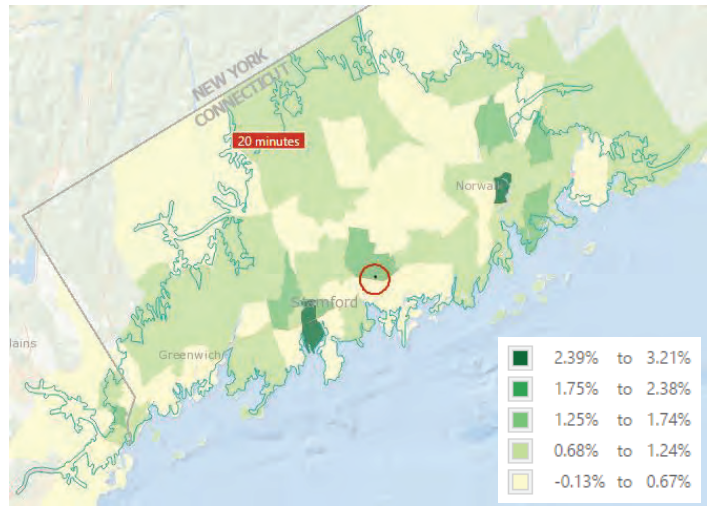
Annualized Population Change

| 2010-2015 | 2015-2020 |

| | 1.49% | 1.40% | 1.00% |
| | 1.01% | 0.91% | 0.74% |
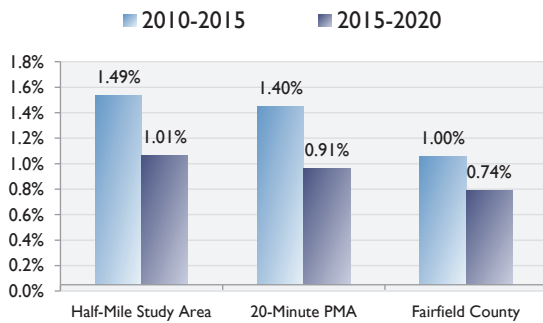
	2000	2010	2016	2021	Net Change (2016 – 2021)
Half-Mile Study Area	2,752	3,194	3,384	3,555	171
20-minute PMA	305,627	316,684	334,435	349,636	15,201
Fairfield County	882,567	916,829	953,619	988,892	35,273

Source: Esri

Household Formation

As shown in the table below, outside of the Study Area, the growth in non-family households is outpacing that of family households in all geographies examined. Non-family households, generally, will create greater demand for smaller dwelling units (one- and two-bedroom units).

Household Formation Trends

Half-Mile Study Area

	2010		2016		2021		Annualized % Change	
							2010-2016	2015-2021
Total Households	1,087	100.0%	1,135	100.0%	1,182	100.0%	0.7%	0.8%
Family Households	873	80.3%	911	80.3%	950	80.4%	0.7%	0.9%
Non-Family Households	214	19.7%	224	19.7%	232	19.6%	0.8%	0.7%
Average Household Size	2.67		2.70		2.72		0.2%	0.1%

20-Minute PMA

	2010		2016		2021		Annualized % Change	
							2010-2015	2015-2020
Total Households	119,580	100.0%	124,711	100.0%	129,605	100.0%	0.7%	0.8%
Family Households	79,108	66.2%	81,963	65.7%	84,885	65.5%	0.6%	0.7%
Non-Family Households	40,472	33.8%	42,748	34.3%	44,720	34.5%	0.9%	0.9%
Average Household Size	2.69		2.73		2.75		0.2%	0.1%

Fairfield County

	2010		2016		2021		Annualized % Change	
							2010-2015	2015-2020
Total Households	335,545	100.0%	345,105	100.0%	355,943	100.0%	0.5%	0.6%
Family Households	232,896	69.4%	238,470	69.1%	245,370	68.9%	0.4%	0.6%
Non-Family Households	102,649	30.6%	106,635	30.9%	110,573	31.1%	0.6%	0.7%
Average Household Size	2.68		2.71		2.72		0.2%	0.1%

Source: Esri

Age Distribution

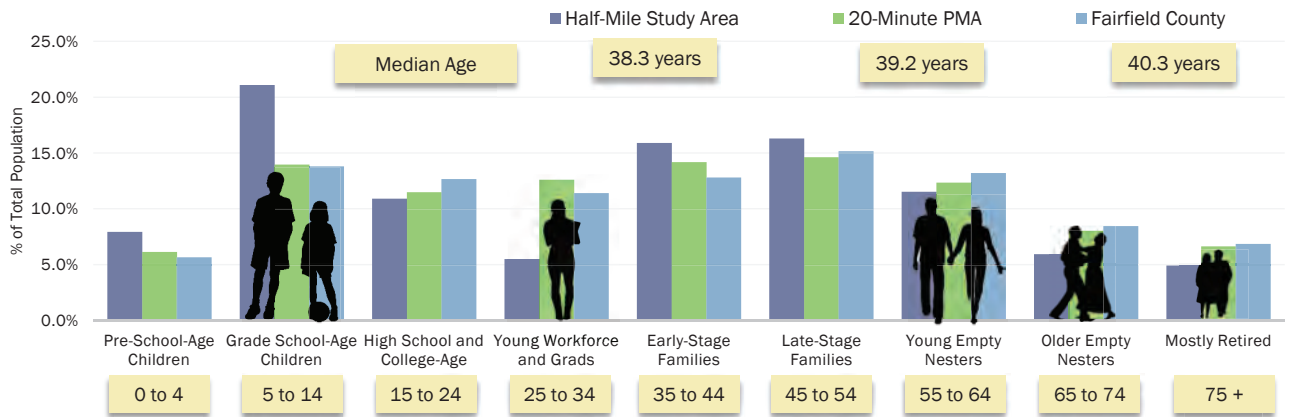In 2016, the median age of Study Area residents (38.3 years) was younger than that of the 20-minute PMA (39.2 years) and Fairfield County (40.3 years). As illustrated in these charts, age distribution varies across age cohorts. For example, compared to the 20-minute PMA, the half-mile Study Area has a much higher share of grade school-age children (5 to 14 years), and lower share of residents within the young workforce and grads cohort (25 to 34 years).

Age Distribution (% of total population) 2016

Cohort	Half-Mile	20-Minute PMA
Mostly Retired	5%	7%
Older Empty Nesters	6%	8%
Young Empty Nesters	12%	12%
Late-Stage Families	16%	15%
Early-Stage Families	16%	14%
Young Workforce and Grads	5%	13%
High School and College-Age	11%	11%
Grade School-Age Children	21%	14%
Pre-School-Age Children	8%	6%

Age Distribution (% of total population) 2016

Legend: Half-Mile Study Area, 20-Minute PMA, Fairfield County

Median Age: 38.3 years, 39.2 years, 40.3 years

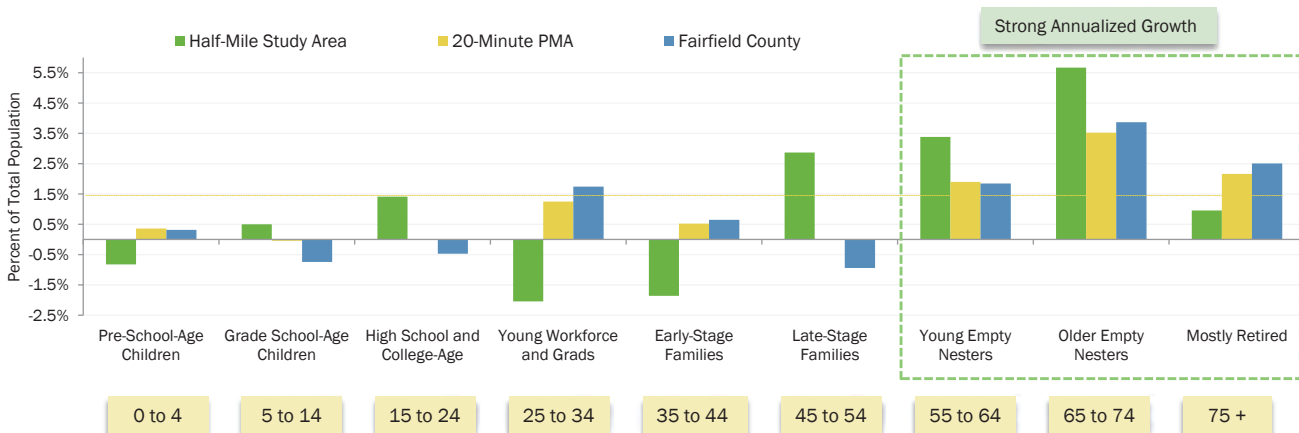|	Pre-School-Age Children	Grade School-Age Children	High School and College-Age	Young Workforce and Grads	Early-Stage Families	Late-Stage Families	Young Empty Nesters	Older Empty Nesters	Mostly Retired
Age	0 to 4	5 to 14	15 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 +

Source: Esri

Age Distribution Change

The chart below illustrates annualized 2016 to 2021 population change by age group across all geographies. The strongest annualized rate of growth within all geographies is observed among the older adult population, particularly the empty nesters cohorts and mostly retired persons. Given the relatively flat to weak population growth in all study areas (for example, a greater than 1.5 percent per annum increase would be considered strong growth), this shift is likely representative of changes in household composition, as older adult residents experience life-stage transitions (e.g., children leaving the home, divorce, or death of a spouse).

Age Distribution - Annualized Percent Change, 2016-2021

Legend: Half-Mile Study Area, 20-Minute PMA, Fairfield County

Strong Annualized Growth

|	Pre-School-Age Children	Grade School-Age Children	High School and College-Age	Young Workforce and Grads	Early-Stage Families	Late-Stage Families	Young Empty Nesters	Older Empty Nesters	Mostly Retired
Age	0 to 4	5 to 14	15 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 +

Source: Esri

Educational Attainment

Educational attainment is a powerful predictor of economic well-being, as higher levels of educational attainment often lead to higher wages and income. Educational attainment in all geographies is relatively high, especially compared to the national average. As exhibited below, in 2016, approximately 73 percent of Study Area residents and 54 percent of 20-minute PMA residents ages 25 years and older had a bachelor's degree or higher level of education, compared to 47 percent within Fairfield County and 30 percent nationally.

## Educational Attainment (% of Total Population) 2016
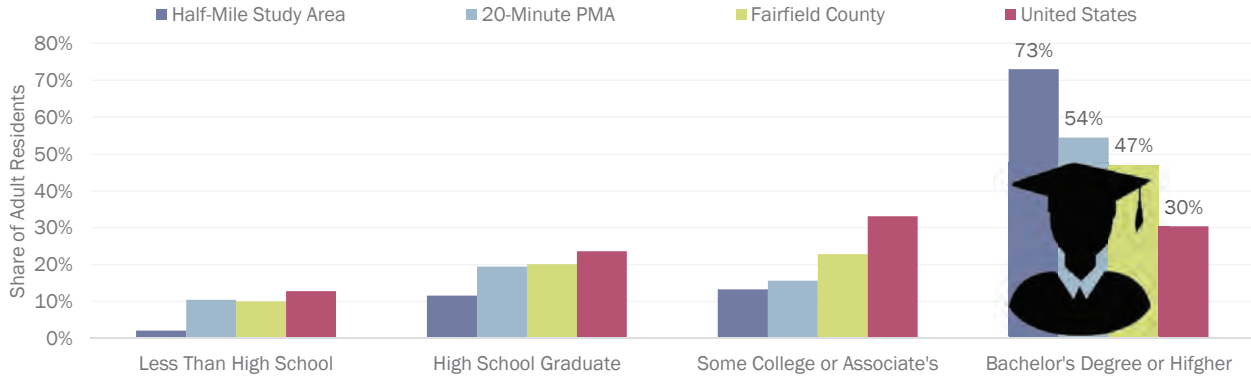
Source: Esri

Income Distribution

As shown in the graphic on the left, estimated 2016 median household income in the 20-minute PMA ($169,407) is significantly higher than that in the 20-Minute PMA ($90,962) and Fairfield County ($86,233), overall. Approximately 56 percent of households in the Study Area earn more than $150,000 annually, compared to just 31 percent of households in the 20-minute PMA and 28 percent of households in Fairfield County, overall. As shown in the graphic on the right, households earning more than $100,000 per year are estimated to increase the fastest across all geographies over the next five years.

Estimated 2016 Income Distribution by Geography
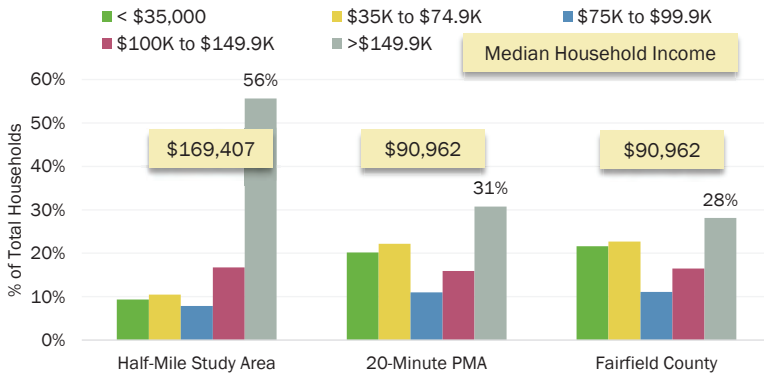
Annualized Income Change, 2016-2021
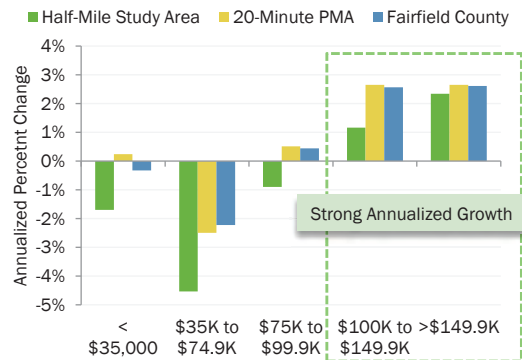
Source: Esri

Household Expenditures
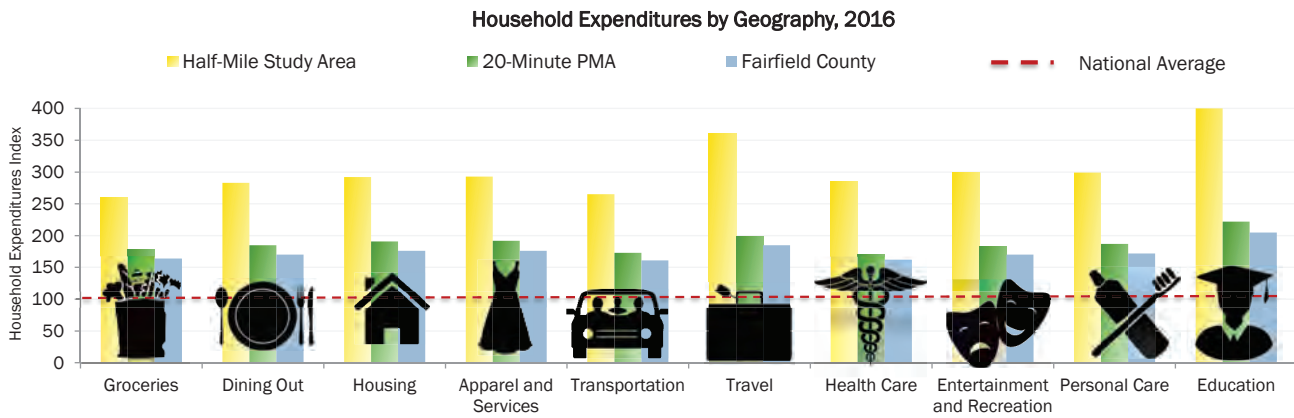
As illustrated in the graphic below, 2016 average household expenditures within all geographies, and within the Study Area in particular, are significantly higher than national average household expenditures. Reflective of higher median household incomes, Study Area households (indicated in yellow) spend two to four times the national average on selected household expenditures (indicated in red).
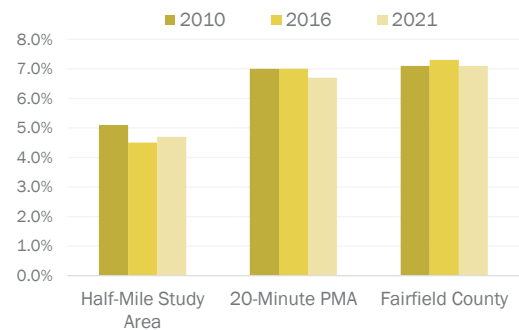
Household Expenditures by Geography, 2016

Legend: ■ Half-Mile Study Area   ■ 20-Minute PMA   ■ Fairfield County   — National Average

Categories: Groceries, Dining Out, Housing, Apparel and Services, Transportation, Travel, Health Care, Entertainment and Recreation, Personal Care, Education

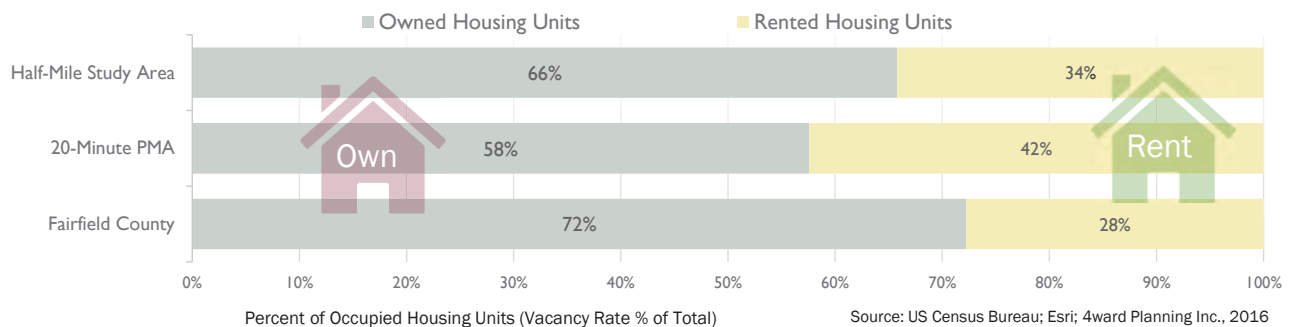Source: ACS, US Census Bureau; Esri; 4ward Planning Inc., 2016

Housing Tenure Trends

The figure below comparatively illustrates trends in housing tenure (owner-occupied versus renter-occupied) for the study geographies, indicating that homeownership, as a percentage of all housing units, is higher within the Study Area (66 percent) than within the 20-Minute PMA (58 percent). As illustrated in the chart to the right, housing vacancy in all geographies has remained relatively stable, remaining consistently lower in the Study Area (approximately five percent), when compared to the PMA and County (both approximately seven percent), overall.

Vacancy Trends by Geography

Legend: ■ 2010   ■ 2016   ■ 2021

2016 Housing Tenure (% of Total Housing Units) by Geography

Legend: ■ Owned Housing Units   ■ Rented Housing Units

Geography	Owned	Rented
Half-Mile Study Area	66%	34%
20-Minute PMA	58%	42%
Fairfield County	72%	28%

Percent of Occupied Housing Units (Vacancy Rate % of Total)

Source: US Census Bureau; Esri; 4ward Planning Inc., 2016

Cost-Burdened Households by Tenure

According to the Department of Housing and Urban Development (HUD), households that spend more than 30 percent of their incomes on housing are considered "cost-burdened" and may have difficulty affording necessities such as food, clothing, transportation, and medical care. According to 2010 to 2014 estimates provided by the U.S. Census, approximately 34 percent of all owner-occupied households with a mortgage (1,840 households) and 52 percent of all renter-occupied households (433 households) in Darien pay more than 30 percent of their monthly household incomes on either mortgage or rent. The share of cost-burdened owner- and renter-occupied households in Darien is lower than within Fairfield County overall (42 percent of owners and 55 percent of renters) and the State of Connecticut (38 percent and 53 percent, respectively), overall. The imbalance between the demand for affordable rental housing and the supply of low-cost rentals can be seen across all geographies. Accordingly, area housing experts report observing an increasing number of cost-burdened households among both renters and owners, but predominantly in the rental housing market.

Households Paying More than
30 Percent of Income on Mortgage or Rent

	Darien	Fairfield County	Conneticut
Owner-Occupied	1,408	7,653	242,802
Renter-Occupied	433	6,813	221,735
Total	**1,841**	**14,466**	**464,537**
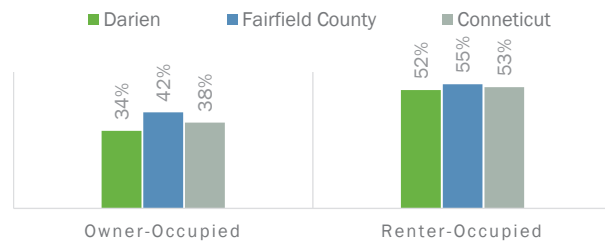
Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates, 4ward Planning Inc., 2016

Cost-Burdened Households by Income Category

Within Darien, approximately 97 percent of owner-occupied households earning less than $35,000 per year (an affordable monthly housing cost would be $875 or less) are cost-burdened while approximately 100 percent of renter-occupied households earning less than $50,000 per year (an affordable monthly housing cost would be $1,250 or less) are cost-burdened. Interviews with housing experts reference the burden on lower-income owner-occupied households evidenced by a growing number of them transitioning to the rental market.

Affordable Housing Cost Range

Income Range	30% of Monthly Income
<$20K	$500 or less
$20K to $34.9K	$500 - $875
$35K to $49.9K	$875 - $1,250
$50K to $74.9K	$1,250 - $1,875
>$75K	$1,875 or more

In general, illustrated below, the share of both owner- and renter-occupied cost-burdened households, across nearly all income categories, is higher within Darien than within the County and State, overall.

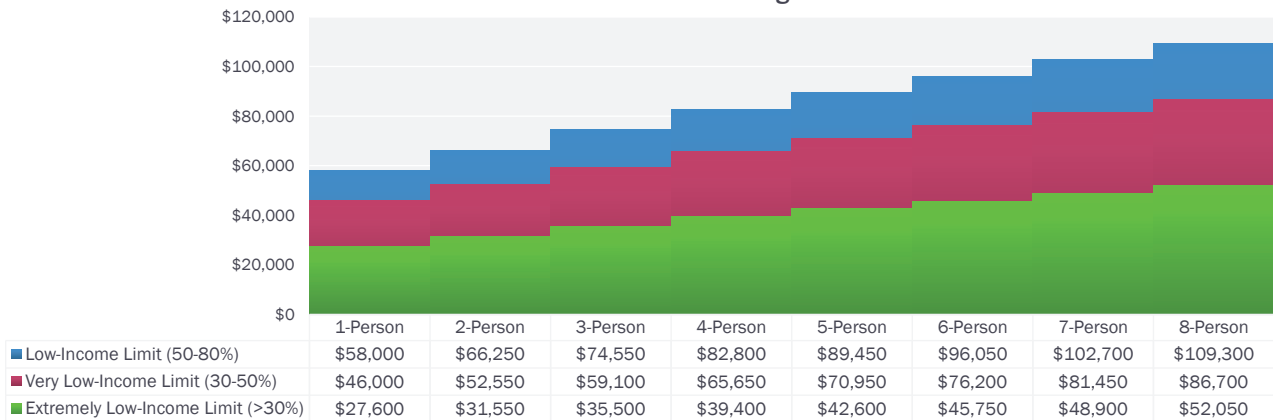**Percent of Households Paying More than 30 Percent of Income on Mortgage or Rent**
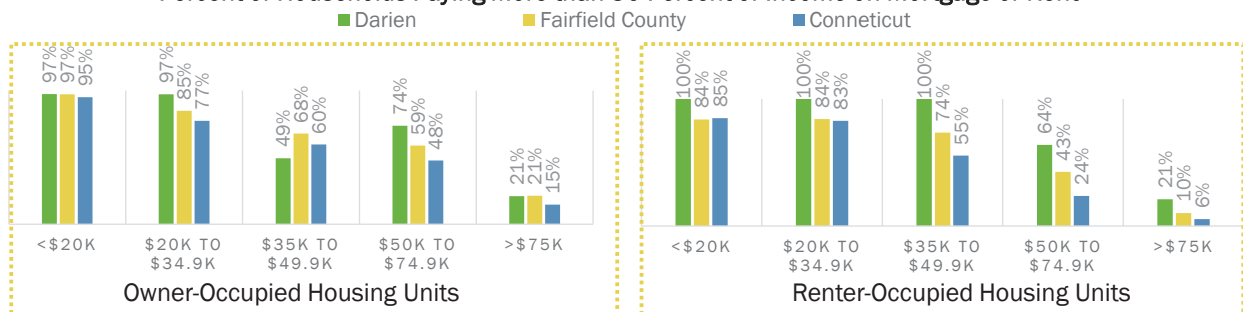
Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates, 4ward Planning Inc., 2016

Affordable Housing Income Limits: Stamford-Norwalk, CT HMFA

Affordable housing refers to dwelling units in which total housing costs are deemed affordable to those who have a predetermined median household income. The chart below illustrates the 2016 affordable housing income limit data provided by HUD, which is based on area median household incomes and adjusted by family size. Based on 2016 data provided for the Stamford-Norwalk, CT HMFA (the HUD Metro Fair Market Rent area, which includes Darien, Greenwich, New Canaan, Norwalk, Stamford, Weston, Westport, Wilton), affordable housing income limits range from $27,600 for an extremely low-income, one-person household to $109,300 for an eight-person, low-income household.

2016 Affordable Housing Income Limits

	1-Person	2-Person	3-Person	4-Person	5-Person	6-Person	7-Person	8-Person
Low-Income Limit (50-80%)	$58,000	$66,250	$74,550	$82,800	$89,450	$96,050	$102,700	$109,300
Very Low-Income Limit (30-50%)	$46,000	$52,550	$59,100	$65,650	$70,950	$76,200	$81,450	$86,700
Extremely Low-Income Limit (>30%)	$27,600	$31,550	$35,500	$39,400	$42,600	$45,750	$48,900	$52,050

Source: HUD, 2016

Fair Market Rents: Stamford-Norwalk, CT HMFA

Fair Market Rents (FMRs) are gross rent estimates primarily used by HUD's Housing Choice Voucher program and include the cost of rent and basic utilities (except telephones, cable or satellite television service, and internet service). Based on FMR data provided for the Stamford-Norwalk, CT HUD Metro FMR area, fair market rents range from approximately $1,270 for a studio apartment to $2,960 for a 4-bedroom rental unit.

2016 Fair Market Rents

	Studio	1 Bedroom	2 Bedrooms	3 Bedrooms	4 Bedrooms
Stamford-Norwalk, CT HUD Metro FMR Area	$1,269	$1,538	$1,910	$2,379	$2,959
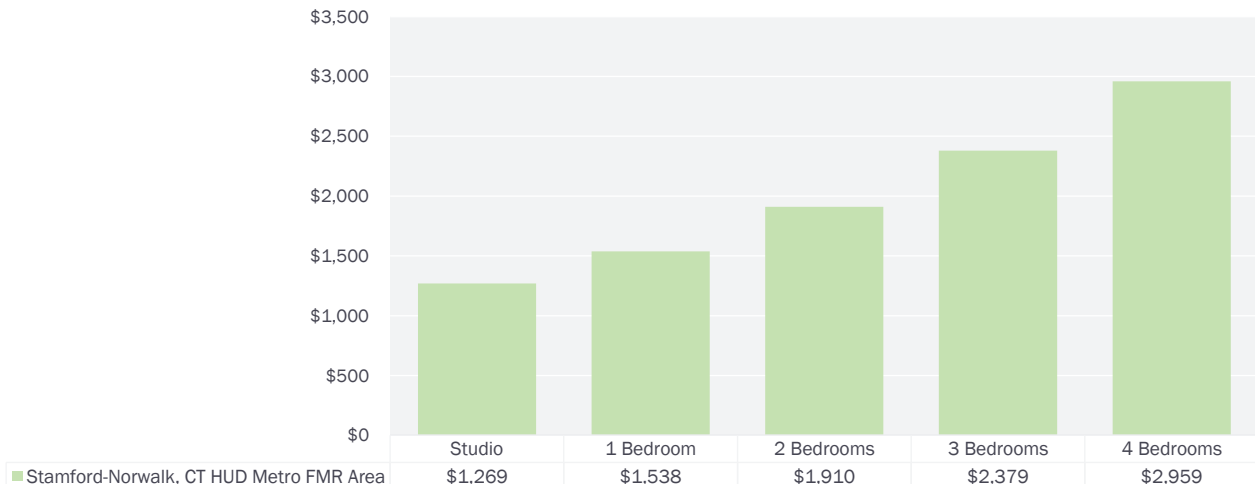
Source: HUD, 4ward Planning Inc., 2016

Tapestry Segments: An Overview

Esri's Tapestry Segmentation process classifies U.S. residential neighborhoods into 65 unique segments based on demographic variables such as age, income, home value, occupation, household type, education, and other consumer behavior characteristics and demographic and socio-economic characteristics.

According to Esri, companies, agencies, and organizations have used segmentation to divide and group their consumer markets to more precisely target their best customers and prospects. This targeting method is, purportedly, superior to using "scattershot" methods that might attract preferred groups. Segmentation explains customer diversity, simplifies marketing campaigns, describes lifestyle and life-stage, and incorporates a wide range of data.

Segmentation systems operate on the theory that people with similar tastes, lifestyles, and behaviors seek others with the same tastes - "like seeks like." These behaviors can be measured, predicted, and targeted. Esri's Tapestry Segmentation system combines the "who" of lifestyle demography with the "where" of local neighborhood geography to create a model of various lifestyle classifications or segments of actual neighborhoods with addresses - distinct behavioral market segments.

4ward Planning applied Esri's Tapestry Segments model to identify the socio-economic groups with a strong propensity to live in multifamily housing. A more detailed description of the Tapestry Segments 4ward Planning identified as exhibiting this housing preference can be found in the Appendix.

Source: Esri; 4ward Planning Inc., 2016

Top Tapestries: 20-minute PMA

The chart below compares the top 10 Tapestry Segments by share of total households located within the 20-minute PMA, along with key socio-economic metrics and spending potential index (comparing local average expenditures to the national average). Based on the top five Tapestry Segments, approximately 46 percent of households within the 20-minute PMA have some preference for living in multifamily housing, particularly rental. Successful multifamily housing development in the Study Area should consider the needs and preferences of these prevalent, top socio-economic groups (by share of total households), highlighted below and on the following page.

Tapestry Segment	Typical Housing	Share of Households	Median Age	Average HH Size	Median HH Income	Housing Spending Index*	Percent Renters
Top Tier	Single Family	24.9%	46.2	2.82	$157,000	272	10%
International Marketplace	High-Density Apts.; SF	16.2%	32.3	3.04	$41,000	85	72%
City Lights	Multiunits; SF	16.0%	38.8	2.56	$98,000	117	48%
Urban Chic	Single Family	11.5%	42.6	2.30	$60,000	187	33%
Pleasantville	Single Family	8.0%	41.9	2.86	$85,000	148	16%
Enterprising Professionals	Multiunits; SF	4.9%	34.8	2.46	$77,000	139	48%
Metro Renters	Multiunit Rentals	3.5%	31.8	1.66	$52,000	111	79%
Young and Restless	Multiunit Rentals	2.9%	29.4	2.02	$36,000	69	86%
Golden Years	SF; Multiunits	2.7%	51.0	2.05	$61,000	129	36%
Savvy Suburbanites	Single Family	1.6%	44.1	2.83	$104,000	178	9%

Source: Esri; 4ward Planning Inc., 2016

Top Tapestries:
20-Minute Drive-Time

The graphic below presents the top 10 Tapestry Segments by share of total households, highlighting those Tapestries with some propensity to live in multifamily housing (e.g., International Marketplace, City Lights, etc.).

International Marketplace, 16.2%

Urban Chic, 11.5%

Pleasantville, 8.0%

Metro Renters, 3.5%

Golden Years, 2.7%

Top Tier, 24.9%

City Lights, 16.0%

Enterprising Professionals, 4.9%

Young and Restless, 2.9%

Savvy Suburbanites, 1.6%

Source: Esri; 4ward Planning Inc., 2016

Labor & Industry Trends Analysis

ECONOMIC AND REAL ESTATE ANALYSIS FOR SUSTAINABLE LAND USE OUTCOMES ™

4WARD PLANNING

Key Findings: Labor & Industry Analysis

Dominated by Health Care and Social Assistance

As throughout Connecticut and New York, Health Care and Social Assistance is the largest industry employer in the Bridgeport-Stamford-Norwalk MSA, comprising 14 percent of total area employment. Retail Trade, the second largest industry in the MSA, and Educational Services, the fourth largest, are top industry employers in all three study areas. Manufacturing is more prominent in the MSA than in the State of Connecticut as a whole, and, accordingly, the recent decline in this industry was more prominent at the metro level (a loss of six percent in recent years) than statewide (a drop of one percent).

Growth in Health Care and Social Assistance

According to State of Connecticut Department of Labor projections, Health Care and Social Assistance is projected to be the fastest growing industry over the next decade, with an expected increase of approximately 24 percent (bringing about 13,530 new jobs to the metro area) by the year 2025. The Education Services sector is also expected to increase by about 34 percent (12,240 new jobs in the metro) during this period.

An influx of mid- to high-wage jobs

Health Care and Social Assistance and Educational Services will continue to provide a substantial number of mid-wage jobs across a diversity of occupations (i.e., entry-level home care positions; highly-skilled roles for doctors and specialists, teachers, professors, and instructors). Substantial projected growth in mid- to high-wage-paying industries (e.g., Professional, Scientific, and Technical; and Finance and Insurance) yields a good outlook for increased demand for rental housing options that appeal to a range of income levels. Higher-end rental units with ample on-site or proximal amenities may appeal to the smaller, but notable, influx of professionals fulfilling high-paying occupations in the region.

Methodology: Labor & Industry Trends Analysis

4ward Planning Inc. conducted an examination of labor and industry trends in the Bridgeport-Stamford-Norwalk metro area and surrounding region. Based on the appropriate scale of geographic analysis, as well as data availability, the following study areas were analyzed:

- **Bridgeport-Stamford-Norwalk, CT MSA;**
- **State of Connecticut;** and
- **State of New York**

Industry and labor data were gathered from the U.S. Census Bureau's *OnTheMap* data server, as well as from Quarterly Workforce Indicators (QWI) reports. Work area analysis was performed for the most recent available years. Employment growth rate projections from both the State of Connecticut's and State of New York's Departments of Labor, were also utilized. Labor characteristics analyzed include primary job employment, average monthly earnings, and job creation, among others.

Study Geographies
- MSA
- Connecticut
- New York

Labor & Industry Trends
- Employment
- Unemployment
- Earnings

Measure for Evaluating Development Scenarios
- Regional Trends
- Market Drivers

Top Six Industries by Total Employment: MSA

The chart below depicts the top six industries, by employment, in the Bridgeport-Stamford-Norwalk MSA. Healthcare and Social Assistance is the largest industry, comprising 14 percent (55,754 jobs) of total MSA employment, followed by the Retail Trade (11 percent) and Manufacturing (nine percent) industries. Between 2010 and 2014, the Health Care and Social Assistance and Retail Trade sectors grew by four and five percent, respectively, each adding nearly 2,000 jobs. Meanwhile, Manufacturing saw a six percent decline (a loss of roughly 2,300 jobs), and the Finance and Insurance industry, the fifth largest in the MSA, saw even greater losses (an eight percent drop, or about 3,100 jobs), during this same time period.

Bridgeport-Stamford-Norwalk, CT MSA - Top Six Industries by Employment
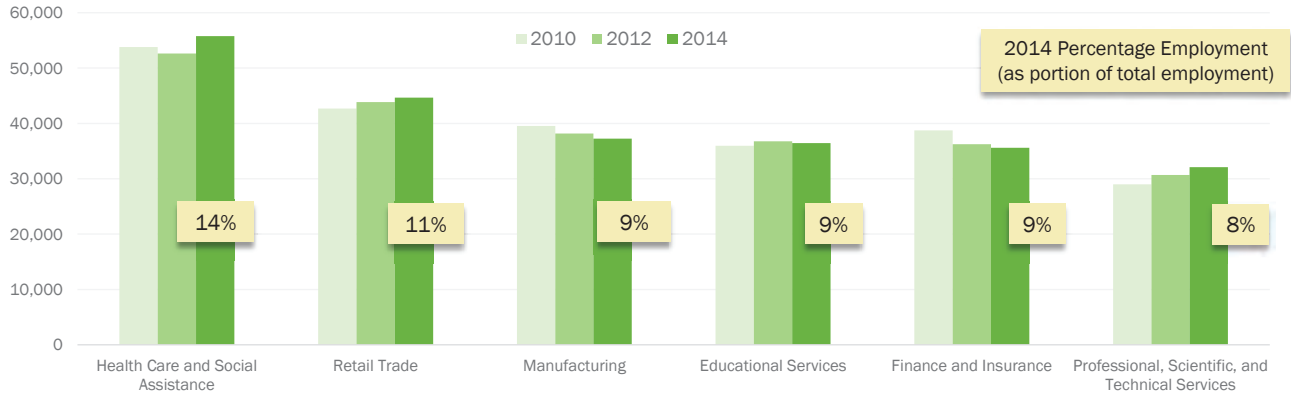
Source: OnTheMap

Employment by Industry: MSA

The table below presents employment projections for the top 10 industries based on 2014 employment data provided by *OnTheMap* and industry growth projection rates provided by the State of Connecticut Department of Labor for the Southwest Workforce Investment Area (WIA) (containing Darien). Health Care and Social Assistance, the largest sector by current employment, is projected to increase by over 26 percent (adding 14,759 jobs). Professional, Scientific, and Technical Services, the sixth largest industry, is expected to grow by 19 percent (adding 6,109 new jobs), while Accommodation and Food Services, the seventh largest industry, will increase by over 15 percent (3,983 jobs). Finance and Insurance and Manufacturing are two of the top 10 largest industries expected to see a decline (a loss of 1,321 and 110 jobs, respectively) by 2025.
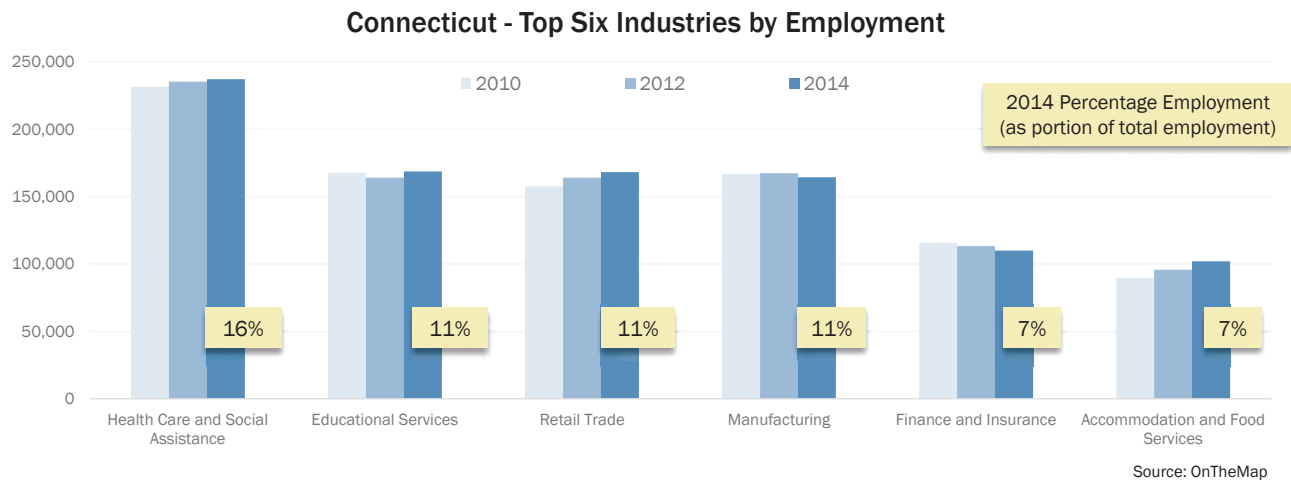
Employment by Industry, Top 10 Industry Projections: MSA

Industry	2014 Estimated Employment	2025 Projected Employment	Numeric Change	Percent Change
Health Care and Social Assistance	55,754	70,513	14,759	26.5%
Retail Trade	44,667	47,274	2,607	5.8%
Manufacturing	37,228	37,118	-110	-0.3%
Educational Services	36,452	39,904	3,452	9.5%
Finance and Insurance	35,607	34,286	-1,321	-3.7%
Professional, Scientific, and Technical Services	32,089	38,198	6,109	19.0%
Accommodation and Food Services	25,297	29,280	3,983	15.7%
Administration & Support, Waste Management and Remediation	22,730	25,252	2,522	11.1%
Wholesale Trade	16,250	19,003	2,753	16.9%
Other Services (excluding Public Administration)	15,766	17,663	1,897	12.0%

Source: OnTheMap; Connecticut Department of Labor

Top Six Industries by Total Employment: Connecticut

The chart below depicts the top six industries, by employment, in the State of Connecticut. As in the Bridgeport-Stamford-Norwalk MSA, Health Care and Social Assistance is the largest industry employer, comprising 16 percent of total state employment (1,361,417 jobs); growth in this industry has remained relatively flat in recent years, increasing only two percent (about 5,600 jobs) between 2010 and 2014. Among the six largest industries, notable growth is observed in the Retail Trade and Accommodation and Food Services industries, which increased by seven and 14 percent, respectively, during this same time period. Similar to MSA industry trends, the Manufacturing and Finance and Insurance industries have both experienced some decline in recent years.

Connecticut - Top Six Industries by Employment

Source: OnTheMap

Employment by Industry: Connecticut

The table below presents employment projections for the State of Connecticut's top 10 industries based on 2014 employment data provided by *OnTheMap* and statewide industry growth projection rates provided by the State of Connecticut's Department of Labor. Health Care and Social Assistance, the largest industry employer in the State, is projected to bring approximately 30,731 new jobs over the next decade. The Professional, Scientific, and Technical Services industry will make the next largest contribution to new jobs in the State, introducing over 13,634 new positions within the next decade. The Public Administration sector, the tenth largest industry in the State, is the only one among top industries expected to see a decline (a loss of 2,262 jobs, or four percent) by 2025.

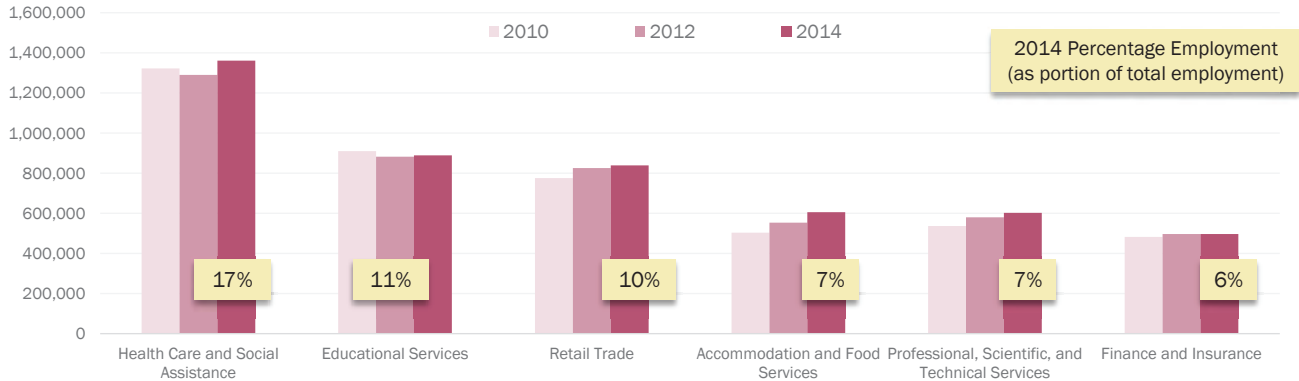### Employment by Industry, Top 10 Industry Projections: Connecticut

Industry	2014 Estimated Employment	2025 Projected Employment	Numeric Change	Percent Change
Health Care and Social Assistance	237,126	267,857	30,731	13.0%
Educational Services	168,606	175,943	7,337	4.4%
Retail Trade	168,060	173,347	5,287	3.1%
Manufacturing	164,352	169,393	5,041	3.1%
Finance and Insurance	109,926	115,555	5,629	5.1%
Accommodation and Food Services	101,959	109,156	7,197	7.1%
Professional, Scientific, and Technical Services	93,273	106,907	13,634	14.6%
Administration & Support, Waste Management and Remediation	75,610	84,696	9,086	12.0%
Wholesale Trade	63,220	66,508	3,288	5.2%
Public Administration	56,768	54,506	-2,262	-4.0%

Source: OnTheMap; Connecticut Department of Labor

Top Six Industries by Total Employment: New York

The chart below depicts the top six industries, by employment, in the State of New York. Similar to the Bridgeport-Stamford-Norwalk MSA and State of Connecticut, Health Care and Social Assistance is the largest industry employer in the State, comprising 17 percent of total employment in 2014, despite experiencing some decline in earlier years (a two percent loss, or 32,486 jobs) between 2010 and 2012. The second largest industry, Educational Services, saw similar losses (a three percent drop, or a loss of 27,292 jobs) between 2010 and 2012. Meanwhile, the Retail Trade; Accommodation and Food Services; and Professional, Scientific and Technical Services industries all saw strong growth in recent years, increasing by eight, 20, and 12 percent, respectively, between 2010 and 2014.

New York - Top Six Industries by Employment

Source: OnTheMap

Employment by Industry: New York

The table below presents employment projections for the top 10 industries based on 2014 employment data provided by *OnTheMap* and statewide industry growth projection rates provided by the State of New York's Department of Labor. The Health Care and Social Assistance sector is projected to bring approximately 364,787 new jobs over the next decade. The Accommodation and Food Services and Professional, Scientific, and Technical Services sectors will make the next two largest contributions to new jobs in the State, contributing approximately 168,334 and 164,761 new jobs, respectively. The Educational Services sector will bring approximately 101,671 new jobs by 2025. All top 10 industries in New York are expected to see some growth during this time period.

**Employment by Industry, Top 10 Industry Projections: New York**

Industry	2014 Estimated Employment	2025 Projected Employment	Numeric Change	Percent Change
Health Care and Social Assistance	1,361,417	1,726,204	364,787	26.8%
Educational Services	888,811	990,482	101,671	11.4%
Retail Trade	838,948	920,479	81,531	9.7%
Accommodation and Food Services	605,740	774,074	168,334	27.8%
Professional, Scientific, and Technical Services	602,504	767,265	164,761	27.3%
Finance and Insurance	496,098	518,563	22,465	4.5%
Public Administration	455,424	468,571	13,147	2.9%
Manufacturing	447,917	452,216	4,299	1.0%
Administration & Support, Waste Management and Remediation	407,719	499,090	91,371	22.4%
Wholesale Trade	329,295	338,034	8,739	2.7%

Source: OnTheMap; New York Department of Labor

Long-Term Employment Growth: MSA

Health Care and Social Assistance, the largest and fastest growing industry in the Bridgeport-Stamford-Norwalk MSA, will maintain its dominance, with projections for substantial growth (24 percent or roughly 13,530 new jobs) in the coming decade. With a notable increase projected to occur in Educational Services during this same time period (nearly 37 percent or roughly 12,240 jobs), this sector will gain its place as the second largest industry in the MSA, surpassing growth in the Retail Trade (currently the second largest employer).

**Bridgeport-Stamford-Norwalk, CT MSA - Top 10 Industries, Projected Growth in Employment**
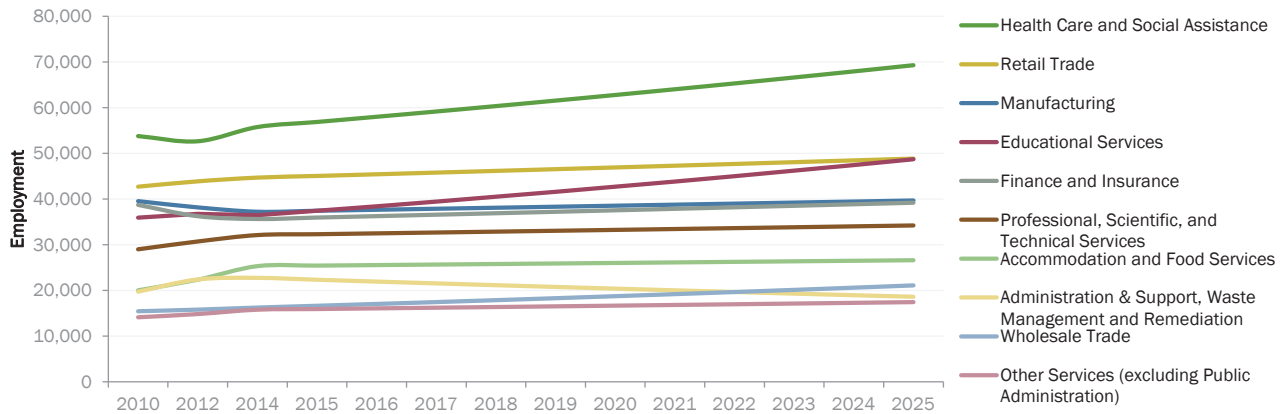
Source: OnTheMap

Average Monthly Earnings: MSA

The table below depicts annual average monthly earnings in the Bridgeport-Stamford-Norwalk MSA for the first quarters of 2010 through 2015. Industry earnings have fluctuated most among high-wage industries: most notably in the Information sector, which saw a substantial spike and peak levels in 2012, followed by a significant drop the following year. A similar pattern, to a lesser extent, was observed in the Real Estate and Rental and Leasing sector. Wage earnings in these industries, as well as in Professional, Scientific, and Technical Services, rose between 2013 and 2015. All other industries saw some fluctuation during the five-year period - notably Administrative and Support and Waste Management and Remediation, where wages have increased in recent years.

Bridgeport-Stamford-Norwalk, CT MSA – Top 10 Industries, Average Monthly Wages 2010 – 2015
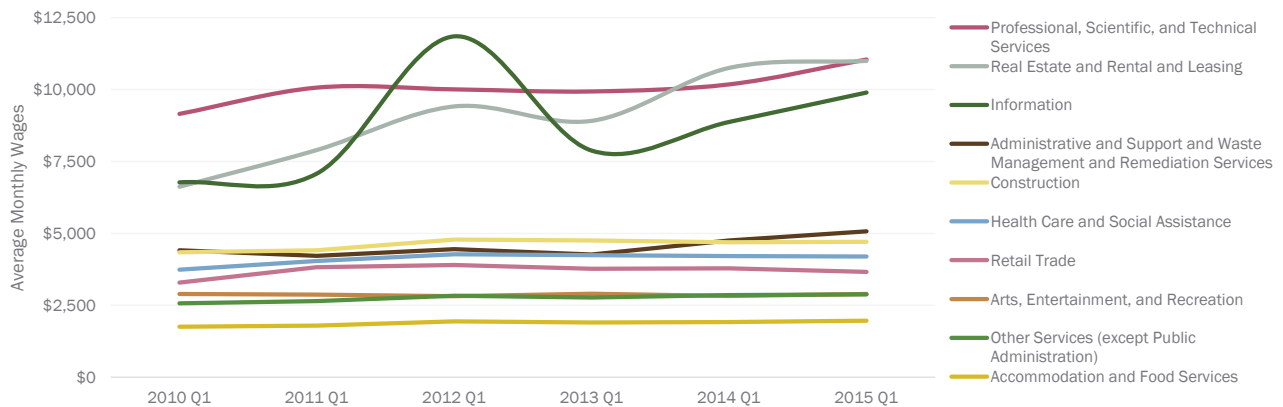
Source: QWI

Industry Growth/Loss Projections: MSA
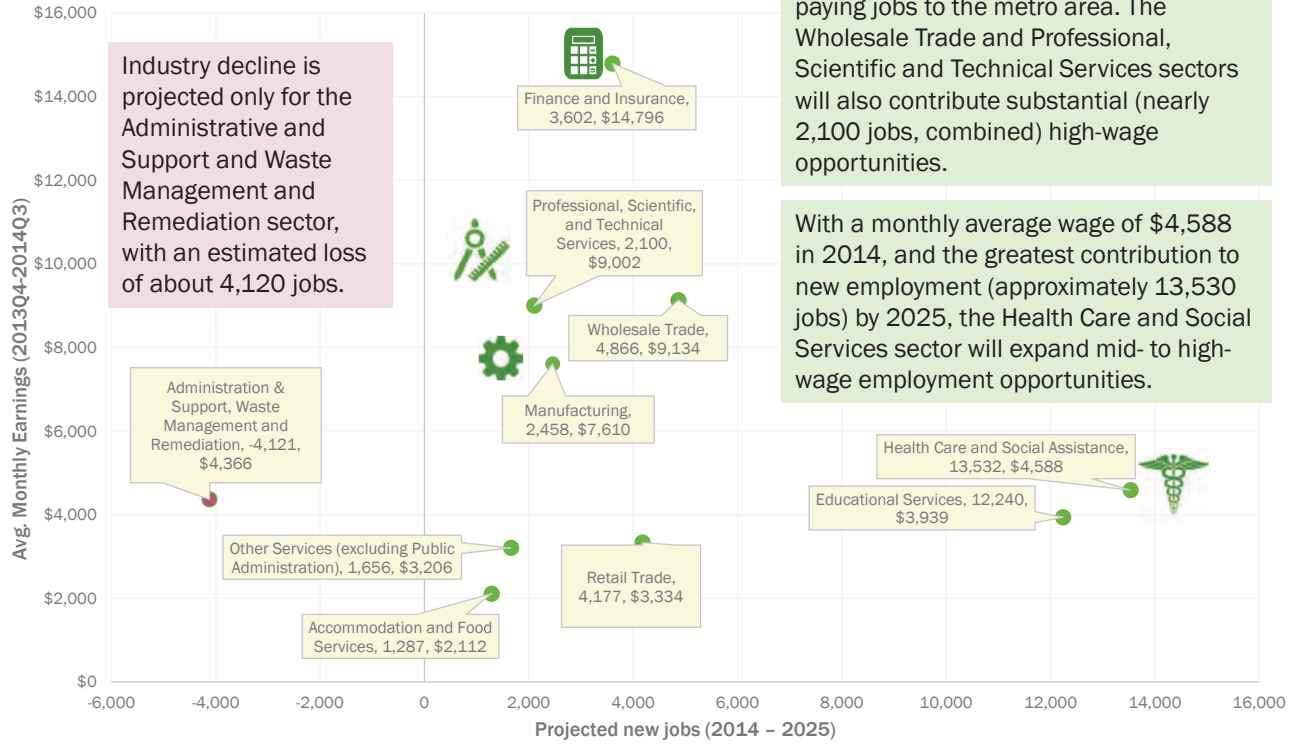
The Finance and Insurance sector's projected growth will bring 3,600 high-paying jobs to the metro area. The Wholesale Trade and Professional, Scientific and Technical Services sectors will also contribute substantial (nearly 2,100 jobs, combined) high-wage opportunities.

With a monthly average wage of $4,588 in 2014, and the greatest contribution to new employment (approximately 13,530 jobs) by 2025, the Health Care and Social Services sector will expand mid- to high-wage employment opportunities.

Industry decline is projected only for the Administrative and Support and Waste Management and Remediation sector, with an estimated loss of about 4,120 jobs.

Y-axis: Avg. Monthly Earnings (2013Q4-2014Q3) — $0 to $16,000

X-axis: Projected new jobs (2014 – 2025) — -6,000 to 16,000

Data labels:
- Finance and Insurance, 3,602, $14,796
- Professional, Scientific, and Technical Services, 2,100, $9,002
- Wholesale Trade, 4,866, $9,134
- Administration & Support, Waste Management and Remediation, -4,121, $4,366
- Manufacturing, 2,458, $7,610
- Health Care and Social Assistance, 13,532, $4,588
- Educational Services, 12,240, $3,939
- Other Services (excluding Public Administration), 1,656, $3,206
- Retail Trade, 4,177, $3,334
- Accommodation and Food Services, 1,287, $2,112

Source: QWI

REAL ESTATE ANALYSIS

ECONOMIC AND REAL ESTATE ANALYSIS FOR SUSTAINABLE LAND USE OUTCOMES ™

4WARD PLANNING

DRAFT: FOR INTERNAL REVIEW ONLY

Methodology: Real Estate Trends & Supply/Demand Analysis

4ward Planning conducted an in-depth real estate trends and supply/demand analysis for the half-mile Study Area, the 20-minute PMA, and the corresponding multifamily, retail, and office real estate submarkets (as defined by Reis and illustrated on the following page).

Real Estate Trends Analysis
In order to gain an understanding of local supply, demand, occupancy and pricing factors for a broad range of land uses within the Study Area, 4ward Planning utilized a variety of primary and secondary resources to examine the competitive supply (existing and proposed) within the Noroton Heights Station half-mile radius and PMA for each of the desired land uses; and identified opportunities and challenges for establishing these land uses within the station area. Key land-use metrics examined include: residential (townhouse/condos/flats), retail (convenience and specialty), lodging, and office. The following metrics were examined: vacancy and absorption rates and trends; lease rates and residential price points; building permit activity; and land prices (per acre and square foot). In order to "ground truth" data findings, quantitative analysis was supplemented with active broker and developer interviews.

### Real Estate Supply-Demand Analysis
Based on real estate trend findings, 4ward Planning conducted a supply/demand analysis, identifying prospective areas of unmet demand for high-density residential, retail (convenience and specialty), lodging, and office product within the station area. Unmet land-use demand estimates were projected out 15 years and presented as residential units (inclusive of affordable units) and commercial square footage prospectively captured by the station area over the 15-year period.

Methodology: Real Estate Submarkets

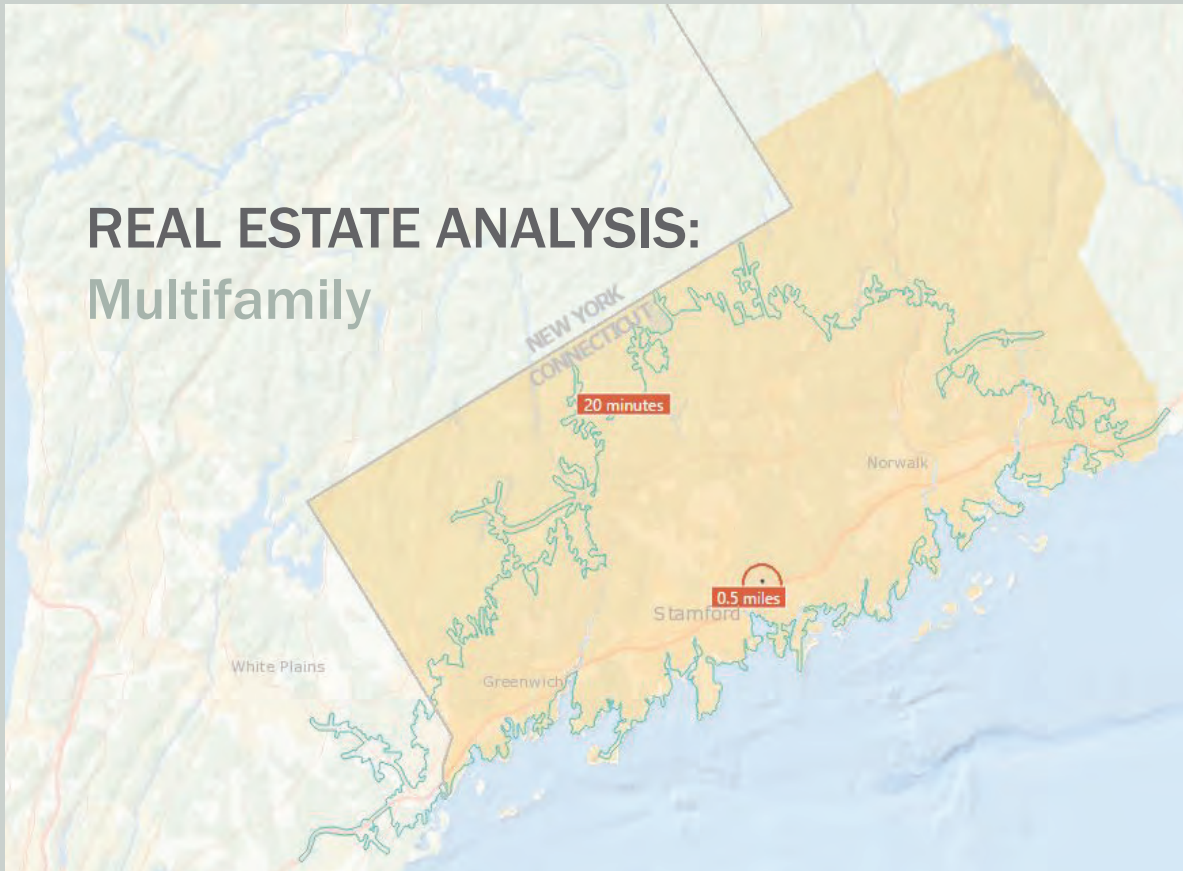**Apartment Submarket**
West Fairfield County

Retail Submarket
Lower Fairfield County
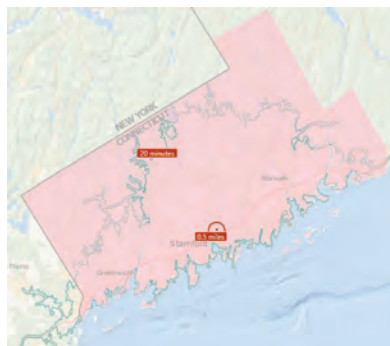
Office Submarket
Central Fairfield County

REAL ESTATE ANALYSIS:
Multifamily

Key Findings: Multifamily

Inventory growth in Submarket expected to slow

Although the apartment inventory growth in the West Fairfield Submarket has been extremely strong (growing 3.1 percent per year), Reis forecasts that inventory growth will slow considerably (to just 1.5 percent per year) over the next five years. By 2020, Reis expects that another 1,735 units will be completed within the Submarket.

Newer apartments asking $2,577 per month in rent

According to Reis, as of second-quarter 2016, the average asking rent within the West Fairfield Submarket was approximately $1,512 per month, with average asking rents for apartments built after 2009 asking $2,577 per month. Annualized asking-rent apartment growth within the Submarket, over the next five-years, is projected to remain well above inflation for all categories of bedroom counts, save for three-bedroom units. Studio units, in particular, are expected to experience greater annualized rent growth, as increased demand for such units outstrips existing supply over the next five years.

Demand for 630 to 1,260 units by 2025

According to data provided by Reis, there are 951 multifamily units (low-income, townhomes, and apartments) currently under construction within the 20-minute PMA. Assuming between five and 10 percent of net housing demand in the 20-minute PMA could be captured within a half-mile radius of the Noroton Heights train station, the Study Area could adequately support the development of between 630 and 1,260 additional residential units by 2025.

Available Multifamily Inventory: 20-Minute PMA

According to data provided by LoopNet, there are just three multifamily properties for sale within the 20-minute drive-time contour (PMA) -- including one multifamily rental garden/low-rise property located in Stamford (asking over $1.1 million), one luxury condominium garden/low-rise property located in Cos Cob (asking over $7.7 million), and one mixed-use duplex property located in Rye (includes two one-bedroom apartments and 1,400 square feet of ground-floor retail, and asking over $1.8 million).

Multifamily Buildings For Sale

City	Property Subtype	Asking Price	Units	Price Per Unit
Rye	Duplex	$1,850,000	2	$308,333
Stamford	Garden/Low-Rise	$1,180,000	6	$196,667
Cos Cob	Garden/Low-Rise	$7,750,000	3	$2,583,333

Source: LoopNet; 4ward Planning, Nov, 2016

Multifamily Pipeline:
Submarket & 20-Minute PMA

According to 2015 New Housing Authorizations data provided by the Connecticut Department of Economic and Community Development (DECD), there are 934 multifamily buildings (of five or more units) in the development pipeline within West Fairfield County. As presented in the table to the right, just two percent of these multifamily units (16 units) are located within Darien.

Multifamily Housing Authorizations: West Fairfield Submarket, 2015

	Units	Percent
Stamford	599	64%
Norwalk	319	34%
Darien	16	2%
Total	934	934

According to data provided by Reis (presented in the table to the right and mapped on the following page), 951 multifamily units (low-income townhomes and apartments) are currently under construction within the 20-minute PMA.

Multifamily Construction Projects: 20-minute PMA, 2016

Type	Low Income	Town-homes	Apts.	Total
Stamford			405	405
Norwalk		60	428	488
New Canaan	38			38
Wilton	20			20
Total	58	60	833	951

Source: DECD, 2015; Reis, as of 9/12/2016; 4ward Planning Inc., 2016

Multifamily Construction Projects: 20-Minute PMA

Townhomes, 60, 6%
Subsidized/Low Income, 58, 6%
Apartment, 833, 88%

Apartment
Subsidized/Low Income
Townhomes
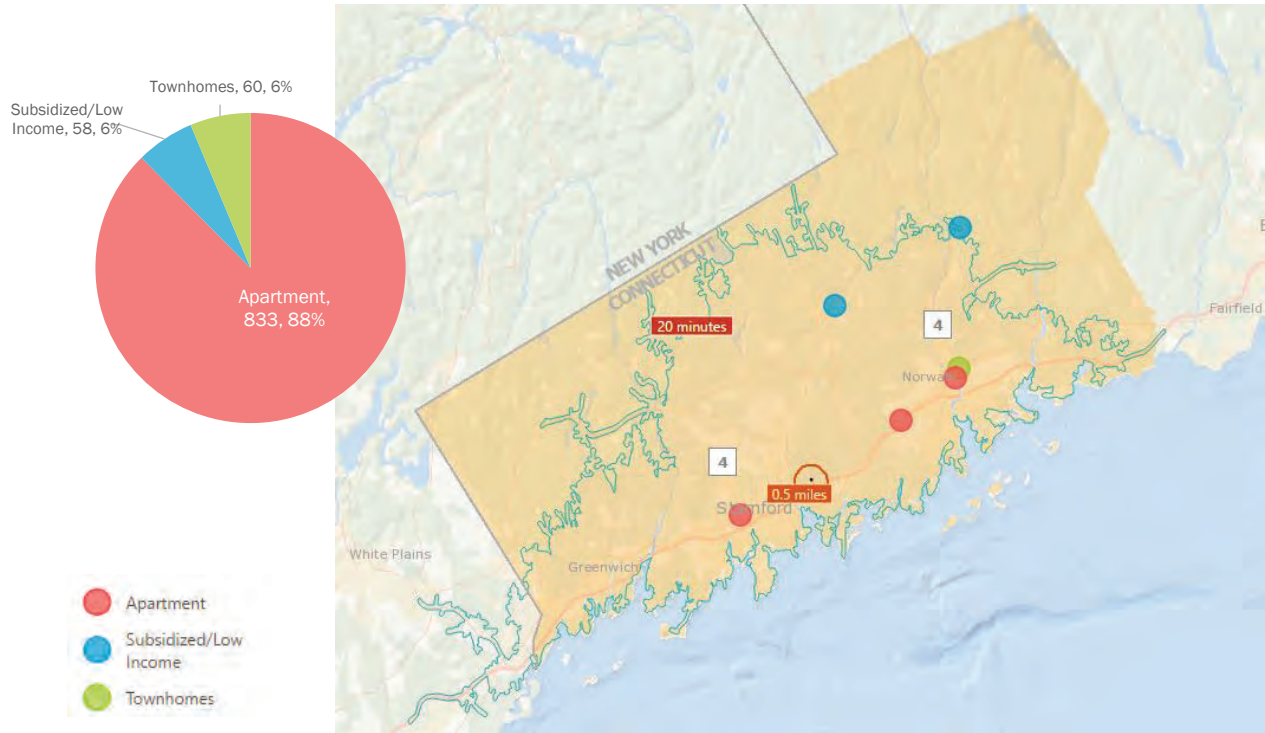
Source: Reis; 4ward Planning Inc., as of 9/12/2016

Multifamily Inventory: West Fairfield Submarket

According to second-quarter 2016 data provided by Reis, there are 24,150 apartment units within the West Fairfield Submarket (encompassing the Study Area). From 2007 to 2015, the apartment inventory in this submarket increased by 4,650 units (growing by 2.7 percent per year), with 1,422 units delivered in 2015, alone. By 2020, Reis expects that another 1,735 units will be completed within the Submarket, growing by 1.8 percent per year, over the next four years.

Apartment Submarket Inventory Trends

Completions (SF)   Total Inventory (SF)

+4,650 units   +1,735 units
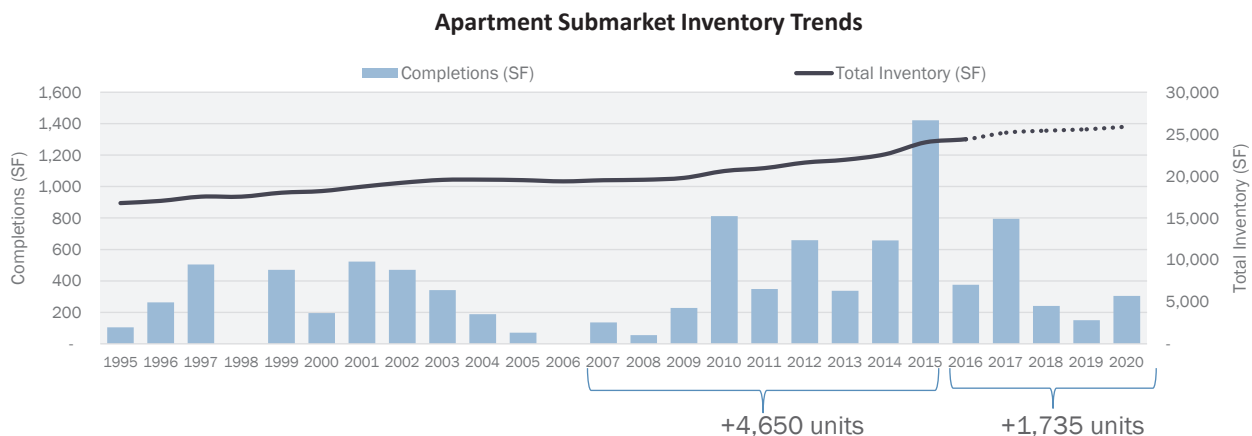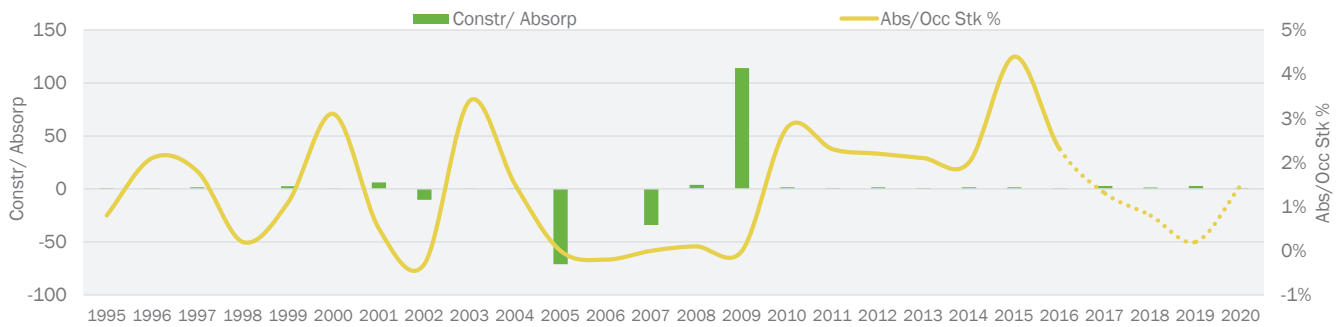
Source: Reis; 4ward Planning 2016

Multifamily Construction & Absorption: West Fairfield Submarket

The construction/absorption ratio measures the degree to which completed residential units are occupied (rented) in a given period. The lower the ratio, the healthier the indicator for demand. As the ratio rises, it is an indicator of supply increasingly outpacing demand. On an annualized basis, over the past five years, the average apartment construction/absorption ratio within the West Fairfield Submarket has been 1.3 (slightly higher than the County, overall). According to Reis, this ratio is projected to remain constant over the next five-year period, at a ratio similar to the County over the same forecast period.

Apartment Construction/Absorption Ratio (Annualized)
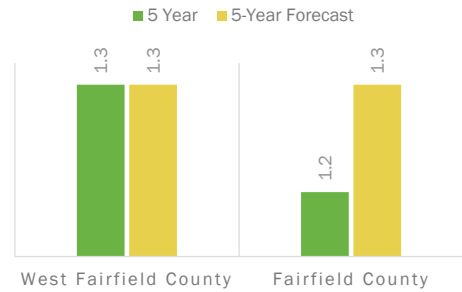
Apartment Submarket Completions and Absorption Rates by Year

Source: Reis; 4ward Planning 2016

Multifamily Asking Rents & Vacancy: West Fairfield Submarket

According to Reis, as of the second-quarter 2016, the average asking rent within the West Fairfield Submarket is approximately $1,512 per month, with the average effective rent (after rent concessions and waived fees) at $1,466 per month. The chart below illustrates Submarket vacancy rate trends in relation to rental rate trends, and shows a steadily rising vacancy rate (at an estimated 7.9 percent, as of June 2016) - projected to increase through 2018, before leveling off in 2019.

Apartment Asking Rent
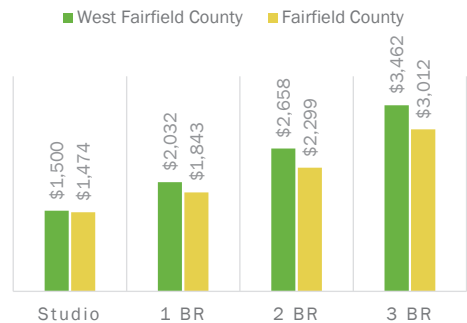
Apartment Submarket Rent and Vacancy Trends
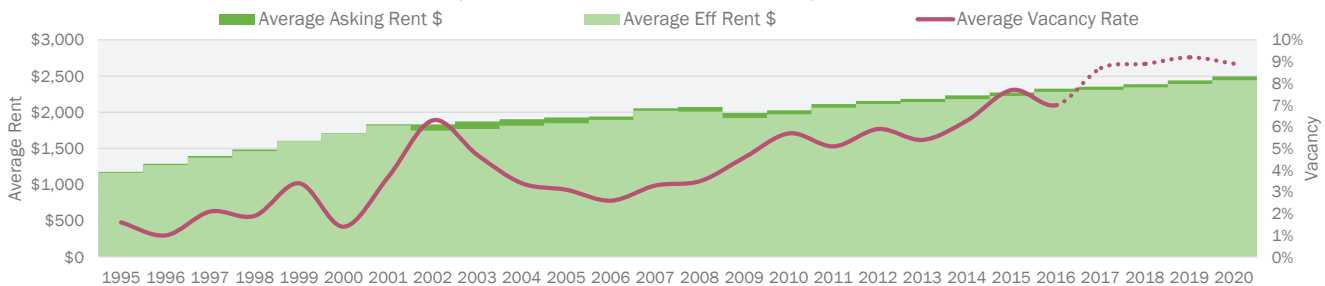
Source: Reis; 4ward Planning 2016

Multifamily Inventory: West Fairfield Submarket

Nearly 88 percent of the total apartment inventory within the West Fairfield Submarket is composed of either one- or two-bedroom units (48.7 and 39.0 percent, respectively). A relatively small 8.3 percent and 4.0 percent of inventory is comprised of studios and three-bedroom units, respectively. On average, asking rents for apartments built after 2009 (composing 44 percent of the inventory in the Submarket and serving, generally as the competitive supply to prospective new housing built within the Study Area) are asking $2,577 per month.
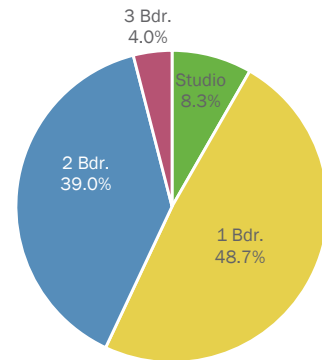
Apartment Submarket Building Age Characteristics

Year Built	Inventory By Building Age	Vacancy Rate By Age	Asking Rent by Age
Before 1970	17%	3.2%	$1,899
1970-1979	2%	3.7%	$1,734
1980-1989	4%	2.5%	$2,181
1990-1999	12%	2.7%	$2,277
2000-2009	21%	3.5%	$2,408
After 2009	44%	11.3%	$2,577
All	100%	6.7%	$2,291

Apartment Submarket Bedroom Unit Mix

- 3 Bdr. 4.0%
- Studio 8.3%
- 2 Bdr. 39.0%
- 1 Bdr. 48.7%

Source: Reis; 4ward Planning 2016

Multifamily Growth Trends & Forecasts

According to Reis, over the past five years, the apartment inventory growth in both the West Fairfield Submarket and Fairfield County has been extremely strong, with annualized growth of 3.1 and 3.0 percent, respectively, as compared to 1.2 percent for the entire U.S. apartment market over the same five-year period. Over the next five years, Reis forecasts that annualized inventory growth will slow considerably within both the Submarket (1.5 percent) and the County (1.8 percent). Annualized asking-rent apartment growth within the Submarket, over the next five years, is projected to remain well above inflation for all categories of bedroom counts, save for three-bedroom units, according to Reis. Studio units, in particular, are expected to experience rising annualized rent growth, as increased demand for such units outstrips existing supply, over the next five years.

Apartment Inventory Growth Trends and Forecasts (Annualized)

- 5-Year Trend
- 5-Year Forecast

West Fairfield County: 3.1% / 1.5%
Fairfield County: 3.0% / 1.8%
United States: 1.2% / 1.2%
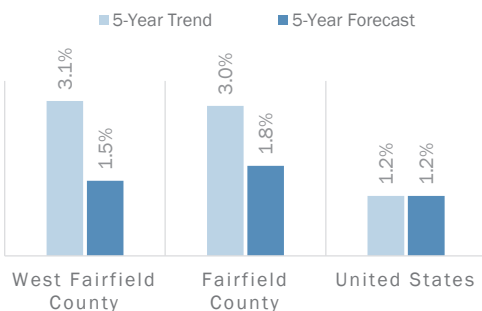
Apartment Submarket Asking Rent Growth

1 Yr. / 3Yr. / 5 Yr.

Studio: 3.3% / 2.5% / 4.3%
1 Bdr.: 3.9% / 3.9% / 1.6%
2 Bdr.: 0.1% / 0.1% / 3.0%
3 Bdr.: 5.8% / 2.5% / 2.6%
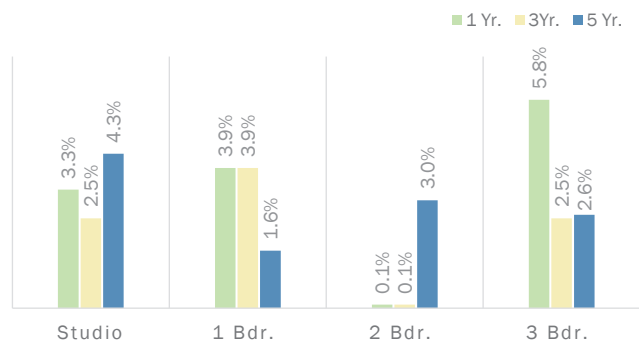
Source: Reis; 4ward Planning 2016

Supply/Demand Analysis: Key Demand Scenario Assumptions

Net Household Formation from 2016 to 2026 Based on Esri's Household Growth Forecasts
Households within the 20-minute PMA are projected to increase by 9,950 from 2016 to 2025, at 0.8 percent per year.

Employment Growth Based on a Modest Average Annual Growth Rate of 0.9 Percent over 2014 Base Employment
Based on 2014 employment data provided by *OnTheMap* and 2012 to 2022 employment by industry projections provided by State of Connecticut Department of Labor for the Southwest Workforce Investment Board (WIB), workers employed within the 20-minute PMA are projected to increase by approximately 5,650, from 2016 to 2025.

3% of Those Working in the 20-minute PMA but Living Elsewhere Represent Pent-Up Demand
Approximately 58 out of every 100 workers commute from outside the 20-minute PMA. It is assumed three out of every 100 of these workers would trade their commutes if adequate housing choice was available.

2% of Current Housing Stock in the 20-minute PMA is Physically Obsolescent and Unmarketable
Approximately 2 out of every 100 housing units in the 20-minute PMA were built before 1940, increasing the incidence of obsolescence.

1.0% of Remaining Housing Stock Becomes Obsolescent Annually
All housing stock gradually wears out over time and, on average, one out of every 100 units becomes obsolescent, annually.

Demand by Tenure will Reflect Top Tapestry Segments with Preferences for Multifamily Housing
Thirty-five percent of new-unit demand within the 20-minute PMA will be for rental housing.

Housing Vacancy Projections Based on Esri's Vacancy Projections
Housing vacancy is based on Esri's projections for the 20-minute PMA.
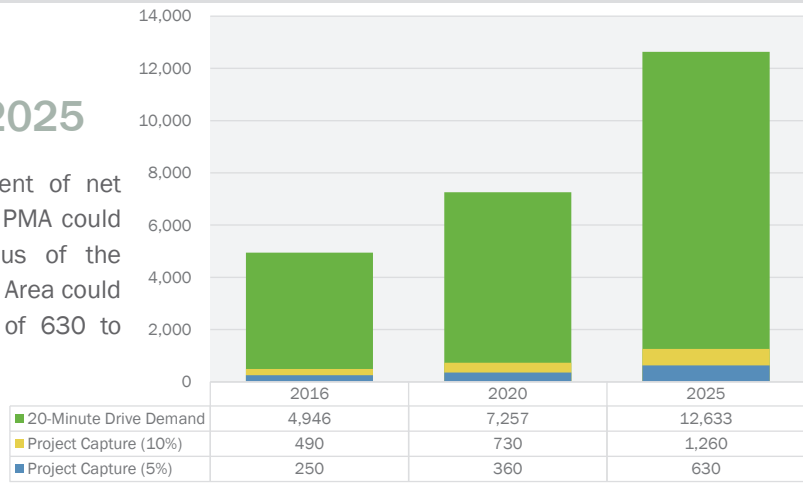
Supply/Demand Analysis: 20-Minute PMA

	2016	2020	2025
Housing Demand Metrics			
Population	334,440	346,510	362,210
Households (each household in radius represents demand for one housing unit)	*124,710*	*129,590*	*134,660*
Estimated Workers within 20-Minute Drive	179,424	186,726	196,529
Estimated Workers Residing Outside 20-Minute Drive (59%)	105,150	108,300	113,990
Estimated Pent-Up Housing Unit Demand from Commuting Area Workers (1%)	*3,155*	*3,249*	*3,420*
Estimated Number of Vacant Housing Units (5% is a natural/average vacancy rate factor)	*9,382*	*6,610*	*6,602*
Estimated Aggregate Housing Unit Demand in 20-Minute Drive	*137,247*	*139,449*	*144,682*
Housing Supply Metrics			
Estimated Housing Units in 20-Minute Drive	*134,030*	*134,981*	*134,981*
Subtract Physically Obsolescent Units (2% of total units, 1% annual obsolescence rate)	**2,681**	**2,789**	**2,932**
New Units to Add (based on multifamily construction estimates)*	951		
Estimated Net Marketable Housing Units in 20-Minute Drive	*132,300*	*132,192*	*132,049*
Net Housing Demand/Supply Calculation			
Estimated Aggregate Housing Unit Demand in 20-Minute Drive	*137,247*	*139,449*	*144,682*
Subtract Estimated Net Marketable Housing Units in 20-Minute Drive	*132,300*	*132,192*	*132,049*
Net Housing Unit Demand/(Excess Units) (Assumes no new housing beyond 2016)	**4,946**	**7,257**	**12,633**

* Omits half of the new apartment units at Kennedy Flat that are already occupied.

Source: 4ward Planning Inc. 2015

Multifamily Housing Demand/Capture: By 2025

Assuming between five and 10 percent of net housing demand within the 20-minute PMA could be captured within a half-mile radius of the Noroton Heights train station, the Study Area could adequately support the development of 630 to 1,260 residential units by 2025.

	2016	2020	2025
■ 20-Minute Drive Demand	4,946	7,257	12,633
■ Project Capture (10%)	490	730	1,260
■ Project Capture (5%)	250	360	630

Share of Housing by Various Demographic Categories	2016	2020	2025
Replacement	2,681	2,789	2,932
Household Growth and Pent-up Worker Demand	2,266	4,468	9,701
Owner-Occupied (40%)	2,968	4,354	7,580
Renter-Occupied (60%)	1,978	2,903	5,053
1-Bdr (25%)	2,226	3,266	5,685
2-Bdr (55%)	1,731	2,540	4,422
3+ Bdr (20%)	989	1,451	2,527
HH Income $75k or Greater (35%)	2,226	3,266	5,685
HH Income $40k to $74.9K (35%)	1,731	2,540	4,422
HH Income $39.9k and Less (30%)	989	1,451	2,527
Age 29 or Younger (20%)	1,484	2,177	3,790
Age 30 to 54 (65%)	1,731	2,540	4,422
Age 55 or Older (15%)	1,731	2,540	4,422

Source: 4ward Planning Inc. 2016

Takeaway: Real Estate Analysis

The foregoing real estate analysis indicates there is sufficient unmet demand for new multifamily rental housing within Noroton Heights train station's Primary Market Area (the 20-minute drive-time contour from the station). The analysis demonstrates this demand is generated by a combination of projected household formation, pent-up need from area workers who currently commute into the Primary Market Area, and necessary replacement of physically obsolescent housing.

Finally, it should be understood that this real estate analysis is based on currently observed market conditions and economic factors and, as such, the conclusions reached are subject to change with future changes to market-area conditions (e.g., significant new supply delivered within the next three years) and economic factors (e.g., a significant downturn in the regional economy/substantial rise in the unemployment rate).

REAL ESTATE ANALYSIS:
Commercial Office

Key Findings: Office

6.8 million square feet of available office space

According to data provided by LoopNet, within the 20-minute drive-time contour, there is nearly 6.8 million square feet of available office space, with approximately 959,560 square feet of this space for sale (72 percent office building space) and 5.8 million square feet for lease (81 percent office building space). Although no new office space has been completed in the Submarket since 2010, Reis expects an additional 631,000 square feet of office space will be completed and 462,000 square feet of net office space will be absorbed over the next four years (bringing the average office vacancy rate down to 22.9 percent, over the next five years).

$28 to $37 per square foot

According to data provided by Reis, over the next four years, average annual asking rents in the Central Fairfield County Submarket are projected to increase from $33.34 per square foot to $36.59 per square foot (1.9 percent per year). Average asking rents for office space vary widely by building age, from nearly $28.50 per square foot for office space in buildings built before 1970, to $37.72 per square foot for office space in buildings built after 2009.

Greatest demand is for medical office space

According to the supply/demand analysis, by 2025, there will be net new demand for over 1.7 million square feet office space within the 20-minute drive-time contour (58 percent of this demand within the Health Care and Social Assistance sector; Educational Services; and Finance and Insurance sectors).

Available Office Inventory: 20-Minute PMA

According to data provided by LoopNet, within the 20-minute drive-time contour (PMA), there is nearly 6.8 million square feet of available office space, with approximately 959,560 square feet of this space for sale (72 percent of which is office building space) and 5.8 million square feet for lease (81 percent of which is office building space). Office building space has the highest office asking sales price ($385 per square foot), while executive suite space has the highest office asking lease price ($34 per square foot per year).

Office Space For Sale

Type	Properties	Building Size (SF)	Average Price Per SF
Office Building	16	689,410	$385
Flex Space	1	5,000	$245
Medical Office	6	242,650	$188
Office Condo	4		$158
Office Showroom	2	22,500	$138
Grand Total	**29**	**959,560**	**$280**

Office Space For Lease

Type	Spaces	Space Available (SF)	Average Asking Rent (Per SF/Year)
Executive Suite	16	7,337	$34.31
Medical Office	41	99,555	$32.60
Office Building	582	4,738,966	$32.43
Creative/Loft	53	84,250	$26.60
Office-R&D	6	901,406	$11.00
Grand Total	**698**	**5,831,514**	**$31.71**
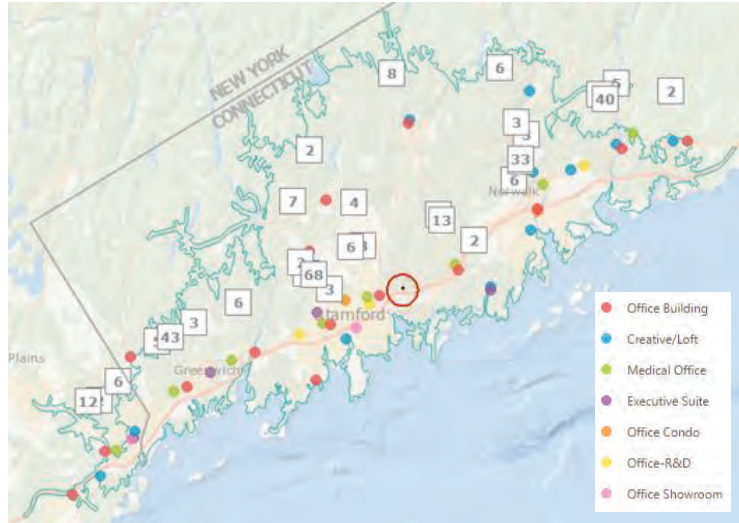
Source: LoopNet; 4ward Planning, Nov, 2016

Office Inventory & Vacancy:
Central Fairfield County Submarket

According to second-quarter 2016 data provided by Reis, the Central Fairfield County office submarket has a vacancy rate of 23.3 percent, slightly higher than the vacancy rate within the County (22.6 percent) but much higher than the national vacancy rate (16.0 percent). As illustrated below, although no new office space has been completed in the Submarket since 2010, Reis expects an additional 631,000 square feet of office space will be completed over the next four years, and 462,000 square feet of net office space will be absorbed (bringing the average office vacancy rate down to 22.9 percent, over the next five years).

Office Inventory Trends
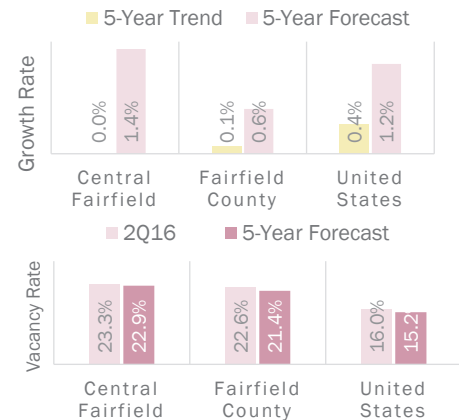
Office Inventory and Vacancy Trends: Central Fairfield County Submarket
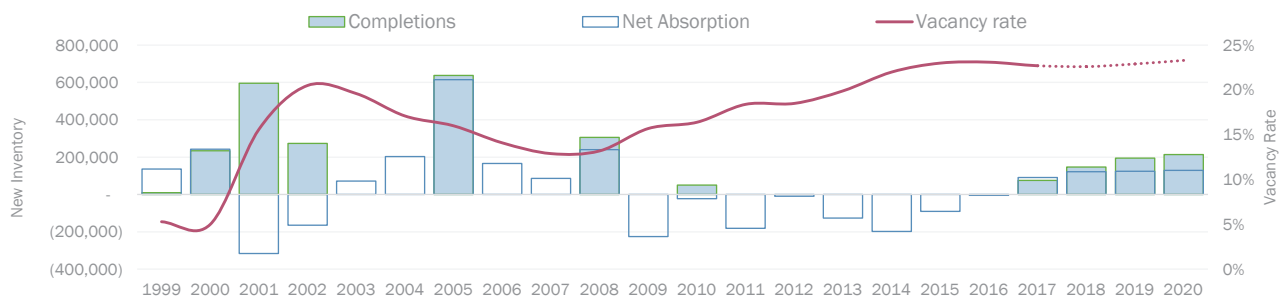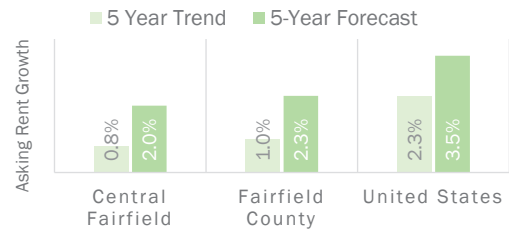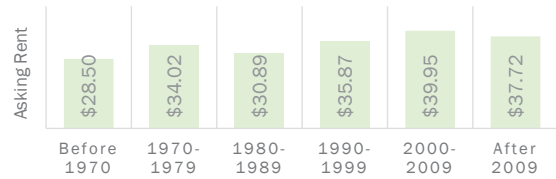

Source: Reis; 4ward Planning 2016

Office Rent Trends:
Central Fairfield County Submarket

According to data provided by Reis, over the next four years, average annual asking rents in the Central Fairfield County Submarket are projected to increase from $33.34 per square foot to $36.59 per square foot (1.9 percent per year). Average asking rents for office space vary widely by building age, from nearly $28.50 per square foot for office space in buildings built before 1970, to $37.72 per square foot for office space in buildings built after 2009.

Office Rent Trends

Legend: 5 Year Trend — 5-Year Forecast

	Central Fairfield	Fairfield County	United States
5 Year Trend	0.8%	1.0%	2.3%
5-Year Forecast	2.0%	2.3%	3.5%

Office Rent by Building Age: Submarket

Before 1970	1970-1979	1980-1989	1990-1999	2000-2009	After 2009
$28.50	$34.02	$30.89	$35.87	$39.95	$37.72

Office Vacancy and Rent Trends: Central Fairfield County Submarket

Legend: Average Asking Rent — Average Effective Rent — Average Asking Rent Change

Source: Reis; 4ward Planning 2016
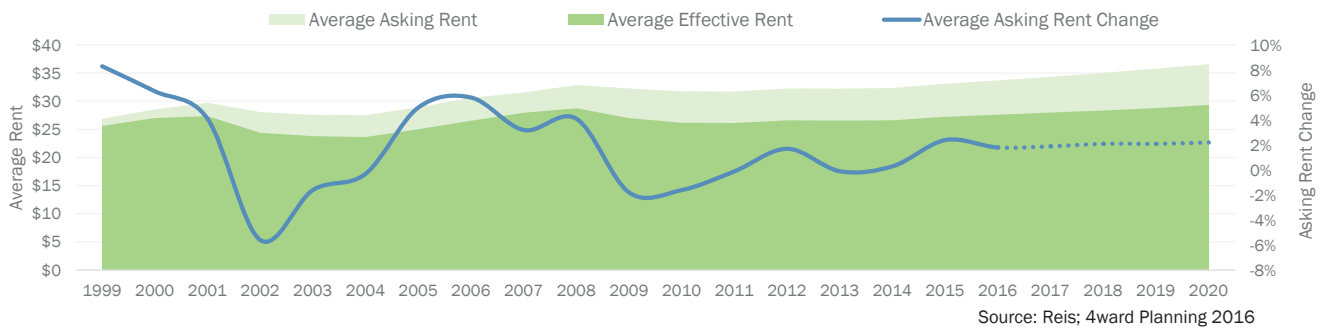
Methodology: Key Steps for Deriving Office Demand

Projecting 2026 Primary Jobs

To determine projected office space demand, primary jobs in the 20-minute drive-time contour (an approximate 10-mile buffer from the station) were projected through 2025, based on 2014 employment data by industry sector, provided by *OnTheMap,* and 2012 to 2022 industry employment growth rates provided by the State of Connecticut's Department of Labor for the Southwest Workforce Investment Board (WIB), which includes Darien.

Estimating the Number of Office Workers

The National Center for Real Estate Research study has estimated the percentage of workers in various industry sectors that typically work in an office environment. Using these percentages, 4ward Planning estimated the number of employees in the 20-minute drive-time contour who would, likely, require office space.

Determining Office Space Demand

Assuming a space requirement of 175 square feet per employee (a relatively conservative requirement), the total demand for office space was estimated based on the projected number of office workers for each year through 2025.

Projected Job Change
(2016 to 2025)

Based on employment estimates provided by *OnTheMap* and projected 2012 to 2022 employment growth rates provided by the State of Connecticut's Department of Labor, by 2025, there will be approximately 16,875 net new jobs within the 20-minute drive-time contour (45 percent within the Health Care and Social Assistance sector and Professional, Scientific, and Technical Services sector).

Legend: ■ New Jobs (2016-2025)   ◆ Annualized Growth Rate
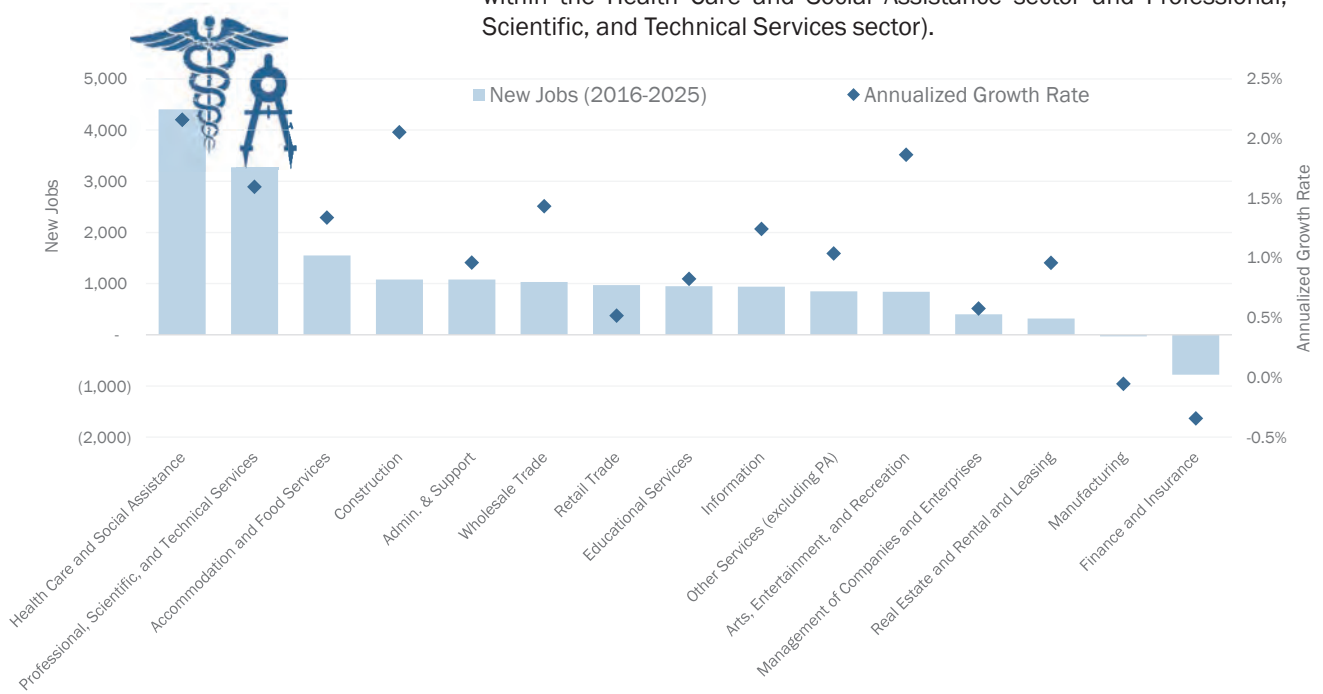
Source: OnTheMap, NJ Department of Labor and Workforce Development; 4ward Planning, Inc., 2016

Projected Net New Office Workers
(2016 to 2025)

Based on the estimated percent of office workers by industry provided by the National Center for Real Estate, by 2025, there will be approximately 8,750 net new office workers within the 20-minute drive-time contour (63 percent of these workers within the Health Care and Social Assistance sector and Professional, Scientific, and Technical Services sector).

Legend: ■ New Office Workers   ◆ Percent Office Workers

Source: OnTheMap, NJ Department of Labor and Workforce Development; National Center for Real Estate; 4ward Planning, Inc., 2016

Projected Net New Office Demand (2016 to 2025)

Assuming an estimated ratio of 175 square feet per office worker, by 2025, there will be net new demand for nearly 1.4million square feet of office space within the 20-minute drive-time contour (63 percent of this demand within the Health Care and Social Assistance sector and Professional, Scientific, and Technical Services sector).
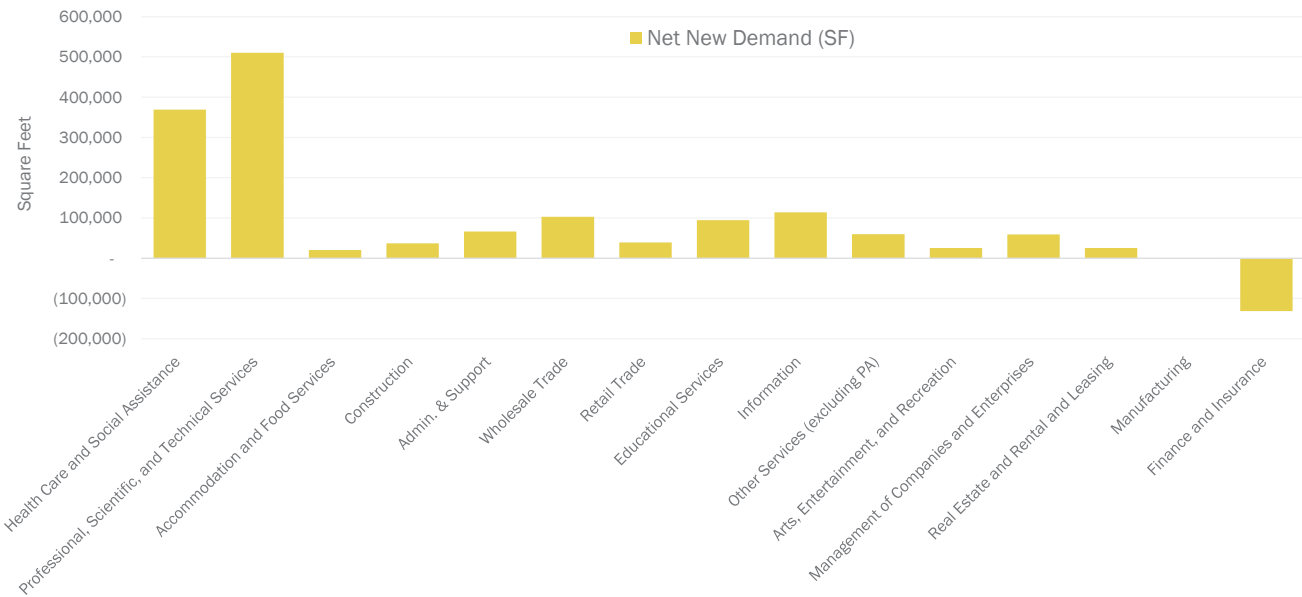
Source: OnTheMap, NJ Department of Labor and Workforce Development; 4ward Planning, Inc., 2016

Takeaway: Office Supply/Demand

The table to the right depicts projected demand (2016 to 2025) for net new jobs, office workers, and office square footage across industries within the 20-minute drive-time contour. Metrics highlighted in red indicate a decrease in demand for office square footage, based on a projected net loss in the number of office workers in those industries. It should also be noted that net new positive demand does not necessarily signal the need for new office space.

	New Jobs	New Office	Net New Demand (SF)
Health Care and Social Assistance	4,400	2,110	369,080
Professional, Scientific, and Technical Services	3,270	2,920	510,420
Accommodation and Food Services	1,550	110	20,100
Construction	1,080	210	36,760
Admin. & Support	1,080	380	66,180
Wholesale Trade	1,030	590	102,520
Retail Trade	970	220	39,200
Educational Services	950	540	94,560
Information	940	650	114,020
Other Services (excluding PA)	850	340	59,720
Arts, Entertainment, and Recreation	840	140	25,080
Management of Companies and Enterprises	400	340	59,280
Real Estate and Rental and Leasing	320	140	25,370
Manufacturing	(30)	(10)	(1,530)
Finance and Insurance	(780)	(750)	(131,180)
Total	16,870	7,930	1,389,580

Takeaway: Office Space

Based on the office supply/demand analysis, by 2025, there will be net new demand for nearly 1.4 million square feet of office space within the 20-minute drive-time contour. Approximately 369,080 square feet of this net office space demand will be within the Health Care and Social Assistance sector, and 510,420 square feet of this net office space demand will be within the Professional, Scientific, and Technical Services sector.

According to data provided by LoopNet, within the 20-minute drive-time contour, there is nearly 6.8 million square feet of available office space, with approximately 959,560 square feet of this space for sale (72 percent of which is office building space) and more than 5.8 million square feet for lease (81 percent of which is office building space).

The foregoing analysis demonstrates that while there will likely be new demand for new office space within the 20-minute PMA, particularly from the Health Care and Social Assistance and Professional, Scientific, and Technical Service sectors, much of this new demand could potentially be accommodated within the existing supply of vacant office space.

Available Office Space: 20-Minute PMA

Type	For Sale (SF)	For Lease (SF)	Total
Office Building	689,410	4,738,966	5,428,376
Office-R&D		901,406	901,406
Medical Office	242,650	99,555	342,205
Creative/Loft		84,250	84,250
Office Showroom	22,500		22,500
Executive Suite		7,337	7,337
Flex Space	5,000		5,000
Grand Total	**959,560**	**5,831,514**	**6,791,074**

REAL ESTATE ANALYSIS: Retail

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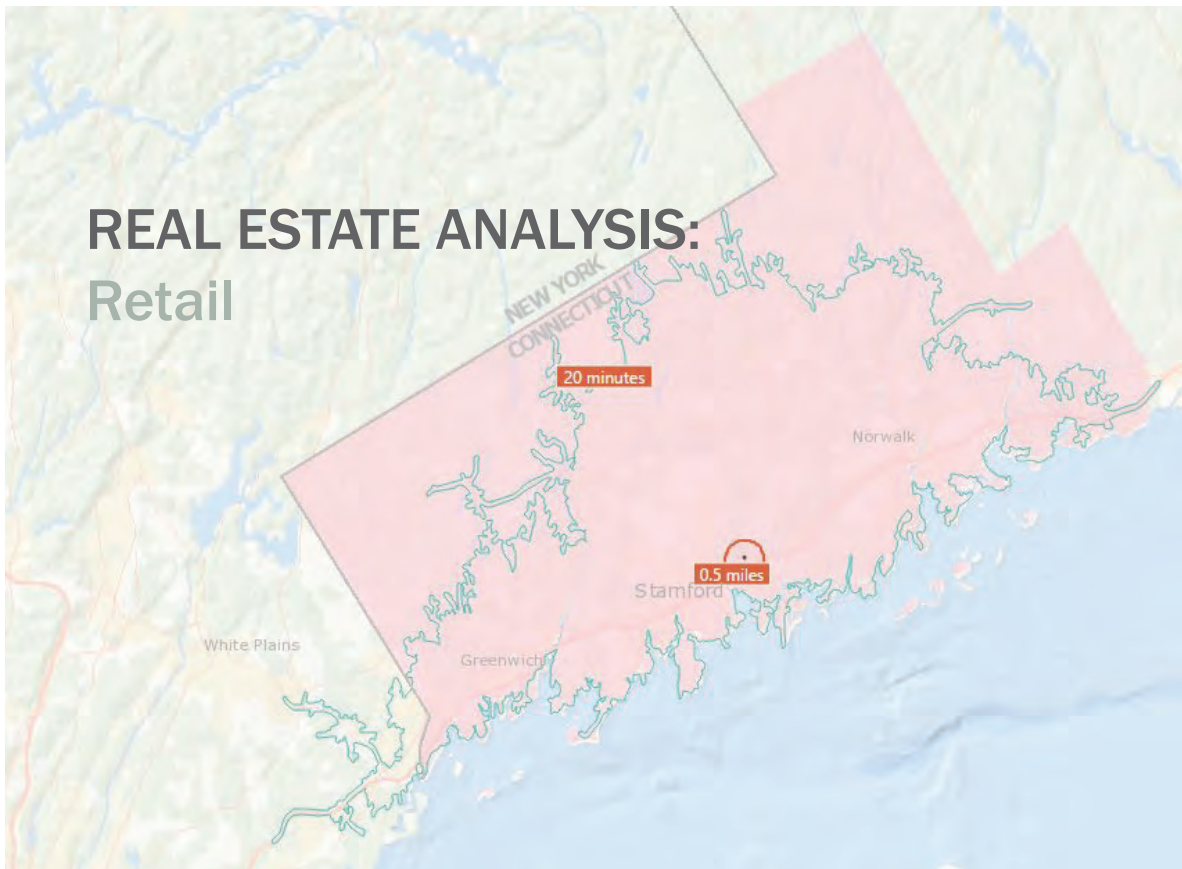
Key Findings: Retail

1.8 million square feet of available retail space

According to data provided by LoopNet, within the 20-minute drive-time contour, there is more than 1.8 million square feet of available retail space, with approximately 247,160 square feet of this space for sale (14 percent) and more than 1.5 million square feet for lease (86 percent).

People leaving to buy most convenience retail goods

Based on 2016 data provided by the Directory of Major Malls, ratio of major retail shopping center space within the 20-minute drive-time contour (7.3 square feet per person), is much lower than the ratio within Fairfield County (38 square feet per person), overall. According to data provided by Esri, the 20-minute drive-time contour is experiencing "leakage" in some of the selected convenience retail categories (in limited-service eating places and health and personal care stores, in particular) - meaning people living within the trade area shop outside the trade area for many of these selected goods and services.

Demand for more eating establishments

Within the half-mile Study Area, full-service restaurants is the only retail category experiencing sufficient leakage to represent potential opportunities for new retailers, or for existing retailers to extend their marketing outreach to accommodate the excess demand. Within the 20-minute PMA, there is unmet demand within a variety of retail categories (in limited-service eating places, in particular), which could, potentially, be captured within the Study Area.

Available Retail Inventory: 20-Minute PMA

According to data provided by LoopNet, within the 20-minute drive-time contour (PMA), there is more than 1.8 million square feet of available retail space, with approximately 247,160 square feet of this space for sale (14 percent) and more than 1.5 million square feet for lease (86 percent). Free-standing retail building space composes approximately 51 percent of available retail space for sale, with other retail building space composing approximately 31 percent of available retail space for lease. Vehicle-related retail space has the highest retail asking sale price ($772 per square foot), while outlet center retail space has the highest retail asking lease price ($113 per square foot per year).

Retail Space For Sale

Type	Properties	Building Size (SF)	Average Price Per SF
Free Standing Bldg	10	126,694	$391
Street Retail	4	33,040	$193
Neighborhood Center	1	22,940	
Retail (Other)	2	19,292	$695
Strip Center	1	17,000	$559
Vehicle Related	2	13,753	$772
Retail Pad	1	6,000	$183
Day Care	1	5,844	$267
Restaurant	1	2,600	$500
Grand Total	**23**	**247,163**	**$414**

Retail Space For Lease

Type	Spaces	Space Available (SF)	Average Asking Rent (per SF/Year)
Retail (Other)	72	477,010	$48
Street Retail	95	337,743	$57
Free Standing Bldg	47	192,887	$38
Neighborhood Center	31	166,512	$36
Strip Center	38	137,781	$38
Community Center	15	78,125	$36
Restaurant	13	63,948	$37
Specialty Center	6	43,497	$75
Power Center	6	35,200	$55
Retail Pad	4	21,814	$66
Outlet Center	2	4,694	$113
Grand Total	**329**	**1,559,211**	**$47**

Source: LoopNet; 4ward Planning, Nov, 2016

Major Shopping Centers:
20-Minute PMA

Name	City	Opened	Classification	GLA (SF)
Walmart Center	Vernon	1963	Community Center	250,000
Rye Ridge Shopping Center	Stamford	1947	Power Center	230,815
Wilton Campus	Vernon	1963	Community Center	284,160
Ridgeway Shopping Center	Stamford	1947	Power Center	369,563
Stamford Town Center	Stamford	1982	Regional Center	767,000
District Center At Waypointe	Norwalk	2014	Lifestyle/Specialty Center	535,000
			Total GLA (SF)	**2,436,538**
			GLA per Person	**7.3**

Based on 2016 data provided by the Directory of Major Malls, there is over 2.4 million square feet of major retail shopping center space (complexes containing at least 200,000 square feet under roof) within the 20-minute drive-time contour. Located approximately two miles away, the Ridgeway Shopping Center and Stamford Town Center have over 1.3 million combined square feet of retail space.

The 20-minute drive-time contour has approximately 7.3 square feet of gross leasable area (GLA) per person, a ratio much lower that within Fairfield County (38 square feet per person) overall.
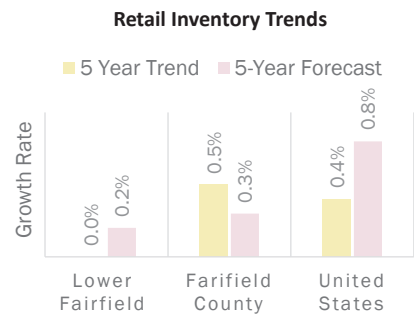

Gross Leasable Area
- Less than 200,000 sq ft
- 200,001 - 300,000
- 300,001 - 500,000
- 500,001 - 800,000

Source: Esri, Directory of Major Malls, Inc., 2016

Retail Inventory: Lower Fairfield County Submarket

According to second-quarter 2016 data provided by Reis, within the Lower Fairfield County retail submarket, there is over 1.4 million square feet of neighborhood shopping center space and nearly 1.9 million square feet of community shopping center space. Although no new retail space has been added within the Submarket since 2006, Reis expects an additional 40,000 square feet of new neighborhood and community shopping center space will be completed within the Submarket over the next five years, growing at a rate of 0.2 percent per year over the next five years (at a rate less than the metro, but similar to the nation).

Retail Inventory Trends

- 5 Year Trend
- 5-Year Forecast

Lower Fairfield: 0.0%, 0.2%
Farifield County: 0.5%, 0.3%
United States: 0.4%, 0.8%

Retail Inventory Trends: Lower Fairfield County Submarket

- Inventory (SF/Units) - Comm./Neigh.
- Completions - Comm./Neigh.
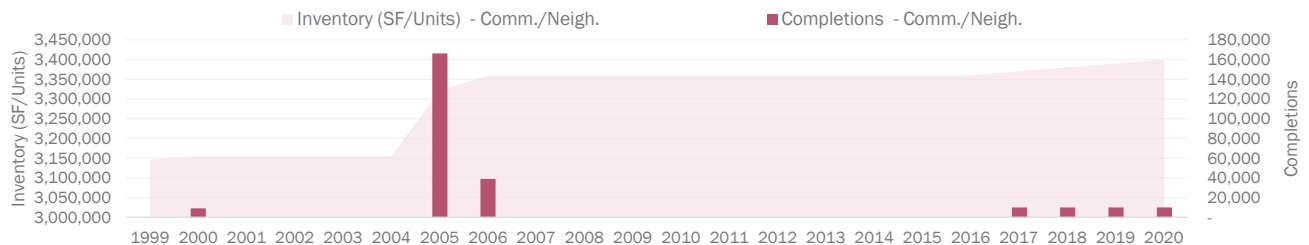
- **Neighborhood Shopping Center**: shopping complexes constructed around a supermarket and/or drug store anchor, with 30,000 to 150,000 square feet of gross leasable area or GLA)
- **Community Shopping Center**: retail property offering a wider range of apparel and general merchandise with GLA between 100,000 to 350,000 square feet, and generally anchored by one to two Big Box stores
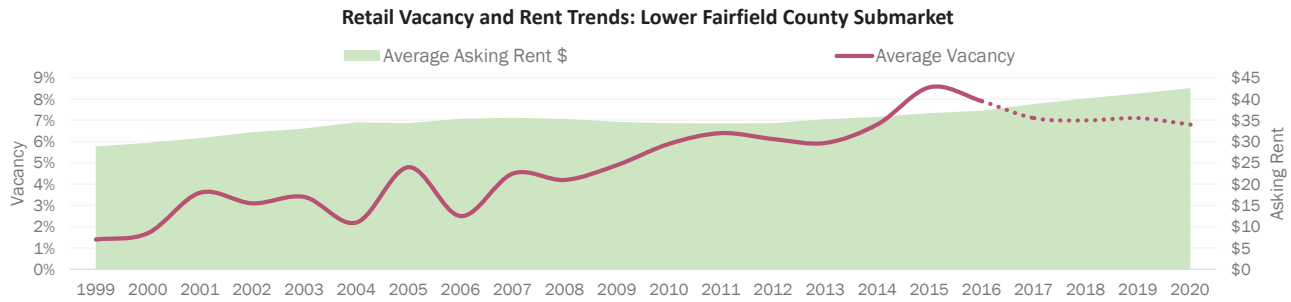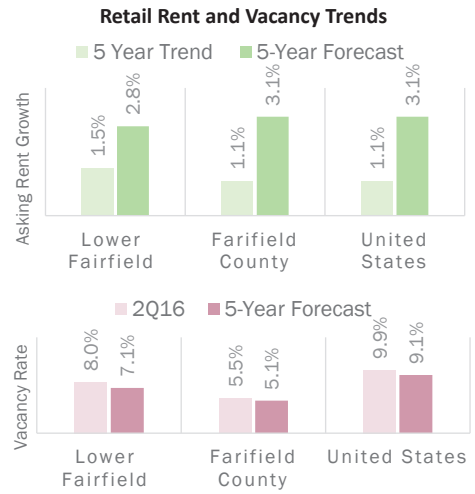
Source: Reis; 4ward Planning 2016

Retail Vacancy and Rent Trends:
Lower Fairfield County Submarket

According to second-quarter 2016 data provided by Reis, average asking rent for neighborhood and community shopping center space within the Submarket is $42.55 per square foot per year. Over the next five years, Reis expects that average asking rents will grow by 2.8 percent per year, a rate comparable to the metro but less than the national average, overall. The average vacancy rate for neighborhood and community shopping center space within the Submarket is 8.0 percent, a rate higher than the County overall (7.1 percent), and is expected to decrease to 7.1 percent over the next five years.

Retail Rent and Vacancy Trends

Legend: 5 Year Trend ▪ 5-Year Forecast

Asking Rent Growth:
- Lower Fairfield: 1.5% / 2.8%
- Fairfield County: 1.1% / 3.1%
- United States: 1.1% / 3.1%

Legend: 2Q16 ▪ 5-Year Forecast

Vacancy Rate:
- Lower Fairfield: 8.0% / 7.1%
- Fairfield County: 5.5% / 5.1%
- United States: 9.9% / 9.1%

Retail Vacancy and Rent Trends: Lower Fairfield County Submarket

Legend: Average Asking Rent $ — Average Vacancy

Source: Reis; 4ward Planning 2016

Estimated 2015 Business Mix

Approximately eight percent of all businesses within the half-mile Study Area are limited-service restaurants (i.e., counter-service), compared to approximately four percent within the 20-minute drive-time contour and Lower Fairfield County Submarket

	Drinking Places - Alcoholic Beverages	Special Food Services	Specialty Food Stores	Beer, Wine & Liquor Stores	Grocery Stores	Health & Personal Care Stores	Limited-Service Eating Places	Full-Service Restaurants
20-Minute Drive	0.4%	1.0%	1.1%	1.4%	2.1%	2.3%	4.6%	10.6%
Lower Fairfield Submarket	0.4%	1.0%	1.1%	1.5%	1.8%	2.4%	4.5%	10.0%
Half-Mile Study Area	0.0%	0.0%	2.7%	2.7%	2.7%	1.3%	8.0%	9.3%

Source: Esri; 4ward Planning Inc., 2016

2016 Retail Gap per Household

According to data provided by Esri, the Lower Fairfield County Submarket is experiencing a "leakage" in selected convenience retail categories (in limited-service eating places and health and personal c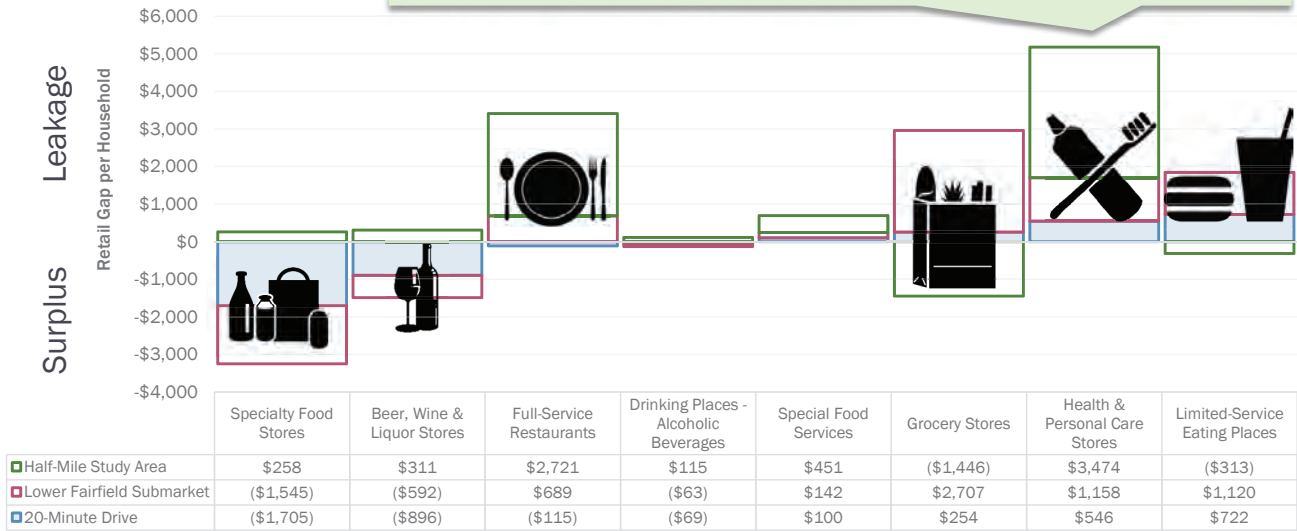are stores, in particular) - meaning that people living within the trade area shop outside the trade area for many of these selected goods and services.

	Specialty Food Stores	Beer, Wine & Liquor Stores	Full-Service Restaurants	Drinking Places - Alcoholic Beverages	Special Food Services	Grocery Stores	Health & Personal Care Stores	Limited-Service Eating Places
☐ Half-Mile Study Area	$258	$311	$2,721	$115	$451	($1,446)	$3,474	($313)
☐ Lower Fairfield Submarket	($1,545)	($592)	$689	($63)	$142	$2,707	$1,158	$1,120
☐ 20-Minute Drive	($1,705)	($896)	($115)	($69)	$100	$254	$546	$722

The 20-minute drive-time contour is also experiencing a "surplus" of retail sales in selected convenience retail categories (in specialty food and beer, wine and liquor stores, in particular) - meaning that some retailers are attracting customers who live outside the trade area.

Source: Esri; 4ward Planning Inc., 2016

Limited- and Full-Service Restaurants

The map to the right illustrates the location of both limited- and full-service restaurants, along with annual sales volume, according to data provided by Esri. As illustrated below, eating establishments located in nearby Stamford or Darien currently have higher sales volumes than those within the half-mile Study Area.
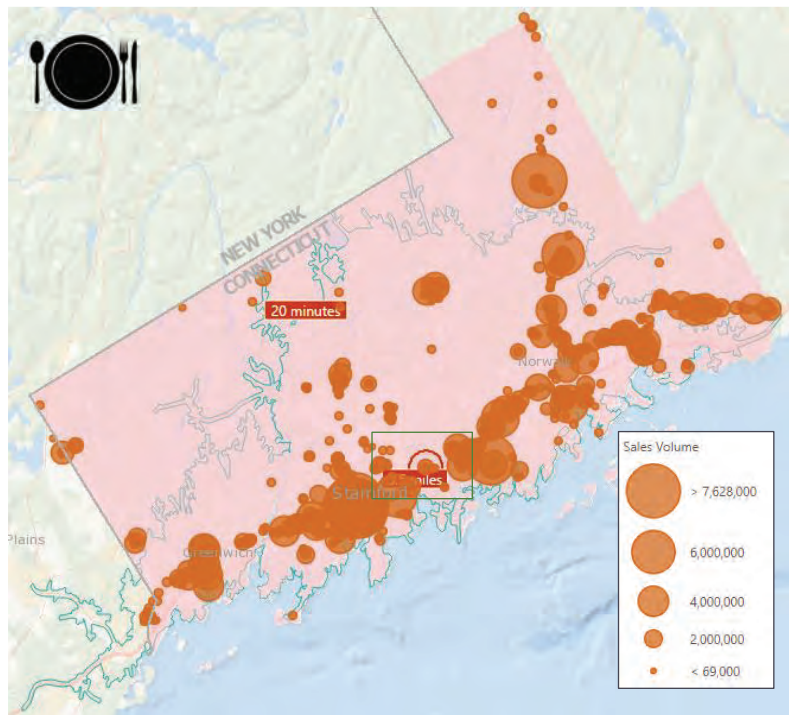
Note: Based on NAICS-Based Code 445110   Source: Esri, 4ward Planning Inc., 2016

Health and Personal Care Stores

The map to the right illustrates the location of health and personal care stores, along with annual sales volume, according to data provided by Esri. As illustrated below, there is one Walgreens store located inside the half-mile Study Area. The Rusk beauty stores in Stamford have the highest volume of sales in the Submarket.
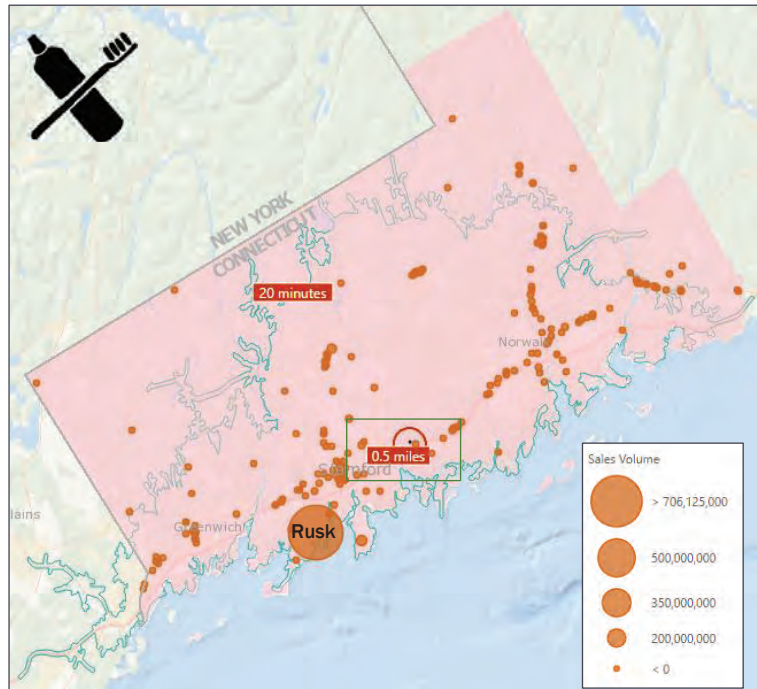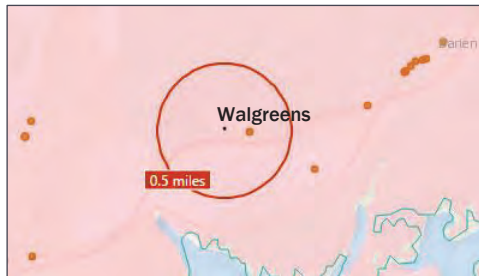
Note: Based on NAICS-Based Code 4461   Source: Esri, 4ward Planning Inc., 2016

Grocery Stores

The map to the right illustrates the location of grocery stores, along with annual sales volume, according to data provided by Esri. As illustrated below, there are two grocery stores located inside the half-mile Study Area and a larger Wegmans located just over a mile from the station site.
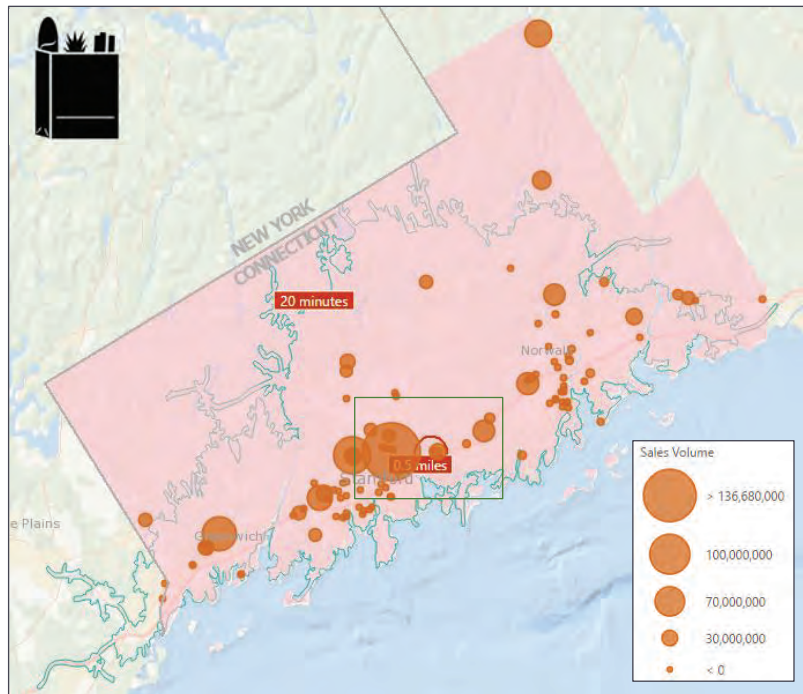
Note: Based on NAICS-Based Code 445110   Source: Esri, 4ward Planning Inc., 2016

Methodology: Retail Metric Assumptions

- 4ward Planning utilized various residential and commercial data sources to conduct a retail gap/leakage analysis for the half-mile Study Area and the 20-minute drive-time contour (PMA).

- Esri retail marketplace data was the primary source for information on existing retail demand and sales for the Study Area.

- Retail metrics for average sales per square foot and size by category was adapted from data provided by BizStats, an online retail data service, to reflect currently observed neighborhood-retail supply trends. Retail metric assumptions are also presented in the table to the right.

- Accordingly, 4ward Planning developed a rough percent capture estimate for new commercial and/or mixed-use development demand within the station site.

Retail Category	Avg. Sales/SF	Average Size	Est. Percent Capture
Food & Beverage Stores			
Grocery Stores	$400	45,000	70%
Specialty Food Stores	$600	30,000	70%
Beer, Wine & Liquor Stores	$400	8,000	70%
Health & Personal Care Stores	$1,000	17,000	90%
Food Services & Drinking Places			
Full-Service Restaurants	$530	6,000	75%
Limited-Service Eating Places	$550	3,400	80%
Special Food Services	$550	4,000	75%
Drinking Places - Alcoholic Beverages	$500	2,500	80%

Source: BizStats; 4ward Planning Inc., 2016

Existing Retail Store Capture Estimates: Study Areas

Based on the retail metric assumptions outlined on the following page, the table below compares existing supportable square-foot and store-equivalent estimates by selected retail category for the half-mile Study Area and 20-minute drive-time contour. Retail estimates presented in red represent retail categories experiencing a "surplus" of retail sales (supply exceeds the area's demand), while estimates in green represent retail categories experiencing a "leakage" of retail sales (where demand exceeds supply). Within the half-mile Study Area, there is sufficient retail demand to represent a potential opportunity for a new full-service restaurant to enter the trade area, or for an existing restaurant to extend their marketing outreach to accommodate the excess demand. Within the larger 20-minute drive-time contour, there is unmet demand within a variety of retail categories (limited-service restaurants, in particular), which could be potentially captured within the Study Area.

	Half-Mile Radius		20-Minute Drive	
	Supportable SF	Store Equivalent	Supportable SF	Store Equivalent
Grocery Stores	(2,872)	(0)	55,537	1
Specialty Food Stores	342	0	(248,090)	(8)
Beer, Wine & Liquor Stores	794	0	(251,541)	(31)
Health & Personal Care Stores	3,549	0	61,306	4
Full-Service Restaurants	4,371	1	(20,223)	(3)
Limited-Service Eating Places	(516)	(0)	131,033	39
Special Food Services	698	0	17,062	4
Drinking Places - Alcoholic Beverages	209	0	(13,828)	(6)
	6,574	1	(268,744)	(1)

Source: 4ward Planning Inc., 2016

Regional Attractions & Lodging

ECONOMIC AND REAL ESTATE ANALYSIS FOR SUSTAINABLE LAND USE OUTCOMES ™

4WARD PLANNING

DRAFT: FOR INTERNAL REVIEW ONLY

Key Findings: Regional Attractions & Lodging

High traffic volume along I-95

Hotel developers pay close attention to traffic counts because high levels of traffic can drive significant "walk-in" and leisure traveler business. The most recent data provided by Esri shows that average daily traffic volumes along the portion of Interstate 95 that is located within the half-mile Study Area range from 144,100 to 152,100 vehicles per day.

Jobs, attractions, and hotels are clustered in Stamford

Employment and regional attraction clusters can drive hotel demand from both business and leisure travelers. According to data provided by the U.S. Census and Esri, there are approximately 181,288 primary jobs within a 10-mile radius (representing the approximate 20-minute PMA); 500 arts, entertainment, and recreation businesses; and 44 hotels within the 20-minute PMA. Nearly half of all hotels are located within the City of Stamford alone, which also contains 40 percent of all primary jobs and 34 percent of the PMA's art, entertainment, and recreation businesses.
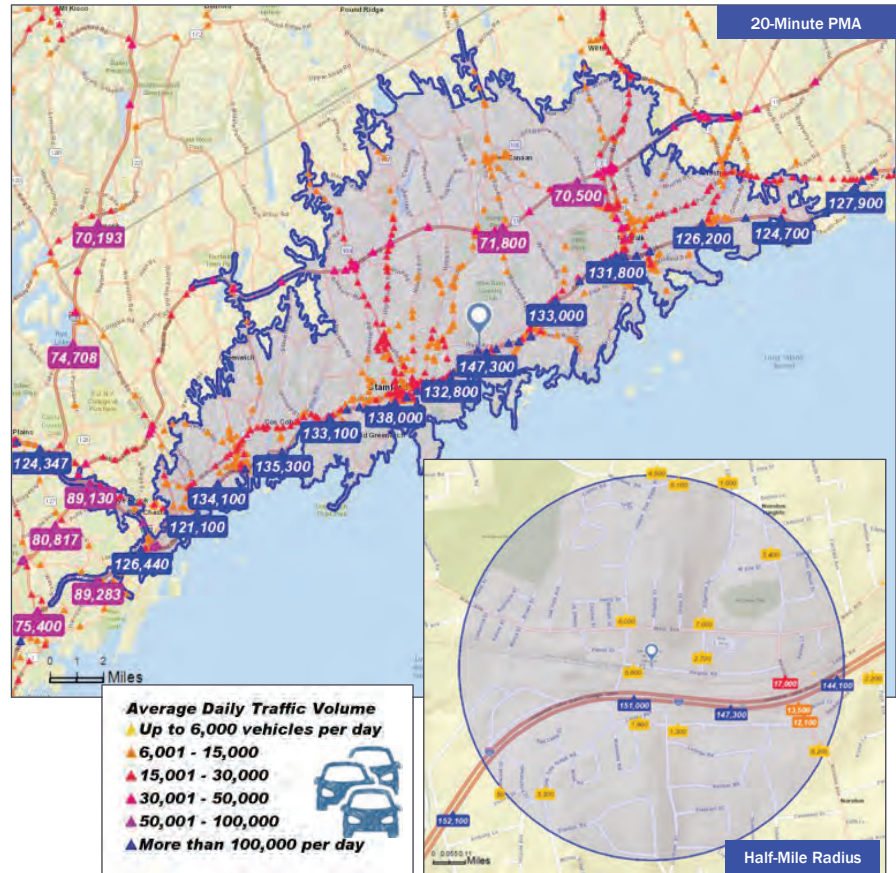
No hotels in immediate area

Despite high traffic volumes, the existing clustering pattern of hotels within the PMA suggest that there may not be sufficient hotel demand within the Study Area.

Traffic Counts

High levels of traffic can drive significant "walk-in" and leisure traveler business. According to traffic count data provided by Esri, average daily traffic volumes within the 20-minute PMA (right) are highest along Interstate 95, where average daily traffic volumes are well over 100,000 vehicles per day. Specifically within the half-mile Study Area, average daily traffic volumes range from 144,100 to 152,100 vehicles per day along Interstate 95. These high traffic volumes might typically be attractive to a potential hotel developer.

Source: Esri, 4ward Planning Inc., Nov 2016

20-Minute PMA

Half-Mile Radius

Average Daily Traffic Volume
- ▲ Up to 6,000 vehicles per day
- ▲ 6,001 - 15,000
- ▲ 15,001 - 30,000
- ▲ 30,001 - 50,000
- ▲ 50,001 - 100,000
- ▲ More than 100,000 per day

Employment Centers

Since companies that receive regular visits from vendors, customers, consultants, and others can be a crucial component of hotel revenue, identifying employment clusters can help predict unmet hotel demand in a given area. The map to the right illustrates the location and size of employment clusters within the 10-mile radius, according to data provided by the U.S. Census Bureau.

In 2014, there were approximately 181,288 primary jobs located within a 10-mile radius, with 71,700 of these jobs (40 percent) located within the City of Stamford and just 265 of these jobs located within the half-mile Study Area.
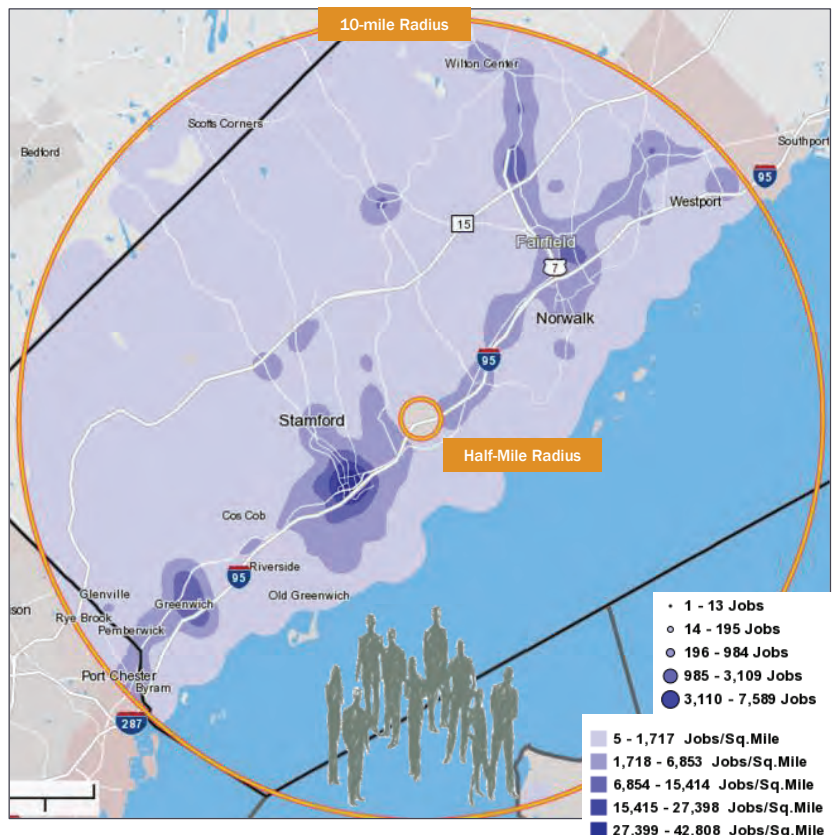
Source: OnTheMap, 4ward Planning Inc., Nov 2016

10-mile Radius

Half-Mile Radius

- · 1 - 13 Jobs
- ○ 14 - 195 Jobs
- ○ 196 - 984 Jobs
- ● 985 - 3,109 Jobs
- ● 3,110 - 7,589 Jobs

- 5 - 1,717 Jobs/Sq.Mile
- 1,718 - 6,853 Jobs/Sq.Mile
- 6,854 - 15,414 Jobs/Sq.Mile
- 15,415 - 27,398 Jobs/Sq.Mile
- 27,399 - 42,808 Jobs/Sq.Mile

Arts, Entertainment, and Recreation

Identifying local clusters of art, entertainment, and recreation attractions can also help predict unmet hotel demand in a given area, as regional overnight visitors can be another driver of hotel demand. As presented in the map and chart below, and based on data provided by Esri, there are approximately 500 arts, entertainment, and recreation businesses within the 20-minute PMA - with 34 percent of these businesses located within the City of Stamford alone. Approximately 58 percent of these businesses (292 businesses) are amusement, gambling, and recreation businesses; 30 percent (151 businesses) are performing arts, spectator sports, and related businesses; and 11 percent are museums, historical sites, and similar institutions.

City	Amusement, Gambling, and Recreation Industries	Museums, Historical Sites, and Similar Institutions	Performing Arts, Spectator Sports, and Related Industries	Grand Total
Stamford	90	15	65	170
Norwalk	70	14	28	112
Greenwich	26	8	10	44
New Canaan	16	5	16	37
Darien	25	3	4	32
Westport	19	4	7	30
Port Chester	12	2	3	17
Rye	7	3	4	14
Old Greenwich	7	2	4	13
Cos Cob	9	1		10
Rye Brook	5		2	7
Wilton	3		3	6
Riverside	1		4	5
West Harrison	1			1
Harrison			1	1
Greens Farms	1			1
Grand Total	292	57	151	500
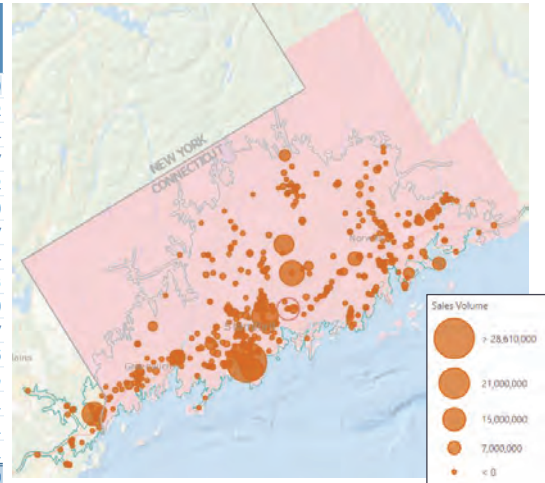
Note: Based on NAICS-Based Code 711   Source: Esri, 4ward Planning Inc., 2016

Hotels

As illustrated in the map to the right, and based on data provided by Esri, there are approximately 44 hotels within the 20-minute PMA. Nearly half of all hotels (21 hotels) are located within the City of Stamford alone, which also contains 40 percent of all primary jobs and 34 percent of the PMA's arts, entertainment, and recreation businesses.

The existing clustering pattern of hotels within the PMA suggest that there may not be sufficient hotel demand within the Study Area.

City	Businesses	Sales Volume
Stamford	21	$231,192,000
Norwalk	12	$63,323,000
Old Greenwich	2	$48,280,000
Greenwich	4	$14,915,000
Westport	2	$14,523,000
New Canaan	2	$4,709,000
Riverside	1	$3,925,000
Grand Total	44	$380,867,000
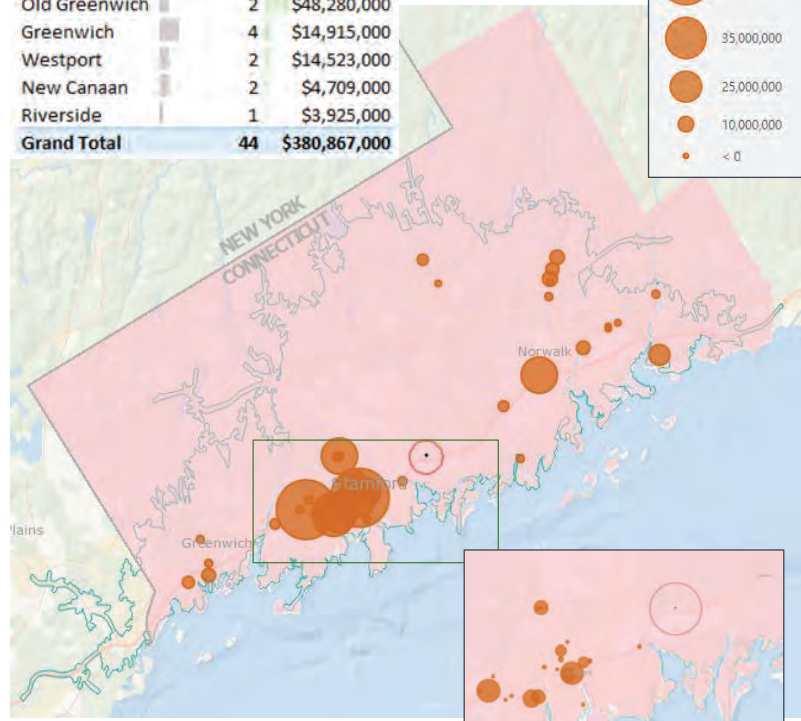
Note: Based on NAICS-Based Code 721110   Source: Esri, 4ward Planning Inc., 2016

APPENDIX

Detailed Tapestry Segments

Tapestry Segments: *Top Tier (24.9% of PMA Households)*

Profile Overview

The residents of the wealthiest Tapestry market, *Top Tier*, earn more than three times the U.S. household income. They have the purchasing power to indulge any choice, but what do their hearts' desire? Aside from the obvious expense for the upkeep of their lavish homes, these consumers select upscale salons, spas, and fitness centers for their personal well-being and shop at high-end retailers for their personal effects. Whether short or long, domestic or foreign, their frequent vacations spare no expense. Residents fill their weekends and evenings with opera, classical music concerts, charity dinners, and shopping. These highly educated professionals have reached their corporate career goals. With an accumulated average net worth of over 1.5 million dollars and income from a strong investment portfolio, many of these older residents have moved into consulting roles or operate their own businesses.

Neighborhood Characteristics

- Married couples without children or married couples with older children dominate this market.
- Housing units are owner-occupied with the highest home values - and above average use of mortgages.
- Neighborhoods are older and located in the suburban periphery of the largest metropolitan areas, especially along the coasts.

Socio-Economic Traits

- *Top Tier* is a highly educated, successful consumer market: more than one in three residents has a postgraduate degree.
- Annually, they earn more than three times the U.S. median household income, primarily from wages and salary, but also self-employment income (Index 177) and investments (Index 242).
- These are the nation's wealthiest consumers. They hire financial advisers to manage their diverse investment portfolios, but stay abreast of current financial trends and products.
- Socially responsible consumers who aim for a balanced lifestyle, they are goal-oriented and hardworking, but make time for their kids or grandkids, and maintain a close-knit group of friends.
- These busy consumers seek variety in life. They take an interest in the fine arts; read to expand their knowledge; and consider the Internet, radio, and newspapers as key media sources.
- They regularly cook their meals at home, attentive to good nutrition and fresh organic foods.

Source: Esri Tapestry Segmentation, 2016

Tapestry Segments: *International Marketplace (16.2% of PMA Households)*

Profile Overview

International Marketplace neighborhoods are a rich blend of cultures, found in densely populated urban and suburban areas, almost entirely in the Middle Atlantic (especially in New York and New Jersey) or in California. Almost 40% of residents are foreign-born; 1 in 4 households are linguistically isolated. Young, Hispanic families renting apartments in older buildings dominate this market; about two-fifths of households have children. Over one-fifth of households have no vehicle - typically those living in the city. Workers are mainly employed in white-collar and service occupations (especially food service and building maintenance). One-fifth of workers commute using public transportation, and more walk or bike to work than expected. Median household income is lower, but home values are higher, reflecting the metropolitan areas in which they live. Consumers are attentive to personal style; purchases reflect their youth and their children. True to their culture, residents visit Spanish language websites, watch programs on Spanish TV networks, and listen to Hispanic music.

Neighborhood Characteristics

- Densely settled urban periphery of large metropolitan areas, East and West Coasts.
- Young, diverse family market: 41% families with children (married couple or single parent), plus married couples without children and a notable proportion of multigenerational households (Index 174).
- Approximately 72% of householders in multiunit apartment buildings, 30% in 2–4 unit structures (Index 375).
- Majority of apartments built before 1970 (68%), 30% built before 1940 (Index 223).
- 1 or 2 vehicles for two-thirds of households; 22% have no vehicle (Index 246).

Socio-Economic Traits

- Almost 40% of the population were born abroad; almost 1 in 4 households have residents who do not speak English.
- 29% have no high school diploma (Index 201); 29% have a high school diploma only (Index 101).
- Labor force participation rate is 68% and higher than the U.S. average; unemployment is also higher, at 10.9%.
- These are hard-working consumers, striving to get ahead; style matters to them.
- Preserving the environment and being in tune with nature are very important.
- Media used most often is the Internet

Source: Esri Tapestry Segmentation, 2016

Tapestry Segments: *City Lights (16.0% of PMA Households)*

Profile Overview

City Lights, a densely populated urban market, is the epitome of equality. The wide-ranging demographic characteristics of residents mirror their passion for social welfare and equal opportunity. Household types range from single-person to married-couple families, with and without children. A blend of owners and renters, single-family homes and town homes, midrise and high-rise apartments, these neighborhoods are both racially and ethnically diverse. Many residents have completed some college or a degree, and they earn a good income in professional and service occupations. Willing to commute to their jobs, they work hard and budget well to support their urban lifestyles, laying the foundation for stable financial futures.

Neighborhood Characteristics

- Half of the homes are single-family residences or townhomes.
- Tenure is 50-50: half of households are owned and half are rented. Median home value (Index 182) and average gross rent (Index 129) exceed U.S. values.
- Households include families, both married couples and single parents, as well as singles. The distribution is
- similar to the U.S., with slightly more single-person households (Index 109).
- Housing is older in this market: 2 out of 3 homes were built before 1970.
- Most households own one vehicle, but public transportation is still a necessity for daily commutes.

Socio-Economic Traits

- *City Lights* residents earn above average incomes, but lag the nation in net worth.
- Labor force participation exceeds the U.S. average (Index 105). Residents work hard in professional and service occupations but also seek to enjoy life.
- These consumers save for the future, often to achieve their dream of home ownership. They often engage in discussion about financial products and services among their peers. They earn dividend incomes from their portfolios but steer away from risky investments.
- These consumers are price savvy but will pay for quality brands they trust.
- Reflecting the diversity of their neighborhoods, residents stand by their belief in equal opportunity.
- Attuned to nature and the environment, and when they can, purchase natural products.

Source: Esri Tapestry Segmentation, 2016

Tapestry Segments: *Urban Chic (11.5% of PMA Households)*

Profile Overview

Urban Chic residents are professionals that live a sophisticated, exclusive lifestyle. Half of all households are occupied by married-couple families and about 30% are singles. These are busy, well-connected, and well-educated consumers - avid readers and moviegoers, environmentally active, and financially stable. This market is a bit older, with a median age of almost 43 years, and growing slowly, but steadily.

Neighborhood Characteristics

- More than half of *Urban Chic* households include married couples; 30% are singles.
- Average household size is slightly lower at 2.37.
- Homes range from pre-war to recent construction, high-rise to single-family. Over 60% of householders live in single-family homes; more than one in four live in multiunit structures.
- Two-thirds of homes are owner-occupied.
- Major concentrations of these neighborhoods are found in the suburban periphery of large metropolitan areas on the California coast and along the East Coast.
- Most households have two vehicles available. Commuting time is slightly longer, but commuting by bicycle is common (Index 236).

Socio-Economic Traits

- Well-educated, more than 60% of residents hold a bachelor's degree or higher (Index 223).
- Unemployment rate is well below average at 5% (Index 62); labor force participation is higher at 69%.
- Residents are employed in white-collar occupations - in managerial, technical, and legal positions.
- Over 40% of households receive income from investments.
- Environmentally aware, residents actively recycle and maintain a "green" lifestyle.
- These busy, tech-savvy residents use PCs extensively for an array of activities such as shopping, banking, and staying current - a top market for Apple computers.

Source: Esri Tapestry Segmentation, 2016

Tapestry Segments: *Pleasantville (8.0% of PMA Households)*

Profile Overview

Prosperous domesticity best describes the settled denizens of *Pleasantville*. Situated principally in older housing in suburban areas in the Northeast (especially in New York and New Jersey), and secondarily in the West (especially in California), these slightly older couples move less than any other market. Many couples have already transitioned to empty nesters; many are still home to adult children. Families own older, single-family homes and maintain their standard of living with dual incomes. These consumers have higher incomes and home values and much higher net worth (Index 400). Older homes require upkeep; home improvement and remodeling projects are a priority - preferably done by contractors. Residents spend their spare time participating in a variety of sports or watching movies. They shop online and in a variety of stores, from upscale to discount, and use the Internet largely for financial purposes.

Neighborhood Characteristics

- Suburban periphery of large metropolitan areas, primarily in Middle Atlantic or Pacific states.
- Most homes owned (and mortgaged) (Index 141).
- Households composed of older married-couple families, more without children under 18, but many with children over 18 years (Index 141).
- Older, single-family homes: two-thirds built before 1970, close to half from 1950 to 1969.
- One of the lowest percentages of vacant housing units at 4.7% (Index 42).
- Suburban households with 1 or 2 vehicles and a longer travel time to work (Index 119).

Socio-Economic Traits

- Education: 64% college educated, 34% with a bachelor's degree or higher.
- Low unemployment at 7.8%; higher labor force participation rate at 67% (Index 107); higher proportion of HHs with 2 or more workers (Index 116).
- Many professionals in finance, information/technology, or management.
- Median household income denotes affluence, with income primarily from salaries, but also from investments (Index 131) or Social Security (Index 108) and retirement income (Index 124).
- Not cost-conscious, these consumers are willing to spend more for quality and brands they like.
- Prefer fashion that is classic and timeless as opposed to trendy.
- Use all types of media equally (newspapers, magazines, radio, Internet, TV).

Source: Esri Tapestry Segmentation, 2016

Tapestry Segments: *Enterprising Professionals (4.9% of PMA Households)*

Profile Overview

Enterprising Professionals residents are well-educated and climbing the ladder in STEM (science, technology, engineering, and mathematics) occupations. They change jobs often and therefore choose to live in condos, town homes, or apartments; many still rent their homes. The market is fast-growing, located in lower-density neighborhoods of large metro areas. Enterprising Professionals residents are diverse, with Asians making up over one-fifth of the population. This young market makes over one and a half times more income than the U.S. median, supplementing their income with high-risk investments. At home, they enjoy the Internet and TV on high-speed connections with premier channels and services.

Neighborhood Characteristics

- Almost half of households are married couples, and 30% are single-person households.
- Housing is a mixture of suburban single-family homes, row homes, and larger multiunit structures.
- Close to three-quarters of the homes were built after 1980; 22% are newer, built after 2000.
- Renters make up nearly half of all households.

Socio-Economic Traits

- Median household income is one and a half times that of the U.S.
- Over half hold a bachelor's degree or higher.
- Early adopters of new technology in hopes of impressing peers with new gadgets.
- Enjoy talking about and giving advice on technology.
- Half have smartphones and use them for news, accessing search engines, and maps.
- Work long hours in front of a computer.
- Strive to stay youthful and healthy, eat organic and natural foods, run and do yoga.
- Buy name brands and trendy clothes online.

Source: Esri Tapestry Segmentation, 2016

Tapestry Segments: *Metro Renters (3.5% of PMA Households)*

Profile Overview

Residents in this highly mobile and educated market live alone or with a roommate in older apartment buildings and condos located in the urban core of the city. This is one of the fastest growing segments; the popularity of urban life continues to increase for consumers in their late twenties and thirties. *Metro Renters* residents income is close to the U.S. average, but they spend a large portion of their wages on rent, clothes, and the latest technology. Computers and cell phones are an integral part of everyday life and are used interchangeably for news, entertainment, shopping, and social media. *Metro Renters* residents live close to their jobs and usually walk or take a taxi to get around the city.

Neighborhood Characteristics

- Over half of all households are occupied by singles, resulting in the smallest average household size among the markets: 1.66.
- Neighborhoods feature 20+ unit apartment buildings, typically surrounded by offices and businesses.
- Renters occupy close to 80% of all households.
- Public transportation, taxis, walking, and biking are popular ways to navigate the city.

Socio-Economic Traits

- Well-educated consumers, many currently enrolled in college.
- Very interested in the fine arts and strive to be sophisticated; value education and creativity.
- Willing to take risks and work long hours to get to the top of their professions.
- Become well-informed before purchasing the newest technology.
- Prefer environmentally safe products.
- Socializing and social status very important.

Source: Esri Tapestry Segmentation, 2016

Tapestry Segments: *Young and Restless (2.9% of PMA Households)*

Profile Overview

Gen Y comes of age: well-educated young workers, some of whom are still completing their education, are employed in professional/technical occupations, as well as sales and office/administrative support roles. These residents are not established yet, but are striving to get ahead and improve themselves. This market ranks in the top five for renters, movers, college enrollment, and labor force participation rate. Almost 1 in 5 residents move each year. Close to half of all householders are under the age of 35, the majority living alone or in shared nonfamily dwellings. Median household income is still below the U.S. average. Smartphones are a way of life, and Internet use is extensive. *Young and Restless* consumers are diverse, favoring densely populated neighborhoods in large metropolitan areas; over 50% are located in the South (almost a fifth in Texas), with the rest chiefly in the West and Midwest.

Neighborhood Characteristics

- One of the youngest markets: Half the householders under age 35; median age: 29.4.
- Primarily single-person households (Index 163) with some shared households (Index 201).
- Highly mobile market, beginning careers and changing addresses frequently.
- Naturally, one of the top five renter markets (Index 237).
- Apartment rentals popular: 45% in 5–19 unit buildings (Index 507), 26% in 20+ unit buildings (Index 325).
- Majority of housing built in 1970 or later (83%).

Socio-Economic Traits

- Education completed: 2 out of 3 have some college, an associate's degree, or a bachelor's degree or higher. Education in progress: almost 15% are still enrolled in college (Index 185).
- Labor force participation rate is exceptionally high at 75.4%; unemployment is low at 7.8%.
- These are careful shoppers, aware of prices, and demonstrate little brand loyalty.
- They like to be the first to try new products, but prefer to do research before buying the latest electronics.
- Most of their information comes from the Internet and television, rather than traditional media.
- Carry their cell phone everywhere they go.

Source: Esri Tapestry Segmentation, 2016

Tapestry Segments: *Golden Years (2.7% of PMA Households)*

Profile Overview

Independent, active seniors nearing the end of their careers or already in retirement best describes *Golden Years* residents. This market is primarily singles living alone or empty nesters. Those still active in the labor force are employed in professional occupations; however, these consumers are actively pursuing a variety of leisure interests - travel, sports, dining out, museums, and concerts. They are involved, focused on physical fitness, and enjoying their lives. This market is smaller, but growing, and financially secure.

Neighborhood Characteristics

- This older market has a median age of 51 years and a disproportionate share (nearly 30 percent) of residents aged 65 years or older.
- Single-person households (over 40 percent) and married-couple families with no children (one-third) dominate these neighborhoods; average household size is low at 2.05 (Index 79).
- Most of the housing was built after 1970; approximately 43 percent of householders live in single-family homes and 42 percent in multiunit dwellings.
- These neighborhoods are found in large metropolitan areas, outside central cities, scattered across the U.S.

Socio-Economic Traits

- *Golden Years* residents are well-educated - 20% have graduate or professional degrees, 26% have bachelor's degrees, and 26% have some college credits.
- Unemployment is low at 7% (Index 76), but so is labor force participation at 55% (Index 88), due to residents reaching retirement.
- Median household income is higher in this market, more than $61,000. Although wages still provide income to 2 out of 3 households, earned income is available from investments (Index 172), Social Security benefits (Index 153), and retirement income (Index 149).
- These consumers are well-connected: Internet access is used for everything from shopping or paying bills to monitoring investments and entertainment.
- They are generous supporters of the arts and charitable organizations.
- They keep their landlines and view cell phones more as a convenience.

Source: Esri Tapestry Segmentation, 2016

Tapestry Segments: *Savvy Suburbanites (1.6% of PMA Households)*

Profile Overview

Savvy Suburbanites residents are well-educated, well-read, and well-capitalized. Families include empty nesters and empty nester wannabes, who still have adult children at home. Located in older neighborhoods outside the urban core, their suburban lifestyle includes home remodeling and gardening plus the active pursuit of sports and exercise. They enjoy good food and wine, plus the amenities of the city's cultural events.

Neighborhood Characteristics

- Established neighborhoods (most built between 1970 and 1990) found in the suburban periphery of large metropolitan markets.
- Married couples with no children or older children; average household size is 2.83.
- 91% owner-occupied; 71% mortgaged (Index 156).
- Primarily single-family homes, with a median value of $311,000 (Index 175).
- Low vacancy rate at 4.5%.

Socio-Economic Traits

- Education: 48.1% college graduates; 76.1% with some college education.
- Low unemployment at 5.8% (Index 67); higher labor force participation rate at 68.5% (Index 109) with proportionately more two-worker households at 65.4%, (Index 122).
- Well-connected consumers that appreciate technology and make liberal use of it for everything from shopping and banking to staying current and communicating.
- Informed shoppers that do their research prior to purchasing and focus on quality

Source: Esri Tapestry Segmentation, 2016

For more information, please contact:

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APPENDIX C - VISIONING & PUBLIC MEETING MINUTES

MEETING SNAPSHOT

Community Visioning Session

May 11, 2017, 7:00 p.m.

There were over 50 members of the public in attendance. Sign in sheet attached.

Purpose:

The Western Connecticut Council of Governments (WestCOG), with participation from the Town of Darien and Connecticut Department of Transportation, is currently completing a transportation study around the train station in Noroton Heights. The purpose of the Noroton Heights Station Area Study is to identify and address transportation needs in the study area relative to safety, traffic operations, accessibility, pedestrian and bicycle facilities, and parking.

An important component of the study process is public outreach to Darien residents, business owners, commuters and local stakeholders who are concerned about transportation in Noroton Heights.

A public meeting was held to provide interested citizens an opportunity to learn about the study purpose, initial study findings, and share their insights and concerns with the project team.

Topics/Points Raised:

Presentation

The NV5 consultant team delivered a presentation focusing on existing conditions at the Noroton Heights Station Study Area, as well as Mobility and Parking Best Practices around Transit Stations and Transit Oriented Developments. An overview was provided of the information and data that has been collected to date including socio-economic, real estate, traffic, transit, and parking data. The information was presented in a manner to provide context and background to the workshop attendees and inform potential recommendations.

After a detailed presentation, participants were asked to work in groups with a facilitator from the project team. The groups worked collaboratively to identify issues and opportunities for improving parking and mobility in and around the station area. The issues covered included, but were not limited to parking, roadway improvements and station improvements, particularly related to pedestrian and bicycle access.

- Station Improvements - Building Location, Access, Circulation Improvements
- Parking - Allocation of Spaces, physical configuration, management strategies
- Local roadway improvements - Pedestrian and Bicycler Network; Connections to Adjacent Developments

Noroton Heights, Darien
Train Station Area Study

Issues/Opportunities That appeared to gain consensus and should be assessed/developed further:

1. Parking
    a. Parking deck
        i. Most participants were not in favor of adding a garage
        ii. If a deck were considered and warranted, then Area 2 is most desirable location, since it can blend with the terrain and include a new pedestrian bridge connecting the platforms
    b. Redistribute the regulations of spaces to match the demands of permits vs pay-per-day parking opportunities
    c. Expand drop-off areas
    d. Provide preferred parking for carpools
    e. Provide expanded covered bicycle/motorcycle parking area
    f. Additional bicycle parking needed
    g. Include Electric Vehicle (EV) charging stations

2. Roadway Improvements
    a. Pedestrian walkway is needed between Parking Area 3 and station
    b. Improve traffic flow on Noroton Ave – currently very congested
    c. Consider the use of roundabouts to move more vehicles through some of the congested areas
    d. Create walkway around Post 53 between Parking Area 3 and Noroton Ave
    e. Improve sidewalks on Edgerton

3. Station Improvements
    a. Make station centrally located; Align station with Edgerton Ave
    b. Some suggested an improved and expanded pedestrian bridge with amenities, similar to Stanford. The expanded bridge could also function as the new Station building. The existing station building could be demolished, renovated, or converted into another use (e.g. café).
    c. Improve ADA Access throughout the station, including crossing between platforms, access to/from Hollow Tree Ridge Road, and throughout parking areas and adjacent streets
    d. Additional elevated track crossing east of the station
    e. Improve and expand platform canopies
    f. Improve lighting and security

Noroton Heights, Darien
Train Station Area Study

Other Issues/Concerns/Opportunities that were identified at the various workshop Charrette Groups:

- Sustainable Infrastructure
    - Integrate green infrastructure to manage storm water with any changes to the station parking areas
    - Use solar canopies to shade the platform and parking areas
    - Consider designating an automated vehicle drop-off area
- Enforcement
    - Improve enforcement of speeding around the station area
    - Improve enforcement and collection of parking fees
- Improve Real time messaging with train delay information
- Shuttle between the station and off-site parking and Parking Area 3
- Investigate feasibility of Bike Share system
- Consider affordable housing over parking areas

The issues raised during the reporting back period, after the brainstorming session, resulted in the list of priorities below.
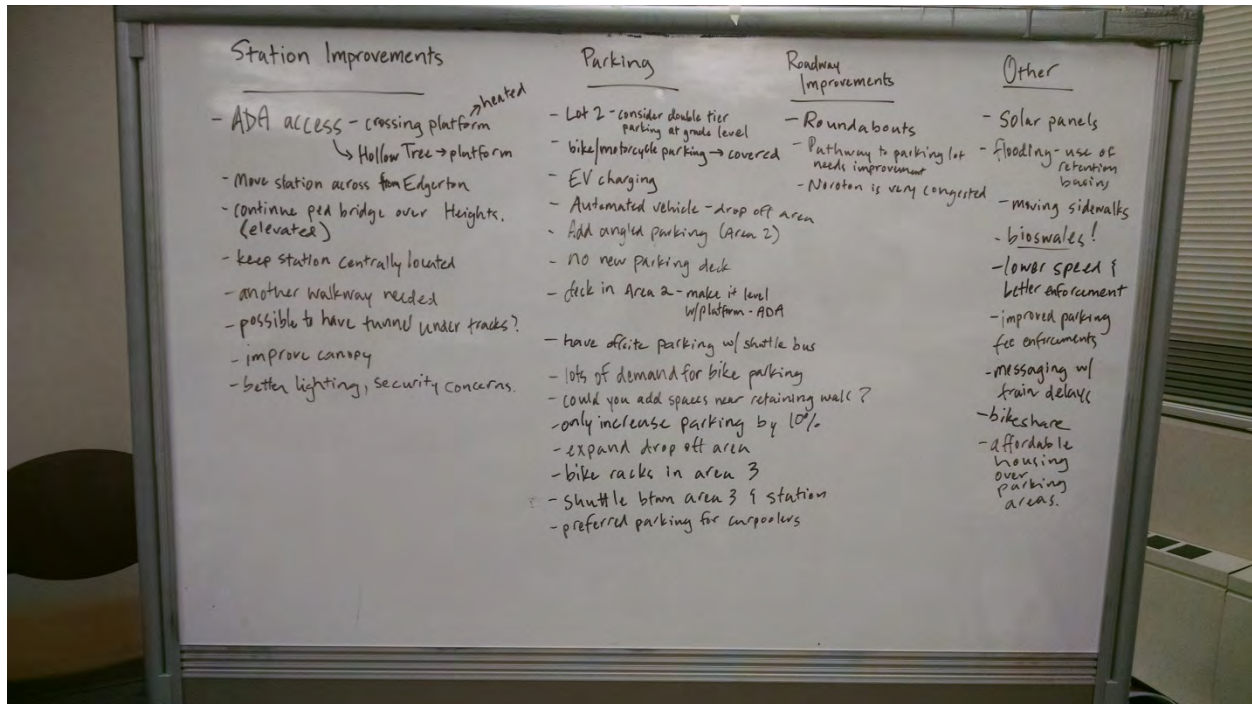
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WESTCOG

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**Noroton Heights, Darien
Train Station Area Study**

MEETING SNAPSHOT

Public Meeting #2

January 18, 2018, 7:00 p.m.

There were over 25 members of the public in attendance. Sign in sheets attached.

Purpose:

The Western Connecticut Council of Governments (WestCOG), with participation from the Town of Darien and Connecticut Department of Transportation, is currently completing a transportation study around the train station in Noroton Heights. The purpose of the Noroton Heights Station Area Study is to identify and address transportation needs in the study area relative to safety, traffic operations, accessibility, pedestrian and bicycle facilities, and parking.

An important component of the study process is public outreach to Darien residents, business owners, commuters and local stakeholders who are concerned about transportation in Noroton Heights.

A second public meeting was held to provide interested citizens an opportunity to learn about the results of the initial visioning session and preliminary implementation alternatives, and then share their thoughts on possible alternatives during roundtable discussions.

Topics/Points Raised:

Presentation

The NV5 consultant team delivered a presentation focusing on the results of the visioning session (which were organized around parking concepts, roadway improvements, station improvements, and market trends) held on 5/11/2017, and the resulting development of preliminary implementation alternatives.

After a detailed presentation, participants were asked to work in groups with a facilitator from the project team. The groups worked collaboratively to identify alternatives covering the following topics:

- Station Alternatives
- Heights Road
- Transit Oriented Development
- Gateways and Wayfinding
- Other

Noroton Heights, Darien
Train Station Area Study

Implementation Alternatives that appeared to gain consensus and should be assessed/developed further:

1. Station Alternatives (Station Design)
    a. Make sure platforms are covered
    b. Need functional space for waiting
    c. Location of building on Heights Road is not ideal
    d. Overpass should be left in its current location but move building to other side
    e. Provide heated mini-shelters along platform

2. Heights Road
    a. Examine utilizing parallel parking in lot in front of deli to allow for continuous sidewalk on the north side of Heights Road
    b. Need more lighting (solar)
    c. Need more crosswalks, particularly one just to the east of the deli where there will be a direct crossing through the development to West Avenue
    d. Need more vegetation
    e. Enthusiastic support for shared street concepts. The group suggested using stamped asphalt, which is plow friendly.
    f. Slow cars and make roadway safer for cyclists

3. Transit Oriented Development
    a. See how planned developments work before determining what needs to be developed on remaining parcels
    b. Suggestions for two remaining parcels on Heights Road and Edgerton Street
        i. Open Space
        ii. Starbucks
        iii. Restaurant
    c. Whatever is built on remaining parcels should be aesthetically similar to surroundings

4. Gateways and Wayfinding
    a. Build feeling of village
    b. Utilize same type of lighting, sidewalks, vegetation, etc.
    c. Signage
        i. Wayfinding from highway
        ii. Use train station overpass with new character ("only station with this overpass")
        iii. Need signage that signifies that Norton Heights is part of Darien
    d. Symbols – use of water motif?

5. Other
    a. Examine angled parking in commuter lot on south side of tracks

b. Improve entrance/exit to commuter lot on south side of tracks (visibility issues)
c. Reuse old station building materials (if torn down) for covered bicycle parking

NOROTON HEIGHTS STATION AREA STUDY

COMMUNITY SESSION #2

January 18, 2018 – MATHER CENTER – CAFETERIA EXTENSION

Sign-in Sheet

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PLEASE SIGN-IN

WESTCOG

NOROTON HEIGHTS STATION AREA STUDY

COMMUNITY SESSION #2

January 18, 2018 – MATHER CENTER – CAFETERIA EXTENSION

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WESTCOG

NOROTON HEIGHTS STATION AREA STUDY

COMMUNITY SESSION #2

January 18, 2018 – MATHER CENTER – CAFETERIA EXTENSION

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