1 Union Avenue
New Haven Police Department

Real Estate Feasibility Analysis
April 2018

Prepared For:

City of New Haven

Prepared By:

pearce real estate

PIRIE ASSOCIATES ARCHITECTS

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1 Executive Summary

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H. Pearce Commercial Real estate was engaged by the City of New Haven's Livable City Initiative (LCI) to conduct a real estate analysis of the existing New Haven Police Department (NHPD) headquarters located at 1 Union Avenue in New Haven. Pearce was asked to evaluate the existing NHPD facility built in 1974 asking the following questions:

- Provide a description of the existing facility's land and improvements and related documents;
- Provide an analysis of the current conditions identifying space and operation needs in the building and any deficits;
- If necessary, identify alternative sites in the City that could accommodate a new police headquarters;
- Make recommendations regarding potential sites and next steps if City were to pursue developing a new police headquarters.

Carl Russel, CCIM, SIOR, Senior Broker with H. Pearce Commercial Real Estate and Tony Bialecki, Commercial Associate directed the analysis. Laura Pirie and Danielle Davis of Pirie Associates, an architectural and urban design firm, were brought on to conduct the initial space planning interviews with NHPD management and assist in identifying site selection criteria and test fit diagrams of proposed facilities on potential sites.

Based on the space planning interviews with the NHPD it became clear that the headquarters building built in 1974 does not function efficiently for current police operations and because of its layout and mechanical systems it cannot easily be retrofitted to meet current needs. In addition, the facility is located on an irregularly shaped parcel with no space to add on the current building nor is there adequate parking for police vehicles, employees or visitors.

Pirie Associates calculated that a new facility would require a total gross square footage of 98,076 square feet and 340 parking spaces for department vehicles, employees and visitors. A new facility could be designed and located on a smaller downtown urban site or on a larger site centrally located but outside of the downtown. A downtown site would require approximately 1.5 acres assuming a 4+ story building with structured garage parking or 2-3 story building on 4.5-acre site outside of the downtown.

Market land prices vary significantly with prime downtown property valued at $35-60 per square foot and outlaying commercial/industrial land on a primary roadway at $2.50-7.50 per square foot. The cost of building a new police headquarters in Connecticut is in the range of $400 - $600 per square foot.

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Criteria for selecting appropriate sites were discussed with NHPD, the City Engineer and members of the City Development staff. Key criteria focused on vehicle access to primary roadways from a central location accessible to all city neighborhoods. Another critical requirement is that the site as well as the roads leading to and from the facility be outside of the 100-year floodplain. A primary community consideration included that the NHPD is a valued part of the community and should maintain a high profile yet have a facility that is easily accessible for residents and others who must visit the facility. This includes ease of parking, public transit and thoughtful urban design that is well integrated into the immediate neighborhood.

Based on the site selection criteria, a dozen sites were initially reviewed and from that, a group of five sites were chosen to determine if they could accommodate a new facility. Pirie Associates conducted a “Test Fit” of the program requirements on three sites included in this report.

Given the inefficiencies of the current police headquarters and the inability to properly retrofit the building, the primary recommendation is that the City and the NHPD designate a steering committee and pre-design professional team to guide the project through its next steps.

2 Description of the Property and Facility

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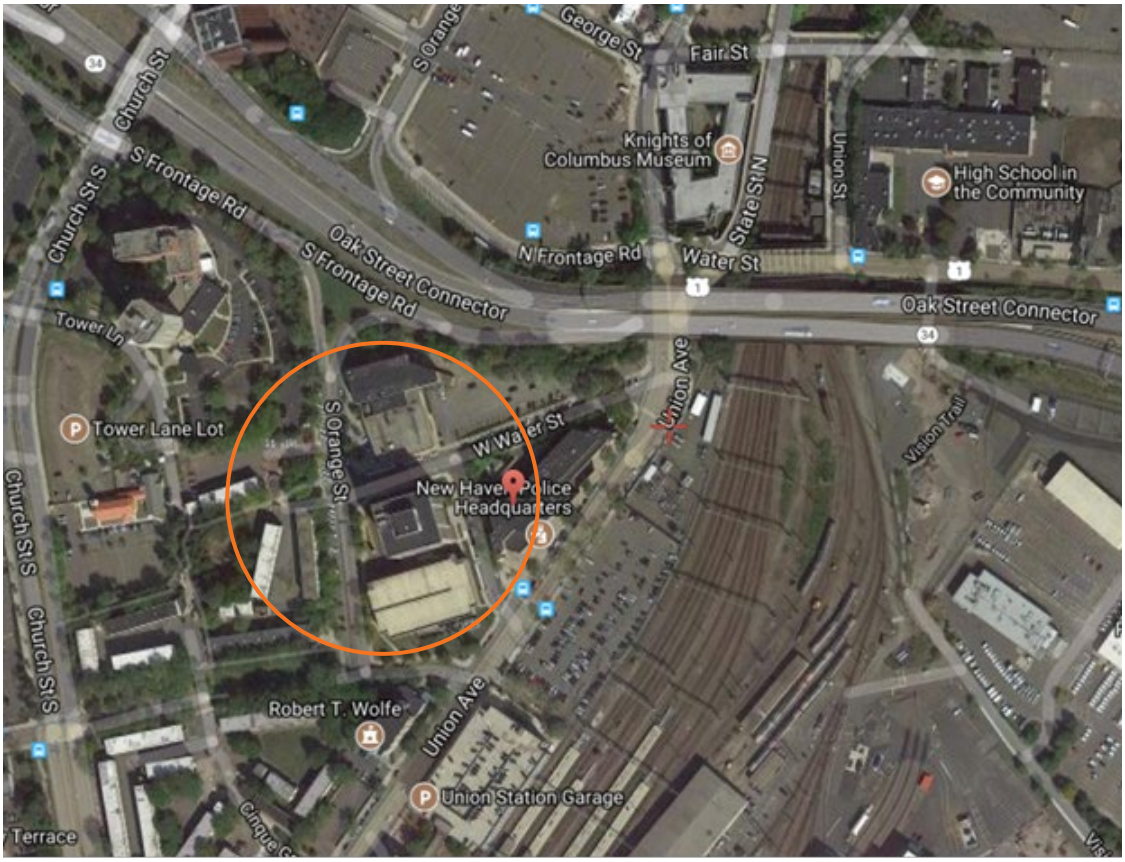
The New Haven Police Department (NHPD) main facility is located at 1 Union Avenue in New Haven. It is located on a triangular shaped parcel of land comprising 1.346 acres, or 58,626 square feet. The parcel is bounded by Union Avenue, Meadow Street and West Water Street. The property was acquired by the City of New Haven on July 21, 1970 (Recorded, Volume 2394 on pg. 526, New Haven Land Records).

The property is presently improved with a 91,681 gross square foot four (4) story masonry specialty purpose structure and a basement level parking garage. Constructed in 1974, the building has continuously been utilized as a police department headquarters. It was designed by Orr, DeCossy, Winder and Associates and is identified on the New Haven City Plan Department/New Haven Preservation Trust, 1981 Historic Resources Inventory – Buildings and Structures. The building is not listed as a historic structure on state or federal inventories.



Current Location of the New Haven Police Department Headquarters, Image courtesy of Google Maps

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The City of New Haven Assessor's land records describe the gross square footage of the building as 118,449 square feet (SF) consisting of four (4) floors and an unfinished basement primarily used for underground parking:

- Basement/parking level: 26,738 SF;
- First Floor: 26,738 SF;
- Second Floor: 20,743 SF;
- Third Floor: 23,643 SF;
- Fourth Floor: 20,557 SF

The Assessor's records also identify the usable space or living area as 88,434 SF, excluding the basement parking area and a few smaller spaces. The building contains three sets of elevators and has wet/concealed sprinklers covering 104, 477 SF. The Assessor's 2016 Land Records list an appraised value totaling $17,610,400 with land valued at $2,250,900 and the improvements at $15,359,500. The City of New Haven had a real estate appraisal conducted on the property on January 29, 2018, assuming a vacant parcel with no improvements and specific conditions, and the property was valued at four million four hundred thousand dollars ($4,400,000). The property is identified as tax-exempt/municipal and pays no taxes.

The property is currently located in the Business E (Wholesale and Distribution) District which was a zone created in the earlier urban redevelopment era of the 1960's and was intended as a wholesaling, warehousing, transportation and distribution district to support retail trade for the city and region. Nearby portions of this zone have been re-zoned to BD-3 Central Business/Mixed Use to facilitate the redevelopment of the neighborhood.

Per the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map the property is situated in a AE Zone which is considered to have a high probability of flooding from 100-year flood events. Properties in Zone AE are considered to be at high risk of flooding under the National Flood Insurance Program. It should be noted that the facility has been impacted by several flooding events in recent years where the facility's basement area, roadways, and off-site parking used for employees and police vehicles were flooded.

The availability of parking for NHPD employees and patrol cars is severely restricted on the site with the lower level basement parking having 65 vehicle spaces and a small area for department motorcycles. The remainder of parking for employees and department vehicles is an ad-hoc combination of on-street parking, limited parking on a Knights of Columbus parcel on West Water Street, and on a

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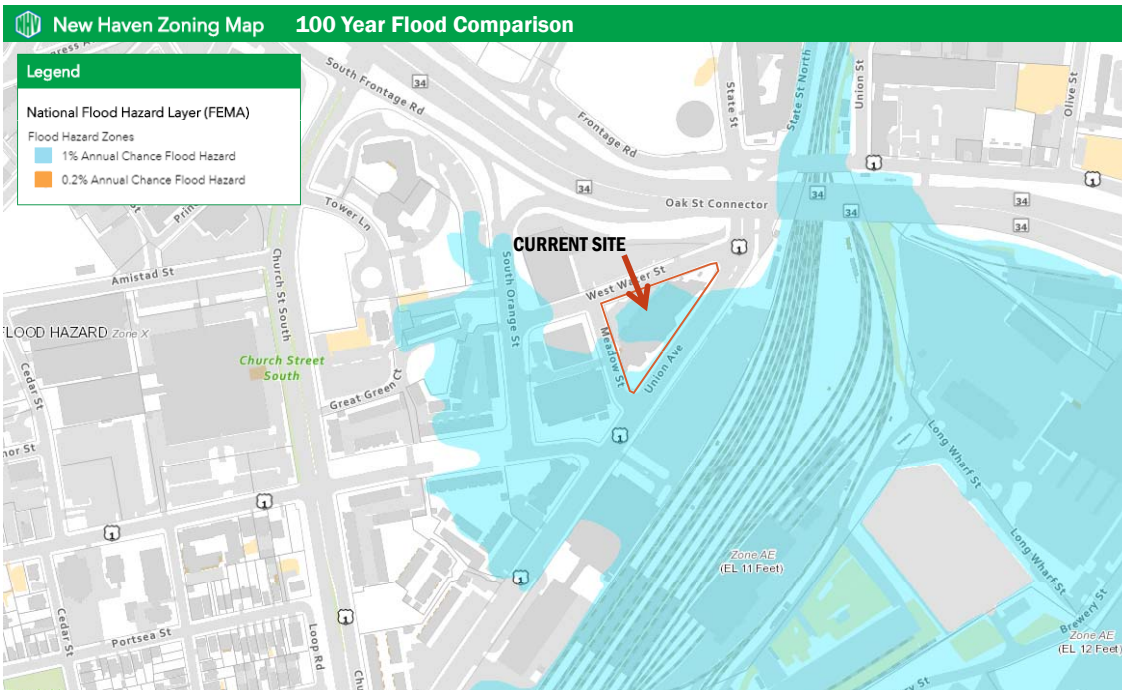

Current Location of NHPD with FEMA flood zone overlay; Image from https://newhavenct.maps.arcgis.com/apps/webappviewer/index.html?id=ac40cc5bf4c6495093c8515c4a93adfe with diagram by PAA

nearby city-owned parcel on South Church Street. Typically, visitors to the Police Department must find any available on-street parking or may be able to utilize the paid public portion of nearby garages if spaces are available. In addition, the Department owns many larger vehicles including a mobile command post, traffic trailer, a SWAT vehicle, and bomb trailer which currently need to be parked off-site.

The Police Department engages a third-party property management firm (currently OR&L) to provide maintenance and cleaning services for the facility. The property management firm maintains a small workshop area on-site.

The NHPD operates several other smaller facilities as part of its operation including:

- 10 Substations throughout the city in various neighborhoods and downtown;
- A newly opened training and firearms facility on Wintergreen Avenue;
- A property at 710 Sherman Avenue that acts as a property storage facility;
- A small animal shelter building located at 81 Fournier Street.

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Pearce Commercial Real Estate conducted an initial interview and site tour of 1 Union Avenue with NHPD Assistant Chief Rachael Cain and Giovanni Zinn, Director, City of New Haven Engineering on Tuesday, September 19, 2017. The following information was noted during the interview and site tour.

The headquarters at 1 Union includes numerous divisions within the NHPD including:

- Office of the Chief
- Patrol Division
- Investigative Services Division (Detective)
- Bureau of Identification
- Internal Affairs
- Planning/Records Division
- Police Academy/Training Bureau

In addition to the NHPD divisions, the Department of Public Safety Communications, which is responsible for 911 call-taking and is the Fire, Police and EMS Dispatch Center, is located on a portion of the fourth floor. A small office for the New Haven Federal Credit Union is located on the second floor.

The various Divisions and related operations currently operate throughout the four floors above the basement/parking garage space in the following floor by floor breakdown.

First Floor

- The first floor includes a small public entryway and lobby that leads to a reception counter with a glass wall separating the public from uniformed officers on duty. The public uses pass-through drawers and speakers to communicate. From this lobby, staff and the public are allowed access beyond the counter/glass wall after being buzzed in to small area which includes two elevators and a central stairwell that service all floors.
- Traffic Unit: Small office area off main lobby where public request printed traffic/accident reports. This service open to public Monday–Friday 9am – 3pm.
- Internal Affairs Division: Located in a small office area on the first floor.
- Property Room: Access to the Property Room is from the secured area behind the reception counter. It has a counter with roll down gate used/staffed during normal working hours. There is a smaller adjacent

room used to store property outside of normal working hours which is later transferred to the main storage area.

- Quarter Master Room: The Quartermaster receives, stocks, and distributes supplies, equipment and uniforms to officers. The space has a service counter with roll down gate accessible from a hallway leading from the secured reception area. The deliveries are made from a loading dock off Meadow Street. The loading dock does not directly open to this area but into an adjacent workshop area that the third-party property management company occupies. A double set of doors separates the two rooms.
- Workshop/storage rooms for Property Management: A third party management firm (currently OR&L) utilizes a small area for a workshop and storage area with direct access to a loading dock from Meadow Street.
- Holding Cells/Lockup/Detention Area: This area is directly accessible from W. Water Street (rear of building) via a "sally port" with two roll-down steel doors which when open allow a vehicle with prisoners to drive in to a covered area. This area has direct access to a small intake/processing area before entering the secure holding cell area. There is an additional adjacent small room with monitors for officers who observe the holding cell area. It has a glass wall with a microphone and a drop box that faces out onto a very small entry area for the public. This is the location where someone being released from the Holding Area would exit from the building. This space is accessed east of the main entrance at ground level on Union Avenue. There is an accessible ramp from the sidewalk to this entry area, but the exterior doorway is small and connecting hallway from Holding Area to this area is awkward and narrow.
- Gym: There is a double-height gym space that opens into the second floor where a mezzanine serves as additional exercise space. From the second-floor space, you can look down into the first-floor gym. Both spaces are set up as exercise areas.

Second Floor

- Patrol Division: The main area is a large room used for lineup of approximately 50 officers at a time. The room includes a raised podium where supervisors address the officers. There are 2 small offices and a small conference room adjacent to the main area.
- Locker Rooms: On the second floor there are four locker rooms of

various sizes that include lockers, benches, showers, sinks and toilets. The largest locker room is for male officers with a second locker room for male supervisors. The third locker room is for female officers and the fourth locker room is for female supervisors.

- Exercise Space: see Gym description above on First Floor.

Third Floor

- Office of the Chief: The area is comprised of offices for the Chief and Assistant Chiefs, and related administrative offices including Personnel and Payroll, Information/PR and a conference room. There is an open space that connects the central elevator and two restrooms to the Office of the Chief. Adjacent to this area on the Meadow Street side is a single shaft elevator and stairwell as well as a mechanical room.
- Investigative Services Division (Detectives): The Investigative Services Division consists of plainclothes detectives supplemented by patrol officers. The Division assumes responsibility for all felonies where follow-up investigation is required and necessary, and for all misdemeanors require a follow-up investigation is deemed necessary by the detective supervisor. The balance of the second floor includes: related special divisions (Victim Services and DCF), a large open area arranged with cubicles and desks, small offices and small conference rooms at the perimeter, an office for an Assistant Chief, numerous interview and observation rooms, two holding cells, a single shaft elevator, stairs, and a mechanical room.

Fourth Floor

- Bureau of Identification (B of I): The B of I is responsible for obtaining, preserving and analyzing physical evidence for eventual court presentation and for assisting in the development of techniques and procedures for effective crime scene search, criminal identification, and apprehension.
- This area includes office for staff, a lab area (undersized) that requires special ventilation with hoods, a small evidence room, and drug storage.
- 911 Dispatch and Call Assistance Center (PSAP): This is a large room with call center type arrangement of desks, monitors, and specialized communications equipment. All 911 calls come to this space and are dispatched to the appropriate Fire, Police, and Emergency Medical

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Response Services. The Center also handles incoming non-emergency calls. They operate 3 shifts 24/7. The 2,500 SF space was remodeled and updated 8 years ago.

- Planning/Records Division: This Division maintains records. There is a large open space with physical records in compact ranges located along the walls. The central space has numerous open workstations as well as a small office, printing room, and break room. There is a service counter that faces the corridor. Although plans are in place to change to paperless records, existing retention laws require that hard copies be available for certain time periods.
- Intel and Comstat Presentation Room: This space accommodates approximately 50 people for internal Intel briefings and once a week for "Compstat" meetings which includes NHPD staff, community members and other municipal and State of Connecticut Departments. The space includes desks, computers, and presentation screens. Ideally the space would accommdoate 75 persons.
- Miscellaneous Server/Phone/Radio Rooms: Along the hallway there are several small rooms including service/tech rooms with communications hookups, a small IT room (which stores older equipment), and a small computer training room. The balance of the floor includes a boiler room, cooling tower, and mechanical rooms, elevator, and stairwells that repeat on each floor.

3 Program Space Planning

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Because H. Pearce's initial interview and tour of the 1 Union Avenue facility revealed an outmoded and inadequate space configuration for a modern-day police department, it was determined that a professional architectural firm should undertake preliminary space planning and programming interviews.

Pirie Associates Principal Laura Pirie and firm architect Danielle Davis conducted onsite interviews with Assistant Chief Cain and Department leadership from each division on December 6 & 9, 2017. The interviews included discussions about each Division's operational and spatial needs to function efficiently and effectively. The key findings of these interviews are summarized below. A detailed breakdown of program elements can be found in the meeting minutes attached as Appendix A.

Pirie Associates and an LCI representative conducted interviews with each division of the NHPD as well as the Public Safety Communications Center. Based on those conversations, PAA estimates that a facility of roughly 98,000 GSF with 95,500 GSF for parking would accommodate all departments effectively in a new facility. Parking assumptions should be confirmed.

The current building layout and square footage is hindering security, functionality, and efficiency for its occupants. The inflexibility of the building construction type does not allow the Department to use the current building effectively as divisions change over time. Much square footage in the building is wasted. In addition, the fortress-like aesthetic and awkward entrances of One Union Ave. are opposed to the NHPD's community policing goals and vision.

Flexibility, a central urban location, and a balanced approach to secure operations and community functions are key priorities in a new facility for the NHPD.

Internal Organization & Intra-Departmental Relationships

The current facility mixes low-security program with high-security program in a problematic way. Internal organization of a new facility should address these issues and better zone less-secure and more-secure functions.

Program elements with the highest levels of security include the Public Safety Communications Center (PSAP, 911 Dispatch), Detention (Holding Cells), and Evidence Storage. PSAP is typically not located within police stations and is not part of the NHPD. For security reasons, the CIty may consider separating PSAP into a different building. Minimally, PSAP should have a separate entrance. Detention includes holding cells; in emergencies, inmates must be protected as well as

contained. Regarding evidence storage, NHPD divisions of Property and Bureau of Identification must have a tight chain of evidence custody with highly controlled access.

Program elements with the lowest levels of security would include publicly-accessible spaces like the lobby and community meeting rooms. These spaces should be welcoming and secure, but separated from internal department functions with higher security requirements.

Improved efficiency could be found by improving the adjacencies between the following divisions. The Property Division and Bureau of Identification both receive and store evidence and are highly secure. Ideally these divisions would be located on the ground floor. Detention and Detectives (Bureau of Investigation) should have a connecting path of travel that is discreet and direct for moving inmates between holding and interview rooms.

Site Organization & Access

A multi-frontage site is strongly preferred for a new facility. Several separated entrances are required and multiple building faces help to establish different entrance zones. Required entrances include:

- Public Lobby/Desk – used by members of the public come for traffic incident reports, lost and found property retrieval, or for meetings with officers.
- Internal Affairs – used by members of the public come to voice concerns or file a complaint; should be separate from main entrance.
- Detention – Public Desk – discreet; for members of the public to inquire about inmates or post bail; exit for those who have posted bail.
- Detention – Sally Port – must be discreet and secure drive; far from main public entrance.
- Loading Dock – must be made secure. Some general usage for building maintenance and supplies (close to the Quarter Master and Property Manager), but secured path access to Property Division and Bureau of Identification is required.
- Parking – fleet vehicles, personal staff vehicles, and visitors – type of parking (underground, structured, or surface) should be considered based on the selected site.

Square Footage Numbers (see Appendix A for breakdown)

PROGRAM	TOTALS
Amenity & Common Spaces	3,860 SF
Public Spaces/Support	6,160 SF
Internal Affairs	1,500 SF
Detention	7,270 SF
Patrol	12,230 SF
Property*	13,380 SF
Records	2,300 SF
Office of the Chief	3,725 SF
Detectives	6,880 SF
B of I	2,120 SF
PSAP*	3,850 SF
SUBTOTAL	**63,275 SF**
MEP 20%	12,655 SF
GROSSING FACTOR 35%	22,146 SF
TOTAL GSF	**98,076 SF**

*PSAP and long-term Property Storage could be located off-site; see notes by department in Appendix A.

Mixed Uses – Possible Complementary Program Components

To support an urban complete streets strategy, a mixed use approach is recommended. For example, the police facility in New Britain, CT, has successful retail (coffee shop) integrated at street level. A similar model may be considered here. Currently, there is a Credit Union office in the building. This could be brought to street level with its own frontage. Other retail, like a coffee shop or cafe, could also support street life.

The new project also supports the opportunity to incorporate outdooor recreational space for youth programs that the Department supports. Options may include basketball courts or other passive outdoor areas.

4 Criteria for Site Selection

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Discussions with the NHPD, the City Engineer, City Development staff and Pirie Associates identified numerous criteria to be considered in selecting a site to locate a new police facility. The primary criteria and site characteristics include:

- **Centrally Located** - A central location will enhance the sense that the police department is part of the community.

- **Out of 100-yr. Floodplain** - The site and adjacent roadway network must be outside the 100-year flood zone. Consideration should also be given to rising sea levels due to climate change and storm surge over the next 25 – 50-year period. While many buildings can be designed to protect lower levels of a facility in a flood situation the access to and from an essential police facility is critical and cannot be impeded by flood waters.

- **Road Access Redundancy** - Sites should be ranked for access to primary roadways that provide routes to all neighborhoods throughout the City. In the event of a flood or other emergency situation, at least one roadway should still provide access to the facility and vehicles parked there.

- **Easily Accessible to Parking & Public Transit** - The new facility should be easily accessible to all residents of New Haven by car, public transit bus routes, and bike paths.

- **Friendly Adjacent Uses** - The new facility should not be a disruption to the existing neighborhood fabric. Surrounding building heights and street setbacks should inform site design and heights of proposed buildings and parking. If possible, developing the site for the facility should be an engine for positive impact on the immediate surrounding area.

- **Multiple Street Frontages** - As noted in the program space planning section, multiple street frontages aid in the separation of varied entrance types, such as the sally port and the main public entrance. The facility serves many functions and building faces on different streets will help separate building population paths of circulation. Additionally, if access or exit to the building is impeded on one side of the facility in a critical situation, a second or third frontage can provide access or exit.

- **Utility Infrastructure -** The site should be relatively flat and level with adequate utility infrastructure available to support a large facility.

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- **Adjacent to Municipal Facilities** - Proximity to other municipal facilities is preferred as it is beneficial for communication in emergency situations. Day-to-day convenient access to city and court personnel also aids operational efficiency.

- **"Gateway" Presence** - The Police Department is a valued part of the community and should maintain a high profile yet have a facility that is easily accessible for residents and others who must visit and often partner with the department.

- **Single Land Parcel** - A consolidated property parcel without numerous owners will contribute to ease of land acquistion and is preferred if possible. Also, prefer parcels that are vacant, for sale, or owner agrees to negotiate a sale to simplify the acquisition process. The size of the parcel should be consistent with space needs.

5 Sites for Relocation

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Using the site selection criteria outlined earlier H. Pearce Commercial Real Estate and Pirie Associates identified six (6) sites as examples of property that could accommodate relocation of police headquarters. In addition to the site selection criteria an effort was made to identify sites that could allow two different types of building styles that are either:

- More central to the downtown requiring a smaller site but a more urban dense building of 4+ stories with structured parking, or
- A location outside the downtown on a larger parcel of land but are well located with road access and could be a 2 or 3 story building with a combination of some structured parking and surface parking.

Pirie Associates, who was responsible for developing the initial space programming of NHPD needs, conducted test fits on the six sites as illustrated by "Test Fit Diagrams". Three of the test fits are highlighted below and the remaining sites are in Appendix B. H. Pearce Commercial Real Estate researched each site as to ownership, size and available documents that describe various aspects of the parcel. Neither H. Pearce, Pirie Associates nor the City of New Haven discussed any potential acquisition with owners of the property, rather these sites are highlighted as examples of sites that could accommodate the needs of a new police headquarters.

It should be noted that based on the selection criteria, many sites were eliminated from consideration even though they would appear to be likely candidates given location and availability for development. These include sites that are in potential flood zones on Long Wharf, along Sargent Drive, East Street along the Mill River and the Harbor, and the west side of Ella T. Grasso Boulevard along the West River. Other constraints on potential sites include existing development plans and neighborhood preferences for residential or mixed-use residential. Such sites include those located downtown, along MLK Boulevard, and Legion Avenue.

The following three test-fits illustrate the two building styles and location types described above.

TEST FIT: OPTION A

50 Ives Place

Site Statistics

Acreage: 4.39 (1 parcel)
Total SF: +/- 115,000 SF
Parking: 350 structured
30 surface
Amenities: Park with Courts
Community Rooms
Retail

Site Selection Criteria

- [x] Centrally Located
- [x] Out of 100-yr. Floodplain
- [x] Road Access Redundancy
- [x] Easily Accessible to Parking & Public Transit
- [x] Friendly Adjacent Uses
- [x] Multiple Street Frontages
- [x] Utility Infrastructure
- [ ] Adjacent to Municipal Facilities
- [x] "Gateway" Presence
- [x] Single Land Parcel Required

Site Program Use

- NHPD
- Community/Retail
- Green/Recreation Space
- Parking

TEST FIT: OPTION B

8 Elm Street

Site Statistics

Acreage: 1.33 (1 parcel)
Total SF: +/- 100,000 SF
Parking: 465 structured
30 surface
Amenities: Park with Courts
Community Rms.
Retail

Site Selection Criteria

- ☑ Centrally Located
- ☑ Out of 100-yr. Floodplain
- ☑ Road Access Redundancy
- ☑ Easily Accessible to Parking & Public Transit
- ☑ Friendly Adjacent Uses
- ☑ Multiple Street Frontages
- ☑ Utility Infrastructure
- ☑ Adjacent to Municipal Facilities
- ☑ "Gateway" Presence
- ☑ Single Land Parcel Required

Site Program Use

- NHPD
- Community/Retail
- Green/Recreation Space
- Parking

TEST FIT: OPTION C

155 Adeline Street

Site Statistics

Acreage: 4.61 (8 parcels)
Total SF: +/- 105,000 SF
Parking: 340 surface
Amenities: Park with Courts
Community Rms.
Retail

Site Selection Criteria

- [x] Centrally Located
- [x] Out of 100-yr. Floodplain
- [x] Road Access Redundancy
- [x] Easily Accessible to Parking & Public Transit
- [x] Friendly Adjacent Uses
- [x] Multiple Street Frontages
- [x] Utility Infrastructure
- [ ] Adjacent to Municipal Facilities
- [ ] "Gateway" Presence
- [ ] Single Land Parcel Required

Site Program Use

- NHPD
- Community/Retail
- Green/Recreation Space
- Parking

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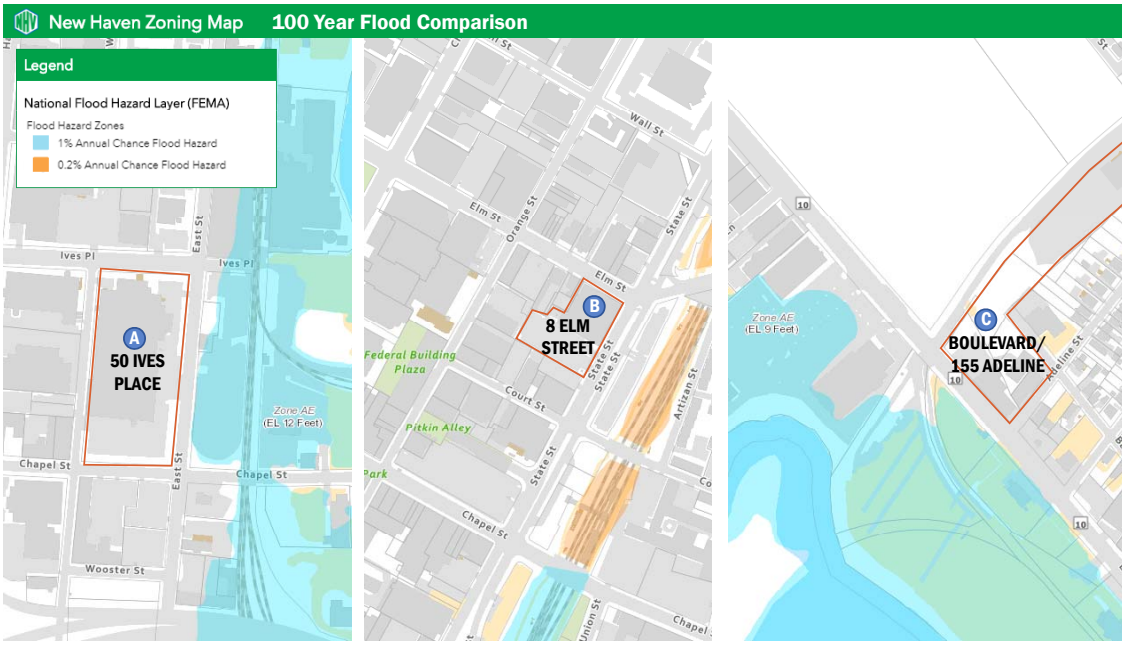

Test Fit Option A, B, and C sites with FEMA flood zone overlay; Image from https://newhavenct.maps.arcgis.com/apps/webappviewer/index.html?id=ac40cc5bf4c6495093c8515c4a93adfe with diagram by PAA

The locations of Test Fit Options A, B, and C are all out of the FEMA 100 year flood zone, as shown in the comparison image above. However, road access to each site in the case of a flood event varies.

Land prices vary significantly throughout the city. Prime downtown property is valued at $ $35-60 per square foot and outlying commercial/industrial land on a primary roadway at $ $2.50-15 per square foot. The cost of building a new police headquarters in Connecticut is in the range of $400 - $600 per square foot.

6 Recommendations and Next Steps

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Overview Recommendations

Siting

The existing facility was built in 1974 and is almost 44 years old. The facility was built during the peak of New Haven Urban Renewal on an awkward, irregularly shaped site without adequate parking. In addition, the location of the current police department is compromised in weather emergency situations, where Union Avenue is often flooded and interferes with the Department's ability to enter and exit the building. One may expect that emergency situations may increase during weather-related events, where police assistance is required, and the current location does not support required access. This condition will only be exacerbated as climate change continues to affect coastal configuration and storm water management in low-lying areas. Were a new site to be considered, one that is located out of low-lying, flood prone areas, which can accommodate easy access in and out, and has adequate parking, is recommended.

Building

Since 1974, policing philosophy has radically evolved away from a period where a "fortress" like structure was acceptable. Today, where a community policing philosophy demands collaborative, open, and trust-building relationships, the "fortress" style building works directly against this policing approach. In addition, the building's cast-in-place concrete structure does not lend itself to reconfiguration as internal departments naturally evolve as changing needs demand. Last, the rigid architectural geometry of the existing building makes internal space planning inefficient, rendering approximately 20% of the floor area ineffective and/or underutilized. Were a new building to be considered, one that embodies the philosophy and spirit of the Department as part of the larger community, and also allows for evolving internal planning and configuration needs over time, is recommended.

Health and Well-being

Unlike many office buildings used during a normal 9-5 workday Monday through Friday, a police headquarters is used 24 hours a day, seven days a week by hundreds of sworn officers and civilian employees on numerous shifts. This level of use drives internal and external needs that require specific design configurations to address organization, orientation, levels of security and access, and considerations for officer and staff health and well-being to manage the constant high stress environment. The current building materiality, lack of daylight and fresh air, and confusing organization and access work against the general public's

ability to access uses and the staff and officer's ability to manage the consistent high-stress environment. Were a new building to be considered, one that is clearly zoned and organized for appropriate public interface and required levels of internal security, and also included greater staff and officer access to daylight, fresh air, and an architecture that functions to reduce and manage stress, is recommended.

Process Next Steps

This feasibility analysis has established that the New Haven Police Department existing facility is inadequate for current needs and that the City and NHPD should pursue steps to build a new facility. H. Pearce recommends that the City and NHPD designate a steering committee and establish a pre-design professional team for the project to guide the committee through next steps. The committee may refer to the International Association of Chiefs of Police Facility Planning Guidelines (Appendix C) for Project Initiation steps including: build police internal planning team, build political support, identify and secure planning funds, and document policing philosophy. Certain of the recommendations included in this guide have already been completed completed as part of this study, such as: Phase I - Identify and Document Current Facility Problems and Build Police Internal Planning Team; and Phase II – Conduct Space Needs Analysis, Evaluate Facility Options, and Conduct Preliminary Site Evaluation(s).

One exception to the guidelines appended herein is to engage the professional design team (architect) as part of the Pre-Design Phase. This is driven by two circumstances particular to New Haven. First, the urban location where certain location/site priorities, such as "gateway" presence, and integrated "Complete Streets" strategy would be well-served with design professional presence during the site selection process. Second, the program development should be directly tied to test-fitting solutions aligned with philosophical design goals. The importance of this early formal/spatial/philosophical alignment cannot be under-estimated.

The Pre-Design Team would build on the intial findings and site criteria develop a Concept Design for one or two sites. The Concept Design would test the initial space planning program assumptions against precise site information, develop an organizational strategy/design approach for the program on each site, and develop preliminary budget options. After receiving those budgets, the final site would be selected and secured for the new facility, the budget would be tested, and the delivery method established (part of the budget development). We recommend beginning community engagement during this phase of the process as well.

QUICK LINKS

1. EXECUTIVE SUMMARY

2. DESCRIPTION OF THE PROPERTY AND FACILITY

3. PROGRAM SPACE PLANNING

4. CRITERIA FOR SITE SELECTION

5. SITES FOR RELOCATION

6. RECOMMENDATIONS AND NEXT STEPS

With a preliminary budget, fundraising underway, site selected, and site Concept Design established, the design team would proceed with Schematic Design through Bid Documentation and on to Construction and Occupancy Phases.

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BRADY STONE, AIA

MEETING MINUTES

DATE December 6 & 9, 2017
PROJECT NHPD
ADDRESS 1 Union Ave, New Haven, CT 06519
RE Programming – NHPD **Detention**
Programming – NHPD **Patrol**
Programming – NHPD **Investigative Services (Detective)**
Programming – NHPD **Records**
Programming – NHPD **Property**
Programming – PSAP **Communications/Dispatch**

PRESENT Laura Pirie, PAA
Danielle Davis, PAA
Darrell Ford, LCI
Asst. Chief Rachael Cain, NHPD*
Lt. Brendon Hosey, NHPD*
Lt. Herb Sharp, NHPD*
Lt. Herb Johnson, NHPD*
Lt. Darcia Siclari, NHPD*
Lt. Charolette Barham, NHPD*
Captain Patricia Hellinger, NHPD*
Deputy Director George Peet, PSAP*
**not present for entire meeting time*

Overview: Priorities for the Department

- **Flexibility** – One of the biggest problems with the current building is its lack of flexibility. Staffing and spatial needs between divisions has changed from the original time of construction, but the building does not allow for adaptation. Needs within the department will continue to change, so layout flexibility would be very beneficial.
- **Centrally Located** – The Department would like its headquarters to be close to the urban core of the city.
- **Security**
  - **Balance between Operations & Community** – Currently, some public functions occur deep within the building, which poses security risks. The Department would like to host community functions without putting internal security at risk. Levels or "zones" of security should be considered in future space planning.
  - Many staff members are civilians, not sworn officers. Their security while at work is very important to the Department.

  - Highest security functions include protecting/containing prisoners in Detention and protecting PSAP/911 Dispatch; Next highest are Property (Evidence) and Records storage.
- Additional goals
  - Enhance the "Explorer" program presence at headquarters; currently, it is primarily at the training academy program
  - Enhance community functions on-site

TOTALS	Program
Amenity & Common Spaces	3,860 SF
Public Spaces/Support	6,160 SF
Internal Affairs	1,500 SF
Detention	7,270 SF
Patrol	12,230 SF
Property*	13,380 SF
Records	2,300 SF
Office of the Chief	3,725 SF
Detectives	6,880 SF
B of I	2,120 SF
PSAP*	3,850 SF
SUBTOTAL	63,275 SF
MEP 20%	12,655 SF
GROSSING FACTOR 35%	22,146 SF
TOTAL GSF	98,076 SF

**PSAP and long-term Property Storage could be located off-site; see notes by department*

Parking – 95,500 SF

- **Visitors** –120 people over 8 hours; **30** spaces, 250/space – **7500 SF**
- **Emergency/Specialty** – **10** vehicles, 400/space – **4000 SF**
- **Service Area** – small workshop area for fleet vehicles repair – **2000 SF**
- **Civilian Staff** – **50** staff/day, 250/space – **12,500 SF**
- **Patrol**
  - 60 squad cars in the fleet, roughly 40 go out during A, B, C shifts
    - Assume ~15% future growth – **70 squad cars** parked maximum
    - 70 x 250sf – **17,500 SF**
  - Approx. 80 officers in largest shift – 3 shifts with ½ shift changeover – 120 personal cars at most parked at a given time
  - **120 personal cars** parked; 120x250sf – **30,000 SF**
- **PSAP** – 14 personal cars/shift, accommodate 2 shifts for changeover, **28 cars**, 28x250sf – **7000 SF**
- **Sworn officers** – other divisions besides Patrol – approx. **60** personal cars, 60x250 sf – **15,000 SF**

Amenity and Common Spaces – 3860 SF

- **Gym / Fitness Room – 2000 SF** (Currently ~3000 SF, but oversized)
  - Used, particularly by younger officers, but oversized for number of officers that use for fitness; Maybe 20 officers use it; up to 2 at a time
  - Storage room – actively used for PAL (Police Activity or Police Athletic League)
  - Due to space constraints throughout the department, the Gym is used ad-hoc for alternate functions, including: larger-scale patrol line-ups for events, parole check-ins, quarter-master body-armor fittings, semi-annual blood drive, PAL events, "Cops and Ballers," etc.
  - Access to the Gym is either through an emergency exit door by the front building entrance, or by a circuitous through security, up to the second floor, and down the elevator to the main door, which is off a secured receiving area. Not ideal.
  - Half-court for basketball is useful indoors, but better access should be provided
  - Consider full-court outside for community function to support outreach/mission
  - Many ad-hoc uses would be better suited to publicly-accessible community meeting rooms
- **Kitchen/Cafeteria –1100 SF** (Currently 1430 SF, but oversized)
  - For use by whole building, but surrounded by Patrol Division spaces.
  - Patrol officers tend to go home quickly after shifts
  - Should have communal space for the building, but Divisions in the building tend to prefer their own kitchen and eating close to their workstations
  - Underused, particularly the cafeteria
  - Cafeteria has many vending machines and north-facing ribbon windows leading to balcony; very loud white noise from machines and limited daylight likely contribute to the under-utilization of the space
- **New Haven Police and Municipal Credit Union – 480 SF**
  - Currently on 3rd floor next to Patrol Division
  - Public function, so its location deep inside building poses a major security concern
  - Should be by entrance, or have storefront on street
  - Does not need to be within security
- **Union Office – 280 SF**
  - Good to be close to Patrol Division, Locker Rooms, etc.
  - Officers feel able to relax, get coffee, check-in as needed before or after shifts

Public Spaces and General Building Support – 6,160 SF

- **Lobby – 1250 SF**
  - **Waiting Area** – 1000 SF
  - **Security Desk** – 250 SF
  - Secured access door to Traffic Unit, Property window (see notes under Property)
  - Current adjacencies: Internal Affairs, Quarter Master window

- **Print Shop – 500 SF** – current room also serves mechanical functions and poses hazards. Proper ventilation, conditioning, and hazard prevention should be considered in a new facility. Two entry/exits ideal.
- **CompStat / Presentation Room** – 80 occupancy **– 560 SF**
- **Community Rooms – 600 SF** – 2 additional community rooms, 300 SF each
- **Quarter Master / Supply Room** – **1850 SF**
- **Loading Dock Area – 1400 SF**
  - **Receiving Room –** 800 SF (Currently 950 SF, oversized)
  - **Restroom** – 60 SF
  - Access (secured) to Property Room, Quarter Master Room
  - Access (less secure) to Property Management Offices
  - **Property Management –** Office, Workshop space – 540 SF

Internal Affairs Division – 1500 SF

- Separate entrance – current entrance in view of main desk (officers) is problematic for members of the public coming to make a complaint
- **Waiting area – 350 SF**
- **Staff workstations – 720 SF –** Confirm staff number
- **O.I.C./Supervisor Office –150 SF**
- **Storage – 140 SF**
- **Restroom – 60 SF**
- **Break room** w/ Kitchenette – **80 SF**

Detention (Lt. Hosey) – Open 24/7 – **7,270 SF**

- **Public Entrance** – **450 SF**
  - Glass communication window needs upgrade (currently plexi, should be bulletproof with secure pass-through, similar to front desk).
  - **Lobby** – 90 SF – very small, currently ~70 SF. Increase to include waiting chair and/or counter for paperwork completion.
  - Separate from main public entrance
  - Secure door with access from public entrance through toward cells required
  - Secure door should also lead to room for breathalyzer tests
  - **Public Desk** – 170 SF – office space behind window is adequate, but simpler geometry would make more efficient use. Two desks, open shelves for paperwork
  - Line-of-sight from desk behind window through to public approach is desired. Current layout prevents view of people arriving until they open the exterior door.
  - Visual connection from front desk to booking office (safety for officers & inmates both)
  - **O.I.C. office** – 100 SF – near public desk; direct access would be helpful.
  - **Breathalyzer room** – 90 SF – adjacent to public lobby via secure door
- **Sally Port** – **1050 SF**
  - Adequate SF, straight access in/out preferred (current turning radius is difficult)
  - Through-drive; secured gates at start and end

  - Some space for property storage needed in sally port (for contaminated or pest-ridden property of inmates)
  - Reference Marshall's box truck, similar vehicle dimensions for sizing needs
  - Refrigerator for meals provided to inmates, inmate medications
  - Secured access door to check-in station; visual connection required from interior out to sally port
- Check-in – 250 SF
  - Connection to Sally port, booking office, cells, officer break room
  - Storage closet for temp. storage of personal affects, medications
  - Desk for officer, sanitation station for officers after check-in
  - Access route to Investigative Services (Detectives) required; (currently via elevator)
- Booking office – 150 SF
  - Connection to booking office, cells
  - Visual connection to Detention front office (additional security for officers/inmates, and for bail amount authorization/confirmation)
  - Electronic equipment for booking – 2 or 3 stations; forms, fingerprints are electronic
- Holding Cells – 5000 SF
  - One inmate per cell – standard policy – approx. 50 cells are a good number (assume up to 10 may be temporarily out of service); assume min. 70 SF per cell. – 3500 SF
  - Daily average is 15 inmates, but this builds up over weekends/3-day weekends
  - Current layout has "group" cells that are not used for that purpose
  - No showers needed (current "shower stalls" are used as janitor or general storage)
  - One of each type of holding cell (male, female) must comply with 807.2 ADA
  - Maintenance access aisles for cell toilet maintenance required. Back-to-back cell layout improves efficiency – 700 SF
  - Circulation – 800 SF
  - Separation of female and male inmate cells – "limited access" required (visual separation required, some sound separation preferred)
  - Path to female cells should not go past male cells. (Current path typically goes through officer break room. Overflow goes past male cells.)
  - 4-6 female cells would be ideal
  - Intermediate sliding dividers in main block of cells should be provided to allow for male-to-female ratio variability. Currently one divider that splits the cells 50/50 makes optimum usage difficult.
- Juvenile Holding Cells – Entirely separate; Currently in Investigative Services Division
- Staff Needs – 320 SF
  - Break room with kitchenette – 180 SF
  - Unisex bathroom – 40 SF
  - Small locker room – 100 SF
- Storage Room – 50 SF

PIRIE ASSOCIATES

Patrol Division (Lt. Sharp, Lt. Bullock) – **12,230 SF**

- **Line-up room – 900 SF**
  - Currently includes a report writing station, but this function can occur elsewhere, including in squad cars
  - 50 officers in typical line-up at the start of a shift – currently sized for 30 (830 SF)
  - Line-up has up to 175-200 officers for big events (approx. 3 times a year) – this could occur in large community room, if needed.
  - Podium required to address the officers
- **Adjacent functions to Line-up room – 300 SF**
  - **Body camera charging station** –100 SF – ideally secured access, near check-in and/or lockers (current security is only a security camera); need server at back of charging station; current server renders lieutenant conference room unusable due to noise/heat
  - **Sergeants' office** – 140 SF
    - **Pass-through window** to distribute keys for squad cars at end of line-up; collects paperwork from officers at end of shift
    - 2-3 workstations; need storage at desk and for personnel files, shelving for forms and keys
  - **Report writing station** – 60 SF – alternate location for report writing
- **Patrol Commander Office** – **160 SF** desk, files; increase SF to accommodate small table with seats for private conference
- **Lieutenants'/Supervisors Office – 140 SF –** similar to current SF, 2-3 desks
- Patrol Squad Numbers
  - A1 (7am-3pm), A2 (8am-4pm), B1 (3-11pm), B2 (4pm-12am), C1 (11pm-7am), C2 (12am-8am)
  - Approx. 50-70 patrol officers per shift
  - 2 Sergeants, 2 Lieutenants per squad
- Demographics
  - 480 officers (plan to increase)
  - About 20 Lieutenants – anticipate 25
  - About 48 sergeants – anticipate 60
  - Currently ~17% women, but this is a focus for recruiting; anticipate 20%
- **Locker Rooms – 8260 SF**
  - Boot polish station in each or one shared near-by (currently in line-up room)
  - **Officer Locker Room (men)** – *5750 SF* – 1 locker/officer; currently 14"x6'; ideally 24" wide
    - Currently 2990 SF; increase by 75% for 24" wide lockers = 5230 SF
    - Rows of lockers with benches in aisles
    - Connected to showers and bathrooms, but door desired for audio/smell separation. Currently no door; ventilation is inadequate.
    - Bathrooms/Showers – 520 SF – currently group shower; individual preferred

  - **Officer Locker Room (women)** – *1000 SF* – 1 locker per officer; currently 14"x6'; ideally 24" wide
    - Undersized for projected number of female officers; awkward layout
    - Locker room currently 350 SF – increase to 800 SF
    - Bathrooms/Showers – currently group shower; individual stalls preferred – would be better utilized – 200 SF
  - **Supervisor Locker Room (men) –** *1220 SF* **–** current SF is adequate but inefficiently laid out, increase 20%; group showers changed to individual would be preferred
  - **Supervisor Locker Room (women) –** *600 SF* – undersized SF, with awkward layout; increase 390 SF to 600 SF
- **Officer Lounge – 400 SF –** well used, couches and TV provided by Union; rest and relaxation space for officers pulling long hours or between shifts
- **Traffic Unit / Detail Room – 1560 SF**
  - **Mailroom** –80 SF – for entire building; currently open shelving in general office area of Traffic Unit; should be separate, secured
  - **Offices Needed –** *980 SF (see letter from Deputy Patrol Commander Lt. Bullock)***:**
    - **Deputy Patrol Commander** – 140 SF
    - **Detail Room Supervisor** – 100 SF
    - **Traffic Supervisor** – 100 SF
    - **Extra Duty Officer** – 100 SF
    - **Tow Officer –** 100 SF
    - **Motor Unit Office** – 150 SF – shared with several work stations
    - **Fatal Accident Reconstruction Office** – 150 SF, shared office for 3
    - **Admin. Office** – 140 SF – shared by 2 civilian employees
  - **Conference Room** – 240 SF – 10-12 seats, Smartboard
  - **Kitchenette** – 90 SF – small; coffee station, small refrigerator, sink, microwave
  - **Lockers –** 50 SF – small, for securing personal property of officers and civilian staff
  - **2 Bathrooms** – 120 SF
  - **Property Annex –** *(see under Property)* currently a dual-access storage room between Detail Room and Property, where officers leave evidence for Property during off-hours. Ideally, would be located away so that officers do not go through Detail Room office space

<u>Property Division – 13,380 SF</u>

- **Annex – 140 SF –** secured drop-off room for evidence logged by officers during off-shift hours
- **Public desk** (open pass-through counter) – **470 SF**
  - Visitors must pass through security to get to counter
  - Currently serves both public & officers who are logging evidence (sometimes leads to heightened tension)
  - **Public Path with Officer Desks** – 400 SF
  - Officer function of this window – needs officer report writing stations (2-3), space to layout evidence to be logged in, access to front-desk supervising officer to sign off the evidence forms

  - Public path (community members, inmates released on bail, etc.) goes behind officers that staff the front desk – not ideal
  - **Property Desk** behind counter – 70 SF
  - If possible to have separate pass-through windows (one for public and one for officers), this would be preferred; however, both would be serviced by the same team of 3-4 staff
- **Property Clerks** – **240 SF –** 3 workstations; adjacent to property storage and public desk
- **Supervisor Office** – **110 SF** – 1 workstation; adjacent to property storage and public desk
- **Storage** – considerable SF required – minimum **12,420 SF**
  - **Vault –** 230 SF
  - **High Density Storage Shelving** – key for efficiency
  - Currently split across different sites in New Haven, 10800 SF assume 15% expansion *(off-site SF per Giovanni Zinn email – Appendix D)*
    - Approx. 3800 SF on-site, including Vault
    - Approx. 6000 SF at the New Haven Armory
    - Approx. 1000 SF at the training academy on Wintergreen
  - SF efficiencies that would come from consolidation are hard to determine, but on-site square footage should be doubled at least
  - Long-term and sensitive evidence requires climate-control, protection from water
  - Some property is much larger and bulky (examples: 300 bicycles need ~ 2000 SF, 43 quads need ~ 700 SF)
  - Once numbers are determined, may need to consider very specific/limited off-site for largest and/or most permanent files
- General Procedures
  - 8am-5pm, M-F; Open to public from 9am-4pm M-F
  - Found Property (Lost & Found) is held for 6 months
  - Typical property/evidence must be held for 7 years
  - Property that can be eliminated is either donated, auctioned, or thrown away
  - Major crimes evidence (homicide) has no statute of limitations and is held forever
  - Human DNA evidence is temporarily held (requires refrigeration), until it goes to the State Laboratory
  - Very tight "chain of custody" and high level of security is paramount
  - Drugs/substances are held securely within the Bureau of Identification (B of I)
  - Proximity to B of I and secured access to Loading Dock are desirable

<u>Records Division</u> (Lt. Siclari) – <u>**2300 SF**</u>

- **Supervisor Office – 220 SF –** current SF is adequate
- **Restroom** – **40 SF** – unisex
- **Staff workstations** – **1050 SF** – current SF is adequate (24 staff in the Division)
- Operates 24/7, 3 shifts A, B, C that work along with Patrol squads
- **Pass-through window desk** – **120 SF** – to communicate with Officers, provide forms, serve Warrants

- **Compact Storage – 740 SF –** High-density filing is used throughout; Adjacent storage room (380 SF) is full and should grow to accommodate storage that is currently surrounding the perimeter of the staff workstations
- **Break room – 130 SF** – currently 100 SF, too small, with too few lockers

Office of the Chief (Asst. Chief Cain) **– 3725 SF**

- **Chief of Police Office –640 SF** includes full restroom
- **3 Assistant Chief Offices – 660 SF** – 220 SF each, include half-bath restrooms, minimum
- 4th Asst. Chief is located with Bureau of Investigations
- **3 Administrative Assistant workstations – 345 SF** – 115 SF each, 1 adjacent to Chief, other 2 shared between Asst. Chiefs
- **Reception Desk – 100 SF**
- **Waiting space – 180 SF –** ideally in alcove, partial separation is desired
- **Conference Room – 500 SF** – seating should flex. 18 typical; should flex up to 40 people
- **Kitchenette – 100 SF** – sink, refrigerator, microwave, storage
- **Record Room – 400 SF** – secured filing. Cabinets are distributed throughout currently; should be consolidated in secure room
- **Open gathering space – 800 SF –** for Press Briefings, ideally in a more public zone, further from secure locations
- **"Chief's Elevator"** is also the service elevator, posing a security concern. Service workers for prop. manager sometimes come in through loading dock without checking in at the front desk. From the loading dock and receiving room, anyone can take the elevator up to the Office of the Chief.

Bureau of Investigations (Detectives) (Lt. Johnson) **– 6,880 SF**

- **Asst. Chief Office – 220 SF** – includes half bath; adjacent to conference space
- **O.I.C Office – 140 SF**
- **Conference Room – 240 SF –** 10-12 capacity
- **Reception – 100 SF**
- **Break Room w/ Kitchenette – 130 SF**
- **Storage – 240 SF**
- **Collect Room – 120 SF –** Secure door, 2 desks, printer, form shelving
- **General Investigations "The Floor" & Financial Crimes Unit – 1380 SF**
- 20 stations – 14 General, 6 Financial Crimes
- **"Floor" Supervisors' Office – 220 SF**
- **Staffing Office – 100 SF**
- **Robbery / Burglary Unit – 320 SF**
  - 4-5 Staff Workstations – shared office – 220 SF
  - Supervisor Office – 100 SF
- **Narcotics Enforcement Unit / Criminal Intelligence Unit – 320 SF**
  - 4-5 Staff Workstations – shared office – 220 SF
  - Supervisor Office – 100 SF
- **Homicide – 320 SF**
  - 4-5 Staff Workstations – shared office – 220 SF

  - Supervisor Office – 100 SF
- **Shooting Task Force – 320 SF**
  - 4-5 Staff Workstations – shared office – 220 SF
  - Supervisor Office – 100 SF
- **Intel – 320 SF**
  - 4-5 Staff Workstations – shared office – 220 SF
  - Supervisor Office – 100 SF
- **Intel Hub – 400 SF**
  - 1 Analyst workstation (2-3 screens)
  - 2 Intern workstations (2 screens each)
  - Color printer
  - 3-4 wall mounted screens
  - Intel Conference Room – 10-12 people with large wall-mounted screen; adjacent to, but acoustically separated from analysts' station
  - "The Heartbeat" of the Detective Bureau
- **Special Victims Unit** (includes Missing Persons and Firearms) and **Family Services / SRO** (School Resource Officers) – **900 SF**
  - **Supervisor Offices** – 300 SF – 3 offices
  - **10-15 Workstations** – 300 SF
  - **Family Room w/ Kitchenette** – 150 SF
  - **Waiting Area** – 90 SF
  - **Restroom** – 60 SF
- **Line-up Room / Narcotics Briefing Room – 240 SF** – 10-20 line up
- **Interview Rooms – 360 SF** – 4 interview rooms, average 90 SF
- **Observation Room – 120 SF**
- **Holding Cells – 180 SF** – 3 adult cells
- **Juvenile Holding Cells – 120 SF** – 2 cells
- **Juvenile Processing Center / Interview Room – 70 SF**

Bureau of Identification (Lt. Johnson) – **2,120 SF**

- Part of Investigation Division, but can be located separately on-site
- Ideally at ground level, adjacent to Property with secured loading dock access
- Current location requires evidence to follow prolonged path of travel through less secure areas. The nature of some evidence (size, smell, etc.) makes this problematic for security and for the functioning of other Units
- Secured access
- **Supervisor Office – 100 SF**
- **Workstations – 650 SF**
  - 13-16 people, with 2 specialized imaging workstations; can be "open-plan"
  - Shared table area
- **Breakroom w/ Kitchenette – 200 SF**
- **Equipment Storage – 140 SF**
- **Lockers for specialty gear – 100 SF**
- **Laboratory – 450 SF** – currently very undersized – 250 SF; highly secure
- **Evidence Storage – 100 SF** – secured; direct access to Lab
- **Evidence Drying Room – 150 SF** – secured; direct access to Lab

- **Drug processing room – 110 SF** – with desk and layout room; adjacent to secured storage; well-ventilated
- **Drug Storage – 120 SF** – highly secured; adjacent to processing; well-ventilated

<u>Public Safety Communications (PSAP / 911 / Dispatch) – 3850 SF</u>

- **Parking** –none currently on-site; problematic for shift change-over; added daily stressor; 28 spaces (250 SF/space) (7000 SF) allows for shift changeover
- Separate management from NHPD; direct to the City of New Haven
- Current location deep within Police Headquarters leads to an "identity crisis" for workers and confusion about management
- Typically, this would be in a separate facility altogether for security reasons (ex: Hamden, Bridgeport, etc.)
- Minimally, needs top security, **separate entrance**; some anonymity from public eye is good, but a separate entrance would give workers there an identity & added security
- Runs on entirely independent, redundant services from building; Assume 15% of GSF
    - Servers/Data, Telephone – 250 SF
    - Cooling/Heating and Generators require exterior space as well – SF unknown
- **Director's Office – 120 SF**
- **Deputy Director's Office – 120 SF**
- **Office for Admin. Assistant – 90 SF**
- **Training Room – 500 SF** – 12 training desks, instructor space next to SmartBoard
- **911 Call Center – 1580 SF** – approx. 50 people
    - 2 Supervisor Stations; ideally elevated at center of room, in middle of quads; Chicago dispatch was named as an ideal design
    - 4 quads; 4 desks per quad – 12 workstations
    - 13 personnel per shift
    - 3 shifts – 8-hours each, but sometimes staff is on-site 24 hours
- **Locker Rooms – 400 SF** – for 50 people
    - 60-65% female (up to 33), 40-45% male (up to 23)
    - Current lockers are very narrow, unusable; 14" wide lockers preferred
    - Bathrooms – quick access from Call Center
    - Shower stalls – 2 per room; 4 total
- **Small Exercise Room / Gym – 400 SF** – physical/mental health, stress-release
- **Break Room – 400 SF –** key for mental health of dispatchers
    - Table and chairs, sofa – restorative lounge area
    - Kitchen with cook-top, microwave, toaster oven
    - Currently one refrigerator used by 50 people; Ideally would be 1 refrigerator per shift
    - TV
    - Visual and acoustic separation from Call Center needed (phone rings are stress triggers); current facility has neither

  - Views out to nature preferred; secure seating outdoors would be ideal (San Francisco has a "quiet garden")
- **Quiet Room – 120 SF –** key for mental health of dispatchers
  - No relaxation space in current facility; very high-stress environment
  - Comfortable furniture, sofas1
  - Critical to mental health of dispatchers
  - This type of space is a standard in new facilities
- **Small Conference Room – 120 SF**
  - Could be second use for Quiet Room
  - For supervisors to have private conversations with dispatchers, each other, as needed

Current Building MEP and Vertical Circulation – 12,390 SF
(for comparison ~20% of new subtotal)

- **Mechanical – 9000 SF**
  - Mech. Rooms by floor
    - 1220 SF / G floor
    - 760 SF / 1st floor
    - 1180 SF / 2nd floor
    - 1180 SF / 3rd floor
    - 1220 SF / 4th floor
  - **Boiler room** – 1610 SF
  - **Cooling Tower** – 900 SF
  - **Server Room** – 580 SF
  - **Data/Telephone/Communication** – 400 SF
  - **Radio** – 90 SF
- **Vertical Circulation – 3250 SF**
  - Three staircases from Level G to 4, next to elevators (150 SF each, per floor)
  - Four elevators – one at each end, pair of elevators at center (50 SF each, per floor)

Centrally Located

A central location will enhance the sense that the police department is part of the community. Also, patrol squads should have convenient access routes to all New Haven neighborhoods that they patrol.

Out of 100-yr. Floodplain

Continuous operation of the facility and access into and out of the building is particularly critical in an emergency flood situation. Any proposed site is required to be out of the 100 year flood plain established by FEMA.

Road Access Redundancy

In an emergency situation, such as flooding, at least one route of road access should remain navigable for police department vehicles.

Easily Accessible to Parking & Public Transit

The new facility should be easily accessible to all residents in New Haven - by car and public transit bus routes and bike paths.

Friendly Adjacent Uses

The new police facility should not be disruption to the existing neighborhood fabric.

Multiple Street Frontages

Multiple street frontages aid the separation of functions, such as the sally port vs. the public entrance. The facility serves many functions and certain building population circulation paths want to be separated.

Utility Infrastructure

The proposed property has infrastructure to support a large facility already in place. Relatively flat and level sites are also given preference.

Adjacent to Municipal Facilities

Beneficial for communication in emergency situations. Day-to-day convenient access to city and court personnel also aids operational efficiency.

“Gateway” Presence

The new facility should represent the best of New Haven to residents and visitors alike.

Single Land Parcel

The proposed property is comprised of a single parcel, which contributes to ease of land acquistion.

TEST FIT DIAGRAMS

SITE CRITERIA

Descriptions

Centrally Located

Out of 100-yr. Floodplain

Road Access Redundacy

Easily Accessible to Parking & Public Transit

Friendly Adjacent Uses

Multiple Street Frontages

Utility Infrastructure

Adjacent to Municipal Facilities

“Gateway” Presence

Single Land Parcel

TEST FIT DIAGRAMS

110 Hamilton Street

Site Statistics

Acreage: 1.35 (2 parcels)
Total SF: +/- 100,000 SF
Parking: 350 structured
Amenities: Park
Community Rms.
Retail

Site Selection Criteria

- [x] Centrally Located
- [x] Out of 100-yr. Floodplain
- [x] Road Access Redundancy
- [x] Easily Accessible to Parking & Public Transit
- [x] Friendly Adjacent Uses
- [ ] Multiple Street Frontages
- [x] Utility Infrastructure
- [ ] Adjacent to Municipal Facilities
- [x] "Gateway" Presence
- [ ] Single Land Parcel

Site Program Use

- NHPD
- Community/Retail
- Green/Recreation Space
- Parking

TEST FIT DIAGRAMS

34 Fair Street

Site Statistics

Acreage: 3.23 (5 parcels)
Total SF: +/- 100,000 SF
Parking: 350 structured
Amenities: Park with Courts
Community Rooms
Retail

Site Selection Criteria

- [x] Centrally Located
- [x] Out of 100-yr. Floodplain
- [x] Road Access Redundancy
- [x] Easily Accessible to Parking & Public Transit
- [x] Friendly Adjacent Uses
- [x] Multiple Street Frontages
- [x] Utility Infrastructure
- [ ] Adjacent to Municipal Facilities
- [x] "Gateway" Presence
- [ ] Single Land Parcel

Site Program Use

- NHPD
- Community/Retail
- Green/Recreation Space
- Parking

TEST FIT DIAGRAMS

10 Wall Street

Site Statistics

Acreage: 1.17 (2 parcels)
Total SF: +/- 100,000 SF
Parking: 330 structured
30 surface
Amenities: Community Rooms
Possible park across State St.
Retail

Site Selection Criteria

- [x] Centrally Located
- [x] Out of 100-yr. Floodplain
- [x] Road Access Redundancy
- [x] Easily Accessible to Parking & Public Transit
- [x] Friendly Adjacent Uses
- [x] Multiple Street Frontages
- [x] Utility Infrastructure
- [x] Adjacent to Municipal Facilities
- [x] "Gateway" Presence
- [ ] Single Land Parcel

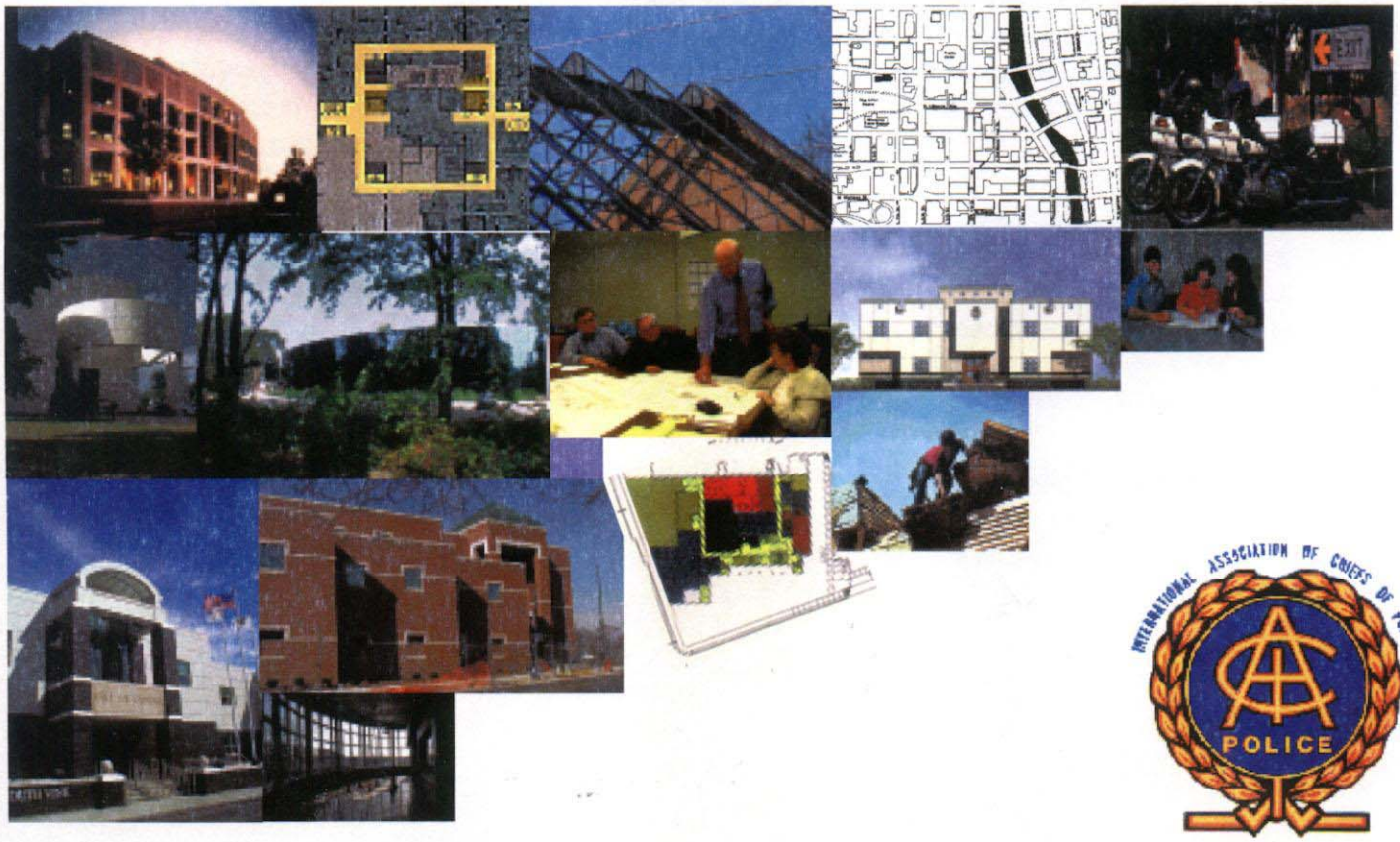
Site Program Use

- NHPD
- Community/Retail
- Green/Recreation Space
- Parking

IACP

Police Facility Planning Guidelines

Desk Reference for Law Enforcement Executives



International Association of Chiefs of Police

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Introduction

"The IACP contends that architects alone cannot design a functional police structure. They need the help and guidance of qualified police administrators."

IACP Police Facility Design Report, 1978

There are almost 19,000 state and local police agencies in the United States. Each has, or will in the future need to plan, design and build a new headquarters, precinct or substation. Since the useful life of a police facility can range from 20 to over 50 years, a new facility project is typically a "first time" experience for most law enforcement executives. They have little or no expertise in the subject area. Effective planning for a new or renovated law enforcement facility is the most cost-effective step a jurisdiction can take to ensure a successful project outcome.

A chief's role in the decision-making process has dramatic impact on the design, budget, use and life of a new facility. Decision making during the facility project is similar to a funnel – wide at the top and narrow at the bottom. At the beginning/planning stages, the project team has the greatest opportunity to change building philosophy, size, and design with the least impact on cost. At later design stages, opportunities for change and correction become more limited and more costly. Changes during the construction stage are the most expensive and can seriously delay a project.

This Desk Reference is designed to help chiefs and other law enforcement executives make sound decisions through use of a comprehensive planning approach. It will help chiefs design and construct a new facility, renovate an existing police facility, or adapt another type of facility to police purposes. The Desk Reference incorporates the expertise of police chiefs, police facility project managers, architects and consultants and identifies the critical project management steps involved in successful planning.

The Problem

Most police facilities continue to operate well past the planned life span. They often become seriously overcrowded, suffer from a lack of sufficient infrastructure (HVAC, electrical, data, telecommunication) and make due with outdated security and safety systems. These conditions often impair staff efficiency and morale, occupant safety, policing effectiveness and public perception of the department.

Focus of the Desk Reference

This Desk Reference provides police leaders with an 18-step Police Facility Planning Model applicable to all types and sizes of facility projects, regardless of complexity. The Planning Model is intended to promote a successful project outcome, whether the jurisdiction is constructing a multi-use justice complex, a police headquarters facility or any one of several smaller projects, such as a precinct facility or substation.

This document is designed principally by police chiefs and other law enforcement executives. It is designed to position the police executive and/or his or her staff in a leadership role as facility project activities ensue. The guide focuses to the greatest extent on the planning process and to a lesser extent on design or construction elements. While design and construction issues are unique to each jurisdiction, core planning steps are essential to every jurisdiction.

The Facility Planning Model

This Desk Reference is designed around the IACP's Facility Planning Model, taking the reader through the four phases of facility planning, and the steps included in each phase. Detailed discussion helps the reader understand the value of each phase and step, and gain clarity on how each step can be successfully completed:

Phase I: Project Initiation

This phase of the planning model contains seven project start up steps:

1. Identify and document facility problems
2. Build police internal planning team
3. Build political support
4. Identify and secure planning funds
5. Document policing philosophy
6. Establish project pre-design team
7. Establish community support for project

Phase II: Project Planning/Pre-Design

This phase includes three steps focusing on pre-design planning issues:

8. Conduct space needs analysis
9. Evaluate facility options
10. Conduct site evaluation

Phase III: Budgeting & Funding

This phase outlines three steps of the model that must be taken to assess and secure the necessary funds to complete the facility project:

11. Develop preliminary project design/construction costs
12. Obtain project funding
13. Secure & purchase site

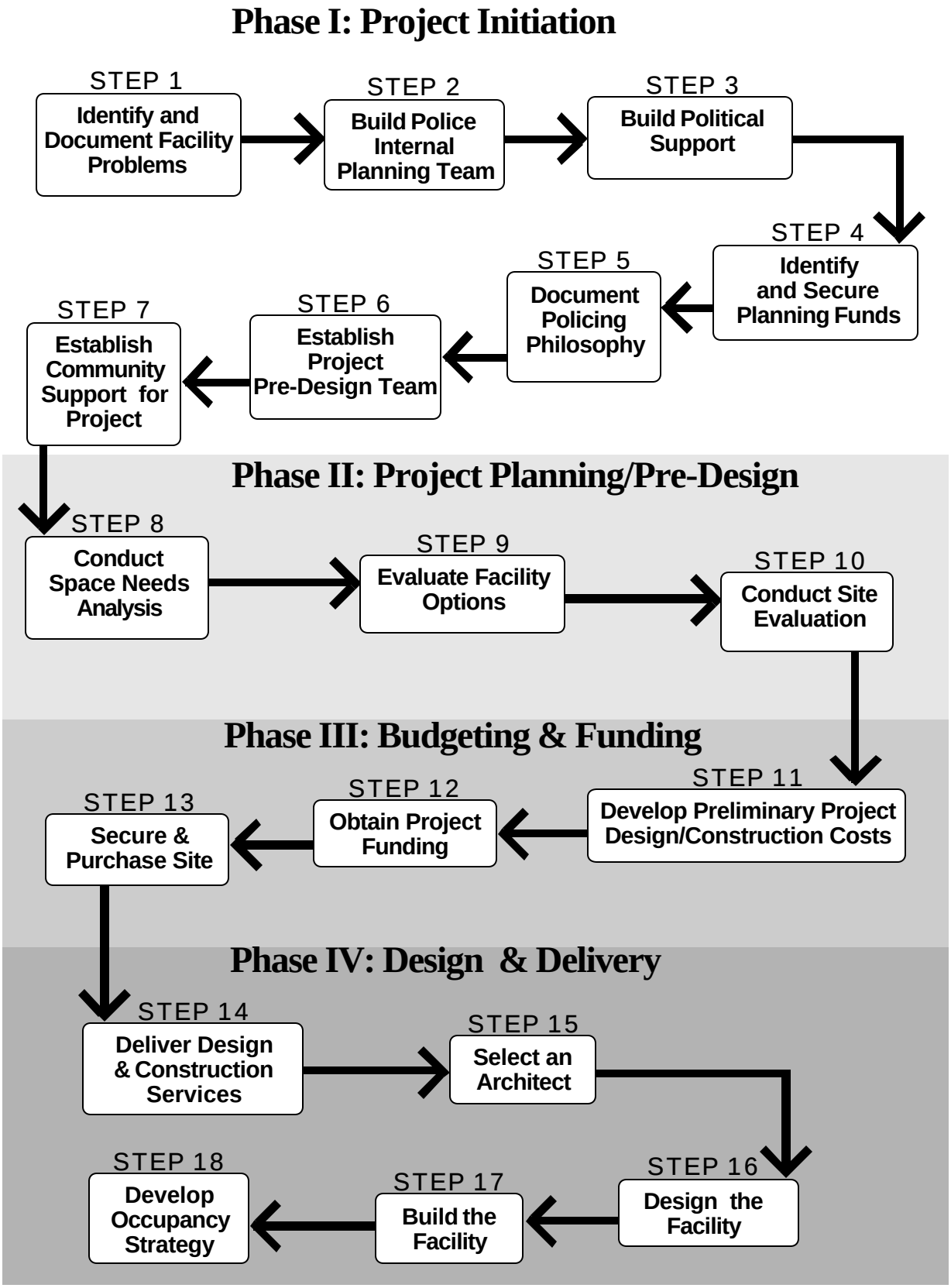
Phase IV: Design & Delivery Phase

The last five steps of the model identify all necessary actions to design, construct and occupy the facility:

14. Deliver design & construction services
15. Select an architect
16. Design the facility
17. Build the facility
18. Develop occupancy strategy

While individual jurisdictions may have the need to re-order some of the steps based on unique local issues, the IACP believes that each of the 18 steps of the planning model must be accomplished successfully. Following the planning model will insure that the facility constructed reflects the mission of the department, meets all programmatic needs, fulfills all functional requirements, and has sufficient space to meet departmental needs for at least the next twenty years.

Facility Planning Model



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Section One

Project Initiation

The first section of the Facility Planning Model focuses on the initial actions a police chief should take to explore an existing facility's needs and deficiencies, assembling a police project team, building political support, setting goals, and examining cost implications. Also explained in this section is the process required for data collection to formulate a reliable and informative report on existing facility deficiencies. That report, along with a talented and committed project team, agency and community support, as well as a positive political climate, will hopefully be catalysts for continuing on to the next steps of a facility planning project.

PLANNING TIPS

Initial Steps

- Assemble a police planning team
- Write a mission statement
- Complete a facility deficiencies report

Step 1: Identify and Document Problems With Current Facility

The first step of any facility project is to identify and document the deficiencies of the existing building. Step 1 explains how to approach this task. The outcome of Step 1 is a Facility Deficiencies Document that will serve as the foundation for all subsequent project steps.

Well-designed police facilities enable staff to perform their duties efficiently and effectively. As a facility ages, it may no longer meet the needs of an evolving department, thus negatively affecting morale, efficiency, safety, security, technology, and overall policing efforts. When these conditions occur, agencies search for alternatives. Typical remedies include expanding or renovating the existing facility, adaptively re-using an existing non-police facility, or building an entirely new facility.

To outline the possible scope of a project accurately, it is necessary to document existing facility deficiencies. A *broad-brush* approach should be used, examining all facility needs, including department, staff, equipment, fleet and public needs. A wide array of staff participation during this information collection phase is encouraged. Does the building support your policing philosophy? The agency mission statement regarding operational philosophy and goals is essential to clearly defining problems with the current building. Does the current facility design help achieve that mission? *(See Step 5, page 9)*.

During the deficiency assessment, it is vital to:

- Collect reliable and accurate data on all facility deficiencies (a recent building or code compliance assessment audit is a good place to start).

- Take slides and photos, and perhaps video, of facility deficiencies. These will greatly assist in visually expressing any deficiencies during future presentations.
- Ask relevant questions such as:
  - What current facility deficiencies prevent officers from doing a good job?
  - What delivery of services is needed for the public that the old facility cannot offer?
  - How does the proposed project align with the jurisdiction's overall strategic business plan and service goals?
  - What does a department need to make Community Oriented Policing efforts work better for themselves and the community? COP efforts are strengthened when a police department and it's employees have the correct tools. A police facility is one of those tools.
  - Are operational standards or best practices of the department compromised through use of the current facility?
  - Have customer, civilian employee, and officer surveys been completed to document their needs and perceptions of facility issues?
  - Is the building itself a hazard? Does this building meet, or can it be made to conform in a cost-effective way, to state or local structural building codes?
  - Is there space currently for police archives (police museum in larger cities) to display the history of the department for staff and public image building?
- Conduct community meetings to discuss facility deficiencies, enlighten citizens and solicit feedback. When citizens become part of a planning team and are educated as to the facility's deficiencies, they will be more likely to realize the advantages of a new or expanded facility and ultimately support your cause.
- Focus on what the public needs:
  - Public parking that is clearly marked
  - Ability to easily identify and access the entrance
  - Readily accessible and identifiable ticket sign-off parking area
  - Visitor friendly design that incorporates safety as a priority
  - Waiting area
  - One-stop shopping concept for police services
  - Easy pick up of report copies and property
  - Community Center/meeting room
- Tour other police facilities:
  - Observe the overall layout (exterior and interior)
  - Observe work flow
  - Observe interesting design features that improve efficiency
  - Question why things are designed the way they are
  - Ask how evidence, reports, and arrestees are processed; how visitors are assisted
  - Ask what does and doesn't work within the facility design—or what could work better

- Search for maintenance "headaches" and overlooked areas that are now causing problems and/or procedural changes that were not expected, but that are made necessary by the way work flows
- Note the lessons learned from good and bad design features. Document these issues with photography for later use

• Contact your current facility customers (City, County, State agencies, courts, jails, etc.) and gain insight into a different perspective of facility deficiencies.

• Have similar discussions with project managers and architects in your jurisdiction to gain their insight into the project.

• Elicit staff participation at all levels within the department to identify problems.

• Gain as many perspectives as possible to assist in identifying deficiencies during the preliminary deficiencies assessment phase.

All information must be formatted and eventually blended into a formal Existing Facility Deficiencies Document for broad distribution to staff, community board, citizens and others.

Existing deficiency analysis can be performed by 1) an experienced consultant or architect, or 2) in-house staff, if your department has facility planning expertise. Whomever is selected will need to work closely with the police project manager to insure good communication and oversight.

Depending on the size of the agency or project, it may be helpful to utilize a trained and experienced consultant or architect for this stage. If an architect or consultant is to be hired, a simplified Request for Proposal (RFP) can be utilized to solicit a qualified professional. It is recommended that any in-house staff selection be based upon expertise, skill and commitment.

Step 2: Build a Police Internal Planning Team

Early selection of a dedicated and qualified police project manager and project team is essential. Staffing and assignments can vary throughout a project, but commitment to common goals and teamwork is vital. A governance structure and a decision-making process is critical for clear roles and authority.

Once the facility deficiencies are documented, the next (and often parallel) step is to build an internal planning team within the department. The diagram on the next page illustrates the structure and purpose of the internal planning team.

PLANNING TIPS

Key Points in Documenting Facility Deficiencies:

• Take photographs and videos

• Ask relevant questions about the buillding

• Conduct community meetings

• Tour other facilities

• Ask your customers about their needs

• Talk with staff

Police Internal Planning Team

Membership ê	Leadership ê	Function ê	Communication
• Project Manager or Chief Administrator • First Line Supervision • Sworn Staff • Non-Sworn Staff	Consensus and decision-making process must be consistent.	This group directs the project from start to finish. Consistency is imperative.	One spokesperson is essential. Maintain a consistent procedure with all partners.
Choose people knowledgeable in technology, construction, finance, etc. These individuals will help define the concerns of the police department and ensure the department's needs are included in planning and decision-making in the early planning stage.			

PLANNING TIPS

Size and complexity of police internal planning team will vary with size of law enforcement agency.

Project management is the key to any project, especially one as vital, detailed, costly, and politically sensitive as planning, designing and constructing a new police facility. Careful selection of a Police Internal Planning Team can mean the difference between project success and failure. Each team member must understand and agree to the actual time commitment involved. A three-to-five-year undertaking is normal. This could easily be extended depending upon the size and scope of the project. Part time vs. full time responsibility varies with each department team member, depending upon the role assigned and the stage of the project. The size and assignments of a police project team vary with the size and scope of a project, management philosophy, staff capabilities, project scheduling and staff availability.

Selecting a Police Project Manager

Selection of police project manager is crucial to project success.

A police project manager, pivotal during an entire project, may be either a police chief (usually the case with smaller agencies) or a designee, such as a commander, captain, lieutenant, civilian manager, facility manager. Occasionally the two may share the role, with a designee handling most of the tangible work and a chief managing the more sensitive, political aspects of the project, such as the concerns of citizens and council members.

If a chief elects to utilize a designee as a police project manager, selection should be based on expertise, skill and commitment. A background in facility planning and construction will be helpful. A genuine interest in learning and managing all aspects of a project, as well as being accountable for a project's success or failure, are strong selection criteria. The stronger the personal commitment, the better the project.

Project Manager Qualities:

- Dedicated and formally committed to the project
- Capable of delegating
- Good listener
- Positive attitude
- Consensus builder

A successful police project manager should:

- Plan to stay with the project from pre-planning to dedication day
- Always know what is going on relative to the entire project
- Attend all group meetings
- Select and convene an Internal Police Planning Team
- Serve as police department representative on the Pre-design Project Team *(see page 12)*
- Sit in on all transition task force meetings to ensure necessary work is completed within set timelines
- Coordinate and schedule activities
- Be capable of delegating assignments
- Serve as a single point of contact and spokesperson

- Document the results of each planning session
- Be a good listener and have a positive attitude
- Build consensus among community agencies, members of the department, partners, planning committees and others

The police project manager must remain in place throughout the project. It is very important to have consistency in terms of leadership and project commitment; project history; philosophy; police standards; established relationships; and knowledge of the project.

Tips for Police Project Managers

- The more planning you do up front, the fewer problems you have at the end.
- Don't assume architects/consultants know your department's needs. Get involved! Don't let them work in a vacuum.
- Ask questions, expect answers.
- Learn how to read blueprints & specifications. Double-check all documents to ensure they meet your department's needs.
- Take the IACP Facility Planning and Design Course (See page 6).
- You can't do all the work yourself. Form transition teams as soon as possible.
- Think proactively, not reactively.
- Don't assume you know everything about your department's needs. Ask your employees, get their feedback. Involve them in the process. They will have to work in the building.
- Don't develop tunnel vision. Focus on the big picture.
- Share and document what you've learned so others can learn from mistakes and successes.

Internal Planning Team Members

Team members may include sworn and non-sworn managers and/or employees, each representing their particular technical or operational point of view, especially during design development and the later parts of construction. Still other team members may include police line-level employees with special skills, or an interest in architectural or construction projects. The duties of these members, as well as the size of the team, can vary as the project evolves.

Part-time membership may include organization representatives, such as a buyer, who may be brought in during the acquisition process, a building maintenance representative to identify any city or agency "standards" or to offer oversight into the facility's mechanical systems and interior finishes, or public works staff who specialize in off-site work or underground utility information. Ad hoc groups may be added to the Internal Police Planning Team at various times to provide additional information. Community members with specific expertise and interest may also be on the Internal Police Planning Team at various times. Project architects and consultants, if brought on at this stage, should be considered an extension of this team.

PLANNING TIPS

Build project support within the agency by involving staff at each step.

PLANNING TIPS

Development of a governance structure and decision-making process is a crucial step in assuring an effective outcome of the Internal Police Planning Team.

Many individuals in the department, each with his or her own particular interest, expertise, and level of participation, may be involved in a planning process at one stage or another. Some will be called upon from time to time to perform particular tasks or advise on particular issues. Others will provide broader reaction with less direct involvement. With the exception of the police project manager, the make up of the Internal Police Planning Team can be fluid, if need be. Depending upon the nature and detail of the work being performed at any given stage in a project, team members may be added or reassigned to best suit the needs of that project. Only the police project manager and a few key members of a planning team must remain a constant to ensure project stability.

Development of a governance structure and decision-making process is critical in assuring an effective Internal Police Planning Team. The police project manager and the chief should design the roles, responsibilities and chain of command for any decision-making of this team. All team members must understand the mission and goals of the project and the process by which information is gathered and reviewed. All data collected by individual members or committees should be presented to the police project manager who will compile the results of the deficiency report and present it to the chief. For the sake of simplicity and clarity, the police project manager should be the single point of contact through which all questions and information flows. The police project manager should also have final decision-making authority once issues have been fully explored.

At this step, and/or even up to Step 6 (expanded team with governing body members), the selected representatives should consider attending available training and education courses offered on police facility design. One example is the IACP sponsored *Planning, Designing and Constructing Police Facilities* training course. This four day intensive training session, designed for city administrators, police managers, police planners, engineers and architects examines the steps presented in this Desk Reference in greater detail and empowers local teams to work effectively to produce state-of-the-art facilities.

Step 3: Build Consensus for Political Support

Governing body support is critical if a project is to move beyond steps 1 and 2. The chief must fully understand governing body issues, concerns and budgetary constraints. He or she must then present any new facility planning project within that context. Tying the facility project to broad jurisdictional business plans and service goals is essential.

Internal agency and governing body support is critical for a police facility project to move beyond Steps 1 and 2.

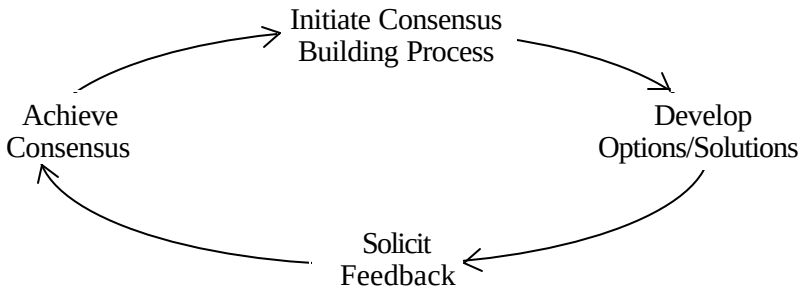
Internal agency and governing body support is critical for a police facility project to move beyond Steps 1 and 2. Existing facility deficiencies must be presented to all concerned, involved parties, at the proper time, by the proper person(s), in a logical format with complete understanding of what is important to each. Identifying and conveying the deficiencies of a current facility can be relatively easy, however convincing executive and political decision-makers of the need to move forward with a project that will require considerable amounts of funding is far more difficult. Government executives and decision-makers have political motivation, challenges and problems associated with capital projects, funding and internal infrastructure goals. Take this step slowly, attempting to discover ways to appeal to each decision-maker.

Developing project support from heads of other departments/agencies in your jurisdiction is wise, especially from the departments that have a strong relationship with the top executive decision-maker or have members on public works project teams. Gaining the support of other department heads can occasionally be the turning point for convincing the top executive decision-maker that a project is in the best interest of the entire organization. A critical step here is to prove that the project aligns with the jurisdiction's overall strategic business plan and service goals.

Government leaders may be initially resistant to police facility projects. Public safety (police, fire, EMS) budgets and staff are usually larger than other departments. Their role in life saving, emergency response and daily protection of citizens lends itself more easily to justification of funding required for new programs, staffing levels, facilities and equipment, while other government departments have a more difficult time. This may lead to animosity or resistance from other department members.

It is important to involve other departments in planning and supporting a project; however, it takes special effort to educate them and bring them into the process in a positive way. Consider joint use within a new facility to assist in gaining internal support, such as proposing a city employee fitness center, open-use lunchroom, meeting rooms, etc. Bring other organizational representatives into the process to solicit their input and ideas. Demonstrating that you are open to their inclusion can result in their support for the project.

Consensus building is an effective tool for promoting a useful dialogue and decision-making process between agencies or individuals with divergent viewpoints. The diagram below is an example of a consensus building process aimed to promote effective discussion and planning.



To gain support from other city organizations and governing bodies, you must make it clear that the police department has a stake in, and impact on, quality of life in the community. The image of a police facility must be seen as synonymous with the image of the government and community it represents.

PLANNING TIPS

Build political support by stressing business plan and service goals to:

- political allies
- city department heads
- community groups

Consider joint use for the facility.

Step 4: Identify and Secure Planning Funds

The chief should seek a reasonable level of initial planning funds from the governing body to initiate a more comprehensive facility needs assessment. Planning funds ensure that the groundwork for all future facility design work is reliable and data-driven.

PLANNING TIPS

Planning Funds—the most valuable investment that can be made in the project.

Front-end planning can save millions of dollars in 20-year life cycle facility costs and later renovation costs. If possible, avoid making estimates of project costs. "Ballpark" estimates are frequently wrong.

The department should take the position that actual facility costs are not and cannot be known until the planning process is put in place and specifically until Step 11 of the model is complete.

Once facility deficiencies are documented, an Internal Police Planning Team is in place, and governing body support for the project is forthcoming, securing sufficient funds to conduct a comprehensive facility planning study becomes necessary. Planning costs will vary based on facility and departmental size and complexity. *This expenditure, which may seem large to the governing body at the time of request, is the most valuable investment that can be made in the project.* Planning funds represent the least amount of money that will be spent on the overall project while offering the most potential to ensure a successful project.

At this stage the department should obtain planning funds to, 1) confirm the commitment of the jurisdiction to a new facility project, 2) allow the department to begin to expand the project team (use of consultants), 3) travel to model sites as needed. (*See Site Visit Protocol, Appendix 2.*) Requests for up-front planning funds are supported by the materials developed by actions taken in Steps 1, 2, and 3 and should be based on the cost experiences of similar departments regionally who have already planned and designed a new facility.

Some issues to consider when making the request to the governing body for planning funds:

- Examine jurisdictional funding constraints and priorities
- Clarify that front-end planning costs can save millions of dollars in 20 year life cycle facility costs and in later renovation costs, as well as expedite the project by providing project justification
- Time request to coincide with city's yearly budget cycle or long range capital improvements plan
- Base consultant fees on scope of work you want them to do
- Obtain planning expenditure approval

When seeking funds for the planning stage, police leaders should refrain from making estimates of the anticipated design/construction costs of the planned facility. "Ballpark" estimates at this stage are frequently wrong, since they are not based on documented information and analysis. Estimates at this stage also become liabilities for the chief and the department, whether they are too high or too low. *The department should take the position that facility costs are not, and cannot be known until the planning process is put in place, and specifically until Step 11 of the model is completed.*

Step 5: Document Policing Philosophy

The chief must clarify the mission, philosophy, and goals of the department. These principals should be the driving factor in all facility planning, design and construction decisions. Absence of attention to goals and philosophy leads to a facility that does not reflect the department's true mission.

Facility planning projects often move ahead too quickly or underestimate the time needed to undertake a comprehensive functional and/or space needs analysis. In particular, an essential step–documenting the philosophy and mission statement of the organization–is often overlooked. The mission goals, objectives and programmatic needs of an organization should dictate the design of its facility.

Most police agencies in 21st-century America have a written policing philosophy in place. The planning team must fully comprehend and document the agency's governing principles to ensure that the new facility reflects them. Mission statements regarding the operational philosophy of an agency must drive, rather than be defined, by the physical layout of the building. Balancing secure internal space and publicly accessible space, for example, requires an understanding of the mission of the department. If an agency is determined to increase contact and collaboration with the community within a community policing framework, the building must be designed to make visitors feel welcome. Fortress-like facility designs, while ensuring officer and departmental safety, are antithetical to community policing initiatives. A balance between secure internal and public spaces must be achieved in each facility project.

Step 6: Establish Project Pre-Design Team

Before moving to the complex initial planning steps (site analysis, space needs analysis, and preliminary cost estimates) the jurisdiction must identify, select and put in place a Project Pre-Design Team to oversee the hiring of an experienced architectural firm/consultant with specific law enforcement facility planning and design experience. This is usually accomplished through an RFP, RFQ, QBS writing and review process. It is important that the police project manager be highly involved during this process.

The Project Pre-Design Team is created after the governing body has given consent to move ahead with facility planning and provided sufficient initial planning funds to do so. Creation of this team offers an opportunity to bring all stakeholders together and create a working relationship focused on the same goals. The Pre-Design Team is an expansion of the Internal Planning Team, keeping core internal team members in place and adding additional experts from outside the department.

PLANNING TIPS

The mission, philosophy and goals of the department should drive all facility planning and design decisions.

Project Pre-Design Team

Membership ê	Leadership ê	Function ê	Communication
• Police Project Manager • Police Staff Representatives • Ad hoc members • Architects/Consultants • City Planners, Finance • Public Works • Community Members • Other Government Reps.	Makes all decisions or recommendations. Consensus is vital to project success.	Directs project and ensures the project's success through decision-making and consensus building	The importance of a consistent process to communicate to parties is vital. One spokesperson for all.

Project Pre-Design Team Operational Objectives

The Project Pre-Design Team provides the avenue through which all major planning, design, and construction decisions are made. The membership requires diversity and it influences the community buy-in and overall success of the project. The task of managing consultants and making decisions on complex and often tedious issues falls to this group. Once again, it is vital to the success of the project for the police project manager to be consistent from start to finish and he/she must be a consensus-builder.

- Design a facility that addresses the agency's policing philosophy and supports current and future space, equipment and technology needs
- Represent all policing agency and community interests equally
- Examine all design documents (working drawings and specifications) in detail to decrease change orders and reduce errors and omissions
- Implement and provide oversight of transitional-specific planning teams
- Enhance communication to facilitate a mutual understanding of all issues and points of view
- Operate within budget and on schedule, whenever possible
- Utilize negotiation techniques and flexibility to meet the project's many challenges
- Work closely with other departments involved in the project (public works)

Public Works Involvement

New construction, adaptive re-use, large expansion, and extensive renovation of police facilities typically move to public works once they become formalized and recognized as capital projects. This usually occurs anytime between Step 1 and Step 11, depending upon the organization of the city government. Public works projects are usually supported by a public works agency project director. If the department of public works develops a project team and appoints a project director, the police project manager must play a major role on this team, while at the same time continuing to head up the Internal Police Planning Team. In these cases, the earlier developed Police Internal Planning Team becomes a vital technical/user sub-committee of the public works team. If the project becomes headed by public works, then this sub-committee will relay their input through the police project manager.

Whether the Pre-Design Team is public works or police based, the formal organization of a project team needs to be set, so everyone acknowledges that a certain structure exists and is agreed upon. Public works projects and

their structures already exist within most municipalities. Keeping this in mind, a governance structure will need to be developed for a team to ensure effective planning and decision-making takes place. Each agency will set formal or informal governance structures for their organizations. The structure will most likely be two tiered, composed of committees or teams with defined roles and responsibilities. These transition teams address specific impact and planning issues associated with relocating and/or transitioning to a renovated, expanded, new or adaptive re-use facility.

Agreement needs to be reached regarding the Pre-Design Team's decision-making process. Major decisions effecting project approval, funding sources, architectural or construction contract award are usually reserved for the entity's top-level decision-makers and/or elected officials. Most cities, counties and states have laws pertaining to the awarding of contracts and use of public funds which establish a set process to follow. Again, each project varies, but this needs to be discussed up-front so all team members understand and agree to the process and their responsibility to make certain decisions, whether they relate to design, budget, location, furnishings, public relations, selection of architects, contractors and consultants, or acceptance of product submittals, etc.

Role of Architectural Consultants on Pre-Planning Team

Qualified architect/consultants, experienced in design and construction of police/law enforcement facilities, play a key role on the Pre-Design Team. Typically, they take the lead in, 1) conducting site feasibility study, 2) completing a formalized space needs analysis (see Step 8 for details) and 3) developing preliminary budget. References of qualified architectural firms or consultants can usually be gathered from local police departments who have recently gone through the building process.

Criteria to use in selecting architectural consultants should include:

- Experienced agency (well-structured and proven in law enforcement design)
- Flexibility
- Current, extensive similar project experience
- Positive relationships with contractors
- On time, within–budget delivery of projects (last five years of projects documented)
- Size of firm and years in business
- Listening and teamwork skills
- Creative talent/ strength of ideas
- Pending work schedule. Can they devote the time to your project?
- Personal chemistry/comfort level/ compatibility
- Plan for design process and possible alternatives - a problem-solving approach
- Skilled project team members with substantial law enforcement experience
- Samples of previous studies
- Reference checks

PLANNING TIPS

All members of the Pre-Design Team need to agree on a decision-making process.

PLANNING TIPS

A project manager should review the RFP, RFQ, or QBS prior to release to ensure that agency needs are covered.

Prior to awarding the contract a police project manager should:

- Contact all references
- Visit sites designed by submitting firms
- Meet with the architect

To hire an architectural consultant for the space needs and site analysis and preliminary budget development, most government organizations utilize a Request for Proposals (RFP), Request for Qualifications (RFQ), or Qualification Based Selection (QBS) process. Each process has similarities to the others; however, each has its own particular strengths and should be considered depending upon the project being proposed.

Note: *Each jurisdiction must confirm architects'/contractors' acquisition protocol with their legal counsel and purchasing departments.*

RFP - Request for Proposals: Bases architect/consultant selection upon a presentation of proposed project scope of services set forth by a particular firm, using a set of evaluation criteria and scoring sheets. (In this stage, the architect/consultant is only providing a space needs analysis as in Step 8). It also outlines the firm's qualifications to handle the particular project. Fees are sealed and not opened until scoring is completed and firms are ranked. Fees are then considered as part of the final selection process weighed with ability, experience and other selection criteria.

RFQ - Request for Qualifications: Bases architect/consultant selection upon qualifications of a particular firm to perform the required services, using a set of evaluation criteria and scoring sheets. Once considered properly qualified, selection can continue or proceed directly into fee negotiation with the firm considered most qualified, (similar to the RFP process).

QBS - Qualification Based Selection: Bases architect/consultant selection upon the qualifications of a particular firm using a set of evaluation criteria and scoring sheets. The emphasis is on matching the qualifications of firms to the police agency's needs, rather than comparing one firm to another. Once the match is made, the agency/municipality negotiates a mutually agreeable scope of services with that firm. (Brooks Act of 1972 mandates the QBS system be used by the federal government for procurement of architectural/engineering services on city projects where some federal money may be included).

The RFP, RFQ, or QBS document is usually written, advertised and released by an organization's public works department, or similar agency. Obtaining copies of comparable documents from local agencies that have recently built similar facilities is encouraged. A police project manager should ask to review the document prior to its release, therefore insuring the needs and viewpoints of the agency are expressed. These documents should include minimum qualifications for proposing, such as prior size and scope of previous police projects, former police project manager references, demonstrated comprehension of the applicable policing philosophy, etc.

A police project manager should carefully read over all submitted information from architectural firms proposing on the project, contact their listed references, and visit sites designed by the firms, if possible. It is not uncommon to have the submitting firm present their proposal at your agency. This can enhance the selection process. A police project manager should be a major decision-maker in the selection process to ensure department needs are represented and the quality, philosophy and personality of the architectural firm/consultant team meet the needs of the project.

Step 7: Establish Community Support for the Project

Gaining governing body and taxpayer support for a capital funded project is crucial. The techniques used for marketing such a project should be carefully considered. Educating the community can lead to increased project support.

The level of success of a public project can be measured by the support it receives from the governing body, other public agencies, citizens, business leaders and associations. Such support is usually engendered through education efforts and articulation of current facility deficiencies and needs analysis results, demonstrating the benefits to each audience.

External organizations can offer their support in a variety of ways. They can support a project by commenting on it in their newsletters or speaking about it at their meetings. Business improvement organizations (BIO) groups such as the Lions, Elks or Kiwanis Club, local philanthropic and civic groups, are excellent sources of support. Organizations may also wish to sponsor furnishings for a particular room within a newly proposed facility, such as a child victim interview room, police museum, or local community room. Within some municipalities, private corporations have donated their products or furnishings to offset project costs. In California, a woman placed the Santa Ana Police Department's canine section in her will so that her estate funded their new facility canine kennels. In Chandler, Arizona, etching the names of project sponsors in the entry pavers helped to fund an officer memorial.

The ultimate goal is to gain as much support as possible from all city departments, staff, taxpayers/citizens, private corporations, press, etc. The larger the support base, the higher the probability for project funding. High level strategies are usually developed by a top executive decision making team, which in most municipal government cases, would include a city manager, police chief, director of public works, planning director and director of finance. The process may also include input from elected as well as appointed officials, chambers of commerce, etc.

If public funding is to be used, taxpayer support for a project is vital. Strategies to gain such support need to be developed. If a project is large, costly, and vital, decision-makers should consider the use of a professional marketing agency to assist in presenting the project to the public. An ongoing advertising campaign may be needed to further the reach to taxpayers.

Most strategies involve educating specific public and private sector organizations, groups and selected individuals. The education of these groups may take on many forms and be assigned to the same or different individuals. Usually, executive management such as a city manager or chief of police, will handle these high-profile meetings and public relations events. To assist in this educational process, consider the following:

- Present at community-oriented policing meetings and other similar public forums

PLANNING TIPS

The ultimate goal is to gain as much support as possible from all other city departments, staff, citizens, corporations and the press.

PLANNING TIPS

A summary of the facility deficiencies report should be disseminated to the public to confirm and document facility issues.

- Plan proactive media attention, such as television coverage and/or newspaper articles addressing current facility overcrowding, lack of detention space, citizen access concerns, etc.
- Offer tours to educate participants about an overcrowded facility
- Publicize positive aspects of possible future joint-use benefits
- Focus on life cycle cost benefits of a facility with multipurpose uses
- Highlight community oriented policing benefits for citizens and employees
- Emphasize the importance of being open to new ideas
- Utilize a marketing approach to "sell" a project to constituents, department staff and taxpayers
- Acknowledge the importance of effective presentation styles
- Stress a Community Service Center Facility concept and the enhanced quality of life that such a facility will provide
- Attempt to close any gaps between perceptions of the project
- Publicize a facility as a crucial and useful tool to facilitate community-oriented policing

A summary of the previously developed existing facility deficiencies report should be published and disseminated to the public to highlight facility issues. This document is a critical tool to engage community support.

Section Two

Planning/Pre-Design Phase

Section Two of the Facility Planning Model focuses on the need to define and examine existing and future needs of a project. It elaborates on the selection of a qualified architect or consultant to carry out a formal space needs analysis. This section also emphasizes the site selection process and possible planning phase hazards that project teams may encounter.

Step 8: Conduct a Space Needs Analysis

Conducting a formal space needs analysis is an important step towards defining the scope of a facility project and developing accurate preliminary cost estimates. Hiring an experienced architect/consultant familiar with law enforcement needs is crucial to obtaining a detailed analysis addressing current and projected space needs.

A formal space needs analysis is required for any project to move beyond a conceptual stage and into a more defined phase. A thorough space analysis must demonstrate the inadequacies of a current situation, offer reliable estimates of current and projected space requirements based upon industry standards, policing trends and client growth.

Space Standards

One area that affects all space needs analyses is the determination of square footage allocation per occupant, or for certain rooms, offices, workstations, etc. These sizes can vary with each project, as demographics, organizational philosophies, functional needs, and other issues impact each agency's needs. While there are some minimum standards set by law, and/or accreditation agencies as to jail and holding cell sizes (state boards of corrections and state court requirements) and circulation area standards (Americans with Disabilities Act and fire codes), there are no absolute standards for offices, workstations, locker sizes, etc. Each individual agency must examine their needs while keeping in mind the standards utilized throughout other governmental offices, law enforcement facilities, etc. Harmony across government agencies is important. Consistency of space allocations across city and government offices helps with coordination of furniture purchases and simplifies the moving process between offices and agencies. When there is standardized room size and furniture across the jurisdiction departments, the overall cost to the city is lower and the effort and expense to move is dramatically reduced.

PLANNING TIPS

A formal space needs analysis is crucial for any project to move beyond a conceptual stage.

Accurate preliminary cost estimates are based on the results of the space needs analysis.

When planning office sizes, remember that consistency, or harmony across city agencies and government offices, simplifies the moving process and lowers overall expenses.

There are no absolute space standards for offices, workstations, lockers, etc.

PLANNING TIPS

The architect/consultant hired to do the space needs analysis must possess a thorough understanding of police agency operation.

The results of the space needs analysis will determine the size of a facility.

Once established, office and workstation square footage standards will be used as a basis for space allocation during the facility assessment planning process. Other areas, such as roll call or briefing rooms, lunchrooms, conference rooms, etc., may be determined upon room occupancy needs and growth factors. The space needs analysis report, which will include an examination of all existing and needed square footage, also provides estimated cost analysis for the final determined size, based upon required square footage and local construction costs of similar sized police projects.

Preparing for the Space Needs Analysis

Agency Background

The architect/consultant hired as part of the Pre-Design Team (see Step 6) to conduct the space needs analysis must possess a thorough understanding of the client police agency. The following information is critical and must be shared with the architect/consultant to ensure an accurate analysis.

- Policing philosophy
- Organizational hierarchy and organizational chart
- Current and future department goals
- Jurisdictional strategic plan (mission, goals, objectives)
- Current and future staffing projections
- Department history
- Key personnel to be interviewed
- Arrests/calls-for-service data
- Prevalent types of crime within the jurisdiction
- Data collected from client facility needs questionnaire
- Space needs of the agency by function (sworn/civilian staff, justice agency staff and citizens/visitors)

Existing Facility

The architect/consultant also must understand the layout of the existing department's current facility as well as building codes within the jurisdiction. This information may affect a recommendation to renovate or expand the current facility. Data gathered on the current facility and relevant building codes will include:

- Review updated floor plans of current facility
- Review civic center master plan
- Review zoning, planning and building code issues
- Evaluate technological systems
- Evaluate structural systems
- Evaluate HVAC systems
- Evaluate plumbing system and fire protection
- Evaluate electrical and telecommunications systems
- Assess environmental deficiencies
- Conduct walk-through of current facility

Future Trends

Conducting a needs analysis requires an understanding of future policing trends, as well as specific department needs and preferences. The architect/consultant must:

- Examine future trends and needs such as:
    1. Legal changes that mandate adult and juvenile arrestee/inmate space needs, additional evidence storage capacities, space for mandated officer training, etc.
    2. Planned department growth
    3. Impact of grant financed programs, task forces, regional enforcement groups
- Identify preliminary adjacency needs for each section and department
- Identify current, future and potential shared uses such as custodial exchange, public safety use, firing range, classroom training etc.
- Assess parking/vehicle storage needs for police department staff vehicles, employees, visitors, deliveries, repairs, evidence pick up, police auction space and ticket sign-off area
- Determine life span of new facility and include associated growth factors into all calculations

Technology Needs

The rapidly changing information technology environment continues to impact design, space requirements and equipment specifications for facilities. The following should be closely scrutinized:

- Size, quantity and location of communications closets and potential for Emergency Command Post
- Wiring for Emergency Command Post
- Access floors and ceiling heights
- Larger computer staff and equipment areas
- Computers for training and continuing education
- Forensic and photo labs/darkrooms
- Officer information technology equipment storage needs
- General storage needs for hi-tech gear
- Wire tap rooms and associated equipment
- Satellite uplink-downlink needs
- Hi-tech driving or firearm training areas
- Lobby space for computerized interactive citizen participation
- Teleconferencing areas
- Crime task force computer needs
- Technological needs at firing ranges (computer simulation equipment)
- Proper HVAC and ventilation for electronic/technology equipment and rooms
- Workstation quantity and sizes for additional tech items

Space Needs Analysis Checklist

The following is a checklist of areas that might be included in the space needs analysis. It is generic in nature, and will need to be adjusted (addition or deletion of areas for study) based on local needs:

Administration

Chief's office - restroom, conference room, etc.
Staff offices
Reception areas
Professional Standards and Internal Affairs
Secured file storage - personnel records
Personnel interview and testing rooms
Legal Advisor office, law library, etc.
Management Information System
Planning and research areas

Common Facilities

Locker rooms w/showers, restrooms
Fitness Center
Community Room
Conference rooms
Interview rooms
Lunch rooms/coffee areas
General storage rooms
Electrical rooms
Communications rooms
Janitorial rooms
Building maintenance storage and repair rooms
Visitor parking
Employee parking
Marked and unmarked police vehicle parking
Delivery/load dock area
Vendor repair parking
Cart and bicycle parking
Large trash storage
Pneumatic tube systems
Restrooms and lounges

Communications/Dispatch

Dispatch consoles and offices
Emergency Operations Center
Break room and restrooms
Training/briefing room
Lockers and storage

Crime or Forensic Laboratory

Staff office and file areas
Photo processing/imaging areas
Evidence processing areas
Ballistics processing areas
Special computer needs
Citizen counter
Officer counter
Evidence temporary lockers
Biological drying lockers
Vehicle examination area
Equipment and photo storage areas
Specialized lab areas

Evidence

General evidence storage
Weapons storage
Narcotics storage (special ventilation)
Evidence lockers - DNA/Biological storage
Public counter
Officer counter
Bicycle storage
Freezer and refrigerator storage rooms
Video tape storage
Video/audio tape duplicating areas
Arson storage
Hold areas for auction or destruction
Office areas
Safety precaution sinks, restrooms, etc.
Automobile storage
Large item return for citizens
Citizen viewing room

Investigation

Staff offices
Reception areas
Secured file storage
Soft interview rooms
Hard interview rooms
Child abuse interview rooms
Juvenile and suspect restrooms
Gun lockers
Wiretap rooms
Narcotics or money storage areas
Undercover locker rooms
"Cold" or undercover phone rooms
Informant entrance
Briefing room
Equipment storage rooms
Mug/print room
Audio/visual tape equipment room
Polygraph room
Victim ID area (computer graphics)
Task force needs
Line-up and viewing room

Patrol

Briefing/roll call room
Report writing room
Clothes and equipment lockers
Secured sallyport
Evidenced packaging areas
Hard suspect interview rooms
Soft interview rooms
Audio/visual tape equipment
Watch commander offices
Juvenile holding rooms
Adult holding rooms
Large item booking area
Radio and shotgun pick up area
Supply and uniform pick up area
Sleep center
Uniform dry cleaning drop-off/return

Records

Citizen counter
Officer counter
General office areas
Teletype area
Report copying area
Micrographics/optical disk area
Hard copy records storage room
Supply storage

Traffic

General office areas
Citizen counter
Motorcycle parking
Ticket storage
Accident investigations interview rooms
Ticket sign-off parking area

Training

Driving simulator rooms
Firing range and gun cleaning rooms
Training equipment storage rooms
Ammunition and target storage
Classrooms
Video studio, duplicating rooms, etc.
Video training viewing areas
Obstacle course areas
Department weapons storage

Other General & Specialty Areas

Central supply warehousing area
Main computer & radio equipment rooms
Computer staff offices and storage
Specialized computer training rooms
Fiscal, payroll, purchasing areas
Crime prevention areas
DARE program needs
Surplus uniform and equipment storage
Employee mailboxes
Trophy and award storage
Pay telephones
Vending machines
Automated teller machine
Copier, shredder, mailrooms
SWAT weapons and ammo storage
K-9 office and kennel
Animal control storage and offices
Gun lockers

Examination of prior police facility planning efforts shows that many of the above areas, while critical to the policing function, are often overlooked during space needs analyses. It is critical that the police agency ensures that the architect/consultant is aware of all possible space needs before completing the analysis.

The project manager should continuously re-examine, refine and redirect a project, if necessary, during the space needs analysis phase. As data is collected it can change a project's size, scope, budget and direction. It is important to include all key stakeholders in the decision making process, making all necessary changes as early as possible. The emergence of technology's role in day-to-day law enforcement suggests that an IT Specialist provide service at the earliest project stages.

Since the new facility may be in use for a life span of 20 to 50 or more years, projecting future growth is an essential part of the space planning stage. Space must be allocated to anticipate changes in staffing levels, programs, and the changing demographics of the service population. While determining future needs is difficult, jurisdictions can sometimes use past history of change (typically the last 20 years) to estimate future growth. In other locations, recent and anticipated community development can directly impact the need for increased police services and required facility space.

The results of a space needs analysis should be closely examined. These results will determine the size of a facility which usually sets the budgetary limits of a project. The project team should remain flexible and open to new ideas and changes, exploring all options for workable space alternatives.

Step 9: Evaluate Facility Options

There are three basic options when considering replacing an existing police facility: Renovation of the existing building, acquisition and adaptation of an existing non-law enforcement facility, or new construction. Comparing capital and life-cycle costs for each are essential to determine the most cost-effective use of public funds.

The space needs analysis will have identified the various functional components, adjacency requirements, security needs, movement and flow between components, and individual area requirements. This analysis data forms a solid foundation and benchmark for identifing available facility options and the evaluating of the extent to which each option can be successful in meeting the identified needs.

While the range of available facility options will vary in each individual circumstance, the following are the basic possibilities:

- Renovate and expand the existing police facility
- Acquire and adapt another existing facility
- Construct a new facility

PLANNING TIPS

Three Facility Options:

1) Renovate current building
2) Adapt an existing non-law enforcement building for police use
3) Build new

The preferred choice is selected as a result of the analysis of each option and its ability to meet functional space needs.

PLANNING TIPS

In many cases, government officials will not consider a new construction project, or acquisition of an alternative facility, until the inadequacy of the existing building is clearly demonstrated.

The preferred choice is selected as a result of the analysis of each available option's ability to meet identified programmatic, functional and space needs. Each option must meet the criteria established in that jurisdiction. Beyond meeting basic square footage requirements, examples of facility evaluation criteria may include:

- Ability to meet "essential services" of building and structure code requirements
- Ability to deliver the required space identified in the space needs analysis
- Ability to group components for efficient operations (needed adjacencies)
- Ability to provide needed security zoning
- Ability to separate public, staff and prisoner movements
- Ability to achieve desired civic/police facility image
- Ability for future expansion
- Ability to accept new technology systems, furnishings, equipment, etc.
- Adequacy of parking for department and public
- Adequacy of mechanical, electrical and technology support systems
- Ability of this facility option to be accomplished within capital budget constraints for renovation or new construction
- Ability of facility to support cost-effective operations and reduce long-term life-cycle costs (for example staffing, energy, maintenance)
- Time required for implementation
- Interim relocation needs and related costs
- Facility visibility and accessibility to the public
- Achieve insurance and warranty requirements

Many of the above criteria are likely to require professional input by an architectural consultant experienced in law enforcement activities and facility needs assessments. Throughout the facility option evaluation process, police input is crucial and police needs should be the primary influence for decision-making. The general characteristics of the three basic facility options are reviewed below.

Renovate and Expand the Existing Facility

This is frequently the first option considered. In many cases, however, the existing facility may be small, deteriorated, or so obsolete that there is no reasonable ability for it to be adequately improved. In these cases, attention can immediately move to the next two alternatives: acquisition of another building for adaptation or the option of new construction.

In those cases where it is not obvious whether the existing facility could be successfully renovated, its re-use and improvement should be explored. In many cases, government officials will not consider a new construction project, or acquisition of an alternative facility, until the inadequacy of the existing building is clearly demonstrated. If so, each of the criteria cited above needs to be considered as well as any other that may emerge. Since nearly all building codes require police facilities to conform to structural requirements for earthquakes or high winds, it is often not cost effective to expand a non-conforming building. Codes for public safety buildings are generally higher than for other buildings.

Existing facilities often fail on the criterion of adequacy of space. In most cases increases in police services and personnel have not been accompanied by in-

creased space to support them. It is common for police department staffing and operations to have expanded significantly along with community growth since the time the existing facility was built or acquired. In many cases an existing police facility may provide very little of the total required space that a detailed space needs analysis, including the application of standards, finds to be required.

The decision to re-use and expand an existing facility may be driven more by site considerations than the value of the existing structure. The ability to stay at the existing location eliminates the cost of site acquisition and the existing facility may offer space that has value in a renovated form.

When evaluating an existing facility for renovation, other criteria are likely to arise. Among these are the existing mechanical, electrical, plumbing and technology support systems. In a facility that is twenty or more years old, these systems may be obsolete or inadequate. This means that the cost of their replacement must be considered in the existing or new building. If extensive interior renovation is required, the cost of new partitions, doors, security systems, finishes and equipment can be as great or more in an existing building as in a new building. In the event of extensive renovation, the only retained value of the existing building may be the building structural and exterior enclosure. Foundations and substructure are in addition to this "frame." The enclosure may require new windows, roof and doors to extend the building life.

The evaluation must consider whether functionality is compromised by the configuration of the existing facility. Apparent cost savings achieved through renovation must be compared against potential reduction in staffing efficiency and quality of services delivered to the public as a result of facility conditions. The evaluation of options is completed by police and the architect/consultant to arrive at an accurate recommendation.

Acquire and Adapt Another Existing (Non-Law Enforcement) Building

Specific local circumstances will govern whether this is a feasible or attractive option. The recommendation of the space needs analysis, or space program, will indicate the amount of space needed. Caution should be taken to ensure that the "useable" space in any facility under consideration is equivalent to that which the space program has identified as needed. The distinction here is between "net" square footage and "gross" square footage. The "net" space is that which exists "between the walls, paint-to-paint" in particular functional areas or the amount of space that can actually be used for the tasks or functions. The "gross" space is the total building area after allowing for such features as corridors, stairs, elevators, mechanical, toilets, structure, wall thicknesses, etc. The total gross area offered by an existing building is not going to be entirely available for police operations. A professional feasibility analysis will be required to determine this relationship.

The configuration of existing buildings not originally designed as police facilities may compromise quality, efficiency or even security of police operations. For example, a multi-story building with its space uniformly distributed over two or more floors may force some police components to be separated from other units with which they work closely. This means that staff may spend more time traveling between units, reducing their efficiency. It can also mean that needed interaction between staff is discouraged by the building configuration. In a local law enforcement facility, the majority of the operational

PLANNING TIPS

Apparent cost savings achieved through renovation must be compared against potential reduction in staffing efficiency and quality of services delivered to the public as a result of facility conditions.

Check net and gross square footage totals when considering adapting another existing building for police use.

The configuration of existing buildings not originally designed as police facilities, often compromises quality, efficiency or security of police operations.

components will benefit from a main level (street level) location. For example, the movement of prisoners between floors, is generally less desirable from a security, operational efficiency and staff safety viewpoint. Similarly, patrol operations benefit from easy access to and from vehicular areas.

Another important configuration issue, even with a one-story building, will be the actual shape of the existing floor plan since the structural system also comes into play. The proportions of the existing floor plan will determine how needed space is arranged. For example, will staff work spaces have windows? The existing building configuration will determine this. Will separations between public, staff and prisoner movements be possible? The existing building configuration may pose challenges for movement flow and security construction. Another consideration will be where the existing building is located on the site. Adapting a retail store or office building, with parking in front, does not typically function well since a police station needs most of its parking in a secure area behind the building.

After the use potential of an existing building has been determined, the evaluation needs to determine whether any compromises from optimal relationships are created. The physical size of an alternative building being considered for law enforcement use, in relation to the amount of needed space, will not be the only consideration that determines its desirability or feasibility.

Construct a New Facility

In both the renovation or adaptive re-use options, the greatest concern is that making use of an existing building may force an agency into a facility configuration that requires compromises in the quality, efficiency and even security of police operations. Thus it is usually helpful and cost-effective in the planning stage to compare and prioritize the features that can be obtained with new construction against those that result under either or both of the two previous options. If for no other reason, this should be done in order to see what the difference in cost would be between the choices. This information could be instrumental in tipping the scale in one direction or another, or in making it a very clear choice.

When comparing feasibility of a new facility as renovation or adaptation, it is not necessary to develop a detailed design for a new facility. It will normally be sufficient to take the total gross square footage that has been developed in the space program at an average cost per square foot according to recent construction cost experience for similar buildings in the geographic vicinity. To this, an allowance should be added for site acquisition (if any), site work, professional fees and other project expenses. The services of an experienced professional will be essential. In those instances where the feasibility of one or more sites is a question, it will be necessary to enter into a sufficient amount of design analysis to make the site determination. Included will be the consideration of parking and movement requirements, in addition to the building footprint.

The new construction option brings with it the ability to design a facility that can respond directly to the local law enforcement agency's policing philosophy, mission and goals. It allows projected needs to be anticipated in the original design so that they can be accommodated adequately or with minimal disruption when they arrive. This calls for an overall master planning strategy to be developed at earliest conceptual phase of architectural design work.

PLANNING TIPS

It is helpful in the planning stage to compare and prioritize the features that can be obtained with new construction against those that result from renovation or adaptive re-use.

The new construction option allows the ability to design a facility that can respond directly to the local law enforcement agency's policing philosophy, mission and goals.

One benefit of building a new facility is the freedom to be creative in the design phase. The architect/police team can consider any number of innovative approaches to facility design, since they are not constrained by an existing shell. Such innovative designs typically maximize facility response to police mission, citizen access and overall facility efficiency.

Important budgeting information will result from the options analysis discussed above. Depending upon the source of funds for construction or remodeling, this budget assessment may establish the basis for a bond referendum or the formulation of local capital funding allocations under recurring operating revenues.

Justice Complex/Multi-Agency Approach

While construction costs continue to increase, shared use is fast becoming a consideration to gain public and political support for new facility projects. Some agencies have discovered that incorporating other government or justice needs into the design of a facility, such as other municipal functions, court-related functions, probation offices, fire department communications, juvenile diversion centers, city council chambers, etc., can make a project more appealing and cost-effective. Using the community oriented policing philosophy as a foundation for early planning decisions allows for an inclusive perspective that considers all public safety needs, as well as other related joint uses. For instance, recreational or community centers add more community-oriented options for facility use.

The police facility planning team should take the time to brainstorm possible shared uses that meet or exceed department needs. A creative approach should be used and input from others should be solicited. Oftentimes, government approval boards allow departments to include additional areas within a facility's design if they can show an important dual use and improved community profile, revenue generating capabilities, or a feature that would add to a facility's justification. Placing another public use facility at the same site as a police facility may be considered by some as unusual; however, for some municipalities, it may be a selling point that a new facility needs in order to receive funding. Other municipalities prefer a police facility as a stand-alone for security and for a more modest project scope.

A good example of shared use options includes the co-location of police, fire, communications and EMS into one public safety facility concept. Another example is a city or county law enforcement agency, medical examiner and/or coroner located together. There are also many shared programmatic areas that several agencies in a public safety facility can potentially share, for example: vehicle storage/parking needs, training area, locker rooms, media and communications. Cost savings through common use can be substantial; however, saving should not be sought at the expense of public safety.

Many police agencies that are heavily involved in community oriented policing are now participating in multi-jurisdictional task forces to focus specifically on areas such as gangs, drugs, illegal weapons, etc. These joint task forces are usually made up of officers from different local, state and federal agencies, (such as Alcohol, Tobacco and Firearms (ATF), Drug Enforcement Administration (DEA), state parole, state probation, district attorney's office, etc). The joint use forces are becoming more and more common, and need to be considered when determining current and future space needs.

PLANNING TIPS

While construction costs continue to increase, shared use is fast becoming a consideration to gain public and political support for new facility projects.

A good example of shared use options includes the co-location of police, fire, communications and EMS into one public safety facility concept.

PLANNING TIPS

Police leaders must gauge political and public perceptions relative to shared use facilities (police, fire, EMS, for example), before moving in that direction .

Recommended options must be framed within a persuasive cost-benefit analysis.

Shared use facility concepts may also have drawbacks. In particular, the chief of police should carefully consider citizen attitudes about public facilities. In some jurisdictions, voters are very likely to pass a bond issue to build a properly sized, practical and efficient police facility. But when the bond increases to larger proportions to include what the public may perceive as excessive space for jails or courts, the bond fails, leaving the police agency project stalled. Police leaders must be able to gauge the political and public perception issues relative to shared use before moving in that direction and must also frame the recommended option within a cost-benefit analysis that is persuasive.

Each organization needs to examine their situation and search for innovative approaches to component/agency inclusion, design and funding. Visit or contact other jurisdictions that have successfully designed and constructed joint use facilities. Contact some of the organizations listed in Appendix 1 to locate projects of this type.

Step 10: Conduct Site Evaluation

Careful consideration must be given to the size, location and flexibility of any existing or potential facility site. Site selection determines the maximum footprint or size of the facility and must, therefore, meet all space needs requirements. Site location determines accessibility of police facility to other government staff, the public and police officers.

Site evaluation and selection must be carefully considered whether exploring the possibility of renovation of an existing facility, acquisition of an adaptive re-use facility or new construction. According to real estate investors, a primary rule in selecting property is location. This is also true for police facilities. There are many essential components of site evaluation:

- Cost of land
- Cost of site development
- Size and shape of site
- Potential for multiple uses
- Public access to site (vehicular and pedestrian)
- Visibility and views
- Proximity to other governmental functions
- Response to citizens needs and concerns - a neighborhood context
- Travel and mileage issues
- Positioning of new facility on site
- Security
- Noise and traffic impact
- Expansion possibilities
- Former use of identified land
- Possible ground contamination

- Possibility of locating artifacts during site preparation & excavation
- Zoning
- Utilities/easements
- Topography/geotechnical/soils
- Waterbodies/wetlands/floodplain/stormwater control

Several acquisition issues must be kept in mind. The first is cost. Are the sites being considered priced reasonably given jurisdictional budgetary constraints? Are the site owners willing to set up a reasonable timetable to acquire the site? Have EPA and other studies (for example, geotechnical) been completed and are reports available? Given the issues, it is always advisable to consider multiple sites for comparative purposes.

Site selection is occasionally imposed upon agencies when government organizations already own a new site they want to use. The site itself will dictate the maximum footprint of a facility. Occasionally, site selection will involve multiple sites until one is finally decided upon. All sites must be examined carefully for needed characteristics, functions and detractions. The planning team should remain flexible when viewing all sites as potential selections.

Site selection can also be difficult if other jurisdictional priorities intervene. Many American cities are now "built out." Buying land on the outskirts of town is no longer feasible. One faction may want to site the police facility centrally to buttress a declining downtown. Other factions similarly concerned with adaptive reuse may want to use the old junior high as a primary site consideration. In other areas of the country, decentralization and/or regionalization are strong themes and would impact and possibly limit the range of sites a department can consider. Police facility site selection in larger cities may have to begin with the completion of an organizational strategic plan to determine whether the correct long term solution is one single building or a number of strategically placed new buildings.

Expansion or extensive renovation of a current facility can necessitate the acquisition of adjoining land. Occasionally this may be difficult. Owners of adjacent property may not want to sell. Further, the expansion of the current site may not offer the optimum setting or security, etc. All of this needs to be considered if expansion or facility renovation is being considered as a viable option.

Political and executive project commitments to the community and police department, such as site and facility size, joint use, jail inclusion, security, building positioning and location, may be unachievable due to limitations of available sites or sufficient funding for site acquisition. Continued investigation of additional sites may be necessary, which can delay a project. Site selection delays can affect in turn project momentum and costs which increase with time.

PLANNING TIPS

The site itself will dictate the maximum "footprint" of a facility.

In some areas of the country decentralization and/or regionalization are strong themes and would impact and possibly limit the range of sites a department can consider.

Expansion or extensive renovation of a current facility may necessitate the acquisition of adjoining land.

Site selection delays can affect project momentum and costs– which increase with time.

Section Three

Budgeting and Funding

Section Three of the Facility Planning Model provides information on all aspects of facility project costs and necessary funding. Steps 11 through 13 guide facility teams through the development of preliminary project costs, strategies to secure necessary project funds and cost issues relative to site acquisition.

PLANNING TIPS

Preliminary budget is based on:

- Space needs analysis
- Recommended square footage needs
- Site selection

Initial planning and cost estimates usually can be expected to change over the life of the project.

Step 11: Develop Preliminary Project Design and Construction Costs

Preliminary facility project costs can and should be estimated at this stage using information now available. Projections of cost at this juncture become reliable as a foundation for project funding initiatives (bonds or government support).

At this stage the project team is poised to create a reliable budget for the entire project, based on the data collected and developed in the previous steps. New cost information must also be obtained and included at this phase.

Square foot construction costs vary across the country, fluctuate with the economy and are different depending upon the type of facility being considered. Construction costs of expansion, renovation, or adaptive re-use projects are more difficult to estimate due to the possibility of concealed conditions discovered during demolition, code compliance, etc.

Some of the critical cost-components when developing the preliminary facility budget are:

- Site and site development costs
- Site survey
- Facility costs using space needs as basis
- Related architectural, engineering and construction estimates
- Environmental standards/guidelines
- Stormwater/drainage issues
- Geotechnical evaluation
- Environmental assessment
- Asbestos assessment/abatement (older, existing facilities)
- Landscape design
- Interior design
- Furniture

- Contingencies
- Telecommunications systems
- Equipment
- Security systems

There are also other elements to be considered to further refine the budget. The quality of a facility's systems, such as its chillers and boilers, emergency generators, elevators, etc., are not defined at this stage in a planning process so estimates must be made. The quality levels of engineered systems, equipment, finishes and furnishings can affect the overall budget substantially. Efforts to broadly define expectations should be undertaken as early as possible. It is best to use qualified, experienced, and reliable cost estimators to assist in defining a budget at this time.

Too often, low estimate cost projections are publicized too early in a project, prior to the conclusion of a formal needs analysis or actual budget development. This can negatively affect a project, as strong justification may be necessary to increase the budget figure in a sensitive political arena. Avoid "ballpark" estimates whenever possible. The budget developed at this stage is based on substantial and accurate facility, space and site information and is a reliable figure for decision-making purposes.

Step 12: Obtain Project Funding

Once planning stages are completed, funds must be acquired to design, construct, furnish and equip the planned facility. In many cases, the jurisdiction has sufficient funds to move into this phase, in others, alternative sources of funding are required.

At this juncture of the project, the police agency and the governing body should be ready to take steps to obtain the necessary funding to complete the project identified in the preceeding planning phases. For example, if a new building and new site are being proposed, project funding includes monies to purchase the site, design the facility, construct it, furnish it and equip it.

In many cases, jurisdictions may have capital improvement funds that can be used for the project. In the absence of available funds, bond issues or public referendums are required to raise funds sufficient to complete the project. If citizen support is not yet clear for the new project, a survey to determine support will yield useful information to propel a subsequent referendum or bond issue. Strong political support is required to seek and obtain the necessary funds for project completion.

There may be several alternative funding options (for governing body or community funds) that cities can explore. One is the "Lease-Buy Back" approach. In this funding structure, the jurisdiction enters into a lease agreement with a developer who has proposed to deliver the required facility either through new construction or renovation of an existing building for jurisdictional use. The lease payments can be structured to be credited against a predetermined purchase price at the end of a specified period. Under this funding model, the jurisdiction will generally meet its lease payments out of its operating budget. The adequacy of that budget to meet lease payments over time is a matter for analysis.

PLANNING TIPS

The quality levels of engineered systems, equipment, finishes and furnishings can affect the overall budget substantially. Efforts to broadly define expectations should be undertaken as early as possible.

Avoid "ballpark" estimates whenever possible. The budget developed at this stage should be based on substantial and accurate facility, space and site information and is clearly a reliable figure for decision-making purposes.

In the absence of available funds, bond issues or public referendums are required to raise funds sufficient to complete the project.

Strong political support is required to seek and obtain the necessary funds for project completion.

Step 13: Secure and Purchase Site

Once a site is selected, a facility project moves from planning to implementation stage. Lease and all other options must be carefully researched prior to a decision to ensure the most beneficial outcome.

PLANNING TIPS

If a site acquisition is required for a particular project, it must be purchased prior to action on any other design or construction step.

The site selection option that yields the best long term financial flexibility to address future concerns for the jurisdiction should be selected.

If a site acquisition is required for a particular project, it must be purchased prior to action on any other design or construction step. Decisions on securing and purchasing the selected site should be based on all planning steps previously completed–in particular, the site evaluation completed in Step 10 (p.24). Before purchasing a site, the jurisdiction should cost out several options with contingencies:

- Purchasing site outright
- Gaining an option to purchase at a later date
- Leasing the site

The above options should be considered and the option that yields the best long term financial flexibility to address future concerns for the jurisdiction should be selected. Be aware that leases have many more conditions than ownership. Ownership, for example, may provide more flexibility of building options. The planning team must also be aware of possible unanticipated site purchase costs, such as poor soils requiring expensive foundations, or legal fees to secure clear title and must have sufficient funds to cover these costs.

Section Four

Design and Delivery Phase

Section Four of the Facility Planning Model examines the design and delivery phase of the project by reviewing the facility design and construction approaches currently in use. At this stage of the project, a design architect is selected. It is important to emphasize that strong and continuous dialogue must be maintained between police, architect and contractor to ensure project success.

Step 14: Deliver Design and Construction Services

A number of design and construction procurement options are available to jurisdictions—Design-Bid-Build; Design-Build; Fully Partnered Approach. It is important to test which methods may serve your organization and jurisdiction most effectively. Regardless of the choice, it is essential that a strong and continuous dialogue be maintained between the police planning teams, the architectural team and the contractor.

Design and construction services are typically delivered through one of the following approaches:

Design-Bid-Build

Traditionally, the most widely used method to accomplish construction/renovation of a police facility is the design-bid-build model. The process begins with the planning and programming phase (to determine facility requirements). Followed by the design phase (developing the facility plans that respond to these requirements) and ends with the construction phase (award of contracts and actual construction). In this approach, a very close dialogue between the police agency and the architect should occur when project design proceeds in Step 16. The resulting design is then the basis for the bidding and selection of a contractor to build the facility.

In most jurisdictions, applicable laws call for a design-bid-build approach. These laws call for any public project exceeding certain budget thresholds to be advertised and competitively bid. The award of the construction then goes to the lowest responsible bidding organization. If negotiations fail with the construction contractor, the jurisdiction can move onto the next contractor. The decision-making process is based upon experience and qualifications, not price alone.

PLANNING TIPS

Regardless of the choice for design and construction procurement, it is essential that a strong, continuous dialogue be maintained between police, architect, and contractor.

PLANNING TIPS

The selection of the alternative design delivery/construction services approach, such as a fully partnered approach, will necessarily affect architect selection decisions discussed in the following section.

Selection of the architectural team to design the facility, may or may not be connected to the selection of the architect/consultant chosen previously to produce a space needs analysis.

Design-Build

In this alternative delivery approach, a request for proposal is issued to contractor-architect teams in which an invitation is made to respond to the jurisdictions needs with a design proposal and guaranteed construction cost amount. Competitive proposals are received and evaluated in terms of both their costs and building features. Under this procurement method there must be strong and continuous dialogue between the user agency (police department) and the contractor-architect team during project formulation. The police agency must clearly define its needs up front and continue to maximize input with the architect/consultant and contractor. The focus here is to ensure that the needs and standards of the police department are fully articulated and understood. Variations of design-build approaches can include the preparation by the police agency/owner agency of a detailed set of building requirements. This can also include a detailed design development set issued to the design-build teams for further use.

Fully Partnered Approach

In recent years, selected jurisdictions have changed procurement laws to allow (and even encourage) further alternative building delivery methods. In the fully partnered model, the jurisdiction selects the whole project team, including the contractor, based on credentials while stating a fixed budget at the outset. In this approach, the jurisdiction hires a consultant to perform the space needs analysis, then a site feasibility study. Once the size of the project is established and the particular needs of a specific site are established, a reasonable building and project budget is developed. At this point, rather than selecting a contractor based on low bid, the jurisdiction assembles a comprehensive team that links the space needs consultant, an architect and the contractor into an interdependent team. Having the contractor at the table during design eliminates miscommunication when design is transferred to the contractor. All parties work for a pre-determined development fee.

In some areas the team may be expected to sign a contract to develop the project for a predetermined "guaranteed maximum price" with the contractor "at risk," hence, there are no change orders. In some cases this process is structured as a modified "design-build" process, while in other instances it is accomplished as a "construction management at risk" process. The selection of the alternative design/delivery/construction services approach, such as a fully partnered approach, will necessarily affect architect selection decisions discussed in the following section.

Choosing among the three design and construction delivery approaches is a difficult task with no simple answers. Jurisdictions can, however, obtain sufficient information to aid in decision-making by taking the following steps:

- Seek advice from other jurisdictions regarding recent construction by asking about the design and construction approach used and the degree of its success
- Seek local advice by asking officials about the approach predominantly used in your jurisdiction
- Review the benefits and deficits of each delivery approach to determine which approach would best fit your project

Step 15: Select an Architect

Selecting the architectural firm to complete the project is a complex task. Smaller local architects provide a level of familiarity and comfort, as well as a history of completed regional projects important to any client. Larger firms, particularly those based in larger cities distant from the client jurisdiction may bring unparalled expertise in the law enforcement design arena, but are often entirely unknown to the client. Teams that blend local architectural firms with nationally experienced police facility consultant architects, are a promising option.

Selection of the architectural team to design the new facility, may or may not be connected to the selection of the architect/consultant chosen previously in Step 6 to produce a space needs analysis. Some jurisdictions make it clear in the contract for the space needs analysis that the architect chosen will not participate in the actual design, with the intent of balancing biases. Other jurisdictions find it best to contract with the planning phase architect/consultant for the purpose of project continuity. Selection will be affected by the design and construction delivery approach selected in Step 14.

For smaller projects, a single (often local) qualified architectural team may be sufficient. In cases where there may not be a local firm experienced in police facility design, an experienced consultant joining the local architect may be advisable. Occasionally, larger police projects will require the recruitment of combination teams, such as a local, architectural company developing a partnership or joint venture with a nationally experienced police facility specialist. This will allow for a local presence, while offering the experience of a larger architectural company. In any size project, it is important to hire an architectural team with experience in designing similar law enforcement facilities.

Key criteria to consider when selecting an architectural team include:

- Recent experience with law enforcement facility projects
- Experience of proposed project team members
- Good listening and teamwork skills
- Personal chemistry/comfort level
- Flexibility/creativity
- Solid, experienced organization with a good reputation
- Preliminary plan for design process and possible alternatives
- Size of firm and years in business (at least five years)
- Reference checks
- Pending work on other projects (availability)

The techniques and approaches used by architectural teams are significant. The best technical skills are only as good as the architect's ability to employ and articulate them. If an architectural team cannot establish rapport with a client, they cannot effectively use their skills to serve that client. The jurisdiction's selection team must ensure the hiring of the best-suited architect. The selected architect must ensure a successful design that meets police needs.

PLANNING TIPS

For any size project, it is important to hire an architectural team with experience in designing similar law enforcement facilities.

The jurisdiction's selection team must ensure the hiring of the best-suited architect. The selected architect must ensure a successful design which meets police needs.

One essential element is the architectural team's expertise in the planning, design and construction of police facilities.

Whichever competitive selection process is chosen, the jurisdiction should take great care to evaluate competing firms on their knowledge, skills and abilities and then develop a short list of potential firms.

PLANNING TIPS

The design phase typically includes three steps:
1) Schematic Design
2) Design Development
3) Construction Documents

One essential element is the architectural team's expertise in the planning and design of police facilities. While almost all architectural firms seek competency in this area, many have little to no experience. Further, firms that assert "justice facility" architectural expertise may have had experience only with correctional or court facilities, but no substantial police facility exposure. The police agency must carefully assess architectural team qualifications to identify those teams with the most relevant experience.

Selection of the architect will mirror the RFQ, RFP, QBS formats detailed in Step 6. Once the selection is official and an architect is hired, the project manager will merge the architectural team into the Pre-Design Planning Team as soon as possible through a series of meetings and discussions. Whichever competitive selection process is chosen, the jurisdiction should take great care to evaluate competing firms on their knowledge, skills and abilities and then develop a short list of potential firms. If an RFP, RFQ, QBS process is mandated by law or through jurisdiction preference, the agency should keep in mind that selection focusing on a low-bid concept can be of concern. Firms lacking expertise may well submit uninformed proposals at lower amounts.

Step 16: Design the Facility

Preliminary designs allow for constant adjustment. More detailed final design concepts can be displayed in block model fashion, or even through interactive computer simulations/modeling. Final design documents are then prepared and serve as the guide for actual construction.

The design phase of a police facility project typically includes three steps:

Schematic Design: In this stage the architectural team provides a preliminary design of the facility.

Design Development: After client approval of the schematic step, design development begins.

Construction Documents: The final step is the development of design documents that can be used for contractor bidding and building purposes. This step describes, in sequential order, the actions and decisions that typically occur and the issues addressed during the design phase of a project.

Schematic Design: Preliminary Design/Layout Decisions

The product that results from a formal needs analysis is utilized to guide a project's preliminary design. The design must reflect the philosophy of a department, diversity of activities and future growth needs. In the preliminary design stage, layouts are not highly detailed. During this stage the architectural team provides the following services to the client:

- Review and verify the program
- Conceptual site plan
- Conceptual building plan
- Review/Establish schedule
- Review/Establish budget
- Preliminary selection of building systems and materials

- Preliminary exterior design
- Conceptual floor plan
- Preliminary interior elevations
- Preliminary building section
- Preliminary equipment list
- Preliminary MEP and FP (engineered systems)
- One major review

Key issues to consider are:

- Balancing security concerns versus openness to the public
- The role of emerging technology and community policing change the programmatic needs of a facility
- Established office standards versus design placement issues
- Creative design versus operational reality
- Economies of scale
- Vertical and horizontal adjacencies
- Interior flexibility and furniture systems. Harmonize the system to reduce cost of warranty and parts
- Department growth
- Potential to "rent" or "charge-back" space as a cost offset
- Police image
- Community policing perspective
- Police employee morale
- Location
- Scale of community versus scale of building
- Department centralization versus decentralization
- Efficient interior and exterior design
- Specialized services
- Cost of decisions
- Possible shared uses such as:
    - Custodial exchange area
    - Fire department physical training areas
    - Firing range access for other agencies
    - Community room
    - Communications
    - Courts

The preliminary design and layout decision phase will greatly impact the final design of a project. A project manager's careful planning, comprehensive understanding, attention to detail and a genuine interest in all facets of design and layout decisions made at this stage are important to a successful project.

There are a range of basic and high technology methods used by architects to address preliminary designs and layouts. By utilizing the square footage information gathered during a needs assessment, architects may prepare paper blocks or cutouts, each labeled and representing a function or section's relational size, such as records, evidence, locker room, roll call, visitor parking lot, etc. Sessions take place whereby a police planning team and architect manipulate

PLANNING TIPS

SCHEMATIC DESIGN:

Translate the building program into preliminary design/layout.

PLANNING TIPS

Preliminary design and layout decisions will greatly impact the final design of a project.

A project manager's careful attention to detail at this time will greatly influence a successful project outcome.

these blocks or cutouts, attempting to find the best adjacency fit that meets a department's needs, as well as any present site constraints. This is a very hands-on approach and allows a police planning team to be thoroughly involved in the process and discuss the realities of site constraints, functional area size, adjacency relationships, etc.

Architects will then take this information and prepare preliminary drawings. These drawings are brought to subsequent planning sessions, whereby architect and team members comment, contribute and refine them until they are satisfied with the layouts.

Some architectural firms now utilize automated computer-based methods to expand upon the preliminary design process, such as computer simulations/ modeling. This approach can offer clients virtual reality tours of designed facilities. Architects can now offer traditional preliminary drawings, but also a computerized look at a facility at any stage during a design process. This new technology is becoming common place and offers the added benefits of three-dimensional, visual comprehension to the traditional two-dimensional architectural drawings. This information not only makes it easier for a planning team to understand what the layout and facility will look like or function like, but can also introduce important changes early in this planning process, with lower cost impact.

Another tool utilized by architects is the building of conceptual project models. Being able to view a three-dimensional model of a proposed facility assists everyone in visualizing how floor layouts, adjacencies, site positioning, etc., affect a design. If the appearance of a facility model is not acceptable, options can be discussed and changes can be made to the internal layout or external design again with lower cost impact than changes made during construction.

Design Development: Finalizing the Facility Design

After the preliminary design and layout stage, the specifics of a project's drawings, specifications and details are refined. Detailed design drawings are prepared that will later evolve into actual construction documents. Architectural team actions during this step are:

- Refinement/coordination of plans including floor plans, sections and exterior elevations
- Outline specifications by system
- Define key details
- Refinement/coordination of engineered systems
- Review of schedule
- Review of budget
- Review at 50% and at completion

Along with re-examining criteria already agreed upon, more refined aspects of a project need to be considered, such as:

- Technology access
- Infrastructure needs
- Video applications
- Nuts & bolts cabling
- Future needs
- Build in flexibility of rooms, furniture and infrastructure (wiring, cabling)

- Security
- Circulation
- Durability of finishes
- Special needs for locating:
  - General and dedicated electrical outlets
  - Telephone/data jacks
  - Light switches (including energy saving switches)
  - Intercoms, video cameras, monitors, etc.
  - Access system readers and over-ride buttons
  - Panic alarm activators
  - Paging system and radio speakers
- User safety

Functional relationships between a design team are critical at this stage. A design team must be ready to handle identified mistakes, troubleshoot, engage in *value engineering* and resolve problems that arise.

Value Engineering: Once a budget is refined and reflects a higher cost than anticipated or allowed, *value engineering* sessions are useful. These meetings will entail cost cutting methods and substitutions affecting quality, size and features of a project. Participation by all project team members is a must. You may encounter value engineering again when making final decisions on all design elements.

Value Engineering is a formal process that offers a way to optimize project costs. The process consists of establishing value objectives, generating alternatives, analyzing them and selecting options that meet the value objectives while offering cost savings. This process is most valuable during the design development phase and should always be included in contract negotiations with the architectural team. If value engineering occurs after the design phase as a means of cost cutting, when a contractor can offer "deducts" to the owner for such recommended cuts, it can jeopardize the longevity and function of building systems if "deducts" are not evaluated carefully. Reducing construction/installation costs by using an inferior quality of materials is not value engineering and will often increase maintenance costs in the long run.

Scenario Testing: Scenario testing is the step by step analysis of how various actions or activities can occur in the new facility. This practice is highly recommended at this point to ensure design layouts meet the exact operational need for which it is intended. Police project team members should examine each document, blueprint, specification and detail applying scenario testing to insure that the proposed design is effective. Check for the following:

- Specificity
- Exact location
- Anticipated use
- Durability
- Description
- Listed make/model of acceptable "contractor furnished, contractor installed" furniture, fixtures and equipment (FF&E)
- Missing or excluded items
- Lack of detail
- Mislabeled items

PLANNING TIPS

DESIGN DEVELOPMENT:

Finalizing facility design. At this stage, detailed design drawings are prepared that will later evolve into actual construction documents.

Functional relationships between a design team are critical at this stage. The team must be ready to identify mistakes, troubleshoot, engage in *value engineering* and resolve problems that arise.

PLANNING TIPS

CONSTRUCTION DOCUMENTS: Final decisions on all project design elements occur at this stage.

Architectural errors or omissions and design or owner-elected changes can be very costly to a project and should be minimized.

The more detailed inspection performed by a police planning team, the greater the chances items will be discovered that need to be changed or addressed.

Construction Documents: Final Decisions on All Project Design Elements

The final step is the development of design documents that can be used for contractor bidding and building purposes. These sealed documents include:

- Architectural documents
- Structural documents
- Site/Site landscaping documents
- Plumbing
- Heating, ventilation, air conditioning (HVAC)
- Electrical
- Project manual which includes specifications, contracts and bidding requirements

During the construction document phase, the architect will also:

- Provide reviews at 50%, 75% and final
- Secure regulatory approvals
- Revise budget if necessary
- Revise schedule if necessary
- Obtain approval to bid
- Provide security system and acoustical design

In addition, the following are optional to construction documents list:

- Telecommunications
- Furniture
- Food service requirements

Whenever possible, changes in design, specifications, or details need to be made prior to construction documents being completed. In the Design-Bid-Build model, the general contractors base their submitted bids upon a project's construction documents. It is vital that they be detailed and complete. Architectural errors or omissions and design or owner-elected changes can be very costly to a project and should be minimized.

The length of time to transition from preliminary design through design development and finally to construction documents varies, depending upon the size and scope of a project, architect's time schedule and resource commitment, as well as the level of involvement of a police project team. Police project managers are encouraged to maintain good communication with the project architectural team, in an effort to receive all detailed drawings as soon as possible, to afford the greatest amount of time for review. Projects are on a tight schedule at this point and too often not enough time is set aside for owner examination of completed drawings.

The quantity of final drawings, specifications and details for a project can at first be viewed as overwhelming to an inexperienced police project team. Breaking down the documents by category such as: electrical, security, plumbing, furnishings, interior finishes, etc., can greatly assist in dividing them up within a team for analysis. A suggestion is to use the sticky type notes that are available and label each drawing or specification/detail that is incorrect, needs clarification, etc. It is not unusual for one blueprint page to have many of these notes attached if a team member has questions or requested changes. These marked up drawings and spec/detail books may then be given back to the architects to make changes, clarify their design decisions, etc. Drawings can be overlayed on a light table or a PC for comparative purposes.

The more detailed inspection performed by a police planning team, the greater the chances items will be discovered that need to be changed or addressed. Some examples of this include: the location or quantity of electrical outlets, selection or positioning of furnishings, concern over selected interior finishes, identification of which doors are solid and which need windows, etc. Attention to these details adds to the efficiency and durability of the future facility.

No individual team member–architect, contractor, or other, has the insight of the police facility user. A committed Police Internal Planning Team has an opportunity to pore over all drawings, specifications and details, to ensure that everything meets their needs. They can imagine the completed area or room in their minds and compare it to the drawings they are examining. When the two do not match up, changes may be discussed and made, if warranted. One strategy to ensure that final design documents reflect all user needs is to create a sign-off sheet for design documents that are filled out by all Unit Commanders and other key departmental staff. Once the plans are finalized they become construction documents and at that stage, all changes become costly. Avoiding design revisions during later construction stages will save time, money and problems for all concerned.

Throughout each of the above design steps, the jurisdiction and/or the police department has significant responsibilities to collaborate with and provide information to the architectural team. Some examples of these responsibilities are:

Schematic Design: Provide topographical and boundary survey, soil borings (geotechnical evaluation), program, budget requirements

Design Development: Review documents to ensure program requirements and standards are met

Construction Documents: Review all plans and specifications to ensure program requirements are met

The jurisdiction, in particular, the facility end-user, must fully understand, take on and complete all owner responsibilities to ensure that the project reflects all initial planning requirements and that the overall project proceeds in a timely fashion.

Step 17: Build the Facility

The police project manager should be on the construction site as often as possible to observe and attend construction meetings, approve submittals, discuss design issues and build rapport with the contractor. Continuity from pre-design to construction is essential to maintain project integrity.

Construction times vary depending upon the size and scope of a project, schedule, natural or imposed delays such as weather or labor strikes, difficulty obtaining specific materials, or other variables. It is vital to hire an experienced and recognized general contractor who has a good track record of delivering facilities on time, within budget.

Oftentimes, contracts may include financial penalties for delays if a contractor cannot deliver a project on time per the set construction schedule, or for

PLANNING TIPS

One strategy to ensure that final design documents reflect all user needs is to create a sign-off sheet for design documents that are filled out by all Unit Commanders and other key departmental staff.

It is vital to hire an experienced and recognized general contractor who has a good track record of delivering facilities on time, within budget.

PLANNING TIPS

During construction, architectural and police team members should focus on oversight; solving design issues confronted during construction; approving submittals and substitutions; etc.

Collaboration on ideas and solutions during construction results in an even more successful project.

large cost overruns. Other contracts may include monetary incentives to contractors who finish a project ahead of schedule. This is often the case with transportation contracts, as completing a major road or bridge construction early has a direct affect on commuters. While not often used as an incentive to complete a police facility ahead of schedule, all of these incentives and/or penalties are available to jurisdictions who wish to structure their contract in such a manner. This decision is usually left up to an organization's top decision-makers and/or public works director.

Most public projects are competitively bid. The law typically requires an advertisement or invitation to bid to be published in one or more newspapers. The project architect usually prepares the advertisement for bid, which includes information such as the project location, description, type of contract, date, time, location for receiving bids, how to obtain documents and any other special requirements. Local laws vary in allowing this method (RFP, RFQ) for public projects. An attorney should be consulted before using any bidding model or bid language. Once deemed qualified (generally through documented experience in constructing similar projects of scope and size, proven record of quality constructions, etc.), bids by pre-qualified contractors are accepted and a successful bidder is selected.

The fully partnered approach (see Section Four, page 30) is especially useful during a construction process, as it promotes accountability and communication between partners responsible for design and construction. Owners, designers, construction managers and builders sign a partnership charter that commit to shared goals. This allows the parties to identify and solve problems before they occur. It is important for owners to keep in mind that the most costly changes are those that take place during construction, so it is wise to keep changes to a minimum, whenever possible.

There are a number of issues relevant to the construction phase that must be attended to by the jurisdiction. Once construction begins, police departments and their governing bodies should be aware of and be responsive to the following:

- Communication protocols between owner, architectural team and contractor
- Owner's construction project controls
- Standard types of field communication and record keeping (always keep records and signoffs)
- How to handle periodic pay requests
- How to conduct site visits
- How to understand shop drawings
- How to understand and make use of scheduling tools
- How to deal with change orders
- How to deal with periodic changes to regulations and building codes
- How to deal with unforeseen construction field conditions
- What to expect for construction close-out
- Sales tax rebates - some range from 2 to 3%
- Difference between "substantial completion" and "final completion"
- How to incorporate and manage a contingency and testing allowances into the final construction contract
- Definition of "retainage"
- Definition of "warranty period"

During construction, architectural and police team members should focus on

oversight, solving design issues confronted during construction, approving submittals and substitutions, etc. Successful accomplishment of early planning and design steps supports successful construction. Collaboration on ideas and solutions during construction results in an even more successful project.

Project members should strive to be good neighbors during a construction phase. This can translate into project T-shirt and hat giveaways, newsletters to community members indicating a project's progress and the time of day when certain tasks are performed, so that residents bordering a construction site will know what to expect. A construction office phone number can be made available to all bordering residents so they may call and register complaints directly to a general contractor, who in turn, can handle a complaint or fix the problem.

The following responsibilities typically fall upon a police project manager during construction:

- Establishment of a facility's new door security key plan. Care should be taken to ensure a lock sub-contractor thoroughly understands a department's master key hierarchy needs, quantities required, identification stamped on each key and timing of key inventory and cabinet delivery to owner. This process offers a department an opportunity to limit the quantity of issued keys, while improving overall facility security.
- Determine responsibility for contracting and installing phone and data cable. Ensure state-of-the-art cabling is specified and sufficient lines and conduits are installed for future needs. Attempt to work out a scenario whereby installation of main communication backbone systems will be allowed during the last phases of construction. This can be accomplished by a telecommunications consultant.
- Establish an identification system for all telephone and data jacks. Ensure that installation crews label each jack and each communication room port accordingly. Record this information on a reproducible drawing for future use. (A telecommunications consultant is helpful here).
- Set up a database listing all telephone and data jack information. Include jack ID number, jack type (data or phone and how many of each per location), type of phone (analog or digital) and phone features (single line or multi line, modem or fax). Also include whether the phone has voice mail, whether any restrictions are put on the phone for outside or long distance use, etc. This will make later phone/computer moves much easier to accomplish and provide a systematic communications roadmap for the life of a facility. (A telecommunications consultant is helpful here too).
- Work closely with the architectural team, general contractor and sub-contractors to establish an organized approach to the placement of equipment within communication rooms. Most communication rooms are a conglomeration of wires, cables, trays, electrical and equipment boxes. They are often designed too small, especially now, with the rapid increase in technological equipment used in a workplace. Often during construction, each trade (electrical, security, fire control, telephone, computer, etc.) picks a location on a communication room wall and installs their equipment without consulting each other. A proactive project manager can work out a more organized solution.
- Select Transition Team leaders and assemble transition teams. Include a variety of representatives from the department (sworn and civilian) to ensure staff buy-in and consensus. Promote detailed and continuous scenario testing by transition team members.

PLANNING TIPS

Transition teams are crucial to the project's success and should be chosen early based upon commitment and organizational skills.

Transition planning refers to a relocation of personnel, equipment, documents and furnishings from an old location to a new one.

- Establish a photo/information board (aerial photos are effective) to keep employees involved in the project and update it every two to three months. Use this board as a tool to inform and maintain employee enthusiasm.
- Inquire as to what will be tested and documented to ensure functionality prior to move-in. This will reduce the list of items a Testing and Acceptance Transition Team will need to check. The architect specifies what information to include in the O&M Manuals.
- Avoid any late improvements, as cost escalates after design is completed and construction is underway.
- Establish an interior finishes file. Compile complete information on all interior and exterior paints, wall, panel and upholstery fabrics, window tinting, furniture paint, drawer pulls, millwork/furniture laminate, interior wood finishes, exterior façade materials, window glass and tinting, floor coverings, etc. Suggest compiling a sample of each, which will help a great deal when later trying to replace, repair or match a particular finish. Attempt to obtain samples from actual construction submissions.

Step 18: Develop Occupancy Strategy: Transitioning into the New Facility

Civilian and sworn staff satisfaction with a new facility is affected by the manner in which the transition to occupancy strategy is carried out. Confusion, loss of information and other transitional problems can negatively impact staff morale. A clear and well-designed transition to occupancy plan is required. Members of all transition teams need to be detail-oriented.

Transition planning is a crucial element during the construction phase. Transition teams are crucial to the project's success and should be chosen early based upon commitment and organizational skills.

TRANSITION PLANNING

Transition planning refers to a relocation of personnel, equipment, documents and furnishings from an old location to a new one. Transition teams are established to ensure detailed planning takes place, scenarios are tested and a smooth changeover occurs. It is highly advisable to include a variety of staff representative(s) on all transition teams to ensure staff buy-in and consensus.

The following list outlines recommended transition teams and their assignments.

Recommended Transition Teams

- **Furniture, Fixtures & Equipment** - Manage the purchase and installation of owner's new FF&E; budgeting, specification writing, phone/data cabling, data-base creation and warranty file setup.
- **Move Logistics** – Coordinate review of bids from moving companies, establish detailed inventories of what will and won't be moved, schedule employee packing seminars, determine scheduled phases of actual move, oversee movers and employee compliance and timely unpacking.

- **Orientation & Training** – Preparation for groundbreaking ceremony, official opening, monthly employee and community updates on project's progress. Coordinate and video tape employee training on new equipment and procedures. Handle requests from public, politicians, media and employees for tours and briefings.
- **Contracts & Services** – Identify and write specifications for new and renewed contracts and services, such as food service, inmate medical, building maintenance and janitorial, trash and equipment maintenance. Timelines are crucial to ensure new contracts are awarded at move-in, so services are not interrupted.
- **Policies and Procedures** – Identify and respond to possible changes due to new facility rules, layout, etc. Usually encompasses department policies dealing with visitors, handling of inmates/suspects, security or maintenance issues, etc. Changes in department policies or procedures need approval and dissemination prior to or during move-in.
- **Testing & Acceptance** – Crucial pre-occupancy testing of all items, such as locks, telephones, electrical outlets, lights, toilets, showers, furniture (ergonomic features on chairs, keyboards, drawers, etc.), panic alarms, cameras, etc. Goal is to discover problems prior to move-in and assist with repairs after move-in.

Resolve All Equipment Purchase/Replacement Issues

A major concern during transition is the installation of 911 phone lines. Some areas will need to plan three to six months in advance with their local telephone company to assure on time delivery. It is important to confirm the schedule with the telephone company close to move-in date.

One approach to 911 transition is the operation of parallel systems, where the system in the old facility continues to run and take all 911 calls and the new system becomes operational simultaneously, but only to take "dummy" calls to test operability. Once operability is assured, the old system is shut down and all 911 calls are transferred to the new system.

Most facilities are designed and built for a minimum 20-year occupancy. Furnishings, fixtures and equipment (FF&E) placed in new facilities need to be durable and functional, while blending with the aesthetics of a new complex. Funding for new furnishings, fixtures and equipment can be difficult to obtain, so careful planning is important, attention to detail is vital and strong specifications are crucial to ensure high quality furnishings are obtained for the best possible price. Furniture issues can also cause delays as the transition plan begins.

It is important to determine which furnishings, fixtures and equipment are provided by a general contractor and which are provided by an owner. Most situations fall into one of the following categories:

- Contractor furnished, contractor installed (CFCI)
- Owner furnished, contractor installed (OFCI)
- Owner furnished, owner installed (OFOI)

The contractor furnished, contractor installed category limits an owner's ability to: alter colors, patterns, makes, models, or details to better fit a user, upgrade to a newer design, or address the needs of a changed department preference. Unless details of a contract specify a particular make and model of an item, such as a specific workstation and/or ergonomic keyboard holder without allowing for any substitutions, a contractor maintains control over the selection and final quality of such items.

PLANNING TIPS

Most facilities are designed and built for a minimum 20-year occupancy. Furnishings, fixtures and equipment (FF&E) placed in new facilities need to be durable and functional, while blending with the aesthetics of the facility.

PLANNING TIPS

It is recommended that one or two members of the purchasing department be appointed to handle all purchases related to a new facility project.

Equipment purchases should be negotiated with attention to infrastructure, space needs, installation plan and maintenance issues. Ensure all large suppliers and installers can meet project deadlines and have experience and references.

Transitional planning for a move is essential. The creation of a Move-In Logistics Transition Team is recommended.

Acknowledge the psychological stress of moving and change. Layout maps of the new facility should be provided to all staff.

It is important to note that contractor furnished, contractor installed items are specified by an architect during a design stage. Years can pass between design and actual occupancy of a facility. Thus, a technological or ergonomic specification of an item may be out of date before an owner actually starts using it, especially for items such as security/electronics, computer hardware or software, chairs and keyboard holders.

Owner furnished items present a challenge for police project managers and members of a Furnishings, Fixtures and Equipment Transition Team. This group will have an opportunity to decide what items will be moved into a new facility and what items will be replaced by new ones. Detailed planning regarding what, when and how to purchase these items are vital components that play a part in intelligently allocating a budget and keeping to the transition timeline. For example, one police department found that replating the file cabinets (to harmonize the color scheme) appeared to be less expensive than buying new ones, but found that the process took much longer and was more expensive than anticipated. The security and confidentiality of records is essential during the transition phase.

Many organizations have a separate purchasing department which handles the bid solicitations, bid openings and purchase order contracts. It is recommended that a single member, or perhaps two members of the purchasing department be appointed to handle all purchases related to a new facility project. This task can be overwhelming, especially if the FF&E budget is large. Assigning one or two people to work closely with and be members of, the FF&E Transition Team, is recommended. This procedure promotes translating the needs of the police department, to the purchasing department. Equipment purchases should be negotiated with attention to infrastructure, space needs, installation plan and maintenance issues. Ensure all large suppliers and installers can meet project deadlines and have experience and references.

Create a Move-In Strategy

Transitional planning for a move is essential. The creation of a Move-In Logistics Transition Team is recommended. For larger organizations, a move can be compared to a military operation. Groups are moved in by priority with the following factors being considered:

- Dependence upon a working computer system
- Reliance on functional communication system
- Need for access to records
- Obligation for evidence to be secured
- Dependence upon secured suspect holding areas
- Access to citizens

Every detail must be considered, timed and pre-planned, if a move is to be successful. Acknowledge the psychological stress of moving and change. Layout maps of the new facility should be provided to all staff. When employees know the general layout of a new facility and the location of their workstation or office, the stress of moving is greatly reduced. Packing seminars can help streamline the moving process and greatly reduce employee concerns. Ensure that communication takes place as to what will and what will not be moved to a new facility. Inventory listings are a good way of documenting what will be moving and when. Ascertain what special current equipment requires vendor disassembly, moving and re-assembly, due to warranty concerns. Establish a "lost and found" for items misplaced during a move.

Encourage an appearance of organization and "back to business" as soon as possible. Set dates for unpacking and ensure staff adhere to them. Establish packing box drop off points for empty cartons and have a staff member circulate daily to remove empty boxes from hallways, storage closets, workstations, etc.

Organizations that move themselves usually regret their decision. Some important considerations to include in this decision are:

- Possible employee injuries
- Down time
- Unprofessional appearance
- Employee confrontations
- Damage to the new facility
- Overall confusion
- Delay to moving schedules:
    - Inefficient use of elevators
    - Blockage of loading/unloading staging areas
    - Driveways blocked due to quantity of vehicles on scene
    - Lack of moving equipment and elevator access
    - Employee reluctance to move heavier items

If a decision to use a professional moving company is made, a transition team should prepare specifications to allow for competitive bidding. A complete inventory of all items being moved, a moving schedule and a mandatory job walk-through of both the current and new facilities should help to obtain fair bids.

Conduct Extensive Pre-Occupancy Testing, Training and Staff Orientation

Extensive pre-occupancy testing, commissioning, training and staff orientation should begin during the last months of construction. All transition teams should be working at full speed. The police project manager will be inundated with details and decisions. Strong organization skills, leadership, time management and stress reduction expertise will be required during this fast paced stage.

Testing and Acceptance Transition Team members should be testing everything from plumbing to electrical systems, security systems to furniture systems. It is important to clear all testing with the architectural team to avoid liability, personal injury and concerns over damage created by the owner. The more detailed the testing that takes place, the more assurances a project manager will have that a facility is ready for occupancy. Running through scenarios, such as a panic alarm activation or a loading dock delivery can ensure that all facets of these situations were considered and included in the design and furnishings. Staging other scenarios, such as an officer delivering a suspect to a holding room and conducting a taped interview or simulating the preparation and delivery of food from the holding cell kitchen to an inmate in their cell, can identify equipment that isn't working properly and ineffective procedures. Scenarios are useful tools to test the performance of elevators, security door locks, intercoms, audio/video recording equipment, gun lockers, etc. With scenario testing, potential problems can be identified, documented and repaired prior to move-in and within product warranties.

Unlike scenario-testing, commissioning is the thorough test of a system (HVAC, security, video) from A-to-Z. Depending on the time of year that you occupy the facility, one may only be able to test the HVAC cooling aspect of the

PLANNING TIPS

A complete inventory of all items being moved, a moving schedule and a mandatory job walk-through of both the current and new facilities' should help to obtain fair moving bids.

Extensive pre-occupancy testing, commissioning, training and staff orientation should begin during the last months of construction.

The more detailed the testing that takes place, the more assurances a project manager will have that a facility is ready for occupancy.

With scenario testing, potential problems can be identified, documented and repaired prior to move-in.

Verifying that everything works well assures a smoother transition during move-in.

system. So a contract should require that the HVAC contractor come back one month prior and during the heating months to commission the system. This process includes system setup, training, operation and maintenance schedules, spare parts and system testing during normal and adverse conditions.

Besides testing contractor installed items, this period of time allows for thorough examination of other items provided by an owner, such as combination and keyed locks, telephone systems, office equipment such as copiers, typewriters, furniture lighting and ergonomic features, etc. Verifying that everything works well assures a smoother transition during move-in.

Training needs to be conducted for personnel who will be using new pieces of equipment, such as laboratory fume hoods, automated shelving systems, loading dock levelers, vehicle lifts, etc. Building maintenance personnel will require many hours of detailed training on all new facility systems. It is recommended that training sessions of this type be video recorded and maintained in a training library.

Conduct Extensive Pre-Occupancy Public Relations Events

The completion of a new building is a significant public relations opportunity for any jurisdiction or department. Use the attention wisely but ensure an extensive facility check is made prior to any event. Consider the following public relations opportunities which can be used as a "shake down" of a facility's access, traffic flow, adaptive use of space, lighting and equipment testing:

- Receptions
- Open houses
- Tours
- Media releases
- Media tour of the building and orientation

Employee public relations are important too. Smaller sectional tours are recommended to offer a more personal approach to future facility occupants. The tours should assist in familiarizing everyone with their new office space, overall building layout, etc.

Some jurisdictions use moving into a new or remodeled facility as an opportunity to evoke department pride by taking a departmental staff photograph in the new facility. This move-in event can be an exceptional and memorable event for the entire organization.

Another pre-occupancy public relations responsibility is to determine the quantity, design and location of any facility project recognition plaques. These decisions are not easily made because they can be politically sensitive. In any case, gain approval of identity, correct spelling/correct titles, order and placement of any names associated with the plaques. Also, ensure all plaques are ordered in a timely manner and are delivered and installed according to schedule.

Commonly Forgotten Items

Frequently, general contractors are not completely finished with a project when the occupants move-in. There are always areas or equipment that are included on a "punch list" (items noted during the final walk-through by the owner that require repair, touchup, etc.). Many times, owners will move into

a facility with many items pending. The contractor will remain on site or return on a daily basis to fix some or all of the items. Completion could take months (or years in exceptional cases). The police project manager must maintain continued contact with the contractor to ensure the work is completed.

Since the workload of a police project team greatly increases at the later stages of a project, many areas can be overlooked or forgotten. The following list can identify potential problem areas:

- Ensure a facility's infrastructure is prepared for occupancy. Remember to order, stock and distribute all necessary items, such as paper towels, hand soap, toilet paper, janitorial cleaning equipment and chemicals.
- Coordinate a systematic approach to the facility's many keys. Inventory, tag, issue, duplicate and secure all keys (doors, furniture, files, restroom accessories, clothes lockers, mailbox, gun locker, cells, alarmed emergency exits, access system over-ride keys, mechanical equipment ignitions or locks, electrical panels, elevator keys, safes, etc.).
- Ensure warranty information files, sometimes called Operations and Maintenance Manuals, are set up and maintained. Decide who will keep equipment maintenance warranty information, furniture warranties, etc.
- Placing certain restrictions on telephones is often overlooked. Some phone systems allow for restrictions to be placed on phones to limit calling locations. Phone abuse by staff or contracted employees, usually within certain areas such as a locker room or conference room, usually cause restrictions to be placed on phones.
- Door locks and an associated master keying system needs to be dealt with prior to the move and should be re-assessed once occupancy takes place. Changes are usually needed after move-in. Staff's desire and need for privacy will have to be dealt with so that attitudes remain positive and work assignment time lines can be kept. Security issues concerning individual and group access to certain areas will need to be assessed and dealt with in a timely manner.
- Establish a phone number "hot line" or circulate repair forms where employees can report furniture, phone or equipment problems that can be addressed quickly by Testing & Acceptance Transition Team members.
- Address maintenance issues such as janitorial, steam cleaning, rodent control, trash dumpster pick-up, chemical storage, maintenance contracts for items after warranty, etc.
- Facilitate signage needs for the following: deliveries, overhead clearances, after-hours phone use, lobby hours, visitor protocol, room identity, kiosks, parking, intercom use, general directories, legal rights of arrested individuals, etc.
- Coordinate general post-occupancy tours for VIP's, project architects, other visiting public safety agencies, etc.

Glossary of Facility Planning Terms

Adaptive Re-use: The acquisition of a new or used non-police facility and the redesign/transformation process necessary to adapt it into a fully usable police facility that meets all necessary structural and security requirements.

Building Footprint: The outer limits and configuration of a building's plan shape–(the actual building plan features).

Change order: A change order occurs when, during the course of a project, the owner wants to change the scope of the contract documents. A proposal request usually precedes the change order. The proposal request defines to the contractor (just like the contract documents) the scope of work the contractor is to provide (or not provide, some change orders are credits). The change order is signed by the owner, architect, and contractor. The change order modifies cost and/or time of the project.

Construction submittals: A general term that includes items such as shop drawings, product data, samples, warranties and mock ups that are submitted by the general contractor to the architect for review and verification that the design intent is met.

Contingency: A recommended design practice that utilizes a cushion of 5-15% of the construction costs (depending upon the design phase) to cover unforeseen or minor construction or other work changes which incur cost.

FF&E: Furniture, Fixtures and Equipment.

Final completion: Upon receipt of written notice that the work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the architect will promptly make such inspection and when the architect finds the work acceptable under the Contract Documents and the contract fully performed, the architect will promptly issue a final Certificate for Payment stating that to the best of the architect's knowledge, information and belief and on the basis of the architect's on-site visits and inspections, the work has become completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the contractor and noted in the final certificate is due and payable. The architect's final Certificate for Payment will constitute a further representation that conditions as precedent to the contractor's being entitled to final payment have been fulfilled.

Final payment shall not become due until the contractor has delivered to the owner a complete release of all liens arising out of this contract or receipts in full covering all labor, materials and equipment for which a lien could be filed, or a bond satisfactory to the owner to indemnify the owner against such lien. If such lien remains unsatisfied after payments are made the contractor shall refund to the owner all money that the owner may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees.

FP: Fire protection

Gross square footage: The space which includes corridors, stairs, elevators, toilets, mechanical, structures, wall thickness, etc.

MEP: Mechanical, electrical and plumbing.

Net square footage: That which exists between the walls, paint-to-paint in particular functional areas or that space that can actually be used for tasks or functions.

Operations and maintenance manuals: Equipment, FF&E, warranty information files which must be maintained and catalogued for easy access.

Preliminary cost estimates: The estimated cost of a new or renovated police facility that is based on the data from the space needs analysis.

Project manual: The document that is comprised of the front-end documents such as insurance requirements; instructions for bidders; bid bond; plans and specifications; legal components of construction; etc.

Punch list: A list of items noted by the architect, contractor and owner at the time of substantial completion and at final walk through. Items can be added to the punch list for several months after the owner has moved in. The contractor requests the architect to inspect the list and sign off as completed.

Retainage (hold back)**:** Each time a builder/contractor submits an invoice for a progress payment it is reviewed for accuracy by the architect and the owner (if the contractor claims it is 30% complete, the architect must make a value decision whether the project is indeed that far along). When the invoice is approved for payment an amount (usually 10%) is deducted and retained. When the project is approved for "final completion" all "hold backs" are released.

Scenario testing: A step-by-step analysis of how various actions or activities can occur in the new facility.

Shop drawings: Drawings prepared by contractors, subcontractors, or suppliers showing how a particular aspect of the work is to be fabricated and installed. These documents are submitted to the architect for review during construction. Other data may be included in the submittal, such as schedules; performance charts; brochures; diagrams; or samples to illustrate materials, systems, and workmanship involved.

Specifications: A section of the Project Manual that describes the scope, products and execution of the work, e.g. concrete, carpet installation.

Substantial completion: The stage in the progress of the work when the work or designated portion thereof is sufficiently complete in accordance with the contract documents so that the owner can occupy or utilize the work for its intended use. This date signals the end of the contract time and the beginning of the time when insurance responsibility is transferred from the contractor to the owner. Warranties are effective on this date. All work signed off by the architect must conform to the definition contained in the contract documents before the certificate of substantial completion is issued.

Substitution: An alternate product, material or method from what was proposed in the contract documents. Typically submitted by a supplier, subcontractor, or contractor to the architect, who reviews for compliance with the contract documents. The burden of proving that a substitution meets the requirements of the project is typically the responsibility of the submitting contractor. Substitutions may occur during the bidding or construction phase.

Value engineering: Review of FF&E materials and/or cost-cutting methods and substitutions affecting quality, size and features of a project. A formal process that offers a way to optimize project costs.

Warranty period: Most jurisdictions compel the contractor to provide a minimum warranty period of one year from the date of final completion. During that time they must coordinate repairs to correct flaws in workmanship and equipment. Just before the 1 year anniversary date a prudent building owner has the architect return to the site and perform a warranty inspection. Actually, many components in the building have warranties that vastly exceed one year (a 20 year roof warranty for example).

Working drawings: Synonymous with construction documents. Detailed plans and specifications used in bidding a project.

APPENDIX 1

Useful Planning/Design Resources

PLANNING TIPS

One of the best resources is the experience and knowledge of colleagues who have recently built facilities.

Site visits to recently built police facilities are beneficial to a successful building project.

There are many planning and design resources available for police project managers. One of the best resources is the experience and knowledge of colleagues who have recently built facilities. They can offer insight into their planning process, documents and contracts issued, what they would do differently, what they would do over again and can offer a unique personal and professional perspective.

Site visits to recently built police facilities are not only beneficial, but are an essential tool to clarify project goals and objectives. They also help formulate a planning team's vision and an architect's understanding of that vision. Site visits allow for a visual experience of design features, adjacencies, interior finishes, furnishings and other details, while blending with the realities of actual facility use. Site visit photos are recommended for later design clarification. Compiling an album or computerized database of photographed design features is an excellent way to preserve these items for later reference. Categorizing each facility by name and each photograph by function or design feature is especially helpful.

Compiling a business card file of all site visit contacts is highly recommended. Networking with prior project managers, discussing common pitfalls and successes of each project and ascertaining particular details related to transition or furniture specifications and purchases, are all examples of valuable information that is available.

Each of the following resources offers a different perspective and category of assistance.

IACP - The International Association of Chiefs of Police provides a number of resources including: A training class in Planning, Designing, and Constructing Police Facilities and information on recently constructed police facilities throughout the United States.

(703) 836-6767 (800)-843-4227 www.theiacp.org

AIA - The American Institute of Architects maintain new and archived articles available that may assist you with a specific design or construction topic. They also sponsor training seminars and conferences with police related topics and speakers.

(202) 626-7300 www.aiaonline.com

NIC - The National Institute of Corrections provides assistance in subjects dealing with jails and holding facilities. This federally funded organization offers free technical assistance with planning, designing and constructing jails.

(800) 995-6429 www.nicic.org

CALEA - Commission on Accreditation of Law Enforcement Agencies provides general guidelines for standards concerning holding facilities, property areas and communication centers.

(800) 368-3757 www.calea.org

APPENDIX 2:

Police Facility Planning Guidelines
Site Visit Protocol

Overview

There are many facets to the planning, design, and construction of a new police facility. Included here are some suggestions for agencies to follow as they contemplate model site visits- an important step in information gathering during the planning phase of a new building project.

Choose a Site to Visit

If you have not already chosen a model site to visit, contact these resources to locate a model site near you, that reflects your department size, budget and type of policing e.g. problem-solving. The closer the comparison the more valuable the information.

Develop a Travel Budget for Site Visits

Most police departments do not have a budget set aside for new facility planning. For this reason, it is recommended to consider visiting local agencies within a short travel distance for site visits. Even if a local site is larger or smaller than your department, valuable insights can be gained by discussing the planning, building and construction of new facilities with a colleague.

- If your department has chosen an architect, discuss with them the possibility of visiting local sites and suggest applying the travel costs to their planning/design budget.
- Check with the local municipality for a real estate representative. Some cities have real estate representatives to assist local departments to relocate or build. They may be able to cover the cost of or assist in a model site visit.
- If you are in the planning stages and funds are available to include a line item for site visits in your current budget.

Determine a Site Visit Team

Each agency's resources and needs will be unique in this process. The municipal or departmental restrictions relative to budget, architectural selection process, etc. may well determine whether you will be able to visit model sites and, if so, who will be on the team. The most important persons to include are:

- The police chief or facility project manager
- The facility planning committee chair or member
- An architect or city planning representative
- The city manager or municipal board representative

Keep the team number small and choose the team with your goal in mind. Since you may want use this visit to instruct, plan the team and the visit around that goal.

PLANNING TIPS

How to Plan a Site Visit:

1. Choose a site to visit that closely reflects your building needs, size and budget
2. Develop a travel budget for site visits
3. Determine the site visit team
4. Schedule interviews for the site visit
5. Determine site visit interview questions
6. Determine the form and recipients of the site visit report

Schedule Site Visit Interviews

Schedule interviews with the chief or project manager, building occupants, and architects. Site visit goals and outcomes are:

- To review building cost estimates and timelines
- To review building site recommendations, design options and/or restrictions
- To determine helpful strategies for dealing with planning teams or governing municipal committees
- To determine important training and/or user needs for building occupants
- To review choices of architectural firm

Ask the local chief or facility project manager who they would recommend for interviews. Inform the interviewees of the reason for the visit and the scope of your project.

Determine Site Visit Interview Questions

Included in this document are sample questions for site visits. Determine the interview questions based on the stage of your facility planning, building process and what the goals and objectives of the visit are. Use the included questions as a template and modify them according to your needs. A user's roundtable, consisting of representatives of the occupants of the building, is strongly recommended. Design advantages or disadvantages are often uncovered at this roundtable discussion. (A group of 5-10 is recommended).

Decide the Form and Recipients of the Site Visit Report

The goals of the site visit will determine the form and recipients of the report. Of course, as a courtesy, provide the site visit host with a copy of the report. It may be useful to them also. Recommendations for report recipients include:

- Chief or facility project manager
- City manager or mayor
- City planner or member of the planning commission
- Architectural team
- Police union steward or employee (officer and/or civilian) representative

Include a section within the summary for conclusions. Make sure the points you need to emphasize, which support your project, are clearly stated. Provide a reference list from the site visit for your city manager or other municipal officials to contact for further information. This may prove persuasive as the project continues.

Site Visit Suggested Questions

BIG PICTURE QUESTIONS: *Planning & Administrative Process Questions for the Chief*

1 How is success defined?

2 Would you consider the building of this facility a "success?"

3 How was the site location determined? What criteria was used?

4 Did you visit any other sites? Which ones and why?

5 Does this building reflect the department's policing philosophy? Examples.

6 How did you balance community access needs with the need for security?

7 Were there any unexpected stumbling blocks in the planning, design, or building process?

- *What were they?*
- *How were they resolved?*
- *Recommendations to others?*

8 What did you learn from the planning, design, building process that you think is essential for others to know?

9 Are there any unexpected problems with the current facility?

10 How was the communication between police officials and architect facilitated?

- *What ingredients made that relationship successful?*
- *What recommendations would you make for other departments/architects?*
- *How were specific police facility needs communicated to the architect?*

11 How did you choose the architect? Would you recommend that process?

- *What criterion did you use?*
- *Did you view any of their previous buildings?*

12 How was the Planning Committee decision-making process accomplished?

- *Consensus*
- *Chief (political) veto?*

13 Was adaptive re-use of existing structures ever considered? If so, why discarded?

14 Was there difficulty getting financial and community support for the facility?

- *If so, how was it resolved?*
- *How did you justify the need for a new building to local officials and community?*
- *Tips for others?*

15 What need/risk assessment tool was used? Was it accurate? Can it be recommended?

16 Did your planning process include future expansion?

WALK THROUGH QUESTIONS: *(Look for adequate space and ventilation of officer lockers; parking & access for officers; crime lab/forensics design; evidence storage; general work flow issues; security measures).*

1 From a staff perspective, what works best about this building?

2 Does the building design effectively support work flow (e.g. arrest, booking, holding, interviewing?)

3 What is missing that could be useful to the facility? What do you wish you had in this section? (individual working sections)

4 Has the choice of location proven to be a good one?

5 Have there been any citizen complaints or compliments about the building/location?

6 Were materials used in the building inner-outer surfaces good choices? Why?

7 Has either building access or usage become problematic? How?

- *Staff Access/Use*
- *Citizen Access/Use*

8 What, if any, are the shared uses of the building? What works, what doesn't?

ROUNDTABLE QUESTIONS: *(Focus here on functionality and shared uses; lighting; foot traffic flow; communication systems; heating/cooling features; staff input on design & future plans; security; staff & visitor parking.)*

1 Which section do you work in?

2 Have you done this work in another facility? Can you compare functionality?

3 How is this building an improvement over the old building?(if applicable).

4 In your view, what is the most positive characteristic of this building? The most negative?

5 Does the building contribute to greater staff efficiency? How?; Impede? How?

6 Does your section have adequate space to operate effectively?

7 How involved were you in the planning, design, building, or occupancy stages?

8 How was (is) your involvement helpful in assisting design of the work flow or business process in your work area?

9 Are there any building design or occupancy issues that you would recommend be addressed by other departments who build new facilities?

10 Are you involved in agency future plans for expansion (if there are any)?

11 Is heating/cooling system adequate?

Memorandum

To: Livable City Initiative, City of New Haven
From: Pearce Commercial Real Estate
Date: 4/13/2018
RE: 54 Meadow Street – Real Estate Review of City-owned and Leased Property

Pearce Commercial Real Estate was engaged by the City of New Haven to review the office condominium property located at 54 Meadow Street in New Haven and provide to the City an analysis of both city-owned units and leased space at the property. The City of New Haven owns floors 2-5 which are occupied by the New Haven Board of Education Central Office. The New Haven Health Department leases space for clinics and offices on the first and ninth floor of the building and the Board of Education also leases a small portion of the first floor.

Pearce Real Estate conducted a review of property documents, a recent appraisal, interviews with the Board of Education and Health Department and current and trending real estate market information for office and medical clinic space in New Haven. Based on this information four alternatives are presented regarding the continued use of the property by the City. The four alternatives include:

- City retains ownership and Board of Education continues to occupy floors 2-5 and Health Department remains in place leasing floors 1 and 9.

- Both the Board of Education and the Health Department relocate from 54 Meadow Street to either other leased space or acquires and builds new space. The City sells its ownership in the four condominium units.

- Health Department acquires existing leased space on floors 1 and 9 through purchase or swap of City-owned floors 2-5 assuming Board of Education relocates to new facilities elsewhere in City. City sells two remaining floors.

- City sells its condominium units to owner of the other condominium units in 54 Meadow and negotiates a lease back of floors 2-5 and at same time negotiates new lease terms of Health Department of floors 1 and 9. New terms would include upgrades to the building.

Description of Property – 54 Meadow Street

The property consists of an irregular shaped parcel of land comprising 1.56 acres (68,090 square feet). The parcel constitutes an entire block, with frontage along Meadow Street, West Water Street, South Orange Street and Columbus Avenue. The parcel is improved with a nine-story masonry, multi-tenant Class B office complex with a total effective building area of approximately 110,000 square feet and an adjacent five level 407 vehicle parking garage as well as a short-term surface parking lot.

The office building was constructed in 1946 as the New York, New Haven and Hartford Railroad Company headquarters. The building was extensively renovated in 1988 and the parking garage was constructed. In 1990 the entire complex was declared as the Gateway Center Office Condominium. The declaration comprises 13 individual condominium units (See Attachment A Condominium Documents). The City of New Haven owns four condominium units, floors 2-5 with an effective floor area for each of the four units including corridors and bathrooms of 12,987 square feet or 51,948 square feet in total. The City of New Haven purchased the units in July 1990 for a price of $6,797,000. The balance of the condominium interest of 9 units is owned by Gateway Partners, LLC including floors 1 and 6-9 representing approximately 58,053 square feet.

A description of the improvements includes:

- The building is a 9-story office building with square-shaped floor plates and a central core containing lobby, elevators and stairwells;
- Basic Construction: Steel and masonry with reinforced concrete slab foundation;
- Limestone exterior walls with flat roof of built-up assembly's w/tar and gravel cover;
- Single pane windows in metal frames;
- Gas forced air heating with central HVAC roof mounted air conditioning equipment;
- 100% sprinklered;
- Electrical metering: Each tenant is separately metered;
- The building contains 4 passenger elevators recently renovated.

The City of New Haven Assessment information on file incorrectly includes the land and the parking garage as City-owned instead of common elements of the Condominium. The four city-owned units themselves are tax exempt as they are for municipal use. For the 2015-2016 tax year the Gateway Partners, LLC units were assessed at $3,580,710 with a tax liability of $148,779 or approximately $2.52 per square foot.

The property is currently zoned Business E, Wholesale and Distribution. The property is a pre-existing non-conforming use. The City is discussing changing the current zone to Zone BD-3 to help facilitate redevelopment efforts. The BD-3 allows office use by right.

The property is in Flood Zone AE as indicated by FEMA Map 09009C0441J dated July 08, 2013. Zone AE indicates that the property is subject to inundation from a 100-year flood. The property and surrounding streets have been flooded numerous times in recent years.

Board of Education Use of City-owned Floors 2-5

The New Haven Board of Education (BOE) occupies the four city-owned condominium units on floors 2-5 for its central office use. The offices include the School Superintendents Office, finance, human resources, transportation and other administrative offices as well as offices related to various school programs. The BOE has continuously occupied the space since the City acquired the units in 1990.

Each of the four floors has an effective floor area of 12,987 square feet including the hallways and lavatories totaling 51,948 square feet. The BOE leases out a small portion (1,733 sq. ft.) of the first floor from Gateway Partners, LLC. The four floors are mainly laid out for office use with some small conference rooms and one larger meeting space on the second floor where the Board of Education has traditionally held its public Board of Education meetings. The BOE has been moving to cloud storage for records but they are required by law to maintain hard copy files and have many of these immediately available to the public and other users thereby requiring significant space for files at the central office.

While the BOE does not pay rent for floors 2-5 it does pay a proportion of the condominium association fees set every year to cover property management of the common elements and capital projects. Based on the 2017-18 condominium budget the BOE is being charged fees of $596,133 which includes some additional cleaning and services specific to the BOE. In addition, some of these fees are historically partially rebated to reflect excess revenue from a garage agreement with LAZ Parking. Based on this current budget it is estimated that the annual fees without extra services and the garage rebate will equal $500,000 (Amodio Associates, February 2018).
The BOE has a need for approximately 150 parking spaces in the garage and is allocated these without cost based on its relative square footage of condominium ownership.

In addition to the central office space at 54 Meadow the BOE does maintain some off-site office and meeting space at 654 Ferry Street in New Haven. The space is primarily used for teacher training and related programs with some administrative offices. The BOE would likely maintain the Ferry Street space if it relocated from 54 Meadow.

New Haven Health Department

The New Haven Health Department leases most of floor 1 and all of floor 9 from Gateway Partners, LLC. The total square footage leased is 17,380. The first floor is primarily used for the Health Departments walk-in clinics that serve the public with some administrative offices. The

ninth floor is primarily used for the staff of the various community programs and services the Health Department administers. (See Attachment B: Health Department Interview)

The Health Department employs approximately 100 – of these 42 are school nurses who work at the schools but attend meetings at 54 Meadow a couple times a month and 4 employees work at Office of Vital Statistics at 165 Church and approximately 54 work out of the Meadow Street Office. In addition, several partner agency employees from the regional and state level occasionally work out of the main office. The offices include some small conference room/meeting space and a small staff kitchen area.

The Health Department current lease includes 40 parking spaces in the garage for staff/city vehicles. An additional 10 spaces are allocated for short term visitors to clinics to which the health dept reimburses the parking operation.

The primary programs and use of space include:

- **Preventative Medicine Services/Clinics** – most of the clinic facility is located on the 1st floor off the main lobby totaling approx. 5,000 sq. ft. This includes some administrative office space and a 400 sq. ft lab space that requires separate HVAC, refrigeration/lab hood and counter space. The space includes several exam rooms and the department is in the process of converting nine smaller outdated rooms into exam rooms and one shielded room for X-ray equipment;

- **Environmental Health** – Located on the 9th floor with approximately 14 employees who administer several services including the licensing and inspection of food service establishments, lead poisoning programs and numerous other community programs. Most of the staff in these programs work out in the community and must have easy access to department vehicles or their own throughout the workday.

- **Other Divisions/Programs:**
    - Epidemiology
    - Health Programs
    - Maternal & Child Health
    - Public Health Emergency Preparedness
    - Public Health Nursing

The Health Department has a current lease with Gateway Partners, LLC for floors 1 and 9. The Health Department began its original lease for the space in 1993 and in March of 2005 signed an option to extend the lease for 10 years to 2015. The lease was extended by another 5-year option effective March 1, 2015 running to February 28, 2020. The rent is $18.25 per square foot or $317,185 annually and an “Additional Rent” defined as: A) increases in the cost of Hard

Cost Operating Expenses, during the term of the original lease and any option term and B) the increase in Soft Operating Expenses in an amount equal to cost of living adjustment (COLA). The term "Soft Operating Expenses" means expenses, costs or disbursements paid or incurred by the Lessor in operating, owning, managing, leasing, repairing maintaining the demised premises. The additional rent amount is sent by a statement to the Health department annually and payable within 30 days of the statement (See Attachment C: Lease By and Between the City of New Haven and Gateway Partners, LLC, A05-0391). On average, the hard and soft expenses cost about $35,000 per year. The Additional Rent payment for FY 2017 is $36,391 covering hard and soft operating expenses.

New Haven Market Data on Office Space and Construction Costs

The following information is used to identify costs for office space in New Haven assuming the BOE and the Health Department were to relocate. The market lease rates identify a range of lease rates in New Haven for office space similar to 54 Meadow Street. Lease rates in the Downtown Central Business District are higher than rates in outlying commercial districts.

Also included are building costs for a new 50,000 square foot office building for the BOE. The cost involves a range for both a 50,000 square foot office building including a 200 space garage and a cost for a building without a garage assuming surface parking at outlying locations.

The costs for parking in the downtown are identified as a cost in addition to base rents. Most downtown office buildings provide a set number of 1-3 spaces per 1,000 square feet rented at a monthly cost. Often employees in downtown businesses find off-site parking at New Haven Parking Authority facilities or private operators at a monthly rate.

1) Cost of market rate lease Rates for BOE or Health Department in CBD is **$18.00 to $23.00 per sq. ft. plus electric.**

2) Cost of market rate lease rates for BOE or Health Department outside CBD is **$12.00 to $15.00 per sq. ft. NNN**.

3) Hard/soft cost of new 50,000s.f. BOE office building with structured parking in CBD is **$266.00 to $296.00 per sq. ft. or $13.3 million to $14.8 million and** cost of new 50,000s.f. building with surface parking outside the CBD is **$170.00 to $200.00 per sq. ft. or $8.5 million to $10.0 million dollars.**

Downtown Central Business District land cost per square foot = **$35-60s.f.** or say at $50s.f.=**$2,178,000 acre.** Land costs outside the Downtown Central Business District per square foot = **$2.50-7.50s.f**. or say at $5s.f. = **$217,800 acre**

NOTE: No option to build new for Health Facility – not feasible for 17,500s.f. facility.

4) Parking: Downtown CBD parking is $60 – 110 per space monthly or **$720 - $1,320/year**. Most downtown offices do not provide free parking and often only provide 1-2 spaces per thousand square feet. Assume that outlying office locations will provide surface parking at no extra cost. To construct structured parking, cost is approximately **$24,000.00 per space**. For 200 vehicles that equals **$4,800,000.00**, divided by 50,000 sq. ft. equals an additional **$96.00 per sq. ft.** in construction costs.

5) Property Taxes: Real property taxes at 54 Meadow estimated at **$2.52 per square foot**

Alternate Real Estate Strategies for City Departments at 54 Meadow Street

The following strategies each have financial implications that require consideration as well as operational impacts that could be disruptive and others beneficial such as increased productivity and lower operating costs. Some of the financial implications are straightforward and easy to determine and others are cost estimates and hypothetical numbers such as interest rates for bonding or cost of living increases in leases(COLA). Parking cost is also a factor in any discussion to relocate these departments. Sites in the downtown will likely require substantial off-site parking for employees, city vehicles and visitors at an added cost whereas sites outside of the Central Business District are likely to have on-site surface parking at no additional cost.

It should be noted that both the BOE and the Health Department should be in locations that are easily accessible to residents and clients with public transportation and available parking. Both departments have noted that the current 54 Meadow Street location is central to public transportation and the adjacent garage provides adequate employee and visitor parking.

The following strategies do not include the cost of moving either department to a new location nor does it include the cost of new furnishings nor IT cost. A solid commercial tenant who will be signing a lease of 10 years with options to renew can expect the landlord to contribute $20 - $40 per square foot of build out cost. Usually any cost over that is the responsibility of the tenant particularly any special HVAC cost or clinical space that require labs or equipment.

Some of the financial numbers are derived from the previous section on New Haven Market Data and others from the recent appraisal of the City's property interest at 54 Meadow Street.

- **Alternative 1 - City retains ownership and Board of Education continues to occupy floors 2-5 and Health Department remains in place leasing floors 1 and 9.**
    - BOE pays no rent to lease space elsewhere if it remains nor bonding cost for construction of new building. It does continue to incur annual condominium fees at the current location estimated at **$500,000** annually (the 2016-17 Condo budget lists BOE fees of $596,133 but includes additional services to BOE and some of the fees are reduced due to rebates from the parking operator – LAZ).

- The Health Department currently pays approximately $18.25square foot for 17,380 square feet or $**317,185**/yr. and an additional rent payment of **$36,391** in 2017-18.

  Overall 10 Year Cost Remain In Place - $8,535,769

- **Alternative 2 - Both the Board of Education and the Health Department relocate from 54 Meadow Street to either other leased space or acquires and builds new space. The City sells its ownership in the four condominium units.**

  - Neither the BOE nor the Health Department pay extra for employee/city vehicles to park in the Meadow Street garage. If the BOE relocated to a leased office facility in the downtown there would likely be a cost associated with off-site garage parking at between $60-$110 per month for 150 vehicles resulting in a parking cost of between **$108,000-198,000**/yr The Health Department receives 40 spaces at no additional cost in its lease which would result in off-site parking cost in the downtown of between **$28,800 - $52,800**/yr.
  - Assuming the BOE relocates to a **leased facility at market rates in the Downtown Central Business District** it would incur a market rent of $18.00 - $23.00/sq. ft. gross plus electric, annually for 50,000 square feet of space and additional parking cost of $153,000/yr. at $85.00 per space for 150 vehicles.
  - Assuming the BOE relocates to **a leased facility at market rates outside of the downtown** it would incur a market rent of $12.00 - $15.00/sq. ft. NNN annually for 50,000 square feet of space and no additional cost for parking.
  - Assuming the BOE relocates to **a newly built city owned office facility in or close to the Central Business District** it would incur building cost of $266.00 - $296.00/sq. ft. plus land, including the cost of structured parking for 175 vehicles.
  - Assuming the BOE relocates **to a newly built city owned office facility outside of the Central Business District** it would incur building cost of $170.00 - $200.00/sq. ft. plus land with the cost of surface parking included.
  - The BOE no longer pays condominium fees of $500,000 annually as that cost will be built into a new lease.
  - The City of New Haven will realize **$3,500,000** from the sale of floors 2-5 at 54 Meadow Street.
  - City would realize new property taxes from floors 2-5 of **$126,000**/yr.
  - Assuming the Health Department relocates to **a leased facility at market rates in the Central Business District** it would incur a market rent of $18.00 - $23.00/sq. ft. plus electric annually for 17,500 square feet of mixed office/clinic space and additional cost of off-site parking of **$40,800**/year for 50 vehicles.

- Assuming the Health Department relocates to **a leased facility at market rates outside of the Central Business District** it would incur a market rent of $12.00 - $15.00/sq. ft. NNN annually for 17,500 square feet of mixed office/clinic space with no additional cost for parking.

  Overall 10 Year Cost of Lease BOE and Health In CBD - $10,462,000
  Overall 10 Year Cost of Lease BOE and Health Outside CBD - $4,474,000
  Overall 10 Year Cost New BOE Build In CBD - $13,952,000

- **Alternative 3 - Health Department acquires existing leased space on floors 1 and 9 through purchase or swap of City-owned floors 2-5 assuming Board of Education relocates to new facilities elsewhere in City. City sells the remaining two floors.**
  - City swaps floors 2 & 3 for floor 1 & 9 with Gateway Partners. Health Department remains in place but now owns the space it occupies on floors 1 & 9. They no longer pay rent nor do they pay for parking. They will pay condominium fees for the two floors they acquire estimated at **$250,000**/yr.
  - City sells remaining floors 4 & 5 resulting in **$1,750,000** to City.
  - City would realize new property taxes from sale of floors 4 & 5 of **$63,000/yr**.
  - BOE relocates to a leased facility at market rates in the Downtown Central Business District OR to a new leased facility at market rates outside of the downtown.
  - BOE relocates to a newly built city owned office facility in the Downtown Central Business District OR to a newly built city owned office facility outside of the downtown.

    Overall 10 Year Cost of BOE Lease In CBD - $11,217,000
    Overall 10 Year Cost of BOE Lease Outside CBD - $6,687,000
    Overall 10 Year Cost of BOE New Build in CBD - $16,165,000

- **Alternative 4 - City sells its condominium units to owner of the other condominium units in 54 Meadow and negotiates a lease back of floors 2-5 and at same time negotiates new lease terms of Health Department of floors 1 and 9. New terms would include upgrades to the building.**
  - City realizes **$3.5 million** from sale of condominium unit floors 2-5.
  - City would realize new property taxes from floors 2-5 of **$126,000**/yr.

- City negotiates new long-term lease of $19.00 - $20.00/sq. ft. or **$332,500.00 - $350,000/yr**. for Health Department on floors 1 and 9. Lease includes parking for 40 cars in garage.
- City negotiates long-term lease of $19.00 - $20.00/sq. ft. or **$950,000 - $1,000,000/yr**. for BOE on floors 2-5. Lease includes parking for 150 cars in garage.
- Assume lease terms include moderate upgrade to building.

Overall 10 Year Cost of Sale and Leaseback at 54 Meadow – $9,199,000

54 Meadow St. - Real Estate Review of Alternatives

	Alt. #1	Alt. #2 in CBD	Alt. #2 outside CBD	Alt. #2 w/ newly built	Alt. #3 in CBD	Alt. #3 outside CBD	Alt. #3 w/ newly built	Alt. #4
	"As is"				"Swap"	"Swap"	"Swap"	"Sell & Lease back"
Cost per sq. ft.		$18.00	$12.00	$266.00	$18.00	$12.00	$266.00	$19.00
Income to City		$ (3,500,000.00)	$ (3,500,000.00)	$ (3,500,000.00)	$ (1,750,000.00)	$ (1,750,000.00)	$ (1,750,000.00)	$ (3,500,000.00)
New Taxes to City		$ (126,000.00)	$ (126,000.00)	$ (126,000.00)	$ (63,000.00)	$ (63,000.00)	$ (63,000.00)	$ (126,000.00)
BOE - 50,000 sf	$ 5,000,000.00	$ 10,530,000.00	$ 6,000,000.00	$ 13,300,000.00	$ 10,530,000.00	$ 6,000,000.00	$ 13,300,000.00	$ 9,500,000.00
Land for BOE				$ 2,178,000.00			$ 2,178,000.00	
Bd. Of Health - 17,500 sf	$ 3,535,769.00	$ 3,558,000.00	$ 2,100,000.00	$ 2,100,000.00	$ 2,500,000.00	$ 2,500,000.00	$ 2,500,000.00	$ 3,325,000.00
Totals	$ 8,535,769.00	$ 10,462,000.00	$ 4,474,000.00	$ 13,952,000.00	$ 11,217,000.00	$ 6,687,000.00	$ 16,165,000.00	$ 9,199,000.00

Assumptions: *10 yr. projections
* all rents at low end
* all rents held constant

Market Demand and Feasibility Study for 54 Meadow Street and 1 Union Avenue

May 2018

Prepared for:

City of New Haven, CT
Livable City Initiative
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Landscape Architecture + Urbanism

About Camoin Associates

Camoin Associates has provided economic development consulting services to municipalities, economic development agencies, and private enterprises since 1999. Through the services offered, Camoin Associates has had the opportunity to serve EDOs and local and state governments from Maine to California; corporations and organizations that include Lowes Home Improvement, FedEx, Volvo (Nova Bus) and the New York Islanders; as well as private developers proposing projects in excess of $600 million. Our reputation for detailed, place-specific, and accurate analysis has led to projects in 31 states and garnered attention from national media outlets including *Marketplace* (NPR), *Forbes* magazine, and *The Wall Street Journal*. Additionally, our marketing strategies have helped our clients gain both national and local media coverage for their projects in order to build public support and leverage additional funding. We are based in Saratoga Springs, NY, with regional offices in Portland, ME; Boston, MA; Richmond, VA; and Brattleboro, VT. To learn more about our experience and projects in all of our service lines, please visit our website at www.camoinassociates.com. You can also find us on Twitter @camoinassociate and on Facebook.

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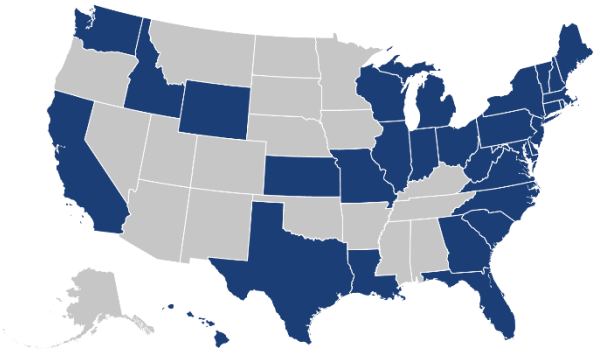

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Executive Summary

Having recently undergone a comprehensive planning effort for the Hill-to-Downtown neighborhood, the City of New Haven has identified two properties, 54 Meadow Street and 1 Union Avenue, as strategic sites for redevelopment. The City recognizes that the proximity of the properties to Union Station, the busiest Amtrak station in Connecticut, creates transit oriented development (TOD) redevelopment potential for the site. To help guide policy decisions on catalyzing redevelopment of the sites, the City engaged Camoin Associates and partner MRLD Landscape Architecture + Urbanism to evaluate the real estate market, identify the highest and best market-viable uses for the properties, determine the financial feasibility of potential development scenarios, and examine the economic and fiscal impacts on the city.

The study area consists of two primary parcels: 1 Union Avenue and 54 Meadow Street. Due to its proximity to the study area and physical position relative to 1 Union and 54 Meadow, 78 Meadow Street is also considered for potential redevelopment in this analysis as a third parcel.

Review of Plans and Ongoing Initiatives

Significant planning and analysis was done to set the groundwork for a transformative project in the Hill-to-Downtown neighborhood. As context for our analysis, we reviewed numerous plans, projects, and initiatives that have been undertaken to date, including the Hill-to-Downtown Community Plan, Vision 2025, the 2017 Economic Development Official Statement, the Downtown Crossing initiative, the Church Street South and Coliseum redevelopment projects, and future plans for Union Station.

Market Analysis and Redevelopment Concepts

The market analysis identified various strengths as well as challenges in terms redeveloping the site and positioning it as a transit-oriented hub within New Haven.

Strengths

- Proximity to Union Station and Downtown
- Transit-oriented development potential
- Location of New Haven within Connecticut
- Hill-to-Downtown planning and development momentum
- Educated and innovative population
- Strong apartments rents and absorption
- Robust hotel performance
- Potential for meeting space
- Arts and cultural amenities
- Foodie destination

Challenges

- Connectivity to Downtown
- Separation from Medical District
- Weak retail demand
- Overbuilt office market
- Perception of crime and safety
- Connecticut market environment
- Accommodating parking needs and requirements
- Location in floodplain
- Fiscal constraints (need for additional tax revenues)

The findings from the market analysis, together with consideration of neighborhood context, site capacity, environmental constraints, parking and zoning requirements, and input from the City, were used to ultimately select two redevelopment concepts for the site.

Scenario A: Transit-Oriented Living, Shopping, & Dining

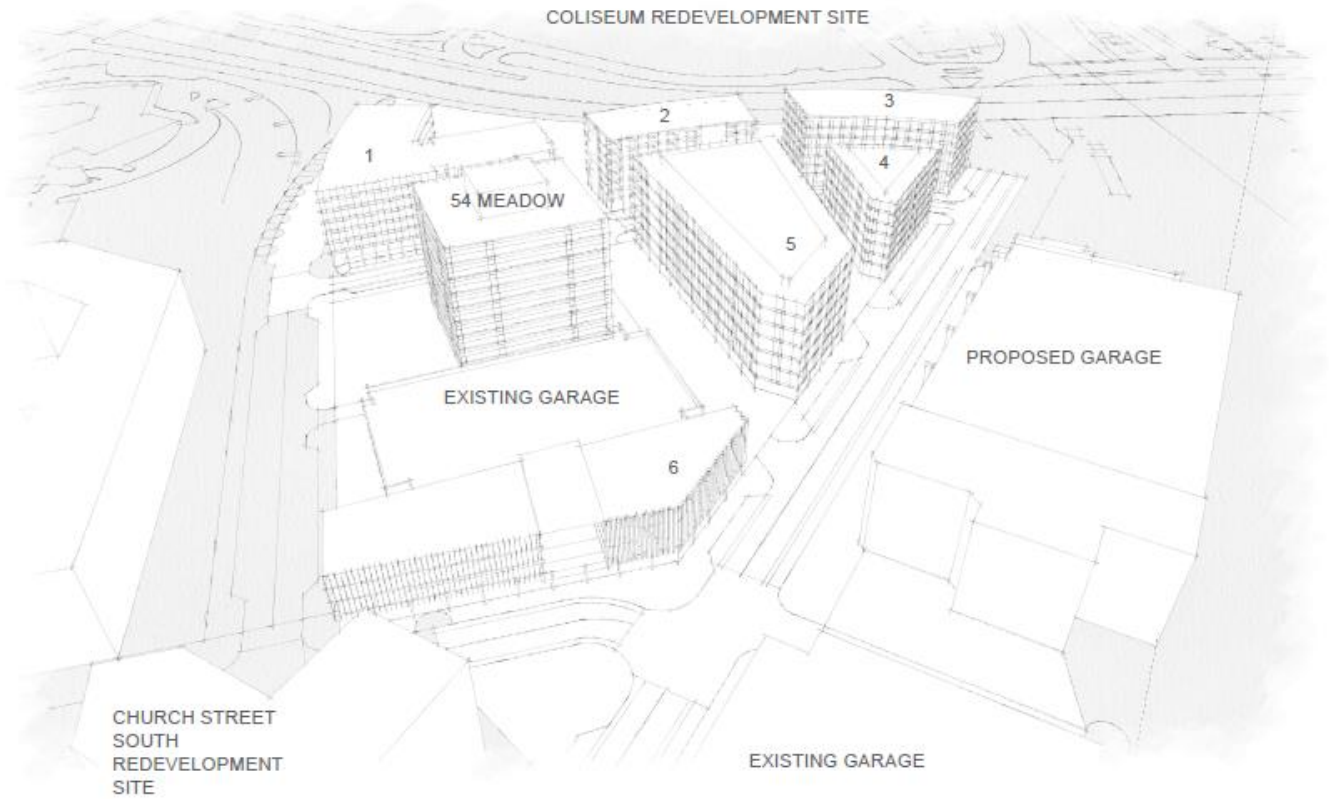
Scenario A includes a mix of ground-floor retail/restaurant space with residential apartments on the upper floors. Retail/restaurant space would serve as the anchor for driving traffic to and through the site. This space would be concentrated in the center of the site, and could include a food hall that would cater to Union Station passengers, serve Gateway Center and other nearby office workers, and provide an amenity to residents. The food hall would showcase the variety of foods and beverages from restaurants around the city and region. It would feature dining spots such as quick-service food stalls, restaurants with table-service, outposts for local breweries, food retailers, and other concepts. Recreation-oriented retail, such as a fitness center, would also be included.

Scenario B: Business + Technology Hub

Scenario B includes a mix of office, meeting space, retail/restaurant and residential apartments. This concept leverages New Haven's location within Connecticut and the Northeast as a hub for business and technology. Anchoring the development would be high-tech office space for a research institution or think tank. Complementing this anchor would be a variety of amenities that position the site as a business and meeting center. It would include space for small to mid-sized conferences, meetings, corporate events, and coworking space that could be rented for varying degrees of time (hourly to monthly). Restaurants and cafés would serve business users and be able to accommodate functions and events. Other amenities would include a fitness center, business support services, and other small-scale retail space.

The redeveloped site is envisioned below.

Figure 1: Bird's Eye View of Study Area Redevelopment Concept



Source: MRLD

Financial Feasibility

These development scenarios were tested for financial feasibility, using a financial pro forma statement developed to model the cash flows associated with constructing and operating the scenarios. The model was used to determine the residual land value of the study site, i.e. the maximum amount that a developer would be willing to pay for land acquisition in order to achieve an acceptable rate of return on invested equity. The total value of city-owned land is estimated at between $2 million and $4 million, excluding any site costs to be borne by a prospective developer.

Based on discussion with City staff, it is possible that site costs could far exceed the calculated land values. Therefore, the City should not expect the sale of the City-owned portion of the study area to yield any significant proceeds. In addition, it is likely that the City may have to subsidize any future development to cover these costs, through property tax abatement or another financing mechanism such as tax increment financing (TIF).

Economic Impact

An economic impact analysis was conducted to examine the potential impact in terms of generating direct and indirect jobs, sales, and earnings in the City of New Haven's local economy due to both scenarios. Economic impacts in the City of New Haven as a result of both scenarios include the following:

Scenario A

- Permanent jobs both on-site and off-site from residential workers, household spending, and food/retail sales: **147 jobs**
- Annual earnings including wages and benefits, from residential workers, household spending, and food/retail sales: **$4 million**
- Annual sales at local businesses as money cycles through the city's economy: **$13 million**

Scenario B

- Total permanent jobs (including 353 research and development jobs) both on-site and off-site at local businesses, including residential workers, household spending, and conference/event center related sales: **610 jobs**
- Annual earnings including wages and benefits: **$37 million**
- Annual sales at local businesses as money cycles through the city's economy: **$105 million**

Fiscal Impact

A fiscal analysis was performed to determine the impact of each scenario on City services and the City budget. Considering all expenses and revenues associated with the two scenarios, Scenario A would have a positive annual net fiscal impact on the City budget of $2.3 million. Scenario B would have a positive annual net fiscal impact of $2.4 million.

Table 1: Annual Net Fiscal Impact

Annual Net Fiscal Impact on City of New Haven at Full Buildout (2018$)		
	Scenario A	Scenario B
Revenues		
Real Property Tax	$ 3,005,804	$ 2,987,987
Other Revenue	$ 114,074	$ 237,096
Expenses	$ (786,392)	$ (810,229)
Net Annual Impact	$ 2,333,486	$ 2,414,855

Introduction

Having recently undergone a comprehensive planning effort for the Hill-to-Downtown neighborhood, the City of New Haven has identified two properties, 54 Meadow Street and 1 Union Avenue, as strategic sites for redevelopment. The City recognizes that the proximity of the properties to Union Station, the busiest Amtrak station in Connecticut, means great transit oriented development (TOD) redevelopment potential for the site. To help guide policy decisions on catalyzing redevelopment of the sites, the City engaged Camoin Associates and partner MRLD Landscape Architecture + Urbanism to evaluate the real estate market, identify the highest and best market-viable uses for the properties, determine the financial feasibility of potential development scenarios, and examine the economic and fiscal impacts on the city.

Study Area

The study area consists of two primary parcels: 1 Union Avenue and 54 Meadow Street. Due to its proximity to the study area and physical position relative to 1 Union and 54 Meadow, 78 Meadow Street is also considered for potential redevelopment in this analysis. The three parcels collectively are referred to throughout this report at the "Study Site" or the "Site." Each parcel is described below.

1 Union Avenue. The Headquarters for the City of New Haven Police Department is currently located at 1 Union Avenue. The 1.25-acre site is triangular in shape and bounded by Union Avenue on the southeast, W Water Street on the north, and Meadow Street on the west. The existing building is 4 stories tall and has a gross floor area of 88,434 SF, excluding the unfinished basement.

54 Meadow Street. This parcel measures 1.56 acres and consists of an office tower and a parking structure. It is bounded by Union Avenue on the southeast, Meadow Street on the east, W Water Street on the north, S Orange Street on the west, and Columbus Avenue on the south. The office tower is a 9-story multi-tenant structure known as Gateway Center. It contains 106,106 SF of floor space held in condominium interest. Of the 13 condominium units in the building, 9 units on 5 floors plus the roof are privately owned. The remaining units are owned by the City of New Haven and occupied by the Board of Education and Health Department. The on-site parking garage contains 407 parking spaces.

78 Meadow Street. The 78 Meadow parcel measures 1.37 acres and is the site of the Knights of Columbus printing plant. It is an irregularly shaped parcel bounded on the north by S Frontage Road/Route 34, on the west by S Orange Street, and on the south by W Water Street. It is located directly north across W Water Street from both 1 Union and 54 Meadow. The Knights of Columbus facility is three stories tall with 68,545 SF of floor area and contains a truck loading dock. The site also contains a sizable parking lot.

Prior Plans and Reports

Significant planning and analysis was done to set the groundwork for a transformative project in the Hill-to-Downtown neighborhood. As context for our analysis, we summarize below the major plans, projects, and initiatives that have been undertaken to date.

Hill-to-Downtown Community Plan

Completed in 2013, the Hill-to-Downtown Community Plan outlines the City's goals for building on existing assets to revitalize the district between the Hill Neighborhood and Downtown New Haven and restore the urban fabric of the city. The plan envisions the future of the area as a vibrant, walkable, mixed-use district that integrates with both Downtown and the Medical District, incorporating a well-connected street network and public open space. The plan lists the following broad goals for the district:

- Encourage development of commercial, residential, and retail space in the areas around Union Station and within the Medical District areas.
- Strengthen the existing neighborhood.
- Improve connectivity within the District, and connectivity to Downtown.
- Create new job opportunities for residents through the continued expansion of medical and research uses.
- Expand the city's tax base.

Key Initiatives

Key initiatives for achieving the vision and goals are summarized as follows:

1. Establish Church Street as the center of a walkable, mixed-use district.
2. Invest in the existing neighborhoods around Columbus Avenue, Howard Avenue, and Trowbridge Square through increased connectivity, reuse, and infill development.
3. Reestablish the historic connection between Union Station and Downtown via a pedestrian/vehicular corridor extending from the station to Church Street.
4. Redevelop the Church Street South residential complex to include mix-income housing, retail, restaurants, and open space.
5. Build a New Lafayette Street enhancing access and opening up development opportunities on key parcels along Route 34.
6. Transform Union Avenue into a "complete street" that balances the needs of autos, pedestrians, and cyclists and anticipates future development next to and across from Union Station.

Market Analysis

A market analysis conducted for the Hill-to-Downtown Plan evaluated the development potential of the District over the next 10 years (by 2022/23) and arrived at the following ranges of development:

- Demand for 1,050–1,300 new market-rate rental and condo units.
- A number of affordable units, equal to approximately 15-25% of market rate-units. (This comes out to 150–325 affordable units, or 1,200–1,625 total units.)
- 600,000–1 million SF of laboratory/research space split evenly between corporate and institutional users, with individual research buildings between 300,000–500,000 SF.
- Limited potential for new office space, which is likely to continue to be largely confined to Downtown.

- 20,000–40,000 SF of convenience retail, which could include a specialty food market, a standalone pharmacy, and/or a fitness club. (Assumes simultaneous development of residential and research to support retail.)
- Larger format retailers a possibility at a Church Street location – standalone medium-sized box concepts that cannot be accommodated Downtown.

Study Area-Specific Considerations

The Hill-to-Downtown Plan does not consider the 54 Meadow Street and 1 Union Avenue sites in detail, but raises several site-level issues that are relevant for evaluating the future use potential of the sites:

- Much of the site area is located within the 500-year or 100-year floodplain.
- The existing building housing the police station is called out as lacking transparency and a public street presence and having parking problems.
- The proposed of extension of Lafayette Street from Church Street to Union Avenue has implications for possible site configurations. The future land use map shows the current 1 Union Avenue site split by the Lafayette Street extension, with a possible open space/stormwater park to the south and commercial mixed-use development extending north to Route 34 over what is now West Water Street. The northern portion of the police station site is combined with the Knights of Columbus-owned property at 78 Meadow Street into a single redevelopment parcel.
- The building at 54 Meadow Street, along with its accompanying parking structure, remain in the Plan's future land use map.
- The Plan recommends revising existing FAR-based zoning to achieve the goals laid out in the plan. A height limit of 125 feet is shown for the future block that would accommodate 54 Meadow Street. A height limit of 200 feet is shown for the future block bounded by New Lafayette Street, Union Avenue, Route 34, and South Orange Street.
- Union Avenue is designated as an "arterial" street with design objectives including lane width reduction, separated bicycle facilities, retail/dining uses extended into the street with bulb-outs or parklets, and street furnishings.
- New Lafayette Street is shown as a high-priority bike corridor with buffered bike lines and/or cycle tracks.
- Parking is a significant concern in the district and city overall and should be considered in evaluating reuse potential of the study sites.

Vision 2025

In November 2015, the City adopted its New Haven Vision 2025 plan, an assessment of the existing conditions and a blueprint for the city's vision over the next decade. The plan's Future Land Use Map designates 54 Meadow/1 Union as Downtown Residential Mixed Use, which it defines as: "high-density, mixed-use environments generally with pedestrian-level retail/restaurant/office-type uses and predominantly multi-floor residential space."

Throughout Vision 2025, the desire for transit-oriented development (TOD) is stressed, calling for developments with reduced parking requirements and appropriate densities in suitable locations to facilitate further transit use. The 54 Meadow and 1 Union sites are a logical location to encourage this type of development. TOD cuts across all overarching focus areas covered in the plan, including land use, housing and neighborhood planning, transportation, economic development, and environment.

Related Ongoing Initiatives and Projects

As detailed in the New Haven Economic Development Official Statement from July 2017, there are five major economic development initiatives underway in the City, all of which can be impacted and supported by the successful redevelopment of 54 Meadow and 1 Union. These initiatives include:

1. **Downtown Crossing.** The Downtown Crossing initiative replaces the Route 34 limited-access highway with two urban boulevards and new or rebuilt crossings. It takes back 10.5 acres of land dedicated to highway for tax-generating use and reconnects the city. Completed in 2015, Phase 1 involved the conversion of North and South Frontage Roads to "complete street" urban boulevards. Phase 2 will connect Orange Street across Route 34 via an at-grade intersection, facilitating the redevelopment of the former Coliseum site into a mixed-use, mixed-income neighborhood. Phase 3 will reconnect Temple street from MLK Boulevard to South Frontage Road and open new development parcels on either side of the street. The Downtown Crossing initiative will be instrumental in integrating the area around 54 Meadow and 1 Union and unlocking its redevelopment potential.
2. **Hill-to-Downtown.** The 54 Meadow and 1 Union redevelopment is a key component of the Hill-to-Downtown initiative, the vision of which is detailed above under Hill-to-Downtown Community Plan. Other components include RMS Companies' planned redevelopment of largely vacant parcels into new apartments, retail, research space, and offices, as well as the redevelopment of the dilapidated Church Street South housing complex into new apartments and retail space.
3. **Biotechnology Expansion Space.** New Haven is home to a flourishing biotech sector, which has resulted in new investment in associated office and lab space. 54 Meadow and 1 Union are relatively proximate to the Alexion Pharmaceuticals facility at 100 College Street, Achillion at 300 George Street, Yale-New Haven Hospital, and the Yale School of Medicine, and making the sites a potential fit for this sort of space.
4. **Facilitating Innovation.** New Haven's commitment to fostering innovation has led to a $2 million award from the State of Connecticut to implement its Innovation Places Plan. Innovation Places, together with the planned District NHV tech campus, will continue to build the city's reputation as an innovation hub. Development at 54 Meadow and 1 Union should consider the city's role in the innovation space and harness this potential.
5. **Real Estate Development.** Over the past 10 years, New Haven has seen a significant increase in private real estate investment, especially housing. Numerous residential projects have been completed in recent years, with 950 residential units approved and another 1,300 in the planning stage. 54 Meadow/1 Union has the potential to build on this development momentum.

In the immediate vicinity of 54 Meadow/1 Union/78 Meadow there are several major real estate projects at various stages of planning and development.

Union Square/Church Street South

Northland Investment Corporation, owner of the Church Street South complex, proposes to replace the deteriorated housing complex with a new, mixed-income development. The project would include 1,004 housing units, of which 30% would be affordable, 25,000 SF of retail space, and public spaces including a new full-block public park (Union Square).

New Haven Coliseum Redevelopment

In 2013, the City signed an agreement with LiveWorkLearnPlay (LWLP) to redevelop the former Coliseum site in an active mixed-use, mixed-income neighborhood consisting of 1.1 million SF of development on 4.85 acres, including 75,000 SF of retail, up to 1,002 residential units, a 200,000-SF class A office building, and 160- to 190-room, 4.5-star hotel and multi-functional center.

Hill-to-Downtown Project

RMS Properties received approval to construct 150 apartments, 7,000 SF of retail, 120,000 SF of research space, and 50,000 SF of offices on 20 acres of mostly empty lots in the Hill North section of New Haven.

Union Station

The City plans to remerchandise Union Station by transforming the restaurant and retail program and significantly expanding the amount of ground-floor commercial space. New street-facing retail would be added to the ground floor of the existing garage. In addition, a new parking garage is planned for Union Station on the surface lot just north of the existing garage. Hand-push food carts would sell food on the sidewalks in front of the new garage.

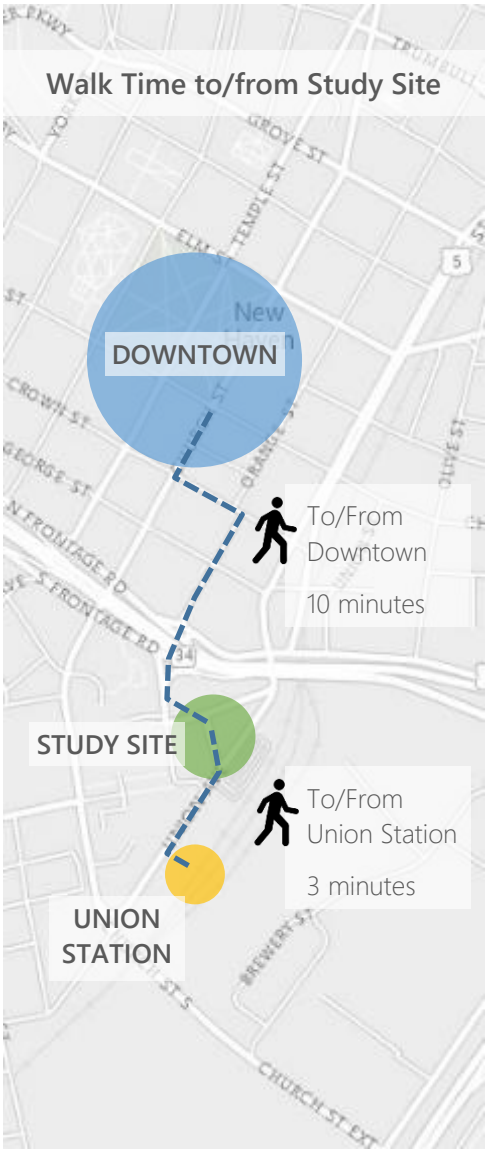
Figure 2: Study Area and Planned Projects in Vicinity

Market Analysis Findings

Strengths to Leverage

As one of the few large redevelopment sites available in the city, and with prime transit access, the study site is a critical opportunity to tap into New Haven's potential as a transit-oriented hub. Not only is the site an advantageous development opportunity *per se*, such a project represents a major vehicle for advancing the entire city's status as Connecticut's premiere urban mecca. Today, Union Station boasts the state's highest Amtrak ridership by far, even with the station's weak integration with downtown. A catalytic project to activate the area around the station has the potential to drive ridership even higher, translating to more visitors and economic activity in downtown New Haven.

Figure 3: Walk Time to/from Study Site



Proximity to Union Station and Downtown. The Site is strategically located between Union Station and downtown New Haven and has the potential to connect these two hubs of activity and encourage an exchange of pedestrian traffic between the two. A pedestrian can access the Site from Union Station in just 3 minutes, though the distance can feel much farther due to the current lack of vitality and human-scale development along Union Avenue. Once Church Street South is redeveloped and street-facing retail is added to the existing Union Station parking garage, the perceived distance will be more in line with the reality.

With the completion of the Downtown Crossing project, which will reconnect S. Orange Street over the Oak Street Connector, the walk from the Site to Downtown will not only be shortened but also be more pleasant. The connection will reduce the walk from the center of the Site to the New Haven Green from 12 minutes to about 10 minutes (see Figure 3). Redeveloping the Site with a design that facilitates and encourages pedestrian movement through the area will increase pedestrian activity between Union Station and Downtown, both activating the entire corridor and creating opportunities for retail and other businesses that are reliant on foot traffic.

Transit-Oriented Development Potential. With Amtrak, Metro-North, Shore Line East, and the new commuter rail line to Hartford and Springfield all accessible from Union Station, the Site is ripe for development that can leverage this level of transit access, which is arguably unmatched elsewhere in Connecticut.

This development typology, known as transit-oriented development (TOD), involves the creation of a dense, central location for a mix of uses, including residential as well as office and retail spaces, with immediate proximity to a transit station. TOD has become a more in-demand style of development as people and businesses have become increasingly attracted to places that are walkable and bikable, near transit options, incorporate different building/land uses, and are more densely developed. Studies have found that transit-accessible properties are able to demand a higher rent/purchase price than those that are not close to transit options, due to the increased demand from consumers.

These dense centers allow residents to commute to work, run errands, and participate in social activities, without ever getting into a car or with limited vehicular travel. TODs have the potential to solve many problems currently faced by communities, such as pollution, congestion, income constraints, and access to a quality workforce.

TODs create a great opportunity for a mix of housing types, as they appeal to a wide range of residents, from highly-paid workers, to senior citizens, to disabled. Thus, TODs should strive to offer both luxury and affordable housing options in their developments and appeal to people looking within all price points. This also creates a diverse consumer base in terms of designing the landscape of amenities and retail offerings.

Though TODs revolve largely around the creation of density, it is also important to create a sense of place by incorporating pocket parks, outdoor seating and visiting areas, and shelters for those awaiting transit. These developments are pedestrian-oriented, as they are designed to alleviate the need for residents to own a car or significantly reduce the need for travel by car. A mix of the above amenities coupled with proper streetscaping and open-space planning will create walkability that attracts pedestrian traffic which encourages spending.

> "In recent years, a rising number of innovative firms and talented workers are choosing to congregate and co-locate in compact, amenity-rich enclaves in the cores of central cities. Rather than building on green-field sites, marquee companies in knowledge-intensive sectors are locating key facilities close to other firms, research labs, and universities to promote idea-sharing and practice "open innovation."
>
> - *The Rise of Innovation Districts: A New Geography of Innovation in America* by Bruce Katz and Julie Wagner

As a junction between four different rail lines, Union Station is a crossroads for Connecticut and the broader region. Including stations along the soon-to-be-complete New Haven-to-Hartford commuter rail line, 31 stations throughout the state can be accessed directly from Union Station without need for a transfer within a 60-minute train ride. That provides direct transit access from New Haven to housing and jobs throughout the state. Table 2 shows the combined total population, employed population, households, and jobs within a half-mile and mile radius of these 31 stations.

Table 2: Transit-Accessible Population and Jobs

Transit-Accessible Population and Jobs, Rail Stations within 60 Minutes of Union Station		
	1/2-Mile Radius	1-Mile Radius
Total Population	89,836	354,135
Employed Population	40,357	161,201
Total Households	37,120	138,385
Total Jobs	147,640	354,967

Source: Esri, Camoin Associates

These totals are significant in that they represent a potential market for various uses within the Union Station vicinity. The 350,000+ people living within a mile of a rail station can easily board a train to Union Station and access the city's employment and recreation opportunities. Likewise, the nearly 355,000 jobs within a mile of these stations are held by workers who could choose to commute to work by train if they lived near Union Station in New Haven. These workers are a key potential market for housing on the Study Site.

Figure 4: Stations within a 60-Minute Train Ride from Union Station

Location of New Haven within Connecticut. It is important to stress that the TOD potential of the Site goes beyond the fact that it is located near a train station. At the nexus of major corridors for both rail and road, New Haven's location within Connecticut allows for easy access to almost any part of the state, the major regional hubs of New York City and Boston, and smaller cities such as Hartford, Springfield, and Providence. For this reason, the Site has immense potential to serve as a gateway for welcoming visitors into New Haven and drawing them into other parts of the city.

Hill-to-Downtown Momentum. The timing for a transformative project at the Site is fitting, given the development momentum in the area. Significant development projects are currently underway to the north, south, east, and west of the Site. (See Ongoing Projects and Initiatives, above.) A decade into the future, these projects will be largely built out and occupied, providing a critical mass of residents, jobs, and activity to both complement and support large-scale development on the Site that would not be viable today.

Educated and Innovative Population. The ability to attract and retain skilled and knowledgeable workers has become the greatest challenge facing communities across the country. As the economy becomes increasingly digitized and connected, talented workers are choosing where to reside based on their preferred lifestyle and access to amenities over employment opportunities. Many employers are finding themselves in the unfamiliar situation of chasing talent instead of attracting it. And these workers, recognizing that they are highly sought after, are looking for authentic, connected environments that inspire creativity and generate collisions of rich ideas that will support their own personal and professional pursuits. They are not looking for a job; they are seeking a network in an environment that stimulates and inspires.

Downtown New Haven offers such a place: people from diverse cultures, ethnicities, generations, and socioeconomic statuses bring together a mix of perspectives and ideas that are unmatched in the suburban and exurban areas throughout the state. Strategically designed mixed-use projects and transit-oriented-development systems combined with connected smart cities applications stimulate interactions that are necessary to drive a strong economic system. New Haven already boasts a high educational attainment levels, with nearly 19% of the adult population holding a graduate or professional degree, compared to 17% in Connecticut and 12% nationally. New Haven ranks first among the eight peers analyzed in terms of population with a graduate or professional degree. (See Appendix B: PEER COMPETITIVENESS ASSESSMENT.) The Study Site has the potential to strengthen Downtown New Haven's position as hub for knowledge and innovation.

Strong apartment rents and absorption. The apartment market in the city has been strong over the last several years. Since 2007, the city has added over 1,700 units. Of those, over 800 have been added since 2014. Absorption has also been strong, with positive net absorption since 2012. Over the last year, 220 units were absorbed into the market. The apartment vacancy rate is relatively healthy, at 6.1%.[1] Currently, 950 units are either approved or under construction, and another 1,300 units are in the planning stage city-wide. Future deliveries and current vacancies account for a supply of 2,620 units. If current absorption rates are sustained in to the future, these units are likely to be absorbed within 11 years. As ongoing projects continue to make the city more desirable, absorption will increase, meaning sustained demand for new residential units. According to interviews with local real estate brokers and developers, Yale Medical School students, as well as Yale New Haven Hospital employees, residents, etc., are a key target market for rental units in the vicinity of the Study Site.

The most logical use for the Study Site in terms of residential use would be mid- to high-rise multifamily housing units, given the Site's proximity to downtown and strategic location for potential transit-oriented development. The residential market analysis identified 6 primary target segments and 4 secondary target segments who would seek the sort of housing that the Study Site would support. The primary segments include those falling within the most urban Esri Urbanization groups, with median household income of at least $50,000, and a tendency toward multi-family units. Households in these groups tend to be successful and/or upwardly mobile singles and married couples with a penchant for urban living. Total demand is estimated at between 1,130 and 2,160 new mid- to high-end multifamily housing units over the next 5 years city-wide, or an average of 230 to 420 new units per year. See Appendix A: for further detail.

Robust hotel performance. New Haven is a relatively small hotel market, but it has performed strongly in recent years. Occupancy rates have risen from 60% to 66% since 2016, with the average daily rate (ADR) rising from $97 to $116. Revenue per available room (RevPAR) averaged $75.13 in 2016, up nearly 30% compared to five years prior. Strong hotel performance points to a steady and growing stream of visitors to the city. A new 4.5-star hotel is planned as part of the Coliseum redevelopment, and the Pirelli building in the nearby Long Wharf area is likely to become a hotel as well. While a hotel on the Study Site may not be viable in the near term due to the new rooms coming online nearby, uses on the site can leverage the increased number of visitors staying in the area.

Potential for meeting space. Seemingly in-line with national trends, the demand for meeting and event space in New Haven has ticked up in the last few years. However, Yale drives a lot of activity in this market, and when college is not in session things are much quieter. Many event coordinators are looking for urban outdoor spaces to host meetings and other events and have a hard time finding that type of venue in New Haven, which could present an opportunity for the Study Site. In terms of access, it is well documented that New Haven is well-served by a robust transit system, allowing for easy access up and down the East Coast. Occasionally, corporate events will be sited in New Haven because of its central location between New York and Boston, but this does not currently make up a large part of the market. One of the biggest obstacles for New Haven's ability to compete for larger regional events is the lack of a well-served airport.

Arts and cultural amenities. New Haven has a high concentration of arts and cultural amenities, which are instrumental in attracting visitors to Downtown. Museums include the Yale Art Gallery, Yale Center for British Art, the Peabody Museum of Natural History, each of which attract well over 100,000 visitors annually.[2] The Shubert Theater, Long Wharf Theatre, and New Haven Symphony Orchestra are prominent venues for music and theater arts, drawing spectators from throughout the region. These attractions and others contribute to New Haven's reputation as a cultural center within Connecticut. A development concept on the Site that incorporates art and culture can serve to expose first-time New Haven visitors to the city's vibrant arts scene.

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[1] Real estate metrics from CoStar

[2] Economic Development Official Statement

Foodie destination. A strong food culture exists in the city, with many food-related assets including world-class restaurants, a kitchen incubator initiative, the Long Wharf Food Terminal, food trucks, and breweries. New Haven is also known for its distinct style of pizza, with nationally known pizza restaurants attracting visitors to the City. Relative to the eight peers analyzed for this study, the area within a two-mile radius of Union Station has the third highest restaurant density, with 445 establishments. (See Appendix B: PEER COMPETITIVENESS ASSESSMENT.)

Hurdles to Overcome

Connectivity to Downtown. Despite its proximity, the Site is not well connected to Downtown New Haven. To walk from the Site to Downtown, a pedestrian must walk north along Union Avenue under the Oak Street Connector overpass and past the former Coliseum site, which functions as a surface parking lot. The lack of visual interest and indirect route makes the walk seem longer than it is. As described above, the Downtown Crossing project and Coliseum redevelopment will be instrumental in shortening both the actual and perceived distance between the two areas.

Separation from Medical District. While part of the Hill-to-Downtown area, the Study Site is somewhat far from Yale New Haven Hospital, the Yale School of Medicine, and the cluster of bioscience companies to be well integrated into the Medical District. Therefore, medical and lab space are not considered to be a strong fit for the Site, since there are other vacant sites closer to the district that could be dedicated for these kinds of uses.

Weak retail demand. The current lack of housing directly near the Site limits the potential for residential-serving retail. Moreover, incomes are low in the local trade area, in the $35,000 to $40,000 range, meaning limited spending potential that is unlikely to support new retail businesses. The size and configuration of the Study Site as well as parking challenges make it an unlikely fit for a large-format anchor retail use, such as IKEA.

However, as new residential development at the Church Street South and Coliseum sites bring higher-income households into the area, convenience retail such as grocery stores, pharmacies, banks, salons, etc. will become increasingly viable. In addition, foot traffic between Union Station and Downtown will enable visitor-oriented shopping and dining, such us boutique stores, cafes, and restaurants. Retail will likely follow once other uses on the Study Site come online and critical mass of residents, workers, and passersby is present. Successful retail businesses at the Study Site will be generally small to mid-scale and complement other uses on-site.

Overbuilt office market. Office absorption slowed to 67,000 SF of space in the New Haven submarket over the last 12 months, compared to a five-year historical average of 185,000 SF per year. CoStar forecasts future absorption to be less than 50,000 SF per year. The overall office vacancy rate is moderate, at 7.1%, though for Class A properties, the vacancy rate is upwards of 16%. With 822,000 SF of vacant office space city-wide, and 447,000 in new space scheduled to be delivered to the market over the next five years, further potential for office space development in the city is limited.

Existing vacant space at Gateway Center (54 Meadow), combined with the additional space that would become available if the City Board of Education and Health Department were to vacate the building, account for a total of 60,000 SF of space at the Study Site. This would be sufficient to accommodate any demand for general office space in the area over the near to mid-term. Upgrades and renovations to this building would make it more competitive among the types of companies interested in transit-oriented office space.

Crime. The City of New Haven has a very high crime rate. With a crime index of 6 (out of 100), the city has more crime than 94% of communities throughout the U.S. Even among the eight peer cities analyzed for this study, New Haven has crime rates higher than all but one. (See Appendix B: PEER COMPETITIVENESS ASSESSMENT.) While the incidence of crime is not uniform throughout the city, the perception of lack of safety is a hurdle in encouraging development in areas of the city that have not seen new investment in many years. Other development planned within the vicinity of the Study Site should help to improve the perception of the area. On the other hand, relocating

the Police Department headquarters would reduce police presence and potentially, the public's perception of safety in the immediate term.

Connecticut perception. Connecticut continues to appear in the national and regional news as a state with dire financial woes that is rapidly losing large employers to other states that offer stronger talent pools, better quality of life, etc. While New Haven itself is perceived positively within the state, investors less familiar with Connecticut may not recognize the relative strengths of New Haven and choose to invest elsewhere. This perception is largely outside the City's control, but should be acknowledged when planning for future economic development. And, with its continued success, New Haven can lead a shift in the State's negative perception.

Parking. Whether a reality or not, parking is perceived as a major constraint for development on the Study Site and was brought up us a primary issue during several interviews with members of the local real estate community. It is possible that the new parking structure serving Union Station could be leveraged to support development on the Site, in addition to any required on-site parking.

Environmental constraints. Part of the Site is within the 100-year floodplain, meaning that design will have to take into consideration the potential for flooding.

Redevelopment Concepts

Two potential redevelopment scenarios were ultimately selected and finalized for the site:

- Scenario A: Transit-Oriented Living, Shopping, & Dining
- Scenario B: Business + Technology Hub

See Appendix C: REDEVELOPMENT CONCEPTS for a full description of the process for vetting and selecting the redevelopment concepts.

SCENARIO A: Transit-Oriented Living, Shopping, & Dining

- 35,942 SF of food-oriented retail/restaurant
- 443 residential units – Studio, 1, 2, and 3 bedroom
- 61,728 SF fitness center/recreation-oriented retail
- 257 parking spaces

Scenario A includes a mix of ground-floor retail/restaurant space with residential apartments on the upper floors. Buildings 1-5 would be 7 stories and Building 6 would be 4 stories, for a total floor area of about 654,000 SF, including about 84,600 SF for structured parking (257 spaces). All buildings are at or below a floor area ratio (FAR) of 6.0, the allowable maximum for the zoning district proposed for the site.

Retail/restaurant space would serve as the anchor for driving traffic to and through the site. It would be concentrated in the center of the site, on the ground floor of buildings 4 and 5. This may include a food hall in Building 5 that would cater to Union Station passengers, serve Gateway Center and other nearby office workers, and provide an amenity to residents. The food hall would showcase the variety of foods and beverages from restaurants around the city and region. It would feature dining spots such as quick-service food stalls, restaurants with table-service, outposts for local breweries, food retailers, and other concepts. Recreation-oriented retail, such as a fitness center, would occupy building 6.

There would be approximately 443 apartments of various sizes (studio to 3-bedroom) across Buildings 1-5, with an average size of 900 SF. These units would initially be rentals but could be converted to for-sale condominiums as the demand for owner-occupied units strengthens over time.

Buildings 1-5 would each have one floor of parking (either on the ground floor or second floor), which would be enough the meet the minimum residential parking ratio of 0.5 spaces per dwelling unit. It is assumed that patrons of the retail/restaurant uses could park in the existing garage next to Gateway Center or at the Union Station garages.

SCENARIO B: Business + Technology Hub

- 94,198 SF office/institutional
- 85,512 SF meeting/event space
- 35,942 SF retail/restaurant
- 61,728 SF fitness center/recreation-oriented retail
- 274 residential units – Studio, 1, 2, and 3 bedroom
- 267 parking spaces

Scenario B includes a mix of office, meeting space, retail/restaurant and residential apartments. Buildings 1-5 would be 7 stories and Building 6 would be 4 stories, for a total floor area of about 654,000 SF, including about 84,600 SF for structured parking (257 spaces). Apartments would be located in Buildings 1-3, with the site's anchor uses centrally located in Buildings 4 and 5. Recreation-oriented retail, such as a fitness center, would occupy building 6.

All buildings are at or below a floor area ratio (FAR) of 6.0, the allowable maximum for the zoning district proposed for the site.

This concept leverages New Haven's location within Connecticut and the Northeast as a hub for business and technology. Anchoring the development would be high-tech office space for a research institution or think tank. Complementing this anchor would be a variety of amenities that position the site as a business and meeting center. It would include space for small to mid-sized conferences, meetings, corporate events, and coworking space that could be rented for varying degrees of time (hourly to monthly). Restaurants and cafés would serve business users and be able to accommodate functions and events. Other amenities would include a fitness center, business support services, and other small-scale retail space.

274 residential apartments would also be part of the concept to encourage 24/7 activation of the site. Buildings 1-5 would each have one floor of parking (either on the ground floor or second floor), which would be enough to meet the minimum residential parking ratio of 0.5 spaces per dwelling unit for residential buildings, as well as supplemental spaces for commercial uses. It is assumed that the existing garage next to Gateway Center and/or the Union Station garages could be used as overflow parking for commercial uses.

Financial Feasibility Analysis Results

A financial pro forma statement was developed to model the cash flows associated with constructing and operating these development scenarios. This model was used to determine the residual land value of the study site, i.e. the maximum amount that a developer would be willing to pay for land acquisition in order to achieve an acceptable rate of return on invested equity. Given the nature of the development project and mix of uses, the minimum target IRR for such a project is 7%, with an average target IRR of 11%.[3] Based on this range of return rates, the total value of city-owned land[4] is estimated at between $2.6 million and $10 million. The actual value is likely toward the lower end of this range, assuming that a prospective developer/investor would require closer to an 11% return and possibly higher, depending on the extent to which the City is able to mitigate development risk.

Table 3: Total Value of City-Owned Land, Before Site Costs

Total Value of City-Owned Land, Before Site Costs			
Parcel	City-Owned Acreage	Min. Return (7%)	Avg. Return (11%)
Building 1, 2, 3	0.26	$ 1,179,218	$ -
Buildings 4, 5	1.04	$ 8,900,000	$ 2,600,000
Total	1.30	$ 10,079,218	$ 2,600,000

It is emphasized that any extraordinary site costs, such as utility and infrastructure costs, to be borne by a prospective developer should be deducted from the land value. Based on discussion with City staff, it is possible that site costs could far exceed the calculated land values. Therefore, the City should not expect the sale of the City-owned portion of the study area to yield any significant proceeds. In addition, it is likely that the City may have to subsidize any future development to cover these costs, through property tax abatement or another financing mechanism such as tax increment financing (TIF). Further investigation would be required to determine the extent of these site costs and the resulting funding gap.

See Appendix D: FINANCIAL FEASIBILITY ANALYSIS for a full explanation of assumptions and methodology.

[3] Realty Rates Investor Survey 4Q 2017

[4] Excludes land under Building 6, which is assumed to be owned in condominium by the owners of Gateway Center.

Economic Impact Analysis Results

The economic impact analysis examines the potential impact in terms of generating direct and indirect jobs, sales, and earnings in the City of New Haven's local economy due to both scenarios. Economic impacts in the City of New Haven as a result of both scenarios include the following:

Scenario A

- Net new households from apartments: **332 new households**
- Permanent jobs both on-site and off-site from residential workers, household spending, and food/retail sales: **147 jobs**
- Annual earnings including wages and benefits, from residential workers, household spending, and food/retail sales: **$4 million**
- Annual sales at local businesses as money cycles through the city's economy: **$13 million**

Scenario B

- Net new households from apartments: **206 new households**
- Total permanent jobs (including 353 research & development jobs) both on-site and off-site at local businesses, including residential workers, household spending, and conference/event center related sales: **610 jobs**
- Annual earnings including wages and benefits: **$37 million**
- Annual sales at local businesses as money cycles through the city's economy: **$105 million**

Refer to Appendix E: ECONOMIC IMPACT ANALYSIS for a full description of methodology.

Fiscal Impact Analysis Results

A fiscal impact analysis was performed to determine the impact of each scenario on City services and the City budget. Considering all expenses and revenues associated with the two scenarios, Scenario A would have a positive annual net fiscal impact on the City budget of $2.3 million. Scenario B would have a positive annual net fiscal impact of $2.4 million.

Table 4: Annual Net Fiscal Impact

Annual Net Fiscal Impact on City of New Haven at Full Buildout (2018$)		
	Scenario A	Scenario B
Revenues		
Real Property Tax	$ 3,005,804	$ 2,987,987
Other Revenue	$ 114,074	$ 237,096
Expenses	$ (786,392)	$ (810,229)
Net Annual Impact	$ 2,333,486	$ 2,414,855

Refer to Appendix F: FISCAL IMPACT ANALYSIS for a full description of methodology.

APPENDIX A: MARKET ANALYSIS

Appendix A contains the full market analysis completed as part of this study. It is comprised of the following sections:

- Demographic and Socioeconomic Profile
- Economic Profile
- Transportation and Commuting Profile
- Residential Market Analysis
- Retail Market Analysis
- Office Market Analysis
- Hotel, Conference Center, and Meeting Space Market Analysis

Demographic and Socioeconomic Profile

Key Findings

- Overall, the median age of people within The Hill Neighborhood is lower than the comparison geographies, being 29.5 years old The Hill also has the lowest median household income by far, at $27,400. About 31% of people living in The Hill have an income of $15,000 of less. Interestingly, the Hill has the largest average household size of the geographies studied.

- The Hill is the most diverse of the geographies, with only 26% of the population identifying as White, nearly 39% of the population identifying as Black/African American, and 30% identifying as Other Race.

- Of the geographies, The Hill has the smallest percentage of the population with a Bachelor's Degree or Higher at 12%, similarly, it has the highest percentage or people with educational experience of less than 9th grade, at nearly 15% and experience from 9-12th grade without a diploma, at nearly 16%.

- Of the geographies, the City of New Haven has the highest unemployment rate at 12.7%. Additionally, the city has the lowest labor force participation rate at 64%. Median household income within the city is also low comparatively, at just under $37,000. This is $24,000 lower than the county, and $33,000 lower than the state.

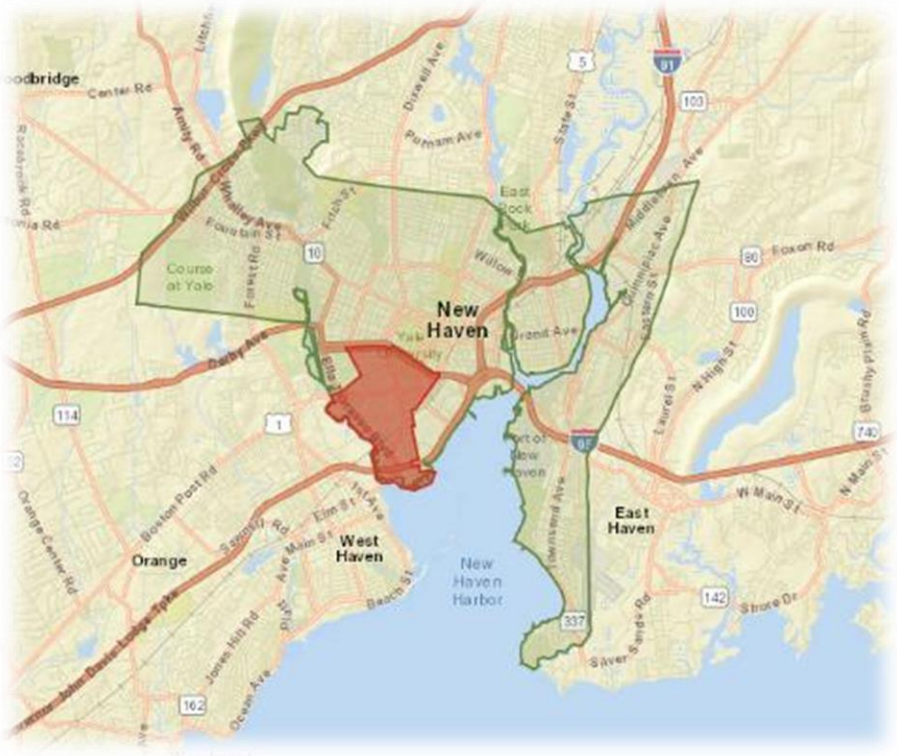
Geographies

Data was collected and analyzed for the following geographies: The Hill Neighborhood ("The Hill"), the City of New Haven, and New Haven County. We benchmarked data for these regions by collecting data for Connecticut and the United States as well.

Figure 5: The Hill Neighborhood ("The Hill")

Source: Esri

Figure 6: The Hill Neighborhood within the City of New Haven



Source: Esri

Figure 7: The City of New Haven within New Haven County

Source: Esri

Demographic Indicators

The median age of people within The Hill Neighborhood is lower than the other geographies, being 29.5 years old, compared to 30.7 in the city and 40.2 in the county, and 41.0 in the state. The Hill has the lowest median household income by far, at $27,400. This is about $10,000 lower than that of the city, $33,600 lower than the county, and $42,000 lower than the state. In 2015, the City of New Haven has the highest unemployment rate at 12.7%, over three percentage points higher than that of the county, and nearly four percentage points higher than the state.

Table 5: Demographic Indicators

Demographics							
Population							
	2010	2016	2021	Change 2010-2016	% Change 2010-2016	Change 2016-2021	% Change 2016-2021
The Hill Neighborhood	15,908	16,293	16,526	385	2.4%	233	1.4%
City of New Haven	129,779	132,286	133,817	2,507	1.9%	1,531	1.2%
New Haven County	862,477	871,222	877,973	8,745	1.0%	6,751	0.8%
Connecticut	3,574,097	3,641,078	3,698,375	66,981	1.9%	57,297	1.6%
US	308,745,538	323,580,626	337,326,118	14,835,088	4.8%	13,745,492	4.2%
Households							
	2010	2016	2021	Change 2010-2016	% Change 2010-2016	Change 2016-2021	% Change 2016-2021
The Hill Neighborhood	5,037	5,140	5,206	103	2.0%	66	1.3%
City of New Haven	48,877	49,540	50,058	663	1.4%	518	1.0%
New Haven County	334,502	335,080	336,373	578	0.2%	1,293	0.4%
Connecticut	1,371,087	1,388,422	1,405,716	17,335	1.3%	17,294	1.2%
US	116,716,292	121,786,233	126,694,268	5,069,941	4.3%	4,908,035	4.0%
Average Household Size							
	2010	2016	2021	Change 2010-2016	% Change 2010-2016	Change 2016-2021	% Change 2016-2021
The Hill Neighborhood	2.98	3.00	3.00	0.02	0.7%	0.00	0.0%
City of New Haven	2.43	2.44	2.44	0.01	0.4%	0.00	0.0%
New Haven County	2.49	2.51	2.52	0.02	0.8%	0.01	0.4%
Connecticut	2.52	2.54	2.55	0.02	0.8%	0.01	0.4%
US	2.58	2.59	2.60	0.01	0.4%	0.01	0.4%
Median Age							
	2010	2016	2021	Change 2010-2016	% Change 2010-2016	Change 2016-2021	% Change 2016-2021
The Hill Neighborhood	28.8	29.5	30.9	0.70	2.4%	1.40	4.7%
City of New Haven	29.9	30.7	31.5	0.80	2.7%	0.80	2.6%
New Haven County	39.2	40.2	40.9	1.00	2.6%	0.70	1.7%
Connecticut	40.0	41.0	41.8	1.00	2.5%	0.80	2.0%
US	37.1	38.0	38.7	0.90	2.4%	0.70	1.8%
Median Household Income							
	2010	2016	2021	Change 2010-2016	% Change 2010-2016	Change 2016-2021	% Change 2016-2021
The Hill Neighborhood	-	$27,410	$28,620	-	-	$1,210	4.4%
City of New Haven	$38,963	$36,823	$37,135	($2,140)	-5.5%	$312	0.8%
New Haven County	$61,114	$61,026	$65,835	($88)	-0.1%	$4,809	7.9%
Connecticut	$64,032	$69,694	$77,717	$5,662	8.8%	$8,023	11.5%
US	$51,914	$54,149	$59,476	$2,235	4.3%	$5,327	9.8%

Note: Median household income in 2010 for The Hill Neighborhood is unavailable

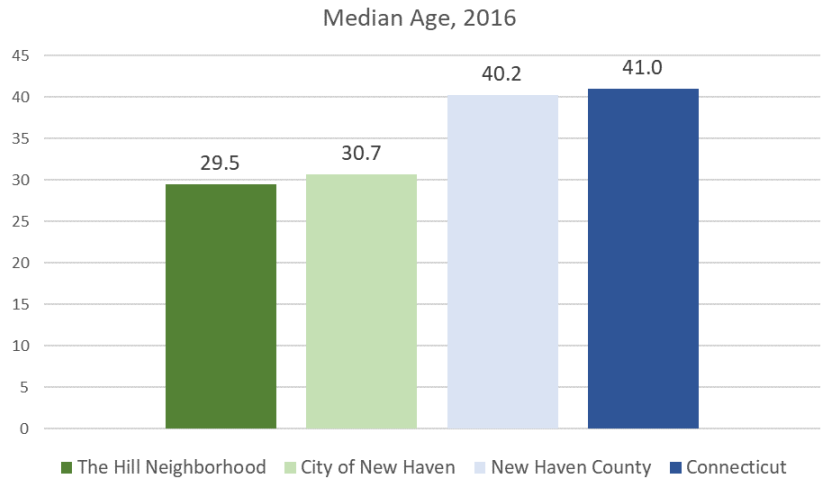
Source: ESRI, American FactFinder table B19013

As shown in Table 5, population numbers and number of households has been increasing and are projected to continue increasing for all five geographies.

Age

The Hill and the city both have a low median age both around 30 years old, which is 10 years younger than the county and 11 years younger than state.

Figure 8: Median Age for the City of New Haven, New Haven County, and Connecticut



As shown in Table 6 children account for a significant share of The Hill's population, ranging from ages 0-14, and an especially large percentage of children 9 years or younger. Over 17% of the Hill population is between 0-9 years old, compared to 13% in the city, 11% in the county, and 11% in the state.

Secondly, there is a large portion of young adults in the city. The city has the largest percentage of 20-24 and 25-29-year old's and 30-34-year old's, at 11.2%, 10.3%, and 8.5%, respectively.

Table 6: Age Distribution

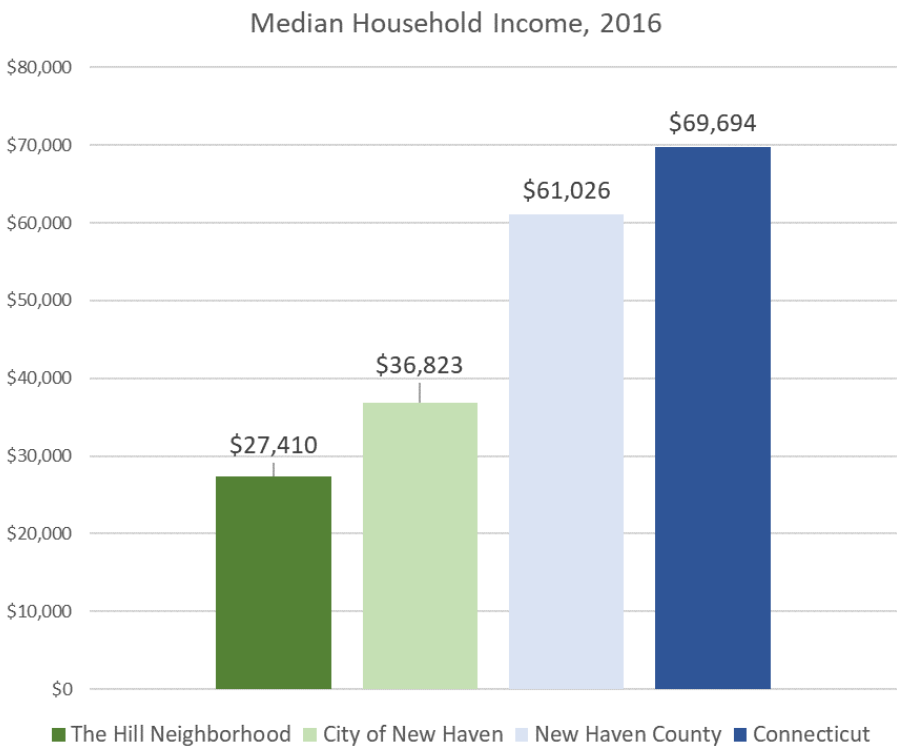
Age Distribution, 2016						
Range (years)	The Hill Neighborhood	The Hill Neighborhood	City of New Haven	New Haven County	Connecticut	United States
0-4	1,430	8.78%	6.67%	5.27%	5.23%	6.19%
5-9	1,349	8.28%	5.99%	5.60%	5.82%	6.33%
10-14	1,230	7.55%	5.60%	6.10%	6.42%	6.46%
15-19	1,257	7.71%	8.24%	6.88%	6.76%	6.55%
20-24	1,581	9.70%	11.99%	7.02%	6.60%	7.09%
25-29	1,446	8.87%	10.28%	6.57%	6.05%	6.91%
30-34	1,242	7.62%	8.49%	6.38%	6.02%	6.74%
35-39	1,019	6.25%	6.61%	5.93%	5.87%	6.30%
40-44	920	5.65%	5.77%	6.18%	6.38%	6.32%
45-49	936	5.74%	5.47%	6.74%	7.02%	6.41%
50-54	906	5.56%	5.34%	7.34%	7.68%	6.86%
55-59	759	4.66%	4.91%	7.25%	7.50%	6.81%
60-64	607	3.73%	4.09%	6.21%	6.34%	6.01%
65-69	444	2.73%	3.53%	5.29%	5.30%	5.08%
70-74	361	2.22%	2.59%	3.80%	3.82%	3.67%
75-79	273	1.68%	1.73%	2.65%	2.66%	2.56%
80-84	217	1.33%	1.25%	2.06%	2.01%	1.79%
85+	316	1.94%	1.43%	2.73%	2.54%	1.92%
Total	16,293	100%	100%	100%	100%	100%

Source: ESRI

Income

Notably, there is a very low median household income in The Hill Neighborhood at $27,400, and it is only projected to increase to about $28,600, which is half that of the county, and more than half that of the state. The median income of the city overall is $37,000, substantially lower than that of the county and state.

Figure 9: Median Household Income



Notably, as shown in Table 7, there is a large percentage of people making less than $15,000 in The Hill, at about 31%, which is almost ten percentage points higher than the city (22.3%) and twenty higher than the county (11.1%).

Table 7: Household Income Distribution

Household Income Distribution, 2016						
Income Range	The Hill Neighborhood	The Hill Neighborhood	City of New Haven	New Haven County	Connecticut	United States
< $15,000	1,607	31.26%	22.28%	11.10%	9.30%	12.50%
$15,000-$24,999	809	15.74%	14.09%	9.00%	7.82%	10.09%
$25,000-$34,999	522	10.16%	11.40%	9.03%	8.21%	10.06%
$35,000-$49,999	792	15.41%	13.81%	12.51%	11.79%	13.31%
$50,000-$74,999	678	13.19%	13.77%	15.74%	15.34%	17.68%
$75,000-$99,999	340	6.61%	8.72%	12.28%	12.61%	12.28%
$100,000-$149,999	266	5.18%	9.23%	15.88%	16.57%	13.44%
$150,000-$199,999	64	1.25%	3.45%	7.43%	8.24%	5.29%
$200,000 +	62	1.21%	3.25%	7.03%	10.11%	5.36%
Total	5,140	100%	100%	100%	100%	100%

Source: ESRI

Similarly, 31% of households within The Hill are making less than $15,000 and the majority at 57% of households are making $34,999 or less.

Table 8: Households by Income

Households by Income, 2016						
	The Hill Neighborhood		City of New Haven		New Haven County	
Income	#	%	#	%	#	%
<$15,000	1,607	31%	11,038	22%	37,204	11%
$15,000-$24,999	809	16%	6,978	14%	30,170	9%
$25,000-$34,999	522	10%	5,648	11%	30,250	9%
$35,000-$49,999	792	15%	6,839	14%	41,930	13%
$50,000-$74,999	678	13%	6,823	14%	52,733	16%
$75,000-$99,999	340	7%	4,321	9%	41,135	12%
$100,000-$149,999	266	5%	4,575	9%	53,218	16%
$150,000-$199,999	64	1%	1,707	3%	24,891	7%
$200,000+	62	1%	1,611	3%	23,549	7%
Total	5,140	100%	49,540	100%	335,080	100%
Median Income	$27,410		$37,135		$61,026	

Source: ESRI

Race and Ethnicity

The Hill Neighborhood is both racially and ethnically diverse. Table 9 shows the racial distribution within the geographies. Table 7 details the Hispanic population by race. This table continues to show the diversity especially within The Hill Neighborhood, regarding the non-Hispanic population, nearly 78% of the population identify as Black/African American. Additionally, within the Hispanic population, 53% identify as Other Race Hispanic, following by nearly 35% identifying as White Hispanic.

Within The Hill there is a significant percentage of individuals identifying as Black/African American at nearly 39%, similar to the city at 36%, and much higher than the county, state, and US. Similarly, only 26% of people in The Hill identify as being White, which is thirteen percentage points lower than the city, and forty-five lower than the county.

Table 9: Race Distribution

Race, 2017					
	The Hill Neighborhood	City of New Haven	New Haven County	Connecticut	United States
White	26.25%	39.14%	71.41%	74.26%	70.18%
Black/African American	38.60%	35.79%	13.50%	10.90%	12.83%
American Indian/Alaska Native	0.73%	0.57%	0.35%	0.36%	0.97%
Asian	1.23%	5.41%	4.33%	4.69%	5.61%
Pacific Islander	0.14%	0.06%	0.05%	0.05%	0.19%
Other Race	29.35%	14.80%	7.28%	6.70%	6.84%
Two or More Races	3.70%	4.24%	3.08%	3.05%	3.38%
Total	100%	100%	100%	100%	100%

Note: People identifying as Hispanic can fall into any of the aforementioned Race categories

Source: ESRI

As noted, Table 10 details the Hispanic population by race. This table continues to show the diversity especially within The Hill Neighborhood, regarding the non-Hispanic population, nearly 78% of the population identify as Black/African American. Additionally, within the Hispanic population, 53% identify as Other Race Hispanic, following by nearly 35% identifying as White Hispanic.

Table 10: Detailed Race and Ethnicity Distribution

Detailed Race & Ethnicity, 2017					
	The Hill Neighborhood	City of New Haven	New Haven County	Connecticut	United States
Non-Hispanic Population					
White Non-Hispanic	16.09%	39.28%	76.62%	79.53%	74.03%
Black/African American Non-Hispanic	77.69%	48.60%	15.20%	11.96%	15.10%
American Indian/Alaska Native Non-Hispanic	0.49%	0.44%	0.22%	0.24%	0.89%
Asian Non-Hispanic	2.65%	7.73%	5.25%	5.55%	6.76%
Pacific Islander Non-Hispanic	0.13%	0.04%	0.03%	0.04%	0.21%
Other Race Non-Hispanic	0.21%	0.42%	0.37%	0.39%	0.23%
Two or More Races Non-Hispanic	2.76%	3.48%	2.30%	2.29%	2.78%
Total Non-Hispanic	100%	100%	100%	100%	100%
Hispanic Population					
White Hispanic	34.48%	38.82%	48.16%	47.31%	52.82%
Black/African American Hispanic	6.92%	7.12%	5.91%	5.50%	2.56%
American Indian/Alaska Native Hispanic	0.94%	0.87%	0.93%	0.96%	1.35%
Asian Hispanic	0.08%	0.19%	0.22%	0.28%	0.42%
Pacific Islander Hispanic	0.16%	0.10%	0.10%	0.09%	0.11%
Other Race Hispanic	52.96%	46.96%	38.14%	38.94%	36.64%
Two or More Races Hispanic	4.46%	5.94%	6.56%	6.93%	6.10%
Total Hispanic	100%	100%	100%	100%	100%

Source: ESRI

Educational Attainment

About 36% of the population living in The Hill have a high school diploma or equivalent and another 15% with some college. Only about 7% have a Bachelor's degree, which is less than half that of the city at 16%. The Hill also has the smallest percentage of people with a Graduate/Professional Degree at just 5%, which is more than 13 percentage points lower than that of the city, and 10 percentage points lower than that of the county.

Table 11: Educational Attainment

Educational Attainment, 2016						
	The Hill Neighborhood	The Hill Neighborhood	City of New Haven	New Haven County	Connecticut	United States
Less than 9th Grade	1,397	14.79%	6.95%	4.29%	4.07%	5.54%
9-12th Grade/No Diploma	1,466	15.52%	9.64%	6.10%	5.67%	7.28%
High School Diploma	2,797	29.61%	25.63%	26.86%	24.21%	23.61%
GED/Alternative Credential	581	6.15%	3.94%	3.59%	3.34%	4.01%
Some College/No Degree	1,459	15.44%	14.60%	17.14%	16.84%	20.86%
Associate's Degree	588	6.22%	4.55%	7.28%	7.52%	8.25%
Bachelor's Degree	699	7.40%	16.08%	18.85%	21.49%	18.84%
Graduate/Professional Degree	460	4.87%	18.62%	15.89%	16.88%	11.61%
Summary						
HS Diploma or Higher	6,584	70%	83%	90%	90%	87%
Bachelor's Degree or Higher	1,159	12%	35%	35%	38%	30%

Source: ESRI

Unemployment

The City of New Haven has the highest unemployment rate, by far of the comparison geographies as nearly 13%. Additionally, the city has the lowest labor force participation rate at just 64%, two percentage points lower than the county, and three lower than the state. High unemployment rate and low labor force participation rate in the city may indicate that long-term unemployed, or difficult to employ people may have chosen to exit the labor force due to lack of job availability.

Table 12: Labor Market Indicators

Labor Market Indicators, 2015		
	Labor Force Participation Rate	Unemployment Rate
City of New Haven	64.1%	12.7%
New Haven County	66.2%	9.5%
Connecticut	67.5%	8.8%
US	63.7%	8.3%

Source: American FactFinder table DP03

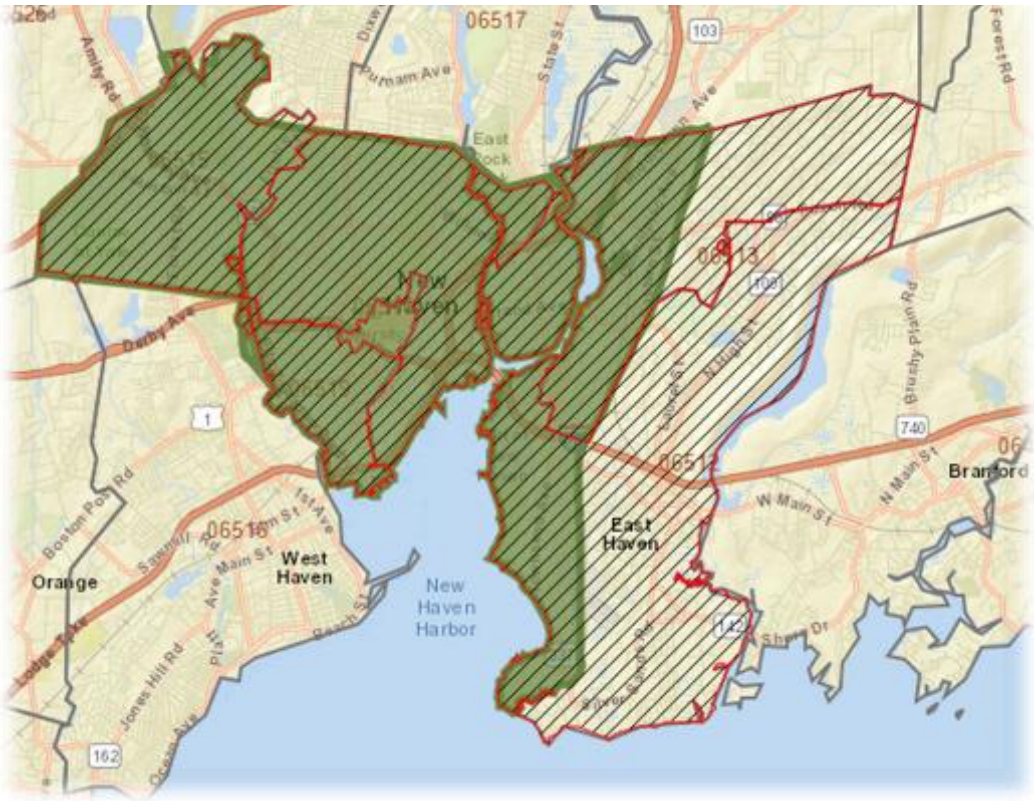
Economic Profile

Key Findings

- Since 2012, the number of jobs within the city, county, and state have all increased. Within the city, the number of jobs increased by 1,600, a 2% increase. Job growth is projected to continue through 2022, and the city is projected to add another 1,400 jobs, another 2% increase.
- In the City of New Haven, industries with the highest number of jobs include **Health Care and Social Assistance** and **Government**. Additionally, Health Care and Social Assistance added the largest number of jobs since 2012, followed by **Educational Services**. These two industries are projected to continue adding the highest number of jobs through 2022.
- Conversely, the industries that shed the highest number of jobs since 2012 include Information, and Manufacturing, a -35% decrease and -12% decrease, respectively. These two industries are projected to continue losing the highest number of jobs through 2022.
- Overall, within the City of New Haven only four out of twenty-one industries have shed jobs since 2012, this is compared to five industries shedding jobs in New Haven County, and seven industries shedding jobs in Connecticut.
- Within New Haven County, the vast majority of businesses contain **2-9 employees**, at 72% of total businesses.
- Industries with the highest number of self-employed jobs in the city, county, and state include Construction, Professional, Scientific, and Technical Services, and Other Services (except Public Admonition). However, both Construction, and Professional, Scientific, and Technical Services have shown decline in self-employed jobs since 2012. Other Services (except Public Admonition) has shown some growth in the city and county in terms of self-employed jobs.
- According to our shift share analysis, **Education Services** in the city showed a significant positive Competitive Effect, which is an indication that the city has a unique competitive advantage in this industry.
- Within the City of New Haven, the industry contributing the most to gross regional product (GRP) is **Finance and Insurance**, contributing over $2 billion in 2016, totaling 28% of total GRP in the city.
- The city's Economic Development Official Statement identifies biotechnology, information technology, healthcare, food, and professional services as critical industry sectors.

Geography

Figure 10: City of New Haven Overlaid with ZIP Codes for Data Collection



Employment data from Economic Modeling Specialists Intl. (EMSI) is available at the ZIP code level and not the city level. The following ZIP codes were used to approximate the boundaries of the City of New Haven for the purposes of pulling and analyzing industry, occupation data from EMSI.

- 06540
- 06519
- 06515
- 06513
- 06512
- 06511
- 06510
- 06504

Employment Trends

Over the past five years, the number of jobs has grown within the City of New Haven, New Haven County, Connecticut, and the US. Within the city, job growth has been the smallest of the four geographies adding 1,603 jobs, a 2% increase. This trend is projected to continue over the next five years, the city is projected to add another 1,400 jobs, being another 2% increase. The state is projected to increase jobs at the same rate, and the county is projected to increase jobs numbers at about 3%.

Within the city, the industries with the most jobs in 2017, include Health Care and Social Assistance and Government, having over 15,000 jobs and 12,500 jobs, respectively. Health Care and Social Assistance also added the highest number of jobs in the past five years, at nearly 700, a 5% increase, the second largest increase was in Educational Services which adding nearly 650 jobs over the past five years. These two industries are also projected to continue adding the most jobs over the next five years, projecting to add nearly 1,000 jobs and over 300 jobs, respectively. Not surprisingly, these two industries also have the highest location quotients in 2017. Educational services at 1.92, and Health Care and Social Assistance at 1.83. Conversely, over the past five years, the two industries that have shed the highest number of jobs include Information, shedding nearly 800 jobs and Manufacturing shedding nearly 400 jobs over the past five years, a -35% decrease and -12% decrease, respectively. These two industries are also projected to continue losing the most jobs over the next five years, Information shedding another 500 and Manufacturing shedding another 300. The industries with the highest current total earnings are Management of Companies and Enterprises and Utilities, earning $151,981 and $120,012, respectively, the only two industries with current total earnings exceeding $100,000.

All of the aforementioned industry trends continue throughout New Haven County. For example, the industries with the most jobs in 2017, include Health Care and Social Assistance and Government, having over 73,500 jobs and

nearly 51,000 jobs, respectively. These industries have added the highest number of jobs in the past five years and are projected to continue adding the highest number of jobs over the next five years. The location quotient for Educational Serves in the county, is very high at 3.81, far higher than Health Care and Social Assistance, the second highest, at 1.40.

Overall Employment

Over past five years, the number of jobs has grown within the city, county, and state. Within the city, job growth has been the smallest of the four geographies, about 3 percentage points less than the county, but only about 1 percentage point less that the state as a whole. Historic growth in the city, county, and state, has lagged behind that of the US, which has shown 8% job growth.

Table 13: Historical Industry Trends

Industry Overview, 2012-2017					
Region	2012 Jobs	2017 Jobs	2012-2017 Change	2012-2017 % Change	2017 Average Earnings per Job
City of New Haven	64,489	66,092	1,603	2%	$66,127
New Haven County	394,174	412,340	18,166	5%	$63,877
Connecticut	1,809,055	1,867,820	58,765	3%	$75,860
United States	148,432,367	160,618,734	12,186,367	8%	$62,349

Source: EMSI

Similar to historic job growth, projected job growth is positive for all comparison geographies. Over the next five years projected growth within the city, county, and state are comparable between 2% and 3%. Projected growth within the city, county, and state will continue to lag behind that of the US, projected at 5% job growth.

Table 14: Projected Industry Trends

Projected Industry Overview, 2017-2022				
Region	2017 Jobs	2022 Jobs	2017-2022 Change	2017-2022 % Change
City of New Haven	66,092	67,486	1,394	2%
New Haven County	412,340	424,265	11,925	3%
Connecticut	1,867,820	1,913,119	45,299	2%
United States	160,618,734	168,929,800	8,311,066	5%

Source: EMSI

Within the county, the vast majority of businesses contain 2-9 employees, at 72% of total businesses. This percentage has increased since 2010 by 16%, adding an additional 5,000 business of that size. Conversely, self-employed businesses and businesses with more than 100 employees have declined in number since 2010, between 3% and 4%. Behind business size of 2-9 employees, the next more popular size is 10-99 employees which make up about 15% of total businesses. This business size has also shown a small amount of growth since 2010, at 2%.

Table 15: Businesses by Size within New Haven County

Businesses by Size in New Haven County 2010-2015						
	2010	% of Total	2015	% of Total	2010-2015 Change	2010-2015 % Change
Self Employed	6,207	14%	6,049	12%	(158)	(3%)
2-9 Employees	30,756	69%	35,542	72%	4,786	16%
10-99 Employees	7,198	16%	7,368	15%	170	2%
100-499 Employees	629	1%	605	1%	(24)	(4%)
500+ Employees	53	0%	51	0%	(2)	(4%)
Total	44,843	100%	49615	100%	4,772	11%

Source: YourEconomy

Employment by Industry

Within the City of New Haven, the industries with the highest number of jobs in 2017 include Heath Care and Social Assistance, employing nearly 15,400 people, followed by Government, employing nearly 12,600 people. Together, these two industries employ nearly 28,000 people, which is 42% of the overall number of jobs in the city. Additionally, Health Care and Social Assistance has seen the highest number of jobs added over the past five years, adding nearly 700 jobs. This trend is projected to increase over the next five years with Health Care and Social Assistance leading the industries in number of jobs added, estimating to add nearly 1,000 more jobs between 2017-2022.

Conversely, the industry which showed the highest number of jobs lost over the past five years was Information. The Information sector decreased by such a high margin due to large losses in both Wired Telecommunications Carriers, shedding nearly 600 jobs, a -45% decrease, between 2012 and 2017, and Directory and Mailing List Publishers shedding over 150 jobs, a -81% decrease. This trend is projected to continue through 2022.

Table 16: Historical and Projected Industry Trends within The City of New Haven

City of New Haven, All Industries										
NAICS (2-digit)	Description	2012 Jobs	2017 Jobs	2022 Jobs	2012 - 2017 Change	2012 - 2017 % Change	2017 - 2022 Change	2017 - 2022 % Change	Current Total Earnings	2017 Location Quotient
11	Crop and Animal Production	85	89	89	4	5%	0	0%	$35,134	0.11
21	Mining, Quarrying, and Oil and Gas Extraction	<10	<10	<10	Insf. Data	Insf. Data	Insf. Data	Insf. Data	Insf. Data	0.03
22	Utilities	62	76	74	14	23%	(2)	(3%)	$120,012	0.32
23	Construction	2,133	2,264	2,284	131	6%	20	1%	$65,167	0.64
31	Manufacturing	3,261	2,879	2,591	(382)	(12%)	(288)	(10%)	$58,598	0.56
42	Wholesale Trade	1,247	1,286	1,326	39	3%	40	3%	$79,699	0.51
44	Retail Trade	4,748	4,932	4,952	184	4%	20	0%	$32,023	0.72
48	Transportation and Warehousing	1,045	1,187	1,205	142	14%	18	2%	$58,614	0.52
51	Information	2,071	1,284	797	(787)	(38%)	(487)	(38%)	$84,594	1.05
52	Finance and Insurance	2,161	2,356	2,486	195	9%	130	6%	$94,564	0.92
53	Real Estate and Rental and Leasing	1,228	1,209	1,210	(19)	(2%)	1	0%	$40,051	1.12
54	Professional, Scientific, and Technical Services	4,127	4,501	4,671	374	9%	170	4%	$89,198	1.06
55	Management of Companies and Enterprises	976	1,097	1,192	121	12%	95	9%	$151,981	1.17
56	Administrative and Support and Waste Management and Remediation Services	1,911	2,104	2,168	193	10%	64	3%	$36,835	0.51
61	Educational Services	2,617	3,262	3,583	645	25%	321	10%	$47,911	1.92
62	Health Care and Social Assistance	14,697	15,373	16,354	676	5%	981	6%	$51,629	1.83
71	Arts, Entertainment, and Recreation	841	1,001	1,030	160	19%	29	3%	$22,522	0.89
72	Accommodation and Food Services	4,832	5,022	5,168	190	4%	146	3%	$20,389	0.89
81	Other Services (except Public Administration)	3,488	3,567	3,663	79	2%	96	3%	$31,159	1.13
90	Government	12,944	12,588	12,627	(356)	(3%)	39	0%	$55,268	1.25
99	Unclassified Industry	11	<10	<10	Insf. Data	Insf. Data	Insf. Data	Insf. Data	Insf. Data	0.07
	Total	64,489	66,092	67,486	1,603	2%	1,394	2%	$54,010	

Note: Current Total Earnings includes w ages, salaries, and proprietor earnings

Source: EMSI

Industry and employment trends within the county are similar to that of the city. For example, the industries employing the most people include Health Care and Social Assistance employing nearly 73,600, followed by Government employing nearly 51,000. Both industries have shown growth over the past five years and are projected to continue growing through 2022.

Although nearly 2,000 jobs were shed from the Information industry in the past five years, this number is surpassed in the county within the Manufacturing industry. This industry shed nearly 3,400 jobs in the past five years and is projected to shed another 2,700 through 2022.

The Educational Services industry is important to note because it has a notably high location quotient at 3.81. this may indicate that the county has a competitive advantage in Educational Services compared to the nation.

Table 17: Historical and Projected Industry Trends within New Haven County

New Haven County, All Industries										
NAICS (2-digit)	Description	2012 Jobs	2017 Jobs	2022 Jobs	2012 - 2017 Change	2012 - 2017 % Change	2017 - 2022 Change	2017 - 2022 % Change	Current Total Earnings	2017 Location Quotient
11	Crop and Animal Production	980	1,025	1,034	45	5%	9	1%	$32,481	0.20
21	Mining, Quarrying, and Oil and Gas Extraction	171	194	184	23	13%	(10)	(5%)	$77,588	0.11
22	Utilities	1,346	1,607	1,662	261	19%	55	3%	$109,600	1.10
23	Construction	17,960	19,113	19,350	1,153	6%	237	1%	$56,207	0.87
31	Manufacturing	33,308	29,914	27,237	(3,394)	(10%)	(2,677)	(9%)	$65,465	0.92
42	Wholesale Trade	14,700	14,515	14,466	(185)	(1%)	(49)	(0%)	$76,091	0.93
44	Retail Trade	42,833	43,884	43,951	1,051	2%	67	0%	$30,510	1.03
48	Transportation and Warehousing	9,533	11,312	11,718	1,779	19%	406	4%	$51,893	0.80
51	Information	6,050	4,291	2,978	(1,759)	(29%)	(1,313)	(31%)	$72,040	0.56
52	Finance and Insurance	11,843	11,817	12,032	(26)	(0%)	215	2%	$85,699	0.74
53	Real Estate and Rental and Leasing	6,497	6,750	6,940	253	4%	190	3%	$50,507	1.00
54	Professional, Scientific, and Technical Services	19,566	20,580	21,032	1,014	5%	452	2%	$84,781	0.78
55	Management of Companies and Enterprises	4,514	5,048	5,476	534	12%	428	8%	$160,705	0.87
56	Administrative and Support and Waste Management and Remediation Services	20,731	21,920	22,446	1,189	6%	526	2%	$39,480	0.85
61	Educational Services	30,192	40,461	46,223	10,269	34%	5,762	14%	$55,832	3.81
62	Health Care and Social Assistance	70,987	73,599	78,352	2,612	4%	4,753	6%	$50,496	1.40
71	Arts, Entertainment, and Recreation	5,548	5,928	6,084	380	7%	156	3%	$20,512	0.84
72	Accommodation and Food Services	26,873	28,166	29,045	1,293	5%	879	3%	$19,381	0.80
81	Other Services (except Public Administration)	19,841	21,233	22,461	1,392	7%	1,228	6%	$26,730	1.08
90	Government	50,638	50,935	51,539	297	1%	604	1%	$59,343	0.81
99	Unclassified Industry	63	51	55	(12)	(19%)	4	8%	$55,114	0.06
	Total	394,174	412,340	424,265	18,166	5%	11,925	3%	$52,437	

Note: Current Total Earnings includes wages, salaries, and proprietor earnings

Source: EMSI

Unlike the Government industry within the city and the county, this industry within the state has actually shed jobs over the past five years, nearly 5,400 at -2% decline, and is projected to continue shedding a marginal number of jobs over the next five years.

Educational Services has a location quotient of 1.73, which still notes that the industry may be competitive at the state-level as well. Finance and Insurance also has a notable location quotient of 1.57.

Table 18: Historical and Projected Industry Trends within Connecticut

Connecticut, All Industries										
NAICS (2-digit)	Description	2012 Jobs	2017 Jobs	2022 Jobs	2012 - 2017 Change	2012 - 2017 % Change	2017 - 2022 Change	2017 - 2022 % Change	Current Total Earnings	2017 Location Quotient
11	Crop and Animal Production	6,630	6,525	6,413	(105)	(2%)	(112)	(2%)	$32,951	0.29
21	Mining, Quarrying, and Oil and Gas Extraction	596	578	547	(18)	(3%)	(31)	(5%)	$109,398	0.07
22	Utilities	5,930	5,568	5,205	(362)	(6%)	(363)	(7%)	$115,979	0.84
23	Construction	80,268	86,280	88,063	6,012	7%	1,783	2%	$54,752	0.86
31	Manufacturing	167,735	158,189	150,105	(9,546)	(6%)	(8,084)	(5%)	$79,961	1.08
42	Wholesale Trade	65,085	63,954	64,019	(1,131)	(2%)	65	0%	$93,130	0.90
44	Retail Trade	188,617	192,038	193,652	3,421	2%	1,614	1%	$33,355	0.99
48	Transportation and Warehousing	45,016	50,524	51,985	5,508	12%	1,461	3%	$49,699	0.79
51	Information	32,873	34,429	34,211	1,556	5%	(218)	(1%)	$97,974	1.00
52	Finance and Insurance	117,837	113,148	113,788	(4,689)	(4%)	640	1%	$162,399	1.57
53	Real Estate and Rental and Leasing	25,412	26,062	26,348	650	3%	286	1%	$62,363	0.85
54	Professional, Scientific, and Technical Services	110,035	118,109	122,695	8,074	7%	4,586	4%	$91,788	0.98
55	Management of Companies and Enterprises	30,567	33,686	35,132	3,119	10%	1,446	4%	$162,614	1.28
56	Administrative and Support and Waste Management and Remediation Services	94,926	101,913	104,253	6,987	7%	2,340	2%	$41,544	0.87
61	Educational Services	69,791	83,095	90,691	13,304	19%	7,596	9%	$47,651	1.73
62	Health Care and Social Assistance	269,257	283,997	305,189	14,740	5%	21,192	7%	$51,873	1.19
71	Arts, Entertainment, and Recreation	30,978	33,080	34,117	2,102	7%	1,037	3%	$26,464	1.04
72	Accommodation and Food Services	120,828	130,636	136,158	9,808	8%	5,522	4%	$21,427	0.82
81	Other Services (except Public Administration)	89,761	94,421	98,898	4,660	5%	4,477	5%	$28,840	1.06
90	Government	256,594	251,202	251,183	(5,392)	(2%)	(19)	(0%)	$59,454	0.89
99	Unclassified Industry	321	385	469	64	20%	84	22%	$71,041	0.11
	Total	1,809,055	1,867,820	1,913,119	58,765	3%	45,299	2%	$62,840	

Note: Current Total Earnings includes w ages, salaries, and proprietor earnings

Source: EMSI

Overall, within the city only four out of twenty-one industries have shed jobs over the past five years, compared to five industries shedding jobs in the county, and seven shedding jobs within the state. This trend continues through projected job growth whereas three industries are projected to shed jobs between 2017-2022 in the city, four in the county, and size in the state.

Table 19: Historical and Projected Industry Trends Summary

Summary of Historic and Projected Job Change, All Industries							
NAICS (2-digit)	Description	2012 - 2017 % Change			2017 - 2022 % Change		
		City of New Haven	New Haven County	Connecticut	City of New Haven	New Haven County	Connecticut
11	Crop and Animal Production	Insf. Data	(10%)	(2%)	Insf. Data	(9%)	(2%)
21	Mining, Quarrying, and Oil and Gas Extraction	Insf. Data	(29%)	(3%)	Insf. Data	(31%)	(5%)
22	Utilities	12%	(1%)	(6%)	9%	(0%)	(7%)
23	Construction	23%	(0%)	7%	(3%)	2%	2%
31	Manufacturing	9%	(19%)	(6%)	6%	8%	(5%)
42	Wholesale Trade	9%	13%	(2%)	4%	(5%)	0%
44	Retail Trade	(38%)	5%	2%	(38%)	1%	1%
48	Transportation and Warehousing	3%	4%	12%	3%	3%	3%
51	Information	6%	19%	5%	1%	3%	(1%)
52	Finance and Insurance	14%	1%	(4%)	2%	1%	1%
53	Real Estate and Rental and Leasing	(12%)	7%	3%	(10%)	3%	1%
54	Professional, Scientific, and Technical Services	(3%)	12%	7%	0%	8%	4%
55	Management of Companies and Enterprises	5%	5%	10%	6%	2%	4%
56	Administrative and Support and Waste Management and Remediation Services	25%	2%	7%	10%	0%	2%
61	Educational Services	(2%)	6%	19%	0%	1%	9%
62	Health Care and Social Assistance	10%	6%	5%	3%	2%	7%
71	Arts, Entertainment, and Recreation	5%	5%	7%	0%	3%	3%
72	Accommodation and Food Services	4%	7%	8%	0%	6%	4%
81	Other Services (except Public Administration)	2%	19%	5%	3%	4%	5%
90	Government	19%	4%	(2%)	3%	6%	(0%)
99	Unclassified Industry	4%	34%	20%	3%	14%	22%
	Total	2%	5%	3%	2%	3%	2%

Source: EMSI

Table 20 shows the top 25, detailed 4-digit industries by number of jobs added over the past five years within the city. The six industries highlighted in green are unique to the City of New Haven, meaning these six industries did not show up on the top 25 industry lists for either the state or the county, making their significance unique to the city. Additionally, Gambling Industries, Activities Related to Credit Intermediation, and Vocational Rehabilitation Services all have high location quotients at 3.23, 3.25, and 4.72, respectively, showing a possible competitive advantage within the city.

Table 20: Top 25 Industries by Growth in Number of Jobs within The City of New Haven

City of New Haven, Top 25 Industries by Job Growth							
NAICS (4-digit)	Description	2012 Jobs	2017 Jobs	2012 - 2017 Change	2012 - 2017 % Change	Current Total Earnings	2017 Location Quotient
5417	Scientific Research and Development Services	540	1,010	470	87%	$147,541	3.49
6113	Colleges, Universities, and Professional Schools	1,029	1,448	419	41%	$59,966	1.78
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	746	1,015	269	36%	$35,175	3.82
6214	Outpatient Care Centers	923	1,157	234	25%	$67,220	3.05
7225	Restaurants and Other Eating Places	3,410	3,632	222	7%	$18,669	0.83
6241	Individual and Family Services	1,346	1,548	202	15%	$26,409	1.49
8141	Private Households	415	555	140	34%	$14,107	1.50
6111	Elementary and Secondary Schools	967	1,106	139	14%	$47,387	2.40
6213	Offices of Other Health Practitioners	439	566	127	29%	$44,882	1.35
5617	Services to Buildings and Dwellings	815	939	124	15%	$20,470	0.81
4529	Other General Merchandise Stores	282	403	121	43%	$27,942	0.50
5511	Management of Companies and Enterprises	976	1,097	121	12%	$151,981	1.17
5221	Depository Credit Intermediation	543	647	104	19%	$67,760	0.93
9036	Education and Hospitals (Local Government)	4,809	4,910	101	2%	$53,881	1.39
5611	Office Administrative Services	145	244	99	68%	$89,702	1.13
7132	Gambling Industries	87	184	97	111%	$24,923	3.23
5241	Insurance Carriers	673	769	96	14%	$90,196	1.54
4821	Rail Transportation	295	376	81	27%	$87,947	3.62
5223	Activities Related to Credit Intermediation	341	420	79	23%	$116,886	3.25
2381	Foundation, Structure, and Building Exterior Contractors	353	431	78	22%	$47,498	1.00
9039	Local Government, Excluding Education and Hospitals	1,606	1,682	76	5%	$62,433	0.72
2382	Building Equipment Contractors	439	504	65	15%	$61,354	0.53
6243	Vocational Rehabilitation Services	612	677	65	11%	$27,107	4.72
4411	Automobile Dealers	299	359	60	20%	$55,664	0.65
6212	Offices of Dentists	372	422	50	13%	$60,616	1.04

Note: Current Total Earnings includes w ages, salaries, and proprietor earnings

Source: EMSI

Within the county, the 4-digit industry that has added the highest number of jobs in the past five years is College, Universities, and Professional Schools, adding nearly 9,500 jobs, a 41%. The location quotient for this industry is particularly high at 6.41 indicating a competitive advantage within the county.

Table 21: Top 25 Industries by Growth in Number of Jobs within New Haven County

New Haven County, Top 25 Industries by Job Growth							
NAICS (4-digit)	Description	2012 Jobs	2017 Jobs	2012 - 2017 Change	2012 - 2017 % Change	Current Total Earnings	2017 Location Quotient
6113	Colleges, Universities, and Professional Schools	23,165	32,601	9,436	41%	$59,966	6.41
7225	Restaurants and Other Eating Places	21,934	23,402	1,468	7%	$18,249	0.86
8141	Private Households	3,926	5,257	1,331	34%	$14,107	2.27
5611	Office Administrative Services	1,739	2,916	1,177	68%	$89,702	2.16
5417	Scientific Research and Development Services	1,572	2,628	1,056	67%	$154,275	1.46
4529	Other General Merchandise Stores	1,930	2,854	924	48%	$26,948	0.56
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	3,080	3,982	902	29%	$32,847	2.40
6241	Individual and Family Services	6,242	7,086	844	14%	$26,548	1.09
5617	Services to Buildings and Dwellings	6,741	7,539	798	12%	$23,429	1.04
9036	Education and Hospitals (Local Government)	20,480	21,267	787	4%	$53,881	0.96
6214	Outpatient Care Centers	2,907	3,659	752	26%	$62,741	1.55
2382	Building Equipment Contractors	4,938	5,687	749	15%	$61,273	0.97
6111	Elementary and Secondary Schools	4,243	4,850	607	14%	$47,387	1.69
5511	Management of Companies and Enterprises	4,514	5,048	534	12%	$160,705	0.87
9039	Local Government, Excluding Education and Hospitals	10,312	10,800	488	5%	$62,433	0.74
4411	Automobile Dealers	3,365	3,852	487	14%	$58,387	1.13
4541	Electronic Shopping and Mail-Order Houses	1,235	1,684	449	36%	$29,069	1.49
6212	Offices of Dentists	2,866	3,252	386	13%	$60,616	1.29
4821	Rail Transportation	1,400	1,781	381	27%	$87,947	2.75
2389	Other Specialty Trade Contractors	2,517	2,881	364	14%	$49,459	1.13
5242	Agencies, Brokerages, and Other Insurance Related Activities	2,848	3,194	346	12%	$73,161	0.94
6213	Offices of Other Health Practitioners	3,146	3,473	327	10%	$45,074	1.33
4859	Other Transit and Ground Passenger Transportation	470	790	320	68%	$31,109	2.68
4931	Warehousing and Storage	1,120	1,426	306	27%	$43,699	0.60
6233	Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	1,870	2,158	288	15%	$28,621	0.89

Note: Current Total Earnings includes wages, salaries, and proprietor earnings

Source: EMSI

Table 22: Top 25 Industries by Growth in Number of Jobs within Connecticut

Connecticut, Top 25 Industries by Job Growth							
NAICS (4-digit)	Description	2012 Jobs	2017 Jobs	2012 - 2017 Change	2012 - 2017 % Change	Current Total Earnings	2017 Location Quotient
6113	Colleges, Universities, and Professional Schools	38,536	49,911	11,375	30%	$51,539	2.17
7225	Restaurants and Other Eating Places	94,987	104,184	9,197	10%	$19,696	0.85
6241	Individual and Family Services	26,712	33,878	7,166	27%	$27,765	1.16
5239	Other Financial Investment Activities	13,072	19,899	6,827	52%	$299,413	3.09
5415	Computer Systems Design and Related Services	24,967	29,208	4,241	17%	$110,667	1.15
5617	Services to Buildings and Dwellings	36,182	40,137	3,955	11%	$26,701	1.22
2382	Building Equipment Contractors	21,167	24,815	3,648	17%	$61,343	0.93
8141	Private Households	18,083	21,577	3,494	19%	$18,380	2.06
5511	Management of Companies and Enterprises	30,567	33,686	3,119	10%	$162,614	1.28
6214	Outpatient Care Centers	8,150	11,181	3,031	37%	$60,476	1.04
5242	Agencies, Brokerages, and Other Insurance Related Activities	13,908	16,854	2,946	21%	$94,152	1.09
5112	Software Publishers	1,722	4,498	2,776	161%	$132,343	1.06
5417	Scientific Research and Development Services	5,229	7,849	2,620	50%	$153,786	0.96
4931	Warehousing and Storage	8,078	10,588	2,510	31%	$46,924	0.98
6213	Offices of Other Health Practitioners	12,965	15,354	2,389	18%	$48,086	1.29
3366	Ship and Boat Building	8,312	10,607	2,295	28%	$91,917	6.59
4529	Other General Merchandise Stores	7,305	9,122	1,817	25%	$26,432	0.40
7139	Other Amusement and Recreation Industries	19,409	21,217	1,808	9%	$23,951	1.32
6211	Offices of Physicians	33,626	35,426	1,800	5%	$96,499	1.15
5613	Employment Services	28,269	30,015	1,746	6%	$42,121	0.71
6233	Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	8,360	10,103	1,743	21%	$30,674	0.92
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	13,393	15,073	1,680	13%	$32,806	2.01
5416	Management, Scientific, and Technical Consulting Services	16,622	18,183	1,561	9%	$95,558	0.91
4411	Automobile Dealers	14,622	16,120	1,498	10%	$59,447	1.04
6111	Elementary and Secondary Schools	18,741	20,172	1,431	8%	$50,935	1.55

Note: Current Total Earnings includes wages, salaries, and proprietor earnings

Source: EMSI

Self-Employment

The percentage of self-employed workers within the City of New Haven are similar to that of the county, state, and United States. Although similar, the City of New Haven does have the lowest percentage at 6.3%, one percentage point lower than the nation, whereas the state has the highest at 6.8%.

Within the city, overall self-employment has decreased by about -1% over the past five years, this trend occurs within the state as well. Within the county overall self-employed has increased marginally at under 1%.

The industries with the most self-employed jobs in the city, county, and state include Construction, Professional, Scientific, and Technical Services, and Other Services (except Public Admonition). However, within all three geographies, both Construction, and Professional, Scientific, and Technical Services have shown decline in self-employed jobs over the past five years. Other Services (except Public Admonition) has shown some growth in the city and county in terms of self-employed jobs but has shown decline in the state overall.

Table 23: Self-Employment within The City of New Haven. New Haven County, Connecticut, and U.S.

Self-Employed as Percent of Total Jobs, 2017			
	Self-Empolyed Jobs	Total Jobs	Percent Self-Employed
City of New Haven	4,189	66,092	6.3%
New Haven County	27,496	412,340	6.7%
Connecticut	126,410	1,867,820	6.8%
United States	10,285,362	160,618,734	6.4%

Source: EMSI

Shift Share Analysis

Shift Share Analysis distinguishes an industry's employment growth in a specific area that is attributable to local competitive advantages or disadvantages from growth which is attributable to overall national employment trends or national employment trends in that industry.

The shift share analysis helps to answer the question of "*Why is employment growing or declining in this local industry*?" To do this, shift share analysis splits regional job growth into three components: national change effect, industrial mix effect, and regional competitiveness effect. The following tables shows New Haven County and Connecticut have a particular competitive advantage compared to the other geographies (past and projected). A shift share analysis is based on four factors:

- **Industrial Mix Effect** – The industrial mix effect represents the share of regional industry growth explained by the growth of the specific industry at the national level. To arrive at this number, the national growth rate of the total economy is subtracted from the national growth rate of the specific industry, and this growth percentage is applied to the regional jobs in that industry.
- **National Growth Effect** – The national growth effect explains how much of the regional industry's growth is explained by the overall growth of the national economy: if the nation's whole economy is growing, you would generally expect to see some positive change in each industry in your local region (the proverbial "rising tide that lifts all boats" analogy).
- **Expected Change** – This is simply the rate of growth of the particular industry at the national level. Algebraically, the expected change is the sum of the industrial mix and the national growth.
- **Regional Competitive Effect** – The regional competitive effect is the most interesting of the three indicators. It explains how much of the change in a given industry is due to some unique competitive

advantage that the region possesses, because the growth cannot be explained by national trends in that industry or the economy as whole. This effect is calculated by taking the total regional growth of the given industry and subtracting the national growth for that same industry. Note that this effect can be positive even as regional employment in the industry declines. This would indicate that regional decline is less than the national decline.

The shift share analysis shows that the City of New Haven does not have a competitive advantage relative to other parts of the nation in the majority of industry sectors. However, Education Services in the city showed a significant positive Competitive Effect, this is another indication that the city has a unique competitive advantage in this industry. The following two industries that appear to have a competitive advantage are Finance and Insurance, as well as Other Services (except Public Administration).

Table 24: Shift Share between 2012-2017 in the City of New Haven

City of New Haven, Shift Share 2012-2017					
NAICS (2-digit)	Description	Ind. Mix Effect	Nat'l Growth Effect	Expected Change	Competitive Effect
11	Crop and Animal Production	(3)	7	4	0
21	Mining, Quarrying, and Oil and Gas Extraction	(1)	0	(1)	3
22	Utilities	(3)	5	2	12
23	Construction	130	175	305	(174)
31	Manufacturing	(140)	268	128	(510)
42	Wholesale Trade	(41)	102	61	(22)
44	Retail Trade	(48)	390	342	(158)
48	Transportation and Warehousing	76	86	162	(20)
51	Information	(58)	170	112	(899)
52	Finance and Insurance	(67)	177	110	84
53	Real Estate and Rental and Leasing	9	101	110	(128)
54	Professional, Scientific, and Technical Services	216	339	555	(181)
55	Management of Companies and Enterprises	50	80	130	(9)
56	Administrative and Support and Waste Management and Remediation Services	96	157	253	(60)
61	Educational Services	34	215	249	396
62	Health Care and Social Assistance	599	1,207	1,806	(1,130)
71	Arts, Entertainment, and Recreation	49	69	118	42
72	Accommodation and Food Services	321	397	718	(528)
81	Other Services (except Public Administration)	(280)	286	6	73
90	Government	(879)	1,063	184	(539)
99	Unclassified Industry	7	1	8	(10)
	Total	67	5,295	5,362	(3,758)

Source: EMSI

Competitive effect in the county is similar to that of the city with Educational Services being the most prominent. However, unlike the city, the county appears to have some competitive advantage in Transportation and Warehousing.

Table 25: Shift Share between 2012-2017 in New Haven County

New Haven County, Shift Share 2012-2017					
NAICS (2-digit)	Description	Ind. Mix Effect	Nat'l Growth Effect	Expected Change	Competitive Effect
11	Crop and Animal Production	(35)	80	45	0
21	Mining, Quarrying, and Oil and Gas Extraction	(46)	14	(32)	54
22	Utilities	(68)	111	43	218
23	Construction	1,097	1,475	2,572	(1,418)
31	Manufacturing	(1,433)	2,735	1,302	(4,696)
42	Wholesale Trade	(489)	1,207	718	(904)
44	Retail Trade	(430)	3,517	3,087	(2,036)
48	Transportation and Warehousing	689	783	1,472	308
51	Information	(169)	497	328	(2,087)
52	Finance and Insurance	(365)	972	607	(633)
53	Real Estate and Rental and Leasing	46	533	579	(327)
54	Professional, Scientific, and Technical Services	1,024	1,606	2,630	(1,616)
55	Management of Companies and Enterprises	234	371	605	(70)
56	Administrative and Support and Waste Management and Remediation Services	1,037	1,702	2,739	(1,550)
61	Educational Services	390	2,479	2,869	7,400
62	Health Care and Social Assistance	2,894	5,828	8,722	(6,111)
71	Arts, Entertainment, and Recreation	322	456	778	(399)
72	Accommodation and Food Services	1,786	2,206	3,992	(2,699)
81	Other Services (except Public Administration)	(1,591)	1,629	38	1,355
90	Government	(3,438)	4,157	719	(423)
99	Unclassified Industry	44	5	49	(61)
	Total	1,497	32,362	33,859	(15,693)

Source: EMSI

Table 26: Shift Share between 2012-2017 in Connecticut

Connecticut, Shift Share 2012-2017					
NAICS (2-digit)	Description	Ind. Mix Effect	Nat'l Growth Effect	Expected Change	Competitive Effect
11	Crop and Animal Production	(240)	544	304	(409)
21	Mining, Quarrying, and Oil and Gas Extraction	(159)	49	(110)	93
22	Utilities	(300)	487	187	(548)
23	Construction	4,901	6,590	11,491	(5,478)
31	Manufacturing	(7,216)	13,771	6,555	(16,101)
42	Wholesale Trade	(2,163)	5,343	3,180	(4,311)
44	Retail Trade	(1,896)	15,486	13,590	(10,169)
48	Transportation and Warehousing	3,253	3,696	6,949	(1,442)
51	Information	(919)	2,699	1,780	(224)
52	Finance and Insurance	(3,636)	9,674	6,038	(10,727)
53	Real Estate and Rental and Leasing	180	2,086	2,266	(1,616)
54	Professional, Scientific, and Technical Services	5,759	9,034	14,793	(6,719)
55	Management of Companies and Enterprises	1,581	2,510	4,091	(972)
56	Administrative and Support and Waste Management and Remediation Services	4,748	7,793	12,541	(5,555)
61	Educational Services	901	5,730	6,631	6,673
62	Health Care and Social Assistance	10,978	22,106	33,084	(18,345)
71	Arts, Entertainment, and Recreation	1,800	2,543	4,343	(2,242)
72	Accommodation and Food Services	8,030	9,920	17,950	(8,141)
81	Other Services (except Public Administration)	(7,197)	7,369	172	4,487
90	Government	(17,423)	21,067	3,644	(9,035)
99	Unclassified Industry	224	26	250	(186)
	Total	1,207	148,524	149,731	(90,966)

Source: EMSI

Within the city, the industries with the highest number of self-employed workers include Professional, Scientific, and Technical Services, with nearly 900 self-employed workers in 2017. This is followed by Health Care and Social Assistance, Other Services (except Public Administration), and Construction, all having between 500-600 self-employed workers in 2017.

Table 27: Self-Employment by Industry within The City of New Haven

City of New Haven, Self-Employed Workers					
NAICS (2-digit)	Description	2012 Jobs	2017 Jobs	2012 - 2017 Change	2012 - 2017 % Change
11	Crop and Animal Production	16	20	4	25%
21	Mining, Quarrying, and Oil and Gas Extraction	<10	<10	Insf. Data	Insf. Data
22	Utilities	0	0	0	0%
23	Construction	568	509	(59)	(10%)
31	Manufacturing	84	122	38	45%
42	Wholesale Trade	45	35	(10)	(22%)
44	Retail Trade	183	183	0	0%
48	Transportation and Warehousing	23	18	(5)	(22%)
51	Information	50	72	22	44%
52	Finance and Insurance	100	95	(5)	(5%)
53	Real Estate and Rental and Leasing	308	275	(33)	(11%)
54	Professional, Scientific, and Technical Services	954	886	(68)	(7%)
55	Management of Companies and Enterprises	0	0	0	0%
56	Administrative and Support and Waste Management and Remediation Services	188	232	44	23%
61	Educational Services	196	216	20	10%
62	Health Care and Social Assistance	554	578	24	4%
71	Arts, Entertainment, and Recreation	285	258	(27)	(9%)
72	Accommodation and Food Services	166	149	(17)	(10%)
81	Other Services (except Public Administration)	506	539	33	7%
90	Government	0	0	0	0%
99	Unclassified Industry	0	0	0	0%
	Total	4,227	4,189	(38)	(1%)

Source: EMSI

Within the county, the industry with the most self-employed workers is Construction employing over 5,000, this is followed by Other Services (except Public Administration), and Professional, Scientific, and Technical both employing about 4,200 workers. Although Construction employs the highest number of self-employed workers it has also shed the highest number of jobs in the past five years at nearly 500.

Table 28: Self-Employment by Industry within New Haven County

New Haven County, Self-Employed Workers					
NAICS (2-digit)	Description	2012 Jobs	2017 Jobs	2012 - 2017 Change	2012 - 2017 % Change
11	Crop and Animal Production	169	214	45	27%
21	Mining, Quarrying, and Oil and Gas Extraction	<10	<10	Insf. Data	Insf. Data
22	Utilities	0	0	0	0%
23	Construction	5,589	5,096	(493)	(9%)
31	Manufacturing	572	789	217	38%
42	Wholesale Trade	460	366	(94)	(20%)
44	Retail Trade	1,508	1,536	28	2%
48	Transportation and Warehousing	503	527	24	5%
51	Information	350	459	109	31%
52	Finance and Insurance	662	713	51	8%
53	Real Estate and Rental and Leasing	1,374	1,222	(152)	(11%)
54	Professional, Scientific, and Technical Services	4,183	4,117	(66)	(2%)
55	Management of Companies and Enterprises	0	0	0	0%
56	Administrative and Support and Waste Management and Remediation Services	2,148	2,462	314	15%
61	Educational Services	754	960	206	27%
62	Health Care and Social Assistance	3,044	2,904	(140)	(5%)
71	Arts, Entertainment, and Recreation	1,385	1,214	(171)	(12%)
72	Accommodation and Food Services	746	674	(72)	(10%)
81	Other Services (except Public Administration)	4,005	4,239	234	6%
90	Government	0	0	0	0%
99	Unclassified Industry	0	0	0	0%
	Total	27,461	27,496	35	0%

Source: EMSI

Similar to the county, within the state, the industry with the most self-employed workers is Construction employing nearly 25,000, this is followed by Professional, Scientific, and Technical employing nearly 20,000 and Other Services (except Public Administration) employing nearly 17,300. All three of these industries have shed jobs over the past five years. The largest decline shown in Construction looking 2,261 jobs.

Table 29: Self-Employment by Industry within Connecticut

Connecticut, Self-Employed Workers					
NAICS (2-digit)	Description	2012 Jobs	2017 Jobs	2012 - 2017 Change	2012 - 2017 % Change
11	Crop and Animal Production	1,338	1,651	313	23%
21	Mining, Quarrying, and Oil and Gas Extraction	42	30	(12)	(29%)
22	Utilities	0	0	0	0%
23	Construction	27,132	24,871	(2,261)	(8%)
31	Manufacturing	2,534	3,565	1,031	41%
42	Wholesale Trade	1,796	1,586	(210)	(12%)
44	Retail Trade	6,453	6,524	71	1%
48	Transportation and Warehousing	2,376	2,407	31	1%
51	Information	1,667	2,141	474	28%
52	Finance and Insurance	3,730	3,827	97	3%
53	Real Estate and Rental and Leasing	6,334	5,655	(679)	(11%)
54	Professional, Scientific, and Technical Services	20,303	19,826	(477)	(2%)
55	Management of Companies and Enterprises	0	0	0	0%
56	Administrative and Support and Waste Management and Remediation Services	11,084	12,805	1,721	16%
61	Educational Services	3,218	3,973	755	23%
62	Health Care and Social Assistance	12,640	12,274	(366)	(3%)
71	Arts, Entertainment, and Recreation	6,172	5,358	(814)	(13%)
72	Accommodation and Food Services	3,091	2,625	(466)	(15%)
81	Other Services (except Public Administration)	17,553	17,294	(259)	(1%)
90	Government	0	0	0	0%
99	Unclassified Industry	0	0	0	0%
	Total	127,464	126,410	(1,054)	(1%)

Source: EMSI

Gross Regional Product

Within the City of New Haven, the industry contributing the most to gross regional product (GRP) is Finance and Insurance, contributing over $2 billion in 2016, totaling 28% of total GRP in the city. The following two largest industries by GRP include Government and Health Care and Social Assistance contributing about $1 billion each in 2016. The industries contributing the least to GRP within the city include Crop and Animal Production as well as Mining, Quarrying and Oil and Gas Extraction, both contributing less than 1%.

This trend is mirrored within New Haven County, whereas the industry contributing the most to GRP is Finance and Insurance at nearly $5.5 billion in 2016, an 11% contribution. Similarly followed by Government and Health Care and Social Assistance, both of which contribute about $5 billion. Interestingly, within the county, Manufacturing also

provides a large contribution to GRP at 9%, or $4.4 billion in 2016, this industry is only provides a 4% GRP contribution within the city. Identical to the city, however, industries contributing the least to GRP include Crop and Animal Production as well as Mining, Quarrying and Oil and Gas Extraction, both contributing less than 1%.

Gross regional product contributions within the state reflect that of the county and city, with Finance and Insurance contributing 18%, the highest of all industries, Crop and Animal Production as well as Mining, Quarrying and Oil and Gas Extraction, both contributing less than 1%.

Table 30: Gross Regional Product by Industry in the City of New Haven

City of New Haven, Gross Regional Product			
NAICS (2-digit)	Industry	2016 GRP	% of Total
11	Crop and Animal Production	$4,991,797	0%
21	Mining, Quarrying, and Oil and Gas Extraction	$7,104,805	0%
22	Utilities	$41,713,347	1%
23	Construction	$240,238,870	3%
31	Manufacturing	$337,237,040	4%
42	Wholesale Trade	$305,183,548	4%
44	Retail Trade	$300,741,924	4%
48	Transportation and Warehousing	$119,580,506	1%
51	Information	$438,266,356	5%
52	Finance and Insurance	$2,273,590,970	28%
53	Real Estate and Rental and Leasing	$369,574,260	5%
54	Professional, Scientific, and Technical Services	$557,199,972	7%
55	Management of Companies and Enterprises	$201,752,834	3%
56	Administrative and Support and Waste Management and Remediation Services	$123,593,052	2%
61	Educational Services	$188,408,831	2%
62	Health Care and Social Assistance	$978,533,768	12%
71	Arts, Entertainment, and Recreation	$65,727,108	1%
72	Accommodation and Food Services	$172,801,542	2%
81	Other Services (except Public Administration)	$156,159,594	2%
90	Government	$1,004,801,859	13%
	Other Non-Industries	$110,400,958	1%
	Total	$7,997,602,941	100%

Source: EMSI

Table 31: Gross Regional Product by Industry in New Haven County

New Haven County, Gross Regional Product			
NAICS (2-digit)	Industry	2016 GRP	% of Total
11	Crop and Animal Production	$56,565,309	0%
21	Mining, Quarrying, and Oil and Gas Extraction	$85,594,627	0%
22	Utilities	$824,343,500	2%
23	Construction	$1,923,683,246	4%
31	Manufacturing	$4,384,989,318	9%
42	Wholesale Trade	$3,144,528,688	6%
44	Retail Trade	$2,673,105,820	5%
48	Transportation and Warehousing	$1,060,757,927	2%
51	Information	$1,244,830,959	2%
52	Finance and Insurance	$5,428,397,726	11%
53	Real Estate and Rental and Leasing	$4,017,356,879	8%
54	Professional, Scientific, and Technical Services	$2,757,961,950	6%
55	Management of Companies and Enterprises	$1,102,668,253	2%
56	Administrative and Support and Waste Management and Remediation Services	$1,415,754,767	3%
61	Educational Services	$2,916,377,758	6%
62	Health Care and Social Assistance	$4,993,203,919	10%
71	Arts, Entertainment, and Recreation	$311,193,611	1%
72	Accommodation and Food Services	$957,613,008	2%
81	Other Services (except Public Administration)	$838,103,710	2%
90	Government	$4,898,088,612	10%
	Other Non-Industries	$4,854,671,106	10%
	Total	$49,889,790,694	100%

Source: EMSI

Transportation and Commuting Profile

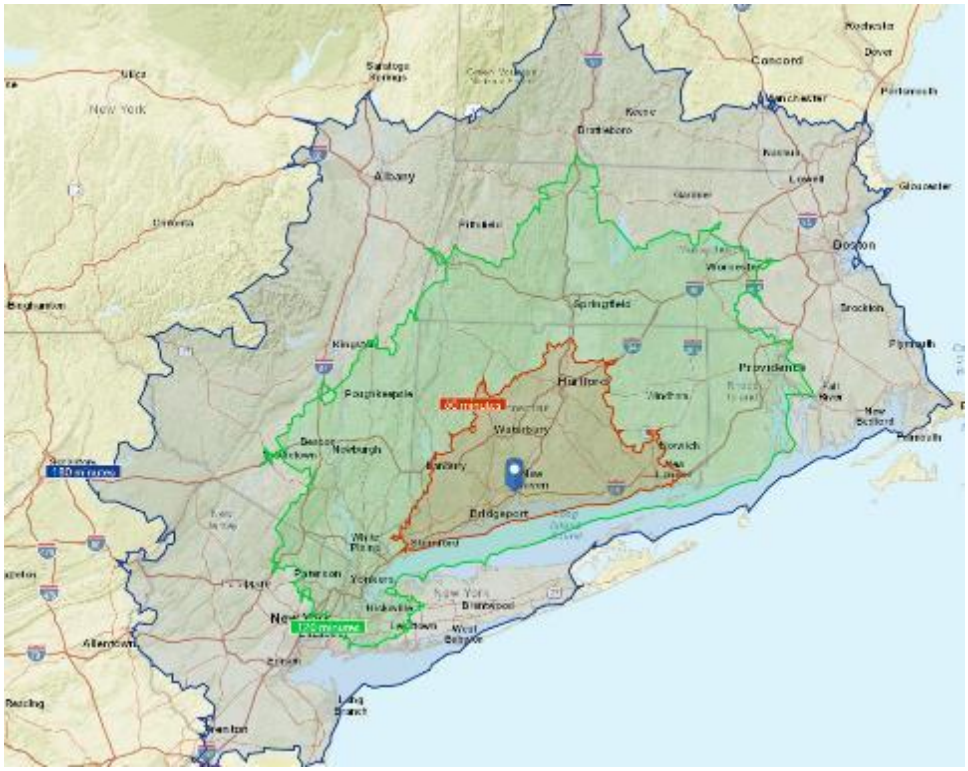
Key Findings

- Since 2004, the number of people commuting into the city for work has increased by over 9,000 people. Conversely, the number of people both living and working in the city has decreased by about 2,000 people. Lastly, the number of people living in the city but commuting out of the city for work has increased by over 1,000 people.
- In 2014, the majority of commuters, 68%, traveled less than 10 miles from home to work. Another 6,000 commuters or 15% traveled between 10 and 24 miles from home to work. Similarly, the majority of New Haven workers, 59%, traveled less than 10 miles from work to home. Another 20,000 workers or 26% traveled between 10 and 24 miles from work to home.
- Within the city, the majority of workers at 51% drove alone as their means of transportation to work. The next more popular mods of transportation to work include public transportation (specifically on the bus or trolley bus) at 12%, and walking at 11%.

Transportation Assets

Forming the nexus of several major highways and rail lines in the region, New Haven occupies a strategic position within Connecticut and New England. These transportation assets make the city easily accessible via multiple modes from population centers between New York City and Boston. Moreover, the 54 Meadow/1 Union site is an exceptionally accessible location within this accessible city. Located less than 1,000 feet from Union Station and just minutes from the I-95/I-91 interchange and Route 34, the site is arguably among of the most easily reached in the city.

Figure 11: Drive Time from Study Site: 1 hour, 2 hours, 3 hours



Union Station

Union Station, also known as New Haven Railroad Station, is the main railroad passenger station in New Haven. Originally completed and opening in the 1920s, then reopened after extensive renovations in early 1985, it is now the premier gateway to the city. Amtrak runs frequent service through Union Station along the electrified Northeast Corridor rail line. Metro North operates its New Haven Line from Union Station, to Grand Central Terminal in New York City. Shoreline East trains run from Union Station to New London, and planned commuter rail service to Hartford and Springfield is planned to launch in 2018.

State Street Station

New Haven State Street is a commuter rail station located off State Street in downtown. State Street Station is the secondary railroad station in the city, and is located about a mile northeast of the much larger New Haven Union Station and is intended to offer easier access to New Haven's business district. It is the penultimate westbound stop for the majority of Shore Line East tracks and is the terminal of Metro North during peak ridership hour. The station was proposed in 1996 and later opened in June 2002 for Shore Line East service and for New Haven Line service.

Metro North

Metro North is also a major commuter rail line operating in the City of New Haven. Metro North's New Haven Line runs from New Haven, southwest to Mount Vernon, New York. In Mount Vernon, it joins the Metro North Harlem Line, where trains continue south to Grand Central Terminal in Manhattan. The New Haven Line's ridership, estimated at 125,000 passengers per weekday and totaling an estimated 39 million passengers annually, ranks it as the busiest rail line in the United States.[5]

Figure 12: Metro North New Haven Line

Shoreline East

Shoreline East is a commuter service operated by Amtrak for the Connecticut Department of Transportation. Shore Line East is a rail line providing access between New London and New Haven. Shore Line East THRU (express) service

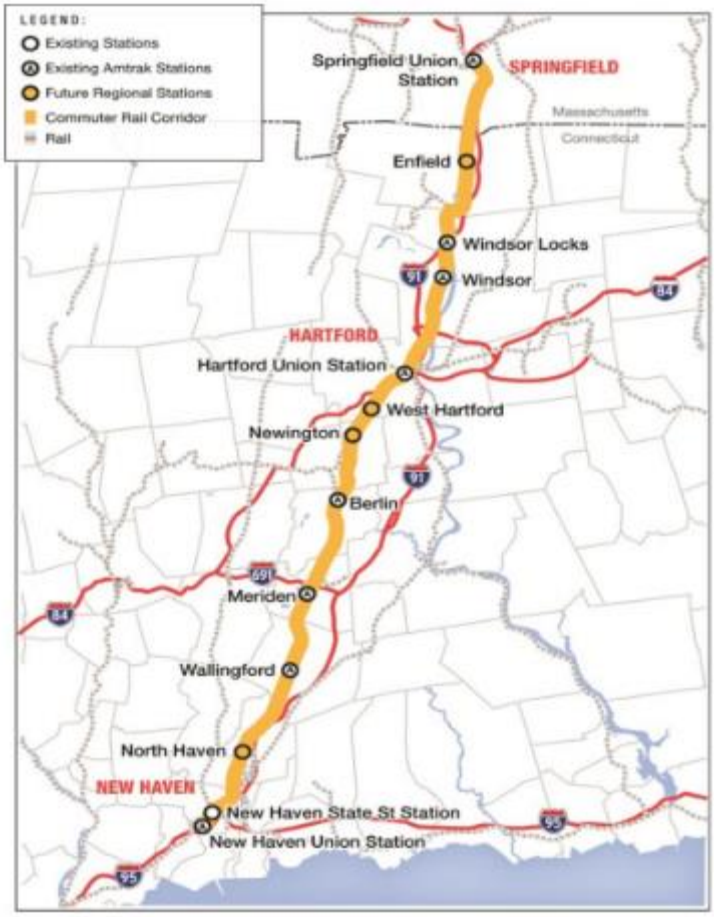
[5] Ridership data for Metro North can be found here http://library.rpa.org/pdf/RPA-Getting-Back-on-Track.pdf

is also available both to and from West Haven, Bridgeport and Stamford. Connections to Metro North's New Haven Line and Amtrak are available at New Haven's Union Station. Shore Line East trains stop in New Haven at Union and State Street stations, Branford, Guilford, Madison, Clinton, Westbrook, Old Saybrook and New London as well as limited service to West Haven, Bridgeport, and Stamford.

The Hartford Line

The Hartford Line is a, not-yet-operational, proposed commuter rail service between New Haven, Connecticut, and Springfield, Massachusetts. It intends to use Amtrak's New Haven–Springfield Line and supplement existing rail services between the cities. This proposed project is a joint venture between the states of Connecticut and Massachusetts with financial support from the federal government. So far, no operator has been selected and the service is expected to begin in January 2018. A feasibility study states that ridership estimates for this rail line are projected at 1,800–2,000 passengers per day.

Figure 13: Future New Haven–Hartford–New Haven Rail Line



Public Bus

CT Transit is the public bus service that runs throughout the City of New Haven. CTfastrak is Connecticut's first Bus Rapid Transit system. It is a system of bus routes that utilize a bus-only roadway for all or a portion of the trip. It is overlaid on the existing CT Transit bus system. CTfastrak buses are able to exit the bus-only road at certain locations to deliver people directly to their destination.

Tweed Airport

The Tweed-New Haven Regional Airport is a public airport located just a few miles southeast of Downtown New Haven. Tweed Airport is one of two airports with regularly-scheduled commercial service in Connecticut, the other being Bradley International Airport in Windsor Locks. Tweed hosts an American Airlines affiliate, Piedmont Airlines, as New Haven's sole airline.

Bicycling

The City of New Haven has made an active effort to increase bicycle accommodations throughout the city. The City of New Haven website promotes bicycle use safety and accessibility by providing resources regarding bike maps, parking maps, bike to transit options, and sharing the road rules for both cyclists and drivers.

The Connecticut Department of Transportation hosted the Bikes on Board initiative in the hopes of relieving traffic congestion, and promoting health and financial savings for cyclists. The City has also worked to integrate cycling into other modes of transportation. As part of the Bikes on Board initiative, CT Transit buses are equipped with a rack with capacity for up to two bicycles promoting. Secondly, Metro North now allows holders of a $5 lifetime permit to bring bikes onboard under certain conditions, Shore Line East allows passengers to carry bikes onboard on the condition that they remove the front wheel and with Amtrak, bikes are allowed as checked baggage on trains with checked bag service.

Car Sharing

The City of New Haven is currently participating in an innovative car sharing program via Zipcar. The partnership between Yale University and Zipcar is making vehicles rentable, by hour, for use throughout many different locations in and around the city. The intent of Zipcar is to eliminate the expenses associated with owning a vehicle that is not often used. Due to the many transportation options, available throughout the city, owning a vehicle may not be the most cost efficient. However, instances may occur in which vehicle transportation is optimal, and in this case, renting a Zipcar is easy and convenient.

Zipcar rental rates start at $8 per hour, and $66 per day. The rate includes both gas and insurance, and the daily mileage limit is 180 miles. Including the City of New Haven, Zipcars are now accessible in many cities including but not limited to New York City, Boston, Providence, Chicago, Washington D.C., Seattle, and San Francisco.

Commutation

In 2014, there were an estimated 60,500 people commuting into the city for work, but living outside the city; another 17,600 people both working and living within the city; and another 23,700 people living within the city but commuting out of the city for work. The number of people commuting into the city for work has increased from 51,000 in 2004, an increase of over 9,000 people. Conversely, the number of people both living and working in the city has decreased from about 19,600 people in 2004 to about 17,600 people in 2014, a decrease of about 2,000 people. Lastly, the number of people living in the city but commuting out of the city for work has increased from 22,500 in 2004 to 23,700 in 2014, an increase of over 1,000 people.

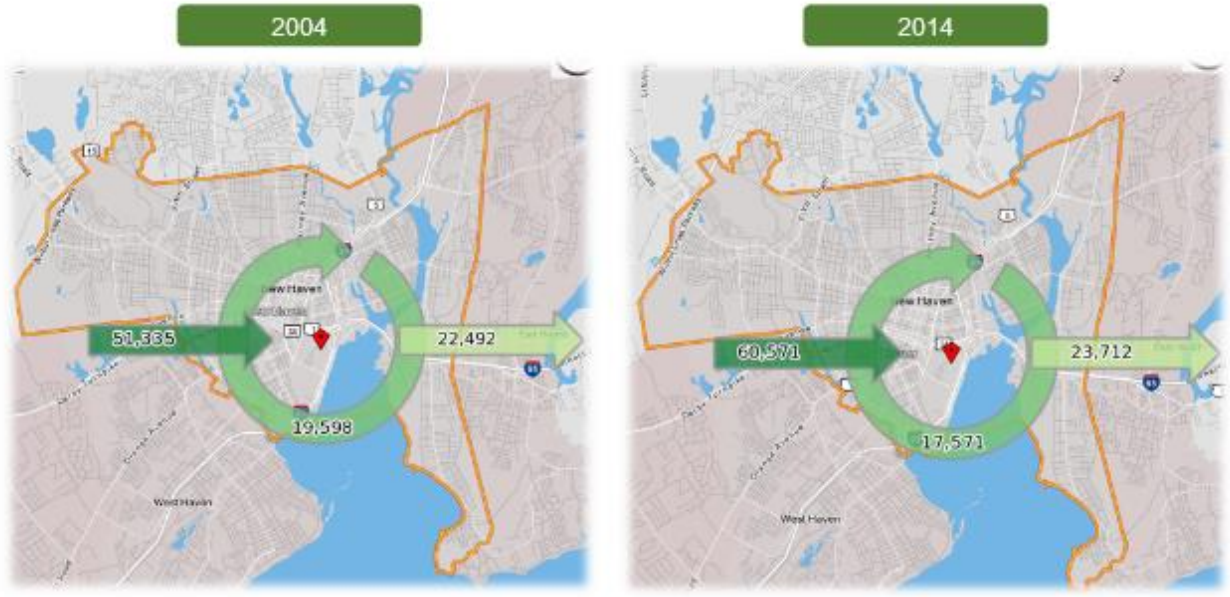
Commuter Inflow and Outflow

Table 32: Commuter Inflow and Outflow within The City of New Haven

Commuter Inflow/Outflow				
	2004 Count	2004 Share	2014 Count	2014 Share
Employed in City of New Haven	70,933	100%	78,142	100%
Employed in City of New Haven but Living Outside	51,335	72%	60,571	78%
Employed and Living in City of New Haven	19,598	28%	17,571	23%
Living in City of New Haven	42,090	100%	41,283	100%
Living in City of New Haven but Employed Outside	22,492	53%	23,712	53%
Living and Employed in City of New Haven	19,598	47%	17,571	47%

Note: Job Counts include only primary jobs
Source: Census On-The-Map

Figure 14: Commuter Inflow and Outflow



Source: OnTheMap

New Haven Resident Commuting Patterns

About 43% of people who live in the city also work in the city, another 5% of people who live in the city work in Hamden. City residents also work in West Haven, North Haven, Milford, Branford, Hartford, Wallingford, Orange, East Haven, and the majority at 54% work in various different locations.

Table 33: Where New Haven Residents Work, 2004 and 2014

Where New Haven City Residents Work, 2004		
New Haven	19,598	47%
Hamden	2,297	6%
North Haven	2,193	5%
West Haven	1,524	4%
Milford	1,322	3%
Branford	1,266	3%
East Haven	953	2%
Wallingford	872	2%
Orange	801	2%
Hartford	778	2%
All Other Cities and Towns	10,486	25%
All Cities and Towns	42,090	100%

Note: Job Counts include only primary jobs
Source: Census On-The-Map

Where New Haven City Residents Work, 2014		
New Haven	17,571	43%
Hamden	2,083	5%
West Haven	1,671	4%
North Haven	1,667	4%
Milford	1,332	3%
Branford	1,147	3%
Hartford	873	2%
Wallingford	837	2%
Orange	825	2%
East Haven	811	2%
All Other Cities and Towns	41,852	54%
All Cities and Towns	41,283	100%

Note: Job Counts include only primary jobs
Source: Census On-The-Map

In 2014, the majority of commuters, over 28,000 or 68%, traveled less than 10 miles from home to work. Another 6,000 commuters or 15% traveled between 10 and 24 miles from home to work. Only about 5%, about 2,000, commuters traveled greater than 50 miles to work.

Table 34: City of New Haven Jobs by Distance, Home to Work Commute

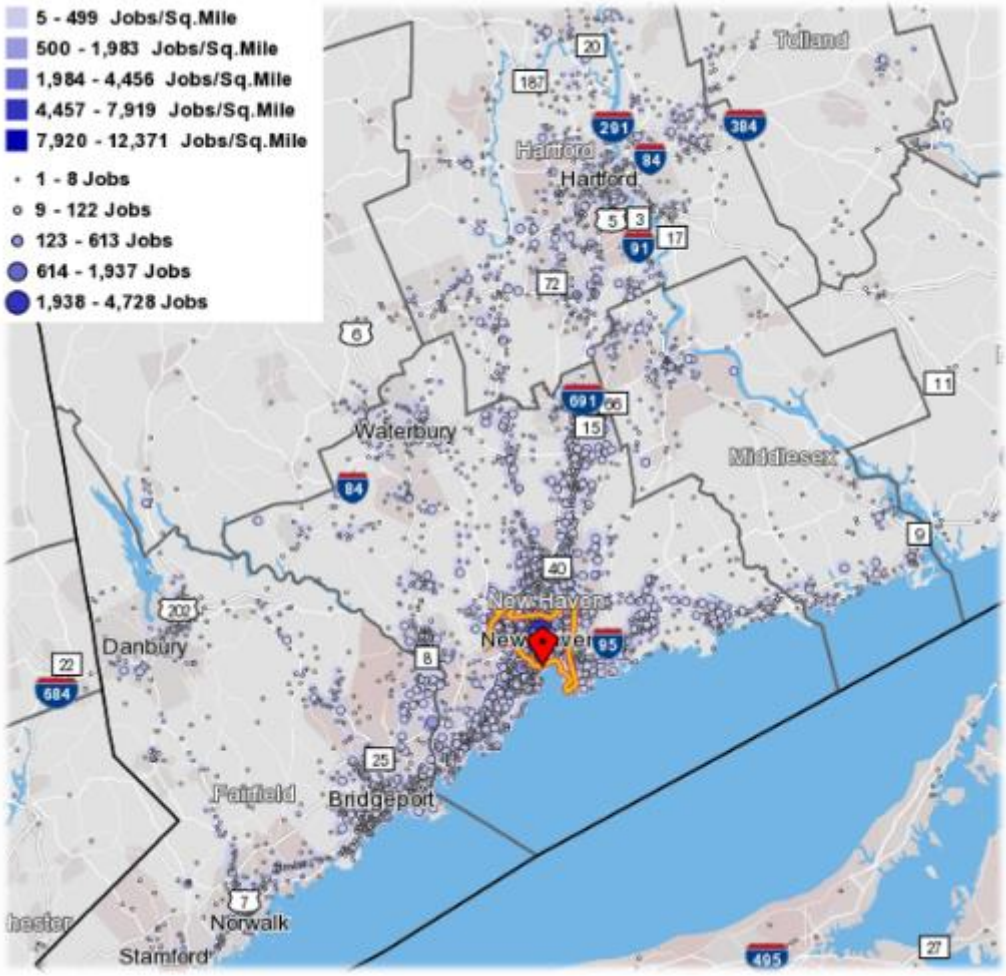
Jobs by Distance - Home to Work, 2004		
Less than 10 miles	31,039	74%
10 to 24 miles	5,486	13%
25 to 50 miles	4,632	11%
Greater than 50 miles	933	2%
Total Primary Jobs	42,090	100%

Note: Job Counts include only primary jobs
Source: Census On-The-Map

Jobs by Distance - Home to Work, 2014		
Less than 10 miles	28,157	68%
10 to 24 miles	6,068	15%
25 to 50 miles	4,988	12%
Greater than 50 miles	2,070	5%
Total Primary Jobs	41,283	100%

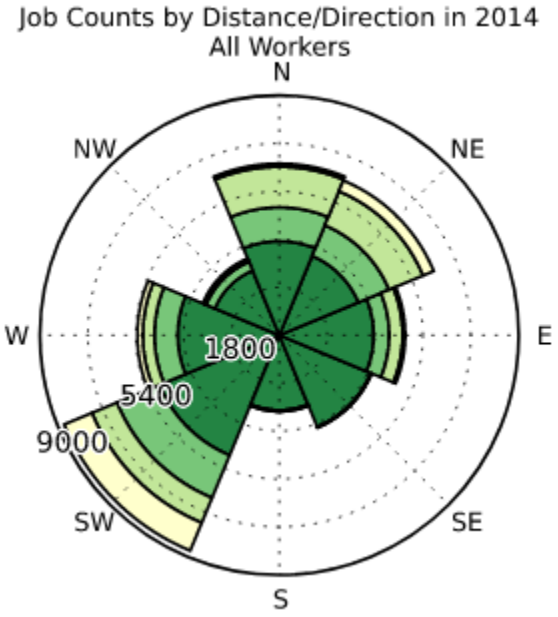
Note: Job Counts include only primary jobs
Source: Census On-The-Map

Figure 15: City of New Haven Residents, Home to Work Commute, 2014



Source: OnTheMap

Figure 16: City of New Haven Jobs by Distance and Direction, Home to Work Commute, 2014



New Haven Worker Commuting Patterns

About 23% of people who work in the city also live in the city, another 10% of people who work in the city live in Hamden. City workers also live in West Haven, East Haven, Milford, Branford, North Haven, Milford, Wallingford, Guildford, Meriden, and the majority at 40% work in various different locations.

Table 35: Where New Haven Workers Live

Where New Haven City Workers Live, 2004		
New Haven	19,598	28%
Hamden	7,046	10%
West Haven	4,493	6%
East Haven	3,244	5%
Branford	2,844	4%
North Haven	2,304	3%
Wallingford	1,923	3%
Guilford	1,772	3%
Milford	1,605	2%
North Branford	1,268	2%
All Other Cities and Towns	24,836	35%
All Cities and Towns	70,933	100%

Note: Job Counts include only primary jobs
Source: Census On-The-Map

Where New Haven City Workers Live, 2014		
New Haven	17,571	23%
Hamden	7,402	10%
West Haven	4,566	6%
East Haven	3,273	4%
Branford	3,248	4%
North Haven	2,678	3%
Milford	2,347	3%
Wallingford	2,245	3%
Guilford	1,956	3%
Meriden	1,468	2%
All Other Cities and Towns	31,388	40%
All Cities and Towns	78,142	100%

Note: Job Counts include only primary jobs
Source: Census On-The-Map

In 2014, the majority of New Haven workers, over 46,000 or 59%, traveled less than 10 miles from work to home. Another 20,000 workers or 26% traveled between 10 and 24 miles from work to home. Only about 5%, about 3,600, commuters traveled greater than 50 miles from work to home.

Table 36: City of New Haven Workers, Work to Home Commute

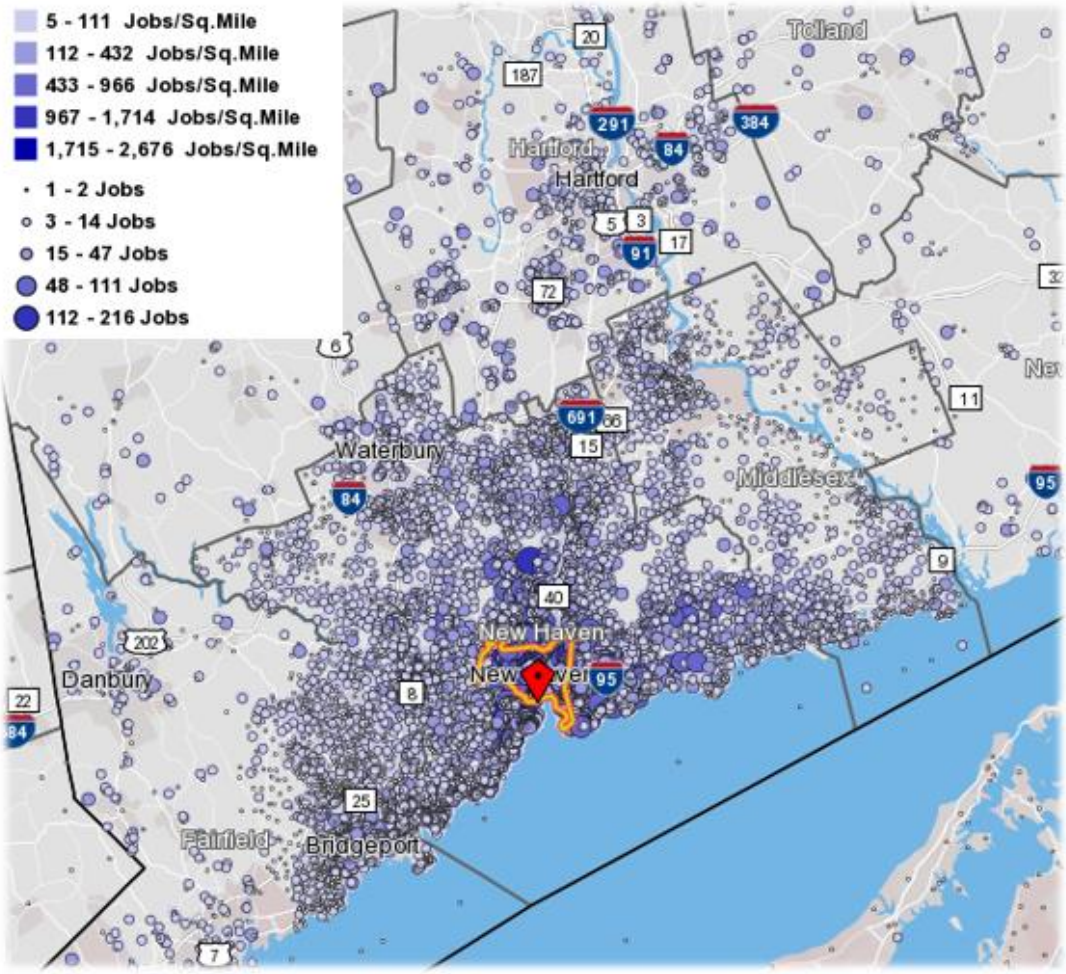
City of New Haven Workers, Work to Home, 2004		
Less than 10 miles	45,487	64%
10 to 24 miles	15,669	22%
25 to 50 miles	6,407	9%
Greater than 50 miles	3,370	5%
Total Primary Jobs	70,933	100%

Note: Job Counts include only primary jobs
Source: Census On-The-Map

City of New Haven Workers, Work to Home, 2014		
Less than 10 miles	46,090	59%
10 to 24 miles	20,338	26%
25 to 50 miles	8,045	10%
Greater than 50 miles	3,669	5%
Total Primary Jobs	78,142	100%

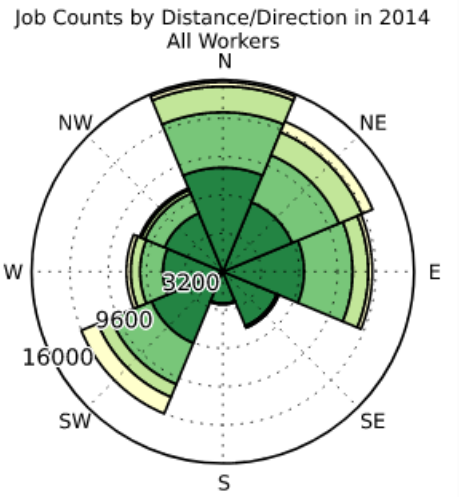
Note: Job Counts include only primary jobs
Source: Census On-The-Map

Figure 17: City of New Haven Workers, Work to Home Commute, 2014



Source: OnTheMap

Figure 18: City of New Haven Workers, Work to Home Commute, 2014



Within the city, the majority of workers at 51% drove alone as their means of transportation to work, this is about twenty-five percentage points less than workers in the county and the state. In the city, the next most popular modes of transportation include public transportation (majority of people traveling specifically on the bus or trolley bus) at 12%, and walking at 11%.

Table 37: Means of Transportation to Work

Means of Transportation to Work						
	City of New Haven		New Haven County		Connecticut	
	#	%	#	%	#	%
Drove alone	33,086	51%	324,286	75%	1,369,767	75%
Carpooled	5,477	8%	34,278	8%	143,588	8%
Public Transportation	7,654	12%	17,504	4%	84,597	5%
Bus or Trolley Bus	6,770	10%	12,495	3%	44,690	2%
Streetcar	76	0%	140	0%	325	0%
Subway	100	0%	410	0%	2,424	0%
Railroad	708	1%	4,435	1%	36,857	2%
Ferryboat	0	0%	24	0%	301	0%
Taxicab	91	0%	240	0%	1,412	0%
Motorcycle	38	0%	1,570	0%	1,570	0%
Bicycle	1,707	3%	2,352	1%	5,426	0%
Walked	7,283	11%	15,423	4%	53,146	3%
Other Means	348	1%	2,502	1%	12,176	1%
Worked from Home	1,828	3%	15,207	4%	76,670	4%
Total	65,166	100%	430,866	100%	1,832,949	100%

Source: 2011-2015 American Community Survey 5-year Estimates, table B08301

Residential Market Analysis

Existing Housing Stock

Within both The Hill Neighborhood and The City of New Haven the majority of housing units are renter-occupied, between 65% and 66% in 2016. Within the county, owner-occupied housing units are the most common at nearly 56% in 2016. Vacancy rates in The Hill Neighborhood are the highest by far at over 17% in 2016. This compares to nearly 12% in the city, and almost 9% in the county.

Table 38: Housing Tenue Trends within The Hill Neighborhood

Household Trends by Tenure - The Hill Neighborhood						
	2010		2016		2021	
	#	%	#	%	#	%
Owner-occupied	1,160	19.3%	1,024	16.5%	1,016	16.2%
Renter-occupied	3,877	64.6%	4,116	66.4%	4,190	66.6%
Vacant	961	16.0%	1,063	17.1%	1,081	17.2%
Total	5,998	100%	6,203	100%	6,287	100%

Source: ESRI

Table 39: Housing Tenue Trends within The City of New Haven

Household Trends by Tenure - City of New Haven						
	2010		2016		2021	
	#	%	#	%	#	%
Owner-occupied	14,420	26.2%	13,016	23.2%	12,966	22.8%
Renter-occupied	34,457	62.7%	36,524	65.1%	37,092	65.4%
Vacant	6,090	11.1%	6,585	11.7%	6,698	11.8%
Total	54,967	100%	56,125	100%	56,756	100%

Source: ESRI

Table 40: Housing Tenue Trends within The New Haven County

Household Trends by Tenure - New Haven County						
	2010		2016		2021	
	#	%	#	%	#	%
Owner-occupied	212,169	58.6%	203,594	55.6%	204,085	55.3%
Renter-occupied	122,333	33.8%	131,486	35.9%	132,288	35.8%
Vacant	27,502	7.6%	31,040	8.5%	32,648	8.8%
Total	362,004	100%	366,120	100%	369,021	100%

Source: ESRI

Table 41: Housing Values within The Hill Neighborhood

The Hill Neighborhood Housing Values (Owner Occupied Housing)						
Housing Value	2016		2021		Change	
	Number	Percent	Number	Percent	Number	Percent
<$50,000	76	7%	45	4%	(31)	-41%
$50,000-$99,999	227	22%	266	26%	39	17%
$100,000-$149,999	201	20%	182	18%	(19)	-9%
$150,000-$199,999	263	26%	236	23%	(27)	-10%
$200,000-$249,999	137	13%	139	14%	2	1%
$250,000-$299,999	57	6%	52	5%	(5)	-9%
$300,000-$399,999	35	3%	45	4%	10	29%
$400,000-$499,999	3	0%	6	1%	3	100%
$500,000-$749,999	26	3%	45	4%	19	73%
$750,000-$999,999	0	0%	0	0%	0	0%
$1,000,000+	0	0%	0	0%	0	0%
Total	1,025	100%	1,016	100%	(9)	-1%
Median Value	$151,616		$153,178		$1,562	1%
Average Value	$162,366		$174,483		$12,117	7%

Source: ESRI

Within The Hill nearly 70% of homes fall within $50,000 to $200,000. Median home value is about $151,000, which is nearly $50,000 lower than that of the city, with median value at just under $200k, and over $100,000 lower than that of the county, with the median home value being about $260,000.

Table 42: Housing Values within The City of New Haven

City of New Haven Housing Values (Owner Occupied Housing)						
Housing Value	2016		2021		Change	
	Number	Percent	Number	Percent	Number	Percent
<$50,000	581	4%	345	3%	(236)	-41%
$50,000-$99,999	1,179	9%	1,383	11%	204	17%
$100,000-$149,999	2,125	16%	1,991	15%	(134)	-6%
$150,000-$199,999	2,704	21%	2,299	18%	(405)	-15%
$200,000-$249,999	2,237	17%	1,991	15%	(246)	-11%
$250,000-$299,999	1,387	11%	1,214	9%	(173)	-12%
$300,000-$399,999	1,319	10%	1,608	12%	289	22%
$400,000-$499,999	550	4%	913	7%	363	66%
$500,000-$749,999	532	4%	726	6%	194	36%
$750,000-$999,999	210	2%	278	2%	68	32%
$1,000,000+	175	1%	201	2%	26	15%
Total	12,999	100%	12,949	100%	(50)	0%
Median Value	$198,345		$211,464		$13,119	7%
Average Value	$243,917		$267,764		$23,847	10%

Source: ESRI

Table 43: Housing Values within New Haven County

New Haven County Housing Values (Owner Occupied Housing)						
Housing Value	2016		2021		Change	
	Number	Percent	Number	Percent	Number	Percent
<$50,000	7,634	4%	4,087	2%	(3,547)	-46%
$50,000-$99,999	7,806	4%	8,982	4%	1,176	15%
$100,000-$149,999	21,175	10%	19,872	10%	(1,303)	-6%
$150,000-$199,999	30,326	15%	25,353	12%	(4,973)	-16%
$200,000-$249,999	30,140	15%	25,655	13%	(4,485)	-15%
$250,000-$299,999	27,416	13%	22,290	11%	(5,126)	-19%
$300,000-$399,999	36,638	18%	40,102	20%	3,464	9%
$400,000-$499,999	19,661	10%	29,934	15%	10,273	52%
$500,000-$749,999	14,886	7%	17,981	9%	3,095	21%
$750,000-$999,999	4,347	2%	5,443	3%	1,096	25%
$1,000,000+	3,527	2%	4,349	2%	822	23%
Total	203,556	100%	204,048	100%	492	0%
Median Value	$258,566		$290,545		$31,979	12%
Average Value	$305,754		$335,910		$30,156	10%

Source: ESRI

Figure 19: Housing Values within The Hill Neighborhood, City of New Haven, and New Haven County

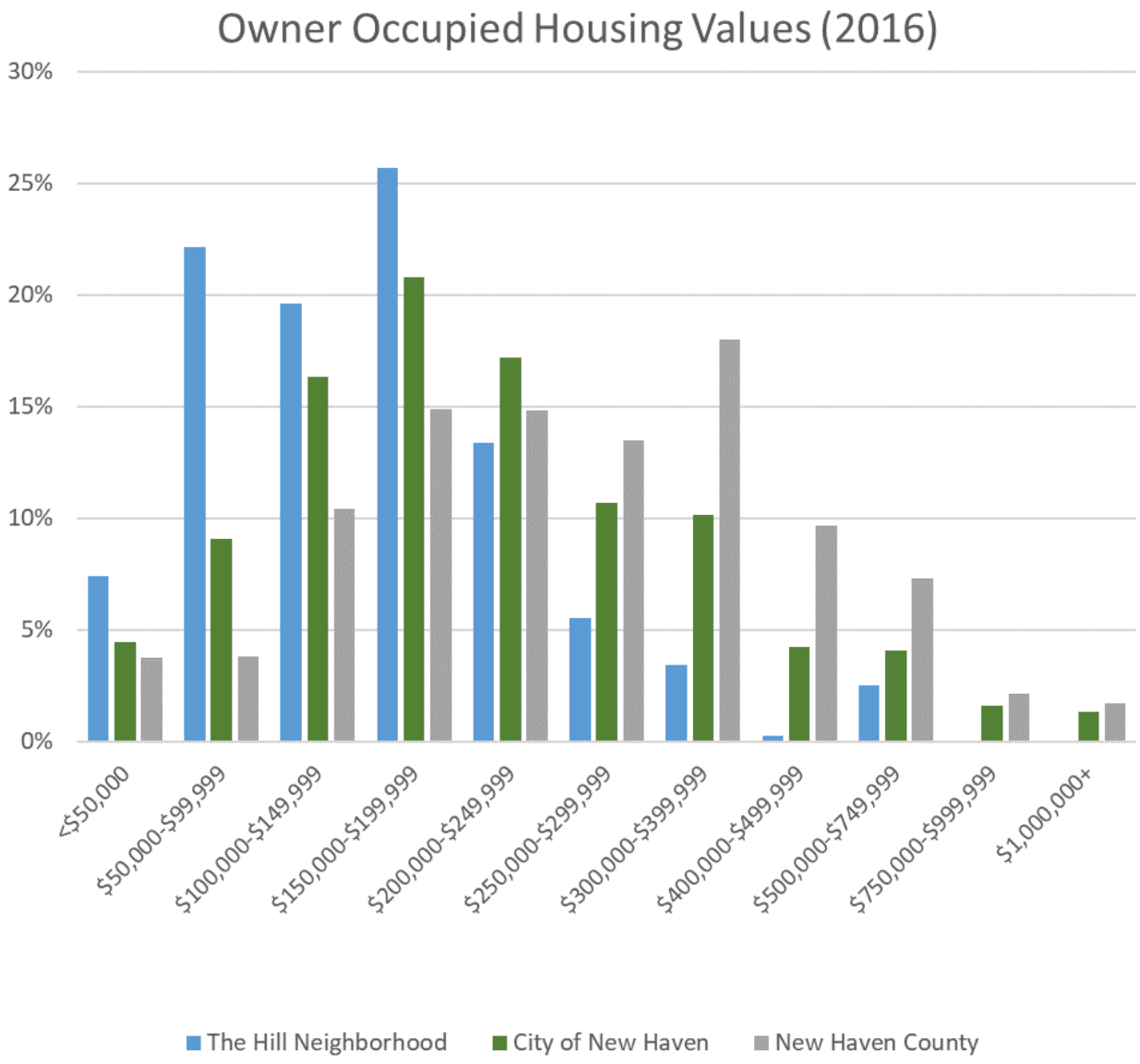


Table 44: Housing Units by Year Built

Housing Units by Year Structure Built						
Year	The Hill Neighborhood		City of New Haven		New Haven County	
	Number	Percent	Number	Percent	Number	Percent
Built 2010 or later	71	1.1%	671	1%	1,676	0%
Built 2000 to 2009	189	3.0%	2,723	5%	20,443	6%
Built 1990 to 1999	400	6.4%	2,353	4%	26,866	7%
Built 1980 to 1989	562	9.0%	4,444	8%	45,837	13%
Built 1970 to 1979	469	7.5%	4,867	9%	46,897	13%
Built 1960 to 1969	569	9.1%	4,932	9%	45,166	12%
Built 1950 to 1959	230	3.7%	5,330	9%	54,414	15%
Built 1940 to 1949	197	3.2%	2,919	5%	25,327	7%
Built 1939 or earlier	3,573	57.1%	28,951	51%	95,576	26%
Total	6,260	100%	57,190	100%	362,202	100%

Source: 2010-2014 American Community Survey

The majority of units in The Hill, at 57%, were built before 1939. This shows an older housing stock, but similar stock compared to 51% in the city. Both The Hill and the city have about twice as many homes built before 1939 than that of the county, which has about 26%.

Table 45: Housing Units by Structure

Housing Units by Units in Structure						
Units in Structure	The Hill Neighborhood		City of New Haven		New Haven County	
	Number	Percent	Number	Percent	Number	Percent
1 Detached	745	11.9%	11,141	19%	192,604	53%
1 Attached	303	4.8%	3,074	5%	19,493	5%
2	1,658	26.5%	9,738	17%	35,375	10%
3 or 4	2,174	34.7%	14,184	25%	41,540	11%
5 to 9	298	4.8%	4,706	8%	21,059	6%
10 to 19	156	2.5%	3,584	6%	14,810	4%
20 to 49	183	2.9%	3,952	7%	15,296	4%
50 or more	681	10.9%	6,740	12%	19,854	5%
Mobile Home	63	1.0%	71	0%	2,156	1%
Boat, RV, Van, Etc.	0	0.0%	0	0%	15	0%
Total	6,261	100%	57,190	100%	362,202	100%

Source: 2010-2014 American Community Survey

Majority of units in The Hill are considered 2, 3 or 4 units, at about 61%. Only 12% of housing units are considered 1 detached, which is low compared to about 20% in the city and over 50% in the county.

Table 46: Renter-Occupied Units by Rent

Renter-Occupied Housing Units by Monthly Rent						
Rent	The Hill Neighborhood		City of New Haven		New Haven County	
	Number	Percent	Number	Percent	Number	Percent
Less than $100	127	3%	858	2%	1,852	2%
$100 to $149	125	3%	650	2%	1,505	1%
$150 to $199	167	4%	739	2%	1,657	1%
$200 to $249	198	5%	1,271	4%	2,946	2%
$250 to $299	60	1%	670	2%	1,939	2%
$300 to $349	117	3%	585	2%	1,943	2%
$350 to $399	42	1%	383	1%	1,732	1%
$400 to $449	56	1%	670	2%	1,973	2%
$450 to $499	25	1%	596	2%	2,026	2%
$500 to $549	164	4%	844	2%	2,997	2%
$550 to $599	13	0%	674	2%	2,651	2%
$600 to $649	110	3%	880	3%	3,605	3%
$650 to $699	133	3%	1,105	3%	5,096	4%
$700 to $749	301	7%	1,773	5%	6,748	6%
$750 to $799	107	3%	1,389	4%	6,703	6%
$800 to $899	356	9%	3,986	11%	16,608	14%
$900 to $999	561	14%	3,588	10%	13,060	11%
$1,000 to $1,249	719	18%	7,240	21%	20,870	17%
$1,250 to $1,499	441	11%	3,476	10%	10,359	9%
$1,500 to $1,999	69	2%	2,199	6%	6,718	6%
$2,000 or more	51	1%	806	2%	2,918	2%
Median	$863		$903		$876	

Source: 2010-2014 American Community Survey

The majority of rent payments in The Hill range from $800-$1,500, at 52%, with the largest share between $1,000-$1,250 (18%). This pattern is similar within the city and county as well, with 21% paying between $1,000-$1,250 in the city, and 17% in the county.

Table 47: Residential Building Permits within The City of New Haven

Residential Building Permits: City of New Haven					
	2012	2013	2014	2015	2016
Total Units	97	39	412	262	227
Units in Single-Family Structures	85	15	24	8	7
Units in All Multi-Family Structures	12	24	388	254	220
Units in 2-unit Multi-Family Structures	12	14	4	0	0
Units in 3- and 4-unit Multi-Family Structures	0	4	36	22	7
Units in 5+ Unit Multi-Family Structures	0	6	348	232	213

Source: U.S. Department of Housing and Urban Development

Table 48: Residential Building Permits within New Haven County

Residential Building Permits: New Haven County					
	2012	2013	2014	2015	2016
Total Units	669	815	1,140	1,161	918
Units in Single-Family Structures	466	460	484	422	378
Units in All Multi-Family Structures	203	355	656	739	540
Units in 2-unit Multi-Family Structures	18	30	14	28	8
Units in 3- and 4-unit Multi-Family Structures	3	26	36	37	14
Units in 5+ Unit Multi-Family Structures	182	299	606	674	518

Source: U.S. Department of Housing and Urban Development

Table 49: Residential Building Permits within Connecticut

Residential Building Permits: Connecticut					
	2012	2013	2014	2015	2016
Total Units	4,669	5,424	5,329	6,077	5,504
Units in Single-Family Structures	2,534	2,855	2,760	2,436	2,461
Units in All Multi-Family Structures	2,135	2,569	2,569	3,641	3,043
Units in 2-unit Multi-Family Structures	62	138	120	78	128
Units in 3- and 4-unit Multi-Family Structures	81	163	203	70	73
Units in 5+ Unit Multi-Family Structures	1,992	2,268	2,246	3,493	2,842

Source: U.S. Department of Housing and Urban Development

In the city, there were 227 total unit permits in 2016, this number has been decreasing since 2014. In the county, there were 918 in 2016, this number is also decreasing since 2014. Similarly, within the state as a whole there were 5,500, another decrease from 2015.

Residential Market Trends[6]

In the New Haven County Market, vacancy has declined from a supply-driven peak at the end of 2015, but remains roughly 100 basis points above the historical average. Rent growth has typically stayed between 1%–2% for the past decade, and the past 12 months are no exception. A large portion of stock in the metro is concentrated around Yale University, where rents are the highest and developers are most active. The university also contributes to New Haven's relatively high concentration of renters, especially compared to the numbers in other Connecticut markets.

A thinning pipeline coupled with a relatively high concentration of renters should help protect fundamentals in the coming years. The New Haven metro has long benefited from a relatively large and stable pool of renters, whereas nearby Stamford typically attracts homebuyers. High demand is partially generated by the lower-than-average wages and high cost of living, which create a pool of renters by necessity. Yale University, nestled in the heart of New Haven, has an enrollment of more than 12,000 students, about half of whom live in off-campus housing.

Vacancies peaked in 2015 largely due to a record-breaking 600-unit supply wave. College & Crown, a mixed-use development in downtown New Haven, delivered 160 units in October 2015 and reached 85% occupancy by August 2016. However, as of January 2017, the property was still 85% occupied. Novella has done slightly better—the 136-unit property came on line last August and stabilized 12 months later, averaging a physical absorption rate just over 10 units a month.

Yale University is a large driver for New Haven's economy. Yale is the largest employer in the region, with nearly 14,000 employees. The university incubator and notable alumni have founded well-known companies throughout the country, like LegalZoom, Honest Tea, and FedEx. Additionally, Yale University Properties, Yale's commercial management division, owns and operates a portfolio of 85 retail and 500 residential properties around the city. Despite its tax-exempt status, Yale routinely participates in voluntary tax donations to New Haven: Over the past 25 years, Yale has given upwards of $90 million to support public works and commercial development. Despite a bustling economy inside New Haven, statewide budget deficits in the public sector have contributed to job and program losses. As of July, nearly 825 government employees were laid off across the state. Of those, almost 250 were judges, security officers, and other judicial personnel. In August, Sikorsky Aircraft lost a contract with the U.S. Navy, resulting in an 85-person layoff.

The apartment market in the City of New Haven Submarket has been strong over the last several years. Since 2007, the city has added over 1,700 units. Of those, over 800 have been added since 2014. Absorption has also been strong, with positive net absorption since 2012. Over the last year, 220 units were absorbed into the market. The apartment vacancy rate is relatively healthy, at 6.1%.[7] Currently, 950 units are either approved or under construction, and another 1,300 units are in the planning stage city-wide. Future deliveries and current vacancies account for a supply of 2,620 units. If current absorption rates are sustained in to the future, these units are likely to be absorbed within 11 years. As ongoing projects continue to make the city more desirable, absorption will increase, meaning sustained demand for new residential units. According to interviews with local real estate brokers and developers, Yale Medical School students, as well as Yale New Haven Hospital employees, residents, etc., are a key target market for rental units in the vicinity of the Study Site.

Projection of Residential Demand

Household growth will result from a combination of natural increase due to new household formation, as well as in-migration from other locations. Mobility data from the U.S. Internal Revenue Service provides insight into the origin of households that have migrated into New Haven County. Between 2011 and 2015, an average of approximately 13,500 households per year moved into the county. Almost half of these households (46%) moved from other

[6] New Haven Apartment Market Report. CoStar. 2017.
[7] Real estate metrics from CoStar

counties in Connecticut. Fairfield and Hartford counties were the most common counties of origin, with 21% and 11% of all households coming from these places, respectively. A significant share of new New Haven County households moved from New York City, which accounted for about 9% of the total inflow.

Table 50: Average Annual Migration to New Haven County

Average Annual Migration to New Haven County, 2011-2015		
County of Origin	Average Annual Households*	Pct. Of Total Inflow
Total Inflow to New Haven County	13,547	100.0%
From Connecticut	6,242	46.1%
Fairfield County	2,876	21.2%
Hartford County	1,512	11.2%
Middlesex County	779	5.7%
Litchfield County	702	5.2%
New London County	221	1.6%
Other County	153	1.1%
From Different State	7,120	52.6%
New York City, NY	1,150	8.5%
Westchester County, NY	188	1.4%
Middlesex County, MA	165	1.2%
Other County	5,617	41.5%
From Foreign Country	184	1.4%

*Number of returns filed, which approximates number of households

Source: IRS Migration Data

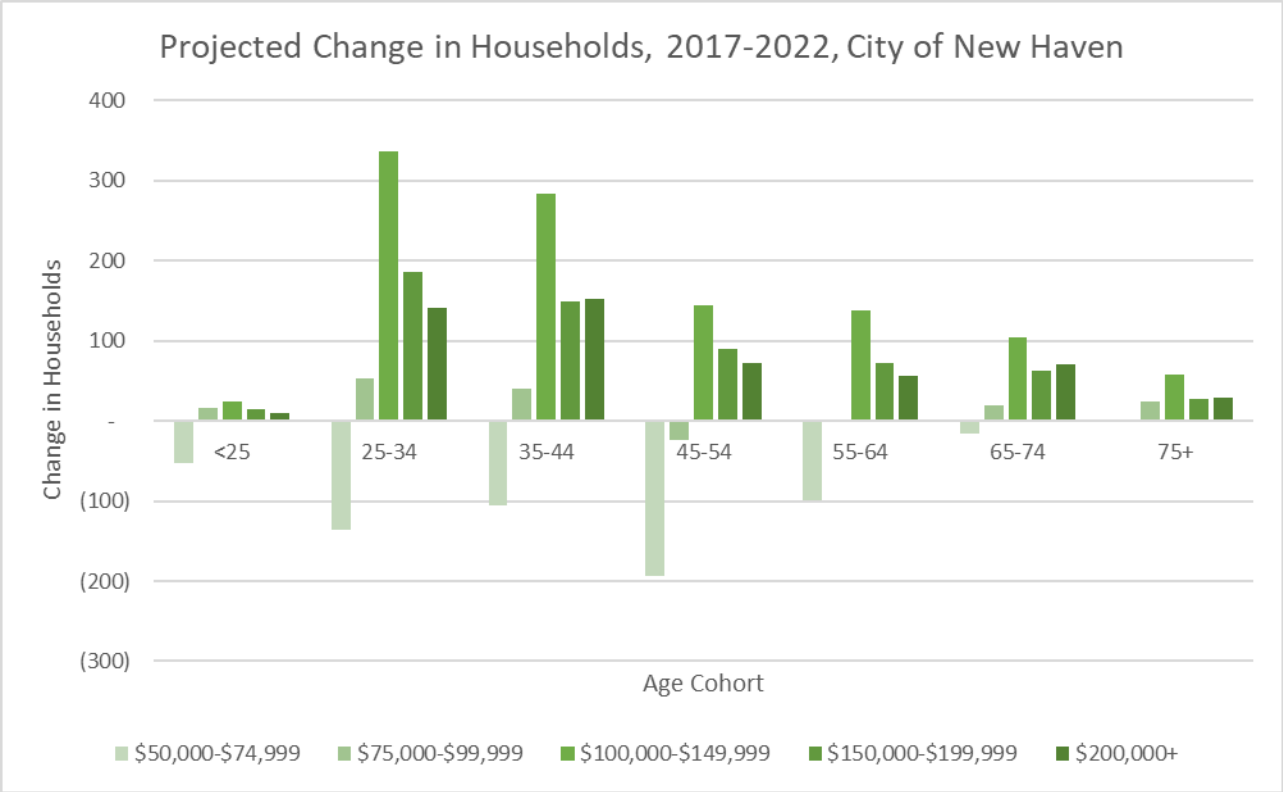
This analysis projects demand for residential units in the study area and focuses on demand for market-rate units. As such, we examine the projected change in households with an income of at least $50,000, a reasonable minimum income required for a household to afford to rent or purchase a market-rate unit. According to population projections from Esri, by 2022 the City of New Haven is expected to gain on net 1,749 households with incomes of at least $50,000, with the highest growth in number of households in the $100,000 to $149,000 income group. In terms of age, high growth cohorts will be the 25-34 and 35-44 cohorts. The 65-74 household cohort will also see a notable expansion.

Table 51: Projected Change in Households, 2017-2022, City of New Haven

Projected Change in Households, 2017-2022, City of New Haven								
	<25	25-34	35-44	45-54	55-64	65-74	75+	Total
$50,000-$74,999	(53)	(136)	(105)	(194)	(99)	(16)	1	(602)
$75,000-$99,999	16	53	40	(24)	(2)	20	24	127
$100,000-$149,999	24	336	284	145	138	104	58	1,089
$150,000-$199,999	14	186	150	90	73	62	27	602
$200,000+	10	142	152	73	56	71	29	533
Total	11	581	521	90	166	241	139	1,749

Source: Esri

Figure 20: Projected Change in Households, 2017-2022, City of New Haven



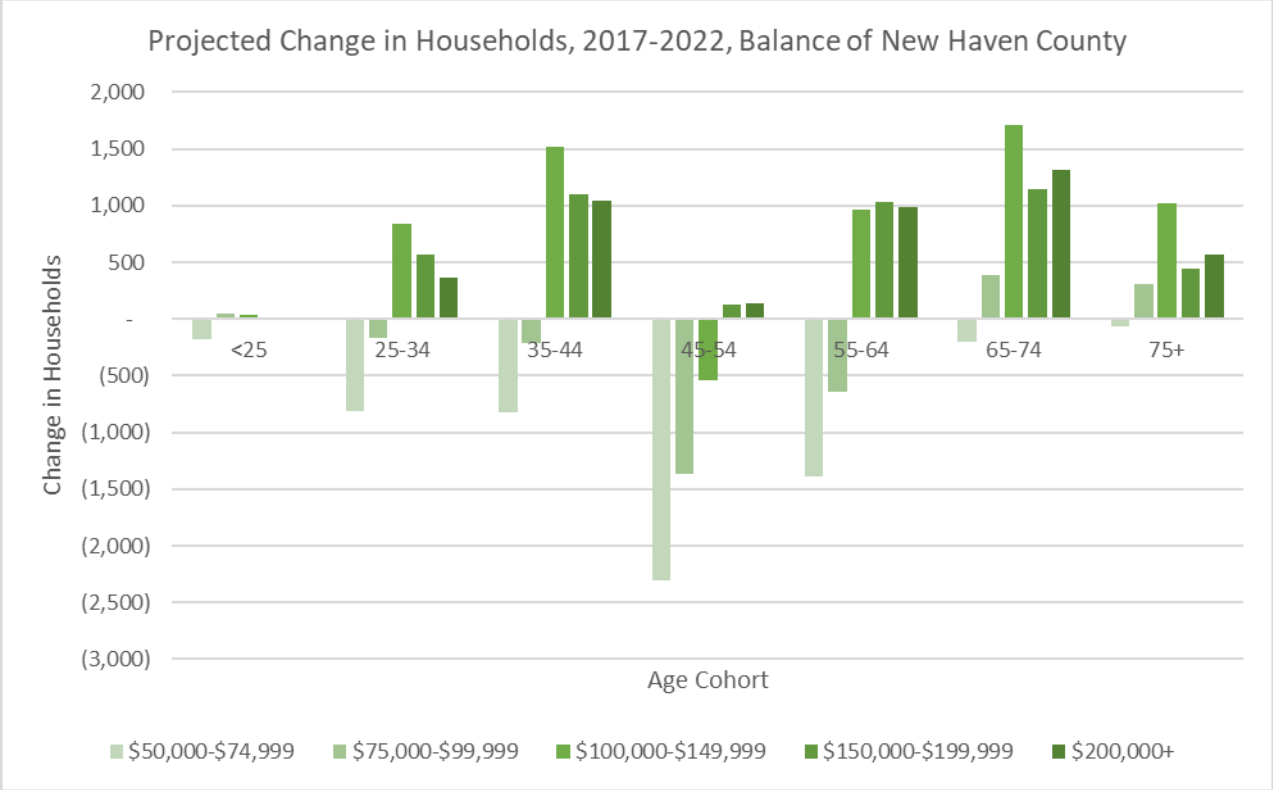
New Haven County outside of the City is projected to experience a net gain of 6,900 households with incomes of $50,000 and above by 2022. This growth will be driven by high-income households making above $100,000. Increase in these high-earning households are expected to more than compensate for the projected decrease in households in the $50,000 to $99,999 range. The highest growth in households will be in the 65-74 and 35-44 age cohorts. The 45-54 cohort will see the most significant contraction.

Table 52: Projected Change in Households, 2017-2022, Balance of New Haven County

Projected Change in Households, 2017-2022, Balance of New Haven County								
	<25	25-34	35-44	45-54	55-64	65-74	75+	Total
$50,000-$74,999	(174)	(809)	(819)	(2,303)	(1,395)	(198)	(66)	(5,764)
$75,000-$99,999	45	(170)	(214)	(1,370)	(647)	386	310	(1,660)
$100,000-$149,999	33	843	1,513	(542)	960	1,715	1,020	5,542
$150,000-$199,999	13	563	1,097	122	1,032	1,145	443	4,415
$200,000+	(1)	366	1,043	140	986	1,316	562	4,412
Total	(84)	793	2,620	(3,953)	936	4,364	2,269	6,945

Source: Esri

Figure 21: Projected Change in Households, 2017-2022, Balance of New Haven County

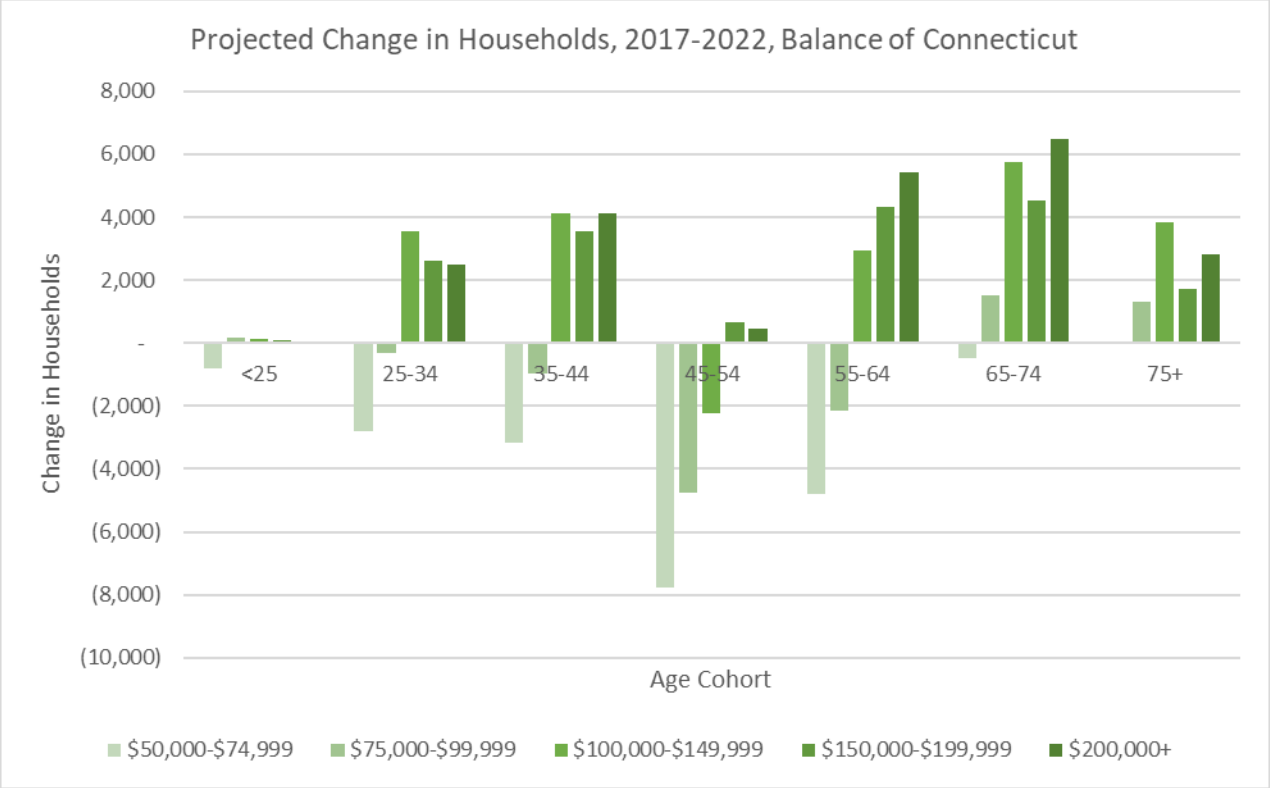


Connecticut outside of New Haven County is projected to gain on net 32,300 households with incomes of at least $50,000 over the next five years. The 65+ age cohorts are likely to exhibit the most significant growth, while the 45-54, and under 25 cohorts are expected to shrink.

Table 53: Projected Change in Households, 2017-2022, Balance of Connecticut

Projected Change in Households, 2017-2022, Balance of Connecticut								
	<25	25-34	35-44	45-54	55-64	65-74	75+	Total
$50,000-$74,999	(817)	(2,793)	(3,153)	(7,778)	(4,784)	(476)	6	(19,795)
$75,000-$99,999	171	(334)	(989)	(4,758)	(2,152)	1,515	1,294	(5,253)
$100,000-$149,999	127	3,532	4,104	(2,237)	2,921	5,769	3,834	18,050
$150,000-$199,999	105	2,621	3,562	667	4,332	4,510	1,703	17,500
$200,000+	29	2,482	4,114	474	5,405	6,469	2,831	21,804
Total	(385)	5,508	7,638	(13,632)	5,722	17,787	9,668	32,306

Figure 22: Projected Change in Households, 2017-2022, Balance of Connecticut



The most logical use for the study site in terms of residential use would be mid- to high-rise multifamily housing units, given the site's proximity to downtown and strategic location for potential transit-oriented development. Therefore, the target demographic for future residents should be narrowed to those who prefer a relatively high density, mixed-use, walkable environment; those with a preference for single-family homes in a suburban setting would not be a good fit.

Camoin Associates employed Esri Tapestry Segmentation to identify targeted demographic groups that would be likely to choose higher-density housing. Tapestry segmentation provides an accurate, detailed description of America's neighborhoods. U.S. residential areas are divided into 67 distinctive segments based on their socioeconomic and demographic composition and then further classified into LifeMode and Urbanization Groups. LifeMode groups represent markets that share a common experience—born in the same generation or immigration from another country—or a significant demographic trait, like affluence. Urbanization groups are based on geographic locale, from rural to urban.

We identified 6 primary target segments and 4 secondary target segments who would seek the sort of housing that the study site would support. The primary segments include those falling within the most urban Esri Urbanization groups, with median household income of at least $50,000, and a tendency toward multi-family units. Households in these groups tend to be successful and/or upwardly mobile singles and married couples with a penchant for urban living. Secondary segments include groups with similar living preferences, but with somewhat lower incomes, in the $40,000 to $50,000 range. Table 54 summarizes the primary and secondary target groups. See Appendix H: ABOUT ESRI TAPESTRY SEGMENTATION for more a description of tapestry segments considered in this analysis.

Table 54: Target Demographic Groups for Dense Mixed-Use Urban Living

Target Demographic Groups for Dense Mixed-Use Urban Living						
Esri Tapestry Segment	Household Type	Avg HH size	Median Age	Median HH Income	Housing Type	Home Ownership (%)
Primary Target Groups						
3A: Laptops and Lattes	Singles	1.87	37.1	$ 106,200	High Density Apartments	37.3
3B: Metro Renters	Singles	1.67	32.2	$ 64,300	Multi-Unit Rentals	20.2
3C: Trendsetters	Singles	2.12	35.9	$ 60,400	High Density Apartments	24.5
8A: City Lights	Married Couples	2.58	39.1	$ 66,500	Multi-Units; Single Family	51.8
8B: Emerald City	Singles	2.06	37	$ 57,000	Single Family; Multi-Units	48.5
8C: Bright Young Professional	Married Couples	2.41	32.7	$ 52,900	Single Family; Multi-Units	42.9
Secondary Target Groups						
8E: Front Porches	Married Couples	2.56	34.7	$ 41,500	Single Family; Multi-Units	46.7
8F: Old and Newcomers	Singles	2.12	39.1	$ 42,400	Single Family; Multi-Units	45.2
11A: City Strivers	Singles	2.78	35	$ 42,200	High Density Apartments	31.9
13A: International Marketplace	Married Couples w/ Kids	3.07	32.7	$ 44,200	High Density Apts; Single Family	27.6

Note: This table shows typical characteristics for each demographic segment nationally. This data is not specific to the study area.

Source: Esri

To project future demand for high-density housing, we determined the future growth in households in the $50,000+ income range, falling within the primary and secondary target groups in three geographic areas. These geographic areas were determined to be the primary origin of New Haven households based on demographic trends and mobility patterns data.

- City of New Haven
- New Haven County outside of the City of New Haven
- Connecticut outside of New Haven County

It was assumed that new household growth would be consistent with the current tapestry segmentation breakdown for each geography. Within the City of New Haven, primary target groups comprise 53.9% of the city's $50,000+ households, while secondary target groups comprise an additional 32.5%. For the balance of New Haven County and the rest of Connecticut, primary and secondary target groups make up a much smaller share of existing households—30.1% for the county outside New Haven, and 28.7% for the rest of the state. We assume that of the projected growth in households in each geography, this share of the population might potentially be interested in living in dense, multi-family housing.

Assumptions were then made about the share of these potentially interested new households that would choose to live in multi-family housing in New Haven, specifically. Both a base case and high case for each geography are provided. Under the base case, we assume that 90% of new primary target demographic households projected for the City of New Haven would be interested in multi-family housing, and 50% of secondary households, resulting in a total demand of 1,133 new mid- to high-end multifamily housing units over the next 5 years city-wide, or an average of 227 units per year.

Under the high case, we assume 100% of new primary households and 75% of new secondary households projected for the city will demand these kinds of residential units. We also assume that the city is able to capture a portion of the growth that is projected for the rest of New Haven County and the state. This assumes that New Haven becomes increasingly desirable and would-be residents of other areas instead shift their demand to the city

For primary target households in the balance of New Haven County, we assume half could potentially shift demand to New Haven since this group is proportionately small and there are few truly urban living options elsewhere in New Haven County. For the rest of the state, we estimate the city's potential capture rate of primary target households at 10%, since New Haven would be competing with areas in southern Fairfield County (Stamford, Norwalk, etc.), the Hartford area, and other dense, urban communities for these types of residents. Under the high case, total demand is estimated at 2,159 new mid- to high-end multifamily housing units over the next 5 years city-wide, or an average of 432 new units per year.

Table 55: Future Residential Demand

Future Demand for Mid/High Income Multi-Family Units in City of New Haven						
	Total Projected Growth in $50,000+ HHs	Target Demographic Groups	City of New Haven MF Demand Capture		Future Demand	
			Base	High	Base	High
City of New Haven	1,749					
Primary		53.9%	90%	100%	849	943
Secondary		32.5%	50%	75%	284	426
New Haven County, Balance	6,945					
Primary		4.7%	0%	50%	-	164
Secondary		25.4%	0%	10%	-	176
State of Connecticut, Balance	32,306					
Primary		10.3%	0%	10%	-	331
Secondary		18.4%	0%	2%	-	119
Total Future Demand, 2017-2022					1,133	2,159
Average Future Annual Demand					227	432

Source: Camoin Associates, Esri

Table 55 estimates demand for residential units in New Haven based on the projected net growth in mid- to high-income households in the city, the surrounding county, and the rest of Connecticut. It does not take into account the shifting of existing households from one community to another. Because the study sites present a unique transit-oriented development opportunity, it is useful to examine the potential for attracting new residents who could take advantage of New Haven transit options to reach their existing jobs in other transit-accessible communities. The site's proximity to Union Station means that potential residents could commute conveniently to jobs along the Metro North, Shore Line East, and the soon-to-be Hartford Line. As New Haven becomes an increasingly desirable place to live, residential demand is likely to grow, even among those that may not work in the immediate vicinity of the city.

There are currently 18 stations along the MetroNorth and Shore Line East commuter rail lines that are accessible from Union Station within 60 minutes. Another 9 will be added once the Hartford Line is operational in 2018, for a total of 27 stations. Within a 0.5-mile radius of these stations are approximately 105,000 jobs in total, referred to as transit-accessible jobs. These are jobs that could easily be accessed via rail from Union Station. Of the workers employed at these transit-accessible, about 1,400 currently live in the City of New Haven, or approximately 1.3%. As expected, the farther away the transit-accessible jobs are from New Haven, the lower the share of these jobs held by New Haven residents. For transit-accessible jobs within a 29-minute commute time, 2.8% are held by New Haven

residents. The share drops to 0.7% for jobs near stations within both a 30–44-minute and 45–60-minute station-to-station commute time.

Table 56: Jobs Accessible via Rail

Jobs Accessible via Rail					
Rail Line		Commute Time from Union Station (in minutes)			
		0-29	30-44	45-60	Total (0-60)
MetroNorth	Number of Stations	4	4	5	13
	Workers within .5 miles of Station	19,535	11,099	9,864	40,498
	Workers Living in New Haven	426	97	77	600
	Pct. Living in New Haven	2.2%	0.9%	0.8%	1.5%
Shore Line East	Number of Stations	3	1	1	5
	Workers within .5 miles of Station	2,919	584	3,199	6,702
	Workers Living in New Haven	119	9	28	156
	Pct. Living in New Haven	4.1%	1.5%	0.9%	2.3%
New Haven - Hartford - Springfield Line	Number of Stations	3	4	2	9
	Workers within .5 miles of Station	6,794	49,855	1,197	57,846
	Workers Living in New Haven	270	329	1	600
	Pct. Living in New Haven	4.0%	0.7%	0.1%	1.0%
Total	Number of Stations	10	9	8	27
	Workers within .5 miles of Station	29,248	61,538	14,260	105,046
	Workers Living in New Haven	815	435	106	1,356
	Pct. Living in New Haven	2.8%	0.7%	0.7%	1.3%

Source: U.S. Census OnTheMap, MTA MetroNorth, Shore Line East, NHHS Rail, Camoin Associates

These workers are a key target market for attracting new residents to New Haven and any transit-oriented residential development at the study site. Table 57 calculates the attraction potential of these households based on income (at least $50,000) and lifestyle preferences (primary target groups identified in Table 54). Of those working near stations within a 29-minute commute time of Union Station, approximately 1,000 would be an ideal target for housing units on the study site, with another 2,800 working near stations 30 minutes away or farther. These workers would be more difficult to capture due to the longer commute, but New Haven's quality-of-life amenities may be enough of a draw for some these workers to make the commute worth it.

Table 57: Commuter Resident Attraction Potential

Commuter Resident Attraction Potential				
Commute Time from Union Station	0-29	30-44	45-60	Total (0-60)
Workers within .5 miles of a Rail Station	29,248	61,538	14,260	105,046
Living in New Haven	815	435	106	1,356
Living Elsewhere	28,433	61,103	14,154	103,690
Unique Household Adjustment*	90%	90%	90%	90%
Total Households	25,590	54,993	12,739	93,321
HH Income $50,000+	40%	40%	40%	40%
Primary Target Segment (CT overall)	10.3%	10.3%	10.3%	10.3%
Attraction Potential	1,054	2,266	525	3,845

*Accounts for multiple workers living in the same household.

Source: U.S. Census OnTheMap, Esri, Camoin Associates

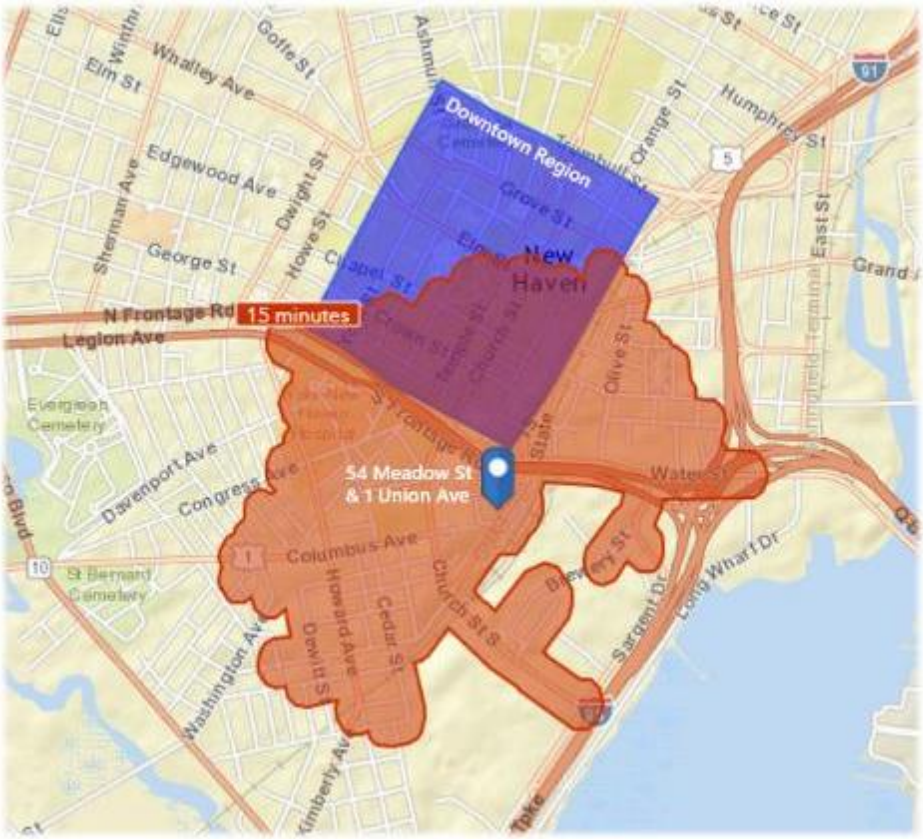
Retail Market Analysis

City-wide, retail vacancies stand at 8.1%, compared to 5.7% for the county overall. In New Haven, there is 420,000 SF of retail space, with 146,000 SF of new space projected to be delivered by 2022. CoStar anticipates positive absorption through this period, with approximately 30,000 SF being absorbed into the market each year. Over the last 12 months, 2,000 SF of retail space has been delivered and 4,000 SF has been absorbed across the city, while rents have fallen by 2.5%.

The city's premier retail shopping district is the Broadway corridor, anchored by the Shops at Yale. This district is home to numerous national retailers including Apple, Urban Outfitters, and J. Crew and is largely targeted to students and visitors of Yale. In 2018, 13,500 SF of retail space will come on the market as part of the 272 Elm Street development project. The project will include Yale graduate student housing. An L.L.Bean is slated to occupy 9,000 SF of the space.[8]

Closer to the Study Site, Downtown New Haven (see Figure 23) has a high concentration of restaurants and bars, as well as live theaters and a cinema. George Street generally marks the absolute southern extent of downtown dining and entertainment venues.

Figure 23: Downtown New Haven Overlaid with 15-minute Walking Distance of Study Site



Source: Esri

[8] http://fox61.com/2017/04/24/l-l-bean-to-open-store-in-downtown-new-haven/

Nearby Shopping Centers

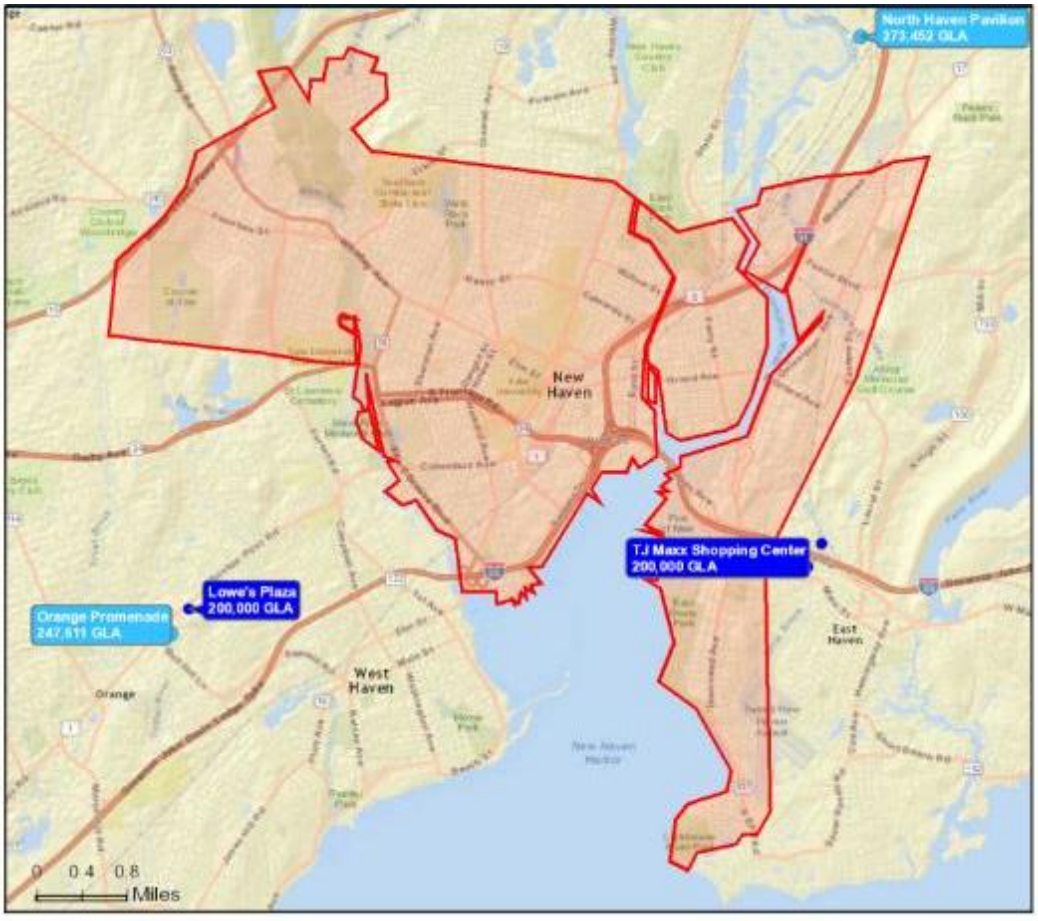
New Haven is not a destination for day-to-day retail purchases, with most of the needs served by shopping centers outside the city limits. There are four major shopping centers in the vicinity of the City of New Haven, including North Haven Pavilion, TJ Maxx Shopping Center, Lowe's Plaza, and Orange Promenade, as shown in Table 58 and Figure 24.

Table 58: City of New Haven Major Shopping Centers

City of New Haven Major Shopping Centers			
Name	Gross Leasable Area (sq ft)	Number of Stores	Major Anchors
North Haven Pavilion	273,452	21	Target, Michaels, Sports Authority (recently closed)
Orange Promenade	247,611	20	Burlington Coat Factory, LA Fitness, K&G Fashion Superstore
TJ Maxx Shopping Center	200,000	11	Hobby Lobby, TJ Mazz, AMF Circle Lanes, Xpect Discounts (closing)
Lowe's Plaza	200,000	3	Lowes

Source: Esri

Figure 24: Major Shopping Centers Near New Haven



Source: Esri

Regionally, large retail deliveries have include two shopping centers in Milford. Milford Square at 1587-1607 Boston Post Road in Milford with approximately 50,000 SF of space. It is full leased with tenants including REI, Panera, and Verizon. Farther west along Boston Post Road is a new 65,000-SF ShopRite development. In 2015, a new Cinemark movie theater was developed near the I-91 exit 9 interchange in North Haven.

A large, upscale outlet mall is currently moving ahead in West Haven. Known as The Haven, the project will consist of over 300,000 SF of leasable space and feature dozens of upscale shops and restaurants.[9] The project will sit on 25 acres along West Haven's eastern waterfront off of Elm Street, Water Street, and First Avenue.

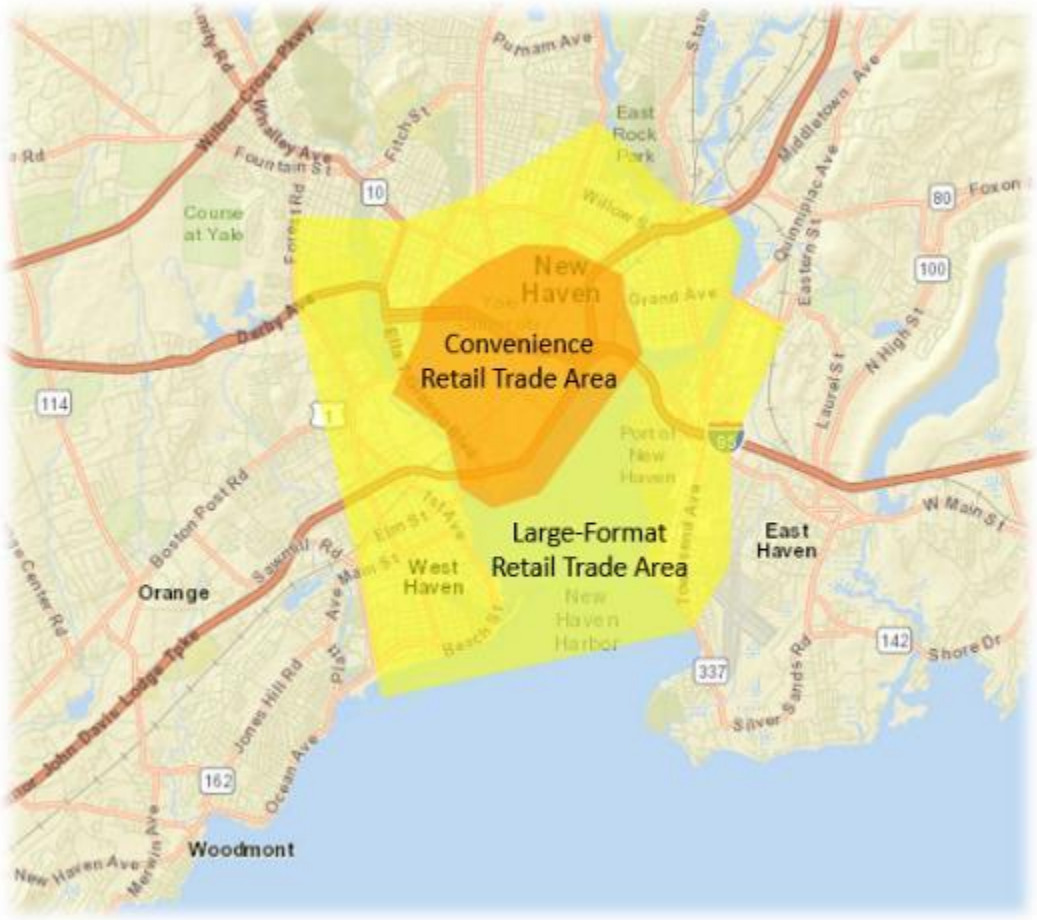
Retail Trade Areas

A retail trade area is the geographic extent within which a community generates the majority of its customers. Generally, 65-75% of customers of local businesses reside in the trade area. The map below delineates two retail trade areas for the Hill-to-Downtown area, a Convenience Trade Area and a Large-Format Retail Trade Area.

- The Convenience Trade Area is the trade area for retail establishments that serve day-to-day needs of customers and offer convenience-type products and services. The Convenience Trade Area applies to businesses such as supermarkets, gas stations, pharmacies, nail salons, coffee shops, etc. This area is generally within a 5-minute drive from the Study Site. Residents of locations that are farther away tend to already have access to convenience retail and would not travel to the Study Site for these types of purchases.
- The Large-Format Retail Trade Area applies to businesses that sell "destination" products and services. Consumers are willing to travel farther to frequent these businesses, which include car dealerships, clothing shops, and department stores. Due to the existence of large-format, destination-type retail at shopping centers to the north, west, and east of the city, the large-format trade area for the Hill-to-Downtown is constrained to about a 10-minute drive time radius. Residents of areas beyond the large-format trade area generally tend to shop at existing retail establishments in West Haven, Orange, North Haven, East Haven, etc. The notable exception is IKEA, which has a very large draw area and frequently draws customers from well over an hour away.

[9] Connecticut Conference of Municipalities. http://www.ccm-ct.org/westhavenrebirth

Figure 25: Large Format Trade Area Overlaid with Convenience Retail Trade Area



Source: ESRI

Table 59: Retail Trade Areas Basic Demographic Indicators, 2017

Retail Trade Area Demographics, 2017		
	Large-Format Retail Trade Area	Convenience Retail Trade Area
Population	118,493	34,241
Households	43,875	12,320
Average Household Size	2.5	2.2
Median Age	31.2	27.6
Median Household Income	$39,834	$35,657

Source: ESRI

Large-Format Retail Trade Area

The table below show the tapestry segmentations within the Large-Format Trade Area. The top three most population within the Large-Format Retail Area include *Fresh Ambitions* at 20%, *Front Porches* at 10%, and *Metro Renters* at just about 20%, as well. These three segments make up 60% of the Large-Format Trade Area population.

The *Fresh Ambitions* group are generally young families, many of whom are recent immigrants. These residents are not highly educated, but many have overcome the language barrier and earned a high school diploma. They work overtime in service, in skilled and unskilled occupations. Their income is often supplemented with public assistance and Social Security. About one-third of residents' income is spent on rent.[10] The *Front Porches* group is very diverse racially and ethnically. Half of householders are renters, and many of the homes are older town homes or duplexes. Income and net worth are well below the US average, and many families have taken out loans to make ends meet[11]. And lastly, *Metro Renters* are considered to be highly mobile and educated. They generally 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 US average, but they spend a large portion of their wages on rent, clothes, and the latest technology.[12] As shown through the top three tapestry segments, diversity in age, race/ethnicity, income range, and education is high within the Large-Format Retail Trade Area. See Appendix H: ABOUT ESRI TAPESTRY SEGMENTATION for more a description of tapestry segments considered in this analysis.

Table 60: Large-Format Retail Trade Area Tapestry Segmentation

Tapestry Segmentation for Large-Format Retail Trade Area	
Tapestry Segment	Percent
Fresh Ambitions	20.9%
Front Porches	20.1%
Metro Renters	19.9%
Metro Fusion	6.3%
Parks and Rec	3.8%
Other	29.0%
Total	100%

Source: Esri

Convenience Retail Trade Area

The table below show the tapestry segmentations within the Large-Format Trade Area. Similar to the Large-Format Trade Area, the most popular segments within the Convenience Trade Area include *Metro Renters* at over 40%, and *Fresh Ambitions* at just under 30%. Another popular segment within this area is *Dorms to Diplomas* at 10.5%. This group is the youngest market with half of the population aged 20-24. They spend the majority of their time in class and working part-time jobs. This large percentage of young people in this group comes as no surprise due to the inclusion of Yale University within the Convenience Trade Area. See Appendix H: ABOUT ESRI TAPESTRY SEGMENTATION for more a description of tapestry segments considered in this analysis.

[10] Esri
[11] Esri
[12] Esri

Table 61: Convenience Retail Trade Area Tapestry Segmentation

Tapestry Segmentation for Convenience Retail Trade Area	
Tapestry Segment	Percent
Metro Renters	41.2%
Fresh Ambitions	29.8%
Dorms to Diplomas	10.5%
International Marketplace	5.7%
Social Security Set	5.5%
Other	7.0%
Total	100%

Source: Esri

Retail Gap Analysis

In a retail gap analysis, the existing retail sales ("supply") of trade area businesses are compared to the estimated retail spending of trade area residents ("demand"). The difference between demand and supply is referred to as the retail gap. The retail gap can be positive or negative. Note that existing retail sales are specific to the defined trade area whereas retail spending is an estimate of gross spending by residents living in the trade area regardless of where the retail spending occurs.

When the demand (spending by trade area residents) for goods and services is greater than sales at trade area businesses, sales are said to "leak out" of the trade area creating a positive retail gap (i.e. sales leakage).

Conversely, if the supply of goods sold (local trade area sales) exceeds trade area demand (spending by trade area residents), it is assumed that non-residents are coming into the trade area and spending money, creating a negative retail gap (i.e. sales surplus).

Sales leakage and sales surplus carry different implications. In many cases, sales leakage presents an opportunity to capture unmet demand in a trade area since a percentage of residential spending occurs outside the trade area. This demand can be met within the trade area by opening new businesses or expanding existing businesses within retail sectors that show sales leakage. However, not all retail categories that exhibit sales leakage within a particular trade area are a good fit for the region.

A sales surplus might exist for several reasons. For example, the region might be a popular shopping destination for tourists and other out-of-towners, or a cluster of competing businesses offering a similar product or service may be located within the trade area, creating a specialty cluster that draws in spending by households from outside the trade area. Alternatively, a sales surplus could be an indicator of market saturation.

The following Retail Gap Analysis contains a list of industry groups sorted by 3- and 4-digit NAICS codes and includes figures for sales demand (estimated spending by local trade area residents), sales supply (existing retail sales within the trade area), retail gap (demand minus supply), leakage/surplus factor, and number of businesses in the trade area. Retail categories with sales leakage are in green, and those with sales surplus are in red. To reflect the varying reach of the different retail categories, they were divided into two groups: local (Convenience) and regional (Large Format). Data for each group are presented separately, with businesses that typically have a local reach (e.g., grocery stores, gas stations) listed under "Convenience Trade Area" and businesses with a regional reach (e.g., clothing stores, department stores, specialty stores) listed under "Large Format Retail Trade Area".

The Convenience Trade Area exhibits retail segments with sales surplus, indicating that for specific industries there are additional customers drawn in from outside the Convenience Trade Area. The following categories of businesses

have retail leakage, indicating that residents are leaving the Convenience Trade Area and pursuing purchases associated with these business types elsewhere:

- Drinking Places – Alcoholic Beverages
- Restaurants /Other Eating Places
- Health & personal Care Stores
- Specialty Food Stores
- Special Food Services

Table 62: Retail Gap, Convenience Trade Area

Retail Gap, Convenience Trade Area						
NAICS	Industry Group	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/ Surplus Factor	Number of Businesses
445	Food & Beverage Stores	$ 61,808,481	$ 54,446,548	$ 7,361,933	6.3	66
4451	Grocery Stores	$ 53,102,531	$ 36,234,216	$ 16,868,315	18.9	34
4452	Specialty Food Stores	$ 2,544,853	$ 7,795,239	$ (5,250,386)	(50.8)	13
4453	Beer, Wine & Liquor Stores	$ 6,161,097	$ 10,417,094	$ (4,255,997)	(25.7)	19
446,4461	Health & Personal Care Stores	$ 18,885,894	$ 63,705,405	$ (44,819,511)	(54.3)	20
452	General Merchandise Stores	$ 47,242,688	$ 4,633,463	$ 42,609,225	82.1	8
4521	Department Stores Excluding Leased Depts.	$ 31,768,579	$ -	$ 31,768,579	100.0	0
4529	Other General Merchandise Stores	$ 15,474,110	$ 4,633,463	$ 10,840,647	53.9	8
722	Food Services & Drinking Places	$ 35,236,979	$130,685,907	$ (95,448,928)	(57.5)	289
7223	Special Food Services	$ 945,300	$ 2,004,243	$ (1,058,943)	(35.9)	6
7224	Drinking Places - Alcoholic Beverages	$ 594,139	$ 6,188,029	$ (5,593,890)	(82.5)	14
7225	Restaurants/Other Eating Places	$ 33,697,541	$122,493,635	$ (88,796,094)	(56.9)	269

Data Note: Supply (retail sales) estimates sales to consumers by establishments. Sales to businesses are excluded. Demand (retail potential) estimates the expected amount spent by consumers at retail establishments. Supply and demand estimates are in current dollars. The Leakage/Surplus Factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents 'leakage' of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area. The Retail Gap represents the difference between Retail Potential and Retail Sales. Esri uses the North American Industry Classification System (NAICS) to classify businesses by their primary type of economic activity. Retail establishments are classified into 27 industry groups in the Retail Trade sector, as well as four industry groups within the Food Services & Drinking Establishments subsector

Source: Esri

The Large Format Retail Trade Area has several categories with retail leakage:

- Furniture Stores
- Drinking Places – Alcoholic Beverages
- Book, Periodical & Music Stores
- Restaurants /Other Eating Places
- Special Food Services
- Other Miscellaneous Store Retailers
- Used Merchandise Stores

Table 63: Retail Gap, Large-Format Trade Area

Retail Gap, Large-Format Retail Trade Area						
NAICS	Industry Group	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/ Surplus Factor	Number of Businesses
442	Furniture & Home Furnishings Stores	$ 44,262,229	$120,288,297	$ (76,026,068)	(46.2)	24
4421	Furniture Stores	$ 23,614,775	$109,988,231	$ (86,373,456)	(64.6)	14
4422	Home Furnishings Stores	$ 20,647,454	$ 10,300,066	$ 10,347,388	33.4	10
443	Electronics & Appliance Stores	$ 41,850,589	$ 40,391,439	$ 1,459,150	1.8	28
444	Bldg Materials, Garden Equip. & Supply Stores	$ 58,504,984	$ 52,445,990	$ 6,058,994	5.5	36
4441	Bldg Material & Supplies Dealers	$ 52,576,199	$ 49,409,997	$ 3,166,202	3.1	34
4442	Lawn & Garden Equip & Supply Stores	$ 5,928,785	$ 3,035,993	$ 2,892,792	32.3	2
448	Clothing & Clothing Accessories Stores	$ 88,003,962	$ 42,469,706	$ 45,534,256	34.9	74
4481	Clothing Stores	$ 63,152,586	$ 30,937,786	$ 32,214,800	34.2	48
4482	Shoe Stores	$ 9,991,338	$ 5,825,221	$ 4,166,117	26.3	9
4483	Jewelry, Luggage & Leather Goods Stores	$ 14,860,038	$ 5,706,699	$ 9,153,339	44.5	17
451	Sporting Goods, Hobby, Book & Music Stores	$ 42,379,765	$ 25,077,764	$ 17,302,001	25.6	39
4511	Sporting Goods/Hobby/Musical Instr Stores	$ 37,231,447	$ 11,647,150	$ 25,584,297	52.3	20
4512	Book, Periodical & Music Stores	$ 5,148,318	$ 13,430,613	$ (8,282,295)	(44.6)	19
452	General Merchandise Stores	$ 169,056,784	$ 52,248,768	$ 116,808,016	52.8	26
4521	Department Stores Excluding Leased Depts.	$ 113,529,951	$ 41,327,289	$ 72,202,662	46.6	8
4529	Other General Merchandise Stores	$ 55,526,832	$ 10,921,479	$ 44,605,353	67.1	18
453	Miscellaneous Store Retailers	$ 41,743,968	$ 44,825,458	$ (3,081,490)	(3.6)	76
4531	Florists	$ 2,769,094	$ 2,308,290	$ 460,804	9.1	10
4532	Office Supplies, Stationery & Gift Stores	$ 11,557,778	$ 4,366,034	$ 7,191,744	45.2	16
4533	Used Merchandise Stores	$ 4,309,103	$ 5,589,718	$ (1,280,615)	(12.9)	12
4539	Other Miscellaneous Store Retailers	$ 23,107,992	$ 32,561,416	$ (9,453,424)	(17.0)	38
722	Food Services & Drinking Places	$ 124,078,676	$203,665,159	$ (79,586,483)	(24.3)	497
7223	Special Food Services	$ 3,364,244	$ 5,023,166	$ (1,658,922)	(19.8)	11
7224	Drinking Places - Alcoholic Beverages	$ 2,039,040	$ 7,442,052	$ (5,403,012)	(57.0)	19
7225	Restaurants/Other Eating Places	$ 118,675,392	$191,199,941	$ (72,524,549)	(23.4)	467

Data Note: Supply (retail sales) estimates sales to consumers by establishments. Sales to businesses are excluded. Demand (retail potential) estimates the expected amount spent by consumers at retail establishments. Supply and demand estimates are in current dollars. The Leakage/Surplus Factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents 'leakage' of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area. The Retail Gap represents the difference between Retail Potential and Retail Sales. Esri uses the North American Industry Classification System (NAICS) to classify businesses by their primary type of economic activity. Retail establishments are classified into 27 industry groups in the Retail Trade sector, as well as four industry groups within the Food Services & Drinking Establishments subsector

Retail Potential Analysis

Sales leakage of retail categories in in both trade areas were compared to average sales of similar business in Connecticut. This allows us to identify which industries with sales leakage may have enough unmet demand to warrant opening a new store or expanding existing stores. Additionally, the amount of supportable SF is provided based on average sales per square foot for each retail category.

The following table identifies the number of new businesses that theoretically, could be supported in the trade areas assuming:

1. 10% of the sales leakage is recaptured (this is typical among various retail categories), and
2. New businesses have sales comparable to the average sales of all Connecticut businesses in the same retail category.

Based on these assumptions, the Convenience Retail Trade Area does not have enough unmet demand to warrant the addition or expansion of at least 1 business in any of the retail categories. The Large-Format retail trade area could support over 2 new Clothing Stores, accounting for nearly 11,000 SF of business space. Additionally, the Large-Format retail trade area could support one or more businesses in the following retail categories: Sporting Goods & Hobby; Other General Merchandise; Office Supplies Stationery & Gift; and Jewelry, Luggage & Leather Goods.

Table 64: New Retail Business Potential, Large-Format Retail Trade Area

New Retail Business Potential, Large-Format Retail Trade Area							
A	B	C	D	E	F	G	H
NAICS	Retail Category	Retail Gap	10% Leakage Recapture	Average Sales per Business	Supportable Businesses (D / E)	Average Sales per SF	Supportable SF (D / G)
4481	Clothing Stores	$ 32,214,800	$ 3,221,480	$ 1,305,525	2.5	300	10,738
4511	Sporting Goods & Hobby Stores	$ 25,584,297	$ 2,558,430	$ 1,428,124	1.8	250	10,234
4529	Other General Merchandise Stores	$ 44,605,353	$ 4,460,535	$ 4,061,148	1.1	500	8,921
4532	Office Supplies, Stationery & Gift Stores	$ 7,191,744	$ 719,174	$ 691,776	1.0	300	2,397
4483	Jewelry, Luggage & Leather Goods Stores	$ 9,153,339	$ 915,334	$ 917,944	1.0	500	1,831

Note: Tables includes retail categories in w hich at least one new business could be supported

Source: Esri, Camoin Associates

The current lack of housing directly near the Study Site limits the potential for residential-serving retail. Moreover, incomes are low in the local trade area, in the $35,000 to $40,000 range, meaning limited spending potential that is unlikely to support new retail businesses. The size and configuration of the Study Site as well as parking challenges make it an unlikely fit for a large anchor retail use.

However, as new residential development at the Church Street South and Coliseum sites bring higher-income households into the area, convenience retail such as grocery stores, pharmacies, banks, salons, etc. will become increasingly viable. In addition, foot traffic between Union Station and Downtown will enable visitor-oriented shopping and dining, such us boutique stores, cafes, and restaurants. Retail will likely follow once other uses on the Study Site come online and critical mass of residents, workers, and passersby is present. Successful retail businesses at the Study Site will be generally small to mid-scale and complement other uses on-site.

Office Market Analysis

Office absorption slowed to 67,000 SF of space in the New Haven submarket[13] over the last 12 months, compared to a five-year historical average of 185,000 SF per year. CoStar forecasts future absorption to be less than 50,000 SF per year. The overall office vacancy rate is moderate, at 7.1%, though for Class A properties, the vacancy rate is upwards of 16%. With 822,000 SF of vacant office space city-wide, and 447,000 in new space scheduled to be delivered to the market over the next five years, further potential for office space development in the city is limited.

Existing vacant space at Gateway Center (54 Meadow), combined with the additional space that would become available if the City Board of Education and Health Department were to vacate the building, account for a total of 60,000 SF of space at the Study Site. This would be sufficient to accommodate any demand for general office space in the area over the near to mid-term. Upgrades and renovations to this building would make it more competitive among the types of companies interested in transit-oriented office space.

Projection of Office Demand

To evaluate the potential for new office space at the Study Site, we analyzed the future demand for office space in the City of New Haven, New Haven County, and Connecticut.

Table 65: Employment Growth in Office-Utilizing Industries within the City of New Haven

Employment Growth in Office-Utilizing Industries, City of New Haven					
NAICS (2-digit)	Description	2017 Jobs	2027 Jobs	2017 - 2027 Change	2017 - 2027 % Change
62	Health Care and Social Assistance	15,373	17,104	1731	11%
61	Educational Services	3,262	3,770	508	16%
54	Professional, Scientific, and Technical Services	4,501	4,780	279	6%
52	Finance and Insurance	2,356	2,587	231	10%
72	Accommodation and Food Services	5,022	5,230	208	4%
81	Other Services (except Public Administration)	3,567	3,739	172	5%
55	Management of Companies and Enterprises	1,097	1,240	143	13%
90	Government	12,588	12,713	125	1%
56	Administrative and Support and Waste Management and Remediation Services	2,104	2,200	96	5%
42	Wholesale Trade	1,286	1,358	72	6%
23	Construction	2,264	2,322	58	3%
71	Arts, Entertainment, and Recreation	1,001	1,044	43	4%
44	Retail Trade	4,932	4,974	42	1%
48	Transportation and Warehousing	1,187	1,198	11	1%
53	Real Estate and Rental and Leasing	1,209	1,212	3	0%
11	Crop and Animal Production	89	89	0	0%
22	Utilities	76	70	(6)	(8%)
31	Manufacturing	2,879	2,383	(496)	(17%)
51	Information	1,284	512	(772)	(60%)
21	Mining, Quarrying, and Oil and Gas Extraction	<10	<10	Insf. Data	Insf. Data
99	Unclassified Industry	<10	<10	Insf. Data	Insf. Data
	Total for Office-Utilizing Industries	31,422	31,761	339	1%
	Total	66,092	68,542	2,450	4%

Source: EMSI

[13] CoStar defines the New Haven submarket to correspond more or less with the city limits.

Table 65 shows projected employment for all 2-digit NAICS industries for each of the three geographies, with office-utilizing industries highlighted in red. Within the city, six of the top ten industries expected the gain the most jobs in the next 10 years are office-utilizing industries, including Professional, Scientific, and Technical Services which is projected to add nearly 300 jobs by 2027. Within all three geographies, six of the seven office-utilizing industries consistently are projected to add jobs. The only office-utilizing industry in all geographies projected to shed jobs is Information.

The projected employment increase in office-utilizing industries can be used to estimate the increase in demand for office space in all three geographies. If on average, each new job requires approximately 200 rentable SF (RSF) of office space,[14] by 2027 the 339 new jobs in the city will need roughly 68,000 SF of new office space. Job growth in the county overall will require roughly 1.2 million SF, and state-wide, 4.8 million SF. See Table 66 and Table 67.

Table 66: Employment Growth in Office-Utilizing Industries within New Haven County

Employment Growth in Office-Utilizing Industries, New Haven County					
NAICS (2-digit)	Description	2017 Jobs	2027 Jobs	2017 - 2027 Change	2017 - 2027 % Change
61	Educational Services	40,461	49,787	9326	23%
62	Health Care and Social Assistance	73,599	82,153	8,554	12%
81	Other Services (except Public Administration)	21,233	23,414	2,181	10%
90	Government	50,935	52,224	1,289	3%
72	Accommodation and Food Services	28,166	29,418	1,252	4%
56	Administrative and Support and Waste Management and Remediation Services	21,920	22,708	788	4%
54	Professional, Scientific, and Technical Services	20,580	21,338	758	4%
55	Management of Companies and Enterprises	5,048	5,691	643	13%
23	Construction	19,113	19,675	562	3%
48	Transportation and Warehousing	11,312	11,837	525	5%
52	Finance and Insurance	11,817	12,299	482	4%
53	Real Estate and Rental and Leasing	6,750	7,086	336	5%
71	Arts, Entertainment, and Recreation	5,928	6,161	233	4%
44	Retail Trade	43,884	44,068	184	0%
22	Utilities	1,607	1,646	39	2%
99	Unclassified Industry	51	59	8	16%
11	Crop and Animal Production	1,025	1,030	5	0%
21	Mining, Quarrying, and Oil and Gas Extraction	194	174	(20)	(10%)
42	Wholesale Trade	14,515	14,457	(58)	(0%)
51	Information	4,291	2,227	(2,064)	(48%)
31	Manufacturing	29,914	25,364	(4,550)	(15%)
	Total for Office-Utilizing Industries	131,534	137,673	6,139	5%
	Total	412,340	432,816	20,476	5%

Source: EMSI

[14] A 2010 report from the U.S. General Services Administration, "Workspace Utilization and Allocation Benchmark," found average rentable office space per employee to be 230 square feet. As a result of efforts to implement more efficient design standards, the typical office standard has declined from around 250 square feet per workstation in the early 2000s to around 190 square feet or less. In addition, a trend toward less personal workspace in favor of larger group space, as well as an increase in teleworking will likely contribute to continued declines in office space per employee.

Table 67: Employment Growth in Office-Utilizing Industries within Connecticut

Employment Growth in Office-Utilizing Industries, Connecticut					
NAICS (2-digit)	Description	2017 Jobs	2027 Jobs	2017 - 2027 Change	2017 - 2027 % Change
62	Health Care and Social Assistance	283,997	321,674	37677	13%
61	Educational Services	83,095	95,223	12,128	15%
72	Accommodation and Food Services	130,636	138,852	8,216	6%
81	Other Services (except Public Administration)	94,421	102,404	7,983	8%
54	Professional, Scientific, and Technical Services	118,109	125,745	7,636	6%
23	Construction	86,280	90,075	3,795	4%
56	Administrative and Support and Waste Management and Remediation Services	101,913	105,441	3,528	3%
44	Retail Trade	192,038	195,105	3,067	2%
55	Management of Companies and Enterprises	33,686	35,680	1,994	6%
48	Transportation and Warehousing	50,524	52,219	1,695	3%
52	Finance and Insurance	113,148	114,821	1,673	1%
71	Arts, Entertainment, and Recreation	33,080	34,629	1,549	5%
90	Government	251,202	252,661	1,459	1%
53	Real Estate and Rental and Leasing	26,062	26,597	535	2%
42	Wholesale Trade	63,954	64,403	449	1%
99	Unclassified Industry	385	527	142	37%
21	Mining, Quarrying, and Oil and Gas Extraction	578	520	(58)	(10%)
11	Crop and Animal Production	6,525	6,285	(240)	(4%)
51	Information	34,429	34,153	(276)	(1%)
22	Utilities	5,568	4,865	(703)	(13%)
31	Manufacturing	158,189	143,699	(14,490)	(9%)
	Total for Office-Utilizing Industries	746,908	770,906	23,998	3%
	Total	1,867,820	1,945,579	77,759	4%

Source: EMSI

Future office-utilizing job growth in the city through 2027 will result in the absorption of only 8% of the city's existing vacancies. For the county as a whole, office job growth will absorb about 39% of vacant space county-wide. In order for New Haven to fill 822,000 SF of currently vacant office space, the city would need to capture 67% of the office job growth projected for the county. This compares to 6% capture projected based on historic trends. Or, the city would need to capture 17% of office job growth statewide, compared to the 1% projected based on historic trends. This assumes that no new office inventory will be added.

Table 68: Office Supply and Demand

Office Supply and Demand				
	2017 Supply		2027 Demand (SF)	Percent of Existing Vacant Space
	Vacancy Rate	Vacant SF		
City of New Haven	7.3%	822,000	68,000	8%
New Haven County	9.3%	3,161,000	1,228,000	39%

Source: Camoin Associates, CoStar

Hotel, Conference Center & Meeting Spaces Market Analysis

Hotel

Across the US, the 2017 projections for hotel success are mixed. There are projected to be near record-high occupancy rates; however, projected average daily room rates will continue to level off. According to the December 2016 *Hotel Horizons* forecast report created by CBRE Hotels' Americas Research, it is projected the national lodging industry will have an annual occupancy rates of 65.0% in 2017, a 0.3 percentage point decrease from 65.3% in 2016. Both 2016 and 2017 estimates are just under 65.4%, which is was the highest record occupancy level in 2015.[15] The marginal but continued declines in occupancy, as well as minimal gains in average daily room rates, are projected to continue through 2020, according to CBRE.

Another trend in in this sector is growing supply. Overall hotel room supply increased in the nation by 1.6% in 2016, and supply in projected to continue, on par with the growth in 2016 and upwards of 2.0%,[16] throughout 2017, according to JLL. Coupled with increasing supply, a trend of mergers and acquisitions have increased as well. About 30% of branded full-service hotels have been involved in brand mergers and acquisitions since 2014.

Supply and Demand for Rooms

STR collected data on 28 hotels within New Haven and the surrounding area. Collectively these hotels totaled approximately 2,900 rooms. The number of rooms per facility ranged from 32 to 306, with a median of 97 rooms per facility. The Hilton Garden Inn Milford in Milford, CT is one of the newest in the region, having opened in 2009. Other relatively new hotels include Hampton Inn Suites New Haven South West Haven and Hyatt Place Milford New Haven, which opened in 2008 and 2007, respectively.

Between 2011 and 2016, supply of room nights decreased slightly at a rate of 0.4%, while demand for room nights grew at a rate of 9.3%. Growth in demand has outpaced the growth in supply decreasing the surplus of room nights, but has not lead to a shortage of rooms in the market. Currently there is a supply of approximately 1,060,000 room nights and demand of approximately 701,000 room nights.

[15] CBRE press release, 2017 Hospitality Outlooks is a Mixed Bag
[16] JLL, US Lodging Investment Outlook Q4 2016

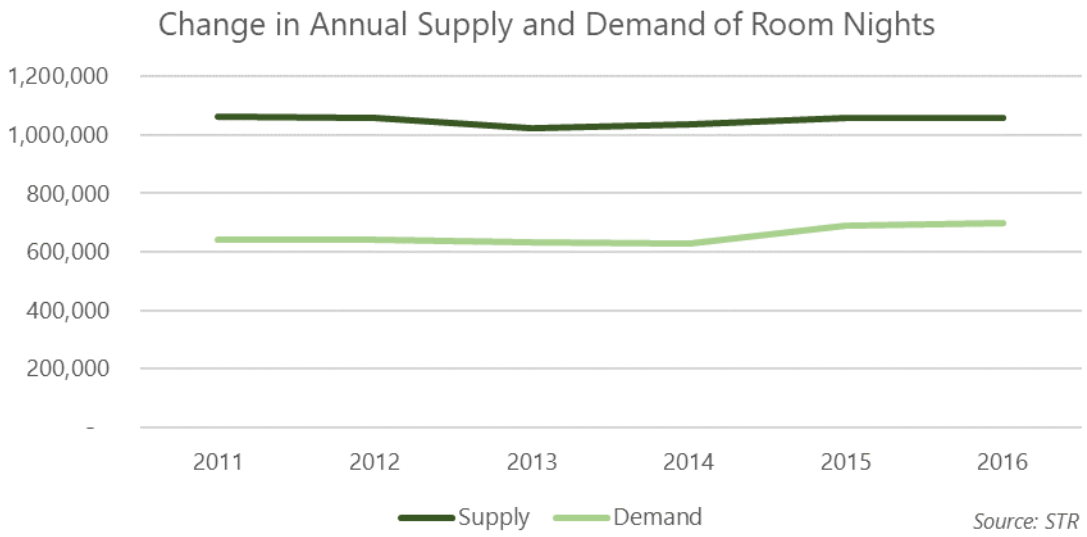
Table 69: New Haven Change in Hotel Supply and Demand, 2011 – 2016

New Haven Change in Hotel Supply and Demand, 2011 - 2016		
	Room Nights	Percent Change
Change in Supply	(4,015)	(0.4%)
Change in Demand	59,731	9.3%

Source: STR

The graph below shows that annual supply has exceeded demand since 2011. Currently supply of room nights exceeds demand by approximately 360,000 room nights.

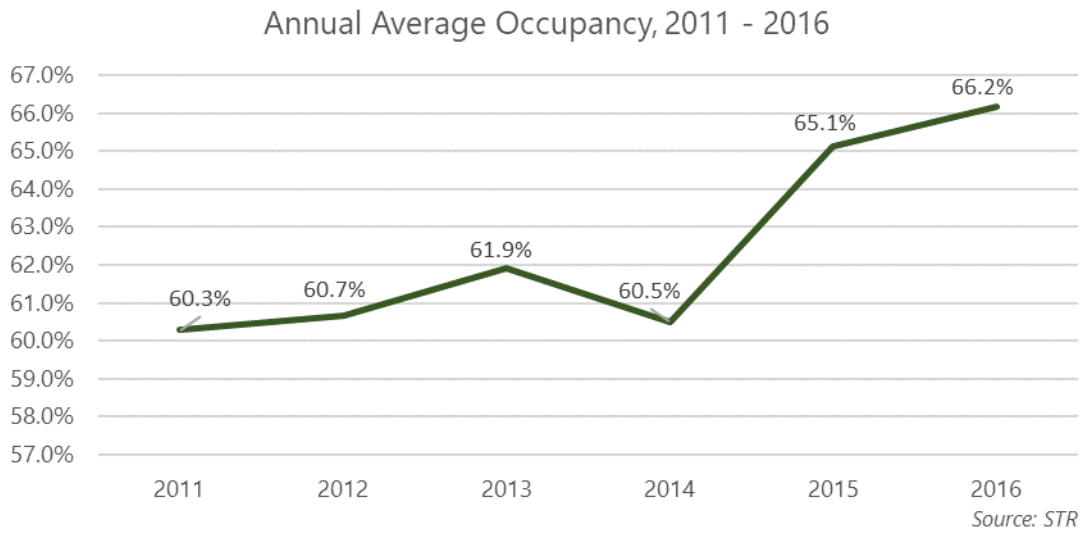
Figure 26: Changes in Annual Supply and Demand of Room Nights



Trends in Occupancy Rates

Occupancy has fluctuated between 60% and 66% from 2011 to 2016. Occupancy has raised by nearly 6 percentage points since 2011.

Figure 27: Annual Average Occupancy, 2011 - 2016



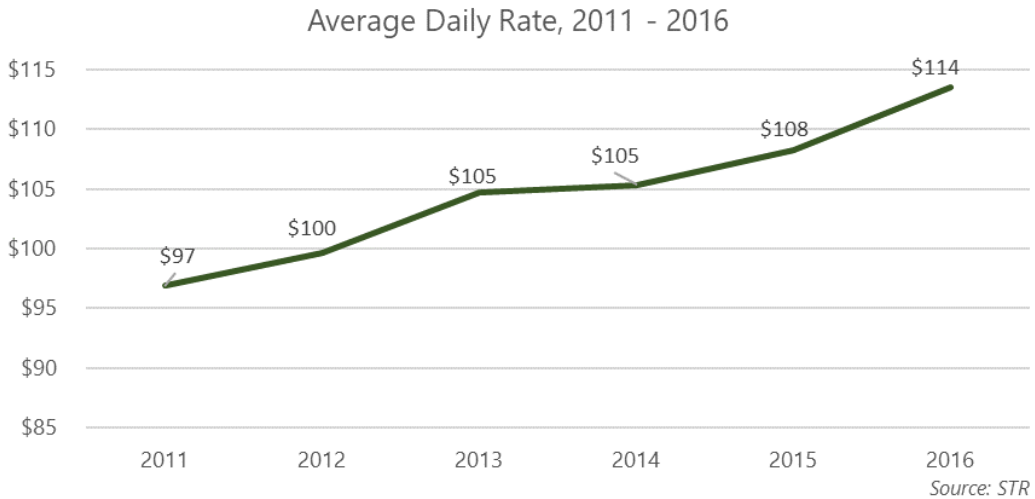
Source: STR

Trends in Revenue

Revenue generated by the hotel is specified as revenue per available room (RevPAR). RevPAR measures the total room revenue divided by the number of available rooms. RevPAR is examined to determine the facilities ability to fill its available rooms at an average rate. An increase in RevPAR indicates the average room rate or occupancy rate is increasing. Within the New Haven Market both revenue factors are on the rise.

The annual average daily rate (ADR) has steadily increased since 2011, rising from $97 in 2011 to $114 in 2016, a 18% increase. New, national chain or "flagged" hotel properties in the New Haven area has likely contributed to increased rates. These new facilities have name recognition, understood service and quality levels, and new amenities that can give an operator greater pricing power in the market.

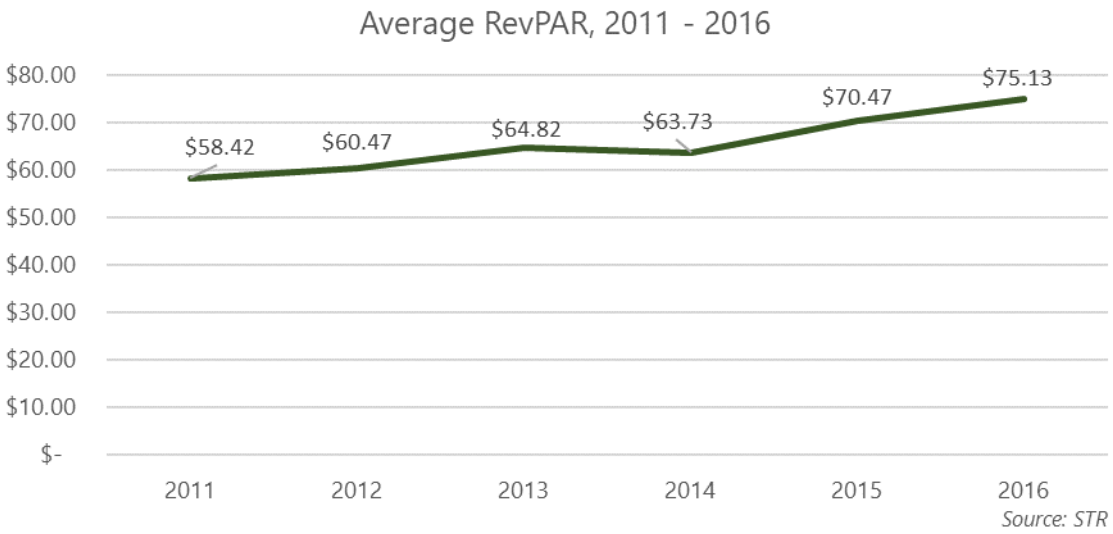
Figure 28: Average Daily Rate, 2011 - 2016



Source: STR

Revenue per available room has increased from $58 in 2011 to $75 in 2016.

Figure 29: Average RevPAR, 2011 - 2016



Source: STR

Trends by Night of Stay

Hotel data based on night of stay can be used to indicate differences between business and tourist use. Stays on nights that precede a business day, including Sunday, are more likely to indicated occupancy by a business traveler while weekend stays, Friday and Saturday night, are more likely to indicate tourist occupancy. Growth in occupancy, average daily room rate, and revenue per available room indicate growth in both business and leisure travel.

Currently the highest occupancy rates are on Friday, Saturday and Tuesday nights. Occupancy rates have increased for all nights of the week, with growth ranging from 4.5% to 7.3%. Saturday, Sunday and Monday show stronger occupancy growth compared to Tuesday through Friday. These high occupancy growth days indicate a mix of both business and leisure travel. Saturday nights, which are likely to be leisure travelers, are up 7.1%. Sunday and Monday night is up 7.3% and 7.0% respectively, this high occupancy growth is likely to indicate business travelers. Conversely, Monday, Tuesday, Wednesday and Thursday are other likely business travel nights while Friday is a likely leisure travel night, all of these nights showed lower growth ranging from 4.5% to 5.7%.

Table 70: Three Year Occupancy by Night of Stay

Three Year Occupancy by Night of Stay							
12 Months Ending in July	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
2015	46.4%	59.2%	65.2%	65.3%	62.3%	68.9%	72.3%
2016	49.1%	63.0%	68.7%	68.6%	66.3%	71.9%	75.4%
2017	49.8%	63.3%	68.7%	68.3%	65.6%	72.9%	77.4%
% Change	7.3%	7.0%	5.5%	4.5%	5.3%	5.7%	7.1%

Source: STR

Average daily room rate (ADR) shows growth across all nights with Monday, Tuesday and Friday exhibiting the highest growth of greater than 8%.

Table 71: Three Year ADR by Night of Stay

Three Year ADR by Night of Stay							
12 Months Ending in July	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
2015	$ 102.09	$ 104.65	$ 106.09	$ 106.32	$ 105.02	$ 109.03	$ 111.16
2016	$ 104.86	$ 111.46	$ 111.80	$ 112.20	$ 110.80	$ 114.87	$ 115.70
2017	$ 107.00	$ 113.47	$ 114.66	$ 114.49	$ 112.74	$ 117.85	$ 118.98
Change	$ 4.91	$ 8.82	$ 8.57	$ 8.17	$ 7.72	$ 8.82	$ 7.82
% Change	4.8%	8.4%	8.1%	7.7%	7.3%	8.1%	7.0%

Source: STR

RevPAR, which factors in both occupancy and room rates, follows the same trend as occupancy and ADR in favoring both leisure and business travel with revenue growth across all nights and the highest growth on Monday, Saturday and Friday nights (a mix of business and leisure nights). Over the past three years, RevPAR has grown by 16.0% on Monday, 14.6% on Saturday and 14.3% on Friday, a difference of $9.90 to $11.73 per room.

Table 72: Three Year RevPAR by Night of Stay

Three Year RevPAR by Night of Stay							
12 Months Ending in July	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
2015	$ 47.39	$ 61.94	$ 69.13	$ 69.46	$ 65.46	$ 75.15	$ 80.35
2016	$ 51.53	$ 70.17	$ 76.80	$ 76.98	$ 73.41	$ 82.56	$ 87.20
2017	$ 53.27	$ 71.85	$ 78.80	$ 78.18	$ 73.98	$ 85.86	$ 92.08
Change	$ 5.88	$ 9.90	$ 9.68	$ 8.72	$ 8.52	$ 10.72	$ 11.73
% Change	12.4%	16.0%	14.0%	12.6%	13.0%	14.3%	14.6%

Source: STR

Conference Center & Meeting Spaces

Meeting facilities can include a broad range of venues from resorts to event centers. For this analysis, we have focused in on exploring the market opportunities for:

- **Convention Centers:** Typically include large exhibition space with ancillary conference rooms for smaller break-out meetings. Most convention centers are located adjacent to hotels and owned and operated by the local municipality in support of the regional tourism industry. Users include state and national associations and trade show groups.

- **Meeting Rooms & Spaces:** Smaller, more intimate meeting space designed to accommodate meetings of anywhere from 2–20 people. At a minimum, they offer a single table, Wi-Fi, and video-conferencing technology. They are primarily found in hotels and inns or sometimes in coffee shops where they can be reserved for a few days or a few hours.

National Trends

Since the 2008–09 financial crisis and recession, the conference and meeting space industry has struggled. That is, until very recently. Economic drivers for this sector include corporate profit, travel (domestic and inbound by non-US residents), and disposable income. When businesses and consumers acted to endure the economic uncertainty of the recession, budgets were tightened and travel and marketing allocations were among the first to be reduced. As

the U.S. has slowly climbed out of the recession in the past few years, the conference and meeting space sector has experienced a sluggish recovery as many learned to make do without attending as many events.

2017 was a pivot point where corporate profits, spending on marketing, travel, and per capita disposable income rebounded enough to cause a rise in conference and trade show attendance (2.4% growth in 2017 according to IBISWorld). This grow is expected to continue over the next 5-years at around 2% annually.

The favorable impact of convention centers and recent turnaround in the industry is leading many communities to "get in the game" by developing their own, publicly subsidized centers. Other conference trends include:

- Smaller meeting spaces and greater use of non-traditional venues.
- More relaxed environments, getting out of the conference facility and exploring the host city. Events scattered throughout the city instead of one location.
- Experiential meeting and conferences, where participants work through problems together to produce a work product or have other authentic experiences as part of the event.
- Technology is critical with a move toward smart rooms with built-in connectivity and collaboration and hybrid events where some participants and/or session leaders participate virtually.
- In terms of space, luxury is "out" and midscale is "in." Event planners seek better technology opposed to high-end amenities and rely on the host community for culture and aesthetics.

Meeting Spaces in New Haven

New Haven offers a mix of mid-sized and smaller meeting venues. Notable facilities include:

Omni New Haven Hotel at Yale. Located in Downtown, overlooking the New Haven Green, the recently renovated Onmi New Haven Hotel is the city's largest meeting and event facility, with over 22,000 square feet of meeting space in 19 meeting rooms. It is one of the few venues in the city that can host events with more than 100 attendees. The largest space, a 9,200 SF ballroom can seat 1,000 people in theater seating and 700 people with banquet seating. Meeting rooms and board rooms offer modern technology for breakouts during conferences or executive meetings.

The Study at Yale. The Study offers more than 2,200 SF of flexible meeting and event space used for both professional and social entertaining. Meetings can be setup in many styles and full-service audio/visual support is available. The 1,200 SF Penthouse room can accommodate up to 50 guests and offers panoramic views of the city. It is located about 1-mile from Union Station.

Yale Events. Yale offers outside groups the opportunity to utilize its campus facilities for a variety of events from weddings to seminars and corporate retreats. Total available meeting space is about 100,000 SF across a variety of rooms that offer video conferencing and a large 250-seat auditorium.

Hotels. Several hotels in New Haven that offer a small number of meeting rooms around 1,000 SF or less including the La Quinta Inn & Suites and the Courtyard New Haven at Yale.

Restaurants & Cultural Venues. Smaller scale meeting and event spaces are scattered throughout the city within restaurants, café's, museums, and historic venues including the New Haven Museum an. Most of these spaces are secondary to the entity's primary use and can hold just a few people, but they offer a range of unique meetup options.

Local Trends

Event coordinators from both the Omni and The Study at Yale provided insight into local trends into New Haven's meeting and event space market. Most of the events hosted at the Omni and The Study are corporate events with some weddings, tour groups, and other social events mixed in. While there is not one dominant business segment

that utilizes these facilities, a significant portion of meeting and event space reservations are generated by entities doing business with Yale. Local New Haven businesses generate most of the reservations, utilizing the meeting and event spaces to host outside clients or internal offsite meetings.

Seemingly in-line with national trends, the demand for meeting and event space in New Haven has ticked up in the last few years. However, Yale drives a lot of activity in this market, and when college is not in session things are much quieter.

Many event coordinators are looking for urban outdoor spaces to host meetings and other events and have a hard time finding that type of venue in New Haven, which could present an opportunity for the Study Site.

In terms of access, it is well documented that New Haven is well-served by a robust transit system, allowing for easy access up and down the East Coast. Occasionally, corporate events will be sited in New Haven because of its central location between New York and Boston, but this does not currently make up a large part of the market. One of the biggest obstacles for New Haven's ability to compete for larger regional events is the lack of a well-served airport.

The sharing economy is beginning to the regional market as companies like Liquidspace and ShareDesk are starting to offer digital marketplaces to book work and meeting spaces. Think Airbnb for meeting space. We note that only 3 venues in New Haven are listed on ShareDesk, and no venues currently appear on LiquidSpace, whereas several options appear for Bridgeport and other communities in the region.

APPENDIX B: PEER COMPETITIVENESS ASSESSMENT

When it comes to attracting jobs, residents, and investment, New Haven must compete with other cities throughout the region. This peer competitiveness assessment evaluates how New Haven compares to similar cities across various demographic and economic indicators. Since the Study Site is a key TOD opportunity, this assessment focuses on New Haven's position relative to other cities as a desirable location for transit-oriented development. Eight peer cities were chosen based on the following criteria:

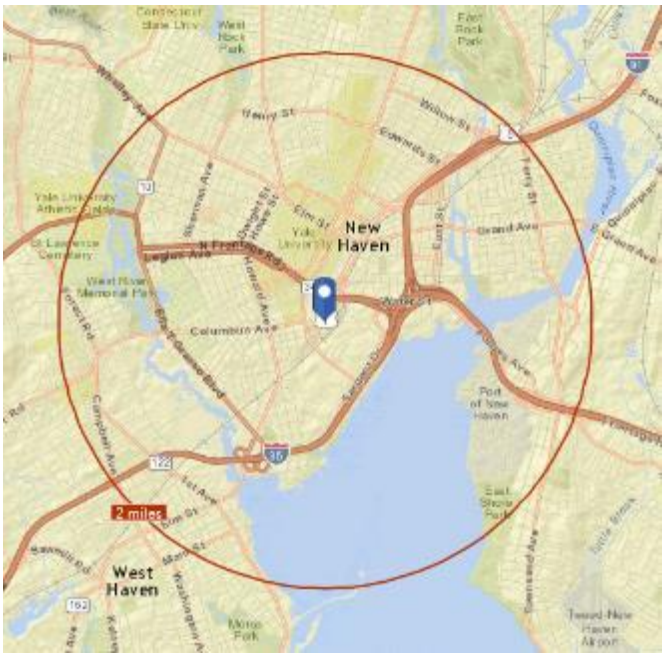
1. Presence of an Amtrak station in a downtown urban setting
2. Daytime population within 2 miles of the station between 90,000 and 250,000 (New Haven's daytime population is 134,000)
3. Within 100 miles of New Haven

Based on these criteria, the eight peer cities are:

- Bridgeport, CT
- Hartford, CT
- Stamford, CT
- Springfield, MA
- Worcester, MA
- Providence, RI
- Yonkers, NY
- Newark, NJ

For each city, we analyzed demographics within two miles of their respective Amtrak stations (referred to throughout this Appendix as "station areas"). See Figure 30 for the delineation of the New Haven station area. This allows for comparison between the Study Site and other possible TOD sites in peer cities in terms of the number and socioeconomic characteristics of people within close proximity. These kinds of demographic indicators play a role in dictating the types of development that are viable.

Figure 30: New Haven Station Area (2-Mile Radius)



Population. New Haven is among the smaller station areas in terms of total resident population. The location of Union Station close to the coastline means that a sizable area within the two-mile radius is water, which contributes to the lower population figure. However, when considering daytime population, New Haven's station area ranks 4th, pointing to the high levels of in-commuting to the city's job centers, especially downtown and the medical district. In fact, the population within two miles of Union Station expands by over 45% during the day, a relative increase that surpasses all peers except for the Hartford station area. This high concentration of workers during the day can support retail, restaurant, and service establishments that may not otherwise be viable.

Table 73: Peer Competitiveness Assessment: Population within 2 Miles of Amtrak Station, 2017

Population within 2 Miles of Amtrak Station, 2017				
	Total Population	Total Daytime Population	Daytime Population: Workers	Daytime Population: Residents
New Haven, CT	92,086	133,902	83,318	50,584
Bridgeport, CT	96,902	97,729	43,316	54,413
Hartford, CT	99,087	183,543	124,238	59,305
Stamford, CT	93,969	128,956	85,728	43,228
Springfield, MA	77,374	111,668	60,052	51,616
Worcester, MA	98,621	121,193	63,818	57,375
Providence, RI	130,515	177,734	105,781	71,953
Yonkers, NY	121,679	101,765	31,354	70,411
Newark, NJ	171,655	243,659	146,510	97,149
New Haven Rank (out of 9)	8	4	5	8

Source: Esri

Income and Poverty. As shown in Table 74, median household income within two miles of Union Station is about $37,000, which is low overall but comparable to peer city station areas. The notable exception is Stamford, where the median income within two miles of the Stamford Transportation Center is nearly $71,000. This figure is driven upward by wealthy neighborhoods along the coast and in neighboring Greenwich that are proximate, but not necessarily well connected to downtown Stamford. The median household income figure only considers resident households; overall spending potential in New Haven is considerably higher due to the presence of daytime office workers.

The incidence of poverty in the vicinity of Union Station is comparable to the peer cities, with about 27% of households within two miles falling below the poverty line. Again, the Stamford station area is an exception with just 11% of households considered to be in poverty. The Hartford and Springfield station areas have poverty rates considerably above that of New Haven, at 34% and 38%, respectively.

Age. The population within the New Haven station area is young, with a median age of 30.0. Undoubtedly driven by the presence of Yale University, the median age is lower than all peers except for Providence, which is also home to an Ivy League university. A younger population is also correlated with lower incomes, which impacts spending potential.

Educational Attainment. New Haven's station area population is comparatively well educated. The station area ranks 3rd in terms of the share of residents with a bachelor's degree or higher (34%) and 1st for share with a graduate/professional degree (19%). Moreover, only Stamford has a lower share of residents with less than a high school diploma. Notably, the share of the New Haven station area population with a graduate degree is much higher than many of New Haven's peers, with five of the peers showing graduate degree attainment rates well below 10%.

Table 74: Peer Competitiveness Assessment: Demographics within 2 Miles of Amtrak Station, 2017

Demographics within 2 Miles of Amtrak Station, 2017						
	Median Household Income	Households Below Poverty Level	Median Age	Educational Attainment		
				Less Than High School Diploma	Bachelors Degree or Higher	Graduate / Professional Degree
New Haven, CT	$ 36,889	27%	30.0	18%	34%	19%
Bridgeport, CT	$ 35,003	26%	31.8	28%	14%	5%
Hartford, CT	$ 27,664	34%	31.5	29%	18%	8%
Stamford, CT	$ 70,965	11%	36.4	13%	45%	18%
Springfield, MA	$ 26,950	38%	30.5	30%	15%	6%
Worcester, MA	$ 37,174	28%	31.1	19%	24%	8%
Providence, RI	$ 36,361	28%	29.0	22%	34%	17%
Yonkers, NY	$ 49,197	21%	34.9	22%	25%	11%
Newark, NJ	$ 36,318	25%	33.6	28%	17%	6%
New Haven Rank (out of 9)	4	5	8	8	3	1

Source: Esri

Housing. The New Haven station area has a somewhat lower level of housing density compared to its peers, ranking in the bottom third, which suggests an opportunity to increase housing inventory. Approximately 23% of occupied housing units are owner-occupied, higher than only Hartford and Newark. The median home value is about $195,000, surpassing only Hartford and Springfield. In contrast, median rents are comparatively on the high end. The station area's median contract rent of $935 (i.e. the median monthly rent that renter households report paying) is the third highest in the group. Likewise, the current median asking rent of a one-bedroom apartment is $1,200, as reported by apartment listing site Zumper—the fourth highest. This suggests that while rental demand in the New Haven station area is strong, the for-sale market lags behind.

Table 75: Peer Competitiveness Assessment: Housing within 2 Miles of Amtrak Station, 2017

Housing within 2 Miles of Amtrak Station, 2017					
	2017 Total Housing Units (Esri)	2010 Percent of Housing Units Owner-Occupied (Census)	2017 Median Home Value (Esri)	2011-2015 Median Contract Rent (ACS)	2017 Median 1-BR Asking Rent (Zumper)
New Haven, CT	38,540	23%	$194,633	$ 935	$ 1,200
Bridgeport, CT	37,360	30%	$196,346	$ 869	$ 1,050
Hartford, CT	43,904	18%	$181,946	$ 737	$ 850
Stamford, CT	38,849	44%	$469,524	$ 1,443	$ 1,650
Springfield, MA	31,586	28%	$141,895	$ 671	$ 1,000
Worcester, MA	39,921	29%	$220,128	$ 822	$ 1,150
Providence, RI	53,830	30%	$209,202	$ 754	$ 1,400
Yonkers, NY	46,268	29%	$417,831	$ 1,052	$ 1,550
Newark, NJ	65,263	21%	$290,355	$ 877	$ 1,000
New Haven Rank (out of 9)	7	7	7	3	4

Source: Esri, Census, ACS, Zumper

Business Establishment Density. New Haven ranks in the middle of the pack in terms of total businesses, total employees, retail businesses, and hotel establishments within its station area, suggesting an average business density. However, the New Haven station area has a notably high density of restaurants and bars with 445 establishments, ranking 3rd among its peers.

Table 76: Peer Competitiveness Assessment: Businesses within 2 Miles of Amtrak Station

Businesses within 2 Miles of Amtrak Station, 2017					
	Total Businesses	Total Employees	Retail Trade Businesses (NAICS44-45)	Hotels, Motels, Inns (NAICS 721)	Restaurants and Bars (NAICS 722)
New Haven, CT	4,581	90,828	544	16	445
Bridgeport, CT	3,682	48,329	546	3	285
Hartford, CT	5,245	137,608	578	15	337
Stamford, CT	6,636	96,053	758	34	405
Springfield, MA	4,082	72,527	543	21	224
Worcester, MA	4,074	68,968	479	11	305
Providence, RI	6,387	124,502	813	22	524
Yonkers, NY	2,818	30,765	384	4	241
Newark, NJ	7,242	160,469	1,044	18	650
New Haven Rank (out of 9)	5	5	6	5	3

Source: Esri

Amtrak Ridership. New Haven ranks third among its peers in terms of Amtrak ridership, with nearly 635,000 boardings and detrainings in 2016. It has the highest ridership in Connecticut, surpassing Stamford's 398,000 riders by a large margin. These high ridership levels are a critical asset to leverage.

Table 77: Peer Competitiveness Assessment: 2016 Amtrak Ridership by Station

2016 Amtrak Ridership by Station	
New Haven, CT	634,393
Bridgeport, CT	83,211
Hartford, CT	136,624
Stamford, CT	397,888
Springfield, MA	92,534
Worcester, MA	6,152
Providence, RI	709,343
Yonkers, NY	25,253
Newark, NJ	655,594
New Haven Rank (out of 9)	3

Source: National Association of Railroad Passengers (NARP)

Crime. New Haven ranks 8th out of 9 in terms of safety. With a crime index of 6, the city is safer than only 6% of U.S. communities. There is a significant range in crime levels among the peer cities; Yonkers and Stamford have crime indices of 50 and 45, respectively, meaning they rank about average nationally in terms of safety. Hartford has the lowest rating of 4. Crime, as well as the perception of crime, can be a major hindrance to investment, especially in areas that have not seen new development for many years.

Schools. The New Haven School District is tied with Providence for 6th place among the peers with a grade of C, though it surpasses the other two Connecticut districts, Bridgeport (D+) and Hartford (C-). A struggling school district will make it difficult for New Haven to attract families and/or encourage young people living in the city to settle there.

Table 78: Peer Competitiveness Assessment: Quality of Life Ratings, 2017

Quality of Life Ratings, 2017		
	Crime Index* (0 to 100) (City proper)	School Grade (A+ to F) (School District)
New Haven, CT	6	C
Bridgeport, CT	19	D+
Hartford, CT	4	C-
Stamford, CT	45	B+
Springfield, MA	8	C+
Worcester, MA	11	B+
Providence, RI	11	C
Yonkers, NY	50	B-
Newark, NJ	11	C+
New Haven Rank (out of 9)	8	6 (Tie)

*Rated on a nationally comparable 1-100 scale. 6 means safer than 6% of U.S. communities.

Source: NeighborhoodScout Crime Index, Niche School Ratings

APPENDIX C: REDEVELOPMENT CONCEPTS

The project team developed **5 preliminary concepts** for the redevelopment of the Study Site, based on an understanding of the local context, as well as an in-depth study of market trends both regionally and nationally. These concepts were designed to leverage the transit-oriented development (TOD) potential of the study area, with each concept consisting of a broad mix of uses and capitalizing on the proximity of Union Station. Each concept incorporates an anchor use, which serves as a strong draw to this currently inactive part of the city, as well as complementary ancillary uses that contribute to the vibrancy of the area. These concepts are summarized below in the blue boxes with supporting rationale from the market research summarized in the green boxes. These initial concepts were presented at the meeting with City staff on September 29, 2017.

Concept #1: FOOD & BEVERAGE

Anchor: "Showcase New Haven" Food Court

Ancillary: Temp/Rentable Restaurant spaces, Small grocery, Small retail spaces, Residential units Office space (Gateway Center)

- Strong food culture existing in the city: world-class restaurants, kitchen incubator initiative, Long Wharf Food Terminal, food trucks, breweries
- Place to showcase city's food scene to visitors coming through Union Station
- Supported by on-site residential, office workers from Gateway Center, future Coliseum redevelopment

Concept #2: ARTS & CULTURE

Anchor: Live Theater, Museum, Art Gallery

Ancillary: Residential units Artisan/retail spaces Restaurant/café Office space (Gateway Center)

- City already boasts a strong collection of art galleries, theaters, and museums
- Introduce visitors to the arts scene as soon as they arrive in New Haven
- Appeals to residents with an interest in arts and culture
- Connect Union Station to Downtown through art installations

Concept #3: HEALTH & RECREATION

Anchor: Climbing Gym, Bowling Alley, Bike Rentals, Aquatics Center

Ancillary: Yoga studio, spa, retail Café/bar with high-quality, healthy food, Residential units Office space (Gateway Center)

- Create a hub for fitness-related recreation within the City
- Unique amenities for onsite residents and office workers, as well as visitors
- Tie into to bike lanes, paths, and trails

Concept #4: BUSINESS & MEETING HUB

Anchor: Conference space (indoor/outdoor), rentable meeting space, event space

Ancillary: Coworking space Café, restaurant Fitness amenities Office space (Gateway Center)

- Meeting point between NYC and Boston with prime access from Union Station
- Provides a full suite of amenities for clients, including a variety of meeting and event space, dining, and fitness
- Complements future hotel on Coliseum site
- Incorporates cutting edge conferencing technology

Concept #5: RESEARCH & TECHNOLOGY

Anchor: Research institution, think tank

Ancillary: Coworking space Café, restaurant Fitness amenities Office space (Gateway Center)

- New Haven lacks research institutions present in other Ivy League towns
- Establish New Haven's leading reputation for academics to visitors in highly visible location
- Hold academic meetings and conferences and create a high-tech hub for knowledge workers
- Incorporates technology and innovation

Refined Concepts

The initial concepts were refined into **2 market concepts** and **2 site configuration alternatives** based on our analysis and input received at the meeting with City staff.

2 Market Concepts

Concept A: Transit Hub + "Showcase New Haven" Food Hall

This concept is anchored by a transit hub and food hall that work symbiotically to attract activity to the site. The transit hub would relocate city busses away from the New Haven Green and create a facility for passengers to assemble as they wait for transfers, solving a transportation challenge for the city. Together with Union Station, this area would become an integrated transportation node for the city. Complementing the transit hub would be a food hall that would serve not only transit passengers but also on-site worker and residents, while attracting others to the area as well. The food hall would showcase the variety of foods and beverages from restaurants around the city and region. It would feature dining spots such as quick-service food stalls, restaurants with table-service, outposts for local breweries, food retailers, and other concepts. It also ties into the city's focus on building up the local culinary scene. Other uses on-site would include a small grocery store, ground-floor retail, residential apartments (studios up to 3-bedrooms), and office space (e.g. a renovated 54 Meadow).

Components:

- Transit hub for New Haven city buses
- Food hall with restaurant/retail spaces
- Small grocery store
- Residential units – Studio, 1, 2, and 3 bedroom
- Office space

Concept B: Business + Technology Hub

This concept leverages New Haven's location within Connecticut and the Northeast as a hub for business and technology. Anchoring the development would be high-tech office space for a research institution or think tank, which may or may not be affiliated with Yale. Complementing this anchor would be a variety of amenities that position the site as a business and meeting center. It would include space for small to mid-sized conferences, meetings, corporate events, and coworking space that could be rented for varying degrees of time (1-hour to monthly). Restaurants and cafés would serve business users and be able to accommodate functions and events. Other amenities would include a fitness center, business support services, and other small-scale retail space. Residential apartments would also be part of the concept to encourage 24/7 activation of the site.

Components:

- Research/think tank high-tech office space
- Conference space, meeting space, event space, coworking space
- Restaurants/cafés
- Fitness center
- Ground-floor with retail
- Residential units – Studio, 1, 2, and 3 bedroom

2 Site Configuration Alternatives

The idea of the Study Site within the context of a "station concourse" informed how we thought about physical layout. The site should be developed as an extension of Union Station, offering complementary amenities and atmosphere. Passengers should feel compelled to mill about Union Avenue and into the Study Site as they wait for

their trains, and potentially busses, patronizing shops and restaurants. The physical configuration of the Study Site relative to Union Avenue will be critical in achieving this vision.

Figure 31: Union Avenue as a Station Concourse

Two urban design concepts are summarized as part of the reuse/redevelopment of 1 Union and 54 Meadow. In both concepts, the Knights of Columbus site, 78 Meadow, is also included as part of the study area.

In general, it is assumed that the study area will be rezoned similar to the adjacent BD/BD3 Central Business or Central Business/Mixed Use Zones from the current BE Zone, Wholesale and Distribution designation. This assumption in zoning allows for a greater range of anticipated uses, greater densities, increased FARs, and more urban dimensional standards.

The study area is primed as one of the key transit-oriented development opportunities in New Haven due to the proximity to Union Station, 34, and the momentum of other redevelopment efforts at Church Street South, Union Station, and the Coliseum. In addition, strategic mobility improvements including Downtown Crossing, Columbus Avenue reconnection, and the Lafayette Street extension integrate the study area with the immediate context and the greater circulation systems of New Haven.

It is important to note that the concepts are based on spatial relationships, connectivity, and an understanding of the planned redevelopment of the Church Street South, Coliseum, and Union Station north and south sites. Specific uses and square footages are not identified, but only estimated to understand potential parking demand. A more refined understanding of parking requirements will evolve as the market research determines the program/square footage and transit-oriented development traffic modeling best practices are integrated with the urban design.

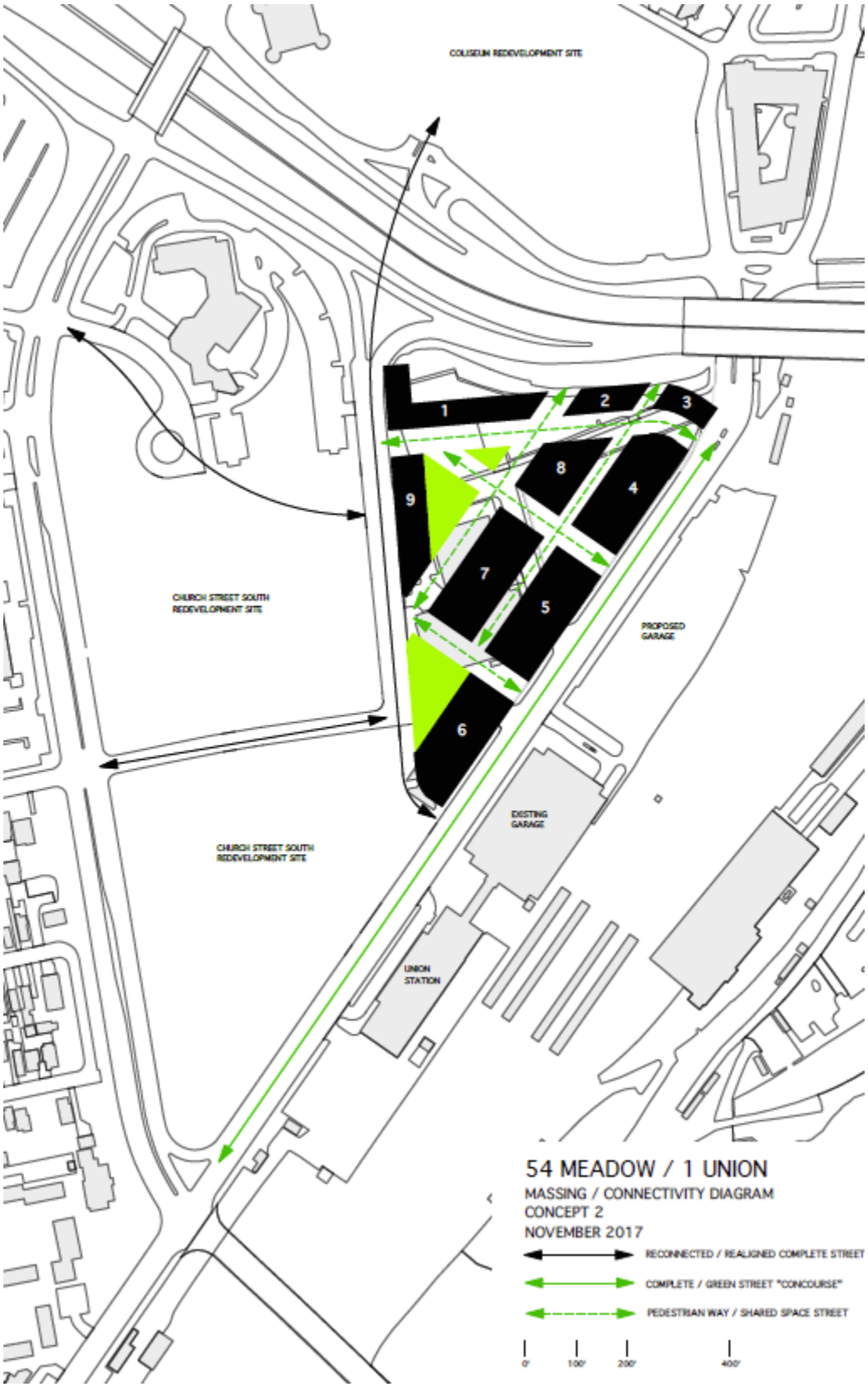
In general, previous studies such as the 2013 Hill-to-Downtown Community Plan and the 2012 Union Station Transit-Oriented Development and District Plan did not focus on the redevelopment of 1 Union, 54 Meadow, and 78 Meadow (study areas) as key pieces in the revitalization of this area. This study complements and refines previous work, helping the City make informed decisions regarding such issues as highest and best use, connectivity, urban design, and phasing.

The 2017 Downtown Stormwater Modeling Project identifies specific flooding issues within and adjacent to the bounds of the study area – and makes recommendations for flooding mitigation efforts in the 78 Meadow parking lot, specifically a pump station and new subsurface storage.

Key connectivity projects including a new Layfette Street connecting Church Street South to Downtown Crossing (South Orange Street), the reconnection of Columbus Avenue from Church Street South to Union Avenue, and the Orange Street/Downtown Crossing project will place the study area at the crossroads of opportunities. These strategic mobility investments will allow the study area to grow as a both a neighborhood with a specific character and critical mass as well as a neighborhood that is accessible from all points and all modes of travel.

Figure 32: Site Configuration 1

Figure 33: Site Configuration 2



Finalized Redevelopment Scenarios

Two potential redevelopment scenarios were ultimately selected and finalized for the site:

- Scenario A: Transit-Oriented Living, Shopping, & Dining
- Scenario B: Business + Technology Hub

SCENARIO A: Transit-Oriented Living, Shopping, & Dining

- 35,942 SF of food-oriented retail/restaurant
- 443 residential units – Studio, 1, 2, and 3 bedroom
- 61,728 SF fitness center/recreation-oriented retail
- 257 parking spaces

Scenario A includes a mix of ground-floor retail/restaurant space with residential apartments on the upper floors. Buildings 1-5 would be 7 stories and Building 6 would be 4 stories, for a total floor area of about 654,000 SF, including about 84,600 SF for structured parking (257 spaces). All buildings are at or below a floor area ratio (FAR) of 6.0, the allowable maximum for the zoning district proposed for the site.

Retail/restaurant space would serve as the anchor for driving traffic to and through the site. It would be concentrated in the center of the site, on the ground floor of buildings 4 and 5. This may include a food hall in Building 5 that would cater to Union Station passengers, serve Gateway Center and other nearby office workers, and provide an amenity to residents. The food hall would showcase the variety of foods and beverages from restaurants around the city and region. It would feature dining spots such as quick-service food stalls, restaurants with table-service, outposts for local breweries, food retailers, and other concepts. Recreation-oriented retail, such as a fitness center, would occupy building 6.

There would be approximately 443 apartments of various sizes (studio to 3-bedroom) across Buildings 1-5, with an average size of 900 SF. These units would initially be rentals but could be converted to for-sale condominiums as the demand for owner-occupied units strengthens over time.

Buildings 1-5 would each have one floor of parking (either on the ground floor or second floor), which would be enough the meet the minimum residential parking ratio of 0.5 spaces per dwelling unit. It is assumed that patrons of the retail/restaurant uses could park in the existing garage next to Gateway Center or at the Union Station garages.

The development program is shown in Table 79.

Table 79: Scenario A Development Program

SCENARIO A: Transit-Oriented Living, Shopping, & Dining											
Bldg	Description	Lot Size (SF)	Building Footprint (SF)	Floors	Total Floor Area (GSF)	Residential GSF	Residential Units	Retail & Restaurant GSF	Parking Spaces	Parking GSF	FAR (excl. Parking)
1	Apartments + Parking	36,077	23,947	7	167,629	143,682	135	-	73	23,947	3.98
2	Apartments + Parking	16,300	11,862	7	83,034	71,172	67	-	36	11,862	4.37
3	Apartments + Parking	12,849	12,849	7	89,943	77,094	72	-	39	12,849	6.00
4	Retail/Rest. + Apartments + Parking	7,438	7,438	7	52,066	37,190	35	7,438	22	7,438	6.00
5	Food Hall + Apartments + Parking	28,504	28,504	7	199,528	142,520	134	28,504	87	28,504	6.00
6	Recreation	15,432	15,432	4	61,728	-	-	61,728	-	-	4.00
Total		**116,600**	**100,032**		**653,928**	**471,658**	**443**	**97,670**	**257**	**84,600**	

SCENARIO B: Business + Technology Hub

- 94,198 SF office/institutional
- 85,512 SF meeting/event space
- 35,942 SF retail/restaurant
- 61,728 SF fitness center/recreation-oriented retail
- 274 residential units – Studio, 1, 2, and 3 bedroom
- 267 parking spaces

Scenario B includes a mix of office, meeting space, retail/restaurant and residential apartments. Buildings 1-5 would be 7 stories and Building 6 would be 4 stories, for a total floor area of about 654,000 SF, including about 84,600 SF for structured parking (257 spaces). Apartments would be located in Buildings 1-3, with the site's anchor uses centrally located in Buildings 4 and 5. Recreation-oriented retail, such as a fitness center, would occupy building 6. All buildings are at or below a floor area ratio (FAR) of 6.0, the allowable maximum for the zoning district proposed for the site.

This concept leverages New Haven's location within Connecticut and the Northeast as a hub for business and technology. Anchoring the development would be high-tech office space for a research institution or think tank. Complementing this anchor would be a variety of amenities that position the site as a business and meeting center. It would include space for small to mid-sized conferences, meetings, corporate events, and coworking space that could be rented for varying degrees of time (1-hour to monthly). Restaurants and cafés would serve business users and be able to accommodate functions and events. Other amenities would include a fitness center, business support services, and other small-scale retail space.

274 residential apartments would also be part of the concept to encourage 24/7 activation of the site. Buildings 1-5 would each have one floor of parking (either on the ground floor or second floor), which would be enough to meet the minimum residential parking ratio of 0.5 spaces per dwelling unit for residential buildings, as well as supplemental spaces for commercial uses. It is assumed that the existing garage next to Gateway Center and/or the Union Station garages could be used as overflow parking for commercial uses.

The development program is shown in Table 80.

Table 80: Scenario B Development Program

SCENARIO B: Business + Technology Hub													
Bldg	Description	Lot Size (SF)	Building Footprint (SF)	Floors	Total Floor Area (GSF)	Residential GSF	Residential Units	Retail & Restaurant GSF	Office & Institutional GSF	Meeting & Event GSF	Parking Spaces	Parking GSF	FAR (excl. Parking)
1	Apartments + Parking	36,077	23,947	7	167,629	143,682	135	-	-	-	73	23,947	3.98
2	Apartments + Parking	16,300	11,862	7	83,034	71,172	67	-	-	-	36	11,862	4.37
3	Apartments + Parking	12,849	12,849	7	89,943	77,094	72	-	-	-	39	12,849	6.00
4	Retail/Rest. + Office + Parking	7,438	7,438	7	52,066	-	-	7,438	37,190	-	22	7,438	6.00
5	Meeting + Office + Retail/Rest. + Parking	28,504	28,504	7	199,528	-	-	28,504	57,008	85,512	87	28,504	6.00
6	Recreation	15,432	15,432	4	61,728	-	-	61,728	-	-	-	-	4.00
Total		**116,600**	**100,032**		**653,928**	**291,948**	**274**	**97,670**	**94,198**	**85,512**	**257**	**84,600**	

Renderings and Design

The two scenarios will have a similar site configuration and building footprints (see Figure 36), but will differ in terms of use types and building programming.

In general, it is assumed that the study area will be rezoned similar to the adjacent BD/BD3 Central Business or Central Business/Mixed Use Zones from the current BE Zone, Wholesale and Distribution designation. This assumption in zoning allows for a greater range of anticipated uses, greater densities, increased FARs, and more urban dimensional standards. Note that Gateway Center (54 Meadow) and the adjacent parking structure are assumed to remain intact, and the Knights of Columbus site, 78 Meadow, is also included as part of the study area. These scenarios align with the City's Hill-to-Downtown Plan as well as the proposed Church Street South development. We note, however, that building heights in these scenarios are lower than what were envisioned in the Hill-to-Downtown Plan due to market demand constraints.

The following design considerations are made:

Connectivity

The Downtown Crossing, Lafayette Street, and Columbus Avenue strategic connections will make the study area more accessible, creating economic development opportunities:

a. West Water Street maintains the envisioned College to Union connection via the new Lafayette Street. A new four-way intersection is established at Downtown Crossing/Lafayette/West Water Streets, creating a crossroads within the heart of the redevelopment area. West Water Street is slightly realigned to allow redevelopment on both sides and to create and intersection that aligns with the north Union Station parking garage.
b. Downtown Crossing creates a key connection from the Coliseum site to Union Avenue, however the 54 Meadow properties do not address this new street in an urban and responsive manner. It should be noted that there is not a direct connection to Union Avenue, and vehicles traveling through the area will either have to take Columbus Avenue or West Water Street.
c. Meadow Street is envisioned as a "shared space" street encouraging all modes of travel, but focused on the potential of a TOD sense of place.
d. A new mid-block shared space street is envisioned to the west of Meadow Street to improve connectivity and economic development opportunities.
e. Columbus Avenue is extended from Church Street South to Union Avenue.
f. Buildings 3, 4, 5, and 6 address Union Avenue, creating a strong street edge, leading people along the "concourse" from Union Station to the TOD.
g. In summary, the area achieves a high degree of both local and city-wide connectivity, creating opportunities for new circulation patterns and active street frontages.

Context

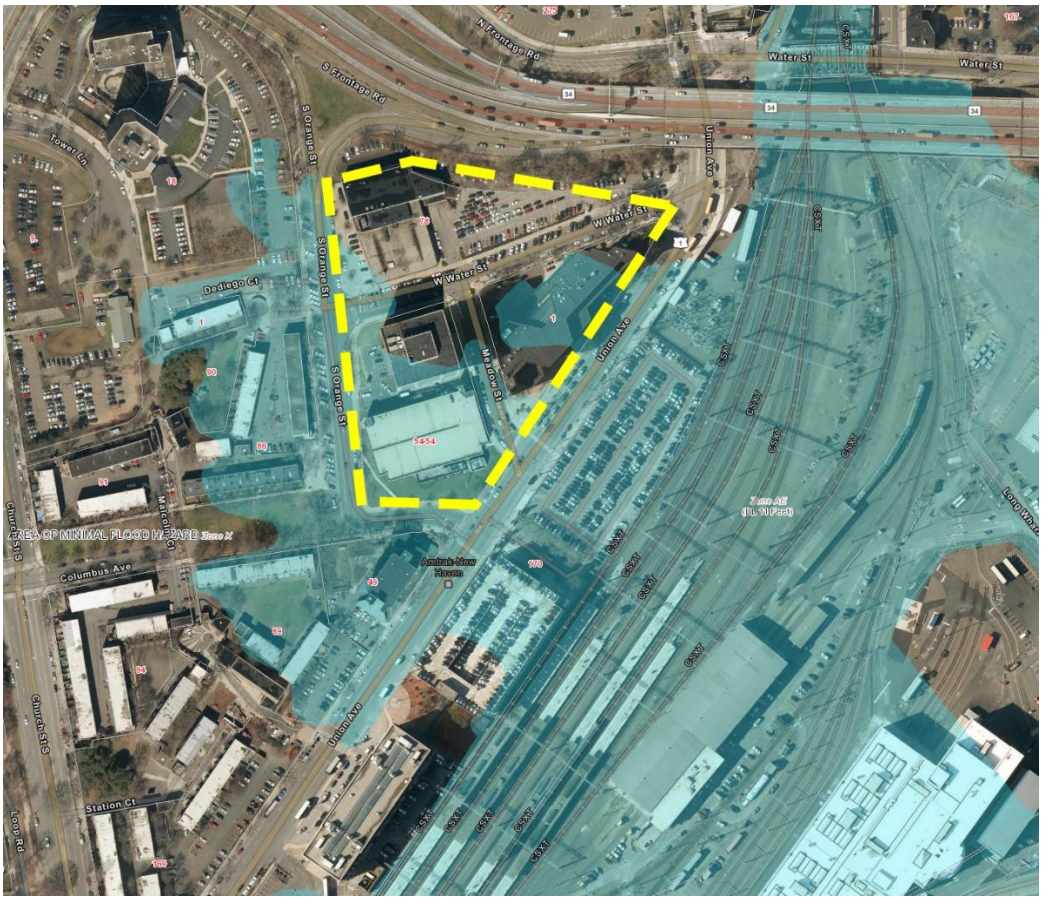
The buildings and new streets address the edge conditions and surrounding redevelopment projects, while beginning to establish interior neighborhood spaces and a sense of place. The study area engages with the urban context, specifically through the ongoing mobility initiatives.

Flooding

Space is maintained to the north of buildings 1, 2, and 3 for underground storage and the location of a pump station. In addition, the two proposed shared space streets can include integrated green infrastructure and underground stormwater storage. Building 3 may have to be reduced in size to accommodate the pump station. The building finish floors and street are not elevated, although it is recommended that this issue be integrated into

assumptions as it will impact the cost of supporting infrastructure for redevelopment as well as the character of the area. Figure 34 shows the AE Flood Zone overlaid on the Study Area.

Figure 34: AE Flood Zone



Open Space

The streets and the shared space streets are integrated as open space within the study area in a user-friendly, but urban manner.

Neighborhood Identity / Redevelopment Potential

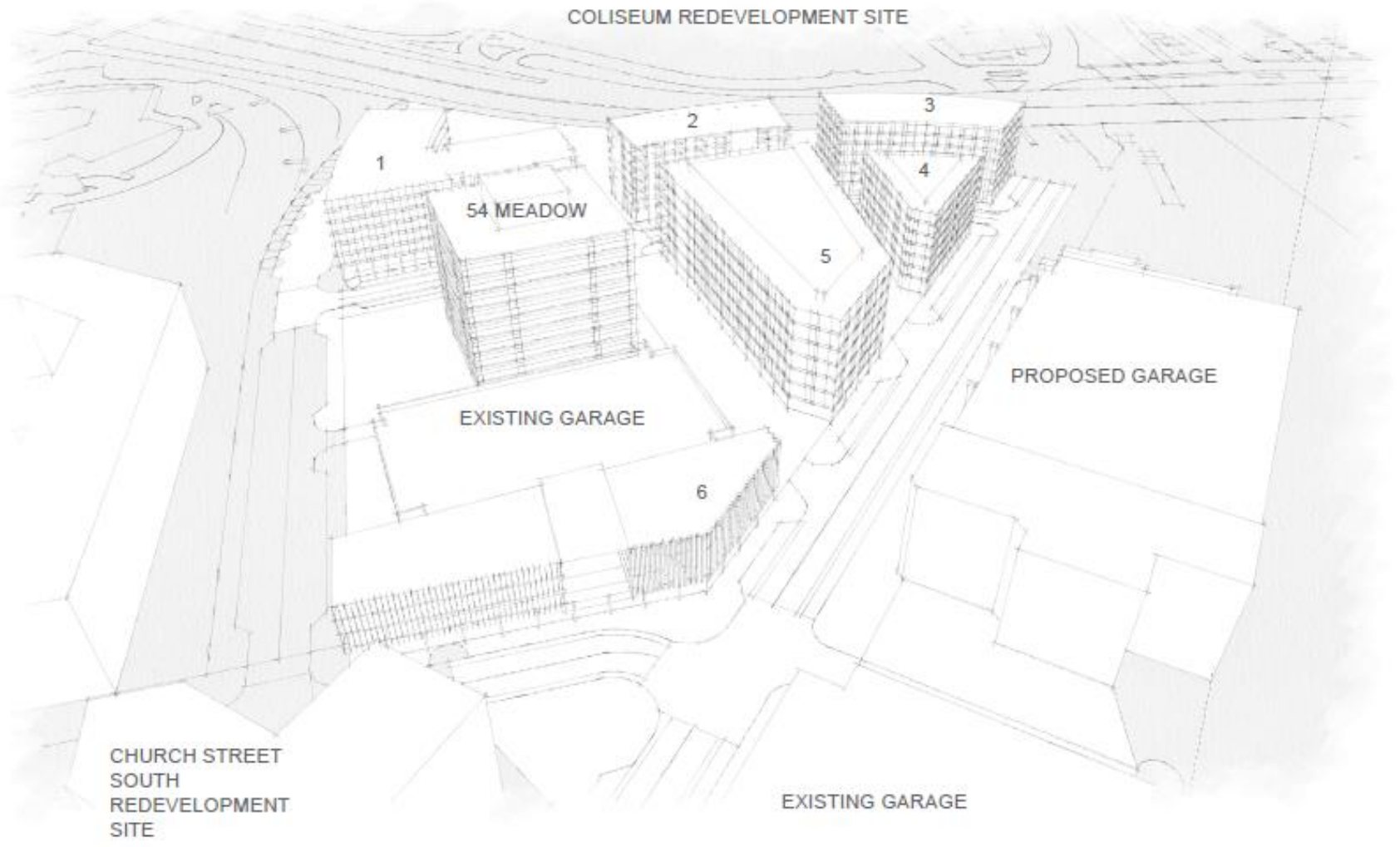
In general, the design creates a walkable locale where the buildings address existing and proposed streets in a uniform manner, and the two shared space streets permeate the neighborhood with flexible open space.

The potential development lots are odd shapes, creating non-standard building footprints. This allows for unique shaped buildings, but could prove to be a challenge to redevelopment and phasing. There are both responsive edge and internal conditions, giving the design the diversity required of a TOD.

Illustrations

A bird's eye view envisioning the redeveloped area is shown in Figure 35.

Figure 35: Bird's Eye View of Redeveloped Study Area



Illustrations and have been developed to envision the redevelopment of the site. Figure 36 is a key to the four street views. These views show the proportion of the proposed and existing buildings to the Complete Streets or Shared Space Streets, which include sidewalks, on-street parking, bike lanes, and travel lanes.[17]

Figure 36: Plan View Key for Draft Massing Street Views

[17] For more information on complete streets and shared place, see: en.wikipedia.org/wiki/Complete_streets and en.wikipedia.org/wiki/Shared_space

Figure 37: View A

View A shows a realigned West Water Street looking east. To the right is the existing 54 Meadow. To the left is a new seven floor mixed-use building on the site of the existing Knights of Columbus building and parking lot. The proposed stormwater pump station is located behind building 3 at the curve in the road in the distance. The proposed stormwater storage facilities are located behind buildings 1 and 2 to the left.

This is a Complete Street with sidewalks, on-street parking, bike lanes, and travel lanes.

Per the recommendations of the Union Ave Streetscape and Signage Improvements project, Meadow Street, which intersects West Water Street between the two buildings on the right, is reversed as one-way street running away from Union Ave. In this urban design scheme, Meadow Street is also transformed into a low speed, pedestrian-friendly Shared Space Street providing capacity and flexibility required of TOD's.

This view is due east of the new intersection created with the Downtown Crossing project. Building 1 directly addresses Downtown Crossing and the realigned West Water Street.

The first floor of the new buildings commercial space directly addressing the sidewalk and public realm.

Figure 38: View B

View B shows a shared space street between buildings 4 and 5 looking north to the intersection defined by buildings 2, 3, 4, and 5. This realigned and redesigned West Water Street intersection defines a pedestrian-friendly neighborhood core one block north of Union Avenue. The complete street accommodates all users and vehicle types in an efficient and engaging manner, encouraging a mix of uses and drawing people into the transit-oriented district. This is a highly walkable area, building on the mobility and streetscape recommendations for Union Avenue, Downtown Crossing, and the adjacent Church Street South redevelopment.

The shared space street between buildings 4 and 5 can be an alternative location for the proposed underground stormwater storage at the Knights of Columbus surface parking lot, because this surface parking is now envisioned as development parcels – a more ideal use for this urban location.

Figure 39: View C

View C shows a Shared Space street running between buildings 4 and 5. These buildings directly address Union Street as well as the new Shared Space Street, offering different types of public realm experiences while enhancing pedestrian and vehicular connectivity in the TOD. Buildings 4 and 5 are primarily comprised of the existing police station parcel. This parcel has been subdivided to create a more walkable environment as well as provide development parcels at a variety of scales to aid phasing. West Water Street intersects with Union between building 3 (to the far right) and building 4. Union Ave is modeled to match the lane assignments of the Union Ave Streetscape and Signage Improvements project. Union Ave maintains the capacity to carry large traffic volumes, but includes a Complete Street retrofit to promote the walkability of a TOD.

Figure 40: View D

View D illustrates the intersection of Union Ave and Columbus Extension. Building 6 to the left is the four-floor building at the corner. To the right (just outside the view) is the proposed garage modeled at 7 floors. Building 6 is a key infill building in the area, wrapping the southern side of the parking garage on Meadow Street in a more urban and mixed-use manner. Building 6 contributes to the TOD and Complete Street redesign of the area by creating a pedestrian-scaled "bridge" from existing parking garage and Union Station to the new TOD redevelopment area.

As with View C, the width and lane assignments on Union Ave are modeled on the Union Ave Streetscape and Signage Improvements project.

Between Building 6 and 5 is Meadow Street, which has been reversed to a one-way street from Union to West Water per the recommendations of the Union Ave Streetscape and Signage Improvements project.

APPENDIX D: FINANCIAL FEASIBILITY ANALYSIS

A financial pro forma statement was developed to model the cash flows associated with constructing and operating the above development scenarios. This model was used to determine the residual land value of the study site, i.e. the maximum amount that a developer would be willing to pay for land acquisition in order to achieve an acceptable rate of return on invested equity.

Assumptions

Demolition Costs

Rough estimates for demolition of the Police Department (1 Union Avenue) and the Knights of Columbus facility (78 Meadow Street) were based on typical demolition costs per square foot. Further analysis would be needed to determine demolition costs and any additional environmental remediation or site costs.

- Police Department (118,500 SF building): $500,000
- Knights of Columbus facility (73,418 SF building): $200,000

Construction Costs

Construction costs for each use type were determined based on per-square-foot cost estimates developed from data provided by RSMeans.[18] National-level estimates were increased to account for cost differences in New Haven. The construction cost estimates by use type below include general contractor overhead, profit, and contingencies, as well as architectural and engineering fees (soft costs):

- Residential apartments: $200/GSF
- Retail space: $180/SF
- Food-oriented retail/restaurant: $180/SF
- Fitness/recreation-oriented space: $190/SF
- Office space: $200/GSF
- Parking: $90/GSF

Total construction costs (including demolition) are summarized by scenario in Table 81.

Table 81: Construction Cost Summary

Construction Cost Summary		
Parcels	Scenario A	Scenario B
Buildings 1, 2, 3	$ 60,455,732	$ 60,455,732
Buildings 4, 5	$ 48,080,668	$ 45,507,785
Building 6	$ 14,835,184	$ 14,835,184
Total	$ 123,371,584	$ 120,798,701

Source: Camoin Associates, RS Means

Note that that these construction costs include hard and soft costs associated with vertical construction and demolition only. No allocation is made for any significant sitework (beyond demolition), environmental remediation, utilities work, or any other expenses that may be necessary to ready the site for redevelopment.

[18] *Square Foot Costs with RSMeans Data.* 2017 edition.

Rental Rates

Rental rates were developed based on market data for the New Haven submarket, including listings for comparable properties. Rental income growth of 2% per year is modeled.

- Residential apartments: $2,200/unit (average unit size of 900 SF)
- Retail space: $22/RSF NNN[19]
- Food-oriented retail/restaurant: $22/RSF NNN
- Fitness/recreation-oriented space: $18/RSF NNN
- Office space: $25/RSF NNN
- Parking: $130/space (monthly)

Property Taxes

Property taxes were calculated based on a mill rate of 38.68[20] and an assessed value as estimated by the income approach to valuation. The mill rate is assumed to increase by 2% annually, and total property taxes due are assumed to phase in over 5 years. Once fully phased in, total annual property taxes are estimated at about $3 million per year.

Table 82: Estimated Property Taxes

Estimated Property Taxes		
	Scenario A	Scenario B
Buildings 1, 2, 3	$ 55,882,741	$ 55,882,741
Buildings 4, 5	$ 43,255,910	$ 42,597,907
Building 6	$ 11,874,924	$ 11,874,924
Total Market Value*	$ 111,013,576	$ 110,355,572
Assessment Ratio	70%	70%
Total Assessed Value	$ 77,709,503	$ 77,248,901
Mill Rate	38.68	38.68
Estimated Property Taxes	$ 3,005,804	$ 2,987,987

**Total market value estimated under income approach to valuation*

Absorption

Absorption of space is projected to occur over 5 years, with full occupancy in Year 5.

Capitalization Rate

We assume an 8.5% capitalization rate to calculate reversion value, a conservative assumption reflecting the current real estate environment in New Haven for the uses being considered.[21]

Financing Terms

We have assumed a 70% loan-to-value ratio, a 30-year permanent loan term, and at an interest rate of 4.50%. The interest rate for the construction period is assumed to be 7.50%. These assumptions are typical for a project of this nature in the current financing environment.

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[19] NNN, or "triple net," refers to a lease arrangement where the tenant is responsible for certain operating expenses, including property taxes, insurance, and maintenance

[20] Mill rate for the City of New Haven 2016 Grand List

[21] Realty Rates Investor Survey 4Q 2017; CBRE US Cap Rate Survey Second Half 2017

Land Value

The assumptions detailed above where used to model cash flows to a prospective developer over a ten year-period. The residual land value was then determined based on an investor's required internal rate of return (IRR). Given the nature of the development project and mix of uses, the minimum target IRR for such a project is 7%, with an average target IRR of 11%.[22] The residual land value was calculated assuming both a 7% and 11% IRR.

The total residual land value of the subject sites is estimated at between $3.5 million and $19.1 million, broken out by parcel in Table 83. However, any extraordinary costs associated with site work, utilities, and other infrastructure to be borne by a prospective developer should be deducted from these land values. Residual land values are shown on a per-acre basis in Table 84.[23]

Table 83: Residual Land Value Before Site Costs

Residual Land Value Before Site Costs*			
Parcel	Acreage	Min. Return (7%)	Avg. Return (11%)
Buildings 1, 2, 3	1.50	$ 6,900,000	$ -
Buildings 4, 5	1.04	$ 8,900,000	$ 2,600,000
Building 6	0.35	$ 3,300,000	$ 900,000
Total	2.89	$ 19,100,000	$ 3,500,000

**Any extraordinary site costs should be subtracted from these residual land values.*

Table 84: Residual Land Value per Acre, Before Site Costs

Residual Land Value per Acre, Before Site Costs		
Parcel	Min. Return (7%)	Avg. Return (11%)
Buildings 1, 2, 3	$ 4,608,040	$ -
Buildings 4, 5	$ 8,531,403	$ 2,492,320
Building 6	$ 9,314,930	$ 2,540,435

The city-owned portion of the land is estimated at 1.59 acres, as shown in Table 85. This does not include the land under Building 6, which is presumed to be owned in condominium with the other owners of the 54 Meadow office building and parking structure. The city-owned share of this land is unclear and would require further investigation.

Table 85: City-Owned Land Available for Development/Sale

City-Owned Land Available for Development/Sale	
1 Union Avenue parcel	1.33
+ Existing W. Water St ROW b/w Meadow St and Union Ave	0.55
City-Owned Land	1.88
- New W. Water St ROW	(0.29)
Available for Development/Sale	1.59

Note: acreage approximate

[22] Based on reported rates of return for apartment, retail, restaurant, and office projects from RealtyRates Investor Survey 4Q2017

[23] Note that assuming an 11% IRR, the land under Buildings 1, 2, and 3 has negligible value. Because it would be developed as a residential property, the high property tax burden must be shouldered by the property owner and cannot be passed onto the tenant as is the case for the other parcels with commercial property types with net lease structures.

The dotted lines in Figure 41 show the existing city-owned right-of-way (ROW), overlaid on the redevelopment concept diagram.

Figure 41: Existing City-Owned ROW

Source: MRLD

Discussion

The total value of city-owned land (excluding land under future Building 6) is estimated at between $2.6 million and $10 million. The actual value is likely toward the lower end of this range, assuming that a prospective developer/investor would require closer to an 11% return and possibly higher, depending on the extent to which the City is able to mitigate development risk. Moreover, it is emphasized that any site costs to be borne by a prospective developer should be deducted from the land value.

Table 86: Total Value of City-Owned Land, Before Site Costs

Total Value of City-Owned Land, Before Site Costs			
Parcel	City-Owned Acreage	Min. Return (7%)	Avg. Return (11%)
Building 1, 2, 3	0.84	$ 3,851,881	$ -
Buildings 4, 5	1.04	$ 8,900,000	$ 2,600,000
Total	1.88	$ 12,751,881	$ 2,600,000

Based on discussion with City staff, it is possible that site costs could far exceed the calculated land values. Therefore, the City should not expect the sale of the City-owned portion of the study area to yield any significant proceeds. In addition, it is likely that the City may have to subsidize any future development to cover these costs,

through property tax abatement or another financing mechanism such as tax increment financing (TIF). Further investigation would be required to determine the extent of these site costs and the resulting funding gap.

Pro Forma Statements

The attached pro forma statements model cash flows for the development scenarios, by parcel. Note that Buildings 1/2/3 and Building 6 are the same in both scenarios. Buildings 4/5 were modeled under the two scenarios. Under Scenario B (Business + Technology Hub), a developer would not be willing to pay as much for land acquisition for Buildings 4/5 as under Scenario A, given the differing returns associated with the programmed uses. Thus, Scenario A is considered to be more financially feasible.

The following pro forma statements are attached:

- Buildings 1/2/3
- Buildings 4/5 – Scenario A
- Buildings 4/5 – Scenario B
- Building 6

The land acquisition cost shown is equal to the residual land value assuming an 11% return, except for Buildings 1/2/3 and Buildings 4/5 under Scenario B. In these cases, the land acquisition cost modeled is equal to the residual land value assuming a 7% return, since an 11% return could not be achieved even with a land acquisition cost of $0.

Also attached for comparison are CoStar listings of recent land sale transactions in New Haven.

												IRR	7.00%
City of New Haven, CT												**1 Union / 54 Meadow Redevelopment**	
						PRO FORMA STATEMENT - BUILDINGS 1, 2, & 3							
	Year 0	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**	
Operating Cash Flow													
Income													
Rental Income	$ -	$ 1,498,800	$ 3,070,941	$ 4,722,391	$ 6,452,815	$ 8,239,389	$ 8,445,374	$ 8,656,508	$ 8,872,921	$ 9,094,744	$ 9,322,113	$ 9,555,165	
Vacancy Allowance	$ -	$ (74,940)	$ (153,547)	$ (236,120)	$ (322,641)	$ (411,969)	$ (422,269)	$ (432,825)	$ (443,646)	$ (454,737)	$ (466,106)	$ (477,758)	
Effective Gross Income	$ -	$ 1,423,860	$ 2,917,394	$ 4,486,272	$ 6,130,174	$ 7,827,420	$ 8,023,105	$ 8,223,683	$ 8,429,275	$ 8,640,007	$ 8,856,007	$ 9,077,407	
Expenses													
Operating Expenses	$ -	$ (222,471)	$ (455,534)	$ (700,656)	$ (957,191)	$ (1,222,534)	$ (1,253,098)	$ (1,284,425)	$ (1,316,536)	$ (1,349,449)	$ (1,383,185)	$ (1,417,765)	
Property Taxes Paid	$ -	$ (302,616)	$ (617,337)	$ (944,526)	$ (1,284,555)	$ (1,637,808)	$ (1,670,564)	$ (1,703,975)	$ (1,738,055)	$ (1,772,816)	$ (1,808,272)	$ (1,844,437)	
Net Operating Income (NOI)	**$ -**	**$ 898,773**	**$ 1,844,523**	**$ 2,841,090**	**$ 3,888,428**	**$ 4,967,078**	**$ 5,099,444**	**$ 5,235,283**	**$ 5,374,685**	**$ 5,517,742**	**$ 5,664,550**	**$ 5,815,205**	
Financing Cash Flow													
Construction Financing Draw	$ 48,604,202	$ (48,604,202)											
Permanent Loan Origination Fee	$ (1,458,126)												
Permanent Financing Draw		$ 52,249,517											
Debt Service Payment		$ (3,207,678)	$ (3,207,678)	$ (3,207,678)	$ (3,207,678)	$ (3,207,678)	$ (3,207,678)	$ (3,207,678)	$ (3,207,678)	$ (3,207,678)	$ (3,207,678)		
Principal Balance												$ (41,725,278)	
Sale Proceeds												$ 66,361,751	
Financing Cash Flow	**$ 47,146,076**	**$ 437,637**	**$ (3,207,678)**	**$ (3,207,678)**	**$ (3,207,678)**	**$ (3,207,678)**	**$ (3,207,678)**	**$ (3,207,678)**	**$ (3,207,678)**	**$ (3,207,678)**	**$ (3,207,678)**	**$ 24,636,473**	
Capital Expenses													
Land Acquisition Cost	$ (6,882,045)												
Demolition Cost	$ (200,000)												
Environmental Remediation Costs	$ -												
Sitework Costs	$ -												
Vertical Construction Costs (Includes Soft	$ (62,352,529)												
Capital Expenses Cash Flow	**$ (69,434,574)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
NET CASH FLOW	**$ (22,288,498)**	**$ 1,336,409**	**$ (1,363,155)**	**$ (366,588)**	**$ 680,750**	**$ 1,759,400**	**$ 1,891,766**	**$ 2,027,604**	**$ 2,167,006**	**$ 2,310,064**	**$ 2,456,871**	**$ 30,451,678**	
Debt Service Coverage Ratio (DSCR)		**0.28**	**0.58**	**0.89**	**1.21**	**1.55**	**1.59**	**1.63**	**1.68**	**1.72**	**1.77**		
Cash-on-Cash (Equity Dividend Rate)		6%	-6%	-2%	3%	8%	8%	9%	10%	10%	11%		
Internal Rate of Return (IRR)	**7.00%**												

												IRR	11.01%
City of New Haven, CT												**1 Union / 54 Meadow Redevelopment**	
PRO FORMA STATEMENT - BUILDINGS 4 & 5 - SCENARIO A													
	Year 0	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**	
Operating Cash Flow													
Income													
Rental Income	$ -	$ 1,603,008	$ 2,643,401	$ 3,749,214	$ 4,846,520	$ 5,967,208	$ 6,116,388	$ 6,269,298	$ 6,426,030	$ 6,586,681	$ 6,751,348	$ 6,920,132	
Vacancy Allowance	$ -	$ (48,796)	$ (100,032)	$ (154,519)	$ (208,561)	$ (263,751)	$ (270,345)	$ (277,103)	$ (284,031)	$ (291,132)	$ (298,410)	$ (305,870)	
Effective Gross Income	$ -	$ 1,554,212	$ 2,543,369	$ 3,594,695	$ 4,637,960	$ 5,703,457	$ 5,846,043	$ 5,992,195	$ 6,141,999	$ 6,295,549	$ 6,452,938	$ 6,614,262	
Expenses													
Operating Expenses	$ -	$ (206,208)	$ (358,450)	$ (519,155)	$ (682,165)	$ (848,849)	$ (870,071)	$ (891,822)	$ (914,118)	$ (936,971)	$ (960,395)	$ (984,405)	
Property Taxes Paid	$ -	$ (187,513)	$ (382,527)	$ (585,266)	$ (795,962)	$ (1,014,852)	$ (1,035,149)	$ (1,055,852)	$ (1,076,969)	$ (1,098,508)	$ (1,120,478)	$ (1,142,888)	
Net Operating Income (NOI)	**$ -**	**$ 1,160,491**	**$ 1,802,392**	**$ 2,490,274**	**$ 3,159,832**	**$ 3,839,756**	**$ 3,940,824**	**$ 4,044,521**	**$ 4,150,913**	**$ 4,260,071**	**$ 4,372,065**	**$ 4,486,969**	
Financing Cash Flow													
Construction Financing Draw	$ 33,654,731	$ (33,654,731)											
Permanent Loan Origination Fee	$ (1,009,642)												
Permanent Financing Draw		$ 36,178,836											
Debt Service Payment		$ (2,221,075)	$ (2,221,075)	$ (2,221,075)	$ (2,221,075)	$ (2,221,075)	$ (2,221,075)	$ (2,221,075)	$ (2,221,075)	$ (2,221,075)	$ (2,221,075)		
Principal Balance												$ (28,891,597)	
Sale Proceeds												$ 51,204,234	
Financing Cash Flow	**$ 32,645,089**	**$ 303,030**	**$ (2,221,075)**	**$ (2,221,075)**	**$ (2,221,075)**	**$ (2,221,075)**	**$ (2,221,075)**	**$ (2,221,075)**	**$ (2,221,075)**	**$ (2,221,075)**	**$ (2,221,075)**	**$ 22,312,638**	
Capital Expenses													
Land Acquisition Cost	$ (2,132,142)												
Demolition Cost	$ (500,000)												
Environmental Remediation Costs	$ -												
Sitework Costs	$ -												
Vertical Construction Costs (Includes Soft	$ (45,446,045)												
Capital Expenses Cash Flow	**$ (48,078,187)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
NET CASH FLOW	**$ (15,433,098)**	**$ 1,463,521**	**$ (418,682)**	**$ 269,200**	**$ 938,758**	**$ 1,618,682**	**$ 1,719,750**	**$ 1,823,446**	**$ 1,929,838**	**$ 2,038,996**	**$ 2,150,990**	**$ 26,799,607**	
Debt Service Coverage Ratio (DSCR)		**0.52**	**0.81**	**1.12**	**1.42**	**1.73**	**1.77**	**1.82**	**1.87**	**1.92**	**1.97**		
Cash-on-Cash (Equity Dividend Rate)		9%	-3%	2%	6%	10%	11%	12%	13%	13%	14%		
Internal Rate of Return (IRR)	**11.01%**												

IRR **7.03%**

City of New Haven, CT **1 Union / 54 Meadow Redevelopment**

PRO FORMA STATEMENT - BUILDINGS 4 & 5 - SCENARIO B

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Operating Cash Flow												
Income												
Rental Income	$ -	$ 941,070	$ 1,929,194	$ 2,964,496	$ 4,052,038	$ 5,188,413	$ 5,318,123	$ 5,451,076	$ 5,587,353	$ 5,727,037	$ 5,870,213	$ 6,016,968
Vacancy Allowance	$ -	$ (47,054)	$ (96,460)	$ (148,225)	$ (202,602)	$ (259,421)	$ (265,906)	$ (272,554)	$ (279,368)	$ (286,352)	$ (293,511)	$ (300,848)
Effective Gross Income	$ -	$ 894,017	$ 1,832,734	$ 2,816,271	$ 3,849,436	$ 4,928,992	$ 5,052,217	$ 5,178,522	$ 5,307,986	$ 5,440,685	$ 5,576,702	$ 5,716,120
Expenses												
Operating Expenses	$ -	$ (206,387)	$ (423,093)	$ (649,961)	$ (888,466)	$ (1,138,140)	$ (1,166,594)	$ (1,195,758)	$ (1,225,652)	$ (1,256,294)	$ (1,287,701)	$ (1,319,894)
Property Taxes Paid	$ -	$ (5,310)	$ (10,833)	$ (16,574)	$ (22,541)	$ (28,740)	$ (29,314)	$ (29,901)	$ (30,499)	$ (31,109)	$ (31,731)	$ (32,365)
Net Operating Income (NOI)	**$ -**	**$ 682,319**	**$ 1,398,808**	**$ 2,149,736**	**$ 2,938,429**	**$ 3,762,113**	**$ 3,856,309**	**$ 3,952,863**	**$ 4,051,834**	**$ 4,153,283**	**$ 4,257,270**	**$ 4,363,861**
Financing Cash Flow												
Construction Financing Draw	$ 36,547,930	$ (36,547,930)										
Permanent Loan Origination Fee	$ (1,096,438)											
Permanent Financing Draw		$ 39,289,025										
Debt Service Payment		$ (2,412,014)	$ (2,412,014)	$ (2,412,014)	$ (2,412,014)	$ (2,412,014)	$ (2,412,014)	$ (2,412,014)	$ (2,412,014)	$ (2,412,014)	$ (2,412,014)	
Principal Balance												$ (31,375,323)
Sale Proceeds												$ 49,799,353
Financing Cash Flow	**$ 35,451,492**	**$ 329,081**	**$ (2,412,014)**	**$ (2,412,014)**	**$ (2,412,014)**	**$ (2,412,014)**	**$ (2,412,014)**	**$ (2,412,014)**	**$ (2,412,014)**	**$ (2,412,014)**	**$ (2,412,014)**	**$ 18,424,030**
Capital Expenses												
Land Acquisition Cost	$ (6,111,518)											
Demolition Cost	$ (500,000)											
Environmental Remediation Costs	$ -											
Sitework Costs	$ -											
Vertical Construction Costs (Includes Soft	$ (45,599,810)											
Capital Expenses Cash Flow	**$ (52,211,328)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
NET CASH FLOW	**$ (16,759,836)**	**$ 1,011,400**	**$ (1,013,206)**	**$ (262,278)**	**$ 526,415**	**$ 1,350,099**	**$ 1,444,295**	**$ 1,540,850**	**$ 1,639,821**	**$ 1,741,269**	**$ 1,845,257**	**$ 22,787,891**
Debt Service Coverage Ratio (DSCR)		**0.28**	**0.58**	**0.89**	**1.22**	**1.56**	**1.60**	**1.64**	**1.68**	**1.72**	**1.77**	
Cash-on-Cash (Equity Dividend Rate)		6%	-6%	-2%	3%	8%	9%	9%	10%	10%	11%	
Internal Rate of Return (IRR)	**7.03%**											

	IRR	**11.00%**
City of New Haven, CT		**1 Union / 54 Meadow Redevelopment**

PRO FORMA STATEMENT - BUILDING 6

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Operating Cash Flow												
Income												
Rental Income	$ -	$ 222,221	$ 455,553	$ 700,412	$ 957,230	$ 1,226,451	$ 1,257,112	$ 1,288,540	$ 1,320,753	$ 1,353,772	$ 1,387,617	$ 1,422,307
Vacancy Allowance	$ -	$ (11,111)	$ (22,778)	$ (35,021)	$ (47,861)	$ (61,323)	$ (62,856)	$ (64,427)	$ (66,038)	$ (67,689)	$ (69,381)	$ (71,115)
Effective Gross Income	$ -	$ 211,110	$ 432,775	$ 665,392	$ 909,368	$ 1,165,128	$ 1,194,257	$ 1,224,113	$ 1,254,716	$ 1,286,084	$ 1,318,236	$ 1,351,192
Expenses												
Operating Expenses	$ -	$ (21,111)	$ (43,278)	$ (66,539)	$ (90,937)	$ (116,513)	$ (119,426)	$ (122,411)	$ (125,472)	$ (128,608)	$ (131,824)	$ (135,119)
Property Taxes Paid	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Operating Income (NOI)	**$ -**	**$ 189,999**	**$ 389,498**	**$ 598,852**	**$ 818,432**	**$ 1,048,616**	**$ 1,074,831**	**$ 1,101,702**	**$ 1,129,244**	**$ 1,157,475**	**$ 1,186,412**	**$ 1,216,073**
Financing Cash Flow												
Construction Financing Draw	$ 8,879,358	$ (8,879,358)										
Permanent Loan Origination Fee	$ (266,381)											
Permanent Financing Draw		$ 9,545,310										
Debt Service Payment		$ (586,001)	$ (586,001)	$ (586,001)	$ (586,001)	$ (586,001)	$ (586,001)	$ (586,001)	$ (586,001)	$ (586,001)	$ (586,001)	
Principal Balance												$ (7,622,668)
Sale Proceeds												$ 13,877,534
Financing Cash Flow	**$ 8,612,977**	**$ 79,951**	**$ (586,001)**	**$ (586,001)**	**$ (586,001)**	**$ (586,001)**	**$ (586,001)**	**$ (586,001)**	**$ (586,001)**	**$ (586,001)**	**$ (586,001)**	**$ 6,254,866**
Capital Expenses												
Land Acquisition Cost	$ (956,477)											
Demolition Cost	$ -											
Environmental Remediation Costs	$ -											
Sitework Costs	$ -											
Vertical Construction Costs (Includes Soft	$ (11,728,320)											
Capital Expenses Cash Flow	**$ (12,684,797)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
NET CASH FLOW	**$ (4,071,820)**	**$ 269,949**	**$ (196,504)**	**$ 12,851**	**$ 232,430**	**$ 462,614**	**$ 488,830**	**$ 515,700**	**$ 543,243**	**$ 571,474**	**$ 600,411**	**$ 7,470,938**
Debt Service Coverage Ratio (DSCR)		**0.32**	**0.66**	**1.02**	**1.40**	**1.79**	**1.83**	**1.88**	**1.93**	**1.98**	**2.02**	
Cash-on-Cash (Equity Dividend Rate)		7%	-5%	0%	6%	11%	12%	13%	13%	14%	15%	
Internal Rate of Return (IRR)	**11.00%**											

1 197 Davenport Ave — SOLD

New Haven, CT 06519 — New Haven County

Sale Date:	12/09/2015 (268 days on mkt)	Land Area:	0.09 AC (3,920 SF)
Sale Price:	$124,000 - Confirmed	Lot Dimensions:	-
$/AC Land Gross:	$1,360,221.85 ($31.23/SF)	Proposed Use:	-
Parcel No:	NHVN-000299-000145-002200, NHVN-000299-000145-002300		
Comp ID:	3521818	Sale Conditions:	-
Research Status:	Confirmed		

2 163 Middletown Ave — SOLD

New Haven, CT 06513 — New Haven County

Sale Date:	06/20/2017	Land Area:	1 AC (43,560 SF)
Sale Price:	$270,000	Lot Dimensions:	-
$/AC Land Gross:	$270,000.00 ($6.20/SF)	Proposed Use:	Commercial [Partial List]
Parcel No:	NHVN-000128-001036-000100		
Comp ID:	3953329	Sale Conditions:	-
Research Status:	Public Record		

3 494 Quinnipiac Ave — SOLD

New Haven, CT 06513 — New Haven County

Sale Date:	01/08/2016 (555 days on mkt)	Land Area:	0.70 AC (30,492 SF)
Sale Price:	$345,000 - Confirmed	Lot Dimensions:	Irregular
$/AC Land Gross:	$492,857.14 ($11.31/SF)	Proposed Use:	Apartment Units - Condo [Partial List]
Parcel No:	NHVN-000092-001001-000100		
Comp ID:	3515928	Sale Conditions:	-
Research Status:	Confirmed		

4 904 Quinnipiac Ave — SOLD

New Haven, CT 06513 — New Haven County

Sale Date:	04/12/2016	Land Area:	1.44 AC (62,726 SF)
Sale Price:	$145,000	Lot Dimensions:	-
$/AC Land Gross:	$100,695.09 ($2.31/SF)	Proposed Use:	MultiFamily
Parcel No:	NHVN-000114-001012-000700		
Comp ID:	3601073	Sale Conditions:	-
Research Status:	Public Record		

5 294 State St — SOLD

New Haven, CT 06510 — New Haven County

Sale Date:	11/08/2017	Land Area:	0.12 AC (5,227 SF)
Sale Price:	$1,700,000 - Full Value	Lot Dimensions:	-
$/AC Land Gross:	$14,463,284.53 ($332.03/SF)	Proposed Use:	-
Parcel No:	NHVN-000240-000236-001700		
Comp ID:	4075841	Sale Conditions:	-
Research Status:	Full Value		

APPENDIX E: ECONOMIC IMPACT ANALYSIS

Economic Impacts Summary

The economic impact analysis examines the potential impact in terms of generating direct and indirect jobs, sales, and earnings in the City of New Haven's local economy due to both Scenario A: Transit-Oriented Living, Shopping and Dining; and Scenario B: Business and Technology Hub at 1 Union / 54 Meadow. Economic impacts in the City of New Haven as a result of both scenarios include the following:

Scenario A

- Net new households from apartments: **332 new households**
- Permanent jobs both on-site and off-site from residential workers, household spending, and food/retail sales: **147 jobs**
- Annual earnings including wages and benefits, from residential workers, household spending, and food/retail sales: **$4 million**
- Annual sales at local businesses as money cycles through the city's economy: **$13 million**

Scenario B

- Net new households from apartments: **206 new households**
- Total permanent jobs (including 353 research & development jobs) both on-site and off-site at local businesses, including residential workers, household spending, and conference/event center related sales: **610 jobs**
- Annual earnings including wages and benefits: **$37 million**
- Annual sales at local businesses as money cycles through the city's economy: **$105 million**

Methodology

Camoin Associates uses the input-output model designed by Economic Modeling Specialists International (EMSI) to calculate total economic impacts. EMSI allows the analyst to input the amount of new economic activity (spending, earnings, or jobs) occurring within the study area (City of New Haven) and uses the direct inputs to estimate the spillover effects that the net new spending or jobs have as these new dollars circulate through the City of New Haven economy. This is captured in the indirect impacts and is commonly referred to as the "multiplier effect." For a detailed explanation of economic impact analysis, please refer to *What is economic impact analysis?* at the end of Appendix D.

Economic impacts of the 1 Union / 54 Meadow site Development Scenarios include: (1) one-time construction phase impacts, (2) spending by new residents of the new apartment units, (3) new residential employees at apartment units, (4) new jobs created by tenants of the Class A office space, (5) spending from conference / event center visitors, and (6) net new spending from retail / restaurant space.

Scenario A

Impacts of Construction

The construction spending from Scenario A will have a positive one-time economic impact on the City of New Haven. We anticipate that construction of Scenario A cost approximately $110,201,563.[24] Assuming 25% of the construction spending would be sourced from within the city, we can use each approximate construction cost as a new sales input to estimate the direct and indirect impacts within the City of New Haven.

Table 87: Construction Costs of Scenario A

Total Construction Costs			
	Total Construction Spending	% Net New	Total Net New Spending
Scenario A	$ 110,201,563	25%	**$ 27,550,391**

Based on $27,550,391 worth of net new direct spending associated with the construction phase of Scenario A, we determined that there would be over $31 million in total one-time construction-related spending supporting 140 jobs over the construction period throughout the City and $11 million in one-time construction related earnings.

Table 88: Scenario A Construction Phase Impacts

Scenario A Construction Phase Impacts			
	Direct	Indirect	Total
Jobs	113	27	140
Earnings	$ 10,042,966	$ 1,273,903	$ 11,316,869
Sales	$ 27,550,391	$ 3,487,539	$ 31,037,930

Source: EMSI, Camoin Associates

Impacts of New Household Spending

In order to determine the annual economic impacts of household spending induced by the 1 Union / 54 Meadow site on the City of New Haven, we must first calculate the number of households that can be considered "net new" to the City's economy. In other words, the number of households that, but for the site development, would not exist within the City of New Haven. With respect to the residential units in both Scenario A and Scenario B, net new households consist primarily of those currently residing outside of City of New Haven who will choose to move to the City because of the project and would otherwise continue to live elsewhere.

To understand how many of the new rental units would attract net new households, we analyzed the existing supply and demand of apartments within the City of New Haven. Overall, rental units comprise a majority share of the total housing stock in the City of New Haven, especially relative to the county and state, as shown in Table 89: Rental Housing Units.

[24] This includes demolition costs.

Table 89: Rental Housing Units

Rental Housing Units		
	Renter-Occupied Units	% of All Occupied Units
City of New Haven	82,942	69%
New Haven County	281,931	34%
Connecticut	1,055,988	30%

Source: 2016 American Community Survey, 1-Year Estimates

Nearly 70% of housing units in the City of New Haven are renter-occupied. Additionally, in 2017, the overall vacancy rate for Class A and Class B Multifamily rental units in Greater New Haven was about 5.5%.[25] The new housing units proposed within the Project Site will need to be relatively high-end in order to make the project financially feasible without subsidy. Such units will primarily draw tenants from outside the city, so we conservatively estimate that 75% of the units would be occupied by households who would be considered "net new" to New Haven.

Number of Net New Households

If 75% of the rental units are considered net new, Scenario A will generate 332 net new households within the City. Using these numbers of new households, we can estimate the amount of new household spending that will occur within the City due to the 1 Union / 54 Meadow site development.

Table 90: Scenario A Net New Housing Units

Net New Housing Units			
	Total New Units	% Net New	Net New Units
Scenario A	443	75%	**332**

Spending by Net New Households

Since we are considering that there will be 332 net new households due to Scenario A within the City, because of the development, we must estimate the level of new household spending that will occur within the City due to the net new households. To understand the amount of spending that will occur, we estimate the average income of net new renters.

To estimate average household income, we examined market segments that are most likely to reside in high-end apartments and condos in urban areas. As previously noted, we identified 6 primary target segments and 4 secondary target segments who would seek the sort of housing that the study site would support. The primary segments include those falling within the most urban Esri Urbanization groups, with median household income of at least $50,000, and a tendency toward multi-family units. Table 54: Target Demographic Groups for Dense Mixed-Use Urban Living summarizes the primary and secondary target groups. We also assume that rents for the new apartment units will fall between $1,500 - $3,000 per month, based on current market rates in New Haven. A generally accepted budgeting principle is that the cost of rent is considered to be 30% (or less) of a person's income. With rent prices estimated between $1,500 - $3,000 per month, we can assume that renters will likely have an income between $60,000 - $120,000. Because of this, only 4 of the 6 primary target segments (and none of the secondary segments) can be predicted to live in the new high-end residential space. The 4 segments that we can expect would likely live in the new residential space include Laptops and Lattes, Metro Renters, Trendsetters, and

[25] CoStar

City Lights, detailed in Table 91. We expect that the new tenants at the 1 Union / 54 Meadow site will be at the upper end of the income range within their market segments.

Table 91: Likely Demographic Groups for Renting at 1 Union / 54 Meadow Site

Likely Demographic Groups for Renting at 1 Union / 54 Meadow Site						
Esri Tapestry Segment	Household Type	Avg HH size	Median Age	Median HH Income	Housing Type	Home Ownership (%)
3A: Laptops and Lattes	Singles	1.87	37.1	$ 106,200	High Density Apartments	37.3
3B: Metro Renters	Singles	1.67	32.2	$ 64,300	Multi-Unit Rentals	20.2
3C: Trendsetters	Singles	2.12	35.9	$ 60,400	High Density Apartments	24.5
8A: City Lights	Married Couples	2.58	39.1	$ 66,500	Multi-Units; Single Family	51.8
Average HH Income for Likely Segments				**$ 74,350**		

Note: This table shows typical characteristics for each demographic segment nationally. This data is not specific to the study area.

Source: Esri

Using a spending basket for the region which details household spending in individual consumer categories by income level, we analyzed likely potential renter spending. We assume that the average renter will fall within the income bracket between $70,000 and $99,999, having annual expenditures (excluding housing and utility costs) of $36,204, according to the Bureau of Labor Statistics 2016 Consumer Expenditure Survey.

To estimate the portion of this spending that will occur within the City of New Haven, we examined (1) the overall supply and demand of retail trade, and food and drink by consumers within the City, and (2) the overall demand satisfied by industries and consumers on essential goods and services throughout all industries within the City.

Our analysis of consumer supply and demand of retail trade, and food and drink industries within the City shows that about there is a retail gap of about $160 million, indicating that consumers need to leave the City to satisfy about 11% of total retail trade, and food and drink demand.[26] However, our analysis of the overall demand satisfied by industries and consumers on goods and services indicates that only about 20% of demand is met within the City.[27] Additionally, the City is not geographically expansive and the majority of big box retail is located outside of the city limits, including 4 large shopping centers.[28] Knowing this, we conservatively estimate that 40% of spending by net new City residents will occur within the city limits.

Direct and Indirect Impacts of Household Spending

Using unique spending basket amounts, as shown in Table 93: Scenario A: Renter Spending Basket we can calculate the **direct, indirect, and total impact** of both Scenario A's new household spending and Scenario B's new household spending, on the City economy. To do this, we attributed the various spending categories to the NAICS codes found in the table below.

[26] See **Retail Gap Analysis** within this report for more detailed information about how we analyze supply and demand for industries within specific regions.
[27] Emsi: Regional Requirements report for the City of New Haven, Q3 2017 Data Set
[28] See **Retail Market Analysis** and **Nearby Shopping Centers** within this report for more detailed information regarding retailers within and nearby the City of New Haven.

Table 92: Spending Basket Breakdown by NAICS Code

Spending Basket Breakdown by NAICS Code		
NAICS Code	Industry	Spending Basket Category
445110	Supermarkets and Other Grocery (except Convenience) Stores	Food
722511	Full-Service Restaurants	Food
442299	All Other Home Furnishings Stores	Household furnishings and equipment
448140	Family Clothing Stores	Apparel and services
441110	New Car Dealers	Transportation
447110	Gasoline Stations with Convenience Stores	Transportation
811111	General Automotive Repair	Transportation
524114	Direct Health and Medical Insurance Carriers	Health care
622110	General Medical and Surgical Hospitals (Private)	Health care
512131	Motion Picture Theaters	Entertainment
452990	All Other General Merchandise Stores	Entertainment, Personal care products and services, Miscellaneous
	All Other General Merchandise Stores	Personal care products and services
	All Other General Merchandise Stores	Miscellaneous
611310	Colleges, Universities, and Professional Schools	Education

New Household Spending

Considering Scenario A, 443 new high-end residential units would be built, and of those 443 units, 75% would be considered net new, therefore creating 332 net new households within the City of New Haven. This would result in over $4.7 million in net new spending within the City. The total net new spending in the City was calculated by multiplying the amount spent in the City (40% per each category) by the number of net new units, as detailed below.

Table 93: Scenario A: Renter Spending Basket

Scenario A: Renter Spending Basket			
$70,000 to $99,999 Annual Household Income			
Category	Annual per Unit Spending Basket	Amount Spent in City (40%)	Total Net New City Spending (332 net new units)
Food	$ 8,436	$ 3,374	$ 1,120,301
Household furnishings and equipment	$ 2,039	$ 816	$ 270,779
Apparel and services	$ 2,010	$ 804	$ 266,928
Transportation	$ 11,120	$ 4,448	$ 1,476,736
Health care	$ 5,469	$ 2,188	$ 726,283
Entertainment	$ 3,451	$ 1,380	$ 458,293
Personal care products and services	$ 789	$ 316	$ 104,779
Education	$ 1,012	$ 405	$ 134,394
Miscellaneous	$ 1,067	$ 427	$ 141,698
Annual Discretionary Spending	$ 35,393	$ 14,157	$ 4,700,190
Total Net New City Spending			**$ 4,700,190**

Source: 2016 Consumer Expenditure Survey, Bureau of Labor Statistics

Using $4,700,190 as the new sales input, we employed EMSI to determine the indirect and total impact of Scenario A's residential units on the City of New Haven's economy. The following table outlines the findings of this analysis.

Table 94: Scenario A: Economic Impact of Household Spending

Scenario A Economic Impact - Household Spending			
	Direct	Indirect	Total
Jobs	54	8	62
Earnings	$ 1,696,610	$ 383,929	$ 2,080,539
Sales	$ 4,700,190	$ 1,138,376	$ 5,838,566

Source: EMSI, Camoin Associates

Within Scenario A, spending from net new households in the City will result in a total of 62 net new jobs, $2 million in earnings, and over $5.8 million in sales in the City of New Haven, annually.

Impacts of Net New Residential Workers

The operation large residential buildings require on-site employment. According to the NAA Survey of Operating Income and Expenses in Rental Apartment Communities, one can expect to spend $1.37 in personnel costs including wages and salaries per year, per each square foot of residential space. Following the same logic that 75% of the residential space (and number of households) will be considered net new to the City, we can conclude that Scenario A will generate just over 350,000 square feet of net new space, contributing to nearly $500,000 in annual net new earnings for workers of the residential facility. Net new earnings from residential workers will have an additional, positive impact on the City's economy through new job and sales generation.

Table 95: Scenario A Net New Residential Worker Earnings

Net New Residential Worker Earnings					
	Residential GSF	% Net New	Net New Residential GSF	Personel Cost per SF	**Net New Residential Earnings**
Scenario A	471,658	75%	353,744	$ 1.37	**$ 484,629**

Source: 2015 NAA Survey of Operating Income & Expenses in Rental Apartment Communities

New Residential Worker Impacts

As shown in Table 95, the net new square footage of residential space in Scenario A will generate $484,629 in new earnings for workers at the residential facility. Using EMSI's input-output model, we can estimate the indirect impacts on the local economy from the $484,629 in net new earnings for workers at the residential facility.

The net new residential worker earnings will generate a total of 22 jobs throughout the economy, an additional $260,500 in earnings, and a total of over $3 million in annual sales.

Table 96: Scenario A: Economic Impact of Residential Workers

Scenario A Economic Impact - Residential Workers			
	Direct	Indirect	Total
Jobs	15	7	22
Earnings	$ 484,629	$ 260,527	$ 745,156
Sales	$ 2,228,623	$ 782,171	$ 3,010,794

Source: EMSI, Camoin Associates

Impacts of Retail / Restaurant Space

Scenario A includes 35,942 SF of retail and restaurant space, including 28,504 SF in Building 5, which could potentially be designed as a food hall. The food hall concept would cater to Union Station passengers, local residents, and office workers, with potential for a significant portion of the customer base to come from outside the city, comprised of visitors seeking a new and unique restaurant experience. The City of New Haven already has a number of well-known pizza shops which have served as a tourist draw. We can assume that the new food hall concept would similarly promote new visitation from tourists interested in the New Haven food scene.

We recognize that a majority of food hall sales will come from local residents and office workers, so we conservatively assume that about 25% of food hall sales would be due to new tourist specifically visiting the food hall for the unique experience. To estimate net new sales because of the food hall, we can assume about 7,200 square feet of *net new* food hall space, generating $500 per square foot,[29] and therefore totaling over $3.5 million in net new sales from visitors spending at the food hall. The $3.5 million in food hall sales will have additional positive impacts of the local economy in terms of jobs and earnings.

We assume other retail and restaurant would not be considered net new because these spaces would be more generic in nature, and would generally be supported by local residents and office workers, and would not draw new tourism and visitation from outside of the city.

[29] Achievable revenue for a high-traffic food hall

Table 97: Net New Retail/Restaurant Spending

Net New Retail/Restaurant Spending					
	Food Hall GSF	% Net New	Net New Food Hall SF	Sales per SF	**Net New Food Hall Sales**
Scenario A	28,504	25%	7,126	$500	**$ 3,563,000**

Retail / Restaurant Sales Impacts

As shown in Table 97, the food hall space in Building 5 of Scenario A will generate $3,563,000 in net new sales from visitors wanting to experience unique food hall dining. This $3.5 million in new sales will generate 63 total jobs throughout the economy, with $1.5 million in earnings, and an additional $800,000 in sales.

Table 98: Scenario A: Economic Impact of Retail/Restaurant

Scenario A Economic Impact - Retail/Restaurant			
	Direct	Indirect	Total
Jobs	57	6	63
Earnings	$ 1,274,015	$ 257,758	$ 1,531,773
Sales	$ 3,563,000	$ 799,097	$ 4,362,097

Source: EMSI, Camoin Associates

Total Economic Impacts of Scenario A

The total annual economic impacts of Scenario A are detailed in Table 100. This includes economic impacts from the new residential workers at the apartments, household spending from new households residing in the apartments, and new sales from the proposed food hall in Building 5. Total economic impacts from Scenario A include 147 new jobs in the city, with over $4 million in earnings, and $13.2 million in annual sales.

Additionally, one-time[30] construction phase spending, of over $27 million on the project, impacts would benefit the City of New Haven by supporting 140 jobs, with over $11 million in earnings.

Table 99: Scenario A Construction Phase Impacts

Scenario A Construction Phase Impacts			
	Direct	Indirect	Total
Jobs	113	27	140
Earnings	$ 10,042,966	$ 1,273,903	$ 11,316,869
Sales	$ 27,550,391	$ 3,487,539	$ 31,037,930

Source: EMSI, Camoin Associates

[30] Construction impacts are one-time impacts as opposed to the annual impacts from other spending categories, therefore the construction table impacts are not considered in the Total Impacts table.

Table 100: Scenario A: Total Economic Impact

Scenario A Total Economic Impact			
Residential Workers			
	Direct	Indirect	Total
Jobs	15	7	22
Earnings	$ 484,629	$ 260,527	$ 745,156
Sales	$ 2,228,623	$ 782,171	$ 3,010,794
Household Spending			
	Direct	Indirect	Total
Jobs	54	8	62
Earnings	$ 1,696,610	$ 383,929	$ 2,080,539
Sales	$ 4,700,190	$ 1,138,376	$ 5,838,566
Food/Retail Sales			
	Direct	Indirect	Total
Jobs	57	6	63
Earnings	$ 1,274,015	$ 257,758	$ 1,531,773
Sales	$ 3,563,000	$ 799,097	$ 4,362,097
Total			
	Direct	Indirect	Total
Jobs	126	21	147
Earnings	$ 3,455,254	$ 902,214	$ 4,357,468
Sales	$ 10,491,813	$ 2,719,644	$ 13,211,458

Source: EMSI, Camoin Associates

Scenario B

Impacts of Construction

The construction spending from Scenario B will have a positive one-time economic impact on the City of New Haven. We anticipate that construction of Scenario B cost approximately $108,728,801.[31] Assuming 25% of the construction spending would be sourced from within the city, we can use each approximate construction cost as a new sales input to estimate the direct and indirect impacts within the City of New Haven.

Table 101: Construction Costs of Scenario B

Total Construction Costs			
	Total Construction Spending	% Net New	Total Net New Spending
Scenario B	$ 108,728,801	25%	**$ 27,182,200**

Based on $27,182,200 worth of net new direct spending associated with the construction phase of Scenario B, we determined that there would be over $30 million in total one-time construction-related spending supporting about 138 jobs over the construction period throughout the City and $11 million in one-time construction related earnings.

Table 102: Scenario B Construction Phase Impacts

Scenario B Construction Phase Impacts			
	Direct	Indirect	Total
Jobs	111	27	138
Earnings	$ 9,908,749	$ 1,256,878	$ 11,165,628
Sales	$ 27,182,200	$ 3,440,931	$ 30,623,131

Source: EMSI, Camoin Associates

Impacts of New Household Spending

Table 103: Scenario B Net New Housing Units

Net New Housing Units			
	Total New Units	% Net New	Net New Units
Scenario B	274	75%	**206**

Considering Scenario B, where 274 new high-end residential units would be built, and of those 274 units, 75% would be considered net new, therefore creating 206 net new households within the City of New Haven. This would result in nearly $2.9 million in net new spending within the City, as detailed below.

[31] This includes demolition costs.

Table 104: Scenario B: Renter Spending Basket

Scenario B: Renter Spending Basket			
$70,000 to $99,999 Annual Household Income			
Category	Annual per Unit Spending Basket	Amount Spent in City (40%)	Total Net New City Spending (206 net new units)
Food	$ 8,436	$ 3,374	$ 695,126
Household furnishings and equipment	$ 2,039	$ 816	$ 168,014
Apparel and services	$ 2,010	$ 804	$ 165,624
Transportation	$ 11,120	$ 4,448	$ 916,288
Health care	$ 5,469	$ 2,188	$ 450,646
Entertainment	$ 3,451	$ 1,380	$ 284,362
Personal care products and services	$ 789	$ 316	$ 65,014
Education	$ 1,012	$ 405	$ 83,389
Miscellaneous	$ 1,067	$ 427	$ 87,921
Annual Discretionary Spending	$ 35,393	$ 14,157	$ 2,916,383
Total Net New City Spending			**$ 2,916,383**

Source: 2016 Consumer Expenditure Survey, Bureau of Labor Statistics

Using $2,916,383 as the new sales input, we employed EMSI to determine the indirect and total impact of the Scenario B's residential units. The following table outlines the findings of this analysis.

Table 105: Scenario B: Economic Impact of Household Spending

Scenario B Economic Impact - Household Spending			
	Direct	Indirect	Total
Jobs	34	6	$ 40
Earnings	$ 1,052,716	$ 238,221	$ 1,290,937
Sales	$ 2,916,383	$ 706,342	$ 3,622,725

Source: EMSI, Camoin Associates

Within Scenario B, spending from net new households in the City will result in a total of 40 net new jobs, nearly $1.3 million in earnings, and over $3.6 million in sales in the City of New Haven, annually.

Impacts of Net New Residential Workers

Table 106: Scenario B Net New Residential Worker Earnings

Net New Residential Worker Earnings					
	Residential GSF	% Net New	Net New Residential GSF	Personel Cost per SF	**Net New Residential Earnings**
Scenario B	291,948	75%	218,961	$ 1.37	**$ 299,977**

Source: 2015 NAA Survey of Operating Income & Expenses in Rental Apartment Communities

The net new square footage of residential space in Scenario B will generate $299,977 in new earnings for workers at the residential facility. These net new residential worker earnings will generate a total of 14 jobs throughout the economy, an additional $161,000 in earnings, and a total of over $1.8 million in annual sales.

Table 107: Scenario B: Economic Impact of Residential Workers

Scenario B Economic Impact - Residential Workers			
	Direct	Indirect	Total
Jobs	10	4	14
Earnings	$ 299,977	$ 161,262	$ 461,239
Sales	$ 1,379,479	$ 484,150	$ 1,863,630

Source: EMSI, Camoin Associates

Impacts of New Office Space

In addition to impacts from new household spending, Scenario B proposes new office space, and this new office space will also produce impacts. To estimate the number of new workers in the office space, we first must understand how many employees will most likely be able to work in the new amount of office space proposed in Scenario B. To understand the total number of employees we can assume one employee per every 200 square feet of space. The general range is to allocate between 125 and 225, and this estimate declined from 225 in 2010 to 176 in 2012.[32] Therefore, we will estimate conservatively at 200 square feet of space per employee. The ultimate number of employees at the site will depend on the mix of tenants and their unique needs; Scenario B suggests the space will be a high-tech business and technology hub, specifically for a research institution or think tank.

To estimate how many of these new employees will be considered net new to the City, we will employ the same logic used to understand the number of net new households within the city limits. Therefore, we will estimate that 75% of total new employees will be considered net new to the City. Due to the unique nature of the office space will assume a majority of new economic activity associated with it will relocate from outside the city.

The number of net new employees for Scenario B are detailed below.

Table 108: Scenario B: Net New Employees

Scenario B: Net New Employees				
	Total Office Square Footage	Total New Employees*	% Net New	Total Net New Employees
Scenario B	94,198	471	75%	**353**

*We estimate 1 employee per 200 square feet of office space

New Office Tenant Spending

The 353 net new employees to the City will also have additional indirect impacts on the City's economy. Using the 353 net new employees as the jobs input,[33] we employed EMSI to determine the indirect and total impact of the Scenario B's office space. The following table outlines the findings of this analysis. The 353 new research and

[32] Source: http://www.naiop.org/en/E-Library/Perspectives/Changes-in-Average-Square-Feet-per-Worker.aspx

[33] Since the office space will be used as a high-tech business and technology hub, for a research institution or think tank, the 353 net new jobs were inputted as: NAICS Code 541720 Research and Development in the Social Sciences and Humanities.

development jobs will generate an additional 173 jobs in the local economy and will contribute to a total of $97 million in annual sales.

Table 109: Scenario B: Economic Impact of New Employees

Scenario B Economic Impact - New Employees			
	Direct	Indirect	Total
Jobs	353	173	526
Earnings	$ 26,649,344	$ 7,871,098	$ 34,520,442
Sales	$ 76,641,024	$ 20,400,423	$ 97,041,448

Source: EMSI, Camoin Associates

Impacts of Conference/Event Space

Scenario B includes 85,512 square feet of meeting and event space, which could potentially be used for small to mid-sized conferences, meetings, corporate events, and rentable co-working space. Co-working space will have no net new impacts because this will most likely draw in people who were already working in the City, and therefore not net new workers. However, the conference and event space will draw in a number of people from outside of the City to attend various events throughout the year. These visitors will then spend money in the city that they would not have spent if not for visiting the conference/event center.

We can conservatively assume that 75% of conference / event visitors will be within driving distance of the site, and therefore would not stay overnight in the city; the remaining 25% of visitors will be assumed to live farther away and therefore would spend money on a local hotel. For a space as large as the proposed conference/event center, there could easily be 400 attendees for various types of events including events with booths and tables. As an average estimate we will assume 400 attendees per event, knowing that some events will be larger than 400 and other smaller. As noted we will assume 300 of these visitors will be day visitors and the remaining 100 will be overnight visitors. We can assume the conference/event will last 2 days on average, and day visitors will spend about $50 per day on food and other miscellaneous purchases ($100 in total for 2 days), and overnight visitors will spend a total of $500 for the 2-day event, including food and miscellaneous purchases as well as lodging. If we estimate an average of 24 events per year, (i.e. 2 events on average per month), we can conclude the amount of net new spending that will occur because of people visiting the city for a conference/event, and spending money at local restaurants, stores, and hotels, which they would not have spent money at if it were not for the conference / event. The total net new spending by visitors, just over $1.9 million, will create additional indirect and induced impacts in the local economy.

Table 110: Conference/Event Visitor Spending

Conference/Event Visitor Spending						
	% of Visitors	Number of Visitors per Event	Spending per Visitor per Event	Total Visitor Spending per Event	Number of Events per Year	Total Visitor Spending per Year
Day Visitors	75%	300	$ 100	$ 30,000	24	$ 720,000
Overnight Visitors	25%	100	$ 500	$ 50,000		$ 1,200,000
Total Visitor Spending per year						**$ 1,920,000**

As shown in Table 110, we can estimate that $1,920,000 in new sales will occur due to people visiting the City of New Haven due to conferences or events held in the new conference / event space as specified in Scenario B. This

$1.9 million in new sales will generate a total of 30 new jobs throughout the economy, with $742,000 in new earnings, and an additional $272,000 in new sales for a total of nearly $2.2 million in annual sales.

Table 111: Scenario B: Economic Impact of Conference/Event Visitor Spending

Scenario B Economic Impact - Conference/Event Visitor Spending			
	Direct	Indirect	Total
Jobs	28	2	30
Earnings	$ 648,512	$ 93,114	$ 741,627
Sales	$ 1,920,000	$ 272,055	$ 2,192,055

Source: EMSI, Camoin Associates

Total Economic Impacts of Scenario B

The total economic impacts of Scenario B are detailed in Table 113. This includes economic impacts from the new residential workers at the high-end apartments, household spending from new households residing in the high-end apartments, new research employees in the office space, and spending from people visiting the conference/event center. Total economic impacts from Scenario B include 610 new jobs in the city, with over $37 million in earnings, and nearly $105 million in annual sales.

Additionally, one-time construction phase spending, of over $27 million on the project, impacts would benefit the City of New Haven by supporting 138 jobs, with over $11 million in earnings.

Table 112: Scenario B Construction Phase Impacts

Scenario B Construction Phase Impacts			
	Direct	Indirect	Total
Jobs	111	27	138
Earnings	$ 9,908,749	$ 1,256,878	$ 11,165,628
Sales	$ 27,182,200	$ 3,440,931	$ 30,623,131

Source: EMSI, Camoin Associates

Table 113: Scenario B: Total Economic Impact

Scenario B Total Economic Impact			
Residential Workers			
	Direct	Indirect	Total
Jobs	10	4	14
Earnings	$ 299,977	$ 161,262	$ 461,239
Sales	$ 1,379,479	$ 484,150	$ 1,863,630
Household Spending			
	Direct	Indirect	Total
Jobs	34	6	40
Earnings	1,052,716	238,221	1,290,937
Sales	2,916,383	706,342	3,622,725
New Employees			
	Direct	Indirect	Total
Jobs	353	173	526
Earnings	$ 26,649,344	$ 7,871,098	$ 34,520,442
Sales	$ 76,641,024	$ 20,400,423	$ 97,041,448
Conference/Event Visitor Spending			
	Direct	Indirect	Total
Jobs	28	2	30
Earnings	$ 648,512	$ 93,114	$ 741,627
Sales	$ 1,920,000	$ 272,055	$ 2,192,055
Total			
	Direct	Indirect	Total
Jobs	425	185	610
Earnings	$ 28,650,549	$ 8,363,695	$ 37,014,244
Sales	$ 82,856,887	$ 21,862,971	$ 104,719,858

Source: EMSI, Camoin Associates

Total Economic Impact Comparison

The total economic impacts of both Scenario A and B are shown in Table 114 for ease of comparison.

Table 114: Summary: Total Economic Impacts of Scenario A and Scenario B

Scenario A & B Total Economic Impact			
Scenario A			
	Direct	Indirect	Total
Jobs	126	21	147
Earnings	$ 3,455,254	$ 902,214	$ 4,357,468
Sales	$ 10,491,813	$ 2,719,644	$ 13,211,458
Scenario B			
	Direct	Indirect	Total
Jobs	425	185	610
Earnings	$ 28,650,549	$ 8,363,695	$ 37,014,244
Sales	$ 82,856,887	$ 21,862,971	$ 104,719,858

Source: EMSI, Camoin Associates

What is Economic Impact Analysis?

The purpose of conducting an economic impact study is to ascertain the total cumulative changes in employment, earnings and output in a given economy due to some initial "change in final demand". To understand the meaning of "change in final demand", consider the installation of a new widget manufacturer in Anytown, USA. The widget manufacturer sells $1 million worth of its widgets per year exclusively to consumers in Canada. Therefore, the annual change in final demand in the United States is $1 million because dollars are flowing in from outside the United States and are therefore "new" dollars in the economy.

This change in final demand translates into the first round of buying and selling that occurs in an economy. For example, the widget manufacturer must buy its inputs of production (electricity, steel, etc.), must lease or purchase property and pay its workers. This first round is commonly referred to as the "Direct Effects" of the change in final demand and is the basis of additional rounds of buying and selling described below.

To continue this example, the widget manufacturer's vendors (the supplier of electricity and the supplier of steel) will enjoy additional output (i.e. sales) that will sustain their businesses and cause them to make additional purchases in the economy. The steel producer will need more pig iron and the electric company will purchase additional power from generation entities. In this second round, some of those additional purchases will be made in the US economy and some will "leak out". What remains will cause a third round (with leakage) and a fourth (and so on) in ever-diminishing rounds of spending. These sets of industry-to-industry purchases are referred to as the "Indirect Effects" of the change in final demand.

Finally, the widget manufacturer has employees who will naturally spend their wages. As with the Indirect Effects, the wages spent will either be for local goods and services or will "leak" out of the economy. The purchases of local goods and services will then stimulate other local economic activity; such effects are referred to as the "Induced Effects" of the change in final demand.

Therefore, the total economic impact resulting from the new widget manufacturer is the initial $1 million of new money (i.e. Direct Effects) flowing in the US economy, plus the Indirect Effects and the Induced Effects. The ratio between Direct Effects and Total Effects (the sum of Indirect and Induced Effects) is called the "multiplier effect" and is often reported as a dollar-of-impact per dollar-of-change. Therefore, a multiplier of 2.4 means that for every dollar ($1) of change in final demand, an additional $1.40 of indirect and induced economic activity occurs for a total of $2.40.

Key information for the reader to retain is that this type of analysis requires rigorous and careful consideration of the geography selected (i.e. how the "local economy" is defined) and the implications of the geography on the computation of the change in final demand. If this analysis wanted to consider the impact of the widget manufacturer on the entire North American continent, it would have to conclude that the change in final demand is zero and therefore the economic impact is zero. This is because the $1 million of widgets being purchased by Canadians is not causing total North American demand to increase by $1 million. Presumably, those Canadian purchasers will have $1 million less to spend on other items and the effects of additional widget production will be cancelled out by a commensurate reduction in the purchases of other goods and services.

Changes in final demand, and therefore Direct Effects, can occur in a number of circumstances. The above example is easiest to understand: the effect of a manufacturer producing locally but selling globally. If, however, 100% of domestic demand for a good is being met by foreign suppliers (say, DVD players being imported into the US from Korea and Japan), locating a manufacturer of DVD players in the US will cause a change in final demand because all of those dollars currently leaving the US economy will instead remain. A situation can be envisioned whereby a producer is serving both local and foreign demand, and an impact analysis would have to be careful in calculating how many "new" dollars the producer would be causing to occur domestically.

APPENDIX F: FISCAL IMPACT ANALYSIS

A fiscal analysis was performed to determine the impact of each scenario on City services and the City budget. The impacts in this section are calculated using a conservative statistical approach and are not based on a detailed examination of the City's budget items. It is recommended that a full fiscal impact analysis be completed for any development proposal that is presented to the City.

We examined the City's budget and determined the departments and specific line items that would be impacted by the redevelopment scenarios, referred to as "variable" items. To determine the increase in expenses and revenues that would occur as a result of the redevelopment scenarios, we projected changes in the following factors:

- Residents
- Public school children
- Jobs
- Daytime population
- Real property assessed value

All fiscal impact variables are summarized in Table 115 and explained in detail in the following narrative.

Table 115: Fiscal Impact Variables

Fiscal Impact Variables					
Variable	Baseline	Projected Increase		Pct. Increase over Baseline	
		Scenario A	Scenario B	Scenario A	Scenario B
Residents (1)	132,866	577	358	0.43%	0.27%
Public School Children (2)	21,981	49	31	0.23%	0.14%
Jobs (1)	99,311	147	610	0.15%	0.61%
Daytime Population (1)	165,535	226	659	0.14%	0.40%
Real Property AV (3)	$5,732,369,040	$ 77,709,503	$ 77,248,901	1.36%	1.35%

Sources for Baseline Values: (1) Esri - 2017; (2) CT Department of Education - 2017-2018; (3) CT Open Data - 2016 Grand List

Residents

The number of new residents associated with each scenario was calculated based on the number of *net new* households. See Appendix E: ECONOMIC IMPACT ANALYSIS for a discussion of *net new* impacts.

We estimate 332 net new households in Scenario A and 206 net new households in Scenario B. Based on residential demographic multipliers for Connecticut[34] and the likely mix of unit types, we estimate 1.74 residents per household. This equates to 577 new residents under Scenario A and 358 new residents under Scenario B. This represents increases of 0.43% and 0.27%, respectively, over New Haven's baseline population of 132,866.

Departments with expenses calculated to increase with respect to population include: Public Library, Parks & Recreation, Public Health, and Community Services Administration.

Revenue line items expected to increase with respect to population include: Motor Vehicle Tax Revenue, Town Clerk/City Clerk, Health Services, and Registrar of Vital Statistics.

[34] Rutgers University Center for Urban Policy Residential Demographic Multipliers, 2006

Public School Children

The number of net new public school children impacts the budget of the New Haven School District. Based on demographic multipliers, we estimate the number of school children will increase by 0.15 for every new residential unit, equal to 49 new school children under Scenario A and 31 new school children under Scenario B. These school children would represent an increase over baseline school enrollment of 0.23% and 0.14%, respectively. In the 2017–2018 school year, district-wide school enrollment was 21,981 students.[35]

Departments with expenses calculated to increase with respect to public school children include: Education.

Jobs

Net new jobs, both direct and indirect, associated with the two scenarios are calculated in Appendix E: ECONOMIC IMPACT ANALYSIS. Under Scenario A, 147 new jobs are projected, an increase of 0.15% over the City's current job count of 99,311.[36] Scenario B would result in 610 new jobs, for an increase of 0.61%.

Revenue line items expected to increase with respect to number of jobs includes: Personal Property Tax Revenue.

Daytime Population

Daytime population refers to the number of people who are present in the City during normal business hours, including workers. This is in contrast to the resident population or people who reside in the City and are typically present during the evening and nighttime hours. According to Esri, the 2017 daytime population of New Haven is approximately 165,535. The new daytime population associated with Scenario A is 226, for an increase of 0.14%. For Scenario B the increase is 659 individuals, or 0.40% over baseline daytime population.

Departments with expenses calculated to increase with respect to daytime population include: Public Safety Communications, Police Service, Fire Service, and Transportation/Traffic & Parking.

Revenue line items expected to increase with respect to daytime population include: Police Service, Fire Service, Fire Service Medical Response Billing, Public Space Licenses & Permits, Traffic & Parking Meter Receipts, Superior Court, Police – False Alarm Ordinance, and Parking Tags.

Real Property Assessed Value

The as-completed fair market value for each redevelopment scenario was determined using the income approach to valuation[37] as part of the financial feasibility analysis. See Appendix D: FINANCIAL FEASIBILITY ANALYSIS. The estimated assessed value was then calculated by taking 70% of the fair market value.[38] The estimated assessed value is $77.7 million for Scenario A and $77.2 million for Scenario B. The taxable real property portion of New Haven's 2016 Grand List was $5.7 billion. The increase in assessed value over baseline for Scenario A is 1.36% and for Scenario B, 1.35%. Refer to Table 115.

Departments with expenses calculated to increase with respect to real property assessed value include: Assessor's Office and Public Works.

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[35] CT Department of Education

[36] Esri 2017

[37] The income approach is a real estate appraisal method that allows investors to estimate the value of a property by taking the net operating income of the rent collected and dividing it by the capitalization rate. The income approach is typically used for income-producing properties.

[38] Real property is assessed at 70% of fair market value in Connecticut.

Expenses

The percent changes in the above variables were applied to department budgets and line items as appropriate, to estimate the increase in annual expenses resulting from the redevelopment scenarios. For example, as shown in Table 116, Public Library expenses are expected to increase in proportion to the number of new residents, while Police Service and Fire Service expenses would grow based on an increase in the daytime population.

In total, new annual expenses are estimated at $786,392 under Scenario A and $810,229 under Scenario B. Note that any one-time expenses associated with construction and development are not included in this analysis.

Table 116: New Annual Expenses from Project

New Annual Expenses from Project						
"Variable" Department Budgets	Varies Based On	Baseline Budget*	Percent Increase over Baseline		New Annual Expenses	
			Scenario A	Scenario B	Scenario A	Scenario B
Assessor's Office	Real Property AV	$ 787,808	1.36%	1.35%	$ 10,680	$ 10,616
Public Library	Residents	$ 4,207,015	0.43%	0.27%	$ 18,260	$ 11,330
Parks & Recreation	Residents	$ 5,382,771	0.43%	0.27%	$ 23,363	$ 14,496
Public Safety Communications	Daytime Population	$ 3,379,393	0.14%	0.40%	$ 4,607	$ 13,450
Police Service	Daytime Population	$ 41,014,001	0.14%	0.40%	$ 55,917	$ 163,234
Fire Service	Daytime Population	$ 31,470,798	0.14%	0.40%	$ 42,906	$ 125,252
Public Health	Residents	$ 3,821,008	0.43%	0.27%	$ 16,584	$ 10,290
Community Services Admin	Residents	$ 3,019,018	0.43%	0.27%	$ 13,104	$ 8,131
Public Works	Real Property AV	$ 12,736,803	1.36%	1.35%	$ 172,663	$ 171,640
Transpo/Traffic & Parking	Daytime Population	$ 5,115,457	0.14%	0.40%	$ 6,974	$ 20,359
Education	Public School Children	$ 187,218,697	0.23%	0.14%	$ 421,334	$ 261,430
Total		$ 298,152,769	0.26%	0.27%	$ 786,392	$ 810,229

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Revenues

Similarly, revenue line items were escalated according to the percentage increases calculated for each variable. Excluding real property tax revenues, new annual revenues are estimated at $107,735 under Scenario A and $218,589 under Scenario B. Note that any one-time revenues associated with construction and development are not included in this analysis.

Table 117: New Annual Revenues from Project

New Annual Revenues from Project (Excluding Real Property Tax)						
"Variable" Budget Items	Varies Based On	Baseline Budget*	Percent Increase over Baseline		New Annual Revenues	
			Scenario A	Scenario B	Scenario A	Scenario B
Personal Property Tax Revenue	Jobs	$ 24,603,330	0.15%	0.61%	$ 36,418	$ 151,122
Motor Vehicle Tax Revenue	Residents	$ 12,732,184	0.43%	0.27%	$ 55,262	$ 34,289
Town Clerk/City Clerk	Residents	$ 350,000	0.43%	0.27%	$ 1,519	$ 943
Police Service	Daytime Population	$ 125,000	0.14%	0.40%	$ 170	$ 497
Fire Service	Daytime Population	$ 80,000	0.14%	0.40%	$ 109	$ 318
Fire Services Med Response Billing	Daytime Population	$ 250,000	0.14%	0.40%	$ 341	$ 995
Health Services	Residents	$ 347,000	0.43%	0.27%	$ 1,506	$ 935
Registrar of Vital Stats.	Residents	$ 675,000	0.43%	0.27%	$ 2,930	$ 1,818
Public Space Lic./Permits	Daytime Population	$ 153,098	0.14%	0.40%	$ 209	$ 609
Traffic & Parking/Meter Receipts	Daytime Population	$ 6,800,000	0.14%	0.40%	$ 9,271	$ 27,064
Superior Court	Daytime Population	$ 50,000	0.14%	0.40%	$ 68	$ 199
Police - False Alarm Ordinance	Daytime Population	$ 100,000	0.14%	0.40%	$ 136	$ 398
Parking Tags	Daytime Population	$ 4,500,000	0.14%	0.40%	$ 6,135	$ 17,910
Total		$ 50,765,612	0.21%	0.43%	$ 107,735	$ 218,589

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Real Property Taxes

Real property taxes under each scenario were estimated as shown in Table 118, based on a current mill rate of 38.68. Under both scenarios, real property taxes are estimated at about $3 million annually.

Table 118: Estimated Real Property Taxes

Estimated Real Property Taxes		
	Scenario A	Scenario B
Buildings 1, 2, 3	$ 55,882,741	$ 55,882,741
Buildings 4, 5	$ 43,255,910	$ 42,597,907
Building 6	$ 11,874,924	$ 11,874,924
Total Market Value*	$ 111,013,576	$ 110,355,572
Assessment Ratio	70%	70%
Total Assessed Value	$ 77,709,503	$ 77,248,901
Mill Rate	38.68	38.68
Estimated Real Property Taxes	$ 3,005,804	$ 2,987,987

**Total market value estimated under income approach to valuation*

Net Impact

Considering all expenses and revenues associated with the two scenarios, Scenario A would have a positive annual net fiscal impact on the City budget of $2.3 million. Scenario B would have a positive annual net fiscal impact of $2.4 million.

Table 119: Annual Net Fiscal Impact

Annual Net Fiscal Impact on City of New Haven at Full Buildout (2018$)		
	Scenario A	Scenario B
Revenues		
Real Property Tax	$ 3,005,804	$ 2,987,987
Other Revenue	$ 114,074	$ 237,096
Expenses	$ (786,392)	$ (810,229)
Net Annual Impact	$ 2,333,486	$ 2,414,855

No-Impact Departments

For the purposes of estimating new expenses associated with Scenarios A and B, it was assumed that there would be no ongoing annual impact on the following City departments:

- Board of Alders
- Mayor's Office
- Chief Administrator's Office
- Corporation Counsel
- Department of Finance
- City/Town Clerk
- Registrar of Voters
- Fair Rent Commission
- Elderly Services
- Youth Services
- Services to Persons with Disabilities
- Various Organizations
- Non-Public Transportation
- Engineering
- Debt Service
- Financial Support to Organizations
- City Plan
- Commission on Equal Opportunities
- Office of Building Inspection & Enforcement
- Economic Development
- Livable City Initiative

What is Fiscal Impact Analysis?

Fiscal impact analysis is a tool that compares, for a given project or policy change, changes in governmental costs against changes in governmental revenues. For example, a major residential development project in Town A will mean new residents that require new services and facilities such as fire and police protection, libraries, schools, parks, and others. At the same time, Town A will receive new revenues from the project in the form of property tax revenues, local sales tax revenue, and other taxes and fees. A fiscal impact analysis compares the total expected costs to the total expected revenues to determine the net fiscal impact of the proposed development on Town A.

Typical revenues and costs in a fiscal impact analysis include (but are not limited to) the following:

- Property tax
- Sales tax
- Income tax
- Other local taxes
- Water and sewer fees
- One-time construction-related fees
- Impact fees
- Miscellaneous fees
- Increased staffing costs
- Water and sewer and other infrastructure costs
- Road maintenance costs
- Public school costs
- Police and fire protection costs
- New parks and recreation facilities
- Miscellaneous costs

There are several standard methodologies that can be employed in a fiscal impact analysis. The approach used in this analysis is *average costing*.

The average costing method establishes an existing average cost per unit of service. So for example, to understand new road maintenance costs in Town A, this methodology would calculate the average cost per road-mile in the town currently. This average cost would then be multiplied by the number of new road miles added to the Town because of the development.

Similar to the average costing approach is the "Proportional Evaluation Method" that uses the proportion of local property the development comprises (typically measured by assessed value.) For example, if the development in Town A increases the town's total assessed value by 1%, then under this method it is assumed that the town's costs and revenues will increase by 1%. This 1% factor is only applied to those costs and revenues likely to be affected by the Project.

APPENDIX G: DATA SOURCES

American Community Survey (ACS), U.S. Census

The American Community Survey (ACS) is an ongoing statistical survey by the U.S. Census Bureau that gathers demographic and socioeconomic information on age, sex, race, family and relationships, income and benefits, health insurance, education, veteran status, disabilities, commute patterns, and other topics. The survey is mandatory to fill out, but the survey is only sent to a small sample of the population on a rotating basis. The survey is crucial to major planning decisions, like vital services and infrastructure investments, made by municipalities and cities. The questions on the ACS are different than those asked on the decennial census and provide ongoing demographic updates of the nation down to the block group level. For more information on the ACS, visit http://www.census.gov/programs-surveys/acs/

CoStar Group, Inc.

CoStar is the leading source of commercial real estate intelligence in the U.S. It provides a full market inventory of properties and spaces—available as well as fully leased—by market and submarket. Details on vacancy, absorption, lease rates, inventory, and other real estate market data are provided, as well as property-specific information including photos and floor plans. CoStar covers office, retail, industrial, and multifamily markets. CoStar data is researched and verified by the industry's largest professional research team. With 1,200 researchers and 130 field research vehicles, CoStar's team makes calls to property managers; reviews court filings, tax assessor records and deeds; visits construction sites; and scans the web to uncover nearly real-time market changes. More at www.costar.com.

Economic Modeling Specialists International (EMSI)

To analyze the industrial makeup of a study area, industry data organized by the North American Industrial Classification System (NAICS) is assessed. Camoin Associates subscribes to Economic Modeling Specialists Intl. (EMSI), a proprietary data provider that aggregates economic data from approximately 90 sources. EMSI industry data, in our experience, is more complete than most or perhaps all local data sources (for more information on EMSI, please see www.economicmodeling.com). This is because local data sources typically miss significant employment counts by industry because data on sole proprietorships and contractual employment (i.e. 1099 contractor positions) is not included and because certain employment counts are suppressed from BLS/BEA figures for confidentiality reasons when too few establishments exist within a single NAICS code.

Esri Business Analyst Online (BAO)

ESRI is the leading provider of location-driven market insights. It combines demographic, lifestyle, and spending data with map-based analytics to provide market intelligence for strategic decision-making. ESRI uses proprietary statistical models and data from the U.S. Census Bureau, the U.S. Postal Service, and various other sources to present current conditions and project future trends. Esri data are used by developers to maximize their portfolio, retailers to understand growth opportunities, and by economic developers to attract business that fit their community. For more information, visit www.esri.com.

OnTheMap, U.S. Census

OnTheMap is a tool developed through the U.S. Census Longitudinal Employer-Household Dynamics (LEHD) program that helps to visualize Local Employment Dynamics (LED) data about where workers are employed and where they live. There are also visual mapping capabilities for data on age, earnings, industry distributions, race, ethnicity, educational attainment, and sex. The OnTheMap tool can be found here, along with links to documentation: http://onthemap.ces.census.gov/

RealtyRates.com

RealtyRates.com is a comprehensive resource of real estate investment and development trends, analytics, and market research. RealtyRates.com™ surveys more than 300 lenders, investors, brokers, and property managers nationwide on a quarterly basis to track trends in cap rates, financing terms, rents, sales, and operating expenses. This data provides an up-to-date snapshot of the national real estate market. More information is available at http://www.realtyrates.com/

ReferenceUSA

ReferenceUSA's searchable database of U.S. businesses allows the user to identify businesses matching various criteria, including industry, geography, sales, employment count, and other characteristics. ReferenceUSA is useful for developing company lists for business attraction and retention activities, as well as gaining a more granular understanding of the businesses that make up a region's economy. ReferenceUSA is a division of Infogroup. For more information, visit http://resource.referenceusa.com/

RSMeans

RSMeans provides up-to-date construction cost per square foot information for a range of building types. Data from RSMeans can be used to develop construction cost estimates for use in market analysis and financial feasibility analysis. National cost averages can be adjusted for specific geographies using location factors down to the city level. Moreover, historical cost indexes can be used to adjust costs over time. For more information, visit https://www.rsmeans.com/

YourEconomy (YE), Business Dynamics Research Consortium (BDRC)

YourEconomy (YE) aggregates longitudinal establishment-level data by state, metro, and county, enabling the user to track change in a region's establishments, jobs, and sales over time. These variables can be cross-tabulated by business stage (e.g. Self-Employed, Stage One – 2-9 employees, Stage 2 – 10-99 employees, etc.) to show the region's economic makeup by business size and how these businesses have fared economically. It reveals a granular view of business activity in a particular region and shows how communities compare to others. YE uses the Infogroup Historical Database as its underlying data. For more information, visit http://youreconomy.org/

APPENDIX H: ABOUT ESRI TAPESTRY SEGMENTATION

Esri tapestry segmentation provides an accurate, detailed description of America's neighborhoods. U.S. residential areas are divided into 67 distinctive segments based on their socioeconomic and demographic composition and then further classified into LifeMode and Urbanization Groups. LifeMode groups represent markets that share a common experience—born in the same generation or immigration from another country—or a significant demographic trait, like affluence. Urbanization groups are based on geographic locale, from rural to urban. Below are descriptions of the tapestry segments referenced throughout this report.

Bright Young Professionals

Bright Young Professionals is a large market, primarily located in urban outskirts of large metropolitan areas. These communities are home to young, educated, working professionals. One out of three householders is under the age of 35. Slightly more diverse couples dominate this market, with more renters than homeowners. More than two-fifths of the households live in single-family homes; over a third live in 5+ unit buildings. Labor force participation is high, generally white-collar work, with a mix of food service and part-time jobs (among the college students). Median household income, median home value, and average rent are close to the US values. Residents of this segment are physically active and up on the latest technology. More information can be found here.

Socioeconomic Traits:

- Education completed: 36% with some college or an associate's degree, 30% with a bachelor's degree or higher. Education in progress is 10% (Index 127).
- Unemployment rate is lower at 7.1%, and labor force participation rate of 73% is higher than the US rate.
- These consumers are up on the latest technology.
- They get most of their information from the Internet.
- Concern about the environment, impacts their purchasing decisions.

City Lights

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. More information can be found here.

Socioeconomic Traits:

- City Lights residents earn above average incomes, but lag the nation in net worth.
- Labor force participation exceeds the US 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

City Strivers

These high density city neighborhoods are characterized by a relatively young foreign-born population who have embraced the American lifestyle, yet retained their cultural integrity. To support their lifestyle, City Strivers residents commute long distances to find work in the service or retail industry. Their hard-earned wages and salary income goes toward relatively high rents in older multiunit buildings, but they've chosen these neighborhoods to maintain ties to their culture. Single parents are often the recipients of Supplemental Security Income and public assistance, but their close-knit community provides the invaluable support needed while they work. City Strivers consumers are bold in their purchasing decisions; they seek out deals on branded clothing, sometimes indulge in restaurants and personal services, and splurge on their cable TV package. More information can be found here.

Socioeconomic Traits:

- One in five households here are in poverty, but City Strivers residents rely more on wage and salary income. Almost half have some college education.
- Labor force participation is above average, but so is the unemployment rate.
- They work in health care, transportation, social services, and protective services.
- Style and image are important to these consumers. Current trends are a strong influence on their shopping habits.
- They often make impulse purchases and try new brands and technologies, but do look for the approval of their friends.
- These sociable consumers exhibit boldness in their decisions and aren't afraid to share their opinion. They share strong cultural integrity.

Dorms to Diplomas

The Dorms to Diplomas segmentation includes 10.5% of the population within the Convenience Retail Trade Area. On their own for the first time, Dorms to Diplomas residents are just learning about finance and cooking. Frozen dinners and fast food are common options. Shopping trips are sporadic, and preferences for products are still being established. Many carry a balance on their credit card so they can buy what they want now. Although school and part-time work take up many hours of the day, the remainder is usually filled with socializing and having fun with friends. They are looking to learn life lessons inside and outside of the classroom. This is the first online generation, having had lifelong use of computers, the Internet, cell phones, and MP3 players. More information can be found here.

Socioeconomic Traits:

- They're the youngest market with half of the population aged 20-24.
- They're impulse buyers who experiment with different brands.
- They buy trendy clothes on a budget.
- Vehicles are just a means of transportation – economy and environmental are factors in purchases; used, imported subcompact cars are a population choice.
- They value socializing, having fun, and learning new things.
- They're always connected; their cell phone is never out of reach.

Emerald City

Emerald City's denizens live in lower-density neighborhoods of urban areas throughout the country. Young and mobile, they are more likely to rent. Well educated and well employed, half have a college degree and a professional occupation. Incomes close to the US median come primarily from wages and self-employment. This group is highly connected, using the Internet for entertainment and making environmentally friendly purchases. Long hours on the Internet are balanced with time at the gym. Many embrace the "foodie" culture and enjoy cooking adventurous meals using local and organic foods. Music and art are major sources of enjoyment. They travel frequently, both personally and for business. More information can be found here.

Socioeconomic Traits:

- Well educated, these consumers research products carefully before making purchases.
- They buy natural, green, and environmentally friendly products.
- Very conscious of nutrition, they regularly buy and eat organic foods.
- Cell phones and text messaging are a huge part of everyday life.
- They place importance on learning new things to keep life fresh and variable.
- They are interested in the fi ne arts and Attuned to nature and the environment, and when they can, purchase natural products

Fresh Ambitions

The Fresh Ambitions segmentation includes 20.9% of the population within the Large-Format Retail Trade Area and 29.8% in the population within the Convenience Trade Area. These young families, many of whom are recent immigrants, focus their life and work around their children. Fresh Ambitions residents are not highly educated, but many have overcome the language barrier and earned a high school diploma. They work overtime in service, in skilled and unskilled occupations, and spend what little they can save on their children. Multigenerational families and close ties to their culture support many families living in poverty; income is often supplemented with public assistance and Social Security. Residents spend more than one-third of their income on rent, though they can only afford to live in older row houses or multiunit buildings. They budget wisely not only to make ends meet but also to save for a trip back home. More information can be found here.

Socioeconomic Traits:

- One in four is foreign-born, supporting a large family on little income. Fresh Ambitions residents live on the edge of poverty but are an ambitious community. They will take on overtime work when they can.
- Unemployment is high for these recent immigrants.
- One in three has overcome the language barrier and earned a high school diploma.
- Price-conscious consumers, they budget for fashion, not branding. However, parents are happy to spoil their brand savvy children.
- These residents maintain close ties to their culture; they save money to visit family, but seek out discount fares over convenience.

Front Porches

The Front Porches segmentation includes 20.1% of the population within the Large-Format Retail Trade Area. Front Porches blends household types, with more young families with children or single households than average. This group is also more diverse than the US. Half of householders are renters, and many of the homes are older town homes or duplexes. Friends and family are central to Front Porches residents and help to influence household

buying decisions. Residents enjoy their automobiles and like cars that are fun to drive. Income and net worth are well below the US average, and many families have taken out loans to make ends meet. More information can be found here.

Socioeconomic Traits:

- Composed of a blue-collar work force with a strong labor force participation rate, but unemployment is high at 11%. Unemployment is high for these recent immigrants.
- Price is more important than brand names or style to these consumers.
- With limited incomes, these are not adventurous shoppers.
- They would rather cook a meal at home than dine out.
- They seek adventure and strive to have fun.

International Marketplace

The International Marketplace segmentation includes 5.7% of the population within the Convenience Retail Trade Area. 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. More information can be found here.

Socioeconomic 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; 29% have a high school diploma only.
- Labor force participation rate is 68% and high than the US 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 use most often is the Internet.

Laptops and Lattes

Laptops and Lattes residents are predominantly single, well-educated professionals in business, finance, legal, computer, and entertainment occupations. They are affluent and partial to city living—and its amenities. Neighborhoods are densely populated, primarily located in the cities of large metropolitan areas. Many residents walk, bike, or use public transportation to get to work; a number work from home. Although single householders technically outnumber couples, this market includes a higher proportion of partner households, including the highest proportion of same-sex couples. Residents are more interested in the stock market than the housing market. Laptops and Lattes residents are cosmopolitan and connected— technologically savvy consumers. They are active and health conscious, and care about the environment. More information can be found here.

Socioeconomic Traits:

- Three out of four have a bachelor's degree or higher (Index 269).
- Unemployment rate is low at 5.3%; labor force participation is high, more than 75%.
- Salaries are the primary source of income for most households, but self-employment income (Index 147) and investment income (Index 167) complement the salaries in this market.
- These are health-conscious consumers, who exercise regularly and pay attention to the nutritional value of the food they purchase.
- Environmentally conscientious but also image-conscious: both impact their purchasing.

Metro Fusion

The Metro Fusion segmentation includes 6.3% of the population within the Large-Format Retail Trade Area. Metro Fusion is a young, diverse market. Many residents do not speak English fluently and have moved into their homes recently. They are highly mobile and over three quarters of households are occupied by renters. Many households have young children; a quarter are single-parent families. The majority of residents live in midsize apartment buildings. Metro Fusion is a hard-working market with residents that are dedicated to climbing the ladders of their professional and social lives. This is particularly difficult for the single parents due to median incomes that are 35% lower than the US level. More information can be found here.

Socioeconomic Traits:

- They're a diverse market with 30% black, 34% Hispanic, and 20% foreign born.
- Younger residents are highly connected, while older residents do not have much use for the latest and greatest technology.
- They work hard to advance in their professions, including working weekends.
- They take pride in their appearance, consider their fashion trendy, and stick with the same few designer brands.
- They spend money readily on what' hot unless saving for something specific.
- Social status is very important; they look to impress with fashion and electronics.

Metro Renters

The Metro Renters segmentation includes 19.9% of the population within the Large-Format Retail Trade Area, and the largest percentage of Convenience Trade Area population at 41.2%. 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 US 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. More information can be found here.

Socioeconomic 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 profession.

- Become well informed before purchasing the newest technology.
- Prefer environmentally safe products.
- Socializing and social status is very important.

Old and Newcomers

This market features singles' lifestyles, on a budget. The focus is more on convenience than consumerism, economy over acquisition. Old and Newcomers is composed of neighborhoods in transition, populated by renters who are just beginning their careers or retiring. Some are still in college; some are taking adult education classes. They support environmental causes and Starbucks. Age is not always obvious from their choices. More information can be found here.

Socioeconomic Traits:

- Unemployment is lower at 7.8% (Index 91), with an average labor force participation rate of 62.6%, despite the increasing number of retired workers.
- 30% of households are currently receiving Social Security.
- 28% have a college degree (Index 99), 33% have some college education, 10% are still enrolled in college (Index 126).
- Consumers are price aware and coupon clippers, but open to impulse buys.
- They are attentive to environmental concerns.
- They are more comfortable with the latest technology than buying a car.

Parks and Rec

The Parks and Rec segmentation includes 3.8% of the population within the Large-Format Retail Trade Area. These practical suburbanites have achieved the dream of home ownership. They have purchased homes that are within their means. Their homes are older, and town homes and duplexes are not uncommon. Many of these families are two-income married couples approaching retirement age; they are comfortable in their jobs and their homes, budget wisely, but do not plan on retiring anytime soon or moving. Neighborhoods are well established, as are the amenities and programs that supported their now independent children through school and college. The appeal of these kid-friendly neighborhoods is now attracting a new generation of young couples. More information can be found here.

Socioeconomic Traits:

- More than half of the population is college educated.
- Older residents draw Social Security and retirement income.
- The work force is diverse: professionals in health care, retail trade, and education, or skilled workers in manufacturing and construction.
- This is a financially shrewd market; consumers are careful to research their big-ticket purchases.
- When planning trips, they search for discounted airline fares and hotels and choose to vacation within the US.
- These practical residents tend to use their cell phones for calls and texting only.

Social Security Set

The Social Security Set segmentation includes 5.5% of the population within the Convenience Retail Trade Area. Social Security Set is an older market located in metropolitan cities across the country. Over one-third of householders here are aged 65 or older and dependent on low, fixed incomes, primarily Social Security. In the aftermath of the Great Recession, early retirement is now a dream for many approaching the retirement age; wages and salary income in this market are still earned. Residents live alone in low-rent, high-rise buildings, located in or close to business districts that attract heavy daytime traffic. But they enjoy the hustle and bustle of life in the heart of the city, with the added benefit of access to hospitals, community centers, and public transportation. More information can be found here.

Socioeconomic Traits:

- These aging consumers rely mostly on Social Security income but also depend on Supplemental Security income and public assistance.
- Wage and salary income are still earned by almost half of all households.
- With fixed incomes, consumers remain price sensitive.
- A trusted source of information, TV is an important part of their lives.
- An aging population that is often limited by medical conditions, they are willing to try advanced medication but rely on their physicians for recommendations.
- Rather than eat out, Social Security Set residents prefer to have their meals at home, whether they order takeout or warm up a frozen dinner. To save money, many frequently cook their own meals.

Trendsetters

Armed with the motto "you're only young once," Trendsetters residents live life to its full potential. These educated young singles aren't ready to settle down; they do not own homes or vehicles and choose to spend their disposable income on upscale city living and entertainment. Dressed head to toe in the most current fashions, their weeknights and weekends are filled discovering local art and culture, dining out, or exploring new hobbies. Their vacations are often spontaneous, packed with new experiences and chronicled on their Facebook pages. More information can be found here.

Socioeconomic Traits:

- These residents are young and well educated; almost half have a bachelor's degree or more.
- Well paid, with little financial responsibility, these consumers are spenders rather than savers. They seek financial advice and are already building their stock portfolios.
- Image is important to these consumers. They use the Internet to keep up with the latest styles and trends and shop around for good deals.
- Trendsetters residents travel often, exploring new destinations and experiences.
- Socially and environmentally conscious, they are willing to pay more for products that support their causes.
- Up-to-date on technology, they explore and exploit all the features of their smartphones.
- They are attentive to good health and nutrition.

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