

Yale University
A Framework for Campus Planning

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FOREWORD

Thanks to the generosity of Yale's alumni and friends, the University is in the midst of the largest building and renovation program since its transformation during the period between the World Wars.

In 1993, contemplating the enormous task before us, the Officers and the Fellows of the Corporation decided to tackle the problems of our decaying physical infrastructure by studying similar types of facilities classified by their academic function. We set in motion specialized working groups composed of academic administrators, faculty, students or other building users and facilities department personnel to develop program requirements for the facilities in several areas: the residential colleges, arts facilities, science facilities, libraries and athletic facilities. Other groups studied the needs of the Divinity, Law and Medical Schools. The work of these planning groups has already led to dramatic renovations of Berkeley College, the Sterling Memorial Library, the Payne Whitney Gymnasium and the Sterling Law Buildings, as well as the construction of a new undergraduate residence and the acquisition and renovation of a new home for the School of Art.

Three years later, we recognized that we needed to develop a general framework that would bring greater coherence to our efforts. We needed advice on how to respect the distinctive character of the various parts of our campus and at the same time provide better connections among them. We sought not a master plan, in the sense of a detailed program, but instead a set of guidelines for design within various parts of the campus, as well as suggestions for improving the systems that unify the campus, such as signage, landscaping, lighting and traffic flow. We also sought guidance on how to understand the physical relationship between the University and the City of New Haven, at a time in our history when we were engaged in a substantial effort to improve the town-gown relationship at all levels.

In selecting Cooper, Robertson & Partners as our consultants for this campus planning exercise, we affirmed a set of shared values and beliefs:

- Yale's ability to fulfill its academic mission is enhanced by insistence upon excellence in its physical facilities and surroundings.
- Much of Yale's academic strength derives from the interconnections among schools, departments and programs.
- Yale should be a faithful steward of its great architectural heritage and its new buildings should strengthen that heritage for future generations.

- The University and the City of New Haven are inextricably woven together in a vibrant urban tapestry. This interdependency should be recognized and reinforced in future decisions to the benefit of both.

These values are reaffirmed in this final report, which is the culmination of three years of intensive consultation, conversation, and thinking about our campus. I am grateful to Alex Cooper and his partners and consultants for the valuable education they have given the Officers, the Fellows of the Corporation and many others at Yale. The future of our campus and our city will be enriched by their powerful thinking on issues of importance to us all.

I also want to thank Joseph Mullinix, Vice President for Finance and Administration, as well as his able colleagues Pamela Delphenich and Robert Dincecco, for the outstanding support and assistance they provided throughout the entire campus planning process.

A handwritten signature in black ink that reads "Richard C. Levin". The signature is written in a cursive, flowing style with a large initial "R".

Richard C. Levin
President

1



- 1 View of Yale and New Haven from southwest
- 2 Hewitt Quadrangle



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- 1 View to Harkness Tower from the Pierson College courtyard
- 2 Sterling Hall of Medicine

2



Yale is a private university located in New Haven, Connecticut, a city that offers exceptional cultural attractions for its size.

New Haven is set in a diverse geographic area (which includes a harbor, river, and two large rock promontories), and has a rich New England history, an original town plan with a public Green at its center, and a variety of architectural building styles. One cannot understand the current physical issues of the Yale campus—for example, those pertaining to open space and landscape—without understanding the City context.

Yale was chartered in 1701 to educate youth for “publick employment both in Church and Civil State.” The University has always fostered a sense of responsibility to the world at large—a responsibility that Yale graduates have fulfilled with great distinction, enriching the life of the city and the nation through their inventions, artistic expression, new ideas, and civic leadership.

While it began with one building, Yale now has 340 buildings and 12.5 million gross square feet. It is spread across 835 acres—200 at its Central Campus, 25 at the Medical Center, 110 at Yale Athletic Fields, and 500 at its golf course and nature preserves.

Yale offers incomparable richness through both its educational and campus experience. It consists of Yale College (which offers undergraduate programs in humanities, social sciences, natural sciences, and engineering), the Graduate School of Arts and Sciences, and 10 professional schools, including Architecture, Art, Divinity, Drama, Forestry & Environmental Studies, Law, Management, Medicine (including Public Health), Music and Nursing. Not only is Yale the only private institution with four professional schools in the arts, it also is one of the world’s leading scientific research institutions.

Yale has the world’s seventh largest library system, with over 10 million volumes in 21 libraries, including the Sterling Memorial and the Beinecke Rare Book Libraries. It has outstanding collections in the Yale Art Gallery, Yale Center for British Art and Peabody Museum of Natural History.

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1 Walter Camp Gate
2 View north on Prospect Street toward Science Hill

2



Yale also has impressive athletic facilities and an active intramural program. More than a fifth of its students participate in intercollegiate sports and more than half participate in intramural sports. The University offers 33 intercollegiate sports (16 for men, 17 for women), including baseball, basketball, crew, cross country, field hockey, fencing, football, golf, gymnastics, hockey, lacrosse, soccer, softball, squash, swimming, tennis, and indoor and outdoor track.

Yale has about 10,900 students—5,300 undergraduates, 2,300 graduate students and 3,300 professional students—and its admissions policies put it among the world's most competitive institutions. Of the 13,000 young women and men applying to the College each year, Yale accepts fewer than 20 percent.

Each undergraduate belongs to one of 12 residential colleges, which offer the advantages of a small school within the opportunities of a large university. The residential college is a student's academic and social focus. Each college is a building complex, with a common room, dining hall, library, academic offices (including Dean's suite and faculty offices), student activity areas, student residences, and a Master's house. These buildings, which have a distinguished architectural character, surround a landscaped interior courtyard or courtyards. The students not only identify with their college but also develop strong ties and loyalties to it. The intramural sports program, for instance, revolves around the 12 colleges.

Yale's physical image has been shaped by the architecture of these colleges, many of which are American Collegiate Gothic. Other buildings—such as the Sterling Memorial Library, Payne Whitney Gymnasium, Sterling Law Building, and Hall of Graduate Studies—extended the American Collegiate Gothic tradition at Yale. At the same time, the Beinecke Rare Book Library, Center for British Art and the Art & Architecture Building offered modern designs that were placed in juxtaposition and contrast with their surroundings—enlivening the campus with elements of visual surprise and dynamism.

1



1 Aerial view from John Russell Pope's
1919 Plan for the University

The Yale Corporation is the University's governing board. Its 16 members are leaders in government, business, industry, and the non-profit world. Day to day, seven Officers of the University are responsible for its academic mission and its operation: the President, Provost, Vice President and Secretary of the University, Vice President for Finance and Administration, Vice President for New Haven and State Affairs, Vice President for Development, and Vice President and General Counsel.

Seven years ago, the Corporation and Officers launched a massive investment in Yale's buildings and grounds to ensure that the physical setting would match—and enhance—the excellence of Yale's teaching, research, and collections. Three years ago, they commissioned this Framework for Campus Planning—not to create a static master plan, but rather to understand the physical University of today and the opportunities to preserve and improve it over the next twenty years.

Our consultant team divided work on the project into three phases:

1. Analyzing Yale's urban campus and preparing Principles for Planning,
2. Identifying its Open Space and Development Opportunities, and
3. Developing and recommending Campus Framework Systems and proposing an implementation strategy.

Phase One involved our coming to understand the physical aspects of the campus. We reviewed past procedures for decision-making on related physical issues and learned first-hand about the challenges and opportunities—and culture and ethos—of the University and the City through several dozen interviews with University, City, and community leaders. We examined John Russell

Pope's 1919 Plan for the University and James Gamble Rogers' revisions and execution of that plan. Through our work, we identified seven Planning Precincts (each with its own character and physical issues), and we devised Planning Principles for the Campus.

In Phase Two, we applied these Planning Principles to sites that we identified for potential future development (e.g., buildings) or open space in each of seven planning precincts. We tested different future uses and options for configuring each site or group of adjacent sites.

In Phase Three, we related campus-wide issues (land use, open space, landscaping, circulation, parking, and signage) to the campus structure and developed the most promising approaches to future development.

As Yale approaches its fourth century, we believe the University should pay particular attention to places where its campus meets the City—on its streets and sidewalks, and through its landscaping, lighting and signage. That way, the University can work with the City to help weave Yale and New Haven into a more cohesive urban fabric.

YALE'S URBAN CAMPUS

New Haven Context	
University Setting	
Historic Development	
Structure	
Campus Systems	
Uses	
Built Form	
Landscape and Open Space	
Circulation	
Pedestrian	
Vehicular	
Bicycles	
Parking	
Services	
Signage	
Lighting	
Summary	

Compared to the other Ivy League schools, Yale has several important and distinct physical characteristics:



1



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1 Harvard University
2 Columbia University

7 Yale University in comparison with the other Ivy League schools:

Yale, to the left, is drawn at the same scale as the other Ivy League schools. Streets, blocks, buildings, open spaces and walkways are shown to compare the size and structure of each campus.

- 1 Brown University
- 2 Princeton University
- 3 Cornell University
- 4 University of Pennsylvania
- 5 Dartmouth University



Yale is a linear campus.

The main area of the University, encompassing the Central Campus and the Medical Center, is two-miles long and only one-half-mile wide. Therefore, physically connecting the entire length of the campus is an important design challenge and integrating the five miles of campus perimeter with surrounding neighborhoods is an important strategic goal.

Yale is an urban campus.

Yale's campus is characterized by city-block scaled building groups containing open courtyards. City streets connect the blocks, giving most buildings at Yale clear street addresses.

Yale is intertwined with New Haven.

Yale overlaps city districts and neighborhoods and shares public streets with the City. Many of the campus edges and boundaries are porous. Planning and design decisions should clarify these physical edges and alleviate "gaps" in an otherwise continuous fabric of campus and City.

Yale has a wide variety of building types and physical settings.

The campus has an eclectic collection of buildings—from very large to very small and from courtyard types to free-standing mansions. The open space system is equally complex: from quadrangles to gardens, streets and fields.



3 The original Nine Square Grid of New Haven is set within surrounding land forms. The historic post roads radiate out into the region.



7 The irregular form of New Haven's blocks and neighborhoods encircle the original Nine Square Grid. Image shown rotated to be in a north-south orientation.



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1 New Haven Green
2 Engraving of New Haven as viewed from East Rock

Topography & Urban Form

The original plan of New Haven—the Nine Square Plan of 1641—gave the City a clear grid organization. Set on a plain and surrounded by two rivers, the coastline and the rock ridges, the City's early growth established a powerful relationship between town and natural setting. The two prominent landmarks—East Rock and West Rock—led to a northeast-southwest orientation of the City grid. Similarly, Prospect Hill abuts the Nine Squares and greatly influences the layout of the City to the north of Downtown. The historic post roads, which follow topography and natural stream crossings, radiate outward from the town center and shape the surrounding neighborhoods. These natural features helped shape the City of New Haven and the layout of the campus within the City.

The Nine Squares: A Street and Block Structure

The Nine Square Plan is a compelling diagram and gives Downtown and the Central Campus a commanding sense of place. The grid pattern gives preference to north-south movement through Downtown (east-west streets dominate only to the west of Downtown). The long, north-south streets are the primary connections between neighborhoods, and change character as they pass through them. The east-west streets are shorter, more local and help define the scale of each neighborhood. The New Haven Green remains the City's central, shared civic space.

The 825-foot square blocks that comprise the Nine Squares naturally led to a regular pattern of development within Downtown, while the irregular block patterns beyond this core create different physical challenges. One clearly senses being either “on” or “off” the Nine Square grid. Conditions at the periphery of the Nine Squares present some of the most difficult design issues for Yale. These include how to address:

1) fragmented block patterns (around Broadway and the Payne

- 1 The intersection of Grove, College and Prospect Streets
- 2 View west on Chapel Street, from College Street intersection

1



Whitney Gym, the Grove Street Cemetery and the Medical Center area); 2) awkwardly configured intersections (the crossing of Grove, College and Prospect Streets); 3) uninterrupted super-blocks (Science Hill); 4) disconnected street grids (Lock Street/Lake Place and Prospect Place/Sachem Street at Canal Street); and 5) leftover spaces (the Route 34/Oak Street Connector blocks).

Street Hierarchy

The city streets, which structure the campus and connect it to its surroundings, have distinct roles as regional corridors, city thoroughfares or local streets. The heavily used regional corridors (Whalley/Goffe/Dixwell, Broadway/Elm, and Whitney/Church) greatly affect the continuity and quality of the pedestrian environment within the campus and surrounding neighborhoods. City thoroughfares, which lie exclusively within city boundaries (College, Prospect, Chapel Streets), are a reference point for both the campus and the City. Finally, a collection of more localized, small-scale streets (Crown, Wall and High, Trumbull and Sachem, York and Howe) connect sections of each area and the campus with adjacent neighborhoods. The role of each street as it passes through the campus should be a consideration in proposals for access, circulation and the quality of the pedestrian environment.



1 The hierarchy of New Haven's

streets:

Regional

Ansonia, Columbus, Derby, Dixwell, State, Whalley and Whitney

City

Chapel, College/Prospect and Elm

Local

Church, Crown, George, Goffe, Grove, High, Orange, Trumbull, Wall and York

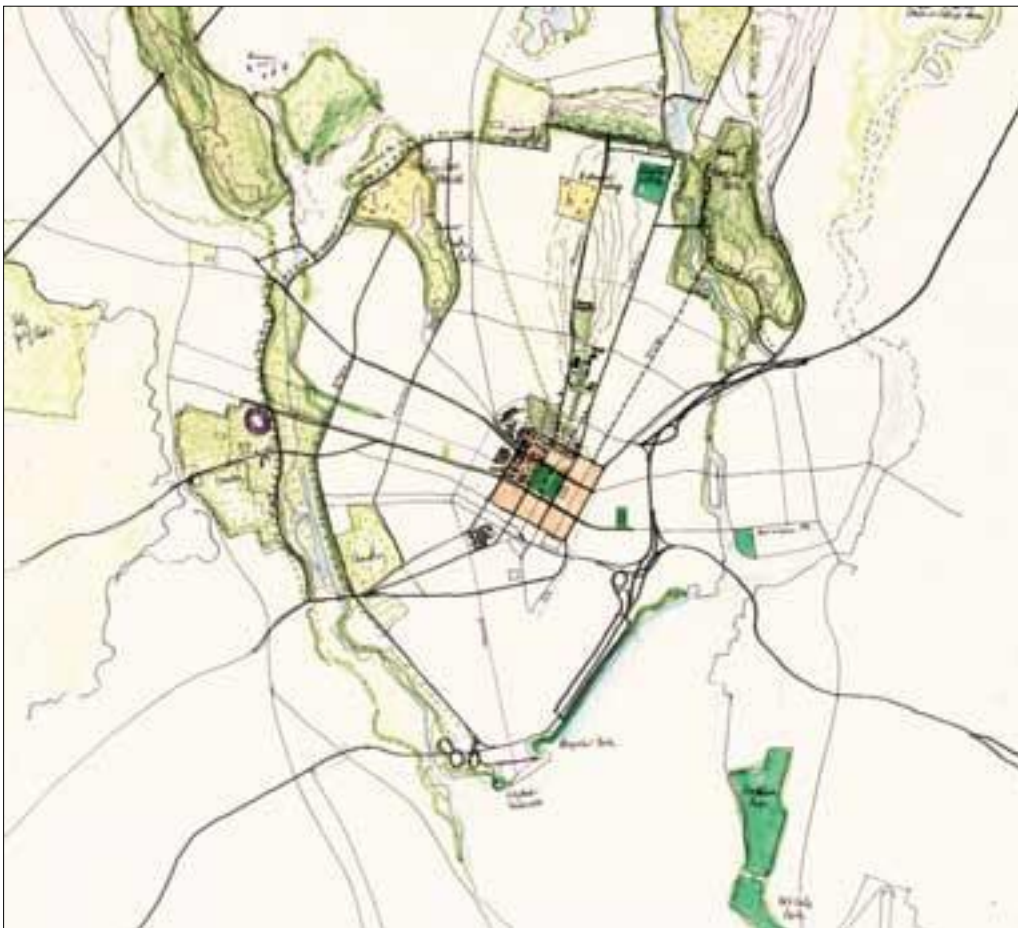


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7 New Haven neighborhoods surrounding Yale

5 A network of parks and open spaces encircles the City.



Neighborhoods

The neighborhoods of New Haven were shaped by the development of residential areas, and accompanying commerce and manufacturing, which grew in roughly concentric rings moving outward from the Nine-Square core. While a few residential developments evolved around residential squares (Wooster, Trowbridge, Jocelyn), the layout of most residential streets developed like the fabric of a fan between the ribs formed by the arterial roads branching out from the center. Later, the trolley lines—which usually followed the arterials—produced classic streetcar suburbs, often incorporating what were formerly distinct villages, such as Westville and Fair Haven.

As a result of these development patterns, several neighborhoods have a common structure, with a local pedestrian-scale street forming a linear center between roughly parallel arterial streets at the edge (e.g., Dwight-Edgewood and Orange Street).

Beginning about a century ago, the construction of large-scale highways and the demise of the streetcars cut off many neighborhoods not only from the City center and the University, but also from each other. In the Church Street South and West Rock areas, for example, the super-block, modernist housing projects have created highly problematic, isolated enclaves with little or no neighborhood structure or identity.

Parks and Open Space

Another telling diagram is that of the park system of the City—a prominent ring of open spaces at the perimeter converging on the New Haven Green at its center. At the regional scale, Yale Athletic Fields is part of the ring of parks and natural features at the City’s edge. The Athletic Fields and the Bowl are a gathering point in an interconnected natural open space system linking the Harbor, Edgewood and West River Parks, and West Rock to East Rock Park. At the neighborhood level, open spaces on the campus and other institutions collect along the ridgeline of Prospect Hill and contribute to the landscape character of its neighborhoods. While the New Haven Green is the symbolic center of the park network, Yale’s many courtyards, quadrangles and walkways provide an intricate open space resource.



1 The four signature downtown streets:
College, Church, Elm and Chapel

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1 Chapel Street looking east
2 College Street looking south

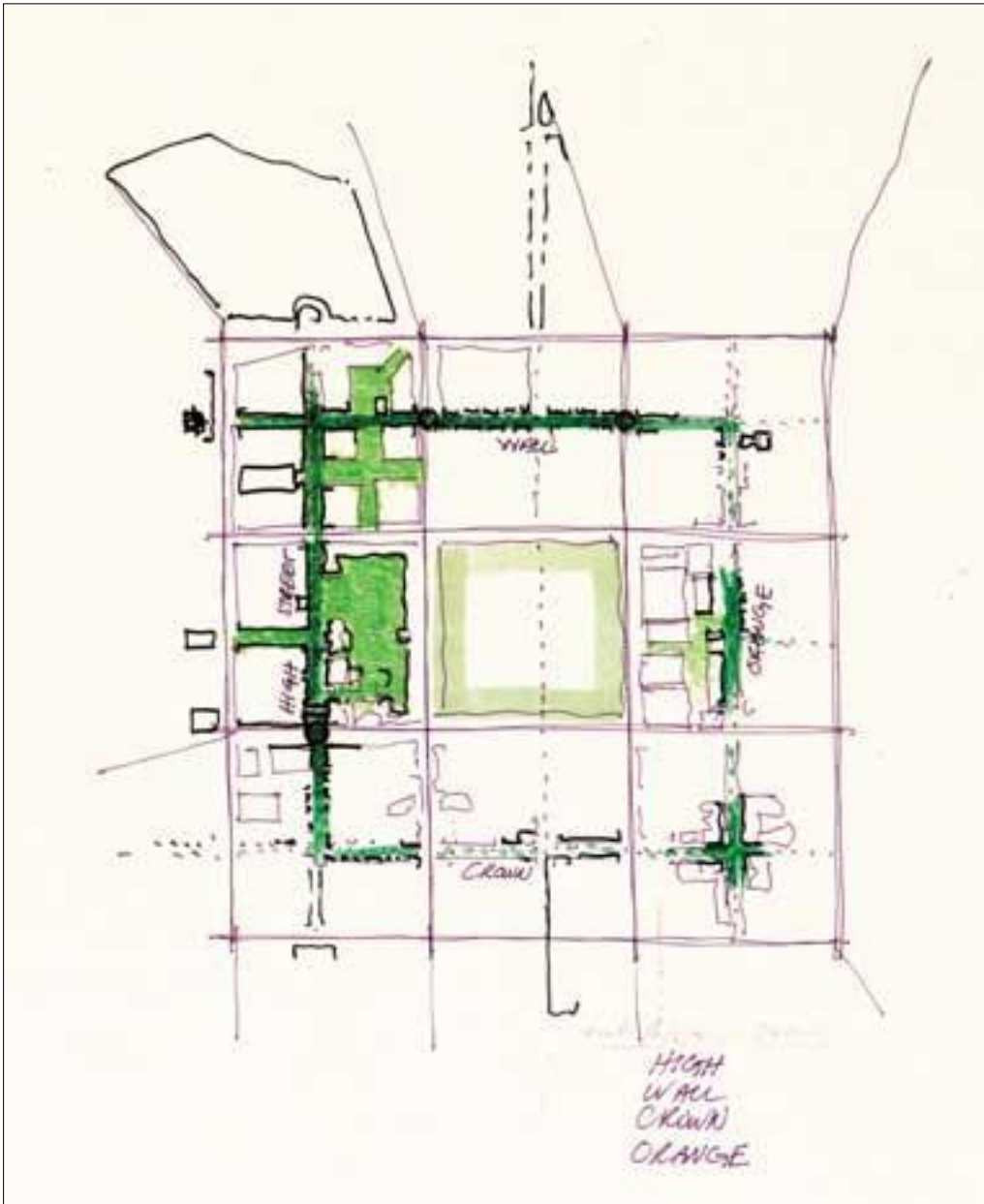
Four Downtown Streets

Four Downtown streets help define both Yale and the City:

- Chapel Street, from the Yale Bowl to Wooster Square, considered by many to be the “Main Street” of New Haven, is shared by the University and the City. With its rich mixture of arts, entertainment, retail, office and residential uses, Chapel Street is becoming an increasingly important gateway to Yale. Indeed, University and City join at the corner of Chapel and College Streets.
- College Street/Prospect Street, from the Divinity School to the Medical Center, is the most recognized “address” street for the University. A majority of campus facilities lie within a block of this north-south corridor.
- Elm Street, a regional traffic artery, funnels traffic from Dixwell Avenue, Goffe Street and Whalley Avenue through the campus to Downtown. As a high-volume, fast-moving, one-way corridor, it is a substantial barrier between Old Campus and Cross Campus.
- Church Street/Whitney Avenue, from East Rock Park to the train station, is New Haven’s most civic street with its concentration of public, government and office buildings.



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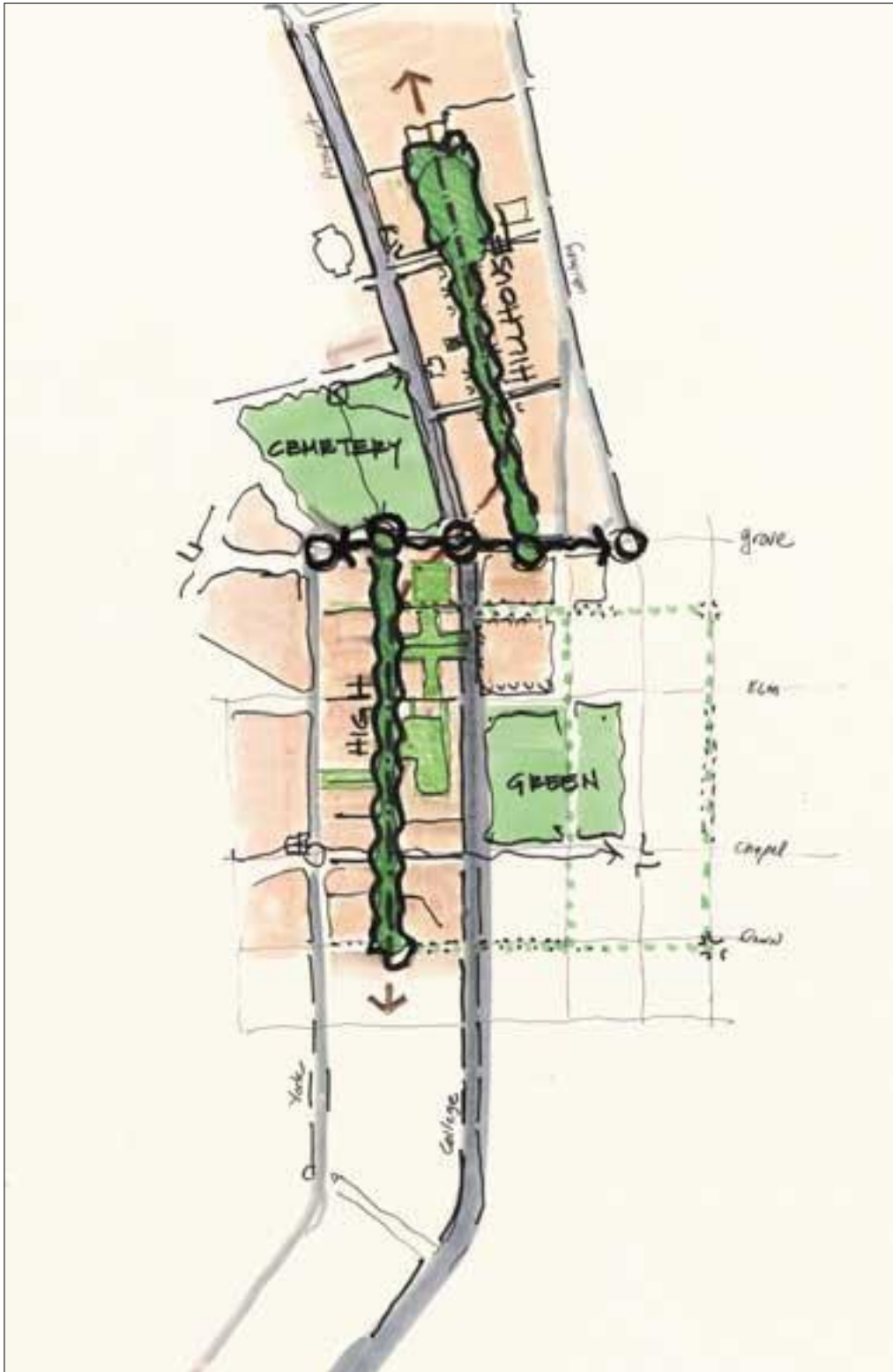
Local Pedestrian Oriented Streets

Within the original Nine Square area, the “in-between” streets provide a significant pedestrian network for both Downtown and the campus. High and Wall Streets are among the most intimate, small-scale streets on the campus, while Orange and Crown Streets lie at the centers of the City’s government and retail/entertainment districts.

1 Wall Street



1 Local pedestrian oriented streets:
High, Wall, Crown and Orange



The Ladder Diagram

The basic structure of New Haven shapes the summary diagram of the campus. The main portion of the campus lies between two pairs of parallel, north-south corridors (Prospect and Whitney to the north, College and York to the south), all of which share College/Prospect Street. These pairs of corridors split at Grove Street—the northern half sliding east of the Grove Street Cemetery, and the southern half sliding west of the Green. At the center of each corridor is a predominantly pedestrian street—Hillhouse Avenue in the northern half and High Street in the southern half. Many local east-west streets (Sachem, Trumbull, Grove, Wall, Elm, Chapel) and pedestrian walks (Cross Campus, Old Campus, Library Walk) form the rungs of a two-legged ladder, whose legs are the north-south corridors. The result is an intricate pedestrian network stretching across the campus through city streets. The diagram also illustrates the commanding role that the New Haven Green still plays today—a civic space joining Yale, to the north and west, with Downtown New Haven, to the south and east.

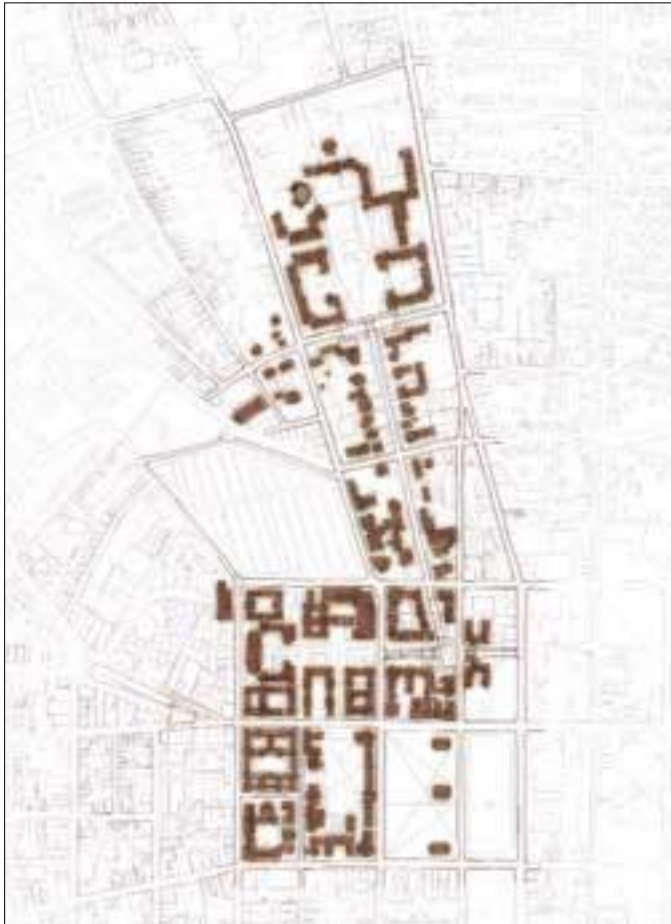
7 The ladder diagram of Yale's campus structure

The majority of the campus planning issues that Yale now faces can be traced to decisions made at the turn of the twentieth century, when the University began a dramatic transformation.

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- 1 View of Pope's Library Court
- 2 Pope's Plan for the University, 1919
- 3 Rogers' "General Plan," 1921



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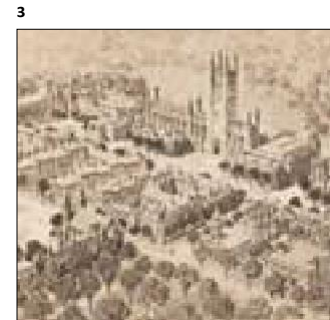
- 1 View of Pope's proposed square
- 2 Aerial view looking toward Science Hill, Pope's Plan
- 3 Aerial view of Pope's New Campus (Cross Campus)



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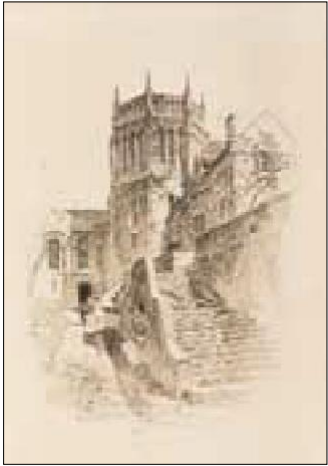
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Pope and Rogers and Their Heritage

By the beginning of the twentieth century, a rapidly growing student body, changing demographics and a rather haphazard physical expansion highlighted the need for a comprehensive strategy for future development. In 1919 a group of trustees authorized John Russell Pope to create a vision for Yale. Pope presented his proposal in a book called *University Architecture: Yale University General Plan for its Future Building* the same year. A sweeping plan of grand axes and monumental structures, it tied development on the recently acquired Prospect Hill to the Central Campus. Pope's plan introduced what is now Cross Campus to provide the critical east-west link between the two separated north-south axes. While the plan focused on creating this series of connections, it also called for streetwall and perimeter block buildings to define the vast public spaces and form intimate spaces and courtyards. The vision of a unified campus extended to the architectural treatment of the buildings themselves. Pope adopted American Collegiate Gothic, introduced at Yale by James Gamble Rogers in his design for the Harkness Memorial Quadrangle, as the architectural language for the new Yale.

The University's administration received the plan enthusiastically, but its scope and formal designs also provoked controversy. In the fall of 1920 the Corporation asked Rogers to carry out Pope's vision through a more feasible proposal that met the

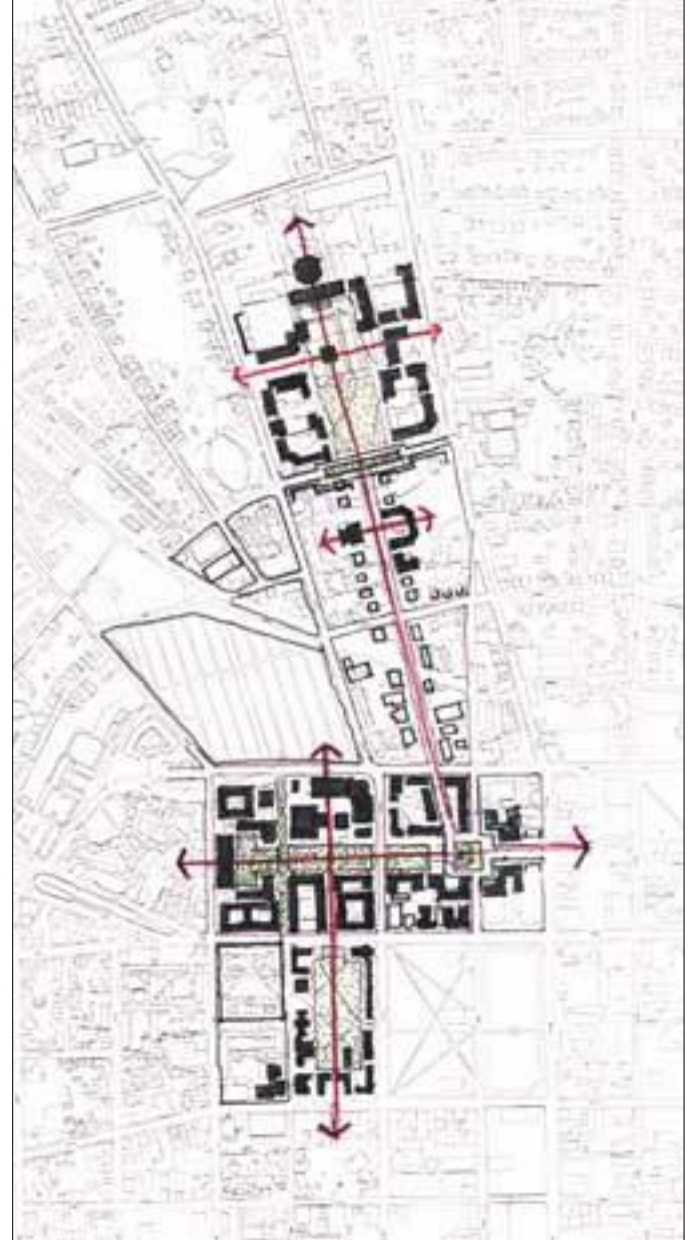
- 1 The Gothic architecture of Pope's proposal
- 2 View of Pope's New Campus (Cross Campus)
- 3 Plan of Pope's New Campus (Cross Campus)



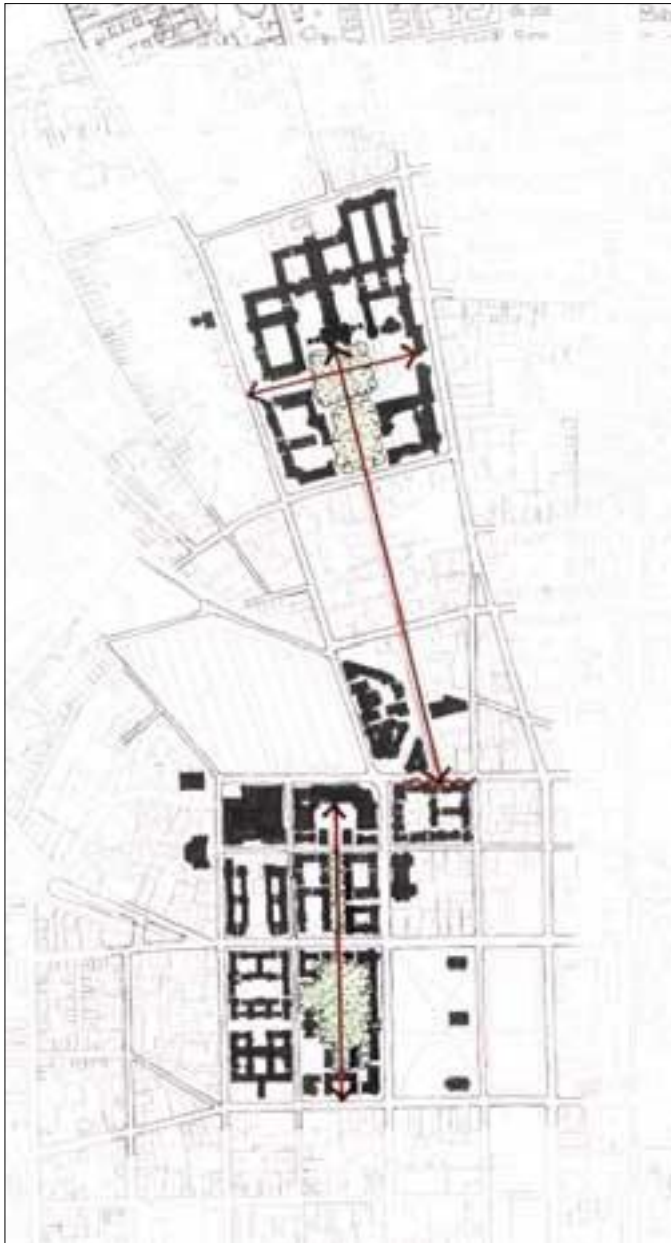
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1 Analysis of Pope's Plan showing connections



connections

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1 View of Pope's gymnasium group
2 Aerial view of Pope's Plan

immediate needs of the Yale community. In the General Plan of 1921, Rogers retained the concept of Cross Campus but eliminated the unifying axes and public spaces that Pope had used to link the northern portion of the campus to the Central Campus south of Grove Street. His plan was limited to regularizing existing axes and creating a series of internal quadrangles and courtyards within the Central Campus. The limits of the Rogers Plan became the model for the campus as it remains today—various detached precincts and isolated moments of coherence that fail to create a physically unified University.

The various plans that have followed Rogers' design have looked at the campus as his plan left it. Development efforts have focused on discrete portions of the campus—such as Science Hill and Cross Campus—without considering the University as a whole. Even the most recent series of area plans has taken the same approach. This document, the Framework for Campus Planning, is now an attempt to look at the University in its entirety.



2

Adapted from: Yale Campus
Planning: *A Short Breakdown
of Its Epochs*
Patrick L. Pinnell, AIA/March
1999

Campus Evolution

A brief history of Yale’s development gives a picture of the University and its campus today. The Collegiate School, founded by a group of ten ministers in 1701, originally held classes in houses at Killingworth, then Saybrook. With the Connecticut Assembly supporting a new school, the two formerly separate colonies of Hartford and New Haven competed bitterly to have its permanent site within their spheres of political influence. It was not until 1717 that the Assembly finally selected New Haven and chose a site for the college building facing the west side of the Green. A chronology of the various periods of development that follow gives a brief history of how the University evolved into its current form.

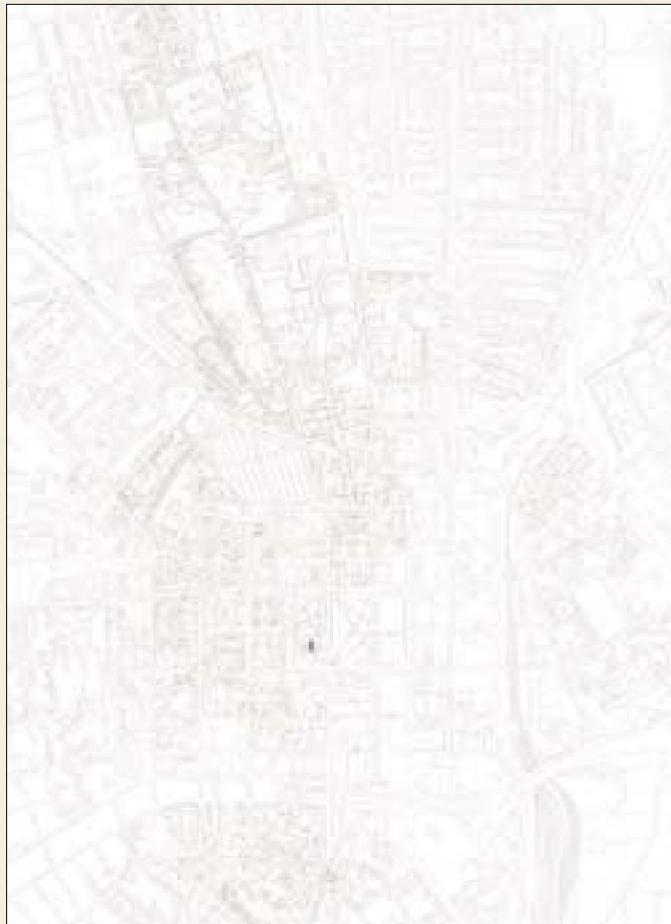
1717–1792: Foundations

Once firmly planted in New Haven, the College grew slowly but regularly, supported by the City, Assembly and occasional large individual donations—most notably that of Elihu Yale, after whom the Assembly renamed the College. The original wooden building served Yale well

**The development of Yale’s campus,
overlaid on the existing map of
New Haven**

- Legend*
- Existing buildings
 - New construction and acquisitions since previous development period

17 17 Campus Plan



17 53 Campus Plan



for a time; eventually the College added a brick dormitory and then, when doctrinal differences with the New Haven congregation's minister arose, a separate chapel. The first building gradually fell victim to maintenance difficulties and the School mostly demolished it in 1775; dissatisfied students eventually completed the job.

1792–1869: Brick Row

In 1792, Yale's President and Treasurer, at the suggestion of the painter John Trumbull, invented a formula to handle the growing dormitory and classroom needs in an orderly way. This formula governed the type and placement of major buildings for the next half-century. The cumulative result was the impressive, influential array of buildings known as Old Brick Row, which stood at attention in its elm-shaded Yard. But confidence in the Row formula eroded after 1840 as the College reached the limits of its original block and its relations with New Haven became strained. At the same time, new private donations and interests within the institution prompted Yale to begin to construct buildings away from the College's center.

1835 Campus Plan



1850 Campus Plan



1869–1901: Fortification, Proliferation and Expansion

Yale College inaugurated a new building strategy that gradually reshaped the complete College Block. The Old Brick Row was gradually demolished, replaced by structures that eventually formed a wall at the outer edge of the block: this turned the focus of the College inward to a large enclosed quadrangle that began to be called the campus. At the same time more and more buildings went up outside that block, mostly in nearby New Haven areas. This accommodated the additional needs of a growing college, as well as the increasing variety of programs that accompanied the institution’s transformation into a University. The Sheffield Scientific School and Medical School began to form new centers of Yale building.

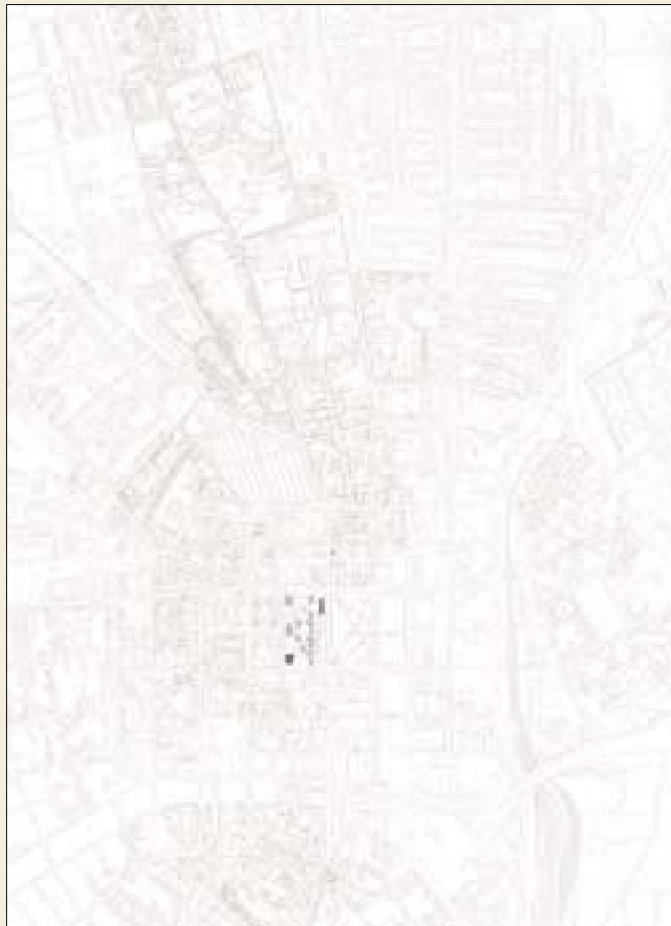
1901–1916: Growth of the University

As the University’s components proliferated and expanded, the College and Sheffield School grew toward each other in a piecemeal way. The 1901 Bicentennial Group, the first structures

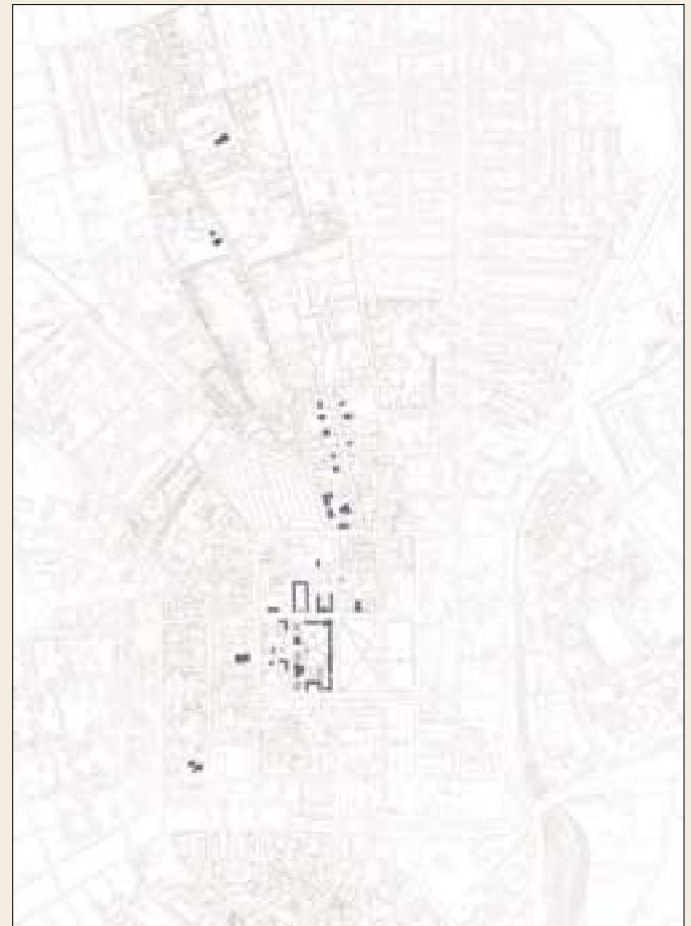
The development of Yale’s campus, overlaid on the existing map of New Haven

- Legend
- Existing buildings
 - New construction and acquisitions since previous development period

1870 Campus Plan



1894 Campus Plan



built for the University as a whole, suggested the need for a better-managed, overall pattern of growth. Yet the diverse number of existing, functionally and structurally sound Yale buildings—still intermeshed with non-Yale houses and businesses—made any broader physical or functional organization pattern difficult to conceive. Growth of the Medical School complex and the acquisition of Science Hill enriched the campus but further complicated the problem of developing an overall building strategy.

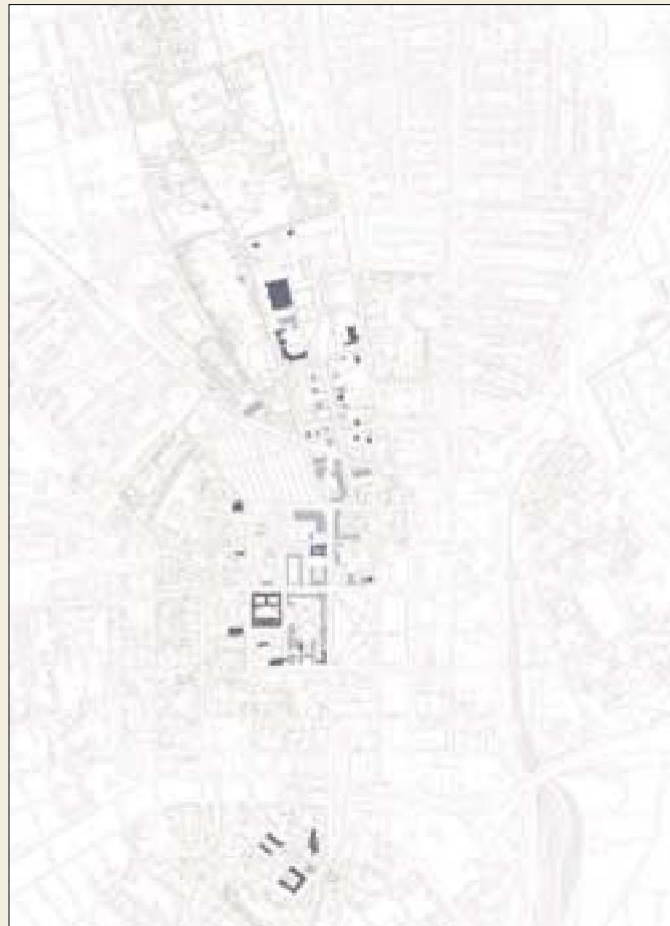
1916–1952: Quadrangle Years, Quonset Years

Sparked by reforms of University curricula and administration, inspired by the 1919 John Russell Pope plan and guided by the 1921 James Gamble Rogers General Plan, Yale again radically transformed its physical fabric. The change had two principal features. The first— construction of Sterling Library and the “New Campus” (Cross Campus) in the formerly jumbled area between “Old Campus” and Sheffield Scientific—moved the University’s visual and functional center off the original block. The second evolved from the decision to assign

1912 Campus Plan



1928 Campus Plan



undergraduates to separate colleges, each a small version of the Old Campus model—a quadrangle surrounded by buildings to form a city block. Other schools followed, wherever feasible, turning in on themselves with college-like courtyards. While Science Hill and the Medical School and Yale-New Haven Hospital continued to develop as entities essentially separate from the Central Campus, they also used buildings lining city streets to form inner courts. The Second World War and its aftermath virtually halted all permanent building except the Hospital structures.

1953–1976: Star Performances

The spirit of the ensuing period is best understood as a reaction against the policies and architectural strategies of the pre-war era. The former guiding policy had been to build in locations that would help create a dominant center and grand overall pattern for the University campus, and to do so in recognizable architectural revival styles. After the War, new buildings went up in locations that best served their individual functions, and designs

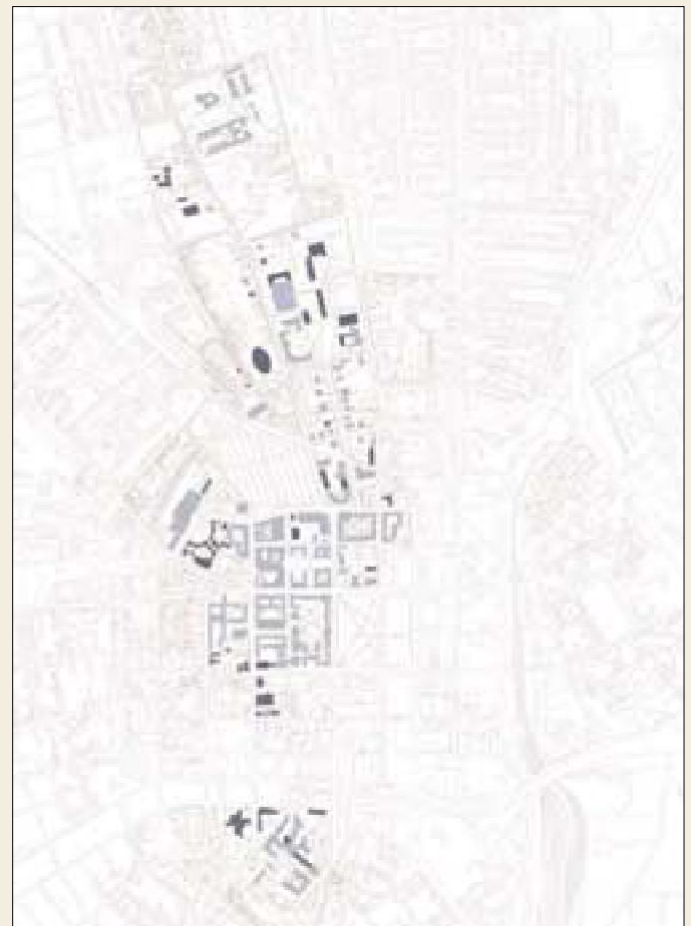
The development of Yale’s campus, overlaid on the existing map of New Haven

- Legend*
- Existing buildings
 - New construction and acquisitions since previous development period

1940 Campus Plan



1970 Campus Plan



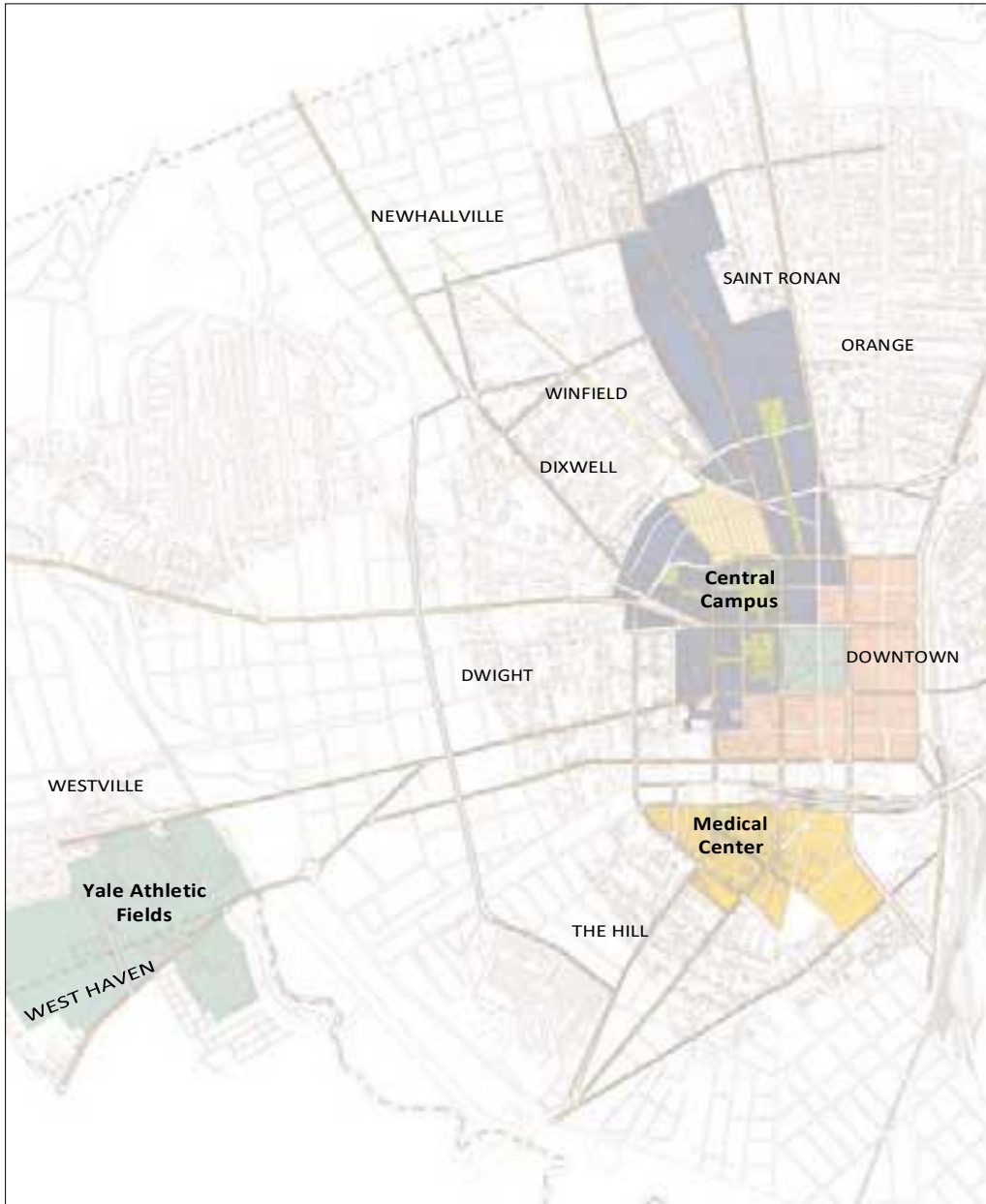
followed the modern “style for the job.” The new “forward thinking” architecture of Yale drew international attention. At the same time, New Haven attempted to reinvent itself with major pioneering, urban renewal and highway construction programs. Yet relations between University and City gradually shifted from cooperative (acquisition of city-owned land for Stiles and Morse colleges) to adversarial, culminating in blockage (Whitney-Grove colleges) or major modification (Center for British Art) of Yale projects.

1976–Present: Change, Place, Inheritance and Their Consequences

During this period the University dealt with three main challenges: integrating the altered and enlarged College population that followed its 1969 decision to admit women; existing in a New Haven working to increase jobs, tax revenues and its middle class; and working with its grand but deteriorating architectural legacy. Short-term concerns over annual operating budget deficits and soaring maintenance and service costs called into question the prudence of retaining some of the University’s facilities and made long-term planning difficult. The result was a building and planning program less immediately visible yet more pervasive than those in the previous epoch. The few new structures were for the most part without distinction. Instead, after an uncertain period of deferred maintenance and occasional renovation, the University embarked on a concerted effort to update, renovate and stabilize its existing structures. Area Plans were formulated, each covering one section or aspect of the overall campus. With the Framework for Campus Planning, the University is only now attempting to understand its complex structure and integrate plans for various sections of the campus with each other and the City of New Haven.

Present Campus Plan





One University—Three Related Campuses

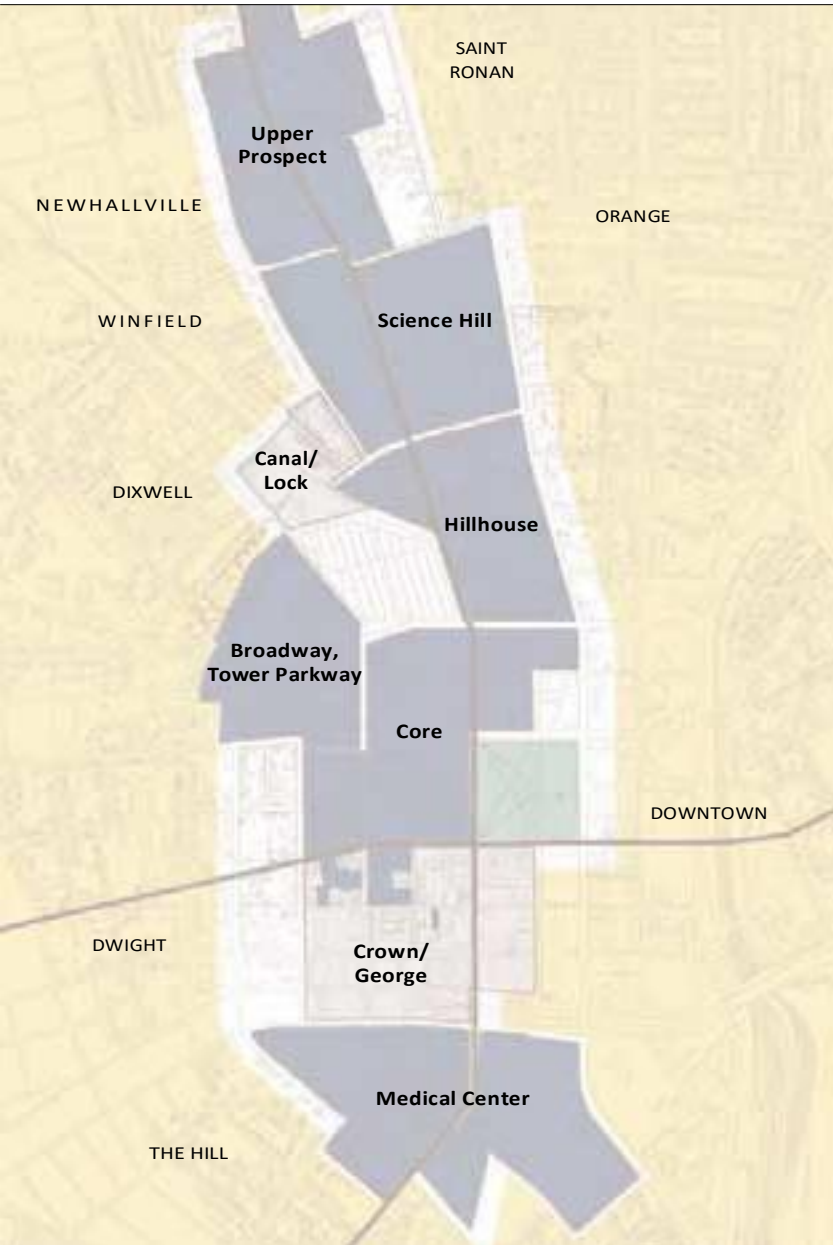
The University continues to reinforce itself as a single institution, but our study revealed that it has three distinct but interrelated physical parts: the Central Campus, the Medical Center, and Yale Athletic Fields. They are tied together by common streets, but each campus has its own physical plan, character and perimeter conditions. A design challenge is to connect such an extended university—from Yale Bowl to Old Campus and from the Sterling Divinity Quadrangle to Cedar Street at the Medical Center. Because the University shares many streets and several areas of specialized use with the City (Broadway’s retail, Orange and Dwight’s residential neighborhoods and Chapel Street’s arts, entertainment and retail destinations), New Haven’s public realm—its street layout, traffic control, landscaping, lighting and signage—set many of the parameters of Yale’s physical environment.

1 One University – Three Related Campuses:

Yale is composed of three related campuses—Central Campus, Medical Center, Yale Athletic Fields—each with distinct physical design and functional characteristics. The campuses are shown with surrounding neighborhoods and linked to one another by important City streets—Chapel, Prospect and College, Whitney and York.



2



- 1 Connecticut Hall in the Core Planning Precinct
- 2 Hillhouse Avenue
- 3 Broadway retail
- 4 Kline Biology Tower on Science Hill
- 5 Medical Center
- 6 Marsh Hall and botanical gardens in Upper Prospect
- 7 Walter Camp Gate at Yale Athletic Fields

Planning Precincts

To analyze critically Yale's physical characteristics, one may view the University as seven distinct but interrelated planning precincts. By virtue of common uses, topography or building types, each of these areas logically poses similar issues and opportunities. Dividing the campus into smaller units also makes it easier to discuss its discrete areas.

Central Campus includes five of the precincts. The **Core** is the area of the campus that includes most of the academic space and undergraduate residential colleges. Since it includes the historic fabric of the University, this is the place most people would define as "Yale." The **Broadway/Tower Parkway** area contains such diverse buildings as the Payne Whitney Gymnasium, Broadway retail stores and the Central Power Plant. The **Hillhouse** area has become home to academic functions and institutional uses, including the President's House. **Science Hill** is defined both by its single functional use as well as its dramatic topography, rising along Prospect Street from Sachem Street. **Upper Prospect**, at the top of Prospect Hill, is characterized by low-scale residential communities and an abundance of open, park-like spaces.

The **Medical Center**, the sixth planning area, lies to the south, beyond the Route 34/Oak Street Connector, and includes the Yale-New Haven Hospital. Bisected by Congress Street, it is the second largest precinct.

The seventh and most remote of the planning precincts is **Yale Athletic Fields**. Located two miles west of the Central Campus, it contains the athletic fields and facilities for many varsity and intramural sports, as well as the tennis stadium.



3



4



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6



7



1

1 Planning Precincts

- Legend*
- Central Campus and Medical Center
 - Areas of mutual interest

Connections between the different parts of campus are critical to establishing a continuous fabric, because of the extended length and breadth of the University.

1 View west on Elm Street toward Broadway



1

7 Connections:

This diagram emphasizes the major vehicular and pedestrian connections. The College, Grove and Prospect intersection is again identified as the primary point of connection between the north and south parts of Central Campus. It also recognizes where there is a lack of connection, such as across the Farmington Canal.

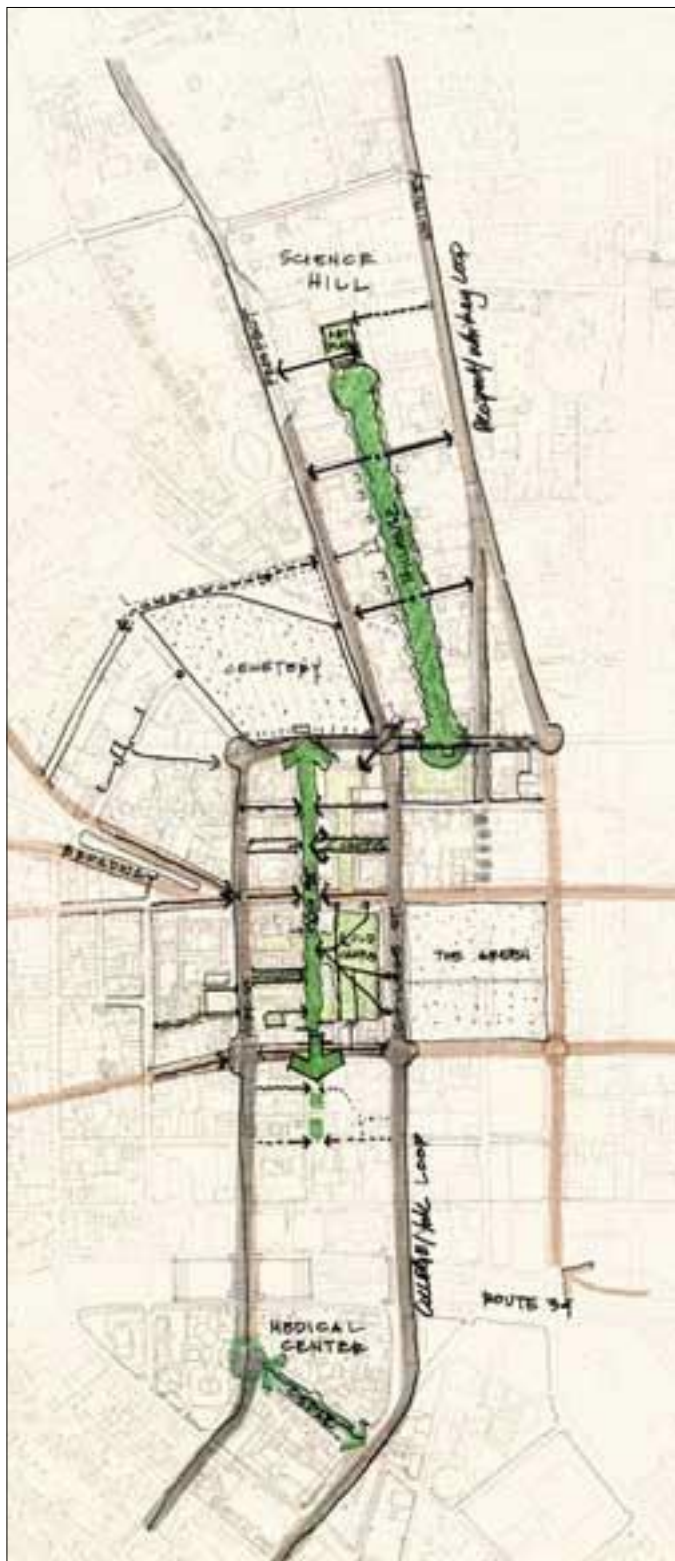
Connections

As described earlier in the ladder diagram, the north and south halves of the Central Campus meet at the crossing of Prospect and Grove Streets. This single point of contact, between Woolsey and Sheffield-Sterling-Strathcona Halls, is a tenuous connection. John Russell Pope introduced Cross Campus to try to connect the north and south parts of the campus. Since no project ever linked Hillhouse Avenue to Cross Campus, the areas north of Grove Street, especially Science Hill, remain physically and perceptually isolated from the more historic areas to the south.

Even the existing connections in the Central Campus are neither as obvious, nor as inviting, as they should be. While Prospect Street is the common spine linking the precincts north of Grove, there are no clearly defined connections through Science Hill to Whitney Avenue. Sachem Street dead-ends at the Farmington Canal and Trumbull Street terminates at the Grove Street Cemetery on Prospect Street. This lack of continuity makes it difficult for students to walk directly across the campus. Connections within the southern half of Central Campus are less problematic. High Street serves as the primary spine, with the most walkways and open spaces—such as Library Walk, Old Campus and Cross Campus—connecting directly to it. Nonetheless, the recent opening of the new residence hall on Tower Parkway calls for a connection around the Grove Street Cemetery to Prospect Street.

Although the Medical Center sits just four blocks south of Chapel Street, it seems much further away. The Route 34/Oak Street Connector, Air Rights Garage and deteriorated streetscape with vacant lots and empty storefronts combine to create a barrier that isolates the Medical Center from Central Campus. These conditions detract from the environment of the Medical Center itself, while distancing the Center from the services, resources and major student population of Central Campus.

1



7 Circulation Summary:

This diagram of the campus structure reinforces the principles of the ladder diagram, shown previously, and emphasizes the primary north-south circulation routes along the ladder. It indicates where clear paths of circulation do not currently exist, around the Cemetery, for example, or should be reinforced, in the east-west direction in particular.



1 View south on College Street past the Green and Old Campus

The Medical Center currently leases a substantial amount of space in the area between Chapel Street and the Route 34/Oak Street Connector, and many faculty, staff and students live in apartment buildings there. They make numerous daily trips between the Medical Center and the arts, entertainment and retail facilities within this area and along Chapel Street. York and College Streets, the principal connections between these areas, are thus prime candidates for street redesign and enhancement.

Cedar Street may be the front door of the Medical School, but its connection to the School of Nursing is not as prominent. Clearly defined and developed connections between the Yale-New Haven Hospital, the Medical School and the Nursing School—and the final link to the train station—simply do not exist.

The Yale Athletic Fields, home to most intramural and varsity athletics, is two miles away from the Central Campus. The condition of Chapel's streetscape, the loss of the old trolley line and the new one-way street network have compromised the historic connection from Chapel Street to the Bowl. Trying to return to Central Campus from Yale Fields by car, one either dead-ends on Edgewood Avenue at Park Street, or must bypass the Campus on George Street heading east. Neither option is satisfactory for a trip so important to campus life. All this shows how improved connections among Yale's three campuses are fundamental to making a cohesive and coherent University.

- 1 Sterling Memorial Library
- 2 Osborn Memorial Laboratories

1



2



Uses

Yale's Space Inventory System (SIS) has six major categories of use: academic, administration, student housing, assembly, library/museum and athletic. In SIS, maintenance and operations, miscellaneous residences and medical (non-Medical School) are secondary. The 340 buildings on campus include over 12.5 million gross square feet (gsf). Rarely, however, is a building, city block or campus precinct devoted exclusively to one of these uses; most buildings have multiple uses. Because of this, traditional mapping techniques reveal little helpful information. The drawings on the following pages, therefore, employ an abstracted overlay grid to illustrate location patterns and concentrations of complex sets of uses. From these, we can make a few general observations.

- In terms of overall use, two campus locations have the highest density—one within the Core, in and around Sterling Memorial Library and Payne Whitney Gymnasium, and the other on Science Hill at Sterling Chemistry along Prospect Street. The greatest concentration and mix of uses and activities occur in the Core and Broadway/Tower Parkway precincts, which contain academic, administrative, residential, assembly, library, recreation and cultural activities.
- Classroom space is generally clustered by academic division: humanities within the Core area, social sciences north of Grove Street within the Hillhouse area, physical sciences on Hillhouse and Science Hill and biological sciences on Hillhouse/Science Hill and at the Medical Center. Since biological sciences, physical sciences and engineering occupy several areas, their classrooms are often dispersed at extended distances from each other. The professional schools are dispersed throughout the campus; a professional school resides within every planning precinct of the campus except Yale Athletic Fields, from the Divinity School in the north to the Medical School in the south. They are located along the major corridors of the University—College, Prospect and York Streets.
- Most buildings contain office space, which is fairly evenly dispersed throughout the campus. While much administrative space is concentrated in the Core, over forty percent is located elsewhere, including the Whitney Avenue corridor.



1 Academic uses are distributed in most Central Campus and Medical Center buildings.

Legend

Buildings with academic uses

Sources: Space Inventory System Basic Facility List (10/02/97)

Central Campus

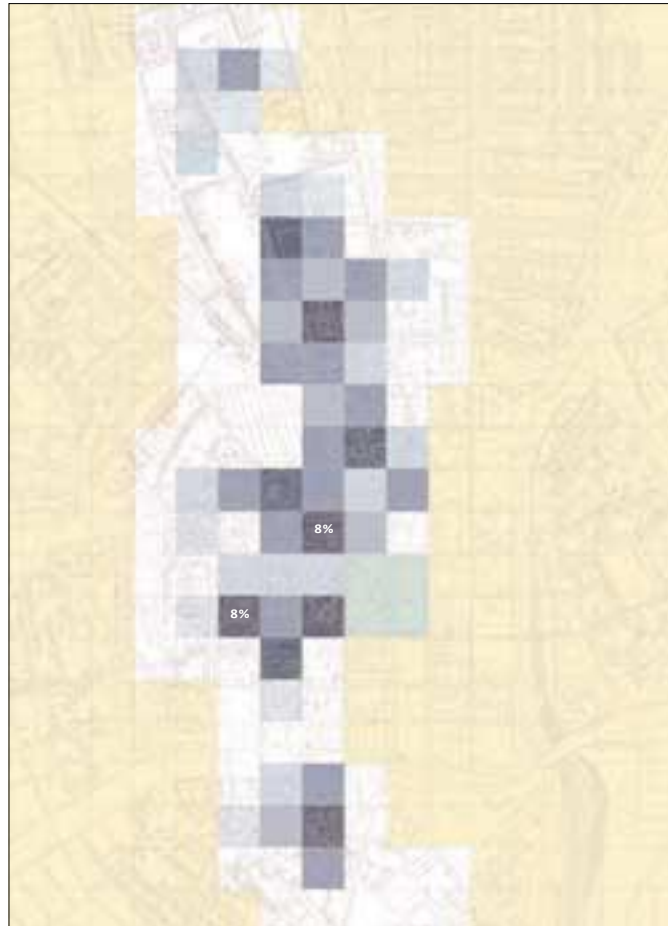
Classroom:	213,000 asf	11%
Office:	453,000 asf	23%
Studio:	93,000 asf	5%
Teaching Lab:	50,000 asf	2%
Research Lab:	276,000 asf	14%
Lab Support:	145,000 asf	7%

Medical Center

Classroom:	32,000 asf	2%
Office:	338,000 asf	17%
Medical Lab:	380,000 asf	19%

Total: 1,980,000 asf 100%

Sources: Space Inventory System Basic Facility List (10/02/97)



1 Classroom space is concentrated in four locations on the Central Campus and one location in the Medical Center.

Legend

Over 15,001 asf
9,001 - 15,000 asf
4,001 - 9,000 asf
2,001 - 4,000 asf
601 - 2,000 asf
1 - 600 asf

(Includes Classrooms, Lecture Rooms and Academic Auditoria) Sources: Space Inventory System Basic Facility List (10/02/97)

Central Campus Total: 213,000 asf
Medical Center Total: 32,000 asf



1 Office space is concentrated in three precincts on the Central Campus — Broadway/Tower Parkway, Hillhouse, Science Hill — and at the Medical Center precinct.

Central Campus Total: 453,000 asf
 Medical Center Total: 338,000 asf

Legend

- Over 25,001 asf
- 13,001 - 25,000 asf
- 8,001 - 13,000 asf
- 3,001 - 8,000 asf
- 1,001 - 3,000 asf
- 1 - 1,000 asf

(Includes Faculty Offices, Student Offices and Administrative Offices Assigned to Academic Departments, Centers, Institutes and Programs)

Sources:
 Space Inventory System Basic Facility List (10/02/97)

- Because of the residential colleges, undergraduate housing is densely concentrated in the center of campus. Graduate housing, by contrast, is dispersed at the periphery—on upper Prospect Street, in the Orange and Dwight neighborhoods and in the residential towers south of Chapel Street.
- Finally, while it is difficult to divide Yale into clearly defined functional zones or dedicated academic areas, there are several clusters of areas with related uses such as Science Hill, the Medical Center and arts and entertainment around Chapel Street.
- There is a split of athletic facilities between the Yale Athletic Fields and Central Campus; swimming, basketball, hockey and fitness/weightlifting are among the indoor sports located within the Central Campus—at Payne Whitney Gymnasium and Ingalls Rink. Football, baseball, soccer, tennis, track & field, and lacrosse are among those sports with facilities at the Yale Athletic Fields. This requires the commuting of varsity teams, intramural participants and staff, between these locations.

Two general issues emerge from these use patterns. First, the tendency of each academic division to use a general area and the logical groupings of similar uses suggest preferred locations for new facilities of a certain use or type. These include, for example, placing core academic activities in the Central Campus; academic, research and science space in the Hillhouse and Science Hill precincts; and performing and visual arts space on or near Chapel Street. Of more critical importance, however, is taking steps to mitigate, as much as possible, the separation between related activities: the physical sciences and biological sciences between the Science Hill, Hillhouse and Medical Center precincts; the assembly spaces on College Street from those in the Chapel Street area; the Health Services Center from the Medical Center facilities to the south; the concentrated, centralized undergraduate residential colleges from remote graduate student housing; Yale Athletic Fields from the indoor facilities at Payne Whitney Gymnasium and Ingalls Rink; dispersed retail concentrations at Broadway, Chapel Street and Whitney/Grove. Some of these disconnected areas contain miscellaneous city uses as well. Taking note of where these generalized patterns of use are found—and where they break down—should help the University choose proper locations for proposed functions and buildings.

1 View from the Broadway retail area toward Harkness Tower and the Core





1



- 1 View of the Hall of Graduate Studies tower from Wall Street
- 2 Dana House on Hillhouse Avenue
- 3 Davenport College courtyard and tower



3



2

7 The built form of the campus, emphasizing the variety of building types and open spaces.

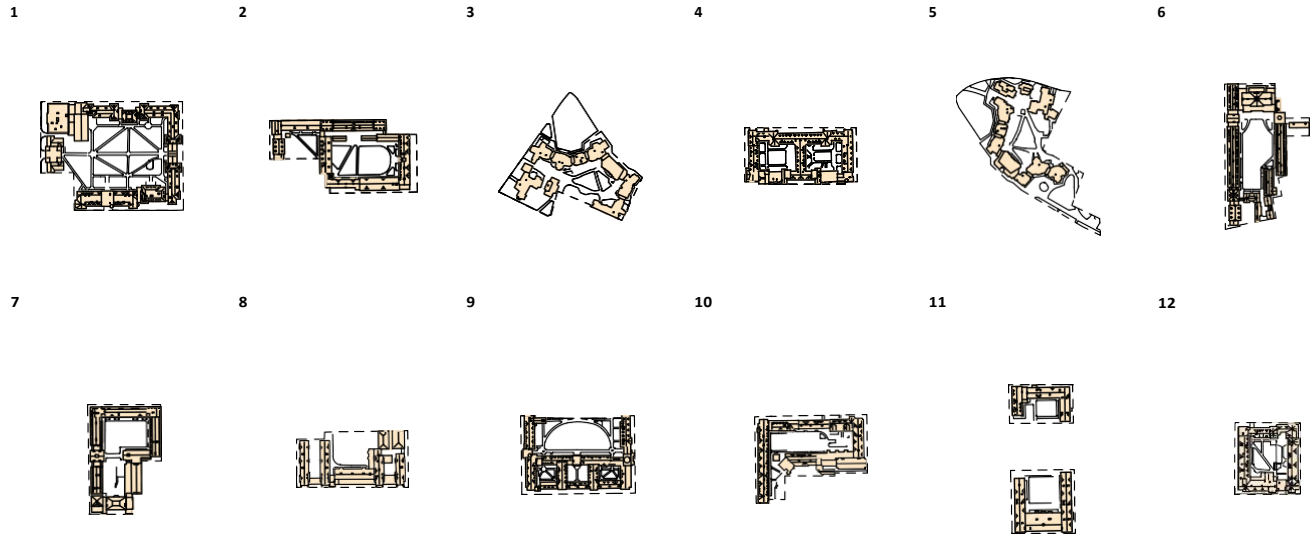
Built Form

While Yale extends for two miles, the physical character of the campus remains remarkably consistent, within and among the planning precincts.

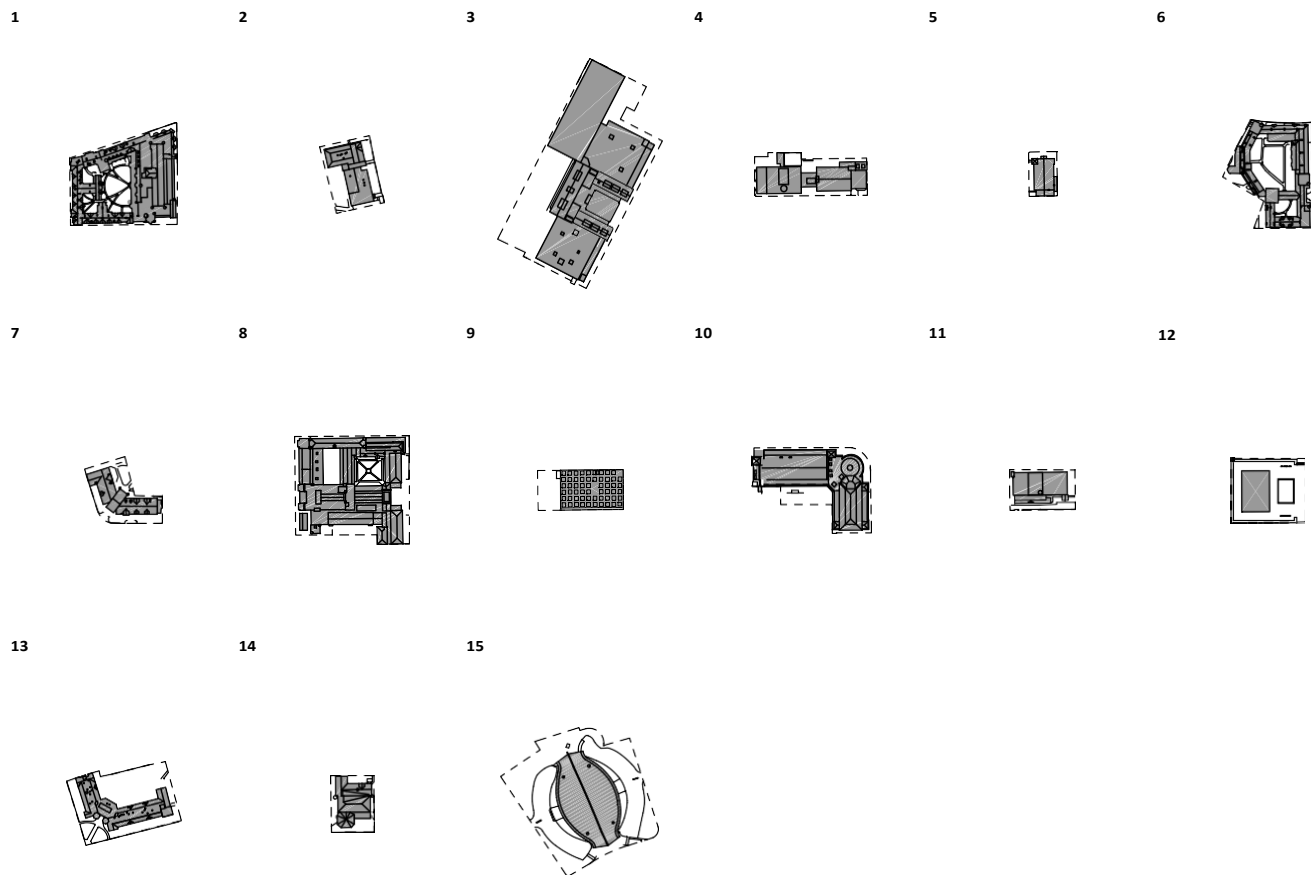
Yale's Central Campus is characterized by urban blocks containing buildings which frame city streets and define courtyards. Towers punctuate the pattern of the buildings, which are typically three to five stories. These towers serve as urban landmarks for the University as well as the City. They identify important functions and destinations on campus (Woolsey Hall, Sterling Library, Payne Whitney Gym). They mark important intersections (Sheffield-Sterling-Strathcona Hall at Prospect and Grove, or Bingham Hall at College and Chapel Streets). They may symbolize entire planning precincts (Kline Biology Tower for Science Hill, Harkness Tower for the Core) and can act as beacons for short- or long-distance views from campus walkways or public

FRAME W O R K PLAN

3 Residential College Scale Comparison



3 Campus Buildings Scale Comparison



Residential College Scale Comparison

1 Silliman College		10 Jonathan Edwards College
Site Area: 2.70 ac		Site Area: 1.71 ac
Building Footprint: 50,474 sf		Building Footprint: 31,380 sf
Programmed Outdoor: 72,443 sf		Programmed Outdoor: 23,970 sf
Total gsf: 254,730 gsf		Total gsf: 142,532 gsf
# of floors above Grade: 6		# of floors above Grade: 4
Total # of Students: 402		Total # of Students: 204
2 Davenport College		11 Berkeley College
Site Area: 1.95 ac		Site Area: 1.48 ac
Building Footprint: 35,389 sf		Building Footprint: 31,047 sf
Programmed Outdoor: 39,557 sf		Programmed Outdoor: 30,632 sf
Total gsf: 147,707 gsf		Total gsf: 128,161 gsf
# of floors above Grade: 5		# of floors above Grade: 5
Total # of Students: 265		Total # of Students: 238
3 Ezra Stiles College		12 Calhoun College
Site Area: 1.71 ac		Site Area: 1.06 ac
Building Footprint: 26,523 sf		Building Footprint: 23,472 sf
Programmed Outdoor: 27,458 sf		Programmed Outdoor: 15,410 sf
Total gsf: 135,361 gsf		Total gsf: 117,184 gsf
# of floors above Grade: 10		# of floors above Grade: 6
Total # of Students: 248		Total # of Students: 234
4 Saybrook College		Average
Site Area: 1.46 ac		Site Area: 1.79 ac
Building Footprint: 29,455 sf		Building Footprint: 32,130 sf
Programmed Outdoor: 19,912 sf		Programmed Outdoor: 31,496 sf
Total gsf: 155,666 gsf		Total gsf: 148,897 gsf
# of floors above Grade: 9		# of floors above Grade: 6.7
Total # of Students: 289		Total # of Students: 264
5 Morse College		Sources: Yale University
Site Area: 2.02 ac		Undergraduate Residential
Building Footprint: 25,976 sf		Facilities Planning Study
Programmed Outdoor: 30,400 sf		(7/10/95)
Total gsf: 142,206 gsf		
# of floors above Grade: 14		
Total # of Students: 252		
6 Pierson College		
Site Area: 1.92 ac		
Building Footprint: 39,194 sf		
Programmed Outdoor: 29,660 sf		
Total gsf: 140,278 gsf		
# of floors above Grade: 9		
Total # of Students: 264		
7 Timothy Dwight College		
Site Area: 1.53 ac		
Building Footprint: 33,009 sf		
Programmed Outdoor: 27,751 sf		
Total gsf: 149,249 gsf		
# of floors above Grade: 4		
Total # of Students: 258		
8 Trumbull College		
Site Area: 1.38 ac		
Building Footprint: 25,255 sf		
Programmed Outdoor: 17,792 sf		
Total gsf: 118,825 gsf		
# of floors above Grade: 5		
Total # of Students: 202		
9 Branford College		
Site Area: 1.99 ac		
Building Footprint: 34,388 sf		
Programmed Outdoor: 42,966 sf		
Total gsf: 157,642 gsf		
# of floors above Grade: 4		
Total # of Students: 269		

Campus Buildings Scale Comparison

1 Sterling Law Buildings	
Site Area: 2.12 ac	
Building Footprint: 62,866 sf	
Total gsf: 242,101 sf	
2 Dunham Lab	
Site Area: 0.76 ac	
Building Footprint: 16,078 sf	
Total gsf: 77,449 sf	
3 Payne Whitney Gymnasium	
Site Area: 4.52 ac	
Building Footprint: 128,159 sf	
Total gsf: 758,343 sf	
4 Yale University Art Gallery	
Site Area: 1.01 ac	
Building Footprint: 28,006 sf	
Total gsf: 150,462 sf	
5 Yale Repertory Theatre	
Site Area: 0.28 ac	
Building Footprint: 8,078 sf	
Total gsf: 24,470 sf	
6 Hall of Graduate Studies	
Site Area: 1.69 ac	
Building Footprint: 37,368 sf	
Total gsf: 186,601 sf	
7 Sheffield-Sterling-Strathcona Hall	
Site Area: 0.73 ac	
Building Footprint: 15,144 sf	
Total gsf: 81,415 sf	
8 Sterling Memorial Library	
Site Area: 2.74 ac	
Building Footprint: 679,873 sf	
Total gsf: 477,469 sf	
9 Center for British Art	
Site Area: 0.78 ac	
Building Footprint: 23,869 sf	
Total gsf: 112,580 sf	
10 Commons & Woolsey Hall	
Site Area: 1.65 ac	
Building Footprint: 53,816 sf	
Total gsf: 158,770 sf	
11 University Theater	
Site Area: 0.57 ac	
Building Footprint: 15,452 sf	
Total gsf: 60,774 sf	
12 Beinecke Library	
Site Area: 1.07 ac	
Building Footprint: 11,416 sf	
Total gsf: 134,300 sf	
13 Osborn Memorial Laboratories	
Site Area: 1.48 ac	
Building Footprint: 22,690 sf	
Total gsf: 140,894 sf	
14 Linsly-Chittenden Hall	
Site Area: 0.54 ac	
Building Footprint: 13,642 sf	
Total gsf: 59,253 sf	
15 Ingalls Rink	
Site Area: 3.47 ac	
Building Footprint: 47,983 sf	
Total gsf: 61,646 sf	

Sources: Space Inventory System
Basic Facility List (1999)

streets (Hall of Graduate Studies for Wall Street, Silliman’s entry tower for Hillhouse Avenue, Wrexham Tower for Broadway). The architecture of Yale, therefore, is equally suitable for a university or city.

Beyond the Core area, the collection of buildings in each planning precinct takes on a distinctive form. Hillhouse Avenue is an area of stately, three-story houses within a landscaped setting, while Science Hill holds a loosely-related collection of large-footprint buildings set on the steep topography of Prospect Hill. The Medical Center is a large-scale complex of interconnected four- and five-story buildings creating courtyards and quadrangles. At the opposite end of campus, the residentially scaled buildings of the Sterling Divinity Quadrangle are the highlight of Upper Prospect, which generally has houses and low-rise apartments set within the rolling landscape of Prospect Hill. Finally, Yale Athletic Fields has large scale specialized sports facilities grouped together in a landscape of playing fields and regional parks. Consequently, the broad diversity of Yale’s buildings and their settings pose a significant challenge: to maintain the existing, complex fabric while adjusting future renovations, building additions and new construction projects to contemporary and functional demands. Therefore, as Yale develops (or redevelops) sites and buildings to fill the gaps, its design consultants must take special care to sustain the unique spirit of each precinct, to provide appropriate transitions from one precinct to the next and to blend new construction into the surrounding New Haven neighborhoods and mixed-use districts.

- 1 Aerial view north over the Green
- 2 An historic view of New Haven elm trees
- 3 Old Campus quadrangle landscape



Landscape and Open Space

Cities envelop many American universities. Few, however, are integrated into their surroundings as completely as Yale. The landscape of Yale University and that of New Haven are inextricably linked. Nearly every University building has a city street address. But Yale also has its private side, having arranged many of its buildings to create spaces removed from public view or with generous gardens and front yards.

The Yale of today reflects the landscaping philosophies of civic and university leaders from its past. New Haven incorporated many lasting American notions of gracious and desirable urban design in its early efforts to create pleasant streets by planting trees and to use architecture to shape space rather than merely occupy it. Several generations of Yale’s leaders took care to use natural materials in creating a civic and collegiate environment—as one can see in a wealth of historic views, prints, paintings and photographs, as well as in the fabric and structure of the City and campus today. Although the Yale landscape has evolved, numerous scraps and fragments from different periods remain, partially influencing and shaping development today. Some of those remnants are extremely handsome and gracious and help define sections of the campus—like the courtyards of the Gothic Revival buildings—while the pastoral estate of James Hillhouse in Sachem’s Wood haunts Science Hill. The cumulative effect of this long commitment to the landscape is a complex environment of unique character and immense value to Yale and New Haven.

Unlike buildings—which tend to inspire passionate attempts to freeze time and forestall change—landscapes are generally acknowledged to be more transitory, more inherently dynamic and changeable. While repair and maintenance are as important to the landscape as to any aspect of our cultural milieu, skeptics find the concept of “landscape restoration” of dubious value despite its current popularity. Landscapes inescapably suffer the ravages of age. For example, it would be impossible to repopulate the gardens of Hillhouse Avenue with the lush and broad canopied American chestnut trees that filled them a century ago. Landscapes need constant replenishment.

1 Sachem's Wood (the original mansion)
2 Hillhouse Avenue



Even if several diseases had not felled the spectacular array of elms and chestnuts that once graced New Haven and the College, they would still be dead or dying of old age today and need replanting.

As with its architecture, Yale's landscape has been the fortunate beneficiary of the efforts of several farsighted and gifted individuals. Among the most notable are James Hillhouse in the eighteenth century—who laid out much of the early community, Yale College and their trees—and Beatrix Farrand, who worked with James Gamble Rogers and others to plant, adjust and refine the University's principal outdoor "rooms" from 1922 until 1945. Their efforts are seen in the trees, shrubs and walks of nearly every residential courtyard, as well as in the moats and street trees within the historic Core.

Our analysis of the landscape at Yale leads to two sets of planning and design issues and solutions. One set relates to large areas as well as specific places and their unique problems, for example, how to improve the environs of Beinecke Library and Woolsey Hall (Hewitt Quadrangle) or that of Luce Hall. The other set is more generic, occurring in more than one place. For these recurring problems, we have tried to come up with generic solutions to the type of issue. This includes planting along streets which commonly pass through and along several precincts. This document enumerates the issues and proposals for each of these and other landscape typologies—such as quadrangles, courtyards and surface parking lots—in detail.

In devising solutions it is important to remember that while Yale's campus holds many buildings, it has just one landscape, albeit one with different parts of varying character. The entire community of Yale and New Haven share this spatial structure. Particular aspects of Yale's landscape design, therefore, must be civic and others private. Large, seemingly important and characteristic portions of Yale are in the public City right-of-way. Many of the proposals that follow, therefore, require the active participation and support of the City as well as the financial and management assistance of Yale. To succeed, projects must meet the needs and requirements of both the University and the City.

It is important to keep in mind that the full effect of many design and plant landscapes will only be fully evident to future generations. A long-term commitment to the landscape will achieve and sustain an environment as handsome, mature and fulfilling as Yale possesses today. Successful landscaping needs sustained effort, supported with the right resources and talent. The Yale of today was created by previous generations, who had faith in the continuity of their vision. It is now time to create the landscape of Yale for its future inhabitants.

No landscape project, however, can ever be declared complete since what is created must be maintained. An assessment suggests that some changes in current maintenance operations could greatly benefit the University. Three areas need attention: capital budgets, construction project and contract management procedures, and maintenance staff training. The virtual absence of capital budgeting for landscape projects in the recent past has left them as appendages or afterthoughts to architectural, engineering

5 Diagram of existing Yale and related New Haven open space



2

1



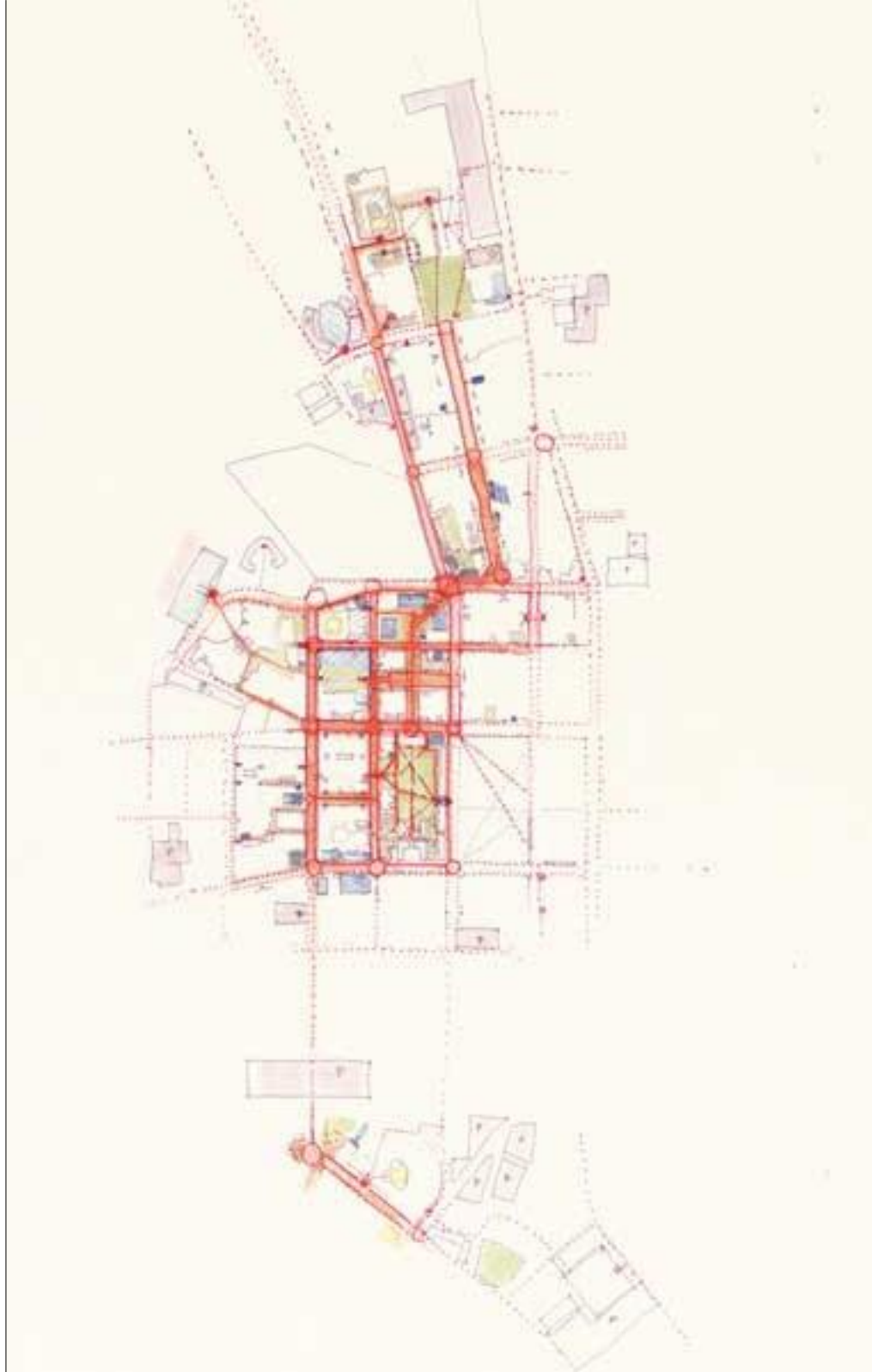
or utility projects, which generally lack concern for, or an understanding of, the needs of the landscape. As a consequence, landscape design at Yale has largely been controlled, directed and carried out by various professionals not qualified or interested in it. Landscape contracts tied to schedules for the completion of buildings (almost always September) have consistently led to hasty, poorly funded and ill-timed work, performed in inappropriate seasons, invariably planting in the hottest months of the year (July and August). Not only does this lower the quality of the initial landscaping installation, it also places a greater burden on maintenance staff, who inherit the physical and horticultural deficiencies. Maintenance of the landscape, in turn, suffers from the limitation of the current staff employees, who are generally more qualified for tasks other than horticulture, arboriculture or gardening. To get better value from the money spent on landscaping, the University should invest in improving the knowledge and skills of the landscaping staff at all levels.

Finally, the fundamental purpose of a great University's landscape is to sustain and support the life of that University and its members: students, faculty and staff. Part of what is required, therefore, is that it physically express the values espoused by the University's founders, leaders and thinkers. This means that the proposal in this Planning Framework for the campus landscape of Yale University should not only be functional but also strive to meet the criteria laid out by J. B. Jackson, twentieth century pioneer in the field of landscape studies, for an American landscape worthy of our highest aspirations: ecologically wholesome, socially just and spiritually rewarding.



2

1 Utility construction on Old Campus,
summer 1998
2 Cross Campus landscape



1 The primary pedestrian circulation network, emphasizing the most commonly used routes on campus.

1 The wide intersection of Grove, Prospect and College Streets

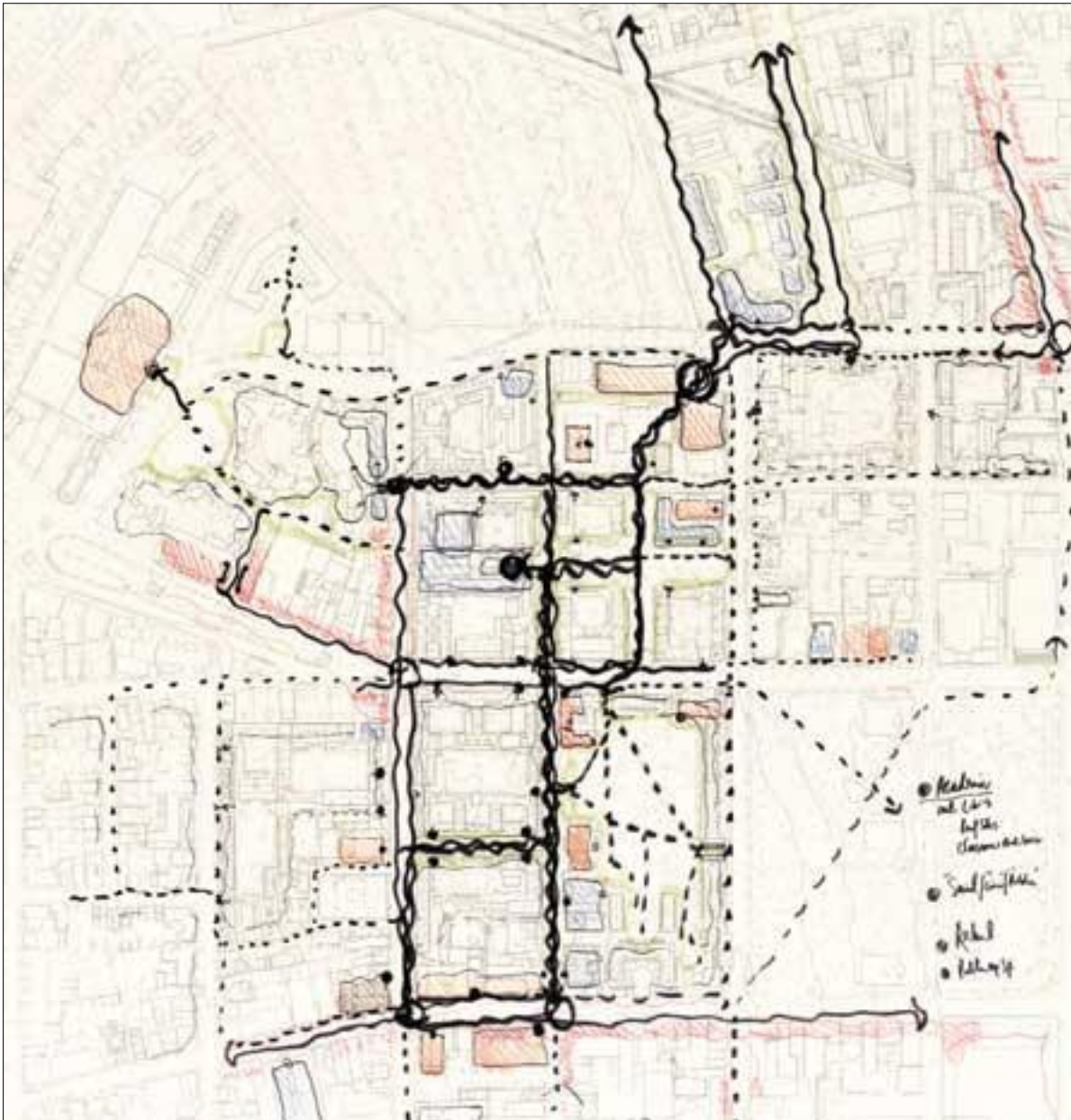


Pedestrian

The campus's pedestrian network reinforces Yale's ladder structure, with public streets and sidewalks constituting the major elements of this urban system.

North of Grove Street (Hillhouse, Science Hill and Upper Prospect planning precincts), Prospect Street and Whitney Avenue are heavily used pedestrian routes, with Hillhouse functioning as the central connection between Grove and Sachem Streets. Three problems make the pedestrian environment less than satisfactory here. First, both Prospect Street and Whitney Avenue present a "hodge podge" of building types, sizes and uses, and have fewer Yale facilities on them. This heightens the perceived distance between the Core and Science Hill. Second, the Grove Street Cemetery is a physical barrier to those traveling from Prospect Street across to Broadway/Tower Parkway and the Payne Whitney Gymnasium. Third, the intersection of Grove, Prospect and College Streets becomes the most important link in the north-south pedestrian network. The wide, offset street and the volume of traffic make the crossing between Woolsey Hall and Sterling-Sheffield-Strathcona Hall extremely difficult.

Within the Core south of Grove Street, most pedestrians move through the Hewitt Quadrangle to Cross Campus and then to High Street. High Street from Wall to Chapel Streets is the primary walk through the Core, with the most important academic destinations and open spaces of the Central Campus



1 Prominent pedestrian routes through the Core

5 Pedestrian circulation linking academic destinations



1



1 View east on Elm Street
2 View south on College Street

2



along this route. York Street is emerging as an important pedestrian connection between the Broadway retail district and the Chapel Street arts, entertainment and retail area. To establish a more satisfactorily integrated network, the University must pay attention to several key issues. First, it should accommodate the pedestrian flow from Central Campus to Old Campus, now impeded by Elm Street and its heavy traffic. Second, Yale should improve the character of High and Wall Streets, particularly along High Street between Elm and Chapel Streets, to make it more attractive to pedestrians. Third, the University should extend existing campus connections (Cross Campus east to Temple Street; Fraternity Row west to Howe Street). And, fourth, any improvements should accommodate the substantial pedestrian traffic through the most heavily used open spaces—including Cross Campus and Old Campus—while minimizing the need for maintenance.

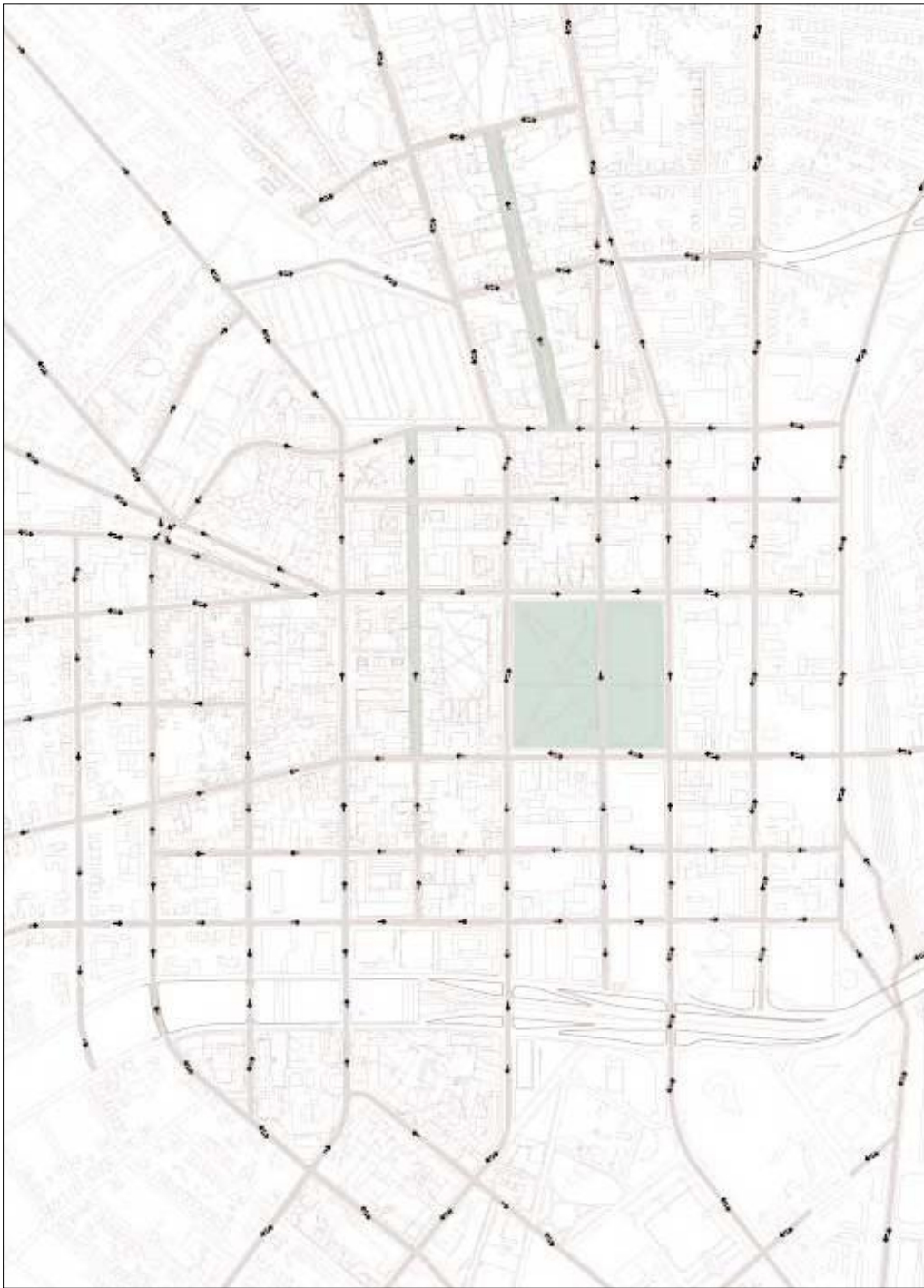
To the south, there is little sense of continuity or connection between the Central Campus and the Medical Center along York and College Streets. The poor quality of streetscape, lack of active ground-floor uses and the auto-oriented nature of Route 34/Oak Street Connector and the Air Rights Garage make the walk from Chapel Street to Cedar Street—the front door of the Medical Center—very unpleasant.

5 Pedestrian circulation linking retail and arts destinations



5 Pedestrian circulation linking public open spaces





1 Existing street configuration and predominantly one-way traffic directions

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1 View east on Chapel Street toward the Chapel Square Mall

Vehicular

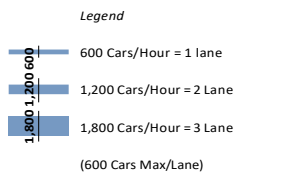
Over the years, New Haven has come to over-emphasize the automobile as the dominant mode of transportation within the city. Historically, the streets through and around Yale and Downtown New Haven were places for people, with vehicles and pedestrians on a more equal level. However, the construction of the interstate highway and relocation of Downtown workers to the suburbs changed the mission of Downtown streets. Their primary function is now to facilitate the speedy exodus of daily commuters. In the 1960s the City converted many downtown streets into one-way thoroughfares to expedite this movement into the City in the morning and out in the afternoon. The faster traffic and wider pedestrian crossing have increasingly made the streets places for vehicles only. The more that streets became devoted to cars, the less people wanted to walk along them, the more retail stores moved to internal malls and the less vibrant and safe the city felt.

As in many northeastern cities, the street layout in New Haven consists of traditional radial arterials that feed the center city and the Yale campus from surrounding neighborhoods. Before the construction of the interstate highways, people traveling into New Haven along arterial roadways felt they had arrived "Downtown." Building size, density and activity along the streets increased, and aesthetic cues marking the perceived gateways to the City were present. As the construction of Interstates 91 and 95 supplanted these grand arterials as the

1 Route 34/Oak Street Connector

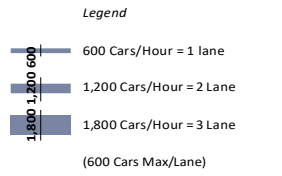


1 Morning traffic volumes per street



Numbers indicate number of cars per hour on designated streets
Resources: Hunnicutt Davis Associates

1 Evening traffic volumes per street



Numbers indicate number of cars per hour on designated streets
Resources: Hunnicutt Davis Associates

primary routes to and from Yale, the sense of arriving Downtown disappeared at the same time, with travelers now “dumped” unceremoniously from I-91 onto the Trumbull Street ramps or from I-95 into the Downtown and Medical Center via the Route 34/Oak Street Connector.

Despite the car-oriented city planning emphasis on easy movement for cars, motorists often find driving around Downtown New Haven (and consequently the Yale campus) extremely disorienting. The one-way street network complicates access and approach to both City and University destinations and parking, creating an “unforgiving” circuitous driving pattern. Often, it is difficult to reach a destination one can easily see. Even motorists familiar with the City often find themselves repeatedly circling blocks in search of their destination. For example, one cannot loop completely around the New Haven Green or easily get back to Downtown from the Yale Bowl. This street system



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2 Tower Parkway looking south towards Broadway

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also unnecessarily complicates the Yale shuttle bus, trash collections and delivery routes. Because the University is so dispersed, access from one campus to another is particularly difficult. There are also few helpful signs showing how to reach common destinations.

The compact area covered by the Core campus and the surrounding amenities in Downtown New Haven increase the benefits to be gained from changing traffic patterns. High speed, one-way roadways such as Grove and Elm Streets have become barriers deterring people from walking between Old Campus and Cross Campus, north to Hillhouse and Science Hill and even to the New Haven Green. The system has produced an unattractive and unsafe environment, which undermines the pedestrian tradition at Yale and the urbanity of the historic Downtown.

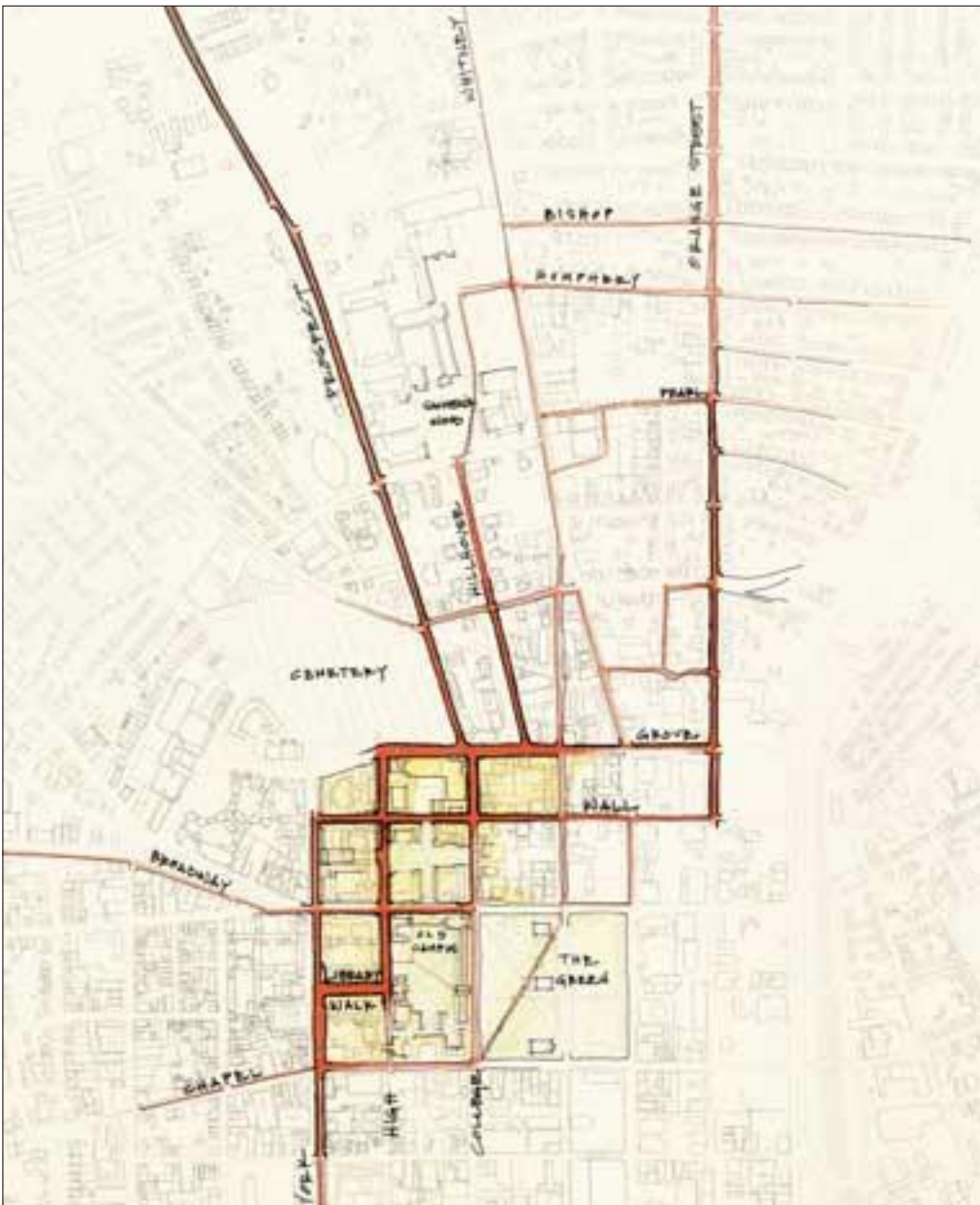
The City and the University should take this opportunity to balance the needs of all systems: vehicular, pedestrian, bicycle and public transit.

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1 Bicycle racks on Old Campus

5 Existing bicycles routes through campus with approximate volumes indicated by line thickness

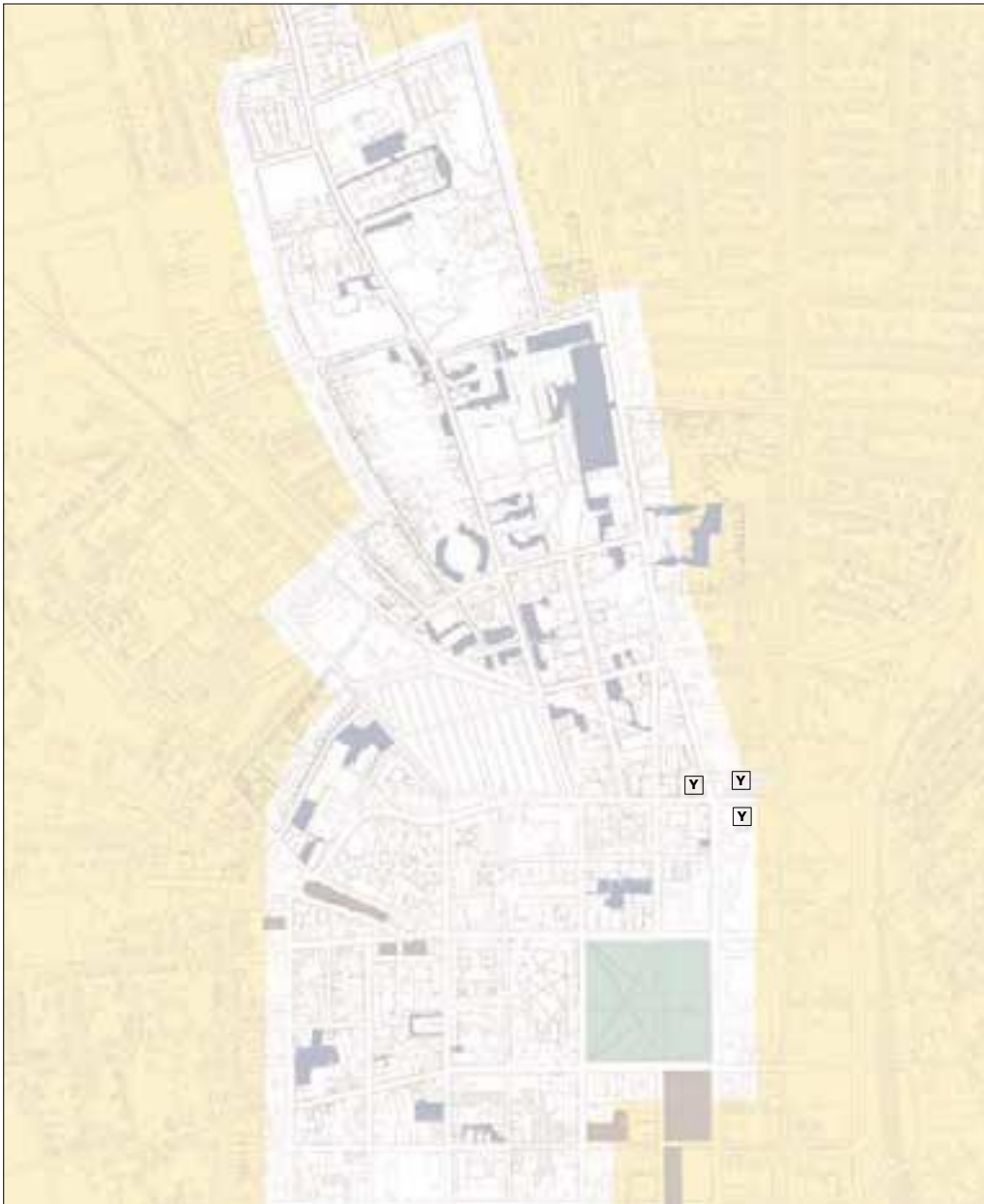


Bicycles

Bicycles are an important mode of transportation throughout the University, and their use should be encouraged. Several conditions reinforce the usefulness of bicycles and the need for the University to accommodate them and provide parking: the extended length and detached structure of the campus, the fact that most graduate students and many undergraduates live off-campus in surrounding New Haven neighborhoods and the infrequent runs of Yale shuttle buses.

Bicyclists mostly use three streets to reach the Central Campus. Whalley Avenue from the west carries many bicyclists from the Dwight neighborhood and, although it is a regional automobile corridor, it is far from safe. From the north, Prospect Street leads most directly from the graduate housing clustered on upper Prospect Street. Also from the north, Orange Street, the central spine of the Orange Street neighborhood with its intense concentration of graduate students, carries even more bicycle traffic than Prospect Street.

Most bicyclists are heading along these streets toward the broad zone of the center of campus where most academic, library and cultural activities take place. High and Wall Streets seem to carry the greatest concentration of bicyclists—and pedestrian traffic as well. Bicyclists tend to go the wrong way on one-way streets if they view it as the shortest path to their destination. This fact suggests the benefit of reconfiguring those streets to make cycling and walking easier. The University has placed bicycle racks within this area, but clearly not enough near the most popular destinations. As a result, people chain their bikes to everything from trees to lamp posts, compromising the look of the historic communal open spaces. Bicycle parking should be located primarily in areas dedicated to that purpose.



1 Parking Lot 18 at Science Hill
 2 Parking Lot 60 on Prospect Street



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Parking

The University has organized parking separately within the three Yale campuses, with separate managers operating each autonomous parking system. Yale Athletic Fields and the Medical Center are largely self-sufficient and manage to accommodate the demands of those campuses. In the Central Campus, the University provides parking spaces to all staff, faculty and students requesting them—and has parking spaces to spare. Of the 3,557 available spaces, only 2,907 are assigned. Despite this, the public commonly believes parking spaces are in short supply. This is largely because the location of the parking is not proportionate to the areas of highest demand. The University has located lots where it has the space, not where they are most needed. This practice poses long-term problems for the many uses and activities of the University, and conflicts with development opportunities at these sites.

Although the Central Campus has the greatest number of University parking spaces, they are spread over the greatest number of facilities and the largest area and serve the most diverse group of users and activities. The Yale Office of Parking and Transit controls 3,358 spaces in forty-three surface lots and two garages owned by the University. In addition, Yale leases 199 parking spaces in three private garages, bringing the parking supply in Central Campus to the total 3,557 spaces. As the location of these spaces does not correspond to demand, the Yale

7 Existing parking facilities within the Central Campus

Legend

- Yale Owned Facilities
- New Haven Parking Authority Facilities
- Private Commercial Facilities
- Yale Leased Spaces

Existing Parking Summary: Central Campus

Parking Lots	Spaces
Spaces on University owned property for faculty, staff, and students	3,358
43 Surface Parking Lots	
2 Parking Garages	
Leased spaces in the three Whitney/Grove commercial garages	199
Total	3,557

Assigned Parking Spaces

Parking	Spaces
Employees (faculty and staff)	2,318
Students	589
Total	2,907
Surplus of Spaces	650

Source: 1998 Yale Parking Data

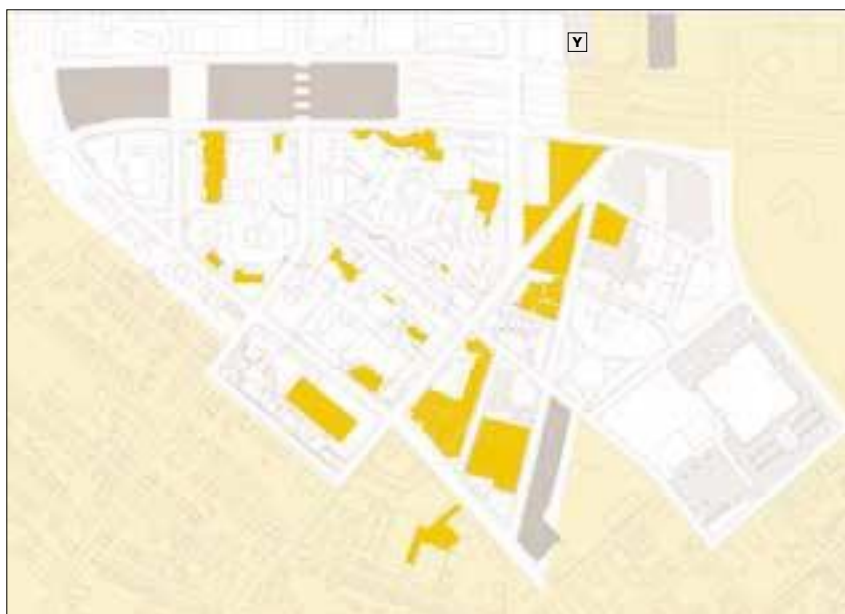
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1 Howard Avenue Garage at the Medical Center

Office of Parking and Transit has created a priority lot-selection system for parking space assignment. Faculty and staff, who requested 2,318 spaces altogether in 1998, received a designation of “A”, “B” or “C” based on salary range, with parking fees fluctuating accordingly. An “E” category is for emeritus faculty only. To encourage the use of car pools, Yale gives priority in the middle, “B” category, to vehicles used in car pools of three or more people. If one person in the car pool qualifies for an “A” designation, then the entire car pool is elevated to that level. The University assigned 589 spaces to students last year, all in areas of surplus. As most of the surpluses are in the north part of the campus, most resident graduate and undergraduate students on the Central Campus must park in the Pierson-Sage Garage. Non-resident students may also receive spaces in the Pierson-Sage Garage. The Yale Office of Parking and Transit has a limited number of available spaces in the Chapel/York garage. Resident Divinity School students are assigned to Lot #11. Grounds Maintenance, Physical Plant and the Dining Halls store most of their vehicles in their own remote facilities, not in the Central Campus parking system. Approximately 140 University vehicles have permits to park in system facilities during the work day.

As mentioned, the University currently creates lots wherever there is empty land rather than where demand is the greatest. Similarly, the size of the lot is based on the size of the parcel, rather



1 Existing parking facilities at the Medical Center

Legend

- Medical Center Facilities
- New Haven Parking Authority Facilities
- Private Commercial Facilities
- Y Yale Leased Spaces

Existing Parking Summary: Medical Center

Parking	Spaces
Medical Center designated spaces	35
Yale spaces	2,358
Hospital spaces	3,015
Total	5,408

Source: 1998 Yale Parking Data



1 Existing parking resources for Yale Athletic Fields

Legend

- Yale Owned Facilities and Available Street Parking
- Event Parking Areas

Existing Parking Summary: Yale Athletic Fields

Parking	Spaces
Yale owned lots	59
Street parking	360
Total	419

Source: 1998 Yale Parking Data

- 1 Lot 51 behind 451 College Street
- 2 Parking Lot 36 along Prospect Place
- 3 Yale Visitor Center on Elm Street at the Green
- 4 Pierson-Sage Garage at Science Hill



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than that necessary to serve actual requirements. The result, multiple small lots, complicates assignment, maintenance, security and control. The excessive number of these facilities and the oversupply of spaces costs the University money. The uneven distribution of parking around the campus has created a competition among parkers to improve their location, and this has necessitated a complex administrative system to maintain waiting lists and monitor relocation. Most significantly, many of these parking lots occupy important sites that could be used for future University development projects. In all, the current system hardly meshes with a coherent strategy to meet the long-term requirements of the constantly evolving University.

The Yale Medical School Parking and Transit Services operate twenty separate facilities with 2,493 parking spaces, including a complex mix of owned, leased (from the State of Connecticut and New Haven Parking Authority) and shared (with Yale-New Haven Hospital) facilities. The Department of Athletics manages an expansive parking system for Yale Fields. Its daily use is limited, with only forty-nine spaces permanently assigned and most visitors parking on the surrounding streets. This changes during Yale football or New Haven Ravens baseball games, Connecticut Tennis Foundation tournaments and a range of other special events. Those attending these events are typically accommodated in expansive field parking and descend on the campus from a range of directions—and disperse just as rapidly at the conclusion of the event.

Visitor Parking

The Central Campus attracts many kinds of visitors to its museums, performance spaces, sporting events, academic departments and offices, as well as tourists wanting to see the campus and City. For the most part, during the day these visitors park in public facilities or on the street. Yale has no central visitor parking lot on campus and, with few exceptions, the Central Campus lots are closed to visitors during the day. For evening and weekend events, many Central Campus lots are open to the public, but the University has no clearly organized system to direct visitors from outside the City to the various campus resources destinations or parking lots. Currently, some University organizations have created their own maps, brochures and directions to mitigate what can often be a frustrating visit to the University.

Two of the most popular destinations for first-time visitors are among the most difficult to reach by car and lack convenient parking: the Undergraduate Admissions Office and the Yale Visitor Center. An important destination for many new and prospective students and their families, the Undergraduate Admissions Office provides day passes for Yale Lot 16, located on Science Hill along Whitney Avenue. It also has a brochure that encourages visitors to use metered parking on



3

- 1 Parking at Ingalls Rink
- 2 Public parking lot at the rear of the Center for British Art

1

city streets adjacent to the campus and identifies the public facilities at Crown/College, Broadway, Chapel Square and Grove Street. Similarly, the Visitor Center recommends metered street parking and provides a brochure showing the locations of several public parking lots and garages. None of these options is sufficiently convenient.

By permit and prior arrangement, some guests of the University may use the Central Campus parking facilities. The host department is responsible for making the arrangements and paying the visitor's permit fee. Under this system, departments buy annual Departmental Permits, at the beginning of the academic year to give to visitors and guests to use in identified lots. Special Event Permits allow reservation of larger blocks of spaces for meetings and conferences.

Each of the museums and galleries distributes a separate set of parking recommendations to its visitors. The Yale University Art Gallery advises visitors to park at the Chapel/York Street garage or use metered spaces on adjacent streets. The Yale Center for British Art offers a brochure directing visitors to a commercial parking lot directly behind the Center. An accompanying map also designates the garages at Chapel/York and Crown/College. Only the Peabody Museum of Natural History has its own designated visitor lot, which it identifies in its brochure.

Woolsey Hall, Sprague Hall, University Theater, The Yale Repertory Theatre and Battell Chapel are all used for public performances. Patrons use on-street parking, open Yale lots (after 4:00 pm) and public parking lots and garages. Various University organizations provide the public with mailers and maps detailing public parking and the available Yale lots. Since most of these events occur during evenings or on weekends, nearby locations can easily accommodate the usual demand for parking.

Hockey games at Ingalls Rink are the only sporting events on the Central Campus that attract a significant number of spectators. During hockey games, the Athletics Department controls and operates several nearby Yale lots and charges a fee, while free parking is available on the street. Most games are in the evening when other demands for parking are low.

The City also sponsors a voucher system that lets drivers park on the street in specific areas for up to 12 hours at a discounted rate on a monthly basis, at less than Yale's "B" rate. Because of this, University employees often use the 12 hour meter. Shorter limits (4 hours, for example) would favor visitors.

Unfortunately, many visitors to Yale are not aware of either the opportunities or limitations on parking within the Central Campus. They simply do not have access to this information before coming to New Haven, and there are few signs to help with directions when they arrive. In many cases, these frustrating initial experiences leave visitors with a lasting negative impression of Yale and the City.



2



1 Trash and recycling collection points, showing the circuitous service vehicle routes caused by New Haven's one-way streets

- Legend
-  Primary Trash Collection Routine Routes
 -  Trash Collection Locations
 -  Recycle Collection Locations



1

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- 1 Trash and recycling receptacles on Fraternity Row
- 2 Sloane Physics Laboratory loading dock

Services—Recycling, Trash and Waste Collection

Systems for waste disposal exist at both the campus and planning precinct levels. The University collects trash and recyclable materials along a campus-wide route that includes stops at major and minor collection points. Medical, biological, chemical and hazardous materials are delivered and collected in separate systems at the Medical Center and Science Hill. Other Yale facilities have service needs specific to their use, such as the Commons or Yale University Art Gallery. In all cases New Haven's one-way traffic system makes it difficult to plan efficient servicing routes.

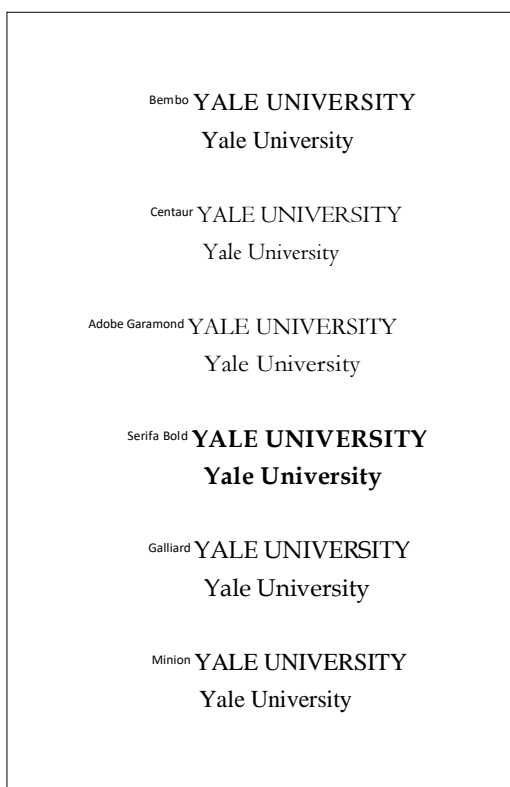
In general, trash is collected in two ways: curbside, using city streets, and off-street locations on Yale property. Many of the older buildings require curbside service but lack sufficient, accessible storage space within the building for receiving goods and holding trash or waste for collection. Consequently, the University has located collection points outside buildings, degrading sidewalks and paths. Yale has recently started to build outdoor collection areas. However, off-street collection brings trash vehicles onto Yale property, blocking pedestrian traffic. This is a particular problem on Science Hill, where the complex collection areas needed to serve the science labs interfere with, and sometimes are used as, pedestrian walks. To the extent possible, the University should shield service areas from view and separate them from pedestrians and student activities.

Signage

Yale's efforts to create a system of signs to guide newcomers through its urban campus and identify destinations of interest have been disjointed. Yale is currently a campus without a cohesive or coherent mapping, wayfinding, building identification or regulatory sign program. Signs have appeared like buildings in a medieval city—one at a time. The resulting “system” is confusing, inconsistent and hardly enhances Yale's architecture or reputation. Instead, to visitors the system makes Yale seem unwelcoming and inaccessible.

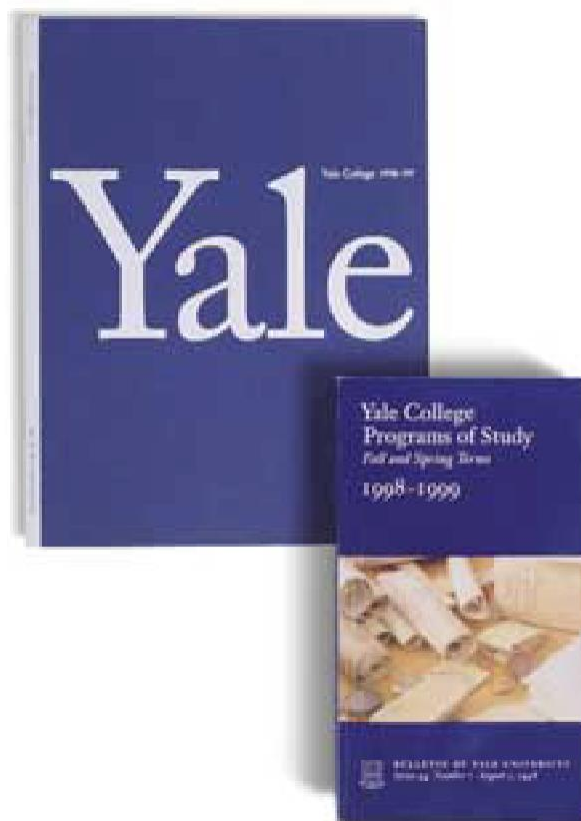
Signs or visitor maps affect a visitor's perception of the University and give it a “visual identity.” Visitors often begin a trip to Yale after communicating with the University by mail, telephone or on the Internet. Through these marketing tools, visitors begin finding their way to a Yale destination. However, interviews with employees, as well as surveys of printed materials, reveal that Yale's “visual identity” is mixed. For example, it uses six official typefaces, various blue inks and no consistent graphic standards on documents and signs. The University has a seal but each college and professional school has one as well. Yale's various parts—from school to school and college to college—have their own distinct sense of self. Unifying these differences into an overall visual

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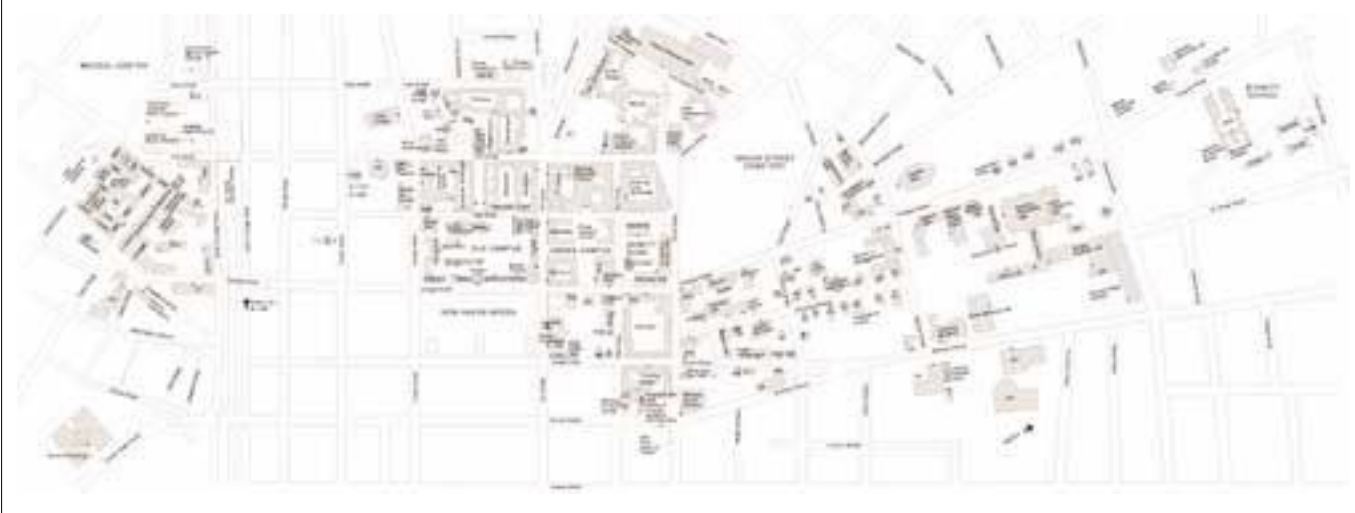


- 1 The lack of cohesive identity is exemplified by the use of six different typefaces in publication.
- 2 Yale printed materials use different shades of blue and varying graphic layouts.

2



1



- 1 The most publicized map of Yale used in the Bulletin and other brochures does not orient the viewer with north at the top.
- 2 The City's green directional signs are the first reference to the Yale campus.

identity for printed material and signage would greatly improve the visitor's impression of Yale.

Mapping is a key to finding one's way around a complex urban campus such as Yale's. Currently, Yale maps provide general visitor information as well as layers of other facts. Various University organizations and departments publish and distribute maps documenting highway exits, the campus itself, historic points of interest, parking access, shuttle routes and access for disabled persons, among other things. Those familiar with Yale, as well as visitors, often use these maps because of the campus's complexity and lack of clear signage. Although maps of Yale are extensive, they also contribute to visitor confusion. In different brochures or maps, directions to the University, drawing techniques and north-south orientations vary widely. These differences force visitors to start the learning process anew with each new map. A map system that can accommodate different needs yet maintain a visual consistency would be a significant improvement.

The University has posted few maps outside buildings or in courtyards around Central Campus, though it has done so at the Medical Center and Yale Fields. Having accessible maps at major visitor destinations, key exterior sites and on the Internet will help many in the Yale community find their way around campus better. Area maps which are part of a wider base-map system will create a coordinated information system.

One would expect to see many trail markers leading the way to a University as old and distinguished as Yale. A visitor driving to New Haven, however, will find directions to Yale only randomly on highway signs. Exits to New Haven from major highways are numerous, but few are clearly marked for Yale. In fact, Connecticut interstate highway signs mention Yale fewer times than other, smaller area schools. Further, once a visitor arrives in New Haven via the main highway exit ramps there is little sense of arrival or welcome to either New Haven or Yale. Because it is an urban campus there are no controlled entries for visitors. At present, the only message of arrival are the green city directionals that point visitors to various destinations at all New Haven exits.



2

- 1 The Medical Center has an effective set of signs.
- 2 Events at Yale Athletic Fields use a variety of vehicular directional signs.



Convincing the Connecticut Department of Transportation to post proper signs directing and welcoming travelers to Yale is critical to improving travel to and around the University. Because Yale's boundaries are not obvious, the entrances to the City become gateways to the campus. We need official signs to make that clear.

Making it easier to find one's way around Yale's campus is also an important strategic task. Yale's urban campus spreads throughout the City of New Haven, and its complex system of one-way streets confronts and often confounds visitors. Touring the historic campus is a highlight of any visit to Yale, yet no one provides much directional guidance.

Currently, Yale has few signs directing cars to specific sites on campus. In the Central Campus area, some signs point the way to visitor parking or major destinations such as the Visitor Center, Undergraduate Admissions or the museums. Signage is better at the Medical Center, which recently implemented a very functional "vehicular directional" system. Yale Athletic Fields has no system but uses a variety of temporary directional signs of poor function, design and quality. Developing an integrated direction system in the Central Campus and Yale Athletic Fields areas would greatly improve the visitor's experience at Yale.

Besides the mapping and direction systems, the University should improve the way it identifies individual destinations. Surveying the existing building identification signs on campus, one sees characteristics to preserve but plenty of room for improvement. Most importantly, one sees a visual identity of Yale that is ambiguous and uncoordinated.

Finding the correct building or parking lot at Yale can be a difficult task. Main entrances are often not marked. Professional school and residential college identification is often unclear or missing. The clearest indication today that a building belongs to Yale is the small, blue no-trespassing sign. Major cultural destinations often lack signs identifying them or posting key information for visitors such as operation or box office hours. Although signs do not consistently identify important sites on the Central Campus or at the Yale Athletic Fields, the Medical Center



does consistently identify its buildings and parking.

In the Central Campus, signs identify some buildings but not always in the same way. In the Yale community, a building may go by an acronym, a donor name, the function within the building, or the street address. One building may have an architectural inscription above the door naming the official donor name but have no street address, while another may have a freestanding sign with the building name, address and its function. Someone looking for a building does not know what to expect.

There are two types of identification signs: applied and architecturally incorporated. Applied signs are diverse, with generally poor quality design, materials, fabrication and installation. The elegant architectural inscriptions contribute to the culture and architectural history of the University. The official building names on them, however, are not always visible or legible and are not well suited to be the primary method for identifying buildings.



The historical, often whimsical, plaques and donor recognition signs found throughout Old Campus are a unique trait of Yale signage. They appear in the detailing of the building facades, above doors, under statues and on cornerstones. Like the architectural identification signs, they are a part of Yale's history that the University should preserve and enhance with a new sign system strategy. Identifying places through this method can be part of an identification strategy for future buildings and open spaces, continuing a long Yale tradition.

Identifying visitor parking lots and building entrances accessible to the handicapped is also a crucial part of any functioning sign system. In the Central Campus, no signs clearly identify visitor parking for key destinations such as the Visitor Center, Undergraduate Admissions Office or many other popular destinations. The Medical Center has clearly marked its visitor parking. Yale Athletic Fields, on the other hand, has not designed or maintained permanent or temporary event parking for visitors very well. Lastly, Yale has begun a complex process of marking entrances for the handicapped to many public buildings such as the museums and concert halls, but most other buildings lack such signs.

1-3 These signs exemplify the poor quality, design, material, nomenclature and installation of most campus signs.
4, 5 Residential Colleges have a rich history of architectural inscriptions.

- 1 This regulatory sign is often the first indication of a Yale building.
- 2 Parking signs are typically poorly designed with unwelcoming messages.
- 3, 4 These are typical of the unique signs and inscriptions that add to the historic legacy of the University

Other sign types—such as regulatory and honorific—contribute to the visitor’s overall image of Yale. Although regulatory signs define campus rules for the Yale community, they also leave visitors with an unfriendly first impression of the University. Parking has an extensive sign system conveying many regulations. The language on parking lot signs is neither concise nor welcoming to a visitor. The signs are poorly designed, fabricated and installed. The tone of the most ubiquitous regulatory sign on campus—the security trespassing sign—is harsh and the message is a decidedly unfriendly welcome to visitors.

The inconsistency of signs on campus is due, in part, to the lack of a clear administrative process for ordering them. Getting a sign at Yale is an anxiety-producing process. Few people on campus know whom to call. Some people have found sign designers and manufacturers themselves. Others figure out for themselves that they should call the Office of Facilities. One particular firm has designed a number of signs on campus and these signs have made small areas of consistency throughout the campus. However, most of these signs are used inside buildings, so it is not part of Yale’s exterior visual landscape. Clear procedures for ordering signs as well as visual and text design standards would help create a cohesive, functional sign system at Yale.

In conclusion, it seems clear that Yale’s present directional and identification systems do not serve visitors well. The printed material a visitor first receives, the signs on the highway and the signs on the city streets make it difficult to find one’s way to specific University sites and create a confusing first impression of the University. The inconsistency and lack of signs identifying buildings create an image of Yale as less than welcoming, accessible or world class. Yale’s need for a systematic and comprehensive sign program is palpable. Such a system would serve the University well and make its physical relationship with the City of New Haven more understandable.





Old Campus - Cross Campus

- Four “period” luminaire styles with single style “period” poles, black
- Standard city cobra head and high mast arm, aluminum



Broadway/Tower Parkway

- Recent installation of “period” pedestrian post-top lanterns and “period” cobra head arms, black
- “Period” city cobra head and high mast arm, aluminum and wood poles



Chapel Street

- Pedestrian acorn post-top lantern, with alternating high mast arms for banners, brown
- “Modern” post lantern around perimeter
- Standard city cobra head and high mast arm, aluminum and wood poles

Lighting

The Yale campus is justifiably famous for the quality of its buildings, whether historic or contemporary, and of its grounds, whether intimate courtyards or broad lawns. Most people form their impressions of the campus during the day. Those making decisions affecting the nighttime environment, on the other hand, are concerned primarily about addressing personal safety, not in highlighting Yale’s distinctive architecture or building details. Efforts to control traffic have also marred the night environment by flooding the streets that run through the campus with light that is too bright, the wrong color and enclosed in fixtures whose glare makes it hard to see. Lighting the campus environment at night, simultaneously to highlight its beauty and provide safety, is a reasonable goal.

The campus consists of many pedestrian areas and planning precincts, and previous planning efforts have done little to link them at night. The University has used one type of lighting—the post top lantern—most commonly throughout the campus, but seems to have placed the fixtures randomly. Consequently, the system fails to establish the intended consistency at night.

The University purposely uses four different styles of post-top lanterns. However, it uses them interchangeably with a single pole design, and paints them all black. Though different, these four types are nearly indistinguishable during the day and not at all at night. All post-top lanterns have an internal refractor so that they produce no uplight. The orientation of these refractors is not consistent, varying the lighting effect. The refractors also lack shielding, producing substantial glare which effectively obscures any view more than a few feet from the post.

For the most part, the University has neglected building lighting. Entryways, typically unmarked and unlit, do not give pedestrians an easy view of their destinations, or ways to identify the building at night, since very few building facades are lit



Dwight/Edgewood Neighborhood

- Prismatic acorn pedestrian post-top lanterns, primarily at intersections, green
- Standard city cobra head and high mast arm, aluminum and wood poles



New Haven Green

- Single Bishop’s Crook poles, black “modern” post-top lantern around perimeter, brown
- Standard city cobra head and high mast arm around perimeter, aluminum



Downtown

- High mast Bishop’s Crook roadway fixtures, verde green
- Recent installation of prismatic acorn pedestrian post-top lanterns, green
- Standard city cobra head and high mast arm, aluminum

1 Existing Campus fixture zoning

2



1



1 An example of the inconsistent and often unattractive entry lighting

2 Yale's four designated post-top lanterns (left to right):

- Central Park
- Yale Georgian
- Battery Park
- Yale Gothic

3 Unattractive pedestrian lighting along College Street

4 Library Walk at night with lights, as recommended, along one side

except with security lights. The inconsistent lighting rarely highlights the architectural qualities of the buildings. Lighting is one of the opportunities the University has lost to market itself and the City, and to give aesthetics a high priority.

Additionally, New Haven, like Yale, has remarkable architectural and landscape treasures, such as the Public Library, State Courthouse and the New Haven Green. But New Haven, too, has failed to celebrate these landmarks properly with distinguished lighting. Instead, lighting comes from an uncoordinated collection of standard equipment that includes modern white cube posts, contemporary cobra-head fixtures, period roadway cobra-heads and highmast head lanterns with refractors and clear diffusers. These are generally unattractive, not tailored to their particular use or purpose and only minimally help people find their way around the City at night.



3



4

The urban fabric of New Haven seamlessly absorbs the collegiate fabric of Yale.

1



1 Aerial view of Core

Summary

Our analysis of campus systems can be summarized by the following points:

Mixed Uses

The dominant compositional element of the City—the Green and its nine-square-block configuration—also structured the Yale campus and determined the quality of many of its most notable settings. Yale buildings have developed in clusters around the north and west sides of the Green, while the City’s most prominent buildings face the Green’s east and south sides. Yet in numerous areas bordering the campus, the City and University environments mesh for a rich mixture of uses shared by the Yale community, New Haven residents and visitors alike. Chapel Street—arguably the City’s best known street—is at the same time one of the City’s primary retail areas and the emerging center of Yale’s visual and performing arts. City businesses and Yale facilities share many buildings along the street. Similarly, the Broadway retail area serves citywide customers and Yale students at the same time; the Whitney Avenue/Grove Street retail and arts area houses Yale administrative offices, restaurants, coffee houses, new townhouses, galleries and the Audubon Arts District. These areas, where all populations of the City mix, are among the most vital and interesting in New Haven. The most iconic structures at Yale, its residential colleges, are themselves multi-purpose settings with residences, social and recreational activities, and even teaching and academic office spaces. The combined-uses model—wherein different activities are concentrated in a single building rather than devoting each structure to a single use like the Sterling Memorial Library or the Payne Whitney Gymnasium—most represents this intensely urbanized campus.

Linear Campus

As mentioned before, a prominent characteristic of the Yale campus is its linear geography, with the elongation especially pronounced along the College and Prospect Street spine, from the Medical Center to Science Hill to the Divinity School. Because of this, any plan that hopes to maximize the “synergy of the Yale experience” must connect the more distant places to the Core campus. This includes the Yale Athletic Fields. A plan could make these connections through street landscaping, by creating new walkways through open spaces or by building on underutilized sites to make the fabric more continuous, and by revitalizing the campus’s major open spaces, such as Cross Campus, Hewitt Quadrangle and Kline Biology Tower Plaza. Making similar connections between the campus and the surrounding neighborhoods on the University’s five-mile perimeter would create a healthier environment.

Varying Open Spaces

The grounds of Yale are as memorable as its buildings. The tension between two types of open spaces—the intensely private spaces, such as college courtyards, and the very public open spaces of the campus, the city streets and sidewalks—uniquely defines the urban experience of Yale.

Imbalanced Traffic

These same public streets carry traffic to and through the campus at all times of the day and night. Because of the conversion of city streets to one-way traffic in the 1960s, and related changes in the timing of traffic lights, the speed of cars in and around the campus, as well as through Downtown and most of the City’s neighborhoods, is unusually high. This makes it difficult and dangerous for the heavy pedestrian traffic to cross the same streets. The University and the City of New Haven should both want to slow automobile traffic to balance the needs of drivers and pedestrians.

Dispersed Parking

The parking problem at Yale is one of distribution rather than supply. Central Campus alone has more than 3,500 spaces but a measured need of closer to 2,900. Parking garages hold half the University’s total spaces, with the rest distributed in sixty separate surface lots, some holding as few as one vehicle. Typically, the spaces are not where people want them. The goal should be to convert surface parking lots to more intense open-space or development opportunities, while providing parking near campus destinations.

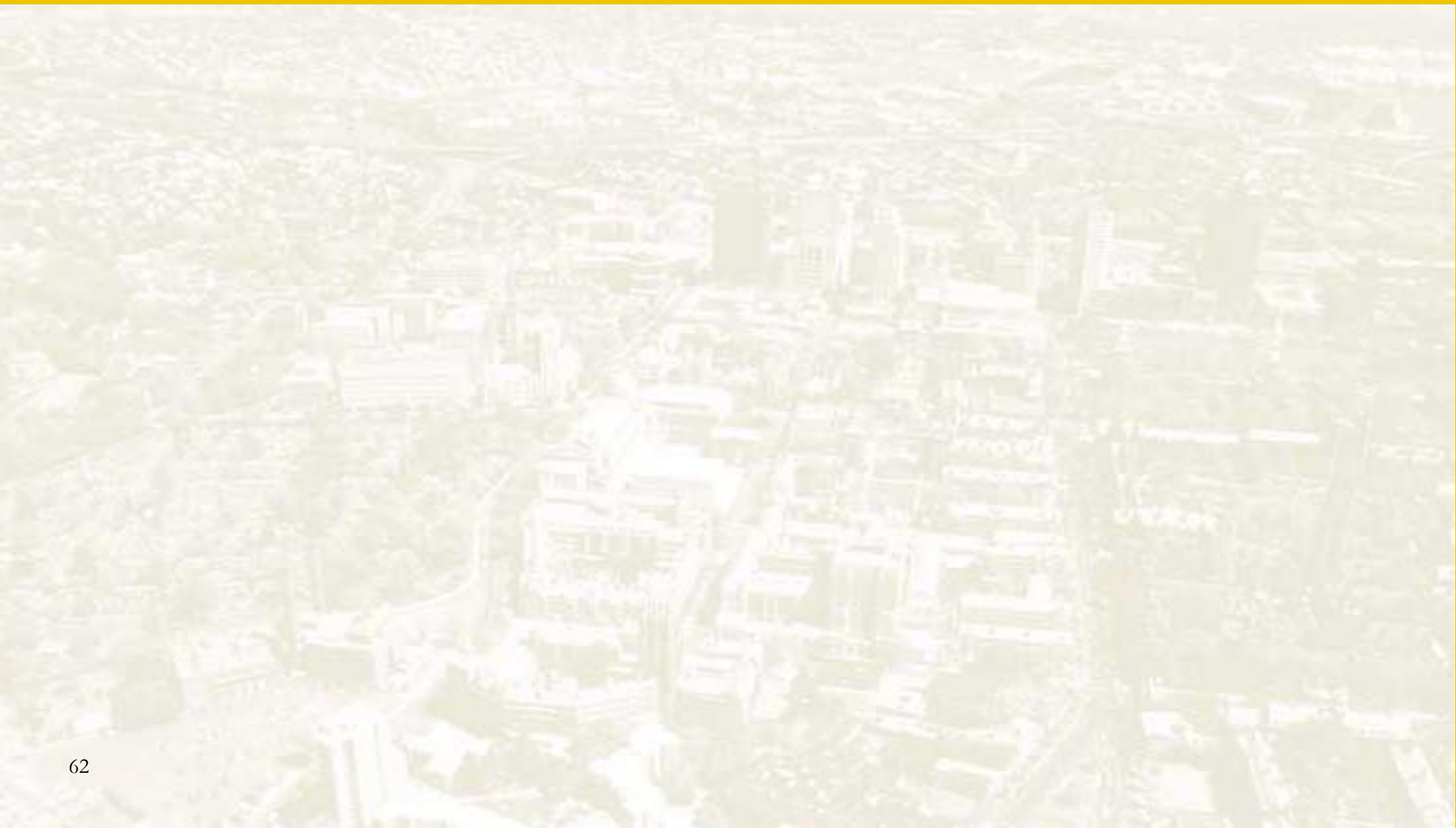
Obscure Signage

The absence of an organized signage system is an unwelcome fact of life for visitors to Yale. The highways leading to New Haven have few signs giving directions to the University. Directions on city streets to parking lots, and from these parking lots to prominent destinations, are in short supply. Inconsistent building identification signs exacerbate the problem and the one-way streets limit direct access by automobile. A coherent and consistent signage program, for streets and buildings alike, would benefit the University and the City equally. As part of that program, Yale needs to introduce a standard protocol for creating and approving new signs.

Inconsistent Lighting

Lighting has been neglected as an opportunity to make the campus safer and better used at night. So far, neither the City nor the University has developed lighting systems either to improve pedestrian safety or to showcase the beauty of the campus or New Haven at night. Instead, decisions on lighting have substituted brightness for clarity and obscured views with the glare from City street lights. Re-lighting the streets throughout the campus, as well as on the signature buildings which face them, would greatly improve the nighttime environment of Yale and the City.

1 Aerial view of Yale and Downtown
New Haven from the west



The principles set forth here are intended to help maintain and enhance Yale's status as having one of the preeminent urban collegiate settings in the country. They encourage a walkable, gracious and sustainable campus environment, based on redesigning Yale's public fabric to meld its disparate pieces and mesh the University with its surrounding neighborhoods.

The principles address the following:

- Uses
- Buildings
- Open Space
- Streets
- Signage
- Lighting

1



1 Pierson College courtyard
2 Broadway retail area

2



Uses

Yale and New Haven intertwine both physically and functionally to the benefit of each. While the University is composed of distinct, overlapping planning precincts (each with its own characteristics, issues and strategies), it also has a complex mix of academic settings that are integrated with uses and activities shared with New Haven residents.

1. Continue to design residential colleges as self-contained, multiple-use residences with unique identities, while emphasizing their relationship with, and connections to, streets and open space.
2. Consolidate the management of current graduate housing on upper Prospect Street and provide recreational amenities and services geared to the graduate student population.
3. Consolidate undergraduate academic divisions, as well as the facilities of individual professional schools as much as possible, to increase efficiency and maximize convenience for both faculty and students.
4. Employ a wide variety of design strategies (such as the use of landscaping and similar building scale, massing and materials) to ensure compatibility with Yale's bordering neighborhoods.
5. Continue to reinforce arts, entertainment and retail activities for the City as well as the University by designing new facilities with active uses at the ground level.
6. Reinforce the three retail locations bordering the campus (Broadway, Whitney/Grove and Chapel Street).
7. Encourage the distribution of public, social and retail activities (including recreation and eating) on the campus that complement existing city amenities.
8. Locate support structures, such as physical plant and grounds maintenance, at the perimeter of the campus, where they can meet functional and circulation needs more easily.

- 1 Entry to Jonathan Edwards College from Library Walk
- 2 Davenport College forming the streetwall along York Street
- 3 View from the Ezra Stiles College courtyard toward the Payne Whitney Gymnasium



Buildings

Yale's urban architecture is generally three- to five-stories high, interspersed with spires and towers. The continuously blended fabric of University and City provides the dominant context for Yale's present and future physical assets.

1. Continue looking to Yale's existing design vocabulary and visual structure to shape new buildings, recognizing materials, scale, proportion, architectural character and building configuration.
2. Design new buildings to shape open spaces rather than merely sit as an object in them.
3. Continue to place towers and other prominent building elements at the ends of key streets and prominent view corridors.
4. Build consistent street frontages. Continue framing streets in the most dense parts of campus with building walls that are punctuated with distinctive gateways and passages to interior spaces and courtyards. Where structures are further removed from the street, repeat patterns of uniform setbacks and orientation.
5. Encourage mixed-use development and buildings with active ground-level uses.
6. Consider opportunities to utilize many of the small buildings on campus by combining them with more efficient, large floor plate buildings, where feasible.
7. Orient building entrances, whether in new construction or renovation projects, toward those streets or walkways that support the primary pedestrian system within the area and throughout the campus.





4

Open Space

The character of the Yale campus is felt in and defined by its open space as well as by the quality of its buildings. These landscape settings require a focused, intense stewardship to maintain their special role in life at Yale.

1. Recognize the vocabulary of open space types on campus—including streets, walks, quadrangles, courtyards and gardens—when creating new spaces and preserving existing ones.
2. Develop new paths, walks and passages through buildings to provide clear pedestrian routes and shorten distances between key activities and destinations.
3. Preserve passive landscape settings on Central Campus, while accommodating the demand to use some actively for such things as gatherings, ceremonies and recreation.
4. Increase access between public streets, walkways and interior open spaces, particularly during daytime hours.
5. Generously landscape setbacks and moats between buildings and city streets.
6. Consider creating an expanded, safe, mixed-traffic bikeway system by slowing traffic, clearly marking preferred cycling routes and providing adequate bicycle parking facilities.
7. Reorganize the public and service facilities at Yale Athletic Fields to assist both intramural and varsity athletics and to enhance the experience for visitors.
8. Undertake a series of open space projects to help clarify pedestrian routes and provide new amenities throughout the campus:
 - Promote clear, visible pedestrian and vehicular connections around the Grove Street Cemetery from Ashmun Street to Prospect Street.
 - Recognize Hewitt Quadrangle as a major destination and primary pedestrian route, and reconfigure it to support each function.
 - Reconstruct Sachem's Wood, in conjunction with the plaza at the Kline Biology Tower, to serve as a new gathering place for the University and as the focal point for Science Hill.
 - Convert the small parking lots along the west side of Prospect Street (between Sachem and Edwards Streets) to landscaped yards.
 - Renew Marsh Botanical Gardens and Farnam Memorial Gardens as combined Yale/ New Haven recreational and open space resources.

1



1 Sachem's Wood at Kline Biology Tower
 2 Harkness lawn at the Medical School
 3 Pierson College gate
 4 Yale Athletic Fields—View to Yale Bowl

2



3



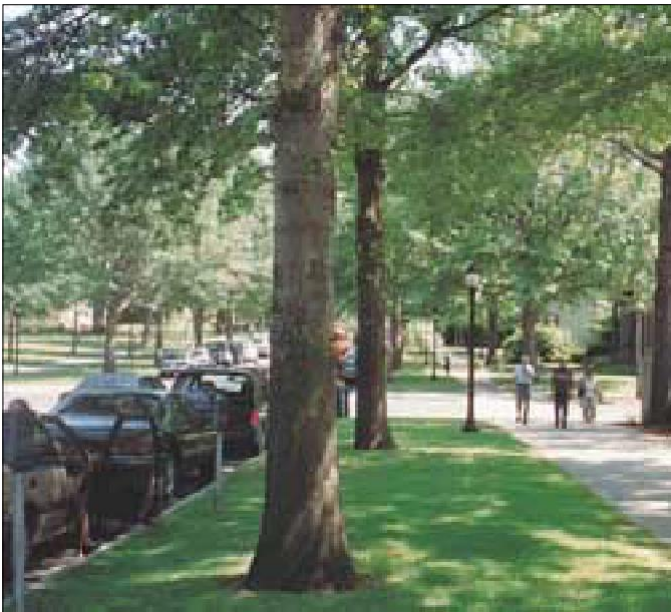
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Streets

Because Yale is a highly urbanized university, the character of city streets has a profound impact on the quality of the campus environment.

1. Support efforts to convert streets to two-way traffic to improve the pedestrian environment.
2. Support efforts to make streets narrower to slow traffic and minimize the crosswalk distance.
3. Keep in mind that sidewalks are the primary pedestrian system on campus when designing street rights-of-way.
4. Encourage on-street parking on every street to slow traffic, thereby increasing pedestrian safety and adding convenient parking.
5. Reduce the number of small surface parking lots by consolidating parking in facilities (lots and garages) sized to meet demand and located close to primary destinations. Redesign the resulting excess lots as landscape settings and development sites to improve the frontage along adjacent streets.
6. Consolidate and reduce service drives and loading areas wherever possible.
7. Screen exterior loading areas and collection sites from street and building views with walls, fences and landscaping complementary to the architecture of the adjacent building.



2

1 Tower Parkway looking east
2 Hillhouse Avenue streetscape

- 1 Example of building entry lighting
- 2 Signs at the Yale Repertory Theatre
- 3 Lighting along Library Walk



Signage

The University needs a comprehensive, coherent and consistent signage system throughout the campus that properly expresses its academic and cultural missions.

1. Welcome Yale visitors, New Haven and regional residents, tourists, potential students, new students, faculty and staff, while helping guide them to destinations within Yale.
2. Create an image of the institution that expresses its historic background as well as its importance as a contemporary center of cultural and academic activity.
3. Create a wayfinding system that integrates with the surrounding landscape, architecture and urban environment.
4. Create a signage system that is flexible and adaptable to diverse situations.

Lighting

Lighting the Yale campus at night should support both safety and aesthetics: the campus can be as memorable at night as it is during the day.

1. Develop a lighting system that illuminates destinations and reduces glare between those destinations by substituting low-level, white, metal halide light for the high pressure sodium light now prevalent throughout the City.
2. Prominently light building entrances or ground floors, important architectural features and supporting landscape elements to reinforce the pedestrian system throughout campus.
3. Selectively light towers and other prominent, tall structures to create a rich skyline at night that also helps provide direction and improves orientation within the campus.
4. Install lighting in parking lots and garages, for comfort and security, but with minimal glare to the immediate surroundings.



3

OPEN SPACE AND DEVELOPMENT OPPORTUNITIES

Core
Broadway/Tower Parkway
Hillhouse
Science Hill
Upper Prospect
Medical Center
Yale Athletic Fields
Additional Areas of
Mutual Interest

1



1 The Core is characterized by tower elements at prominent locations.

2



- 1 Marsh Botanical Gardens and Greeley Memorial Hall
- 2 Parking Lots along Whitney Avenue, at the base of Science Hill

Introduction

Our analysis of the physical campus revealed a substantial number of sites available to use as open space or for building development. Within each planning precinct, we have identified sites that would allow the University to expand the campus and its programs, reinforce connections between facilities, provide public spaces and amenities and improve the relationships between adjacent precincts and neighborhoods.

The Framework Plan identifies 35 open space sites, the majority of which are already open spaces but need renewal (Marsh Botanical Gardens, Sachem’s Wood) or reconfiguration (the backyards between Prospect and Mansfield Streets, the area around Ingalls Rink). We designate other open space sites to help link different parts of the campus (by creating a walkway between Prospect Street and Hillhouse Avenue) or to provide a setting for new buildings (Whitney Avenue).

We identify even more sites available for new building development. Many of these are parking lots today, but surface parking lots at Yale, as at every other university, are an interim use of the property, no matter how precious they are to users. These lots can be available for development as the need arises, as long as the University promotes a parking policy that can find alternative parking locations in a timely fashion. Some sites intersect with streets that would have to be closed and/or relocated to be developed. Other sites contain historic buildings or houses. Future development can incorporate these buildings or, when appropriate, move them. A few sites join properties not owned by Yale. The University can develop those sites in a limited way without further purchases by Yale, but it would enhance redevelopment to acquire the adjacent properties.

It is critically important that Yale have the flexibility to accommodate future needs on a wide variety of sites. The report discusses the sites by planning precinct so that the relationships between sites and the larger setting are readily apparent. Following is a brief description of each precinct and an outline of its key issues. We have analyzed each site for a number of different uses and with several options for building configurations. These design explorations led to our recommendations for building configuration, density and massing. Planning guidelines for each of these sites have been developed for University use based on the Principles articulated in the previous section.



1



1 Core physical characteristics summary



2

Core Planning Precinct

The Core planning precinct includes Old Campus, Cross Campus and the residential colleges. It is the historic center and visually the most memorable part of Yale. The city blocks follow a predominantly urban architecture of streetwall and quadrangle buildings enclosing courtyards with towers as visual landmarks in prominent locations. The buildings, spaces, architectural styles and detailing are coherent and consistent, emphasizing American Collegiate Gothic and Georgian Revival. Memorable streets run throughout—York, High, College and Wall—as do well defined open spaces of a great variety in terms of size, type, configuration and use. It is the most densely built area of the University, the most heavily used and biased toward pedestrians.

Key circulation issues for the Core include the need to slow traffic at the pedestrian crossings on Elm, York, High and College Streets, establish High Street as a more prominent gateway to Yale and improve the connections to the Medical Center through street improvements and adjacent development on York and College Streets. Programmatically, the University needs to develop a strategy for reusing Fraternity Row, and to finalize the Arts Area plan.

Although the precinct seems completely built up, many development opportunities exist, especially on its periphery. These include the block surrounding 451 College Street, Parking Lot 80, Fraternity Row and 194–200 York Street. Open space opportunities include the upgrading of highly visible and much used open spaces such as Cross Campus and Hewitt Quadrangle. The renovation of Old Campus in the summer of 1998 restored the character of Yale’s most historic public open space. It now stands as a model for future projects.

4



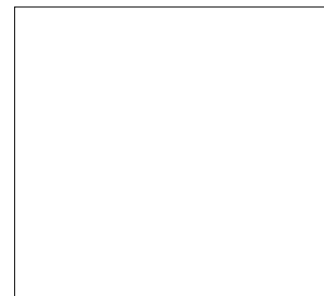
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Photographs showing existing character of precinct

- 1 Gothic and Georgian Revival architecture
- 2 Memorable streets weave throughout, including York, High, College and Wall Streets
- 3 Most dense part of campus in terms of building square footage and people
- 4 Coherence and consistency of buildings and spaces
- 5 Historic image of Yale



1



3

Photographs showing existing character of precinct

- 1 Great variety of well defined open spaces in terms of size, shape and use
- 2 Pedestrians have priority
- 3 Predominantly streetwall buildings enclose courtyards and quadrangles



1



2

1 Opportunity sites identified within the precinct

- Legend*
- Open Space Site
 - Development Site



3





1 Broadway/Tower Parkway physical characteristics summary

Broadway/Tower Parkway Planning Precinct

At Broadway/Tower Parkway, the City and Yale overlap and share uses, but numerous edges are not well defined. The planning precinct, which lies outside the Nine Square grid, has its own distinctive pattern of streets and blocks. The streets are heavily trafficked, serving the City to the west. The area has three distinct sections, each with a different set of activities: the Payne Whitney Gymnasium block, the New Residence Hall and Central Power Plant block and the mixed-use Broadway block, with its retail shops, restaurants, clubs and similar establishments catering to students.

Traffic speed and parking need attention; slowing the traffic along Tower Parkway, especially at crossings to Payne Whitney and the New Residence Hall, and providing adequate parking would improve pedestrian access to the retail area. The amount of retail space is an issue, as Yale supports increasing retail activity in the area with new outlets that complement the existing stores. The role and proper mix of uses for the Hall of Graduate Studies are key to high-quality graduate life at the University. Addressing the athletic and recreation needs of students in the Central Campus is an immediate priority. Recent improvements at Payne Whitney—the new Israel Fitness Center and the Lanman Center for basketball—have helped substantially. Future expansion might include an expanded swimming center.

Both sides of Broadway have potential sites for new retail stores and sites on the precinct's edge—on Ashmun Street, Dixwell Avenue and Lake Place—hold potential for redevelopment. An attractive pedestrian path around the Grove Street Cemetery to Prospect Place could eliminate Tower Parkway's isolation from Science Hill. The New Residence Hall and its surroundings should mature into an environment similar to that of the colleges. Planting trees could upgrade Ashmun Street and Lake Place into gracious streets.

3



Photographs showing existing character of precinct

- 1 Retail center—a City and University shared space
- 2 Most contrast in terms of use, scale and activity
- 3 Payne Whitney Gymnasium—the center for recreation on Central Campus
- 4 Dynamic, active area with heavy traffic



1



2



4

1



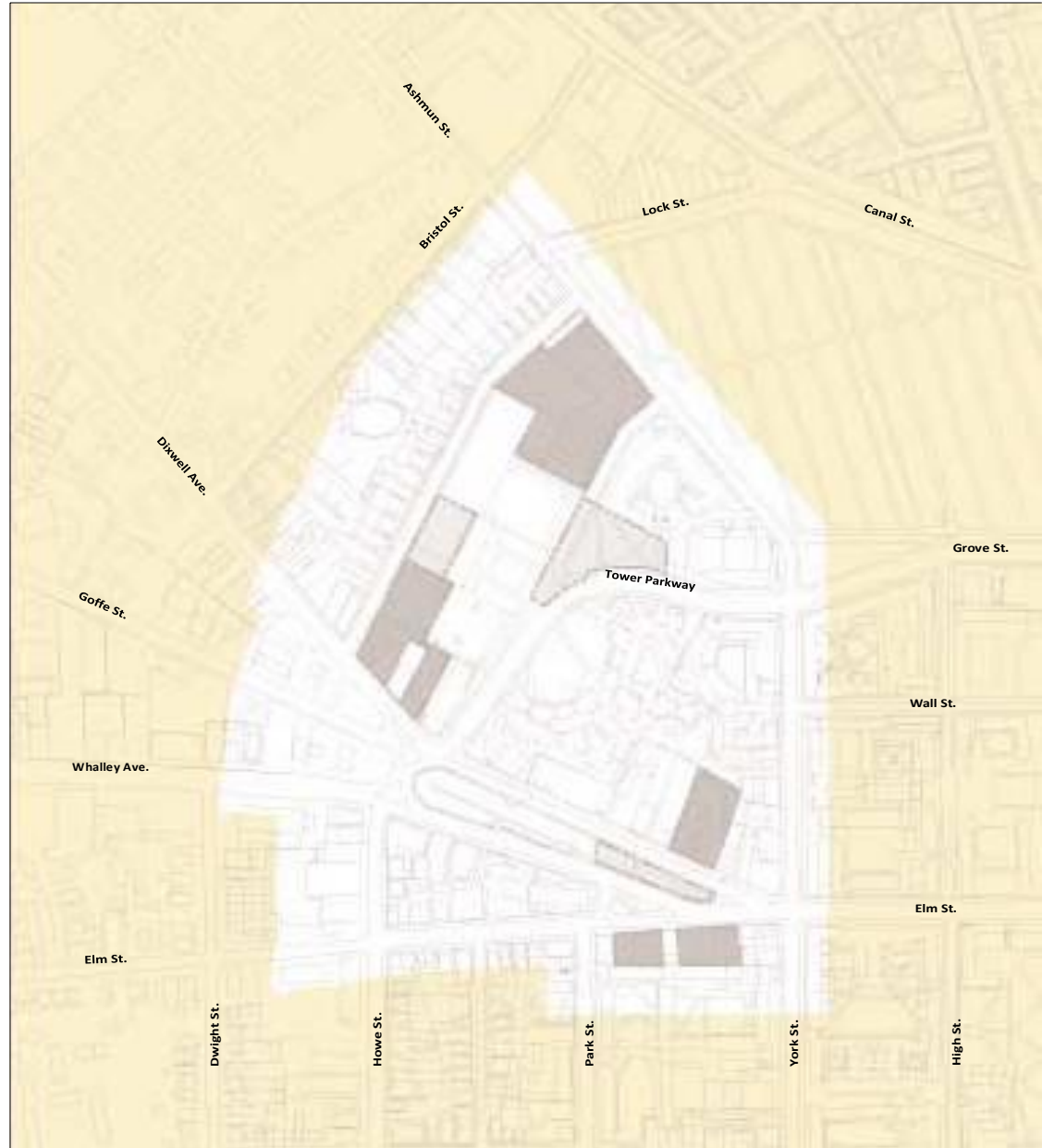
Photographs showing existing character of precinct

- 1 Tower Parkway with the Central Power Plant and New Residence Hall
- 2 Location for student social activities
- 3 Broadway mixed-use retail area has academic and recreation uses
- 4 Off the Nine Square Grid and its regular pattern of streets and blocks
- 5 Many perimeter conditions

2



3



1 Opportunity sites identified within the precinct

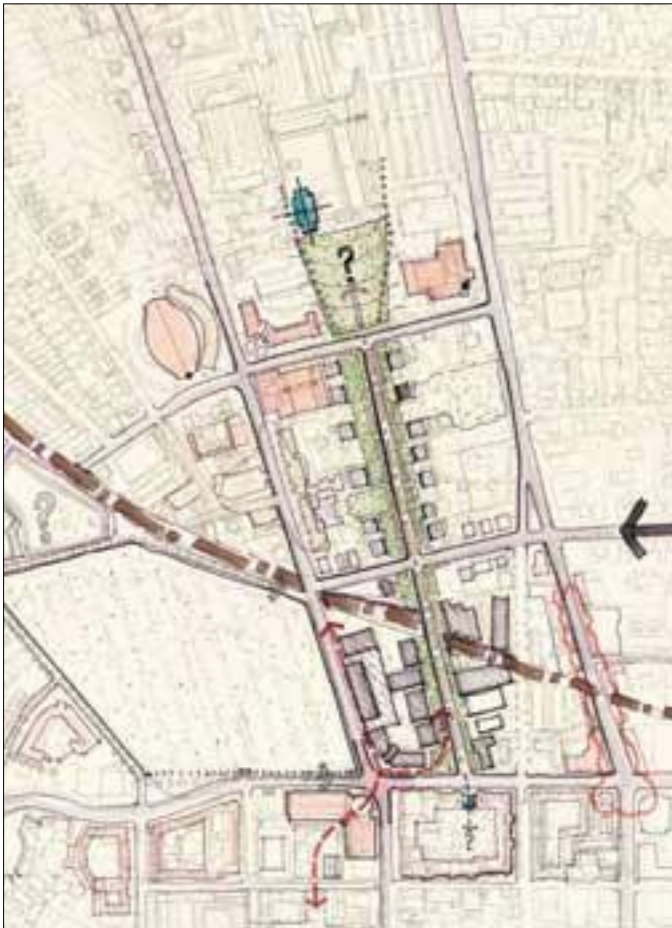
- Legend*
- Open Space Site
 - Development Site



4



5



Hillhouse Planning Precinct

The major streets (Prospect Street and Whitney Avenue, crossed by Sachem, Trumbull and Grove Streets) define Hillhouse and provide the precinct with a clear structure and character. The “flats” leading to Prospect Hill make Hillhouse a transition between the Core and Science Hill. The Farmington Canal divides the area into two distinct halves. To the south is a zone of large buildings and high density. To the north are the highly memorable manor houses landscaped with their characteristic large front yards.

Lower Hillhouse, south of the Farmington Canal, needs an area plan to assess the long-term needs of Engineering & Applied Sciences, Social Sciences and other programs located there.

The precinct needs major street improvements. Four critical examples: improving Prospect Street, a key north-south pedestrian route; balancing the need for Trumbull Street to be both a pedestrian crossing and major vehicular entry to the City and Yale; slowing traffic at the Grove and College/Prospect Streets intersection; and clarifying the street-and-block configuration within the Prospect Place area.

The University should develop the sites west of Prospect Street in ways that will make it a more active pedestrian corridor between the Core and Science Hill. East of Prospect Street, Yale’s consultants need to respect the small-scale fabric of the area when accommodating contemporary programs and facilities. Opportunities to improve open spaces include: enhancing Hillhouse as the pedestrian link between Hewitt Quadrangle and Sachem’s Wood; resolving various issues over the use and character of the Farmington Canal; linking Hillhouse Avenue and Prospect Street for pedestrians; and providing a new landscape on Hillhouse in front of the Henry Luce Center, to improve the look of the street.

3



1 Hillhouse physical characteristics summary

1

4



2

Photographs showing existing character of precinct

- 1 Heavily tree lined streets with historic buildings
- 2 The “flats” leading to Science Hill
- 3 The Farmington Canal dividing the north and south halves of the precinct
- 4 South of the Canal—transition zone with large buildings and perceived density
- 5 Major streets bordering and running through the precinct: Prospect and Whitney, Grove and Trumbull



5

Photographs showing existing character of precinct

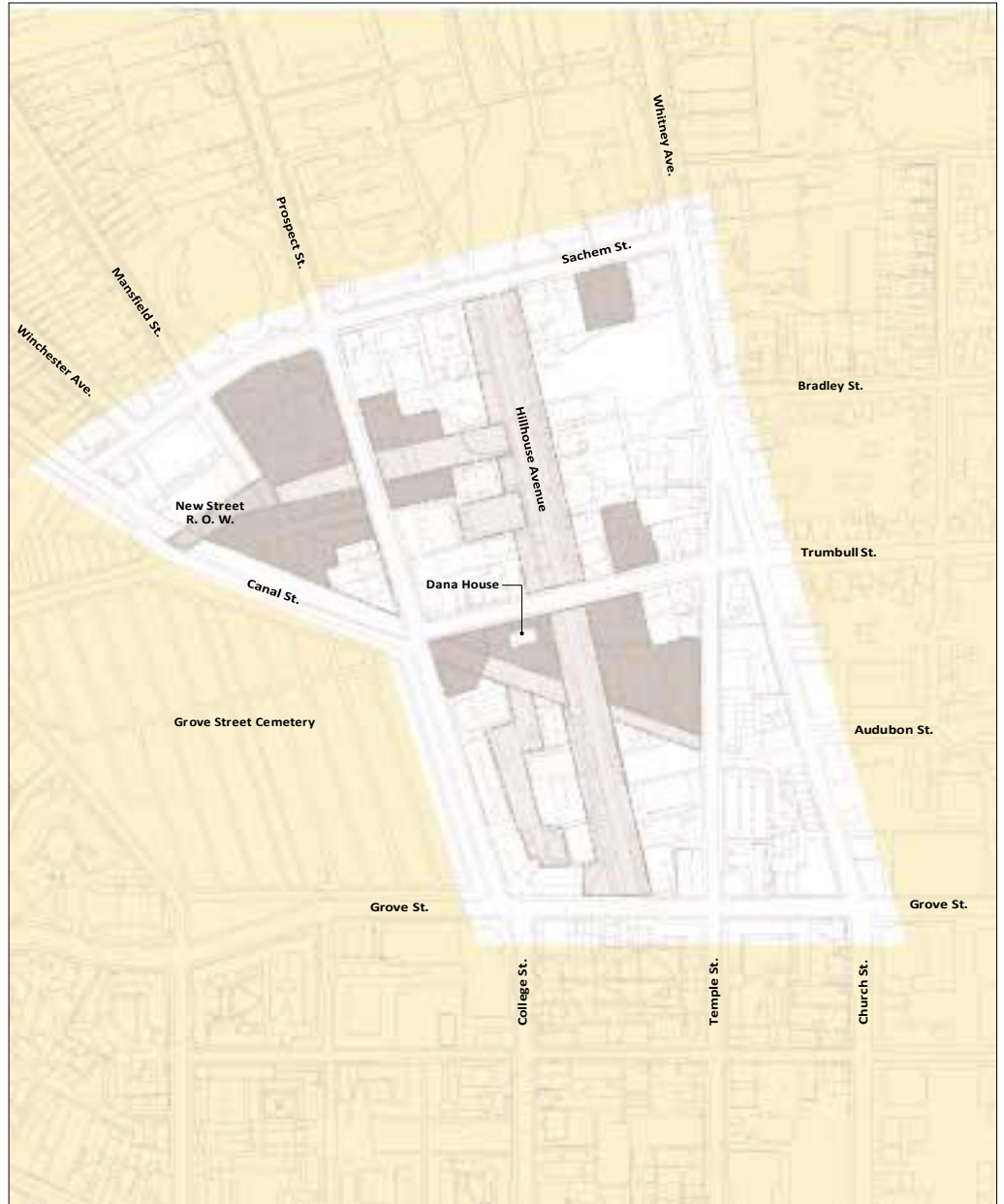
- 1 "Suburban" character—manor houses set in a landscape setting characterized by wide setbacks and sidewalk spaces
- 2 Predominantly pedestrian focus
- 3 North of the Canal along Hillhouse Avenue—the iconic setting for the precinct



1



2



1 Opportunity sites identified within the precinct

Legend

- Open Space Site
- Development Site

Note: Dana House to remain. Limited opportunities for development on adjacent land.



3



1 Science Hill physical characteristics summary

Science Hill Planning Precinct

The Science Hill planning precinct includes the Science Hill and Mansfield Street areas. Science Hill is a massive superblock of large buildings housing most of the University’s science programs on the Central Campus. Its challenging, steep topography—both north-south and east-west—affects the layout of streets, buildings and pedestrian walks. Yale has created large parking areas and service zones in an ad-hoc fashion over time in response to the difficult access conditions, with an ill-defined and unattractive pedestrian environment as a result. The precinct lacks a positive sense of place and focus.

The incoherence is clearly evident on Prospect Street, a jumble of differently built sidewalks, fences, landscaping, lighting, signage and frontyard parking lots. The precinct would function better if Yale took advantage of the topography to consolidate service roads and loading zones and organize the large superblock with small-scale pedestrian oriented streets, paths and open spaces. It should also reduce parking on Science Hill to match demand.

The University could make better use of numerous opportunity sites in the precinct, including the area immediately north of Ingalls Rink and the parking lots along Whitney Avenue. It should reconfigure sites on the Hill to create a series of more intimate quadrangle spaces. Opportunities to improve open spaces include the need to renovate the eroded Sachem’s Wood and Kline Biology Tower Plaza, and provide better north-south and east-west walkways across Science Hill. Yale should coordinate projects in the Mansfield Street area—which includes Ingalls Rink and the west side of Prospect Street—to respect the needs of those in the Mansfield Street residential area.

2



1

Photographs showing existing character of precinct

- 1 Vehicular-based with many streets, parking areas, loading and service zones
- 2 Steepest topography in two directions
- 3 Large, incoherent, undefined open spaces
- 4 Prospect Street—poorly defined, hostile to pedestrians, deteriorated condition

3

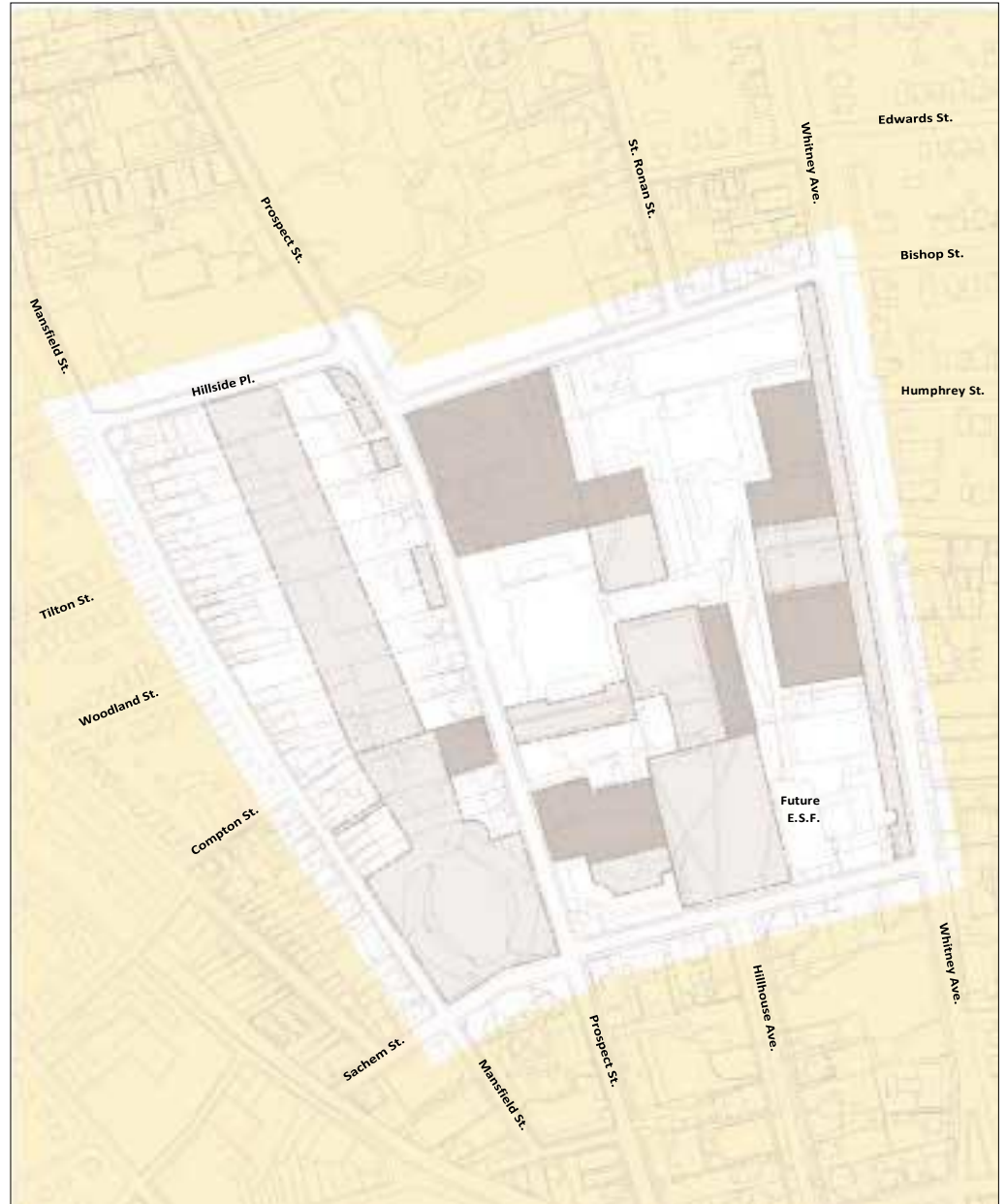


4

Photographs showing existing character of precinct

- 1 Big footprint buildings
- 2 Panoramic views

1



2

1 Opportunity sites identified within the precinct

Legend

- Open Space Site
- Development Site



Upper Prospect Planning Precinct

Upper Prospect is the most physically and perceptually “remote” of the precincts of Central Campus. Its open, lush spaces and low-rise buildings give it a residential character. With few major University destinations and the least building density, it distinctly feels peripheral. Those familiar with the University consider the Hillside Place/Edwards Street intersection at Prospect Street to be the point where “off-campus” begins. The University needs to recognize and reinforce Prospect as the “umbilical cord” to the rest of the campus. It should also increase support services in the graduate student housing to the north to establish a community environment. With 31 acres of underutilized land, the precinct can be a long-term, land-bank resource. The University has a chance to find a special use for Davies House and its surrounding property, a uniquely secluded, quiet setting not found elsewhere on campus. Two large, yet underutilized gardens—Farnam and Marsh Botanical Gardens—could also become unique destinations for Yale and the community. The Sterling Divinity Quadrangle can become both a focal point for activity and an important destination in the precinct.

1 Upper Prospect physical characteristics summary



1

2



3

Photographs showing existing character of precinct

- 1 Least density in terms of building square footage and number of people
- 2 Rural or suburban in character
- 3 Large, underutilized open spaces
- 4 Low-rise, residential character



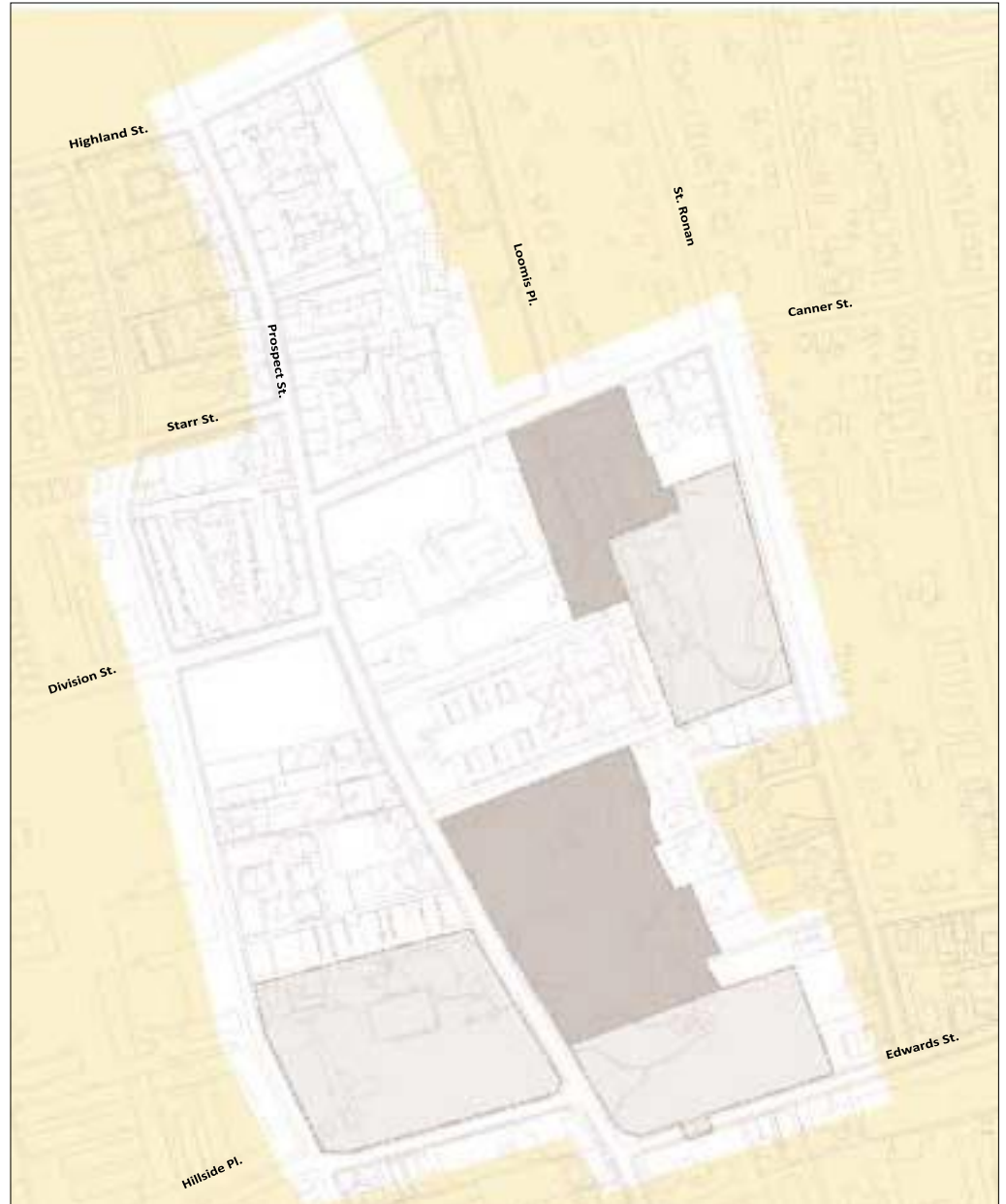
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Photographs showing existing character of precinct

- 1 Peripheral location and role, remote and isolated from the rest of campus
- 2 Fewest destinations, therefore the quietest



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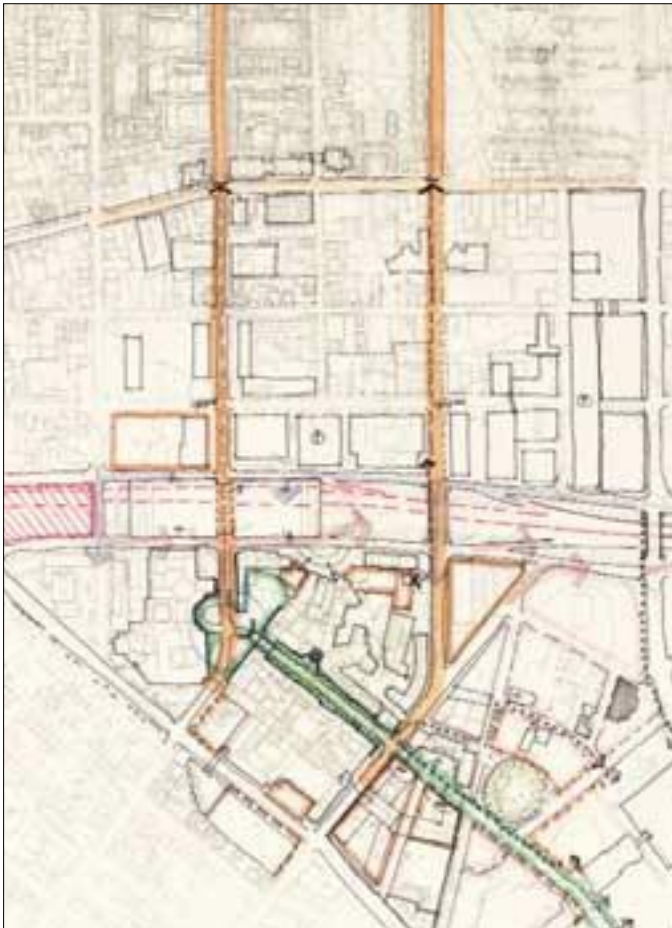
1 Opportunity sites identified within the precinct

Legend

- Open Space Site
- Development Site



2



1 Medical Center physical characteristics summary



2



1

Medical Center Planning Precinct

People from all over the region use the Medical Center, which has direct highway access and frontage. It is a dense, urban, special-purpose district of immense scale. While only four blocks from the Central Campus, it feels—and is—isolated from it. Cedar Street, its focal point, is a walkable, pedestrian-scaled space that reflects the historic growth of the Medical School. The Sterling buildings and the interconnected complex of linear buildings joined by bridges and below grade passages give the Center a consistent architectural character. Congress Avenue divides the precinct into “sub-areas.” To the northwest is a built-up, established locale that includes the Yale-New Haven Hospital. The area to the southeast, which includes the Yale School of Nursing, is largely underutilized and a location for future development.

Each street in the Medical Center plays an important role. Cedar Street, as the signature address street, should be where Yale orients new research facilities as the Medical School expands southeast. It should develop College and York Streets as the main pedestrian routes tying Cedar Street to the Central Campus. Congress Avenue, along with Howard Avenue, provides the most direct access to the Medical Center. Church Street South will take on added importance as a connection from the train station to Downtown and the Medical Center, as that part of the City develops further.

As a general guideline, the University should locate major research laboratory/academic facilities to the southeast of the Medical School and clinical office space to the north of the Route 34/Oak Street Connector.

The intricate network of buildings establishes memorable open space quadrangles and courtyards which the University could greatly improve. Because this area is active 24 hours a day, designs for parking lots, pedestrian paths, streets and sidewalks need to focus on giving visitors and University employees alike a secure and safe sense of place, day and night, weekday and weekend.

Yale could use building sites along College and York Streets and in the Crown-George area to reestablish connections between the Medical Center and the Central Campus. Over time, the Church Street South (formerly Lee High School) block presents an opportunity for major expansion. Since this area is underutilized, redevelopment could reinforce connections between the existing Nursing School (located on Church Street South) and the Medical Center, creating a new development corridor between Church Street and the train station.

Photographs showing existing character of precinct

- 1 Cedar Street focus—pedestrian scale, historic spine
- 2 An interconnected building complex—linear buildings joined by bridges, walkways and below grade passages
- 3 Consistent architectural character
- 4 A special purpose district and major institutional interface with Yale-New Haven Hospital



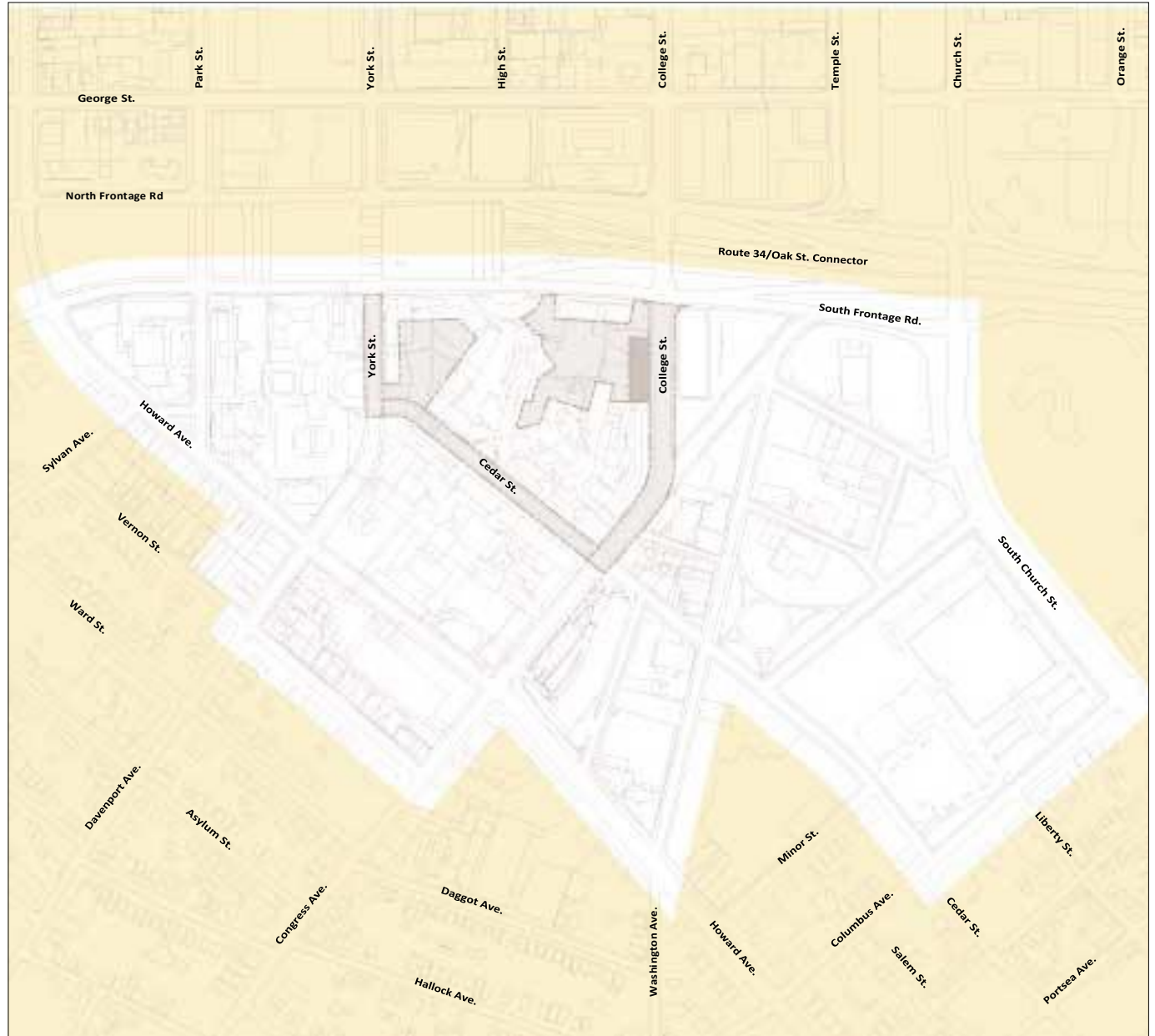
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Photographs showing existing character of precinct

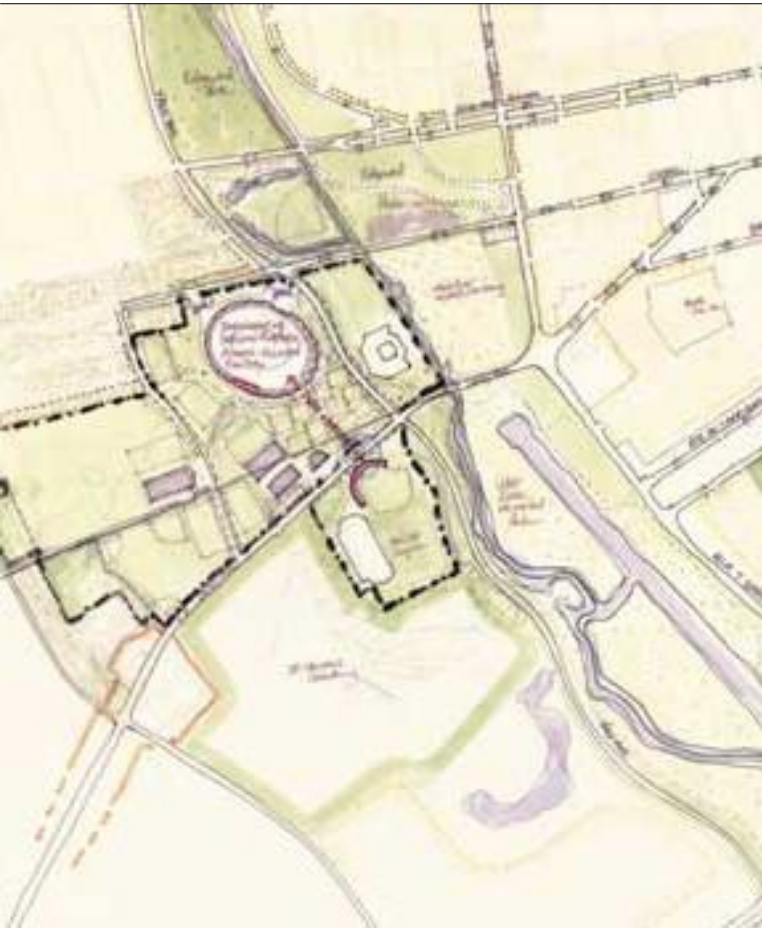
- 1 Dense and urban, including public transit and large public parking facilities
- 2 Two sub-areas divided by Congress Avenue—northwest: built-up, established address
- 3 Two sub-areas divided by Congress Avenue—southeast: less built-up, future development area
- 4 Regional destination with highway access and frontage which severs this area from the Core and Downtown New Haven



1 Opportunity sites identified within the precinct

- Legend
- Open Space Site
 - Development Site





1 Yale Athletic Fields physical characteristics summary

Yale Athletic Fields Planning Precinct

Yale Athletic Fields is a 160-acre area two miles from the rest of Yale. Yale and the regional public share resources in this special purpose sports and recreation district. The precinct has four distinct areas—Yale Bowl, the athletic fields, the tennis stadium and Yale Field—each defined and separated by major streets. Although Yale Athletic Fields holds memorable historic structures, its facilities are disconnected and the overall effect is fractured. It is an open space in need of a clear organizational and rehabilitation plan.

The University needs to identify clearly entry points for vehicles and pedestrians, as well as the return route to campus, Downtown and the train station. Planting trees and improving lighting, signage, fences, walls and gates along Derby, Yale and Central Avenues could markedly improve the quality of the immediate surroundings. And Yale should reinstate Chapel Street as a primary entrance to the Bowl and its environs.

The key athletics issue is the location of intramural and recreational fields for use by students, both at the Yale Athletic Fields and closer to the Central Campus. The University could upgrade and emphasize the publicly visible facilities (the Yale Bowl, Coxe Cage, Walter Camp Gate). It needs to improve connections between parking and the varsity venues as well. The University—in collaboration with the City of New Haven and State of Connecticut—should explore opportunities to make Yale Athletic Fields the centerpiece of a larger regional park and natural open space system (East Rock, Edgewood Park, West River Park). Some of Yale’s other venerable athletic facilities, such as the boathouse and the golf course, are even further removed from the Central Campus. Coherent signage would improve their accessibility.

Photographs showing existing character of precinct

- 1 An untapped resource for Yale, the City and the State
- 2 A campus isolated from the rest of the University
- 3 A special purpose district—sports and recreation



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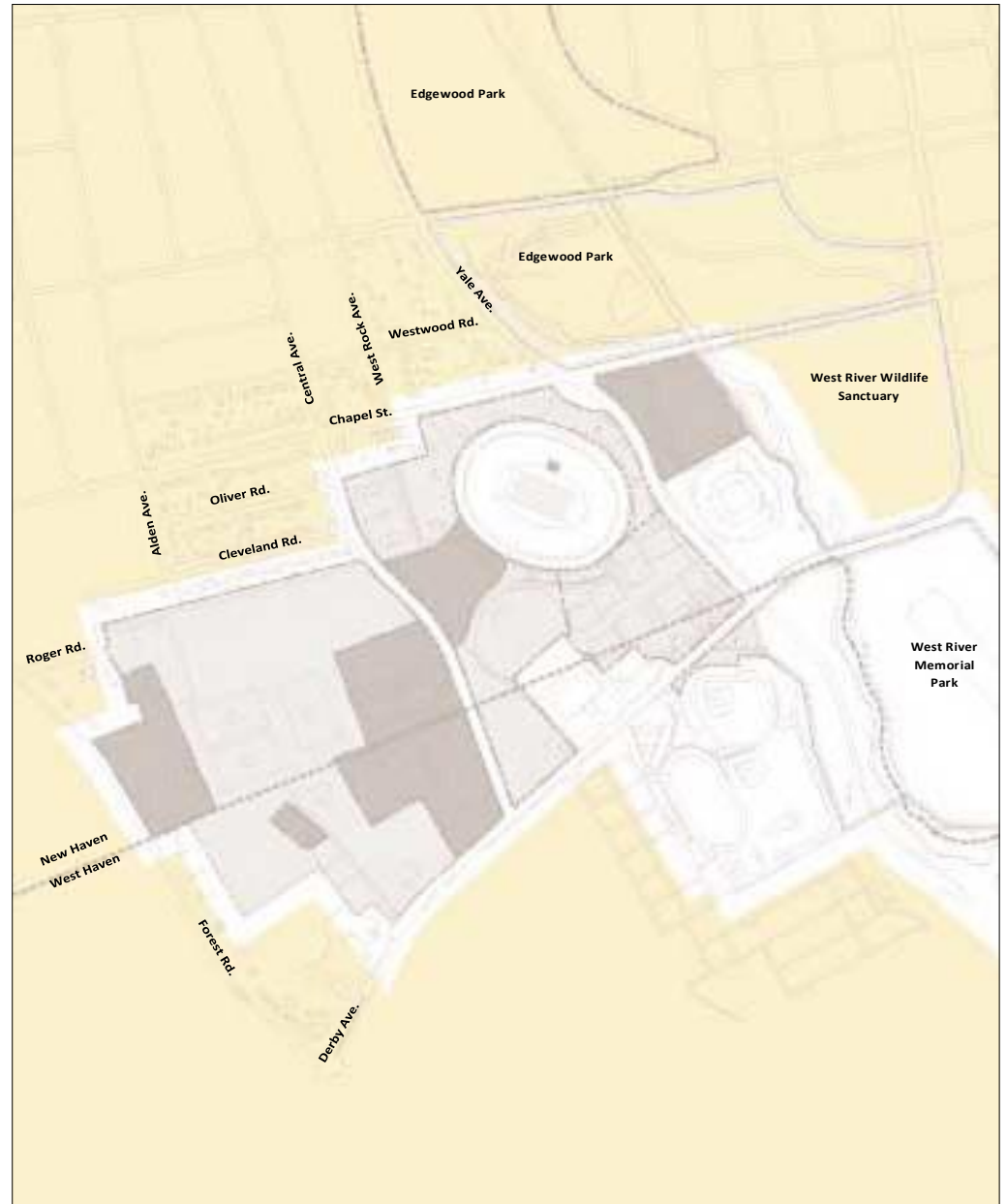


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- Photographs showing existing character of precinct
- 1 Memorable historic structures and icons
 - 2 A campus lacking an organized plan
 - 3 Four distinct areas (Yale Bowl, the athletic fields, Yale Field and the tennis stadium) separated by major streets
 - 4 Connection to regional, open space network



2



3

1 Opportunity sites identified within the precinct

Legend

- Open Space Site
- Development Site



4

Photographs showing existing character of the Canal/Lock area

- 1 Poorly defined connections
- 2 Opportunities for development and joint City and University uses
- 3 Elm Haven redevelopment project
- 4 Poorly defined circulation route for students around the cemetery

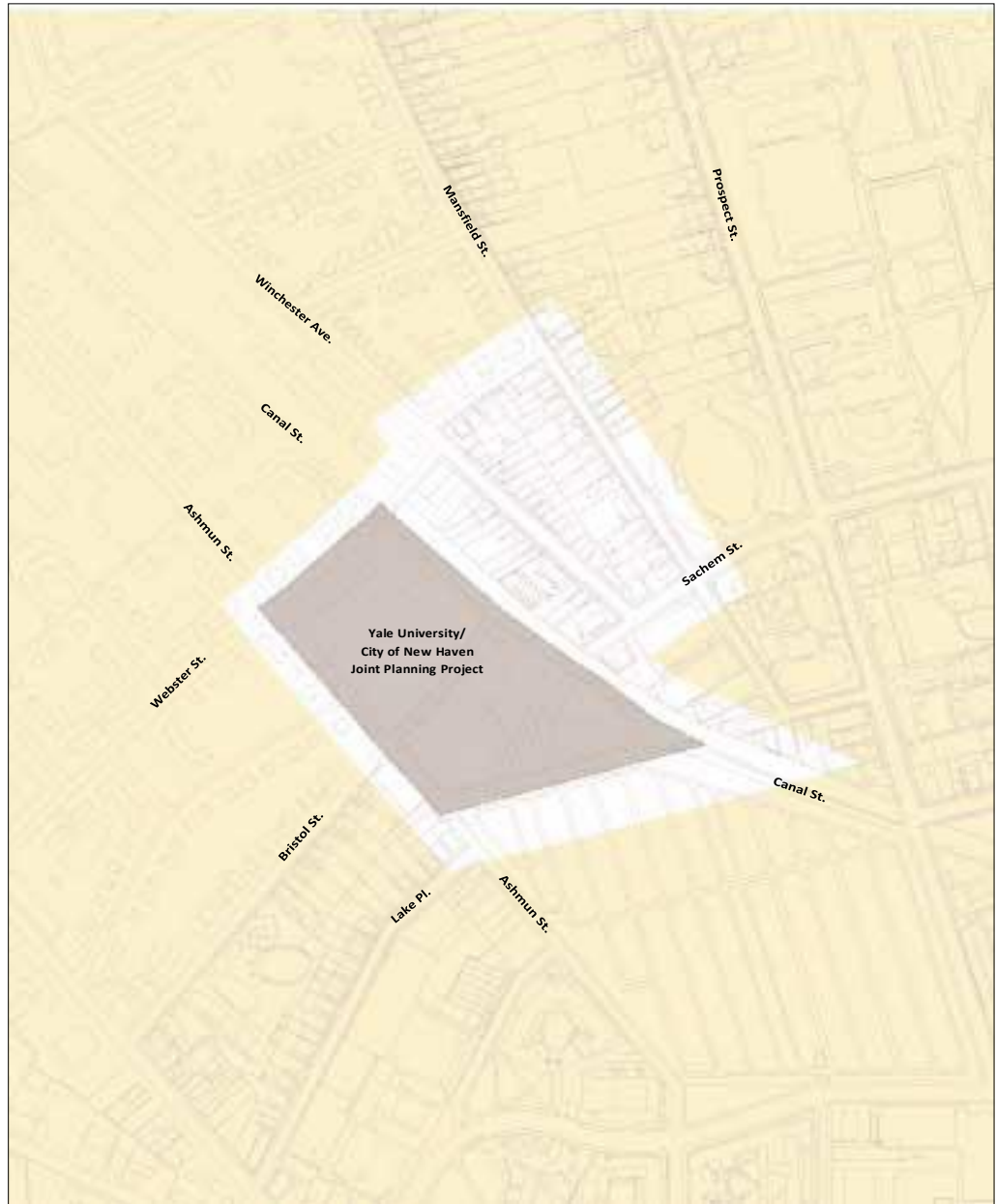
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1 Opportunity sites for development and joint City and University uses – Canal/Lock

Legend

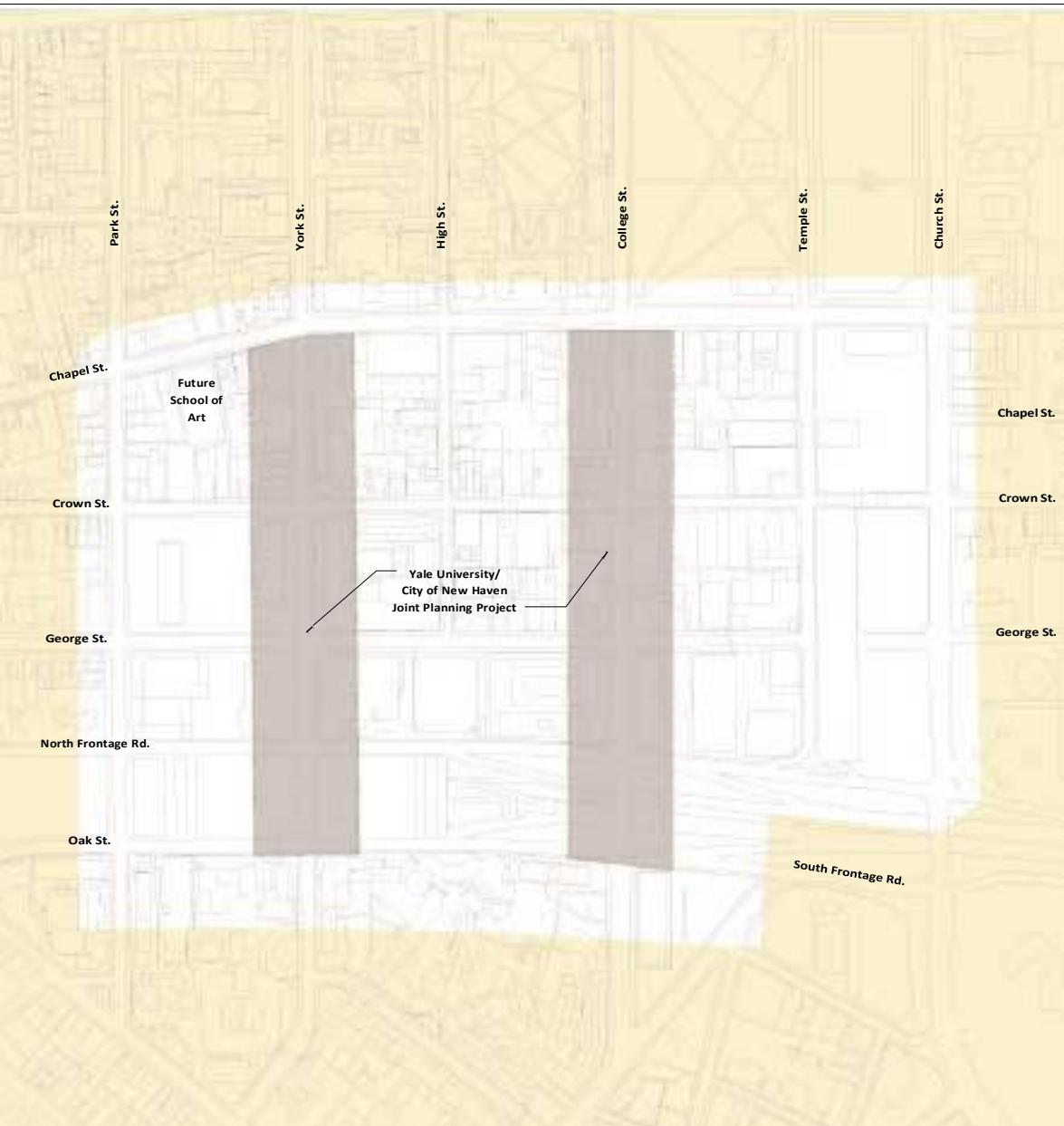
- Open Space Site
- Development Site



4



1



Photographs showing existing character of the Crown/George area
1 Opportunities for streetscape improvements and future development
2 Yale property ownership consolidated along York Street

Additional Areas of Mutual Interest

Certain opportunity sites do not fall neatly within planning precinct boundaries. Two areas in particular seem ideal to develop through cooperation and joint planning by the City and University.

First is the area northwest of the Grove Street Cemetery (Canal/Lock), between the Broadway/Tower Parkway planning precinct and Prospect Street. It is framed by the Farmington Canal, the Cemetery, Ashmun Street and the Elm Haven urban renewal area. Yale has not seriously invested in this area in the past. The recent completion of the New Residence Hall on Ashmun Street makes improved connections between Ashmun and Prospect Streets highly desirable. The Elm Haven neighborhood has suggested putting a new park, roughly the size of Wooster Square, between Webster and Bristol Streets to be shared by the City and Yale. This park would be appropriate for shared use by Yale and the community. A road across the Farmington Canal would create an important link around the Cemetery, providing a safe, alternate connection between the south part of campus and the north. A joint City-University effort would help to stabilize a crucial neighborhood and provide a much needed and welcoming route around the Grove Street Cemetery. This potential connection is central to any future circulation pattern. It would not only tie Science Hill to the Broadway/Tower area but also make possible University development in nearby areas (such as Prospect Place and Lot 78, adjacent to the Gym), making them less remote to the rest of campus.

A second opportunity is the Crown-George area between Chapel Street and the Medical Center. This area is the arrival point for those approaching the City from Route 34/Oak Street Connector. For many first-time visitors to Yale or the Arts Area, this is their first view of New Haven. They often form a lasting impression of Yale and the City during the drive from

1 Opportunity sites for development and joint City and University uses – Crown/George

- Legend
- Open Space Site
 - Development Site



2

Photographs showing existing character of the Crown/George area

- 1 High-rise housing
- 2 Shared City and University retail area

1



the Route 34/Oak Street Connector to Chapel Street. A joint effort by the City and Yale could significantly enhance the area by improving the streetscape and expanding arts-related uses, medical uses (both office and clinical), restaurants, retail stores, shops and studios that support the performing and visual arts. Development and improvements should focus on the York and College Street corridors. Yale already has an important presence in this area. It owns several parcels on York Street between Chapel and High Streets. University Towers houses many Yale-related tenants and the Medical Center leases space north of the Route 34/Oak Street Connector. The retail space between George Street and the Air Rights Garage has a high turnover rate that might decrease if quality stores moved in. The University should propose to the City that it convert York and College Streets to two-way traffic, and that it undertake landscaping and lighting programs to improve vehicular access and the pedestrian experience for everyone in the area. Physical improvements and building development along these corridors would reinforce connections between the Central Campus and Medical Center.

These two opportunities, especially when undertaken through joint planning projects by the City of New Haven and the University, would enhance the City and move each significantly closer to the common goal of more fully blending Yale's environment with that of its neighbors.



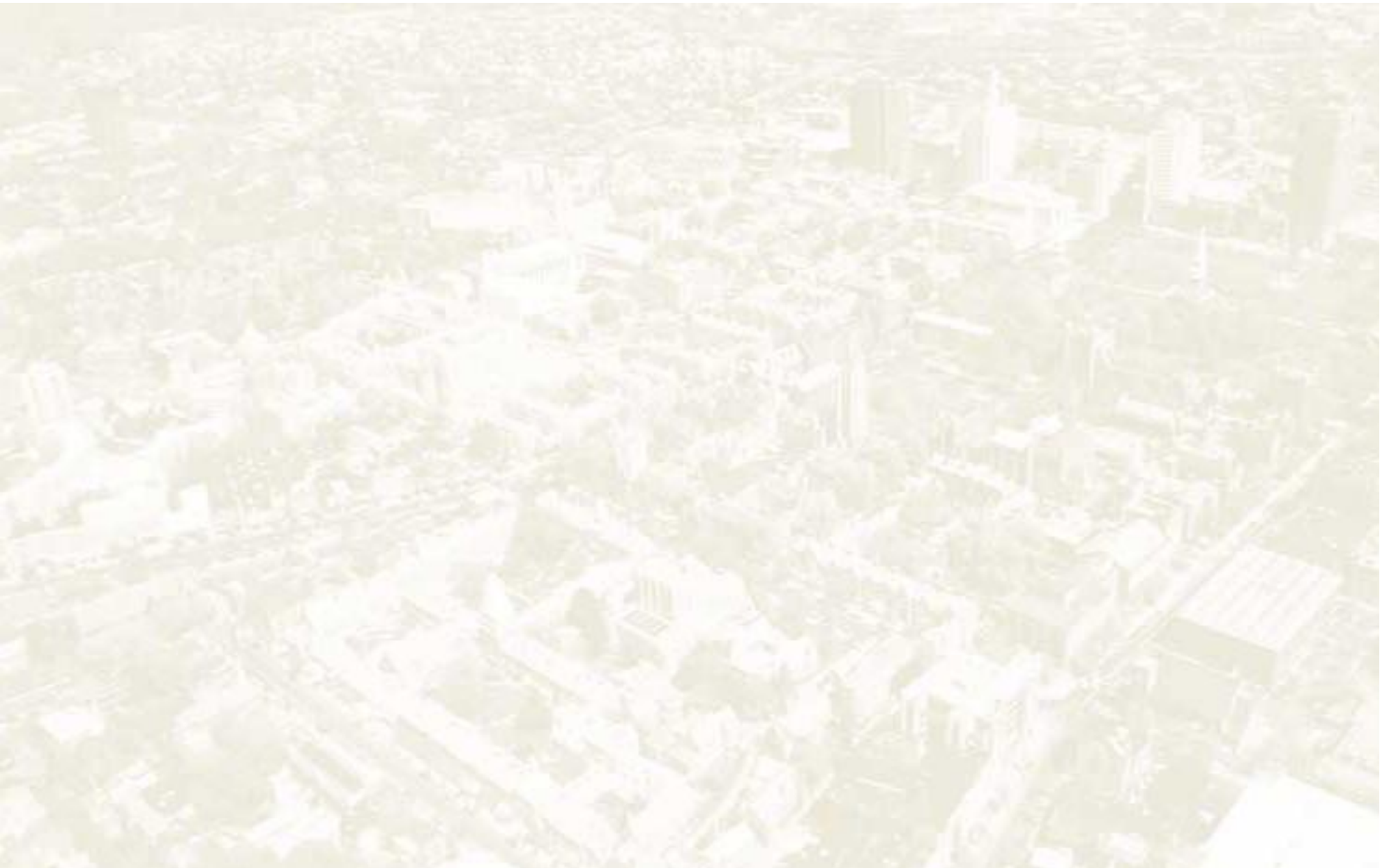
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CAMPUS FRAMEWORK SYSTEMS

Uses
Built Form
Landscape and Open Space
Circulation
 Pedestrian
 Vehicular
 Bicycles
Parking
Signage
Lighting
Neighborhood Interface

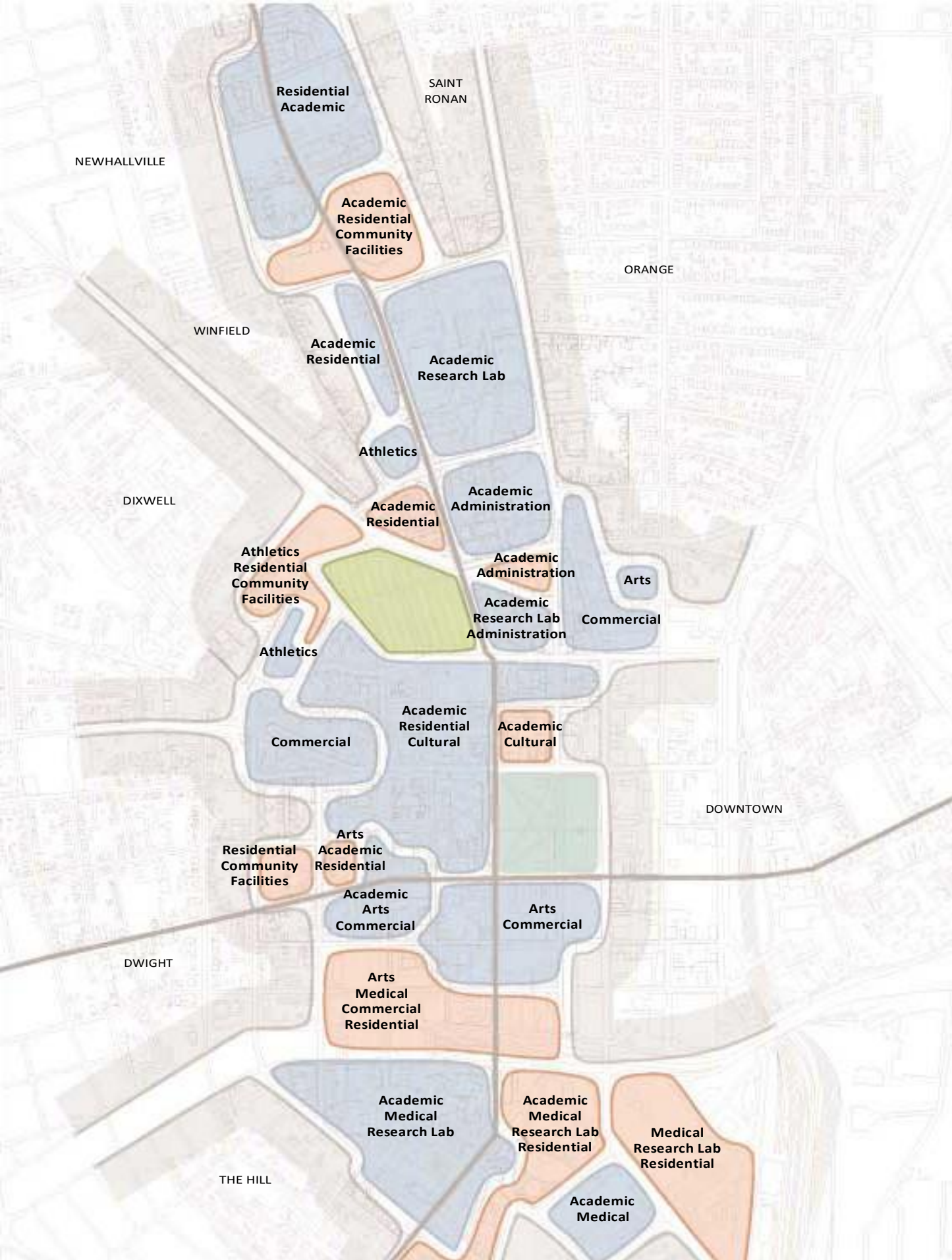
1 Aerial view from the southwest

1



Although the appropriate development of open space and building sites varies by planning precinct, Yale’s linear and dispersed campus can be better integrated by judicious attention to campus-wide systems—uses, built form, landscape and open space, circulation, parking, lighting, signage and neighborhood interface.

We make policy recommendations in this section for these “Framework Systems,” which, when put together with the opportunity sites, form the essence of the Framework Plan. These proposals are meant to be evolutionary, not revolutionary.



7 Uses Framework:

The underlying organization and grouping of uses are shown throughout the campus. Chapel Street, College/Prospect Streets and Congress Avenue are highlighted.

This diagram identifies areas where existing uses are clearly established and, recognizing these, then recommends appropriate uses in unestablished areas that will reinforce programmatic and physical connections throughout the campus.

- Legend*
- Neighborhoods
 - Established area - Existing uses
 - Unestablished area - Proposed uses

- 1 The former American Linen Building (now demolished) in the Canal/Lock area, a location with unestablished uses
- 2 The Bass Center on Science Hill, an area with established use
- 3 The Crown/George area, much of which has unestablished uses



Uses

Since Yale is a fully mixed-use campus, it is neither appropriate nor applicable to identify uses in the traditional manner: by use, zone or ownership. This Framework, instead, proposes an underlying pattern of uses based on the planning precincts.

This pattern identifies locational criteria that should help Yale select sites for proposed uses and also build stronger connections between precincts by supporting appropriate activities in appropriate places. The Framework Plan recognizes distinct areas of particular use, either within or overlapping precinct boundaries. Most importantly, it provides a framework to enhance the current character of the Yale campus over time by encouraging a rich diversity and mixture of uses and activities within each precinct. The Framework also addresses areas of mutual City-University interest, such as the Canal/Lock and Crown/George areas, and takes into account the adjacent neighborhoods and districts of New Haven. Finally, it indirectly reflects Yale’s administrative organization into academic divisions for Yale College, the Graduate School and the professional schools.

The Framework Plan recognizes ten categories of uses:

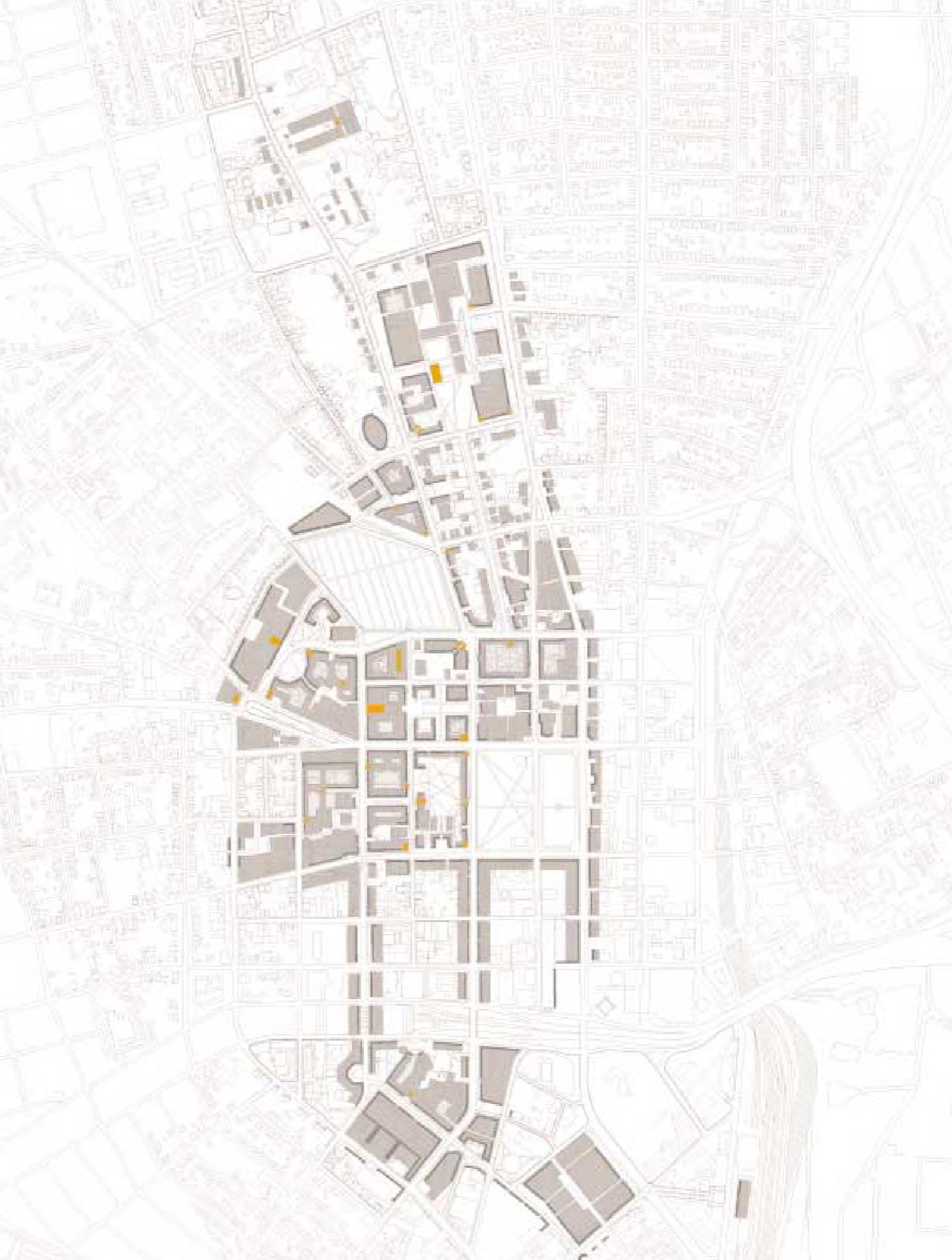
- Academic
- Administration (includes institutional functions)
- Arts
- Athletics
- Commercial
- Community Facilities
- Cultural
- Medical (including office, clinical, medical research and biotech)
- Research Laboratory
- Residential

The Framework broadly interprets each category to include all associated and supporting activities. This will allow decisions to be informed but not overly restrictive.



3

Uses



7 Built Form Framework:

The existing physical form and structure of the campus and City can be reinforced by the strategic locations of sites for new development.

This diagram illustrates the pattern of urban architecture with its open spaces, building mass, streetwalls and major vertical objects, which can be extended to create a continuous and cohesive built fabric, as shown.

Legend

- Large scale streetwalls
- Building mass
- Interior open space
- Major vertical objects

- 1 Trumbull College is an example of the character of Yale within the Core
- 2 Science Hill surface parking lots along Whitney Avenue are sites for future development



Built Form

Yale's urban architecture—three- to five-story buildings that face streets and form courtyards, interspersed with towers in prominent locations—provides the building structure and pattern for the University and City while allowing for a great diversity of physical settings within each planning precinct.

In the Core area, new buildings and infill sites can reinforce this fabric by lining street frontages, framing open spaces and continuing the design vocabulary of collegiate architecture with structures of compatible scale, proportion, building materials, massing and height. Development sites can extend this fabric on the periphery as has been done on the new Residence Hall/Sterling Power Plant block, and will in the future with the completion of the Payne Whitney Gymnasium block, the 451 College Street block, and infill sites on the north and south sides of Broadway. When developed, the 451 College Street block could not only complete the east axis of Cross Campus, but also create a new landmark building within this historic quarter of the campus. Otherwise, buildings on this block should continue to reflect the variety in building scales and the multiple-building frontage along the Green.

To the north, the Hillhouse area provides a distinctive physical setting. New building designs should respect the smaller, domestic scale of structures on Hillhouse Avenue and Trumbull Street. While meeting the need for larger functional spaces, larger buildings should be built along Prospect Street, Whitney Avenue and Temple Street—not along Hillhouse—and where possible, south of the Farmington Canal. Three- to five-story buildings that reinforce the building scale and massing along the Prospect Street corridor and shape quadrangles or courtyards would extend the fabric of the campus northward—particularly in the underutilized parcels around Prospect Place. Here, new towers can act as traditional elements marking the Trumbull/Prospect intersection and terminating the Mansfield Street view corridor.

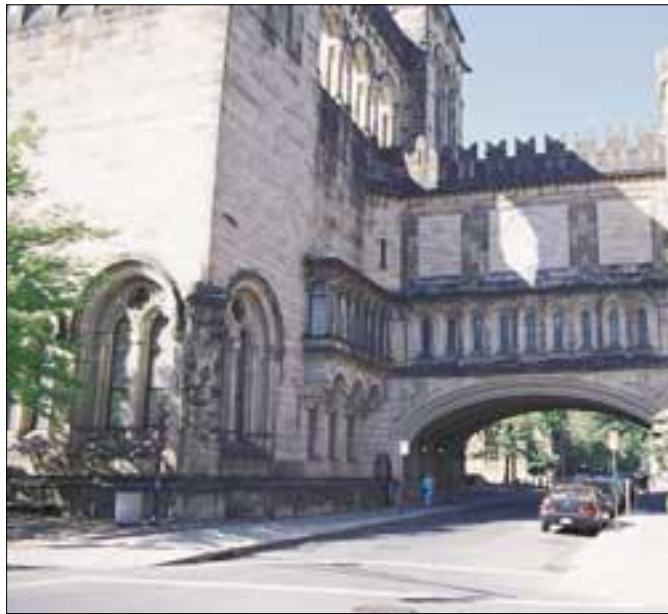
Yale could make the Science Hill area more attractive by improving its streetscapes and by transforming its ill-defined open spaces between existing buildings into quadrangles framed by new structures. These new building groupings also would help reduce the overwhelming scale within this vast super-block. Four- to six-story buildings should predominate, maintaining Kline Biology Tower as the local landmark. The flexible plan layout we propose allows for a series of smaller, interconnected buildings or buildings with larger footprints, depending on program requirements. New four-story buildings along the east and west sides of Sachem's Wood will better define this open space. On the Hill, a series of new academic buildings can create quadrangles near the Sterling Chemistry Laboratory and the Bass Center. On Whitney Avenue, a new building group and street



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- 1 The tower of Sterling-Sheffield-Strathcona Hall is a prominent landmark at the north end of College Street.
- 2 The High Street bridge is a major pedestrian gateway.
- 3 The stark character of Cedar Street adjacent to 100 Church Street South

- 1 Chain link fencing along Chapel Street creates an unattractive image for the Yale Athletic Fields.
- 2 451 College Street is a weak visual terminus to Cross Campus.
- 3 Pierson College streetwall character

1



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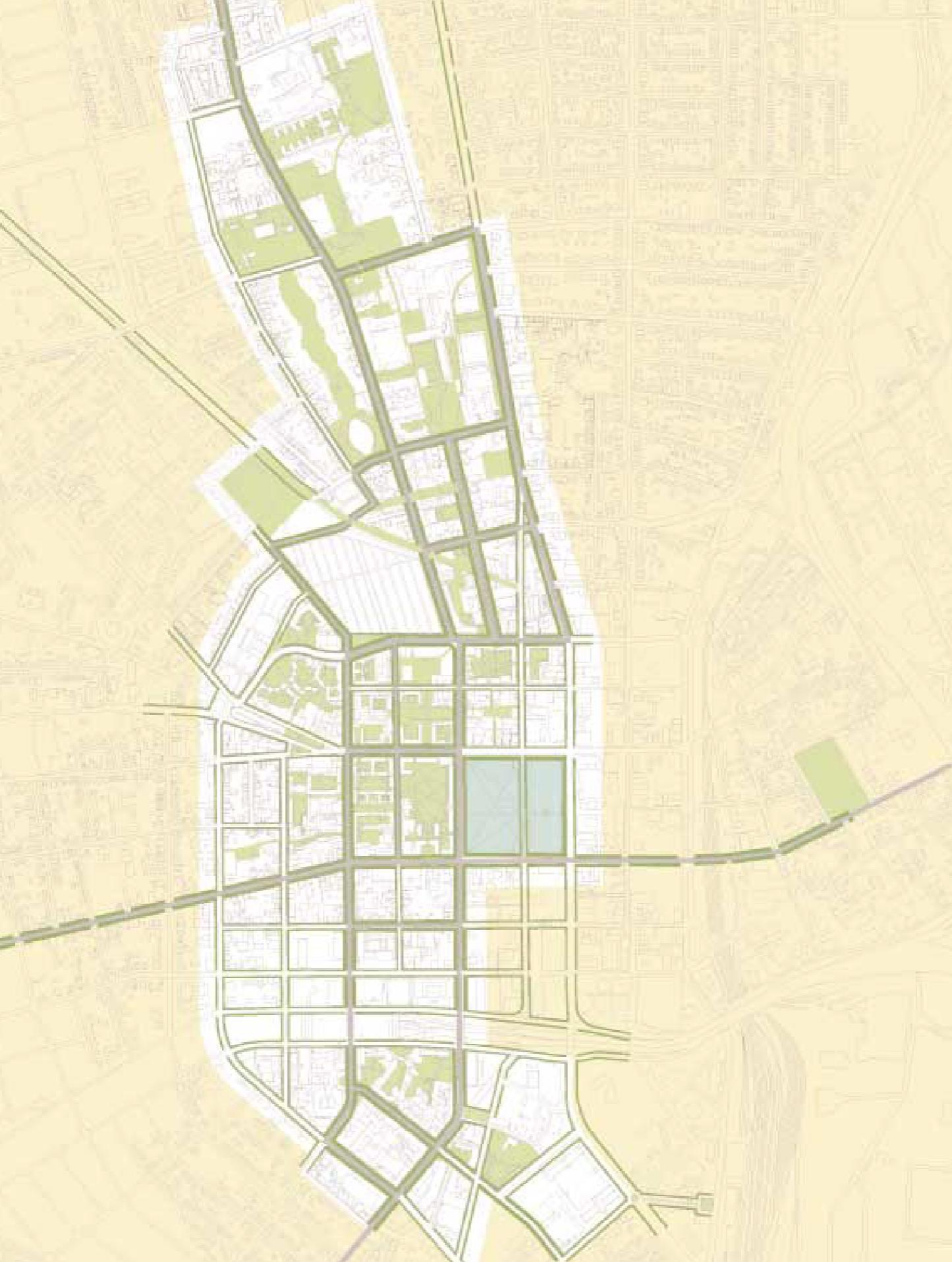
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system could form a quadrangle at the base of the hill. This grouping, together with a generous landscape setback, will improve the prominent public edge of Yale’s campus along Whitney Avenue from Edwards Street to the Peabody Museum.

Buildings within the Upper Prospect planning precinct should be domestic in scale and clustered around open greens and landscaped grounds to blend in with the low-scale, residential character of the area. Parks, gardens and the Sterling Divinity Quadrangle establish the tone for this precinct. New buildings south of the Davies House should front on Prospect Street while reinforcing the connection between Farnam Memorial Gardens and the Divinity School.

Future development at the Medical Center should extend the building fabric—large-scale, interconnected, typically linear buildings of four to six stories framing streets and quadrangles—south along Cedar Street from the Congress Avenue intersection. Streetwall buildings could also fill out the 100 Church Street South block bordered by Cedar Street, Columbus Avenue, Prince Street and South Church Street within this area. New structures should make prominent and highly visible corners—such as the southwest corner of Congress Avenue and Cedar Street—landmarks for the Medical Center, similar to the Sterling-Sheffield-Strathcona Tower at the Prospect/Grove Streets intersection.

The University should enhance the physical quality and overall appearance of the Yale Athletic Fields by renovating existing facilities and structures, while better defining streets—Chapel Street, Derby Avenue, Yale Avenue, Central Avenue—walkways and playing fields with new gates, walls and decorative fencing. The historic Walter Camp Gate should continue to be an important symbolic visitor gateway and be complemented by a new gate and functional entry on the west side of the Bowl that consolidates ticketing, concessions and restroom facilities.



7 Landscape and Open Space Framework:

Open space typologies combine to create a landscape structure that can be reinforced, as shown, to further link the many parts of the campus, City and its neighborhoods.

Legend

-  Street Trees
-  Open Spaces

Several types of open spaces together form the landscape structure of the Yale campus. These are courtyards, quadrangles, gardens, streets, walks, fields and surface parking lots.

- 1 A small paved courtyard in Saybrook College
- 2 Old Campus Quadrangle
- 3 Hewitt Quadrangle



Landscape and Open Space

While many existing landscape spaces need refurbishment and maintenance, as noted under the earlier description of each precinct, the University will create an entirely new generation of them in selecting from the proposed projects listed in this Framework Plan.

Courtyards are outdoor spaces shaped by a building. They are generally private. Although actual dimensions do matter, the most important factor in courtyard design is the dimensions of the open space in relation to the surrounding building. The building and courtyard must be in proper proportion to each other to ensure an adequate amount of light and ventilation. Marvelous examples of well-proportioned small courts include those at Branford and Saybrook Colleges and in the Sterling Law Building.

The next important consideration is whether the occupants of the surrounding building will be using the courtyard or merely looking into or across it. This will determine the need for features such as paving, planting or seating. Often, trees in courtyards are devices to catch and hold light, while screening views across them. They also temper the climate by letting sun through in winter and providing shade in summer. We expect that opportunities will continue into the future to develop a new generation of these exterior, landscaped “rooms.”

Quadrangles are spaces shaped by a group of buildings. They are quite large—often covering a half or full block.

Salient design issues arise out of concurrent but conflicting uses by diverse residents. Size, durability and security are among the most critical concerns. A mixture of open and tree-shaded spaces with adequate and long-lasting circulation paths has proved essential at most universities. Further issues include planting and furnishings, sunlight, ventilation and night lighting.

The most common problems result from conflicts between active and passive uses—recreation, informal sports and social events versus study and rest—and from overuse. The deterioration of quadrangles is accelerated by constant use by building maintenance/service and ground crews, and



by poor construction of sidewalks, walls and other elements, especially when made of non-durable materials. Many quadrangles must also accommodate large seasonal events (such as student moves or commencement activities) that place physical demands on them that far exceed those of normal, day-to-day use.

One or more new quadrangles might be created in the proposed redevelopment of the Hillhouse, Science Hill and Upper Prospect precincts.

1



2



1 Art Gallery Sculpture Garden
2 Farnam Memorial Gardens

Gardens vary in size but are usually bounded spaces with specific and special identities. Often, they have a particular purpose, use, owner and horticulture. When gardens expand in scale and usage to become public parks, they tend to lose their special qualities and high-quality maintenance.

Gardens should only be designed where there is a clear community or client who can use and maintain them adequately. Designers should consider many multi-layered elements: multi-layered plantings, furnishings and architectural elements, the traditional need for semi-enclosure, privacy and, at times, contemplation, as well as contemporary concerns regarding crime and personal safety. In doing so, they must very carefully design and execute the plans to allow visual connection to the surrounding urban context and public realm. The design of sight lines, physical access and egress and careful lighting are essential parts of well-designed gardens at institutions today.

This must not be done, however, at the expense of the visual beauty and sensual delights of any garden, for their fundamental purpose is spiritual. A certain flair and exuberance—whether from art, the play of water or rich, exquisite or subtle planting—is vital to the creation of any worthy garden.

1



- 1 Prospect Street and Trumbull Street intersection
- 2 Hillhouse streetscape
- 3 Wall Street, closed to vehicular traffic

The Framework proposes creating several new gardens in the Hillhouse, Science Hill and Upper Prospect precincts—each with its own purpose, character and constituency for use and support.

Streets are linear in nature, providing access, addresses and service, as well as air, light and views to (or from) adjacent properties. Both pedestrians and vehicles use streets, and conflicts between them are as old as civilization. Street design must, for example, balance the needs of pedestrians and drivers. In many instances, controlling and disciplining vehicular movement serve the best interests of Yale and the City of New Haven by improving the quality of life and the value of property, whether residential, commercial or academic. But design can deal with these fundamental conflicts only in part; management and social cooperation must contribute.

Streets comprise an extensive portion of the open space of both the City and the University. As such, they provide the setting for much pedestrian movement (the most significant and popular way to get around the University) and for social encounters, as well as the setting for nearly every building and the diverse but essential activities in them. In general, the most important goal for the University in street design should be to produce and maintain an attractive, safe and durable pedestrian zone. In a few exceptional cases it may make sense to make the entire street a pedestrian area with only service and emergency vehicles allowed to enter. Normally, however, the pedestrian zone does not include the roadway itself.

We generally recommend planting large, canopy shade trees in a continuous strip—a “parkway strip”—between continuous, smooth, well-built pedestrian walkways and the vehicular lanes. This strip facilitates continuous irrigation, drainage and tree root growth. The trees will be healthier if this strip has uncompacted and pervious soil, ideally planted with lawn or ground cover. This may not be feasible in many of the most urban areas of Yale and New Haven. Covering the parkway strip with unmortared unit pavers such as cobblestone is a workable but less than ideal alternative. Trees should not be installed beside curbs in small single pits. Trees planted in lawn or cobblestones should endure and thrive from 50 to 100 years with proper arboriculture care. Trees planted in pits commonly decline and die within six to ten years, and rarely live 25 or 30 years.

2



In certain places additional space, commonly referred to as a setback, occurs between the walkway and adjacent structures. The dimensions of such spaces vary. Some setbacks consist of lawns with plantings—trees, shrubs or ground cover and perennials. Others consist of more pavement, as at shops and entries to buildings. At Yale, some setbacks are narrow moats which are generally planted with tall shrubs, or small trees and vines. Designers must consider each condition on a case by case basis.

The principal landscape goal in the design of streets is to create marvelous outdoor rooms, attractive vehicular and pedestrian corridors where the climate is tempered by handsome trees growing up, out and over the street. This maximizes the City’s and University’s return on the investment while conserving energy. For obvious reasons, small, ornamental and flowering trees are inappropriate for curbside planting.



3

Walks designate appropriate routes between buildings or through open spaces, courtyards, quadrangles, parks and gardens. Designers generally plan these in conjunction with the specific landscape features (quadrangles, courtyards, gardens) or while carefully considering the particular context, such as a group of buildings of a specific character.

- 1 The tennis facilities and landscape at Yale Fields
- 2 The pedestrian path through Fraternity Row
- 3 Prospect Street lined with parking lots

Within each planning precinct, we propose using a whole hierarchy of landscaping—from large to small and from expensive to economical plantings. Properly planning adjacent elements—trees, other plantings, lights, furnishings—is important to the character of campus walks. Examples might be those of a lilac walk versus an allée of sugar maples, elms or flowering cherries. This approach can indicate a place’s safety and specific use. On many campuses, including Yale, particular walkways are and will become favorite meeting, stopping and social spaces, thereby requiring particular furnishings such as seating and trash receptacles adjacent to, but out of the way of, the main path of travel.

Fields on a campus are large, relatively level, open areas of turf used primarily for recreation and athletics. The principal issues to consider in the design of such fields are grading, drainage (soil structure and under-drains), irrigation, the choice of turf grasses (to withstand the climate and extreme wear), safety and security. Security helps ensure the proper use of the fields. The choice of lighting has as much to do with site planning, neighborhood context, management and community relations as it does with illumination or design. Another significant challenge is how to deal with the tidal surges of parking and circulation during particular sporting events. Often, Yale must use a large part of the fields themselves for automobile parking and circulation, thereby complicating their design and structure and adding to their cost.

Surface parking lots rarely constitute a permanent land use. A phenomenon of the automobile age, they are common in areas where land is cheap and pressure for alternative development low. When such pressure does develop, parking lots are easily swept away, and the cars move elsewhere, often into surface lots that will not last for more than a decade or two. As Yale has evolved in recent years, it tends to treat surface parking lots as land bank sites but uses them temporarily for the convenience of staff and faculty. Unquestionably, almost every surface lot that currently exists will be gone in thirty years and the land used for another purpose. At the same time, new lots will come into existence. Yale must still deal with one important question: how to ameliorate the visual and psychological effects of surface parking lots and their surroundings.

One good answer is to design and configure them to make adjacent walks, streets and properties as pleasant as possible at reasonable cost and with reasonable efficiency. Hedges, fences or walls, and a judicious use of trees could make parking lots a “good neighbor,” reducing the visual clutter of all the bumpers, grilles and random forms, shapes, sizes, colors and materials they present. Other institutions have used temporary parking lots as plant nurseries, placing shrubs and trees around and within them in a way that makes it possible to dig up, move and reuse them elsewhere when the lot gives way to development.

Adequate lighting is crucial, but must be kept at a comfortable level and unobtrusive so as not to bring undue attention to these lots and become offensive—as is so common when lighting is done cheaply.

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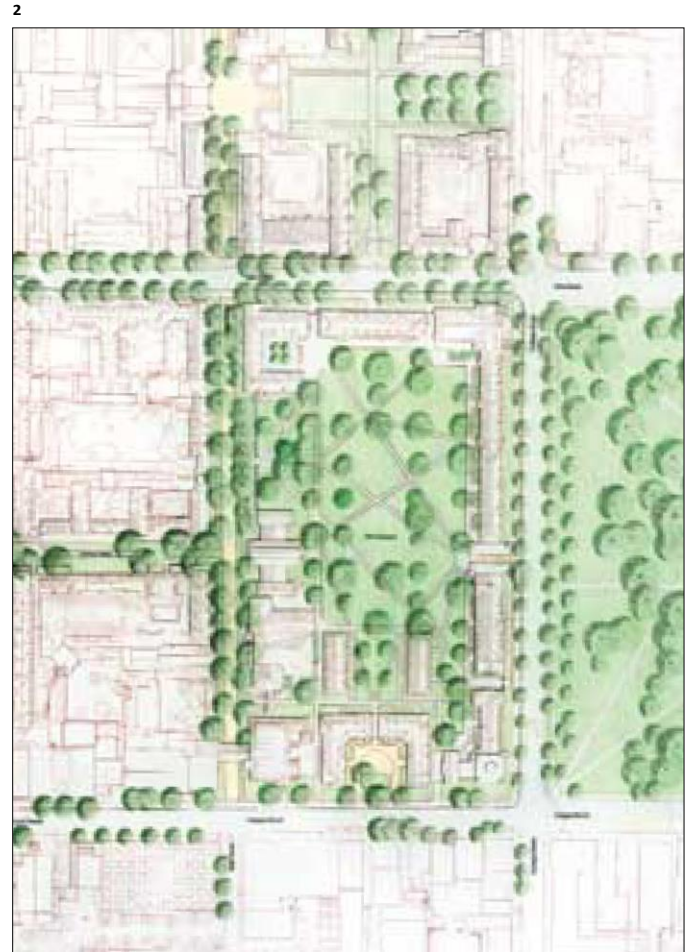
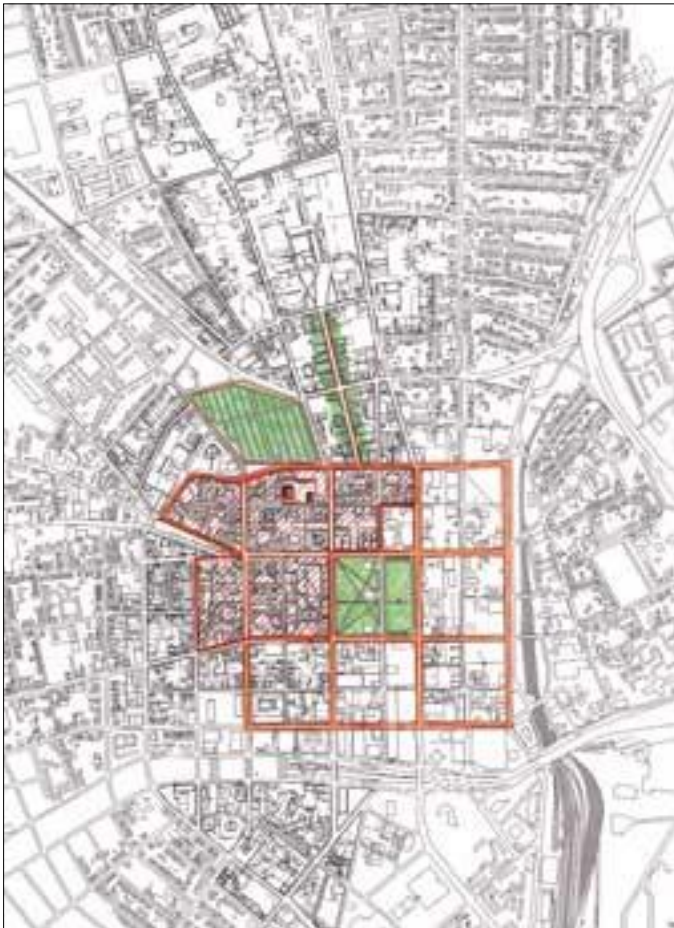
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1 Library Walk



1 Core Landscape Structure:

This diagram indicates comprehensive improvement of Core open spaces and the pedestrian quality of its streets as a landscape strategy.

Planning Precincts

While some landscape issues are generic, many are unique or specific to their location as a result of history, geography and current social and institutional concerns. The following is a summary of some of the particular landscape opportunities we have identified in different areas, some by precinct and some by larger districts or smaller sites.

Core and Broadway/Tower Parkway

In this precinct, the primary landscape tasks are to repair, restore and refurbish many of the quadrangles, courtyards and passage- ways, and to improve the quality of the street for pedestrians.

A prime example of such a project is the upgrade of the Old Campus quadrangle, which Yale completed in conjunction with a utility project in the summer of 1998. Other appropriate actions would be to include landscaping upgrades as part of several



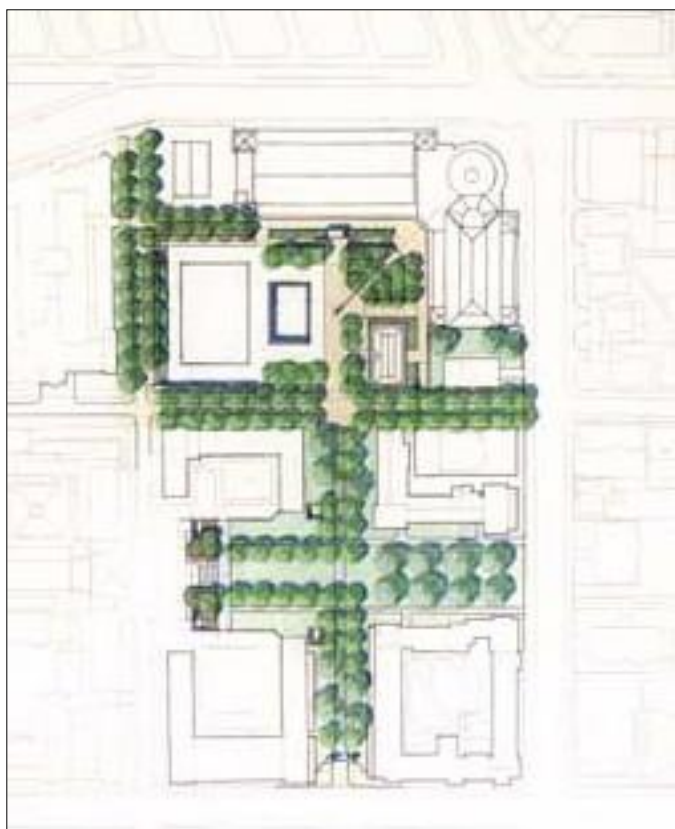
- 1 Utility project for Old Campus, summer 1998
- 2 Old Campus landscape plan, developed in conjunction with the utility project
- 3 Old Campus utility construction
- 4 Chapel Street lined with trees

- 1 Proposed improvements to Hewitt Quadrangle and Cross Campus
- 2 Proposed Hewitt Quadrangle
 Phase 1—Improvements made initially without altering Beinecke Plaza

restoration projects in the historic residential colleges and the Law School, as well as in ongoing utility projects. While these well-known and popular spaces have, in many cases, become worn through decades of use, they also have suffered from recent heavy construction activities. In many cases, the recommended landscaping upgrades will consist of detailed design for planting, drainage, irrigation and the rebuilding of walks and steps. We anticipate other landscaping opportunities arising out of some new service projects throughout this precinct relating to trash, recycling and handicapped access requirements.

One of the principal factors affecting the life in and quality of the Core is the traffic on the streets that bound and pass through this precinct. One goal is to slow traffic, while maintaining its movement and convenient routes. Another is to improve the width and character of the pedestrian ways along these streets by narrowing roadways, especially at intersections, and enhancing the paving, tree plantings and furnishings along the walks.

While many of the courts are loved, even in their worn state, others are not—the two most prominent of those being the harsh Hewitt Quadrangle and the barren deck behind Becton Hall. Both are significant spaces that already have or could accommodate greater pedestrian circulation and social uses. The University should transform Hewitt Quadrangle, in particular, into a more



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1 Houses on Lake Place, facing the Payne Whitney Gymnasium

social space, because of its adjacency to Woolsey Hall, the Memorial Dining Hall (Commons), the President’s office and the Beinecke Library. Preliminary studies indicate that Yale could accomplish this by creating tree-shaded terraces adjacent to the dining area and Woolsey Hall while respecting the architectural character and design intent of the Beinecke Library and its sunken stone garden.

To the west and north of the Core are several neighborhoods with considerably varying characteristics. Most of the transitions between the University and these neighborhoods include portions of the rights-of-way of city streets, including Ashmun Street, Lake Place, York Square Place and Dixwell Avenue. The principal landscape actions we recommend include planting trees, improving walkways and their furnishings and removing or rerouting overhead wires and other unsightly utilities. A key ingredient of landscaping improvement should be the installation of comfortable, attractive and effective pedestrian lighting.

1 Neighborhood landscape structure:

This diagram indicates streetscape improvements at the transition from Campus to neighborhood as a landscape strategy.



1

1 Luce Hall is set behind parking, with no building entrance facing Prospect Street.



1 Landscape structure north of Grove Street:

This diagram indicates reinforcing links between the north and south parts of campus by improving the streetscape and open space connections within the Hillhouse & Upper Prospect Planning Precincts as a landscape strategy.



1

Hillhouse

The center of this precinct is the two-block stretch of Hillhouse Avenue with its historic houses and mansions. It is a justly famous street, renowned in American planning and design circles for its impressive ensemble of structures—set back from the street with their yards, lawns and gardens—marching toward Sachem’s Wood to the north. The recently planted double rows of oaks on either side help convey a sense that the street will remain intact, grand and dignified. Even so, we recommend a specific plan for this street to ensure its long-term health. Such a plan should address what to do about fencing and hedges, pedestrian walks, parking, lighting and additional or replacement planting.

We also propose modifications and improvements at several specific places along this handsome street. The first is to reconstruct and lower the roadway bridge that spans the Farmington Canal. This would take an awkward hump out of the street while aligning the pedestrian walks and allées of trees lining the street.

The second is to improve the impression created by Luce Hall, which sits uncomfortably in the middle of the lot, rather than on Prospect Street or Hillhouse Avenue. We propose creating a partially enclosed garden to the east on Hillhouse which will

help to fill this ambiguous space. The new gardens would also provide the adjacent Admissions office with welcome open space for visitors.

The opportunity to develop several building sites north of Luce—from Prospect to Hillhouse—also creates the potential to develop a landscape space that pedestrians could use in the same manner as the Cross Campus walk immediately east of Sterling Memorial Library. The new pedestrian walkway would terminate on Hillhouse Avenue directly across from the President’s House. We propose making a pair of walks along each side of the open space—leaving the center open for recreation or tents during commencement week while providing access to doorways of the proposed framing buildings. Along Prospect, where unsightly lots engulf Luce Hall, landscape should replace parking that is not needed, as noted earlier in the Framework. Exterior planting, walls and ornamental fencing should screen from view any parking that must remain. The Farmington Canal is another prominent landscape element in this precinct and should be improved in conjunction with the creation of the proposed regional bikeway. Plans will have to include clearing most of the invasive plants to develop this bikeway—first, to provide the physical space for movement, and second, to improve visibility and safety. Designers will face a great challenge providing vertical access from the current street level to the sunken bottom of the past Canal that works well for bicycles, meets accessibility criteria for public facilities and minimizes the impact on the remaining masonry walls which may have historic value.

Regarding lower Prospect Street, in addition to our proposals to develop the building sites between Trumbull and Sachem Streets to change the street’s physical character, we recommend paying attention to its pedestrian walks. As elsewhere, this would involve removing or relocating

1 Inactive Becton Plaza

overhead wires, improving paved surfaces and planting trees as well as redeveloping and screening temporary surface parking lots.

Becton Plaza, diagonally opposite Hewitt Quadrangle, was conceived as an amenity for those using the science buildings that were to form it, and as a passageway to Hillhouse Avenue and Sachem's Wood (now Science Hill). As of now, however, it has developed poorly as a partially raised and barren slab with a few token plants and a sculpture. Preliminary study indicates that the University should redevelop this deck in a more suitable way, so that it still offers passage to Hillhouse and Science Hill but serves also as a pleasant, green court connected to the lower portion on the south.



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- 1 View from Hillhouse Avenue to Sachem's Wood and the Kline Biology Tower
- 2 Science Hill service drive also serves as pedestrian path
- 3 Unattractive and ill-defined entry from Prospect Street
- 4 Prospect Street's deficient landscape

Science Hill and Upper Prospect

The landscapes of Science Hill and the Upper Prospect Street areas are seriously deficient. On Science Hill, where some of the most brilliant scientists, researchers, teachers and students in America perform their work, the landscape is chaotic, disorienting and uninspiring. The memory of James Hillhouse's mansion, Sachem's Wood, with its park-like setting, hangs over the eroded lower slope of the hill that still bears its name. Prospect Street links these two areas and is an important artery for pedestrians and vehicles from the Core to the Science area and a large number of graduate residences. In its current form, Prospect is visually an odd, diffuse, unbalanced and unpleasant street to pedestrians. On the west are a series of older residential buildings belonging to Yale, almost all of which sit downhill from the road. Inappropriate automobile parking has degraded the former gardens and front yards of most of the houses. On the east one finds a mixture of large science buildings and a few old houses that stand high

4



above the street, generally aloof and disconnected from it. A melange of walls, banks, railings, steps, gateposts and driveways—most of which belonged to mansions and residences long gone—accompany the curbside walk. Numerous young trees—if they live and thrive—recently planted, will greatly improve this side of the street. Countless wires cross overhead. In addition, Ingalls Rink has, since its completion, existed in a desultory sea of asphalt and parked cars. Hailed as one of Yale's great modern

landmarks, this building clearly merits a more complementary setting.

In short, Prospect Street needs to be managed—by relocating parking and wires and by unifying plantings, walks, hedges, banks and fences. On Science Hill, the few existing pedestrian walks lead to service areas and loading docks or through parking lots. Residual exterior spaces—several of which are large, prominently located and never planned—are all poorly organized or not developed for any social use. Pedestrian connections between open spaces and buildings are not clear. Extremely unattractive structures such as parking decks or waste facilities block or mar the views of East Rock or the City and the Core of the Yale campus, which otherwise could establish the sense of place, orientation and importance of this precinct. Any vegetation remaining from the former nineteenth-century domestic landscape is in decline. We propose developing a series of walks, quadrangles and courts in conjunction with planned new facilities to allow passage from Hillhouse Avenue to Edwards Street and Farnam Memorial Gardens. The first and most important of these open space developments should be the renewal of the hillside of Sachem's Wood. Second,

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1 Part of the unshaped landscape of the Marsh Botanical Gardens

Yale should transform the inhospitable character of the spaces adjoining and north of Kline Biology Tower to make the quadrangles welcoming and restful. The University should develop the entry courts along Prospect Street in conjunction with renovations and new facilities. It should also improve the large parking lots along Whitney Avenue.

The Upper Prospect area starts further north along Prospect Street, at the top of the Hill. At the intersection with Edwards Street and Hillside Place are several sites with great landscape potential: Farnam Memorial Gardens, the Marsh Botanical Gardens and the Davies House. Farnam Gardens, while already an open space with some large, unusual and valuable plants, could become an even greater recreational resource and amenity for the many residents of this precinct if redeveloped for such uses. Existing topography will accommodate a pedestrian bridge over Edwards Street, linking Science Hill to Farnam Gardens, the Davies House, the Divinity School and graduate housing.

An even more promising site is the Marsh Botanical Gardens across the street. It was here that Beatrix Farrand established the nursery that supplied plants for the Yale campus. Although members of the Botany and Forestry faculty still conduct a limited amount of research here, the site is somewhat of a ruin. Built over with now-outdated research buildings, the original nursery and botanical garden hardly exist. Great potential exists here not only to resurrect a nursery to help meet the long-term needs of the campus landscape, but also to revive a small spring (which feeds a surface stream leading away to the south) and a small quasi-marsh in the block behind the Mansfield Street houses. Here along Mansfield Street, between the two groups of greenhouses, the University could also develop an expanded facility for the grounds maintenance staff more in keeping with their current, pressing needs. At the same time, the historic Marsh House could become the center of the revived botanical garden. These uses are not only compatible and historically derived, they also should prove very useful and attractive to staff, residents and visitors to Yale and New Haven alike. (This proposal presupposes the demolition of the existing Greeley Labs—as proposed in the 2000 Science Hill Plan.)

Further along Prospect Street, Yale should maintain the Davies House front yard, facing Prospect Street, as an open lawn with trees and ornamental shrubs.

At the Divinity School, the principal landscape work we propose is to enhance and replant the courtyards, walks and ramps between Prospect Street and the chapel on the west, and improve the slope to the east, along St. Ronan Street, as a bona fide community park.





Medical Center

Compared to other university or regional medical centers, Yale’s is one of the most coherent and attractive. However, we suggest several improvements in the public realm: the streets, quadrangles, courtyards and private spaces.

The Framework proposes improvements on College and York Streets to facilitate the physical and psychological connections between the Medical Center and the Core. These improvements consist of planting trees along the street, enlarging pedestrian sidewalks and enhancing them with furnishings and lighting consistent with the rest of the University.

Cedar Street is the front door of the Medical School. In warm seasons, it is an intensely social space, with street vendors and considerable pedestrian activity. We propose removing or relocating overhead wires, planting new trees along the streets, narrowing the roadway, addressing street drainage problems and providing seating through a combination of attractive benches and low planter walls. We also encourage adding new ornamental planting and carefully adjusting the night lighting.

There are opportunities to enhance some of the various quadrangles, such as Harkness Lawn. The quadrangles are generally attractive and well-utilized spaces but could be improved by unifying them with a well-designed ground plane, planting new trees, removing small surface parking areas, adding pedestrian walks into and through some of these courts and rearranging some recreational facilities, such as tennis courts.

1 Medical Center Landscape

Structure:

This diagram indicates the extension of streetscape improvements as a proposed landscape strategy for connecting the Medical Center to the Central Campus.

1



- 1 Seating wall along Cedar Street
- 2 Lot 93 at Sterling Power Plant



2

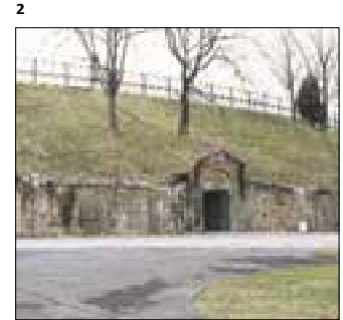


1 Yale Athletic Fields Landscape Framework:

This drawing shows proposed improvements and reorganization of open space.

1 Edgewood Park is a recreational resource.

2 The deteriorating Yale Bowl



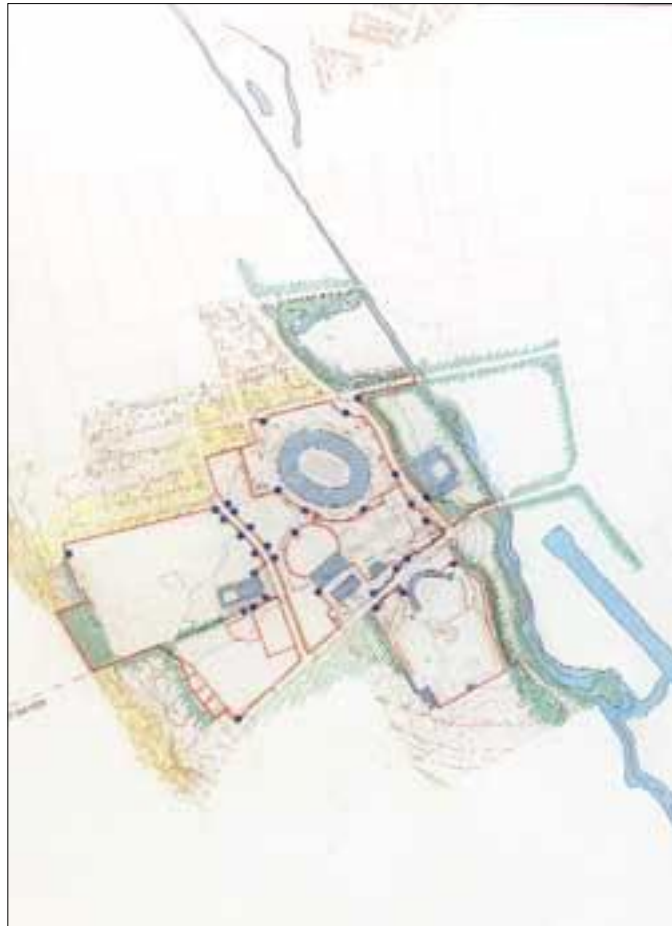
Yale Athletic Fields

Yale Athletic Fields is large, remote and vital to the social well-being of the University. While physical improvements would help it better serve the athletic activities here, it also offers the opportunity to provide highly useful links to adjacent city and regional recreation facilities. Portions of the existing Fields resemble landscapes of a lost civilization, with the Yale Bowl appearing as a giant ruin. Other portions, such as the Walter Camp Gate and Yale Field, are handsome but strangely disconnected from their general context. Numerous, redundant chain link fences not only are very unattractive but also create confusing circulation and access routes for the adjacent community, athletes, students, staff, alumni and visitors alike. Seasonal events and tidal flows of automobiles complicate the maintenance and arrangements for use of many of the fields.

Our landscape proposals for this area, therefore, include measures to rationalize circulation and fences—realigning and rebuilding many, while creating a series of gates at different scales. We also suggest installing a new attractive metal rail fence, which will provide institutional identity, security and several key entryways. These fences would be effective at the scale of vehicular circulation from regional roads, and at the pedestrian scale as one enters specific areas and activity zones. Our proposal also includes adjusting the arrangement of the fields to create clear vehicular circulation zones. Demarcating auto routes with new rows of trees will also help visually frame these large, green outdoor rooms.

Several landscape initiatives would further improve the environment. Currently, several large open areas periodically serve as major parking and tailgating areas during athletic events. Principal among these are the areas surrounding the Yale Bowl and those adjacent to the tennis facility. Distributing trees properly throughout these areas would allow driving and parking

- 1 Existing view along Yale Avenue
- 2 Perspective view of Yale Avenue with proposed new fencing and improved landscape



1 An existing network of fences (indicated in orange) winds through Yale Fields. The blue circles identify gates.



1 The proposed reorganization of fencing would also consolidate gateways and increase planting to help define edges and spaces.

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1 Detail of proposed landscape improvements

while enhancing the physical quality of the space when empty. The Yale Bowl would then appear to rise out from a grove of trees. Yale should work with the City to align the curbs along Yale Avenue to improve its use as a parking lot for events while remaining a useful city street the rest of the time. Additionally, we recommend improving the pedestrian crossing between Walter Camp Gate and Yale Field.

Edgewood and West River Memorial parks adjoin the Yale Athletic Fields. Yale and the cities of New Haven and West Haven could collaborate on a recreational trail system that connects it to community facilities here—and ultimately to West Rock and other open spaces. A new pedestrian bridge, a boathouse/café pavilion and other recreational features (including a small parking lot) would be welcome additions to these parks, attracting more people to this remarkable water-course and thereby improving its safety and usefulness.

1 Route 34/Oak Street Connector

The movement of traffic—vehicular and pedestrian, both into and within New Haven—profoundly affects the quality of life for residents and students alike.

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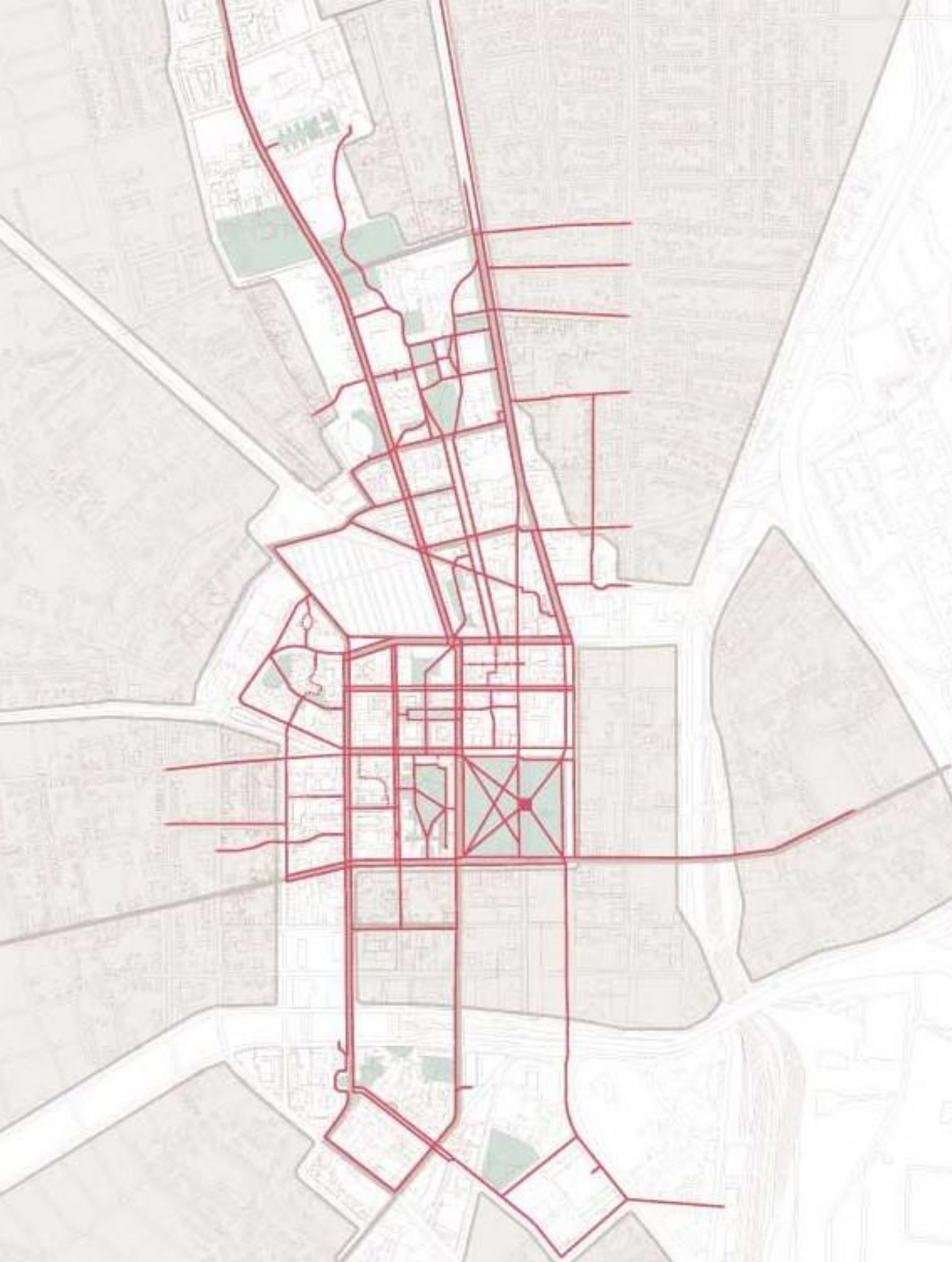


Introduction

Regional automobile access routes, shaped by the freeway construction of the 1960s, disrupt traditional neighborhood patterns and frequently leave people in unintended locations. City traffic planners have been adjusting the physical fabric of the City for thirty years to accommodate the reconfigured roadway system.

In addition to overlaying a regional access system on the city grid of streets, the City has redesigned those streets to move vehicles through at the highest speed possible to connections with the regional access routes. New Haven converted regional streets such as Whalley Avenue, city-wide streets such as Chapel Street and local streets such as York Street to one-way traffic to reduce travel times. The traffic planners improved access to the Downtown office core and accelerated the movement of cars through the City; unintentionally, however, their changes made it much more difficult to use city streets for retail activities commonly frequented by pedestrians. Planners creating the one-way traffic system—in effect now for thirty-five years—anticipated an aggressive growth of people, jobs and residents in New Haven that did not materialize. The present street system has room for more traffic than it needs and moves the traffic at higher speeds than is justifiable—severely compromising pedestrian circulation and convenience as a result.




Recently, two-way traffic has returned to portions of some key streets such as Church Street. The Framework suggests that the City adopt a deliberate policy of returning key city streets to two-way traffic. The results would benefit merchants, residents, students and visitors, and make New Haven a more welcoming city for all.



7 Pedestrian Circulation Framework:

The streets which comprise the basic ladder diagram of the campus structure serve as the primary pedestrian system and are augmented by a network of sidewalks on secondary streets, paths and walks. These combine to unify separate parts of the campus and reinforce connections to adjacent neighborhoods.

Legend

-  Public Pedestrian Routes
-  Limited Access Pedestrian Routes
-  Adjacent Neighborhoods

1



Pedestrian

As shown in the diagram, the pedestrian circulation framework for Yale—its routes and destinations—is a rich overlay to the structure of New Haven’s public realm. The basic ladder structure of the campus streets is the primary pedestrian circulation system, augmented by a finer-grained network of side streets, campus walks and paths. We propose to keep the cornerstone of that system, the public sidewalks of the City’s streets, combined with the several walkways through the major open spaces of campus. The University should locate main entrances to existing buildings and front doors of new buildings and facilities in response to this system.

North of Grove Street, Prospect Street and Whitney Avenue carry the major north-south sidewalks, along broad, landscaped setbacks. Hillhouse Avenue—with its historic, paired sidewalks under a double row of trees—is the central spine connecting the Core with Science Hill. Three cross-streets of contrasting character—Grove, Trumbull and Sagem—provide connections across this portion of campus and extend into adjacent neighborhoods. We propose creating a new walk to link the Prospect Place area across Prospect Street to Hillhouse Avenue. Beyond that, the pedestrian system extends further east from Whitney Avenue to Orange Street along Audubon Court and Trumbull, Pearl, Humphrey, Bishop and Edwards Streets. A secondary north-south walk takes

- 1 Walk to Payne Whitney Gymnasium
- 2 Pedestrian oriented retail along Chapel Street



2

pedestrians from Sheffield-Sterling-Strathcona Hall north to Trumbull Street through an upgraded Becton Plaza. The enhanced pedestrian system extends north into Science Hill along Prospect Street and Whitney Avenue, with Hillhouse Avenue extending directly into a redesigned Sagem’s Wood. From there, a pair of new walkways move northward along the east and west flanks of the hill. The western path crosses over Edwards Street on a proposed pedestrian bridge to Farnam Memorial Gardens. The new walk crosses Prospect Street to the Marsh Botanical Gardens, while also extending north through the Davies House site and up to the Divinity School and graduate student housing. The eastern leg of the proposed Science Hill pedestrian system continues north to a new open space facing Humphrey Street and then to the intersection of Whitney Avenue and Edwards Street.

South of Grove Street, in the Central Campus, the new pedestrian system would take its structure from the Nine Square Grid. The pair of primary north-south routes shift there to the

College Street and York Street sidewalks. We propose reconfiguring the intersection of Grove and Prospect Streets to improve pedestrian circulation and access from the Core to the Hillhouse precinct. A diverse collection of streets (Grove, Wall, Elm, Chapel) and campus walks (Cross Campus, Old Campus, Library Walk, Fraternity Row) would cross the north-south corridors.

The University could pursue several important possible additions to the system as it is today on its property and propose others to the City to make on property it controls. First, extend the Cross Campus axis eastward through the 451 College Street block to Temple Street. Second, extend the walkway through Fraternity Row westward across Park Street to Howe Street through parking lot 80. Third, extend the walk from York Street through Morse and Stiles Colleges along York Square Place to Ashmun Street. Fourth, create a new walk from Ashmun Street around the Grove Street Cemetery to Prospect Street to improve access to Science Hill.

Several complementary initiatives would improve the pedestrian experience in the Core area. Returning to a two-way street network, and reducing road widths, would leave room for widened sidewalks on major public streets, including Grove, Elm and High. We also propose to maximize student access to the residential courtyards by unlocking gateways that open onto High, York and College Streets and onto the open spaces of Cross Campus and Library Walk.

We propose further extending the pedestrian system by enhancing York and College Streets from Chapel Street south to South Frontage Road, and then from Cedar Street to the railroad station.

- 1 Whitney Avenue looking south
- 2 Approaching Downtown exits on the Route 34/Oak Street Connector

1



Vehicular

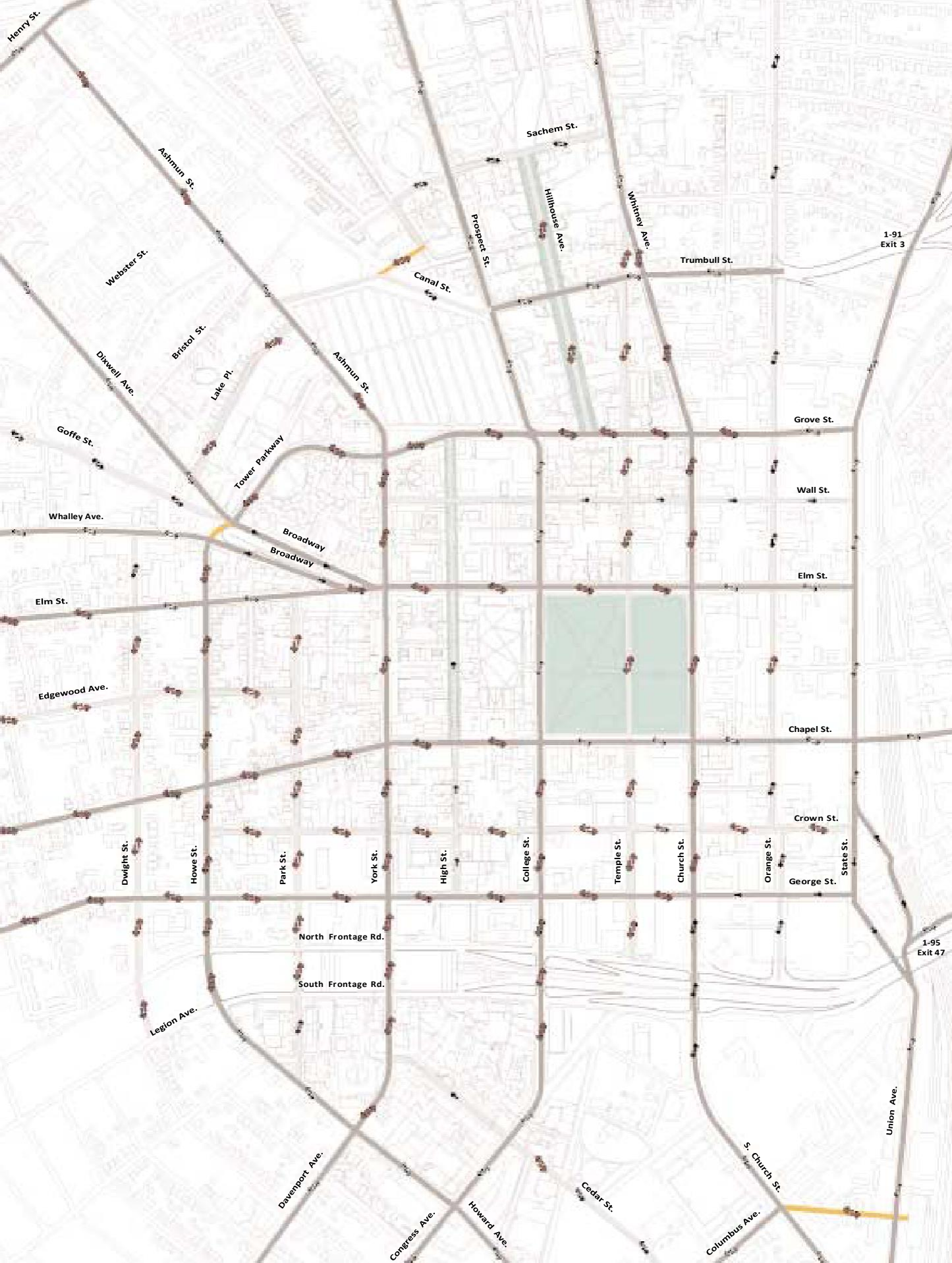
One-way streets can be particularly hostile to those visiting Downtown, and motorists often see destinations but must recirculate through the system to reach them. An ancillary effect of a one-way system is that many businesses located along one-way streets are invisible to the motorist. The prevalence of one-way streets in a downtown makes parking areas difficult for motorists to locate and enter. Motorists must travel further and turn more in one-way street systems than along two-way streets, and crossings are also particularly difficult for pedestrians.

We recommend encouraging the City to expand its recent conversion of one-way streets to two-way traffic. Most streets could be candidates for this conversion. Exceptions are those which function as highway frontage roads (North and South Frontage Roads) and streets less than thirty feet wide, where existing on-street parking would be lost in converting the street to two-way travel. New Haven would certainly not be alone if it followed this initiative. Because of the direct impact of transportation on the accessibility and viability of urban centers, many cities are examining traffic patterns and the balance among transportation modes. To return downtown streets to a human scale and promote a more pedestrian and retail-friendly environment, recent initiatives in many places have concentrated on slowing traffic, and more and more cities have converted (or are considering converting) the one-way streets to two-way.

Our preliminary traffic analysis indicates that a wholesale conversion of the one-way streets in Downtown New Haven would be possible from a traffic-operations standpoint. Those traffic engineers and planners who support converting the one-way streets to two-way use readily admit that the change might selectively increase traffic congestion. However, rather than concentrating on their lost capacity to move vehicles, these professionals focus on the slower, calmer traffic and how that improves the livability and potential for growth of urban environments, business districts and neighborhoods. Traffic analysts expect that the conversion of the proposed streets in New Haven to two-way operation will lower traffic capacity somewhat. However, an analysis of probable traffic changes shows that traffic levels in the peak hours in most areas of Downtown will still fall below maximum capacity, which is considered 600 vehicles per hour per lane for one-way streets and 480 vehicles per hour per lane for two-way streets. Traffic analysts acknowledge that the City would have to eliminate as much as five percent of the current street parking spaces to create left turn lanes and service/loading zones.

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7 Vehicular Circulation Framework:

All modes of circulation and access are improved through the phased conversion of one-way streets to two-way traffic.

Legend

-  Existing traffic direction not requiring modification
-  Proposed change in traffic direction
-  Major Streets
-  Minor Streets
-  New Street Linkages

- 1 One-way traffic on Elm Street
- 2 Recently converted two-way segment of Church Street



In return for this “loss” in capacity, New Haven stands to benefit from the following advantages of a two-way street system:

- **Accessibility**—One-way street networks were originally adopted to help move traffic into and out of Downtown. This traffic improvement came with reduced accessibility within the Downtown; that is, commuters from outlying areas (suburbs) working Downtown took priority over those persons with origins or destinations within Downtown. The proposed conversion of one-way streets to two-way operation will partially restore the former accessibility of the New Haven central business district and University area.
- **Vehicle-Miles Traveled (VMT)**—Due to the significant amount of “recirculation” that takes place in a one-way street system as motorists must make extra turns to reach their destinations, VMT decreases in a comparable two-way street system. Traffic engineers consider lower VMT positive because motorists use less fuel and create less air pollution.
- **Turning Movements**—Motorists generally turn less to reach destinations in a two-way system, again due to the lack of recirculation required. Less turning means fewer chances for an incident involving vehicles or pedestrians at intersections.
- **Transit Compatibility**—In a one-way network, transit passengers headed for the same destination from opposite directions would get off on two different streets. Again, this system most affects the occasional Downtown visitors, who are not familiar with the system. For instance, a visitor dropped off at a stop Downtown on a one-way street may not realize that the transit stop for his return trip is one block away, on a different street. Even regular transit users can become victims of this system when using it in a part of Downtown with which they are not familiar. In a two-way system, transit stops for a particular destination from either direction can be across the street from each other—which is much less confusing.
- **Pedestrian and Bicycle Circulation**—Lower traffic speeds and fewer vehicular turning movements create a safer environment for pedestrians and cyclists. Two-way traffic helps rebalance the needs of those using different modes of transportation on city streets. This is fundamental in a place like Yale, where many students use bicycles and require convenient accessibility on short trips to multiple destinations.

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- 1 Traffic through the Broadway retail area
- 2 One-way traffic on College Street

- **Storefront Exposure**—In one-way networks, drivers view the streetscape from only one direction. At stopping points or at corners, drivers only see the storefronts on one side of the cross street. The storefronts on the opposite side are effectively hidden from view or “eclipsed.” The high percentage of one-way streets in Downtown New Haven therefore has a significant impact on retail opportunity and exposure.

As described, the City of New Haven would benefit from a one-way to two-way street conversion for many reasons. The City has, in fact, already recognized the benefits of more direct access, and has converted segments of Church and College Streets. Although changing a street network all at once minimizes the unsafe transition time for drivers discovering new driving routes, a total transition is difficult to accomplish, especially when new traffic signal equipment and new signal phasing must be installed. Therefore, we suggest that the City consider converting New Haven’s downtown streets in three phases with other independent street-related projects. Any phase may be completed independent of the others. Each phase should be completed in the order given, but the time period between phases can be a local decision. In addition, the City could convert specific streets initially as part of demonstration projects or limited first moves. It should analyze and consider the impact of the limited projects on the existing system and implications for the overall, phased conversion plan.



1 Proposed phasing for two-way traffic conversion in the vicinity of Downtown New Haven

Legend

- █ Phase I
- █ Phase II
- █ Phase III
- █ Additional conversion and modification projects

Phase 1 should include the following conversions:

- Temple Street, from Whitney Avenue to North Frontage Road
- Hillhouse Avenue, from Grove Street to Sachem Street
- College Street, from Chapel Street to Congress Avenue
- Church Street/Whitney Avenue, from Temple Street to George Street
- Park Street, from Elm Street to North Frontage Road
- York Street, from Grove Street to Howard Avenue
- Ashmun Street, from Grove Street to York Square Place

Phase 1, with its conversion of a series of north-south streets, represents a major change in the street network in the vicinity of the New Haven Green and the University Core. Continuing the Church Street conversion would make it possible for vehicles to circle New Haven Green. The Temple Street conversion and the ongoing conversion of College Street would improve connections and accessibility throughout the Central

Campus and Downtown. The conversion of Park and York Streets improves connections between the Chapel Street and Broadway retail areas, access to the Chapel/York garage and the Medical Center, and the pedestrian environment within the Core. Extending the conversion to Ashmun Street improves access to the New Residence Hall, the potential development site on parking lot 78 and circulation around the Cemetery. Finally, the conversion of Hillhouse Avenue makes a signature campus street more accessible. This extensive conversion and the improvements it makes in accessibility could have a significant impact throughout the greater New Haven community.

Phase 2 would include the following conversions:

- Grove Street, from York Street to State Street
- Tower Parkway, in its entirety
- Elm Street, from York Street to State Street
- Howe Street, from Whalley Avenue to Legion Avenue, including the extension across Broadway to Tower Parkway
- Dwight Street, from Whalley Avenue to Legion Avenue

This second phase includes the conversion of the major east-west arterial pair, Elm Street and Grove Street, and the continued conversion of related north-south streets. The conversions of Elm and Grove Streets would have a major impact on the campus environment and greatly improve pedestrian safety and north-south circulation. The conversion of the Howe/Dwight Street pair would significantly improve campus connections to the Dwight neighborhood, as well as circulation around Downtown to the Medical Center. This in turn would dramatically alter the character of Park Street by dispersing the high-speed traffic that currently uses it as a major link to the Medical Center and access point to Route 34. Two-way traffic on Howe Street would increase access to its retail area and contribute to the improvement of the neighborhood. Converting this segment of Ashmun to two-way traffic would improve circulation around the Grove Street Cemetery and connect the north and south parts of the campus.

Phase 3 would include the following conversions:

- Chapel Street, from College Street to Winthrop Avenue
- George Street, from Church Street to Derby Avenue

Phase 3 would facilitate travel around the Hospital of Saint Raphael and between the Yale Central Campus and the Yale Bowl. The distance and varying travel patterns to the Yale Bowl along Chapel and George Streets and Derby Avenue, make these conversions unrelated to those Downtown. We propose to keep the one-way movement on George Street between Church and State Streets to facilitate the high-volume of traffic to and from the New Haven Veterans Memorial Coliseum.

Other Conversions/New Street Construction:

The conversions and new street construction projects proposed here are not part of a systemic change, so the City could complete them independently, in a timetable determined locally. We propose converting the following to two-way traffic:

- The Lock Street extension across the Farmington Canal to Mansfield Street
- Lake Place, in its entirety—this street services some residential uses, but primarily the Payne Whitney Gymnasium and its adjacent parking.
- Crown Street, in its entirety—improving exposure and accessibility to retail establishments there is critical to the vitality of this area and its potential for future development. Ultimately, this improves the connections between the Central Campus and the Medical Center.
- Ashmun Street, from Webster Street to Henry Street
- Canal Street, from Lock Street to Henry Street—reactivating this street is key to improving vehicular and pedestrian circulation, to integrating this area into adjacent neighborhoods and to developing the area north of the Cemetery.

FRAME W ORK PLAN

- 1 Trumbull Street approaching the ramp to I-91 from the west
- 2 The intersection of Whalley, Goffe and Dixwell at Broadway



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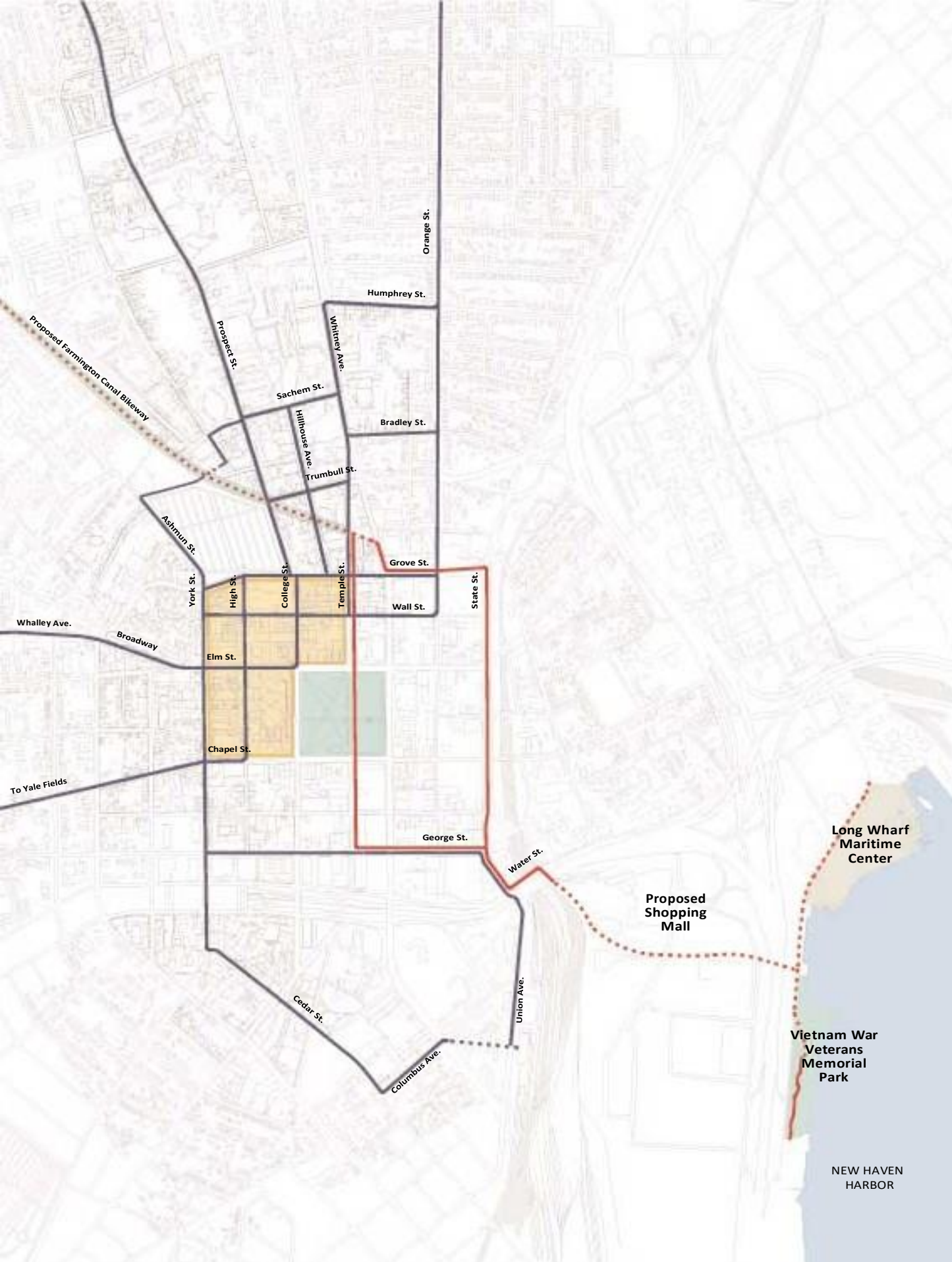
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- New Street from the Columbus Avenue/Church Street South intersection east to the train station—this would greatly improve pedestrian and vehicular links to the train station.

Other modifications:

The following modifications would improve pedestrian connections within the Central Campus. They do not impact the conversion process so they may be completed at any time.

- Create pedestrian mid-block crossing on Elm Street, between High and College Streets at Cross Campus—by consolidating pedestrian traffic, this mid-block crossing would increase student safety.
- Calm traffic on High Street, from Chapel Street to Elm Street—the one-block traffic calming of High Street will make it easier for pedestrians to travel between the residential colleges of Saybrook, Branford and Jonathan Edwards and Old Campus, while maintaining access for service vehicles and drop-off traffic.
- Complete paving and landscape treatments on the portions of High Street from Wall Street to Grove Street and/or Wall Street from York to College Street, already closed to through traffic—this work would greatly enhance the pedestrian experience there.
- Partially close the street on York Square Place—blocking access to Tower Parkway would make York Square Place a two-way cul-de-sac servicing the Payne Whitney Gymnasium and the New Residential Hall.



7 Bicycle Framework:

A proposed local and regional bicycle system, identifying an area of concentrated student usage and storage within the Core Planning Precinct.

Legend

- Regional Routes - Existing Streets/Paths
- - - Regional Routes - Proposed Paths
- Local Routes - Existing Streets/Paths
- - - Local Routes - Proposed Paths
- Area of Most Concentrated Bicycle Usage and Storage

1



- 1 Bicycles are common along Elm Street and throughout the Core.
 2 Bicycle inappropriately locked to fence on Old Campus

2



Bicycles

Two distinct bicycle systems cross the Yale campus. One is a regional, recreational system and the other is a local network on city streets serving the Yale community.

Enthusiasts anticipate stretching the regional bicycle system from Hamden, Connecticut, to the New Haven waterfront, largely in the abandoned right-of-way of the Farmington Canal. To the northwest of the City, the bike route could link to a regional open space system which rings the City and includes the West River, West Rock and East Rock. While the route would require numerous grade crossings between Hamden and New Haven, it would, nonetheless, constitute a continuous, regulated recreation facility for all citizens of the region—including, most immediately, the New Haven and Yale communities. In a recent policy decision, Yale announced it would permit the bikeway system to use that portion of the Canal right-of-way which it owns once the route extends continuously from Hamden to Prospect and Trumbull Streets. In the future, Yale will review and approve plans dealing with the design, access, security, maintenance and other operational needs and the timing for this.

The local bicycle network, on the other hand, will operate on city streets in mixed traffic. Currently, fewer people seem to use bicycles at Yale than at other, comparable campuses. This perception is likely the reality as well. Because of the proximity of residences and academic office and teaching spaces, Yale's is a preeminently walkable campus. There are notable exceptions to this generality and certain areas are (or feel) remote, because of the two-mile length of the campus. And certain features—whether man-made ones such as the Air Rights Garage or natural ones like the steep topography of Prospect Street—are barriers, psychological as much as physical, to convenient, easy walking. As a result, a defined bicycle system would substantially benefit many areas of the campus, especially the Medical Center, Yale Fields and the professional and graduate student residences on Upper Prospect and Science Hill.

Therefore, to connect the entire Yale community, it would be prudent to formalize a bicycle system that recognizes where people want to go and also slows traffic on all streets within the vicinity while providing helpful signage on the appropriate streets and adequate storage at key destinations. The University and the City could implement such a system in a phased manner over time.

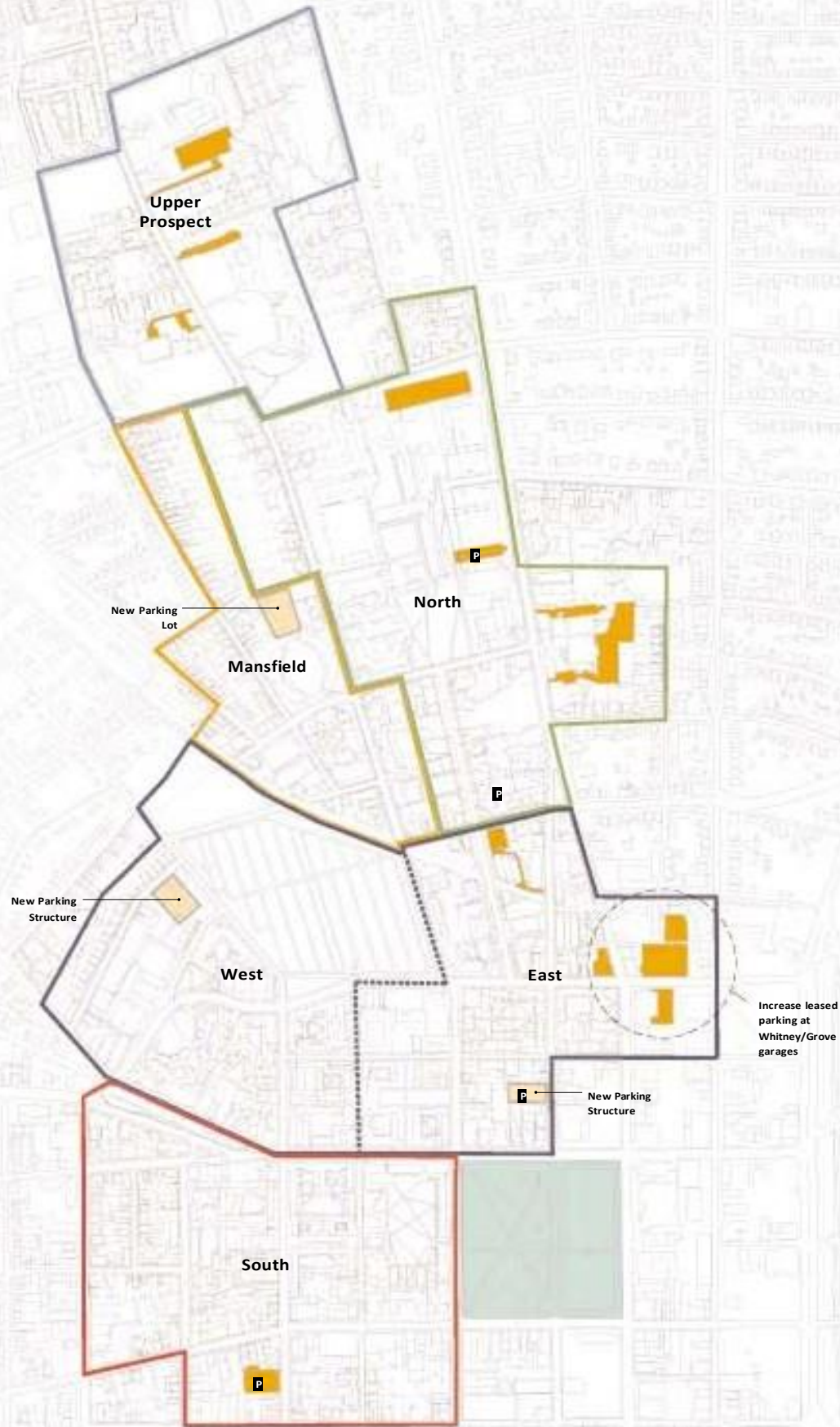
The Bicycle Framework suggests routes in and around the campus and other improvements that accomplish multiple goals. First, it connects the regional system from the Farmington Canal to the train station and to the New Haven waterfront. Second, it targets for bicycling streets such as Wall and Sachem with the least amount of automobile traffic. Third, it identifies two areas of concentrated bicycle usage: the Green and the Core area bounded by Chapel, York, Grove and Temple Street and the Green. Within this area, students will continue to use all streets and open space paths for biking. Subsequently, the University should make every effort to provide as much daily bicycle storage as possible. Fourth, it creates a direct connection between the north and south extremities of the campus, from the Divinity School to the Medical Center. Fifth, it gives bicyclists great flexibility either to ride through the campus or to visit significant Yale places or prominent New Haven landmarks. The proposed routing also should acknowledge the frequent trips intramural and varsity athletes make to Yale Fields. Yale also needs to re-establish and upgrade the Chapel Street route for bicycles and pedestrians, athletes and spectators, and the New Haven and Yale communities.

Circulation

Central Campus Parking Summary

Parking Lots	Spaces
Proposed Resources	3,055
Calculated Demand	2,340
Surplus to Accommodate Students, Visitors, and Increased Faculty	715

Note: Based on 5,200 current employees, 45% of all employees currently request parking in University facilities



7 Parking Framework: Central Campus

This drawing indicates the proposed locations for future Yale parking facilities.

Legend

- Parking to be constructed
- Existing parking or parking to be expanded
- P Visitor parking area

- 1 Lot 51 accessed from Temple Street at Core
- 2 Lot 32 on Prospect Street
- 3 The new Lanman Center displaced surface parking at the Payne Whitney Gymnasium.



Parking

We propose a comprehensive parking strategy for Central Campus that makes land available for the future development opportunities central to this Framework Plan, while also responding to the future parking demands these will create. Increasingly, parking considerations have significantly influenced the physical form and character of the American college campus. At Yale—where the campus is in a city and has a broad range of uses and destinations dispersed throughout—the issues of parking and development are inseparable. Because of this, Yale should concurrently pursue the Parking Framework and other aspects of the University’s physical development. The University should invest in parking as strategically as it does in buildings, ultimately defining locations that will meet short-term needs as well as long-term demand.

We have explored three models to develop an appropriate strategy for Yale—to meet numeric demand and reflect the culture of the institution as well. The first model reflects the system as it is now: small lots, located throughout the campus, created as vacant land becomes available, with users assigned in response to their requests within the priority system. The second model is the converse of Yale’s existing system, consolidating parking in one or two very large perimeter facilities with shuttle service to all parts of campus. The third model creates a few larger parking facilities sized appropriately for demand and located within convenient walking distance of the many activity and work destinations throughout the campus.

The first model is already failing the University in significant ways. It has created the existing surplus of spaces disproportionately concentrated in the north part of campus, where demand is the lowest and parking least desirable. It has also necessitated Yale’s recent purchase and lease of garage facilities so the University can redevelop surface parking lots. There is simply not enough land available to accommodate future development and maintain a parking system that relies on the random placement of surface lots. As future development continues to convert these parking lots to new buildings or landscaped open space, the University cannot sustain its opportunistic method of selecting and locating parking lots. This model cannot serve the long-term requirements of the University and therefore cannot be the strategy we recommend in the Parking Framework Plan for the campus.

The second model, the creation of one or two large facilities with shuttles to transfer drivers to their final destination, is also not a feasible strategy for the Central Campus. The consolidation of parking in perimeter facilities has become increasingly popular at many universities, but primarily those with clearly centralized campuses or ones not in urban locations. It is not a model well-suited to the linear structure of Yale’s campus, nor one that reinforces Yale as a pedestrian environment or meets the diverse needs of those currently parking in locations throughout campus. It is a model that conflicts with the culture of the institution. Acquiring land on the perimeter of the campus to implement such a system would undermine the uses in adjacent neighborhoods and their connections to the campus. The transition from the existing parking system to this model would also be difficult. Fundamentally, the second model is inappropriate for Yale, inconsistent with the Principles of the Framework Plan and antithetical to the concept of a mixed-use University integrated with the City.

It is clear, then, that an appropriate strategy for Yale must meet actual parking demand, while also responding to the structure of the campus and its framework for the future. It must consoli-



- 1 Yale leases parking spaces in the Whitney/Grove garage.
- 2 Yale owned Chapel/York garage at the Core



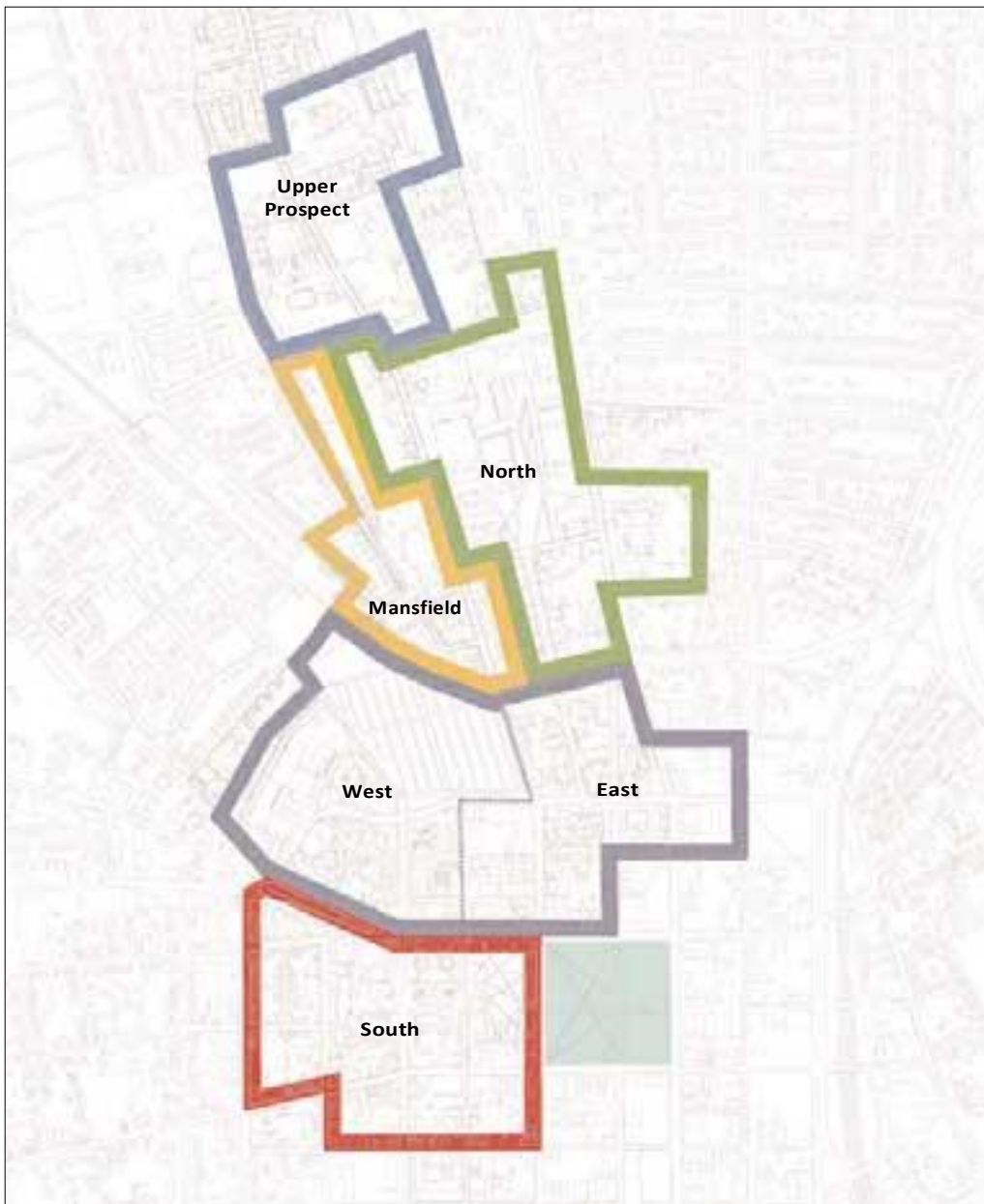
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date parking spaces, while still locating parking facilities close to work areas. The third model—that of distributing a few, larger parking areas throughout the campus in locations determined by demand—would most effectively meet the long-term needs of the University. The density of the buildings on campus, and the high land value of opportunity sites mean that these parking areas should be as compact as possible. Therefore, to meet existing and future parking needs, Yale should invest in a limited number of strategically located parking structures. A long-term strategy cannot rely on surface lots alone. These structures would consolidate existing spaces and provide parking within the most congested parts of campus—areas such as the Core which are most desirable for both parking and building. Prime opportunity sites can then remain available for new buildings or landscaped open space. While initial construction costs would be higher, these factors justify the investment in structured parking—essential to this parking strategy. The phased implementation of this model would, in fact, continue recent University initiatives exemplified by the purchase of the Chapel/York garage and the leasing of space in garages in the Whitney Avenue/Grove Street area.

This strategy leads us to identify six Central Campus parking service zones: Upper Prospect, North, East, West, Mansfield and South. These zones are all areas with identified demand—and available locations—for parking. We propose building facilities that respond to measured demand and anticipated growth within



1 Diagram of Parking Service Zones

The campus is divided into six zones that locate adequate parking supply within reasonable walking distance of parking demand.

Existing Assignments			
Sector	Assigned Parking	Student Vehicles	Employee Parking
Upper Prospect	112	90	22
North	1,050	248	802
West	177		177
Mansfield	448	62	386
East	484		483
South	637	189	448
Total	2,795	499	2,296

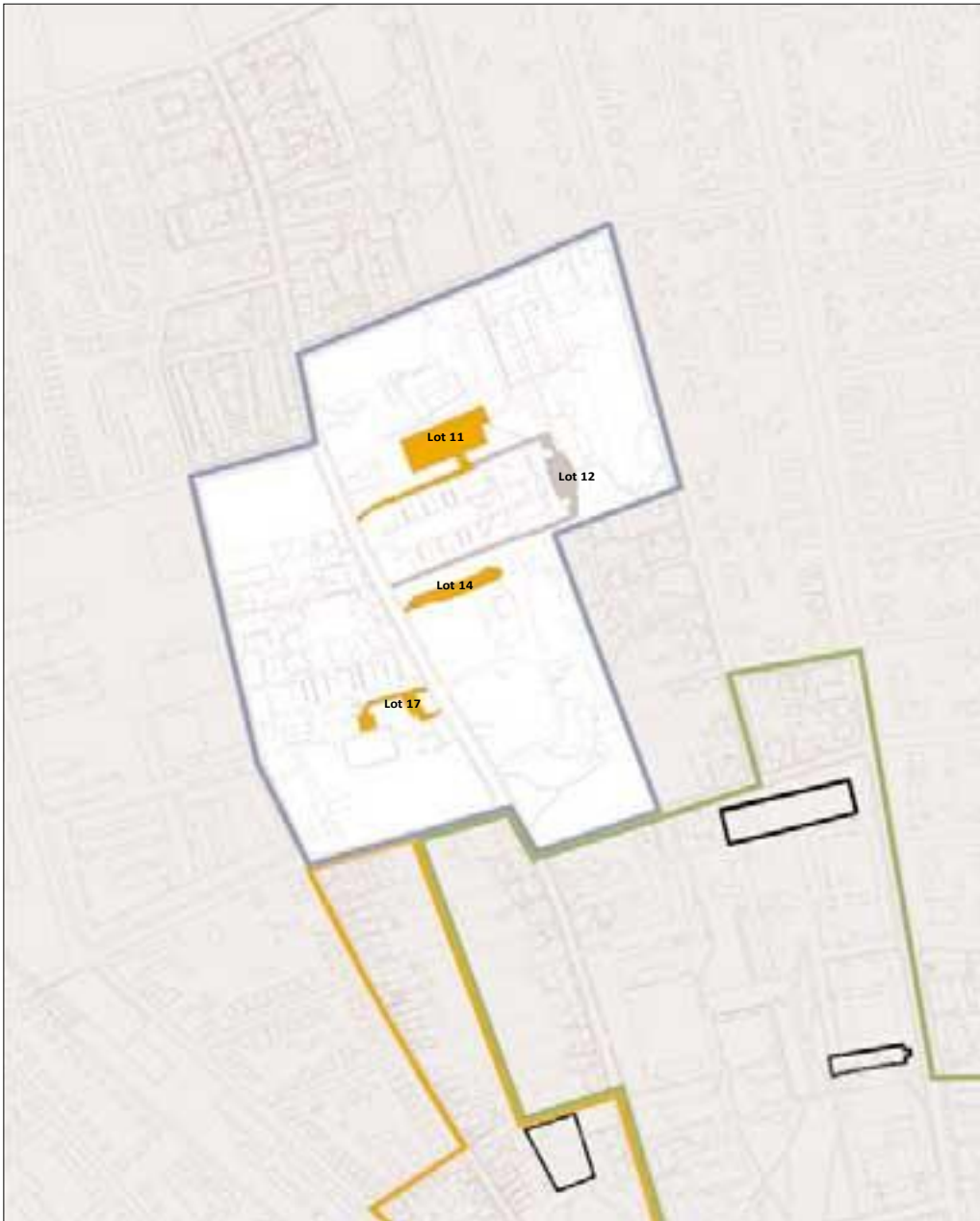
**Existing Employee Locations:
Central Campus**

Note: These zones do not address the parking demands of an expanded Broadway retail area.

Parking Service Zone	Employees
Upper Prospect	125
North	1,500
West	1,500
Mansfield	275
East	1,650
South	800
Total	5,200

that zone. In other words, locating parking within a five- to six-minute walk of current and future work areas. The University could then use current unnecessary lots for open space or building development. Under the new system, Yale should base parking assignments on work location, placing employees in lots close to their workplace. The University would continue to locate students in areas with surplus spaces, although this system would more evenly disperse these otherwise unassigned spaces throughout the campus. We also recommend reserving space in prominent locations for visitor parking. This strategy is consistent with the 1990 parking agreement between the University and the City.

Together, the strategies articulated for each of these service zones create a comprehensive framework for parking within the Central Campus. We have explored other options that meet parking demand while maintaining sites for development. This Framework, though, outlines a system that best anticipates the future needs of the University. The University should therefore not use identified parking sites for other forms of development without ensuring that alternative solutions are available to satisfy demand in the parking service zones they serve.



7 Upper Prospect Parking Service Zone

- Legend*
- Parking retained or to be built
 - Parking lots vacated and available for other purposes
 - Black outline indicates parking retained or to be constructed outside Upper Prospect Zone

Parking Service Zone Summary: Upper Prospect

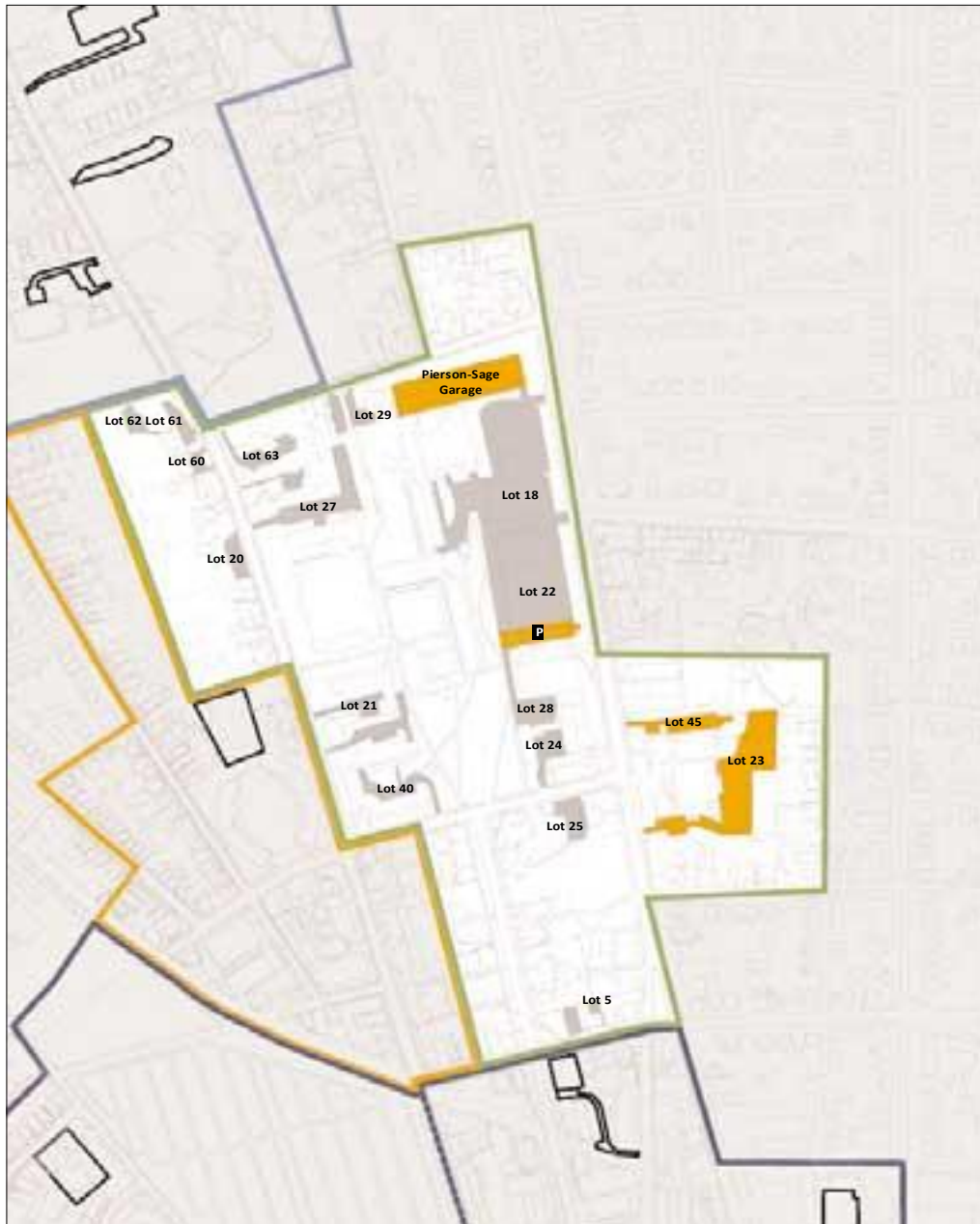
Number of Employees	125
Calculated Parking Demand	57

Parking Retained	Employees
Retain Lot 11	129
Retain Lot 14	45
Retain Lot 17	25

<i>Total</i>	209
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Note: 45% of all employees currently request parking in University facilities.

The Upper Prospect zone now has 125 Yale employees and ample parking to meet their demand. In fact, only 22 employees requested space in this zone in 1998, although many more currently park on the street. Yale met their requests as well as the 90 from students (mostly at the Divinity School). Because of its remote location and limited number of destinations, the zone does not have to be part of the overall campus parking strategy. It should continue as a self-sufficient parking enclave.



7 North Parking Service Zone

The largest parking resource in this zone is the Pierson-Sage garage—the only Yale-built parking structure. It is currently underutilized.

- Legend*
- Parking retained or to be built
 - Parking lots vacated and available for other purposes
 - Black outline indicates parking retained or to be constructed outside North zone
 - P Visitor parking area, to remain

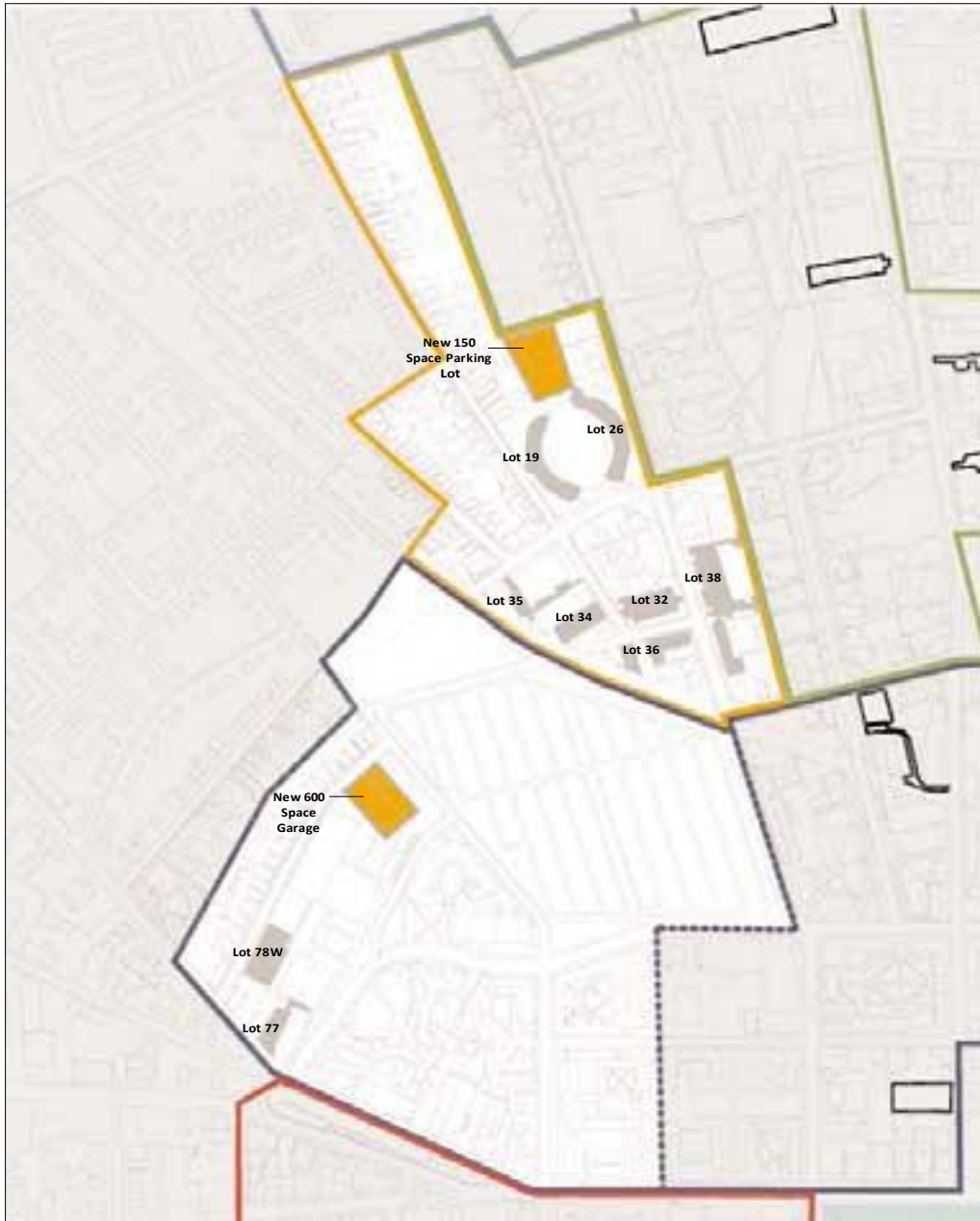
Parking Service Zone Summary: North

Number of Employees	1,500
Calculated Parking Demand	700

Parking Retained	Spaces
Retain Pierson-Sage Garage	631
Retain Lot 23	170
Retain Lot 45	25
Visitor Parking Lot	42
Total	868

Note: 45% of all employees currently request parking in University facilities.

The North Zone currently has 1,500 faculty and staff, only about half of whom have requested parking there. Standing alone, the Pierson-Sage garage is large enough to accommodate nearly all of the parking requests for this part of campus. The garage, however, does require renovation and new pedestrian access along its south face to make it a desirable parking location. The University could also expand the structure to the west. If Yale continues to use the parking lots in the vicinity of 155 and 175 Whitney Avenue, this zone will maintain an excess of parking, even if employment grows significantly or Yale increases student parking assignments. This will let the University replace the existing surface parking lots along Whitney with new building and open space opportunities—a conversion that would greatly improve the physical environment of Science Hill and create active frontages along Whitney Avenue.



7 West and Mansfield Parking Service Zone:

The West has one of the two new parking structures proposed for the campus and Mansfield has a new surface lot.

Legend

- Parking retained or to be built
- Parking lots vacated and available for other purposes
- Black outline indicates parking retained or to be constructed outside Mansfield and West zone

**Parking Service Zone Summary:
West and Mansfield**

Number of Employees	1,125
Calculated Parking Demand	500

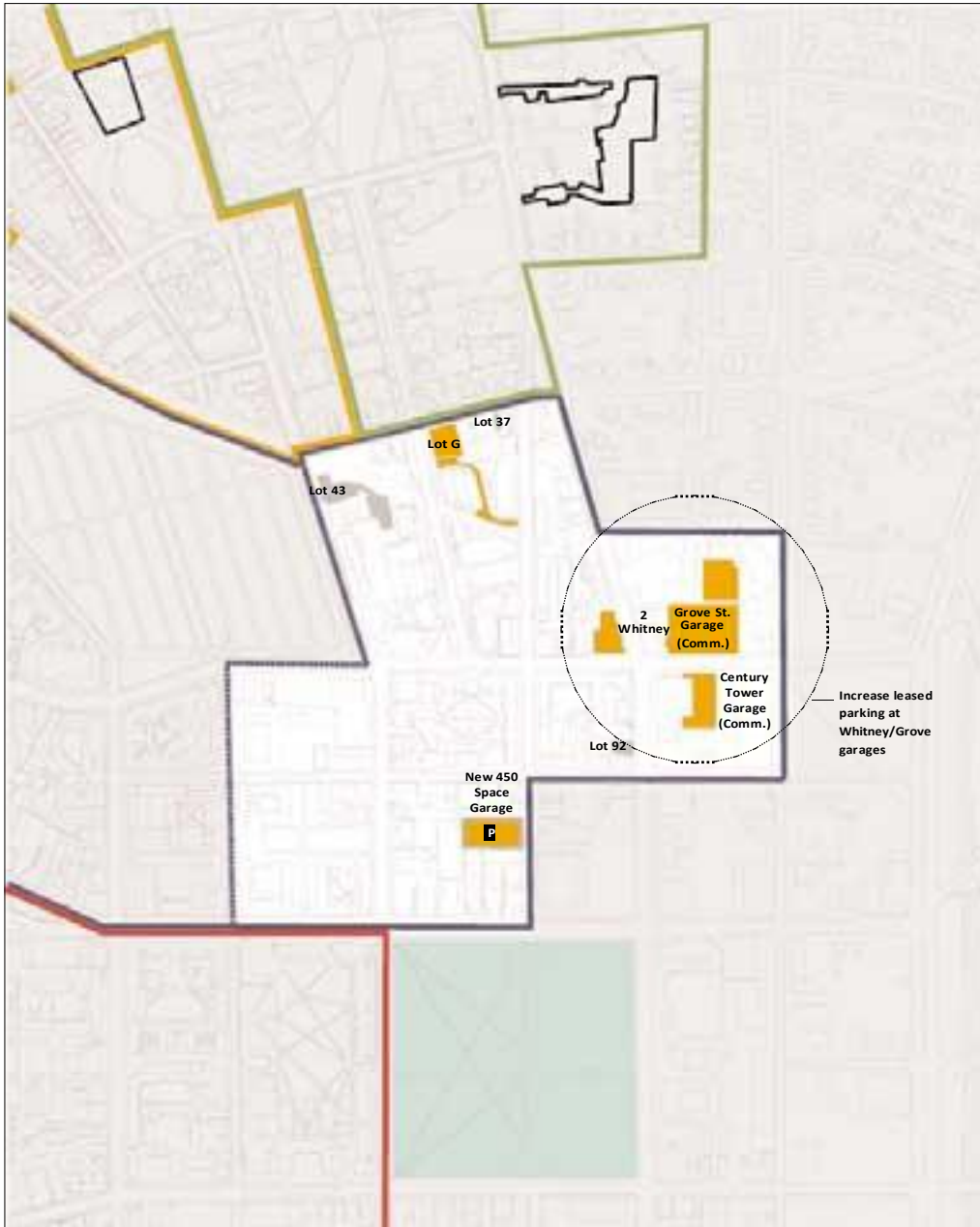
Parking Retained	Spaces
Construct Garage on Existing Lot 78 (Along Ashmun Street)	600

Construct New Parking Lot Adjacent to Ingalls Rink	150
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Total	750
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Note: 45% of all employees currently request parking in University facilities.

Adequately serving the West and Mansfield Zones is contingent on creating connections, both vehicular and pedestrian, across the Farmington Canal. The proposed extension of Lock Street to Mansfield Street should establish a more direct connection between these areas and provide the access needed to accommodate the parking requirements of over 1,000 faculty and staff. As in other zones, about half of them request parking spaces. We have identified two sites for parking facilities to meet this demand: the existing Lot 78 north of the Gym—on which we propose the University build a parking structure—and a site north of Ingalls Rink for a new surface lot. In addition to serving employee demand, parking in these locations would significantly serve those driving to events at Ingalls Rink. The proposed new structure on Lot 78 north of the Gym would partially satisfy the University’s commitment under the 1990 Yale-City Agreement to provide evening parking resources for the Broadway retail area. It should hold an adequate surplus of spaces for some student assignments.



7 East Parking Service Zone

This zone has one of the two new parking structures proposed for the campus. It is in the most critical location for meeting faculty, staff, and visitor parking demands.

Legend

- Parking retained or to be built
- Parking lots vacated and available for other purposes
- Black outline indicates parking retained or to be constructed outside East zone
- P Visitor parking area

Parking Service Zone Summary: East

Number of Employees	1,650
Calculated Parking Demand	750
<hr/>	
<i>Parking Retained</i>	<i>Spaces</i>
Purchase/Lease Additional Spaces in Whitney/Grove Area Garages	300
Construct Garage on 451 College Street Block (4 levels)	450
Retain Lot G	28
Total	778

Note: 45% of all employees currently request parking in University facilities.

The East Zone is densely developed and intertwined with Downtown New Haven. Approximately 1,650 faculty and staff work in this zone. Again, only about half have asked for parking spaces there. In addition to the Yale Parking System lots in that area, the University currently leases 199 parking spaces in three private garages. Our parking strategy for this zone is twofold: first, the University should lease, over time, additional parking spaces in the Whitney Avenue/Grove Street area and second, include a significant parking component in the redevelopment of the 451 College Street block. This site, with its access from Temple Street, is perhaps the most significant space for added parking on campus. It is the only location available within the Core for a major parking facility, which is critically needed to meet the demands of faculty and staff within this part of campus and to accommodate visitors to the University. Its prominent location also makes it an important site for future buildings. That being so, the University should explore parking options that take advantage of site topography by putting most spaces underground, leaving opportunities for new building development above. During evenings and weekends, each of the proposed facilities within this zone would be an attractive solution to the parking needs of those attending public performances at Woolsey and Sprague Halls and at Battell Chapel.



7 South Parking Service Zone

This zone has the Chapel/York garage, an existing parking structure Yale purchased.

Legend

Parking retained or to be built

Parking lots vacated and available for other purposes

Black outline indicates parking retained or to be constructed outside South zone

P Visitor parking area

Parking Service Zone Summary: South

Number of Employees	800
Calculated Parking Demand	350

<u>Parking Retained</u>	<u>Spaces</u>
Increase Utilization of Chapel/York Garage	450
Total	450

Note: Demand based on a rate of 45% of all employees currently requesting parking in University facilities.

In the South Zone, either the existing Chapel/York garage alone or a combination of the garage and a reconfigured Lot 80 should satisfy existing and future faculty and staff parking demand with some spaces remaining for students. The Chapel/York garage and the Yale-owned Center for British Art parking lot provide convenient parking for that facility, the Yale University Art Gallery, the Yale Repertory Theatre and the University Theater—and also meet commitments under the 1990 Yale-City Agreement.

The Framework Plan identifies 36 sites for future buildings and 35 for landscaped open space. Many of these opportunity sites are currently used for parking. By initiating this parking strategy now, however, Yale can identify and reserve sites that are essential for future parking facilities. This will allow the University to select building sites and develop them without the delays, questions and uncertainty that currently accompany the potential closing of an existing lot.

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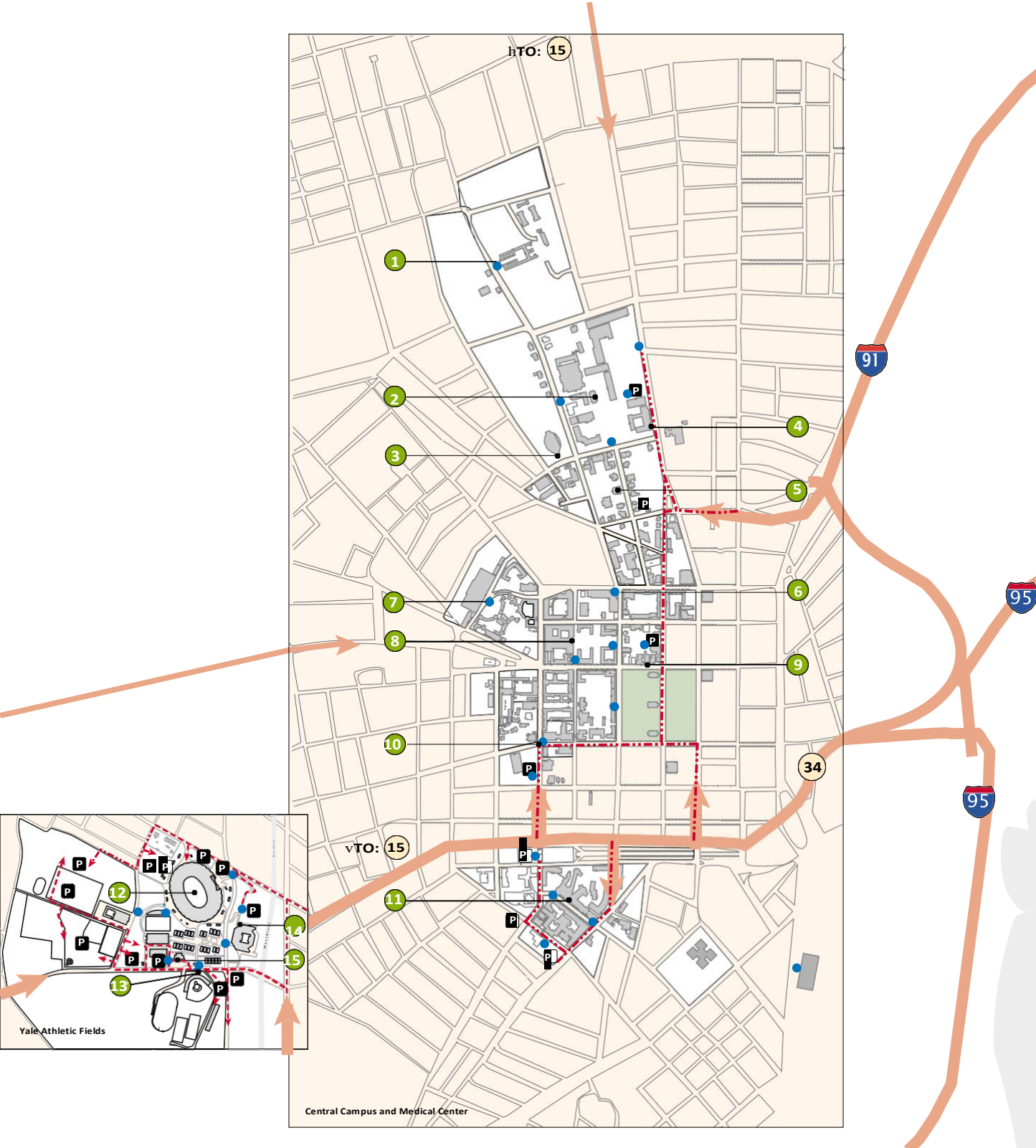
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- 1 The arts area is a popular visitor destination.
- 2 Yale Visitor Information Center

Visitor Parking

The structure of Yale's campus and the dispersed location of visitor destinations make it unwise to create a single, central visitor parking facility. Rather, the Yale Parking System should dedicate spaces to daily visitor use throughout its facilities. Two principal locations, supplemented by street parking and existing public facilities, would effectively accommodate visitors to the Central Campus: first, the Temple Street parking structure proposed for 451 College Street block would service the Visitor Information Center and Yale's historic Core; and second, the Chapel/York garage would service the museums and performance spaces, as well as other destinations in Central Campus. In addition, those visiting the Peabody Museum can continue to use spaces there and those headed for the Undergraduate Admissions office can park in the proposed new lot on Trumbull Street, near Hillhouse Avenue. If required in the future, the University could reserve some spaces in Lot 38 along Prospect Street for visitors, although we recommend that Yale consider converting most of that existing parking to landscaped areas.



Key Visitor Destinations

- 1 Yale Divinity School
- 2 Science Hill
- 3 Ingalls Rink
- 4 Peabody Museum
- 5 Undergraduate Admissions
- 6 Woolsey Hall
- 7 Payne Whitney Gymnasium
- 8 Sterling Memorial Library
- 9 Visitor Center
- 10 Theaters and Art Museums
- 11 Medical Center
- 12 Yale Bowl
- 13 Yale Field
- 14 Connecticut Tennis Center
- 15 Smilow Field Center

7 Signage Framework:

A complete signage system for the University would address both the pedestrian and vehicular wayfinding experience. This framework indicates the major highway routes and arrival points to the University, along with key destinations and visitor parking facilities, which would form the framework of a comprehensive wayfinding strategy.

Legend

- Major highway routes and exits
- Visitor Parking
- Vehicular routes to visitor parking
- Orientation map locations
- Visitor destinations and landmarks

Signage: Introduction

We recommend that Yale carefully plan and install a tastefully designed system of signs to make it easier for visitors—as well as members of the University and New Haven communities—to find their way around Yale and to improve their impression of the University. The images shown throughout this section diagram the kinds of sign information that would be in a complete system.

Wayfinding System

Our proposed wayfinding strategy for the University includes improvements in vehicular and pedestrian directional signs. Highway signs, street signs, orientation maps and pedestrian directionals should all be part of a comprehensive wayfinding plan. Designers should apply specific principles to each sign type.

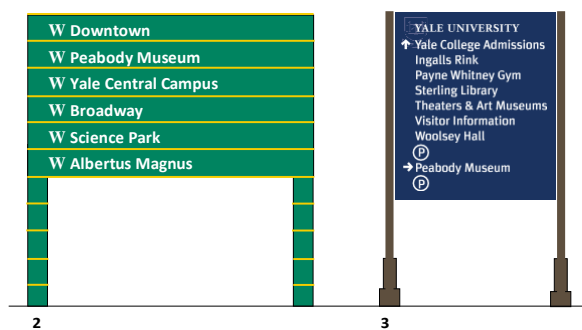
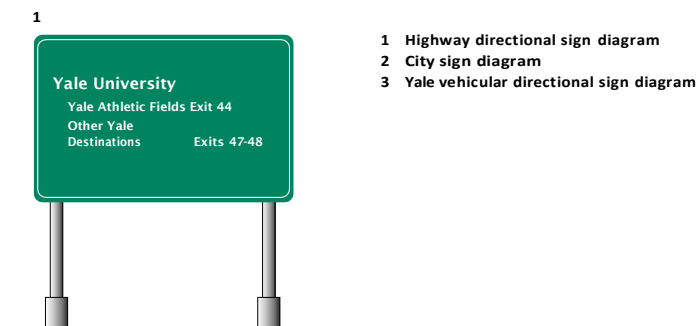
Highway Strategies

Highway authorities should designate specific exits for Yale to help people find their way to the campus. These exit signs should guide people to each of the three campuses that comprise the University: the Central Campus, the Medical Center and Yale Athletic Fields. There should be an exit for the Central Campus off I-95 leading to Route 34 and its Church Street and York Street exit ramps. There should be another exit for the Central Campus off I-91 onto the Trumbull Street exit ramp. State highway authorities should provide better signage for the existing exit 57 off the Wilbur Cross Parkway and the existing exit for the Yale Medical Center off Route 34. Once authorities properly mark these key exits and routes, all written directions to the various destinations at the University should refer to them consistently, with the Trumbull Street exit of I-91 continuing as the official route for visitors to the University. There should be one primary exit for Yale Athletic Fields off I-95 onto Route 10, Ella T. Grasso Boulevard.

Vehicular Directional Strategies

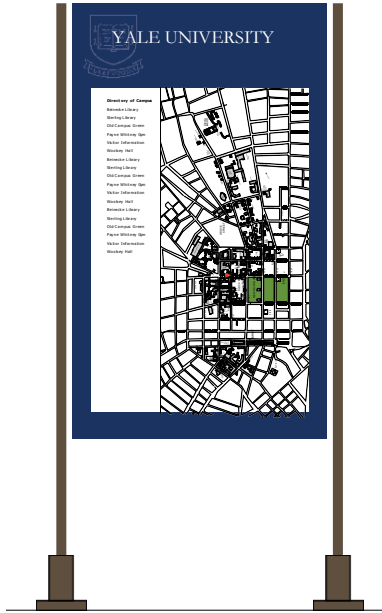
Exiting a highway in a new place, one may experience a positive “sense of arrival”—feeling welcome, safe and guided. Yale should work with the City to develop or enhance city entries so they give visitors this sense.

Yale should also work with the appropriate New Haven agencies to make the city directional signs consistent in language and direction with the route designations in the Framework Plan. In addition to the city directionals, the University should develop a limited list of key visitor destinations to use on a Yale directional sign system. The system should have signs directing the way to specific destinations in the three areas of the University (the Central Campus, the Medical Center and Yale Athletic Fields). We recommend identifying these Central Campus destinations: Yale College Admissions, Ingalls Rink, Payne Whitney Gym, Sterling Memorial Library, theaters and art museums, Visitor Information, Woolsey Hall, and the Peabody Museum. These signs should include directions to visitor parking. Visitor lots should be identified. The Medical School has already installed a successful signage system. Yale Athletic Fields should have signs clearly directing people to parking for the three primary venues: Yale Field, Yale Bowl and the Connecticut Tennis Center.



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- 1 Central Campus orientation sign diagram
- 2 Shuttle identification sign diagram
- 3 Residential College identification sign diagram
- 4 Professional School identification sign diagram

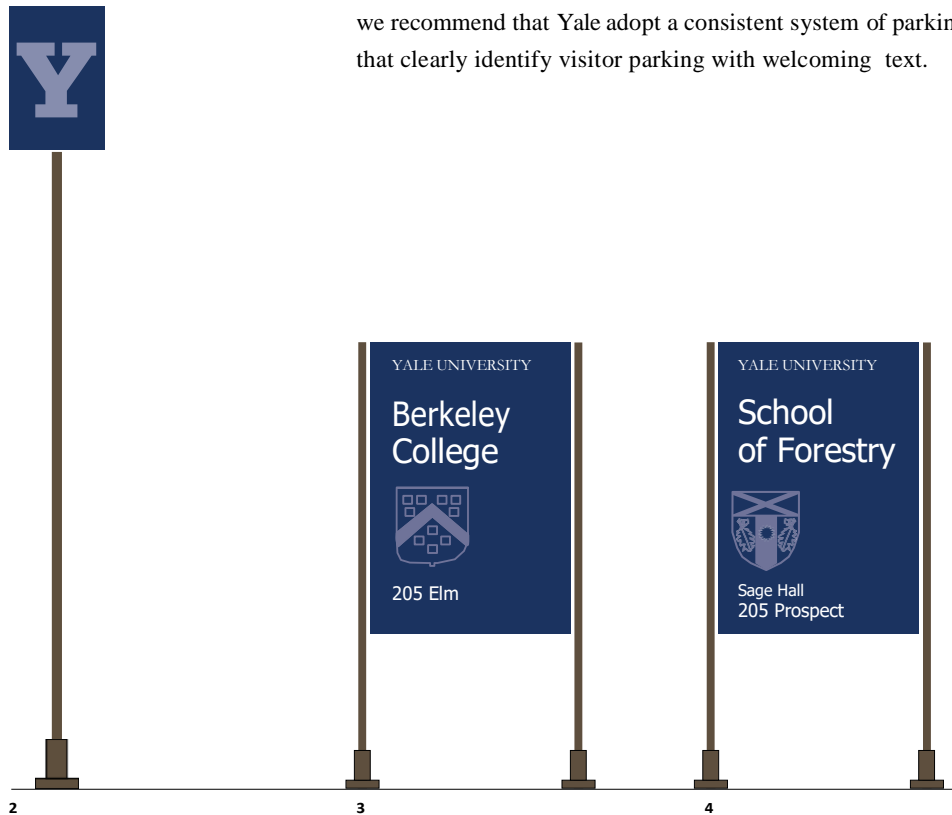


Pedestrian Directional Strategies

We also recommend that the University create a system of pedestrian signs and orientation maps, with “You Are Here” orientation maps as its foundation. Yale should place these map kiosks at key “decision points” on campus and in visitor parking lots. The University should make electronic maps available at popular destinations such as the Visitor Center, Yale College Admissions Office, museums and libraries. Placing pedestrian directional signs (not illustrated) next to orientation maps should help direct visitors to these destinations and landmarks.

Identification

We recommend that Yale identify buildings and other destinations across campus with regularity and consistency to help people locate their final destinations more easily. A sign system with repeated and consistent design elements and standard information would help people familiarize themselves with the campus. The system should identify all buildings with a specified set of information such as building name, school/college logo, address and accessibility information. The Yale sign system should include crests and other special identification for residential college buildings and the professional schools. Yale should also create a mini-system of signs to identify cultural venues for the Peabody Museum, Yale University Art Gallery, Yale Center for British Art, Yale Repertory Theatre, University Theater, Woolsey Hall, Sprague Hall and Battell Chapel. The University-wide signage system should have universal traits but also reflect the individuality of the specific sites. Yale should also develop a sub-system of identification signs for the athletic venues such as Payne Whitney Gym, Ingalls Rink, Yale Bowl, Yale Field and other Yale athletic fields. Lastly, we recommend that Yale adopt a consistent system of parking identification signs (not illustrated) that clearly identify visitor parking with welcoming text.



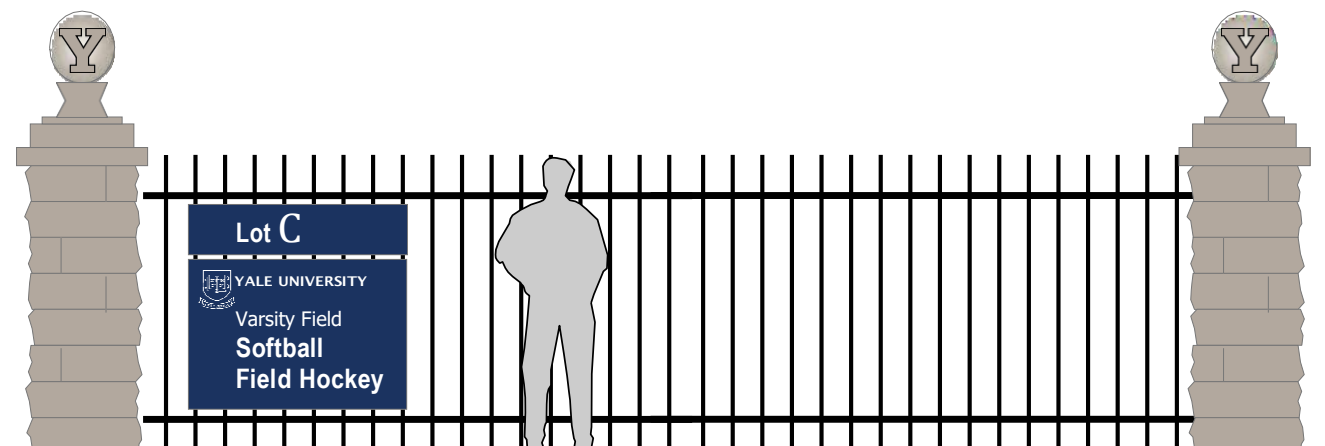
1 Athletic venue identification sign diagram

Regulatory Signs

The most frequently used sign on campus is the “No Trespassing” sign. Often this sign is the only indication that a building is owned by Yale. The University should thoroughly reassess the language and placement of all regulatory signs. The language should be kinder and the location more carefully chosen than they are now.

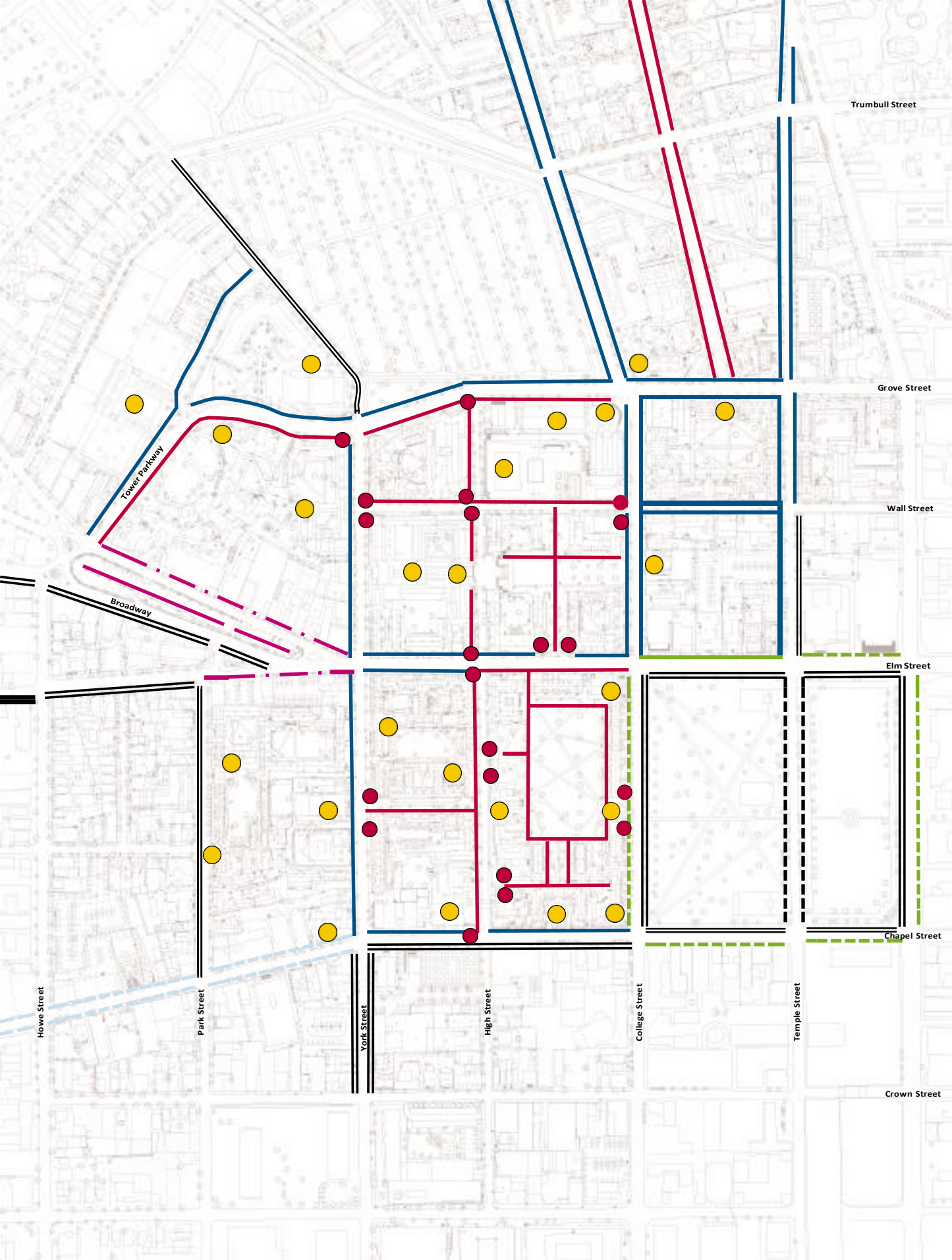
Implementation Systems

To ensure that the University creates a well planned and designed signage system, it should put in place administrative procedures for all steps of the process. Yale should designate a production administrator in the Office of Facilities to oversee design, funding, fabrication, implementation and required approvals for signs. It should also appoint a design director in the Office of the University Printer to approve designs of all exterior signs before fabrication. The Office of Accessibility should review all entrance identification signs. After the system design has been developed and approved, the University should publish a design manual to use for future design, fabrication, installation and maintenance of signs. Construction projects should specifically include funding for signage.



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Signage



7 Lighting Framework:

The principal elements of a "Bridge" Lighting system for the campus would light important destinations and prominent focal points as beacons. Street and path lighting would then serve as a bridge between these destinations with lighting levels balanced to improve vision of the campus at night.

Legend

- Illumination of building elements as beacons
- Illumination of entries and gates
- Pedestrian Posts Lanterns
- Roadway Lighting
- Replace existing with short arms to increase vistas (First phase: existing cobra heads to be shielded)
- Standard City cobra head and high mast arms
- New Haven Green
- Single "Bishop Crook" poles
- Post lanterns around perimeter
- Chapel Street West
- Pedestrian "Acorn" post lanterns with alternating high mast arms for banners
- Broadway Retail Area
- Recent installation of "Period" post lanterns and cobra head arms
- "Period" City cobra heads and high mast arms

Lighting

The lighting on Yale’s campus and buildings today resulted from a disorganized agglomeration of individual decisions made over many decades. An integrated lighting system should provide safety and promote an attractive, inviting and positive image for the University. More specifically, it should:

- Facilitate navigation, making the organization of campus pathways, axes and destinations more apparent to support wayfinding;
- Increase the sense of security by ensuring visibility—but through a combination of lighting strategies, not necessarily by increasing overall lighting levels;
- Improve aesthetics, making the campus as attractive at night as it is during the day—creating a pedestrian-friendly (glare-free) environment, with elegant outdoor rooms subtly lit to reveal buildings and landscape.

Proposed System: “Bridge” Lighting

One should understand University lighting as part of the more extensive lighting system of the City of New Haven. The lighting system we propose for Yale is not simply a layout of objects such as post-top lanterns and street lights. Rather, it highlights campus features and points of destination easily recognizable during the day: the buildings and their towers. With proper lighting, they become beacons, marking the beginning of travel and ends of vistas. The illumination between the destinations serves as bridge lighting and should mark prominent points of entry, focal landscaping and pathways. The priorities of such a system would be to illuminate:

- pedestrian pathways
- entries to buildings
- key building elements and towers
- landscaping



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- 1 Sterling-Sheffield-Strathcona Tower
- 2 Hall of Graduate Studies Tower
- 3 Wrexham Tower
- 4 Harkness Tower
- 5 Gateway lantern
- 6 Doorway lantern
- 7 Gateway lighting
- 8 Corner-mounted lighting



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- 1 Lighting may be incorporated in moats
- 2 The lighting of Old Campus could be improved to better complement the architecture and recent landscape improvements.



To carry these out, Yale should undertake certain strategies on a campus-wide basis. It should retrofit or replace all post-top luminaries and remove or replace all wall-pack fixtures with appropriately located post-top lanterns or building-mounted fixtures. The University should illuminate entries to all buildings with HID lighting fixtures with metal halide lamps and ballasts or incandescent lamps. It should remove any other existing lighting.

The lighting system has a strong visual impact both day and night. The fixture is the complete assembly of light source, luminaire, pole (if required) and base. By daylight, people see fixtures as objects in a larger visual environment. When several objects share similar visible features, people see them as a group. As a group, they take on a single visual identity and thus make the environment seem less cluttered. The group is more likely to seem part of the larger visual context than would a single object. Lighting design that considers both the night and daytime views can provide a space with scale, rhythm, definition and focus 24 hours a day. Even if the University uses similar fixtures in separate parts of the campus with no direct visual connection, visually the fixtures help create a perceived continuity between them. To increase the cohesion of lighting on the Yale campus, we suggest limiting the number of fixture types and harmonizing the types with other street furniture.

Solution for Visibility, Security and Maintenance

Because of the physical nature of visual perception, the exterior lighting design should primarily address luminance (the apparent brightness of surfaces or objects) rather than illuminance (the amount of light hitting a surface or object). The design should adjust brightness, as far as practical, toward the “night vision” (mesopic) luminance range. Keeping lighting within the mesopic vision range maximizes people’s ability to see at night, both in terms of contrast and color differentiation, and hence improves safety and visual comfort. Lighting levels in the nighttime range reduce eye adaptation problems; one must be able to sense those parts of the environment that are not directly

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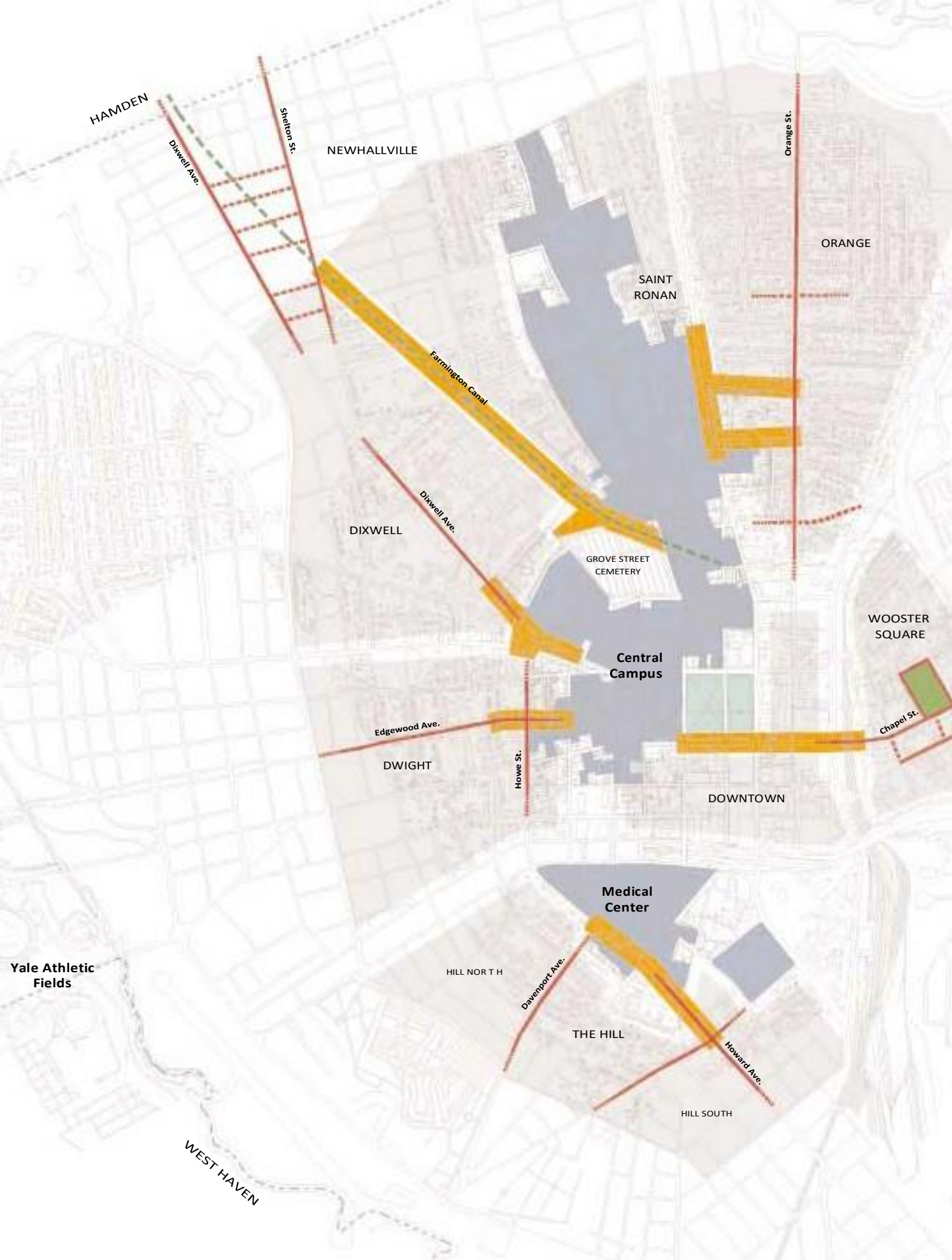


1 Old Campus walkway lighting

illuminated, and one must be able to adapt with reasonable efficiency when going outside from a relatively bright indoor environment. In addition, the primary fixture must carefully control brightness and glare and optimize visual discrimination of moving objects and the entire environment at different times of the day. The lighting design must aim to produce above-average visibility for safety and viewing comfort—with the lowest maintenance and use of energy compatible with those goals. The relatively low lighting levels required to maximize nighttime vision allow the University to conserve energy and minimize maintenance and fixture quantities.

Energy conservation should be a vital factor in the University's selection of a lighting system. However, it would be a mistake to minimize energy use without conscious regard for other design criteria. Any good lighting system must use energy wisely. If the system does not achieve the sought levels of safety, visibility, comfort and attractiveness, then it wastes all the energy it saves. One of the most obvious—but least considered—ways to conserve energy is simply not to light surfaces that do not need to be lit. Fixtures that properly control light output and direct it as desired are essential. Lighting must judiciously compose the nighttime visual environment to provide maximum impact in terms of relative brightness ratios and overall color. One must repeatedly ask the questions: What do we wish to see? How much do we need to see? As a general principle, light on campus should be delivered in a simple fashion. Toward this end, decorative lighting should be functional, and functional lighting should be attractive. When one fixture can replace two, conservation thrives.

Signage



7 Neighborhood Framework:

Areas are identified where the focused attention of Yale and/or the City would create enhanced connections and improved relationships between neighborhoods, their physical or perceived centers and the campus.

Legend

- Streets forming the central spine of neighborhood centers
- Enhanced connections
- Farmington Canal

1 Aerial view of Central Campus

Yale could employ many different strategies in virtually every planning precinct, to make its campus compatible with bordering neighborhoods and connect their centers.



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Neighborhood Interface

We have encountered two dominant, if contradictory, perceptions regarding the physical character of the Yale campus. Under one view, Yale is the most urban, open and accessible of all the Ivy League schools. Because a network of public streets traverses the University, the Yale community optimally shares the campus realm with all citizens of New Haven. The second view holds that Yale is a fortress—a place of walls, fences and moats that screen out, rather than welcome, visitors. Under this view, Yale is a secret place, with hidden courtyards and secret societies. Perhaps each of these perceptions paint an accurate picture, to a degree.

A premise of the Framework Plan is that Yale should strive to mesh the borders and edges of the University campus with its surrounding neighborhoods by reducing those barriers, whether physical or psychological, that prevent the blending of Yale and New Haven. Many of Yale's planning and facilities decisions have significantly affected the neighborhoods of New Haven that adjoin the campus, and even outlying neighborhoods. As a general principle, when considering neighborhood planning issues, one should begin with the physical structure and concerns that are central to each neighborhood. Too often, the neighborhoods are not seen or planned from an understanding of their own rich and complex history and physical fabric.

1 The historic architecture of the Core,
seen from within a college courtyard,
a private Yale open space



**1 Streetwall at Timothy Dwight College
separating the public from the private
realm of the University**



The Framework Plan's strategies in this area divide into those involving real estate, public improvements and design. Among the first kind is the leasing of space by Yale in Downtown. In the Whitney-Grove area, Yale already leases administrative office space and garage spaces. In the Crown-George area, the Medical Center has leased both clinical and administrative office space. These real estate actions encourage substantial pedestrian traffic and commerce between the University and local retail shops. In the future, it would further benefit both Yale and the City to emphasize the Downtown as a residential neighborhood.

Another real estate strategy we propose is for Yale to plan and/or develop projects jointly with the City in areas of acknowledged mutual interest. The Chapel Street arts and entertainment district, the Broadway retail district and the concentration of undergraduate and graduate off-campus housing in the Park-Howe-Dwight Street area all have important and immediate impacts on neighborhoods adjacent to the campus. Joint efforts in such areas could make connections between Yale and the surrounding neighborhoods safer and more attractive, while also supporting community development. One specific possibility might be to create a new cooperative Yale-City park (surrounded by Yale, City and community uses) on the site of the demolished American Linen Building on Ashmun Street, northwest of the Grove Street Cemetery. Such a park would also provide a convenient passage around the Cemetery, connecting the Broadway/Tower Parkway area with Prospect Street and Science Hill. Another site of mutual University/City interest is the Farmington Canal, the development of which will provide recreational opportunities for all Yale and New Haven residents.

The second approach involves working with the City as it plans improvements to the public infrastructure of New Haven, to ensure that the efforts enhance the image of the City while helping both Yale and the City by attracting attention, business, students and faculty. One project already initiated is the restoration of the New Haven Green, the City's iconic and principal civic space. Another area for cooperation would be in redoing the City's lighting, both of streets and principal buildings, so that the nighttime image of the City becomes dramatic, yet restrained. We have already suggested normalizing city streets by restoring the original two-way traffic on most of them. This would slow traffic, improve the pedestrian environment and provide more direct vehicular access to businesses and facilities in Downtown and on the Yale campus. Also, a new, welcoming signage system for Yale, if coordinated with the City's program, would help visitors find their way to prominent retail and cultural facilities.

The third approach involves the design of both buildings and open spaces. Healthy neighborhoods have strong centers and porous edges. That is to say, they have a combination of

institutional, economic and physical anchors that give the community identity and help build social capital, but they also have strong connections with their adjoining neighborhoods and the larger region. With respect to a large institutional neighbor, like Yale University, the design of its open and porous edges should be sensitive to the scale and architectural character of adjoining neighborhoods—especially when the edges are already somewhat frayed. The University should also be sensitive to the role that smaller, traditional buildings play in helping the larger-scale and more “inward-turning” aspects of the core Yale buildings blend with the adjacent neighborhoods. Since New Haven’s neighborhoods, at their best, are street-based and pedestrian-scale, Yale buildings which relate to and enhance the life of the street will—either directly or indirectly—help enhance the neighborhood character. Yale would serve itself and the surrounding neighborhoods by planning new buildings on these edges with street-oriented ground-floor uses, reorienting or reopening older buildings to the street and including adequate budgets for appropriate landscaping and streetscaping. The University has already set a good example in its design of the Payne Whitney Gymnasium addition on Lake Place, where it sank the addition a full story into the ground to keep the building’s height along the street the same as that of the houses across from it. Similarly, open space design can make an edge more supportive of the adjacent community by being “softer.” On Whitney Avenue, a 30-foot-wide park strip from Edwards Street to the Peabody Museum could present a more gracious street facade to the Orange Street neighborhood to the east. The University can even make the unattractive surface parking lots—which often disrupt the continuous street fabric—more benign by providing subdued lighting, proper fencing and attractive landscape treatment.

Whenever possible, Yale should consider its planning, facilities and investment decisions in light of their potential to benefit New Haven neighborhoods—to rebuild neighborhood fabric, to strengthen eroded or blocked connections and to contribute to local community development goals.

PLANNING CONSIDERATIONS

Accessibility
A Perspective on Historic
Preservation
Environmental Aspects
Direct Economic Impact
of Yale in New Haven
and Connecticut
Information Technology
Utilities

Introduction

Numerous ongoing activities within the University affect the future of Yale’s campus—accessibility, historic preservation, environment, economic impact, information technology and utilities. To address these activities, key members of the Yale community have written brief overviews describing some of the approaches and strategies that should govern these planning considerations.

by Martin Gehner,
*Chairman of the Advisory
 Committee on Resources
 for Students and Employees
 with Disabilities*

Accessibility

A diverse community such as Yale University only excels if each and every member of its community fully participates. Yale University must carefully consider campus accessibility for students and employees with disabilities to give everyone in the University community the opportunity for full participation in its mission of education, research and service.

A person who hears less may see more. One who sees less may perceive more. One who speaks slowly may have more to say. A person who moves with difficulty may have a clearer sense of direction.

—From a presentation by The National Organization on Disability, 1994

To plan responsibly for accessibility, we must clearly and specifically address the needs of the broad range of individuals who participate in the life of the University. Impaired hearing, sight and mobility exemplify common disabilities the University needs to consider in planning its physical environment to assure accessibility. However, persons planning renovations and designing new environments must understand, respect and sensitively consider the physical manifestations for a broad range of additional chronic and temporary conditions. A user's particular impairment shapes his or her choice of—and dependence on—safe paths, unconstrained doors, common entries into buildings, access to basic human functions and interactions with friends and colleagues at all levels. To consider itself accommodating, a university must achieve a high level of accessibility and security for all exterior and interior environments. When approached creatively, plans and designs can go beyond the basic legal requirements to achieve truly integrated solutions which provide access with the normal grace and dignity of every user.

Planning for accessibility carries the responsibility for the University to acknowledge the many and varied daily engagements which are as important to life at Yale as the search for rare and new knowledge. Individual enrichment depends on open participation and communication by everyone in the Yale community and therefore the planning process includes the challenges of accessibility as an integral requirement beyond the legal mandates.

The Provost's Office has established the Office for Equal Opportunity Programs, which provides and translates special needs into support services for students via the Resource Office on Disabilities and for staff via the Accommodations Program for Employees with Disabilities. In addition, the Provost annually appoints an Advisory Committee on Resources for Students and Employees with Disabilities to help improve the accessibility program by assessing, interpreting and recommending policies, processes and services for those with special needs. This responsibility includes the physical and functional aspects of accessibility.

The Accommodation Program for Employees with Disabilities and the Resource Office on Disabilities accept, translate and respond to personal requests from individuals with special needs. Extensive information, equipment and support services are available for individual clients with identified needs. Although all cases remain confidential, the accumulated experience has provided the University with general information and invaluable insights into the issues and criteria for planning accessible environments.

The Advisory Committee on Resources for Students and Employees with Disabilities investigates, deliberates and recommends policies, processes and resources to help the University improve

- 1 A ramp integrated into the architecture of the Hall of Graduate Studies
- 2 A well designed ramp at the Law School



the accessibility of campus facilities, campus-wide communication for special needs and campus-wide travel by the disabled. The Advisory Committee has developed, and the University has accepted, *Yale University: Supplementary Standards for Making Buildings Accessible to Persons Who Have Disabilities*—a document intended to help University planners, architects, engineers and others who design, construct or monitor facility construction. The Committee developed the Supplementary Standards after carefully considering testimony from students and employees with disabilities about their personal experiences regarding difficulties with access to University programs, services and activities.

The Advisory Committee annually reviews proposed building renovations and new building projects and recommends priorities for accessible projects to the Provost's Office. The Provost considers these recommendations in its annual budget review. The Committee's annual review also includes accessibility issues in long term projects currently being planned and developed. An Access Committee, a subcommittee of the Advisory Committee, plays an active role in reviewing all proposed projects on Central Campus and advises the architects and University project managers on accessibility issues. The Provost's Office oversees the whole process and provides vital insights for improving accessibility.

The Advisory Committee has developed *Recommended Standards for Maintenance of Accessible Facilities*, which the University is currently reviewing and implementing.

During the last ten years, Yale has made substantive capital investment to significantly improve accessibility to many campus buildings. This investment grows with the completion of every new accessible facility and renovation. Accessible building features are vital to persons who depend on using them on a daily basis.

Yale has developed and widely distributed an Access Map, covering the Central Campus, Medical School and Yale Athletic Fields. This map shows accessible campus paths, entrances, handicapped parking, curb cuts, bus routes, elevators, and accessible restrooms on campus. The University periodically updates the map and has included it on the Resource Office's Web page. This map should ultimately become an integral part of a campus map which the University updates regularly to include every new construction project and accessibility improvement on the campus.

The University should deploy accessibility signs, especially for main accessible entrances, as an integrated part of a campus-wide signage system.

The accessibility efforts mentioned above are ongoing. When required, the University has been coordinating its accessibility improvements with staff working on associated issues including security, transportation, snow removal and facilities.

Copies of the documents mentioned here are available through the Provost's Office or the Office for Equal Opportunity Programs.



1 Sign indicating an accessible entry

1

by Pamela Delphenich,
University Planner

A Perspective on Historic Preservation

Yale is a monument to human achievement. We preserve that achievement in our collection of books and manuscripts, works of art and architecture, objects and artifacts. We foster a capacity to appreciate that achievement by our teaching, and we augment it by our research.

—Richard Levin, President, Yale University, Inaugural Address, 1993

Yale University, which will be celebrating its Tercentennial in 2001, is extremely fortunate to occupy one of the oldest and most architecturally distinguished campuses in the United States. Some of its buildings are recognized internationally for their design excellence; many are of extraordinary historic and institutional value to the University as well as to the City of New Haven. The American Collegiate Gothic style of Yale’s residential colleges as created by James Gamble Rogers has not only given the University a unique identity among Ivy League Schools, but it also strongly reinforces the image of Yale cherished by alumni and others who give so generously to perpetuate the University’s excellence. Many of these alumni come from families which have attended Yale for generations and are devoted to the ideal of preserving into the future those qualities that embody the Yale traditions. These buildings—along with such other Collegiate Gothic buildings as the Sterling Memorial Library, Payne Whitney Gymnasium, Sterling Law Building and the Hall of Graduate Studies—house significant components of Yale’s academic mission. Admiration of them has become the basis of Yale’s respect for the past. Yale’s commitment to the renovation of these buildings reflects its commitment to historic preservation as well.

The buildings at Yale vary greatly in type, size and architectural styles—and in the new ideas they represented when built. This mix and juxtaposition of buildings of contrasting styles and age create a dynamic quality for the Yale campus and adds an element of surprise and counterpoint to the traditional.

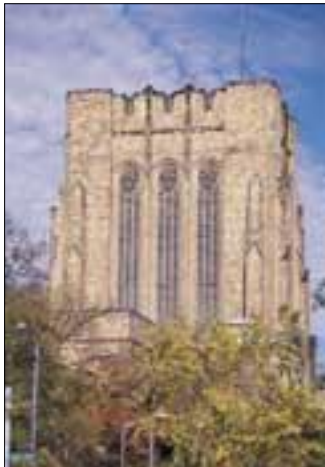
Yale is an urban campus and its buildings contribute to the urban fabric. They play a prominent role by being identified as City landmarks, by helping to define city streets and open spaces, by providing visual closure to vistas along major streets and by punctuating the city skyline with towers and spires. Many of the buildings at Yale are accessible to City residents and have fostered a unique and strong relationship between Yale and the adjacent neighborhoods. It is noteworthy that three registered historic districts in the City of New Haven include Yale buildings, and that four Yale buildings hold Landmark status on the National Register of Historic Places. In addition, many other buildings on the Yale campus have historic, architectural and institutional significance, although they are not in a registered historic district.

The immeasurable value of strong alumni identification with Yale’s campus notwithstanding, the University must continually change the built environment because of the need for ongoing maintenance, upgrading, modernization, reprogramming and expansion of physical facilities. Buildings wear out from exposure to the natural elements and from their use over time; they must be renewed. Buildings need to be adapted to accommodate new functions and changes in occupant demographics and lifestyles, in pedagogy, in building systems and technology and in building codes such as life safety or accessibility. While Yale must respect each building’s historic past, it cannot freeze the building in time, so that it becomes a less-used museum piece. In the past decade alone,

1



1 The recently restored 46 Hillhouse Avenue
2 Payne Whitney Gymnasium is an example of Yale’s historic heritage and is one of many locations for continuing University investment.



1

1 Branford College renovations



1

Yale has invested \$650 million in capital renewal of its facilities. The majority of these funds have been applied to the renovation of some of the finest and most beloved buildings on the Yale campus, rather than new construction. Overall, the capital renewal has focused on rehabilitation, reconstruction and authentic restoration.

Yale's prime responsibility is its academic mission. The University must assess its needs and allocate resources in accordance with its educational objectives. It must strike a balance between the requirements of a modern university and concerns about historic preservation. Those requirements include the needs of academic programs and of project scope, schedule and budget. Understandably, the University may find it necessary to alter, or demolish, certain buildings but should take such actions only after serious investigation. When applicable, the University should consult the Secretary of the Interior Guidelines for guidance. Yale undertook a campus planning study—which resulted in this Framework Plan—to ensure that incremental projects (which constitute further change) not only meet functional needs in cost-effective ways, but also are in harmony with the overall integrity of the University's campus.

With its stewardship role in mind, Yale fashioned an important agreement with the New Haven Preservation Trust (NHPT) for the restoration of several University-owned houses of architectural and historic significance. This strategy—of packaging projects where there are historic concerns and seeking agreement on an approach to them with the NHPT—is one that Yale should consider pursuing in the future.

The 1998 University pamphlet *Preserving the Past/Presenting the Future* gives an overview of Yale's Historic Preservation initiatives. It describes the approach to the different aspects of historic preservation on a range of capital projects. They include the houses on Hillhouse Avenue, the various building types that comprise the Collegiate Gothic tradition, significant interior spaces, buildings that have emerged as modern monuments and building details as part of the urban context.

Over the past several years, Yale has refined a process for the selection of expert consultants to ensure that their professional expertise matches particular project requirements. This process includes the participation of the Yale professional staff, as well as members of the administration, the faculty, the user groups and representatives of the Corporation.

For rehabilitation, reconstruction and authentic restoration of existing structures—and the construction of new buildings in historic contexts—the University has been engaging well-known experts in the fields of historic preservation, materials conservation and historic landscape to guide the work through their objective professional assessments.

Yale will continue its significant investment in other University buildings that have important architectural merit in the near future. As the twentieth century witnessed the growth of new buildings at Yale, the first decade of the next century will witness the University's commitment to the continued renewal of its architectural heritage.

by Pierre Hohenberg,
*Chair of the Environmental
 Focus Group and Deputy
 Provost for Science and
 Technology*

Environmental Aspects

Yale is world renowned for its scholarship and its search for excellence in the humanities, the sciences, the arts and the professions. We recognize that we teach not only by our lectures, assignments and research products, but also by our actions. To provide a broad and deep education for students and the greater community, Yale must teach by the conduct of its affairs as well as by its classes. Yale is pursuing excellence in its operations, and is committed to becoming an environmentally sustainable institution for the twenty-first century.

—Richard C. Levin, President, Yale University, Earth Day Speech, April 22, 1999

As with other universities of similar size and stature, Yale has a direct and significant impact on the local and regional environment. It has over 300 buildings with 12.6 million gross square feet on the 310 acres of its three campuses in New Haven (Central: 160 acres, Medical: 40 acres, Athletic: 110 acres). Although Yale has an urban campus it also has a 500-acre golf course in New Haven and West Haven and 11,000 acres of forest land in Connecticut, New Hampshire and Vermont. The University has 5,257 undergraduate students, 2,246 graduate students and 3,304 professional school students. With 3,192 Faculty and 7,122 Staff, Yale is the largest employer in New Haven, has an operating budget of \$1.1 billion and plays a major role in the local economy. It has a robust capital program, which is projected at \$305 million this fiscal year. The renovation and modernization of existing buildings account for the overwhelming majority of capital projects. Yale faces both great opportunities and significant challenges in continuing to address the need to improve its overall environmental performance.

The graduate and professional programs of the School of Forestry and Environmental Studies have provided academic leadership in this area. Recently, a group of faculty, staff and students from the School has assessed the flows of resources and residues at Yale. They established environmental performance matrices on a university-wide basis and on an average per individual basis. They also established and constructed rates of recycling and disposal. The group assessed renovation, food services, grounds maintenance and purchasing activities and they acquired water, energy and other service performance data and analyzed these at a building-by-building level. With this data in place, their final report suggested future environmental goals for the University.

Yale undergraduate students have also played a major role in raising the consciousness of the University community on environmental issues—primarily through the Yale Student Environmental Coalition (YSEC), a nonprofit student-run campus umbrella organization founded in 1986. In the Spring of 1998, YSEC published the *Yale Green Plan*, a compilation of valuable information with contributions from undergraduate and graduate students, faculty, staff, administrators and alumni. The *Yale Green Plan* includes a status report and explicit student recommendations to help the University meet its environmental future. It is part of a nationwide student effort to understand and “green” their institutes of higher education through a shared Green Plan.

Other current YSEC projects include community gardening, lead poisoning education and prevention, inner-city outings and hosting of speakers on environmental issues. YSEC has been instrumental in starting the inter-college Green Cup, fostering recycling at Yale, and retrofitting Yale library’s lighting system (which saved the University \$3.5 million over this decade).

1 Recycling containers are located throughout campus



In February 1994, YSEC held the first international student environmental conference (with 500 participants) and produced the Blueprint for a Green Campus, a ground-breaking document that offers specific measures for higher education institutions to improve their environmental performance. In 1996, YSEC published *How to be Environmental at Yale and Why Bother*.

Yale has taken many environmental initiatives, both large and small, to ensure that the University's operations preserve and enhance the environment. These initiatives, primarily in the area of energy conservation, currently save the University several million dollars per year. Yale plans to increase this amount through further implementation of these and other initiatives over the next decade. Experts project the return on investments of such actions to be in the range of 5–20 percent per year, depending on energy price levels.

The Office of Environmental Health & Safety is responsible for ensuring that the University's handling and disposal of hazardous waste—and its discharges to air and water—are safe for human health and the environment as well as in compliance with all relevant state and federal regulations. This department is committed to minimizing the University's impact on the environment, by reducing hazardous wastes and discharges at their source. In the future, Yale will continue to emphasize efforts to minimize waste that presents a high degree of risk to the environment and human health. These efforts will address the potential for pollution source reduction, redistribution and recycling.

There are several specific areas of environmental focus at Yale: energy, facilities, purchasing and lifestyle.

Energy

By far, Yale's largest effect on the environment comes from the energy consumed by its buildings and people. Through its Office of Facilities, the University has recently completed a \$100 million power plant modernization project and redesigned the distribution and metering of electricity, water and steam. During the summer of 1998, Yale transformed the Central Power Plant into a cogeneration facility to produce both steam and electricity.

Also, a Lighting Retrofit Program has been undertaken in most of the University's buildings—which has reduced their electrical consumption by 20–50 percent.

Facilities

The Office of Facilities is responsible for the construction, repair, maintenance and operation (including recycling activities) of Yale's buildings and grounds. The Office oversees energy management, campus planning, project management (capital and non-capital), the physical plant, custodial services, grounds maintenance and the fire marshal. A description of Office of Facilities's environmental initiatives follows.

The University has undertaken this Framework Plan to relate completed area and facilities plans to an overall plan. The purpose of the Framework Plan is to provide parameters for future campus development within an existing urban context. We do this to ensure that future buildings and open spaces will make positive contributions to their campus environs and to the City of New Haven.

1



- 1 The recent renovation of Berkeley College installed energy-efficient windows that are consistent with its historic Gothic architecture
- 2 Recent landscape improvements to Cross Campus include seating

Yale is committed to improving its physical assets and has begun an ambitious campaign of building renewal and campus enhancement. The historic preservation of Yale’s significant architectural heritage naturally reinforces environmentally-sound values. In fiscal year 1998, more than 80% of the construction funds went to renovation, which includes rehabilitation, reconstruction, restoration and adaptive reuse.

Yale’s architecture is itself inspirational, but no less inspirational is Yale’s respect for historic buildings and its creative reuse of older structures for new purposes. Incorporating a sensitivity for environment into the structure of Yale can only enhance the inspirational and educational nature of Yale’s buildings and facilities, as well as saving the University money.

—YSEC Green Plan, spring 1998

There are many areas where Yale can improve its environmental performance through the design and construction of new buildings and the renovation of existing ones. Many issues in the design phase can affect the environment: life cycle costing, space for trash and recycling receptacles, daylighting, individual room environmental controls, energy efficiency in building systems and energy monitoring. Whether or not endeavors in the design phase improve the environment depends in large part on the expertise of the design team (i.e., architects, engineers). Yale can provide leadership by further developing standards for environmentally-friendly building materials and building systems and through proactive project management. In the construction phase, the University’s project managers can protect and improve the environment by monitoring contractors to make sure they use environmentally sensitive work practices and that they remove hazardous materials in a safe manner with safe disposal, including the sorting and disposal of materials to qualified recycling operators. In the future, Yale could also explore reducing and reusing construction waste—the debris generated and discarded on construction projects. The success of endeavors in the construction phase depends in large part on the expertise of the construction team (i.e., construction managers, subcontractors). Yale can provide leadership by adding contract requirements that encourage environmental sensitivity and by proactively monitoring construction activity.

Yale has been retrofitting mechanical systems in several buildings at the University—where it can achieve a payback in less than 8 years and where it anticipates no need for major renovations within that time.

Custodial Services has been purchasing recycled bathroom tissue and paper towels for a number of years.

Grounds Maintenance has planted over 1,000 trees around the campus over the last nine years. It applies pesticides infrequently and those it uses are almost entirely environmentally friendly. Grounds staff compost all leaves into loam and grind all pruned branches into mulch. The University has identified areas appropriate for natural, native vegetation and has started planning for their reversion.



2

The University has removed or replaced all outdated underground oil tanks, and disposed of related soil contamination. In many cases, it has eliminated underground oil tanks by converting furnaces to cleaner-burning natural gas. The Office of Facilities works with Environmental Health

& Safety to manage the underground tank program to ensure proper testing and removals or replacements.

The Recycling Department has a recycling program for office paper (including glossy and colored papers), cardboard, cans, bottles, plastic food and beverage containers, lab plastics, computers and laser printer toner cartridges. Yale currently recycles 18% of all office trash (excluding construction materials). The Recycling Coordinator has worked with YSEC, the University Printer and other members of the administration to increase purchases of recycled paper. Last year, Yale switched to a 30% post-consumer content letterhead paper and has made an equivalent xerographic paper its default choice for delivery to departments. This year, student workers at Yale Recycling helped the department staff to recycle more than 16 tons of computers and lab plastics. The Recycling Department assumed responsibility for recycling computers and other materials from the Yale Recycling students in fall of 1999.

The Recycling Department is initiating a program called SWAP to collect unwanted furniture and office supplies, and to make them available to needy Yale programs and local non-profit organizations.

Purchasing

The Yale Purchasing Office has many opportunities to enhance the University's environmental performance. It should select equipment such as computers, photocopying machines, air-conditioners and refrigerators not only on the basis of performance, reliability and purchase price, but also taking into account life cycle cost, energy minimization and recyclability. It should base its selection of vendors in part on their own environmental performance. It should further consider increasing the use of recycled paper and reducing the amount of packing material to be discarded after shipment to Yale.

Lifestyle

The Yale campus is a series of interconnected places, open spaces formed by buildings that also reinforce city streets. The buildings are predominately three or four stories in height although many, due to their strategic location on the campus, have higher architectural elements such as towers and spires. The buildings vary in size, age, architectural design and detail. The campus is a rich and complex urban environment. Among the major improvements for making the campus more pedestrian-friendly (and bicyclist-friendly), the Framework Plan proposes to return the one-way street system to two-way traffic and to create more direct connections to the railroad station. Another improvement it proposes would link existing open spaces—and the major connecting streetscapes—by upgrading their landscape. Such proposed transportation and landscape improvements would also benefit the environment and improve the quality of life on campus and in the city. The Framework Plan proposals to make night lighting on campus less bright and install a cohesive wayfinding and sign system would have environmental benefits, as well.

I can state that on this Earth Day, nearly 30 years after the first public celebration of our planet by student groups, and on the verge of a new millennium, Yale is greener and, as such, a better educational institution. A sustainable environment will continue to be a priority in Yale's academic programs and in its operations.

—Richard C. Levin, President, Yale University, Earth Day speech, April 22, 1999

Environmental Focus Group members are:

Pierre Hohenberg, Deputy Provost for Science and Technology Jane

Coppock, Assistant Dean, Forestry & Environmental Studies Pamela

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Roberto Meinrath, Deputy Director, Office of Facilities and Manager of Utilities and Grounds Kari

Nordstrom, Senior Architect/Planner, University Planning, Office of Facilities

by Bruce Alexander,
Vice President for New Haven
and State Affairs

Direct Economic Impact of Yale in New Haven and Connecticut

Yale University has a positive financial impact in the City of New Haven and the State of Connecticut in excess of \$900 million annually. This includes not only the impact from its role as an employer and property owner in the City, but also from the programs it supports and investments it makes in Downtown, in neighborhoods, in economic development, in the public schools, community outreach, and in community services. A summary of Yale’s economic impact and civic investments is followed by a more detailed listing of representative impacts and the types of current programs and their level of investment.

**Yale in New Haven and Connecticut
1998 Summary**

Annual Impact

Payroll	\$550 million
University Purchasing in Connecticut	\$240 million
Campus renovations (annually over 15 years)	\$125 million
Payments to the City of New Haven	\$6.9 million
	\$920 million

Impacts of Yale as a National Center for Life Sciences Research **\$300 Million**
annually brought into the state from NIH and foundation grants for life sciences research

Over the past decade, this research has resulted in:

- 40 new business ventures
- 20 biomedical/pharmaceutical firms
- 10 publicly traded biotech firms with a combined market value totaling nearly \$1 billion and with more than 1,000 total employees

Yale’s Civic Investments in the 1990s

Downtown, arts, entertainment investments	\$36.3 million
Neighborhood investments	\$14.9 million
Homebuyer Program	\$7.25 million
Science Park	\$2.3 million
Connecticut Seed Venture Fund	\$1 million
	\$61.75 million

550,000 Visitors to Yale each year spend \$40 million annually

Museum Attendance	375,000
Sporting Event Attendance	180,000
Organized Yale Campus Tours	40,000

Annual Spending by Yale affiliates in New Haven

Visitors	\$38 million
Students	\$54 million
Faculty & Staff	\$108 million
University Spending	\$73 million

Construction Projects (1993–2008)

Spending 1993–2000	over \$1 billion
Anticipated spending 2001–2008	over \$1 billion
Construction jobs	up to 1,000 annually

Annual Payments to the City of New Haven

Total for Calendar Year 1998	\$6,860,000
Property taxes (non-academic buildings)	\$1,922,000

(Yale is New Haven's third largest taxpayer, after United Illuminating and Southern New England Telephone)

For Fiscal Year 1998:

Fire Services Payment (voluntary agreement)	\$1,908,000
Sewers	\$1,170,000
Parking Authority	\$690,000
Building Permits	\$1,120,000
Fees, Permits, etc.	\$50,000

Not Included Above

Yale funds its own Police budget	\$3,863,000
Unreimbursed medical care	\$1,100,000

Representative Investments in Downtown

Ninth Square Neighborhood Residential & Retail Redevelopment	\$36,500,000
FDIC Acquisitions of 20 Foreclosed Properties on Chapel Street (committed)	\$12,500,000
Broadway Shopping District Infrastructure and Retail Improvements	\$8,500,000
Whitney Grove Square Office and Retail Purchase	\$8,000,000
	\$6,000,000

- 1 Public improvements to Broadway retail district are an example of a Yale/New Haven joint project
- 2 The former Jewish Community Center on Chapel Street being renovated into the new School of Art



1 Howe Street in the Dwight/Edgewood neighborhood is an area of University investment



Shubert Theatre renovations	\$500,000
Downtown Special Services District	\$400,000
Chapel Square Mall Improvements	\$400,000
International Festival of Arts and Ideas	\$200,000
Representative Neighborhood Investments	\$15,115,000
<i>Chapel West Neighborhood</i>	\$6,000,000
Purchase of former Jewish Community Center for new School of Art	
<i>University Properties</i>	\$6,000,000
Capital improvements on Mansfield Street and in Park/Howe/Dwight neighborhood planned from 1997–2001	
<i>Dwight/Edgewood Neighborhood</i>	\$1,050,000
Yale matching funds and equivalent \$225,000 from LISC to provide funds for Dwight Community Development Corporation, schools and home ownership groups, in conjunction with a \$2,400,000 grant from HUD. Purchase and rehabilitation of blighted properties on Howe Street in partnership with local developers	
<i>HOME, Inc.</i>	\$1,000,000
Grant for affordable housing in Newhallville and the Hill	
<i>Ivy Street School Construction Loan</i>	\$250,000
Loan to convert former school into 24 low-rent apartments	
<i>Hill Neighborhood</i>	\$225,000
No interest loan to rehabilitate 50 housing units	\$150,000
Yale pledge to match a Fannie Mae grant	\$75,000
<i>McCabe Condominiums</i>	\$200,000
Subsidized construction financing for low-income housing	
<i>Hotel Feasibility Studies</i>	\$165,000
Consultant costs to assess the feasibility of a Downtown hotel, which resulted in the opening of the four-star Omni hotel in Downtown.	

The Yale Homebuyer Program

\$8,400,000

Yale pays \$25,000 (\$5,000 at closing and \$2,000 annually over ten years) towards the purchase of a new home in any of several neighborhoods in New Haven.

All benefits-eligible staff and faculty are eligible to participate, including service and maintenance, clerical and technical, management and faculty.

47% of participants are minorities.

Since the Homebuyer Program began in 1994, 384 employees have participated and become homeowners in the City of New Haven.

This has resulted in over \$42,800,000 in home sales in New Haven.

Yale commitment: \$8,400,000 as of December 1999.

Yale's efforts are as much directed to human development as to economic development

Representative Partnerships with Public Schools

Hill Regional Career Magnet High School

Yale medical and nursing faculty and students teach at Career during the school year and offer a summer program at Yale in the sciences for high school students. Students have the opportunity to spend 800 hours in Yale labs, lecture, and internships over three years.

Cooperative Arts and Humanities Magnet High School

Yale provides professional development for all 60 faculty members to integrate arts with academics, lessons for high school music students and performances at the Yale Repertory Theatre.

Timothy Dwight Elementary School

Ninety Yale students tutor third grade students in literacy one-on-one four afternoons a week.

Yale-New Haven Teachers Institute

One-third of all current humanities and science teachers in New Haven public middle and high schools have created curricula through this intensive summer program.

Summer Programs

More than 400 New Haven youth participate in full-day academic and recreation programs on campus.

Student Community Service

More than half of Yale's 5,000 undergraduates participate in some type of community service. Over 70 student-run community service groups are active on the Yale campus, serving all sectors of the community.

by Daniel Updegrave,
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1 Computer information systems in the Sterling Memorial Library

Information Technology

Accommodating the rapid changes in information technology (IT) poses great challenges for those designing facilities for long-term use. How does a building planning process intended to serve for decades, even centuries, properly take into account increasingly pervasive communications, computing and display technologies that typically make a “generational” leap every twelve to eighteen months? Moreover, new information technology may seem limited in the short run to smaller, faster, cheaper devices; in the long run, the compound effects of these innovations leads to major changes: pervasive ownership and use of the small devices as well as new information and business services built upon them. It is worth noting, for example, that the graphical web browser dates only to 1993, and Amazon.com, the on-line bookseller, to 1995.

While this challenge pervades architecture and planning across all industries and building types, a research/medical university is especially sensitive to these issues for the following reasons: research, clinical care and, increasingly, teaching and administration require state-of-the-art technology; capital funds are scarce and many buildings acquire symbolic, historic, or campus values quite independent of their original function. One can consider the relationship between campus planning and IT in four dimensions.

The first is that any new or renovated building affords the opportunity to deploy state-of-the-art infrastructure that supports the building’s projected use. Yale’s traditional masonry and wood paneling, for example, substantially increase the cost of providing electricity and voice/data/video connections in an aesthetic manner. One reason that Yale lags behind its peers in the permanent installation of networking infrastructure (witness the “spaghetti” cabling in unrenovated residence halls) is that the only practical time to install networks is during major renovation. Fortunately, the University is committed to thorough and thoughtful renovation and the construction of selective new buildings, which provide great opportunities to modernize the electrical and electronic infrastructure.

While wireless networking and battery-powered devices hold great promise, current wisdom holds that buildings should be pervasively pre-wired for electrical and communications cables. Equally important, wiring pathways must be large enough to hold additional or changed cabling, and should be adaptable to changes in location of end-user stations. To accommodate wireless, power and signal, cabling should be run to prominent locations in large rooms and to high places on building exteriors.

The second dimension involves adapting facility designs to accommodate the ways in which information technologies affect how teaching, research, clinical care and administrative activities are performed. Examples include making provisions for electronic teaching stations and multimedia projection facilities in classrooms; providing ergonomic furnishings and lighting to support computer-intensive work and meet increasingly stringent regulations; and in general, making layouts and furnishings flexible enough to accommodate both emerging technologies and the related re-engineering that new technologies require. Every new building or renovation project, therefore, presents an opportunity not only to provide adequate infrastructure, but also to think creatively about how technological changes might affect the function(s) to be performed in the building.

The third dimension is an extension of the second: it considers how IT will affect other campus planning issues. Think about these examples:

Campus circulation and activity patterns: IT is already changing how people use campus facilities and its impact can only grow in the future. Consider how faculty and students can now perform a substantial amount of “library research” on-line—from campus offices and residences and from off-campus as well. Many administrative staff find they can perform some tasks as well—or better—at home, away from distractions or near family members in need of care. The need for in-person transactions will continue to decline as more scholarly and administrative information becomes available on the network. A striking example is the number of books students buy from the on-line discount bookseller Amazon.com and receive through daily package deliveries. This kind of transaction is increasing the need for package storage facilities while confounding Yale’s and New Haven’s goal of enhancing retailing on Broadway.

Navigation: On a campus that is two miles long and half-a-mile wide, has varied building styles and is crossed by public streets, both visitors and community members have difficulty finding their way to and around it. Traditional approaches to this problem range from improving signage and maps (and their complementaries) to the meta-design of precincts with an eye to providing overall orientation and coherent images (Lynch, *The Image of the City*, 1960). While such approaches will continue to be valuable, the following technological innovations have additional impact:

- Web sites that provide maps, photos and “virtual reality” views of the campus, increasing orientation in advance
- Web sites that provide door-to-door directions over short and long distances (www.mapquest.com)
- Global Positioning Systems (GPS) that tell pedestrians and drivers where they are, within a few feet
- Portable “talking guides,” increasingly popular in museums, that can describe highlights from origin to destination
- Systems that combine the above technologies, which are starting to appear in new cars

One can envision a family from Boston driving to the Yale Office of Undergraduate Admissions, having already enjoyed a full-color virtual tour of the campus (and New Haven environs), inputting their destination into a dashboard-mounted navigation system, and receiving turn-by-turn driving directions all the way to the closest available parking spot that matches their car size and potential handicap qualification. The directions would have responded to traffic conditions, and could have been programmed to highlight natural and architectural features en route.

Neighborhoods at the boundaries: A key aspect of the campus planning process takes note of the boundary between the campus and the city's neighborhoods. For decades, Chapel Street has offered retail outlets, and Orange-Whitney has provided safe and pleasant housing for both University families and groups of students. Previously noted was the impact of web-based retailing on the University, but what of its effect on adjacent residential neighborhoods? To what extent is their attractiveness based on the need of Yale's students, faculty and staff to be on campus frequently? Will high-speed residential Internet service make it easier for families and graduate students to live elsewhere? If so, will "elsewhere" be in neighboring Hamden, in towns along the Long Island Sound, in rural Connecticut or in Wyoming?

The fourth dimension is the use of IT to envision, compare and communicate alternative planning models for the campus. Architects and planners have understood for decades that traditional modes of analysis and presentation—plans, elevations, static 3-D models—have limited ability to communicate ideas and engage untrained audiences. Newer techniques, including simulation and virtual reality, can increase communication and understanding among stakeholders in the complex and multidimensional process that is campus—and urban—development.

by Roberto Meinrath,
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The Utilities Capital Plan

Yale has designed its Utilities Capital Plan to satisfy the long-term building plans of the University. For these purposes, the campus is divided into two major areas: School of Medicine and Central/ Science. A different independent power plant serves each area since several Downtown city blocks and the Route 34/Oak Street Connector separate the School of Medicine from the Central/Science Area. Before addressing each area, this paper gives an overview of the basic responsibilities of the Utilities Department.

Utilities Department Overview

The Utilities Department is directly responsible for producing and distributing utilities and is only indirectly responsible for controlling utility consumption.

Production

Yale has three major objectives concerning power plant production: providing reliable service, meeting increases in demand and minimizing the unit cost of the utilities produced. The Utilities Department reviews projected building demands on an annual basis but plans increases in power plant capacity to satisfy projected new (building) demands over a five-to-ten-year time frame. Automation, controls and some excess capacity ensure the safe, reliable and efficient production of energy. The Department seeks to use new technologies, from automation and controls to cogeneration, in a continuous effort to reduce the unit costs of the utilities.

Distribution

The University has two major objectives concerning the distribution systems: meeting increasing demands and providing reliable service. The Utilities Department only partly bases decisions to improve the distribution system on projected new demands in the five-to-ten-year time frame. Given the costs and construction difficulties associated with renovation/expansion of distribution systems, the Department generally considers potential sites for additional buildings to ensure that distribution system improvements satisfy potential new demands over a 20-to-30-year time frame. The Department tries to maintain reliable service by including in utility system designs as much protection as is economically feasible—from pairs of electric cables to feed double-ended building substations, to chilled water loops, to built-in back-feeding capabilities in the high-pressure steam system.

Consumption

The Utilities and Plant Engineering Departments work together to automate and disseminate utilities-related information pertaining to buildings. Such information includes building energy consumption (metering) and environmental conditions, as well as the performance of the buildings' automated and controlled mechanical equipment. While they help provide this information, neither Plant Engineering nor Utilities actually manages building environmental conditions nor energy consumption.

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Medical Center

Power Plant

The Sterling Power Plant has six boilers capable of supplying 300,000 pounds of steam with 230,000 pounds of firm capacity (with the largest boiler off). The current summer peak demand of 200,000 pounds exceeds the winter peak of 175,000 pounds. The plant has five chillers supplying 15,500 tons of chilled water with a 10,500-ton firm capacity, plus a 2,000-ton cool pool. The peak summer demand is usually 10,500 tons. The planned biomedical research laboratory will make it necessary to expand both the boiler (adding a 60,000 pound boiler or equivalent) and the chiller plant (adding a 5,000-ton chiller). If the demand for chilled water grows beyond the 15,500-ton firm capacity to be available by 2002, the University will have to expand structurally the power plant—most likely by expanding the roof area to accommodate an additional cooling tower.

Electrical

The Medical School is in the process of upgrading its 13.8 kilovolt electrical system and substations and eliminating the 2400 volt system. Current plans also call for the interconnection of the Howard Street and Sterling substations during the construction of the new biomedical lab building. In the new system, the ductbanks would pass through the Seamco building block and improve electrical service to the whole Medical School through an upgraded and expanded UI service to Sterling. A number of diesel generators located in several of the Medical School buildings provide emergency power.

Chilled Water

The University upgraded the chilled water system in the early nineties when it eliminated the then existing system bottlenecks. The system will expand during construction of the new biomedical lab with a new extension of the chilled water system to the Seamco building block and then to the opposite corner on Howard Avenue (a first step toward building an expanded chilled water system loop).

Steam System

The steam system is in good shape and will be expanded as new buildings connect to the system. In the long term Yale plans to eliminate asbestos insulation on the steam and condensate return lines.

High Pressure Fire Line

The new biomedical lab construction will make it possible to extend the high pressure water system by linking Congress to Howard and passing through the Seamco building block, to form a system-wide loop with fire pumps at the Yale Physicians Building and Sterling Power Plant.

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1 Sterling Power Plant at the Medical Center
2 Central Power Plant

Central Campus

Power Plant

The power plant has three 6.1 megawatt gas turbines and three 1.5 megawatt peaking and emergency diesel generators for a total plant capacity of 22.8 megawatts to meet a peak demand of 17.0 megawatts. The plant also has four chillers for a total 9,000-ton capacity with 6,750 firm capacity against a summer peak demand of 8,400 tons. Its four boilers with a total 340,000 pound capacity (240,000 pound firm capacity) are adequate to meet the current winter peak demand of 210,000 pounds. The University plans to install a new chiller for the summer of 2001. As the plant reaches its maximum chilled water capacity, Yale will have to meet further demand for chilled water by adding chillers/towers to new buildings. Serious consideration must be given to ensure that one or more buildings constructed after 2002 have the space and structural capacity to accommodate additional chillers and towers.

Electrical

The normal service is distributed at 13.8 kilovolts. The electrical master plan calls for the University to install double-ended substations in all its major buildings to provide both redundancy and the ability to maintain properly the electrical system and the building electrical gear. As a result, the University installed two feeders to each of four campus locations: the Central Area, the Becton/lower Hillhouse Area, the Science Area East and the Science Area West. Each set of feeders is sized to allow the normal electrical load to double. Future system extensions include the Divinity School, 221 Whitney Avenue, 246 Church/53 Wall Street and the Yale Repertory Theatre. The Utilities plan also calls for Yale eventually to replace and expand significant electrical substations at the Kline Geology Lab (serving the Kline Geology Lab, the Peabody Museum and the Environmental Science Facility), Davenport College, the Hall of Graduate Studies, Sterling Chemistry Lab/Kline Chemistry Lab, and the 451 College block. Whenever a new building is built on that block the University should also replace the existing 2,400 volt service.

The new emergency service is distributed at 4,160 volts. The electrical master plan provided an emergency feeder for the Central Area, one for the Becton/lower Hillhouse Area and one for the Science Area. The emergency feeders would be large (powerful) enough to quadruple the current emergency loads. Yale plans to eliminate the Direct Current (DC) emergency system by the summer of 2000.

Chilled Water

Existing plans call for the University to eliminate the chilled water system bottlenecks on York Street and on Science Hill by spring 2000. The new York Street lines will then not only serve the new Art School building and but also will interconnect with the existing system at Branford to create a loop serving much of the Central Area and providing air conditioning in the future to the Hall of Graduate Studies, new Broadway properties, and the whole York/Park/Chapel/Elm block. Additional planned work includes the extension of the system: from Commons through Silliman to Timothy Dwight College, including the air conditioning of Timothy Dwight's kitchen and Master/Dean's residences during renovation scheduled for 2001–02 and the eventual air condi-

1 Construction on York Street, extending utility service from the Central Power Plant to the new School of Art



tioning of Silliman and 246 Church Street; from Commons to Beinecke in 2002, during the planned renovation of Hewitt Quadrangle (at the same time replacing the Beinecke chiller and tower); from across Grove Street from Commons by the Cemetery to Becton Plaza (whenever future air conditioning loads of the Becton Area so require); from Calhoun to the 451 College block (whenever new air conditioning loads are developed in that block of the campus); and several relatively more minor system extensions to existing buildings as they are renovated (Saybrook College, Mudd/Hammond Hall, Ingalls Rink, Davenport College, Pierson College, Hall of Graduate Studies, Broadway properties, Fraternity Row, the new Chemistry Research building, Sage-Bowers Hall, the new Forestry building, new buildings in the Prospect Place area and next to Watson Hall and Leet Oliver).

Steam

The steam system serves practically all major buildings in the Central/Science Areas of the campus. The University extended the system to 1156 Chapel during 1999. With only relatively minor extensions the system has the capacity to serve all currently planned new buildings. In the medium term, the steam and condensate systems need equipment upgrades now estimated to cost \$2 million.

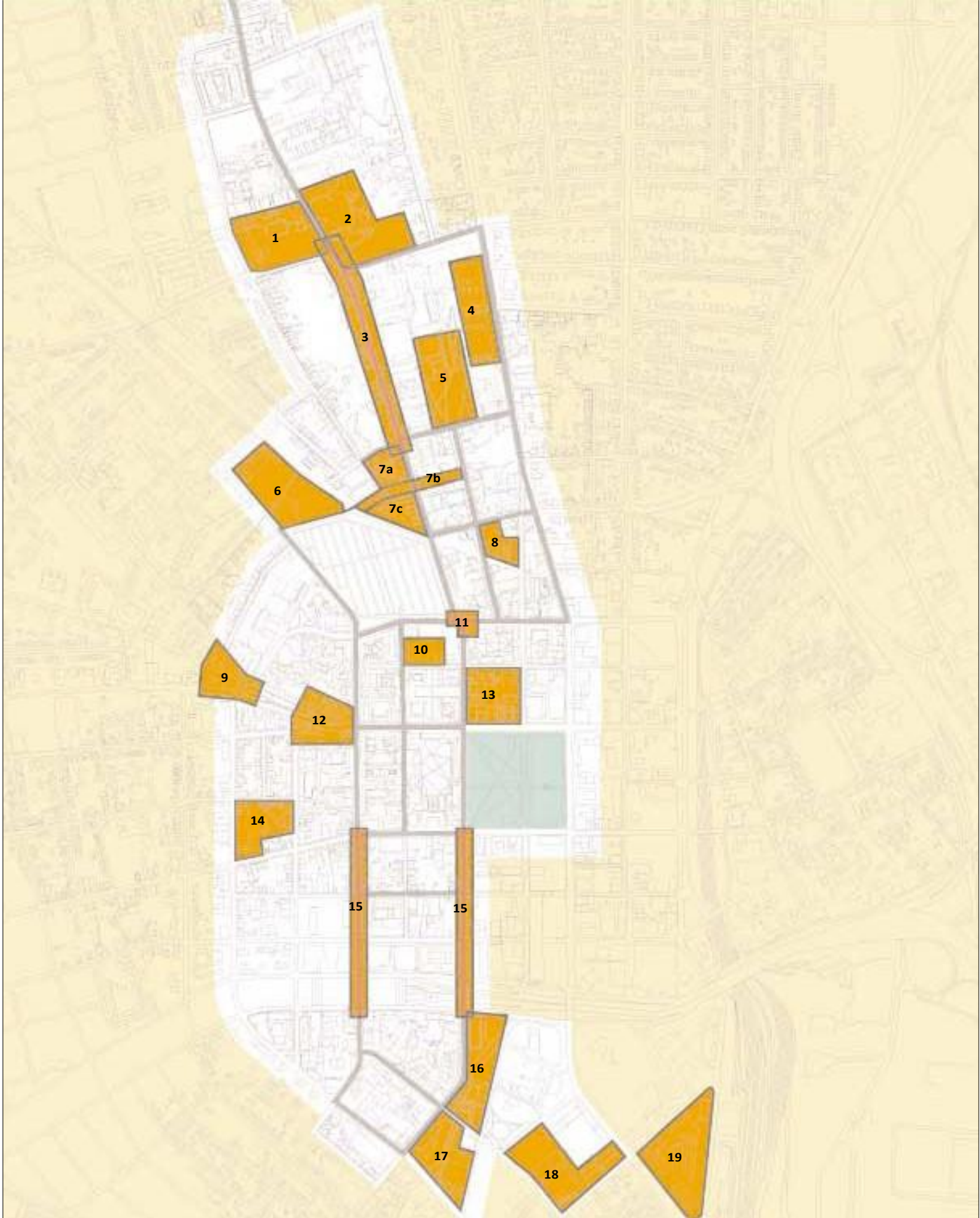
Utilities estimates it will cost \$3 million to eliminate asbestos insulation around the steam and condensate pipes—in some areas the insulating value of the asbestos has already deteriorated enough to make it economically justifiable to replace it.

High Pressure Fire System

In 1999, Yale extended the Central Area fire system from Jonathan Edwards College to the Art and Architecture building and 1156 Chapel Street. The University also needs to extend this fire system from Silliman to Watson Hall (where there is already a fire pump) and to Mason Hall and Yale Health Services; from Calhoun to the 451 College block whenever a new building is constructed; and from the Yale University Art Gallery through the Yale Center for British Art (which has a fire pump) and to the Yale Repertory Theatre and 149 York Street, when that building is renovated.

In the future, Yale might extend the system from 149 York Street to the new Art School to create a southwestern loop. The completed Central Area system would then have fire pumps at the Center for British Art, Branford College, the Payne Whitney Gymnasium and Watson Hall.

Next year, the University plans to extend the fire system from the Sloane Physics Lab through the Osborne Memorial Laboratory to the Environmental Science Facility. This will create a Science Area fire system loop with fire pumps located at the Bass Center and the Environmental Science Facility and a booster pump at the Kline Biology Tower.



3 Major Initiatives:

This diagram shows the major initiatives envisioned to implement the Framework for Campus Planning.

Throughout the Framework Plan we have made specific recommendations for improving campus systems, such as circulation, landscape and open space, signage and lighting. In this section we focus on specific projects that are essential to achieving the central themes of the Framework Plan—connections within and between the University’s three related campuses and blending campus edges with surrounding neighborhoods.

The major initiatives required over time to carry out the Framework Plan are listed below. Among these are six projects of special significance because they establish fundamental connections or complete academic use patterns—highlighted in bold. The initiatives are from north to south—not in order of priority—the development of the Whitney Avenue parking lots; a joint planning project with the City to redevelop the Canal/Lock Street area northwest of the Grove Street Cemetery; development of the Prospect Place sites with an open space connection to Hillhouse Avenue; reconfiguration of the Grove and Prospect/College Street intersection; redevelopment of the 451 College Street block; and, improvements to York and College streets within the Crown/George area.

Projects jointly planned by the University and the City or other involved community are indicated with a dagger (†).

1. Redevelopment of the Marsh Botanical Gardens.
2. Reuse of the Davies House, redevelopment of the surrounding site and Farnam Memorial Gardens.
3. Renewal of the Prospect streetscape, including the removal of the small street-front parking lots and relocation of parking at Ingalls Rink.
4. **Development of Whitney parking lot areas to provide active street frontages, links to the adjacent neighborhood and improved connections through Science Hill.**
5. Enhancement of the Kline Biology Tower Plaza and Sachem’s Wood.
- †6. **Creation of recreational and community facilities while establishing a connection across the Farmington Canal that links the north and south parts of Central Campus.**
7. **7a and 7c are development sites that frame a new open space and pedestrian corridor. 7b links Hillhouse Avenue to Canal Street. They provide opportunities for concentrated activity and active frontages along Prospect Street. Together these three parcels help establish physical connections around the north side of the Grove Street Cemetery .**
8. Relocation of Health Services and its redevelopment along with the Helen Hadley Hall sites.
- †9. Redevelopment of the gas station sites and creation of a visual terminus at the Broadway retail area.

10. Renovation and landscaping of Hewitt Quadrangle, with accessibility improvements.
- 11. Reconfiguration of the Grove, Prospect/College Streets intersection.**
12. Build-out of available sites in the Broadway retail area, with accompanying landscape and pedestrian circulation improvements.
- 13. Redevelopment of the 451 College Street block, establishing a prominent visual terminus to Cross Campus and a major parking facility (primarily underground) with access from Temple Street.**
14. Development of the parking lot 80 site, along Howe Street, with residential, community and retail uses.
- †15. The reinforcement of York and College Streets as the primary pedestrian connections between the Medical Center and Central Campus by concentrating development along these corridors and completing streetscape improvements.**
- †16. Development of the College Street/Congress Avenue corridor south of the Route 34/Oak Street Connector as a gateway area to the Medical School, including street reconfiguration.
17. Completion of the new Medical School building on Congress Street and development of adjacent sites for future uses.
- †18. Development of the unbuilt parcels surrounding 100 Church Street South to create active frontages along Cedar Street and Columbus Avenue.
- †19. Redevelopment of the Church Street South urban renewal area to create direct connections to the train station from the Medical Center and Downtown.

In addition, there are opportunities at the Yale Athletic Fields for other projects that would greatly improve the physical environment of that campus. As illustrated in the Yale Athletic Fields Landscape Framework, these focus on overall site reorganization and general landscape improvements. The renovation of the Yale Bowl and the reconfiguration of the surrounding parking, landscape and support facilities are among the most important. The proper siting of a new artificial turf field and the functional configuration of adjacent fields and structures are also significant.

We recommend that the University make a financial commitment to these initiatives by establishing a budget for campus improvements in the annual Capital Budget over the next ten years. Continued investment over time is necessary to realize the full benefit from such projects since they build upon one another. Because these campus improvement projects will have a clear visual impact, there is a great potential to attract donors to them. We recommend that this potential be seriously evaluated and pursued as an integral part of implementing the Framework.

Glossary of Terms

<i>Building Mass</i>	The volume of a building as defined by its height, width and depth.
<i>Corridor</i>	A linear tract of land that follows a street, an area defined by and including the front walls of the buildings that face it.
<i>Edge Condition</i>	The perimeter of the campus, where it meets adjacent neighborhoods or City districts. The
<i>Floor Plate</i>	configuration and size of the floor of a building.
<i>Honorific Signs</i>	Signs that commemorate an event, place, person or gift.
<i>Infill</i>	A building or group of buildings constructed between existing structures, generally of consistent height and character.
<i>Land Bank</i>	A strategy to preserve a site for a future use. A site may temporarily be used for an interim use as a way to hold that land until an optimal use is determined.
<i>Streetscape</i>	A combination of all elements that comprise the street environment; e.g. paving, parking meters, lighting, signage, benches, trees, plantings, hydrants, utility poles and telephone booths.
<i>Streetwall Building</i>	A building with a consistent wall running along a street, typically with limited setbacks; e.g. the walls of the residential colleges defining streets within the core, as opposed to the houses on Hillhouse Avenue that are set back from the street and placed in the landscape.
<i>Traffic Calming</i>	A series of interventions that intentionally slow the speed of moving traffic and minimize its impact on the adjacent context; e.g. speed bumps, signalization, unit paving, on-street parking, narrower roadways with wider sidewalks and planting areas.
<i>Urban Fabric</i>	Fabric incorporates all the elements in the city landscape; e.g. buildings, streets, trees, open spaces. Generally refers to the size and scale of the aggregation of these elements.
<i>Wayfinding</i>	The process of moving through an unknown or unfamiliar environment to reach specific destinations. Signs are often called “wayfinding” aids.

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