



HANDBOOK FOR
PHYSICAL PLANNING
BROWN
UNIVERSITY

2013

The Handbook and website were authored and developed
in 2013 by [Sasaki Associates, Inc.](#)

Please contact fm-feedback@brown.edu with questions.

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introduction



The Strategic Planning Context

“Brown University is a dynamic center of research, teaching, and extracurricular life housed in a rich and historic architectural setting. Initially crafted with brick and mortar before the founding of the republic, the campus has grown and changed over nearly two and a half centuries to reflect the values and needs of the academic mission of the University at each stage of its development. The campus is beloved by members of its community. Its eclectic mix of architectural styles emphasizes the University’s long history as well as its forward-looking outlook. Its human scale and compact size supports intellectual exchange across disciplines and instills a sense of community among our members.

“We have three overarching goals for the development of the Brown campus. One is to maintain the sense of intimacy and connectedness that characterizes our setting, while allowing for continued modest growth in the numbers of undergraduate, graduate students, and faculty, and for changes in needs related to academics and other aspects of campus life. A second is to create a “virtual campus” that supports ties between members of the Brown community—faculty, students, staff, alumni, and parents—despite their geographic dispersion. A third is to engage in responsible historical, fiscal, and environmental stewardship and sustainability.”

From “Campus Development,” Building on Distinction: A New Plan for Brown

Why a Handbook?

This handbook gives a methodology for planning change in the physical environment over time, connecting ideas and information to implementation, within the context of Brown's strategic vision. Its purpose is to strategically position the University to make ongoing decisions and best possible use of future opportunities while building incrementally towards a powerful larger vision. Rather than being a plan, the handbook is about how to plan.

One of Brown's key strategic goals is to reimagine the campus as the University expands physically and programmatically. How should Brown develop on and off College Hill to support the academic mission and enhance a sense of community? How can the campus environment become the physical analog for the open curriculum? How can Brown celebrate its historic legacy while also supporting modern learning and research?

These challenging questions require the University to adopt an agile posture, one that can strategically respond as new opportunities and ideas emerge. This kind of nimble approach is not well-served by a didactic rigid traditional plan. The University has long recognized this, and its existing 2003 Strategic Framework for Physical Planning (and myriad companion planning studies), were a clear response to this logic. This handbook grows naturally from the prior work, and extends the line of thinking in a practical fashion.

What is in the Handbook?

The handbook's approach relies on two primary mechanisms. The first innovation is the application of an integrated analysis function which synthesizes academic, financial, and physical data to inform planning and design challenges. The introduction of multi-variate data, where appropriate, can fundamentally shift planning decision-making, leading to high-value solutions supported by diverse stakeholder groups. This kind of transparent process has the power to transcend the silos sometimes found in universities, and to create a powerful sense of the institution as a whole.

The second vital aspect of the handbook is a series of planning principles. The principles provide a basis for evaluating alternative capital strategies to ensure future investment aligns with the University's mission. Principle-based planning is enduring and flexible.

Given funding uncertainties, the ever-changing and complex demands of the modern academy, and Brown's strong emphasis on partnerships, a prescriptive project list does not provide the flexibility needed for good decision-making. The planning principles establish a framework for measuring the contribution of potential actions. Incremental moves must reinforce and work toward the larger vision.

Finally, the handbook applies the emergent data and principles to the University's current planning challenges. The most important of these is the question of the School of Engineering's future location. This case study is presented as an example of how data and principles can be applied to a real world problem in the hopes of providing a model for future such exercises. In addition, several other near-term priority projects have been similarly evaluated, and they are catalogued to provide the necessary substantive exploration of the meaning and purpose of the data and principles here described for the planning and design process.

How should Brown use the Handbook?

Brown will use the handbook to inform future planning and design studies, to guide its capital planning process, and to strengthen connections between academic and physical planning. Based upon the strategic principles, the handbook will enable the University to build integrated physical scenarios and assess potential investments on an individual and district-by-district basis.

This document contains executive summary level information about the framework plan. All ideas are represented, but they are distilled to their essence. More in-depth information, particularly the wealth of information provided by the newly developed data sets, can be found online, at <http://brown-report.sasaki.com/>.

Please contact fm-feedback@brown.edu with questions.

tool kit

Process

The planning process was designed to identify, create, and analyze useful data sets; to interact with the broader Brown University campus community, several Providence partners, and other local and regional representatives; and then to apply this information to planning and design questions, particularly the formulation of guiding planning principles. The process relied on the use of technology to understand campus use patterns and relationships, and to broadly reach stakeholders. In addition to analyzing student course enrollment patterns, members of the Brown community completed two online surveys, which provided critical information about how various constituents experience the campus and collaborate with one another.



The myCampus survey data is available at <http://brown-report.sasaki.com/>.

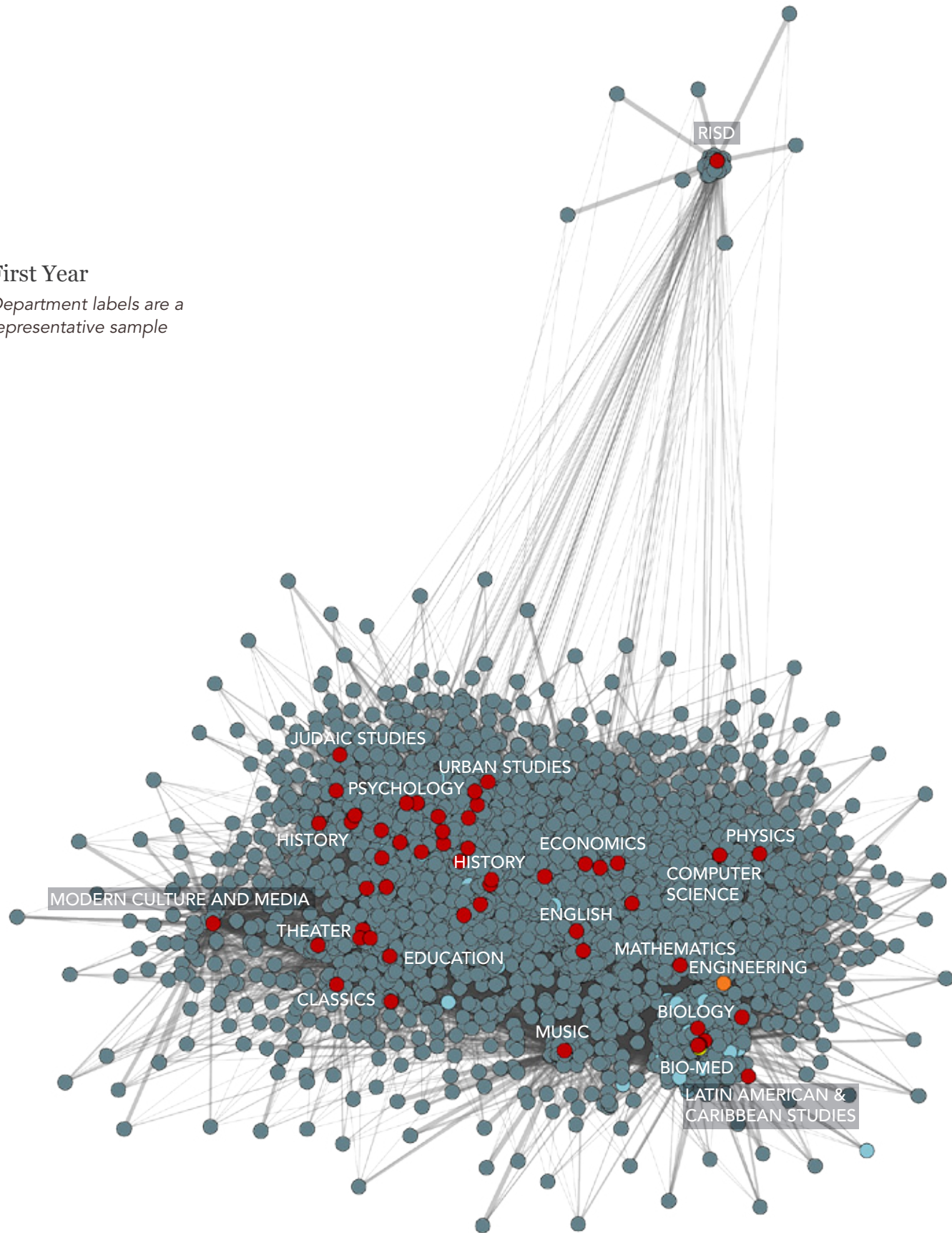
Analytic Tools

Student Enrollment Analysis

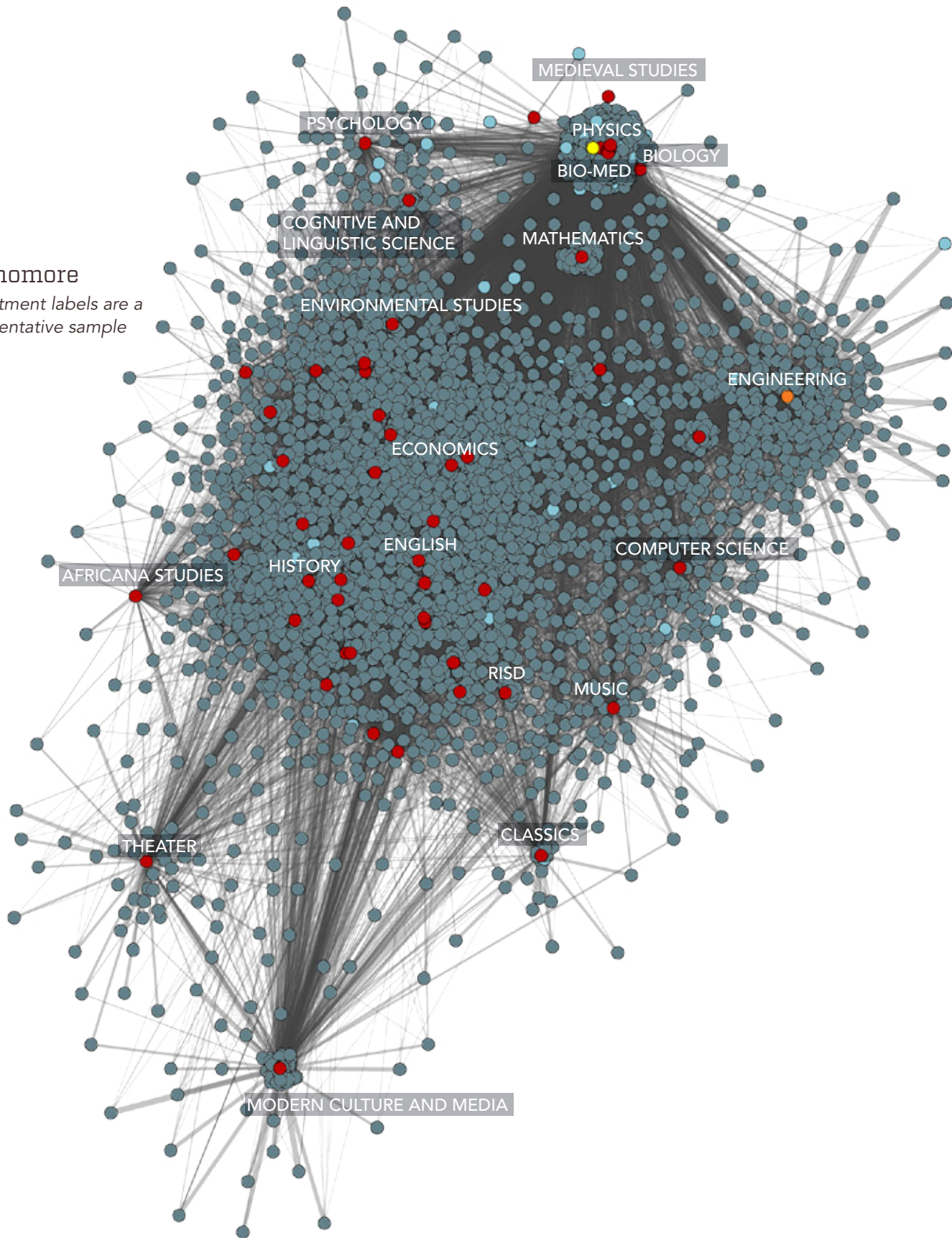
Brown is rightly famous for its open curriculum, and the fact that students forge their own curricula is essential to Brown's identity. This master planning process measured how much inter-departmental mixing is evident in student course enrollments. The following images represent an analysis of three years of course enrollment data provided by the university registrar. Every undergraduate's specific course enrollments were considered for this period. Courses are grouped with their home departments and this data was used to create, for every student, a vector map of their relationship to each department. These vectors were then combined into a large "correlation matrix," and fed into Gephi, an open-source tool which produces network graph visualizations for this kind of relational data. Network nodes (dots) represent students (blue) and departments (other colors, primarily red), and lines represent the student-department relationships, weighted by the number of courses students took with the given department. The software uses a complex algorithm to determine the "gravity" of the diagram, placing nodes with a high degree of connection/correlation close together. It is thus safe to infer that relative distance is likely meaningful, but not absolute position or rotational state.

The intermixing in the diagrams is striking. It strongly suggests the open curriculum successfully allows students to construct broad-based non-siloed learning communities, particularly when compared to more specialized paths within higher education, like those provided by institutions with significant core curriculum requirements. To further the experiment, a similar analysis was performed on a data set provided by a peer institution which has significant core requirements, and whose resulting enrollment networks are substantively different. A small number of departments do self-identify more strongly as students progress through their years at Brown (modern culture and media, classics, computer science, etc.), but the overall picture remains highly connected. The data speaks to the importance of concentrating academic facilities (particularly those with significant student participation) in relative proximity, and more specifically, given the locus of existing facilities, on the Hill. In the specific case of engineering, from the student perspective, the data suggested that it would be difficult to detach the learning component of the school from the compact academic core.

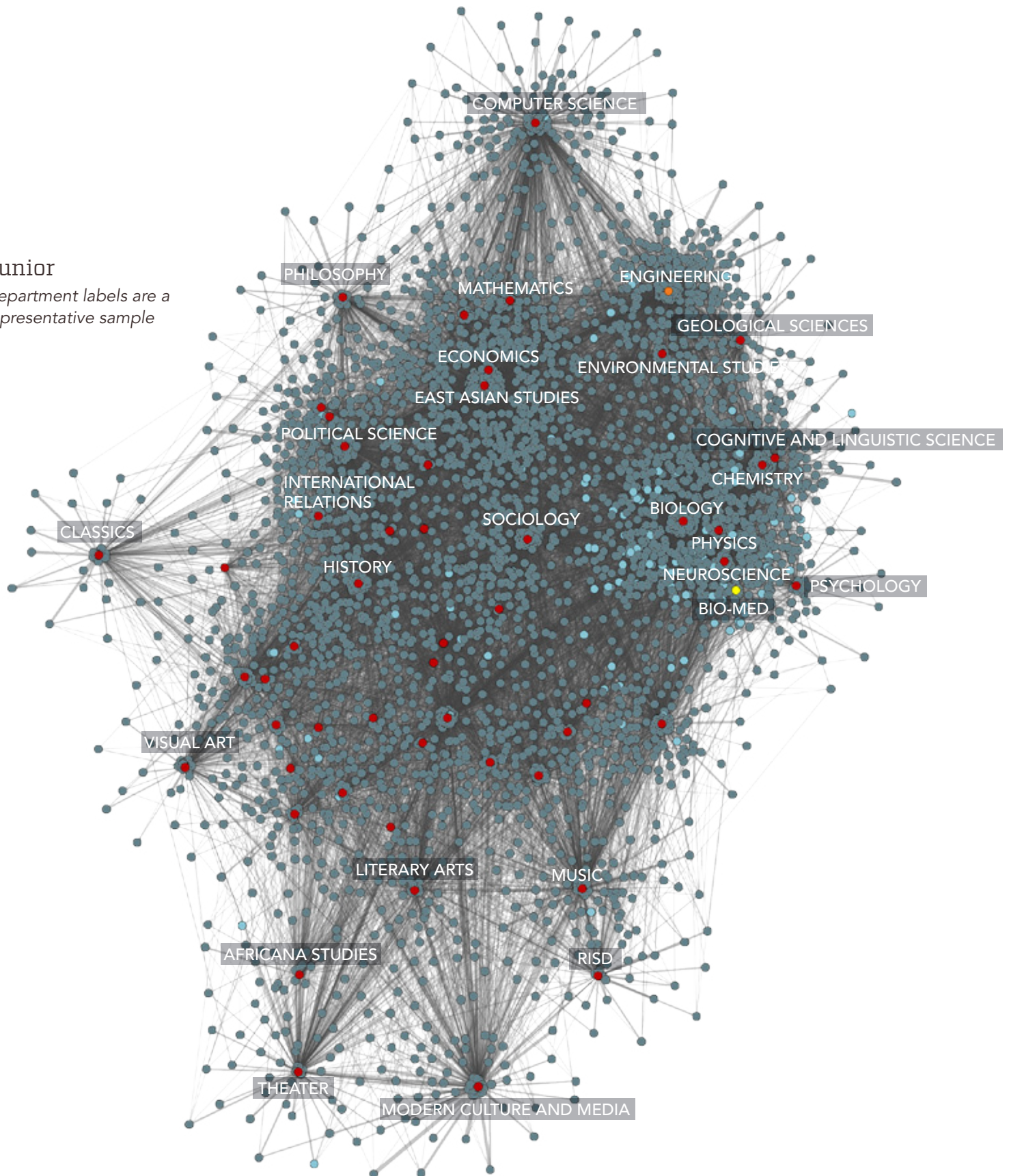
First Year
Department labels are a
representative sample



Sophomore
*Department labels are a
representative sample*



Junior
Department labels are a
representative sample

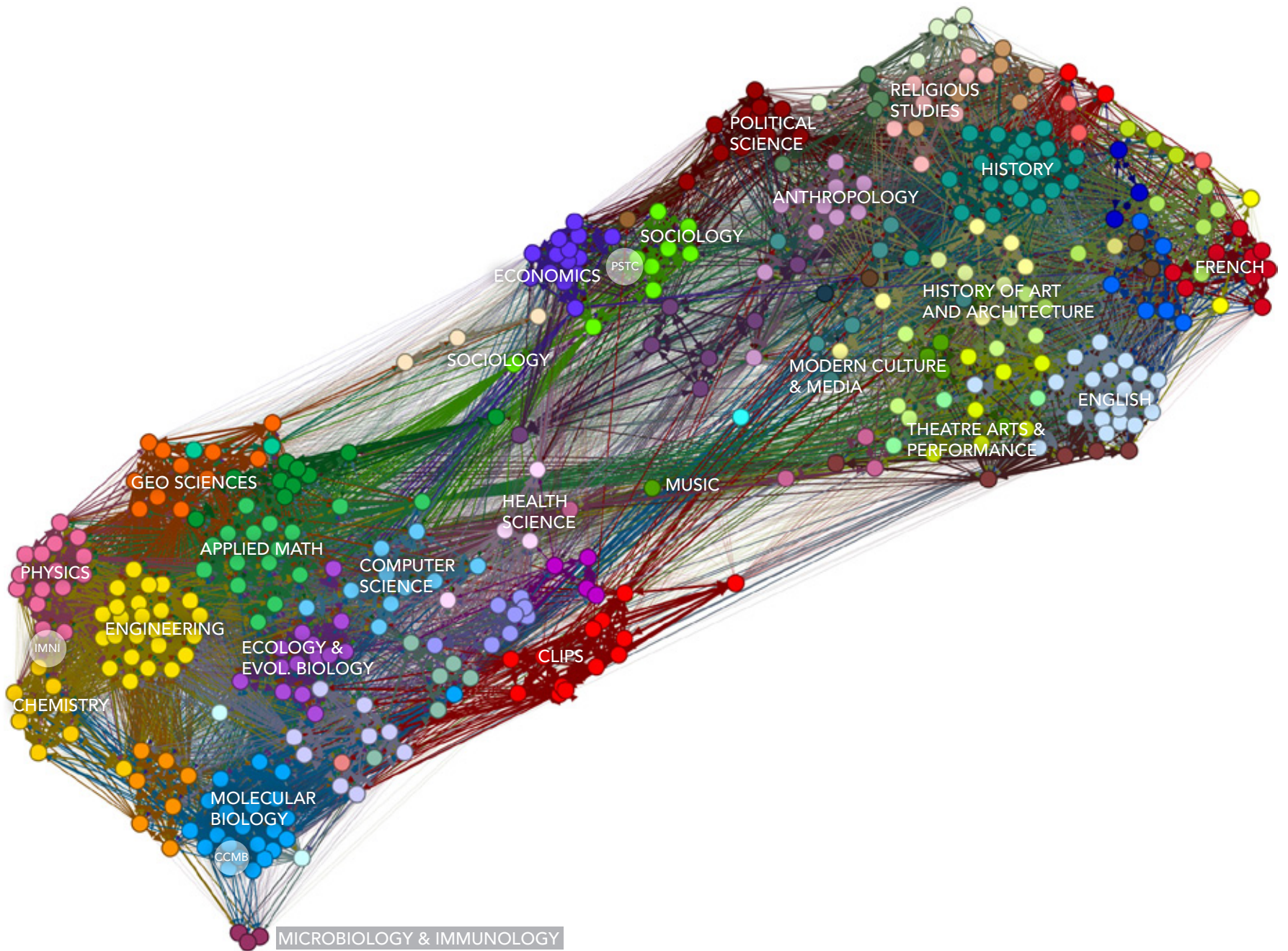


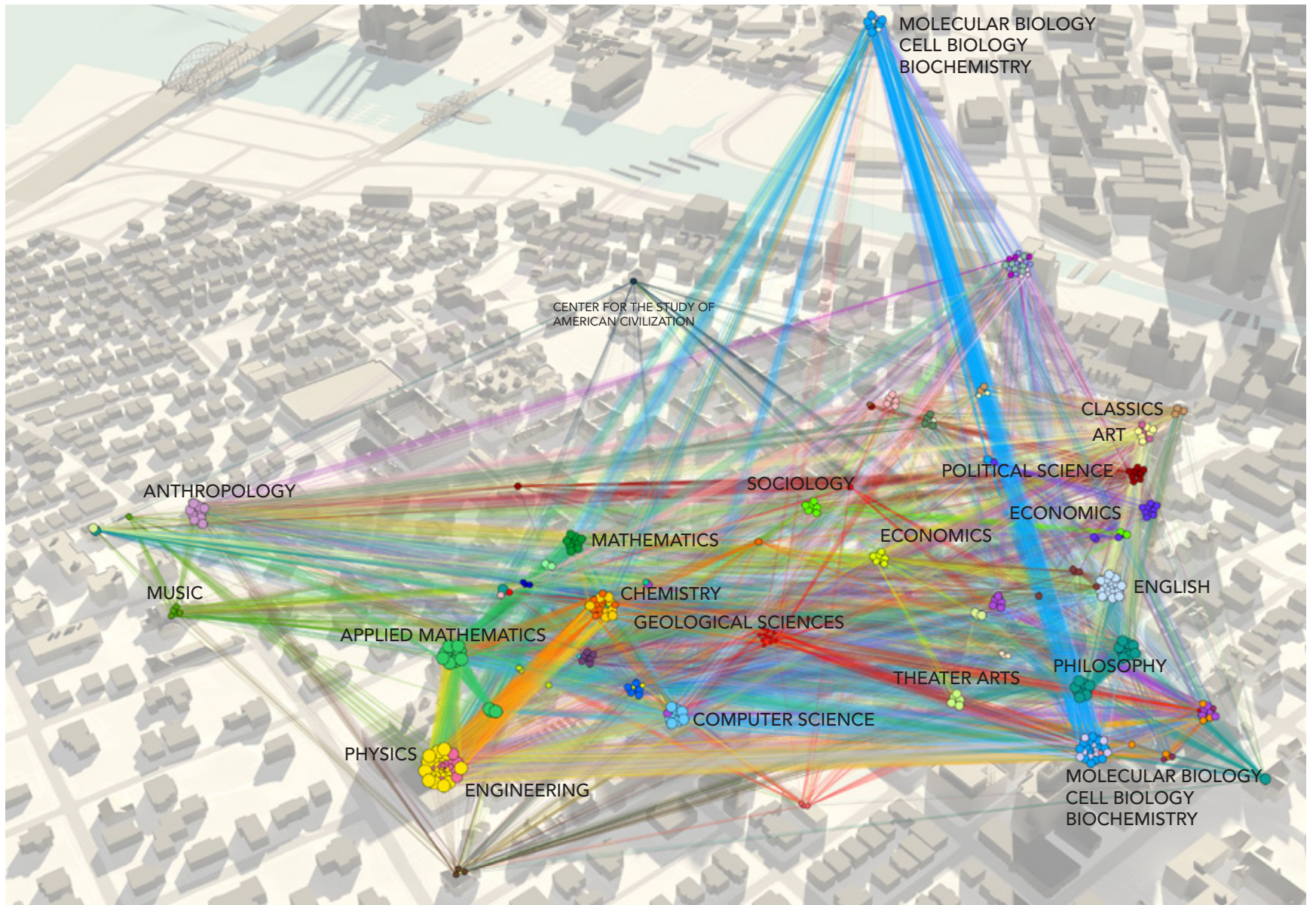
Faculty Collaboration Survey

The faculty collaboration survey follows the same basic methodology as the student enrollment analysis, but with a different data set. In this case, without recourse to hard data, a survey was sent to every faculty member, who then rated on a three point-scale the importance of their collaboration with every academic unit, core research facility, and significant partner organization. These “collaboration scores” were combined to create a vector mapping each faculty member’s relationship to academic units, and this dataset was similarly translated into a correlation matrix for visualization within Gephi. Here, the nodes represent either individual faculty members or academic units (all nodes are colored by academic unit affiliation with cores and centers colored in white). Similar to the student enrollment analysis, distance is important, but not absolute position. Due to extremely high faculty participation—414 or 59% of faculty members responded—the results are meaningful and instructive.

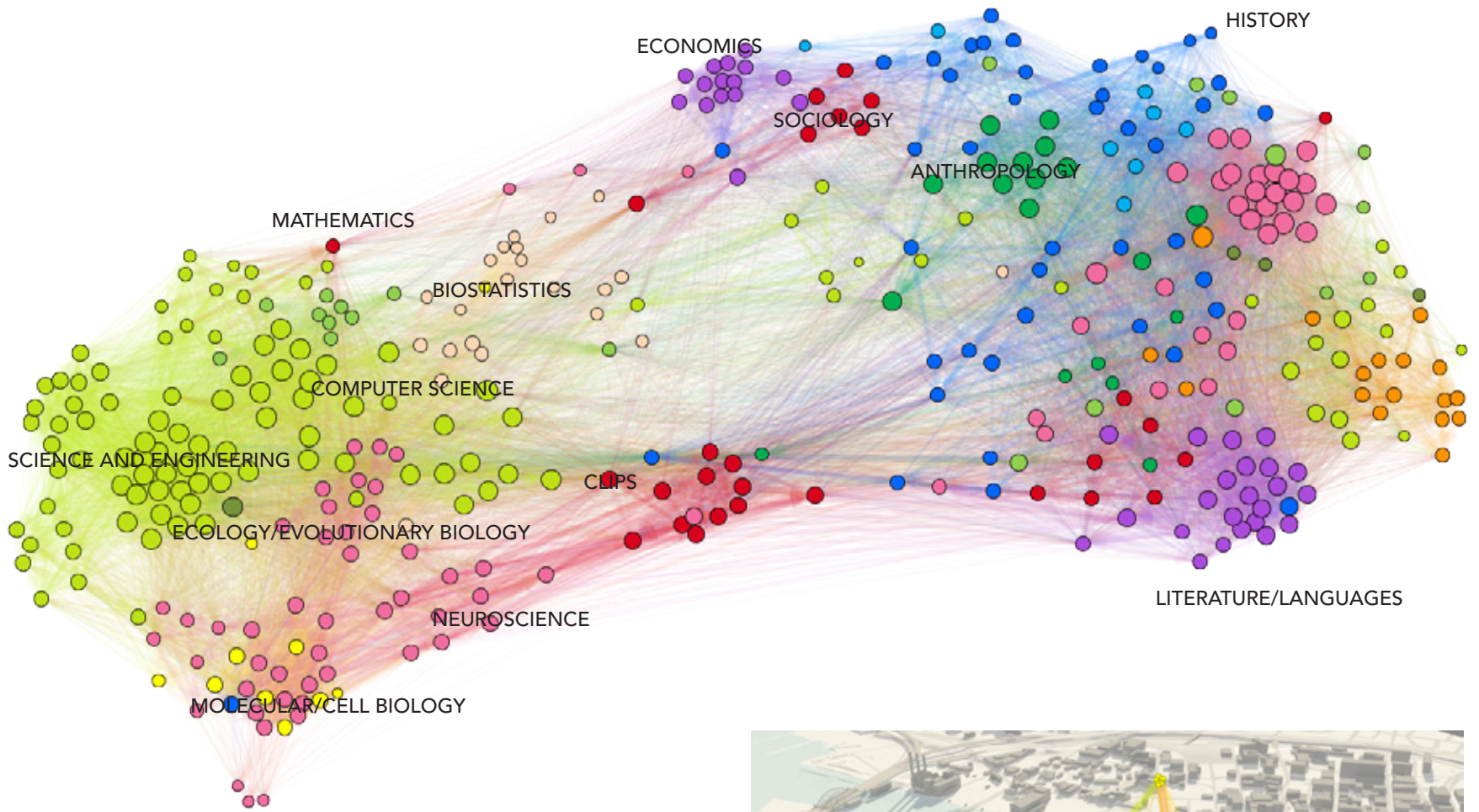
The results do reflect the highly collaborative nature of Brown, but they are substantively different than the pattern observed for students—the “barbell” network suggests a gap between the sciences/engineering and the social sciences/humanities (although significant collaboration does occur across the divide). Departmental identities are very strong within the hard sciences, and engineering performs a critical central linking function. Humanities are much more diffuse and, by implication, interdisciplinary. Most core facilities are accessed by multiple academic units, which suggest the importance of their geographic location, in order to avoid duplication. Geography certainly plays an interesting role throughout these collaboration patterns; there are strong examples where collaboration takes place despite geographic separation—it remains an open question as to whether geographic concentration would lead to even stronger interaction.

This dataset in particular is proving effective for ongoing integrated university planning, with the broadest application beyond physical questions, particularly with respect to academic planning in the Office of the Provost.



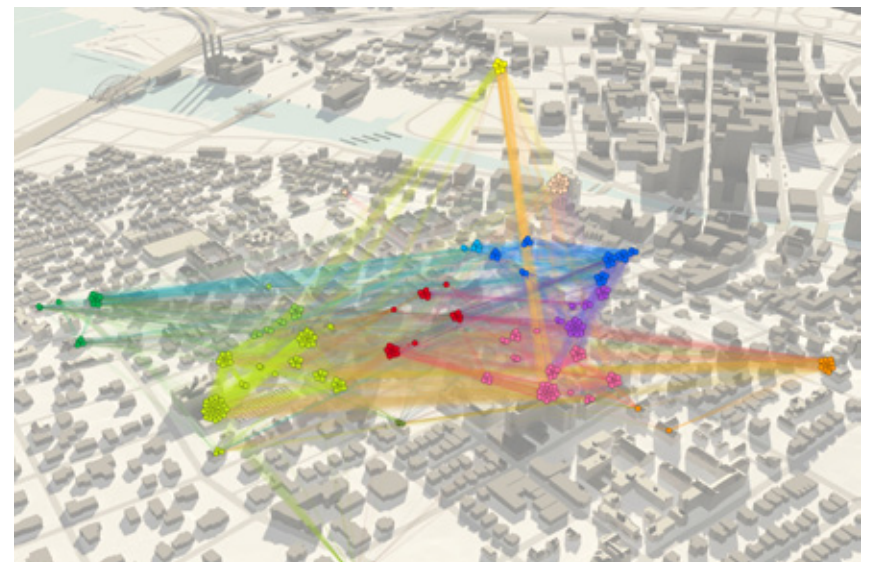


Faculty collaboration, mapped on campus geography (department labels are a representative sample)



Discipline clusters

These diagrams group departments by collaborations and are colored by geography. In the diagram above, nearby dots with different colors represent faculty with strong collaboration patterns but disparate geographies. In the diagram at right, the same data is mapped to campus geography (colors stay the same in both images).

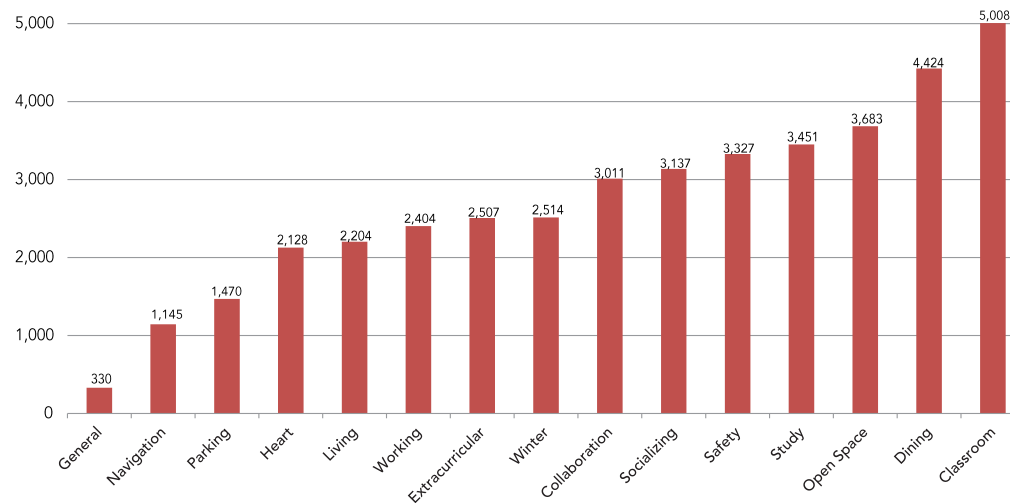


Faculty departmental geography

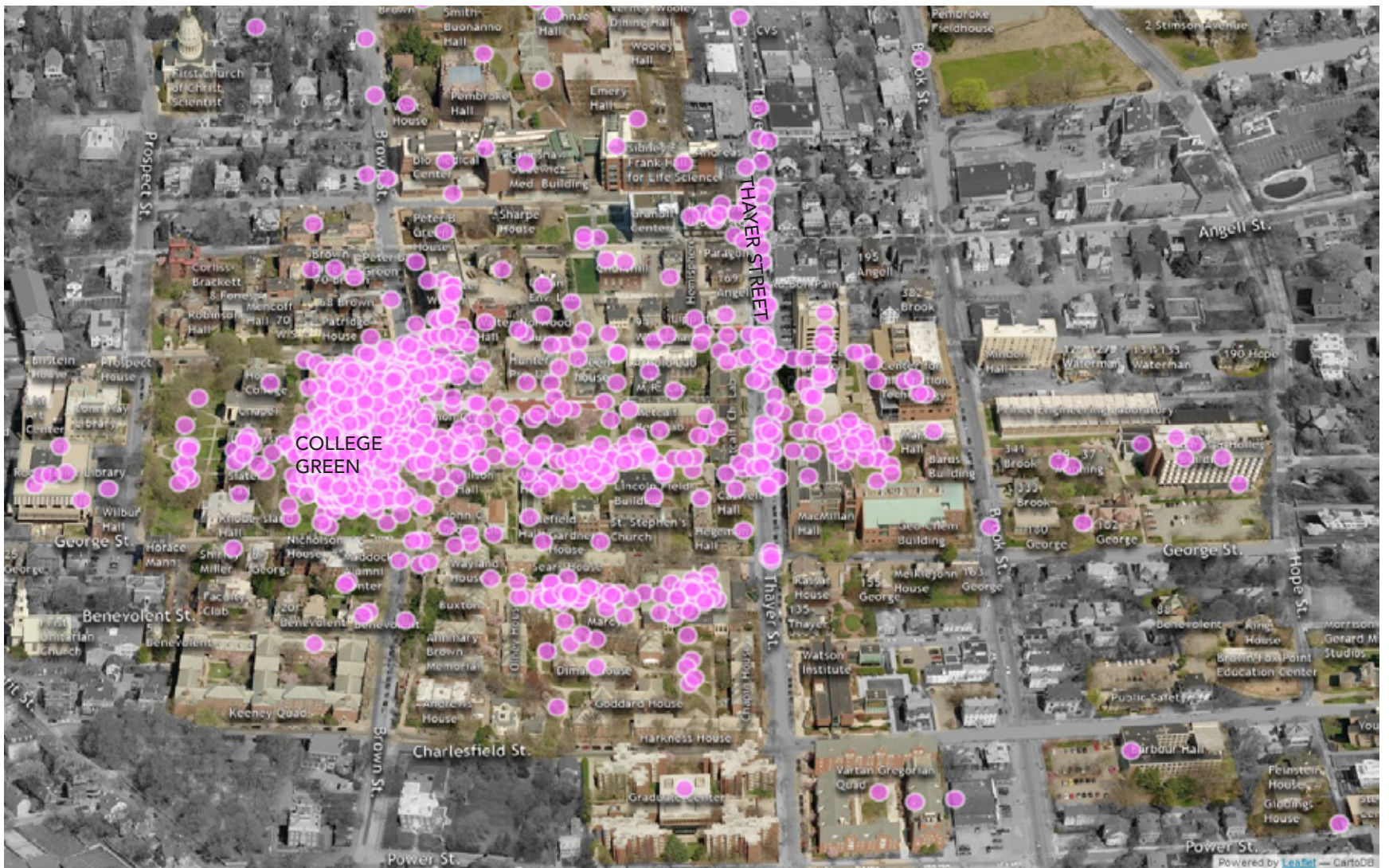
myCampus

myCampus is an interactive online survey that enables individuals to comment on how they use existing space according to a series of elements such as preferred teaching areas, dining and socializing areas, study places, most frequent circulation patterns, and parking, among others. For several categories, respondents were asked to rate the location as either “high quality,” “poor quality,” or “not specified.” Demographic information is simultaneously recorded, enabling individuals to filter and examine responses accordingly. This information helps provide a qualitative overlay to the quantitative data collected and provides an understanding of how users experience the campus.

For Brown, myCampus survey respondents placed nearly 41,000 total icons pertaining to fifteen categories. The categories receiving the highest number of placed icons were: classroom, dining, open space, and study. While analyzing responses discretely by category is informative, overlapping two or more categories reveals insightful use patterns and relationships.



Count of total icons placed by category in the myCampus survey



Where is the heart of campus?

Students, faculty, and staff overwhelmingly identified Brown's "campus heart" as the area around College Green, Brown's most historic campus zone. This suggests that despite the ever-expanding bounds of Brown's campus, the historic core remains at the center of Brown's identity. Secondary zones identified as the "campus heart" include Thayer Street, Simmons Quadrangle, and Hughes Court.

- The heart of campus



Dining and Study

An overlay of the dining and study responses shows a significant correlation between these two elements, suggesting that the most desired study areas are those that offer food. For this reason, areas like Thayer Street and Stephen Robert '62 Campus Center are among the most popular combined study and dining locations.

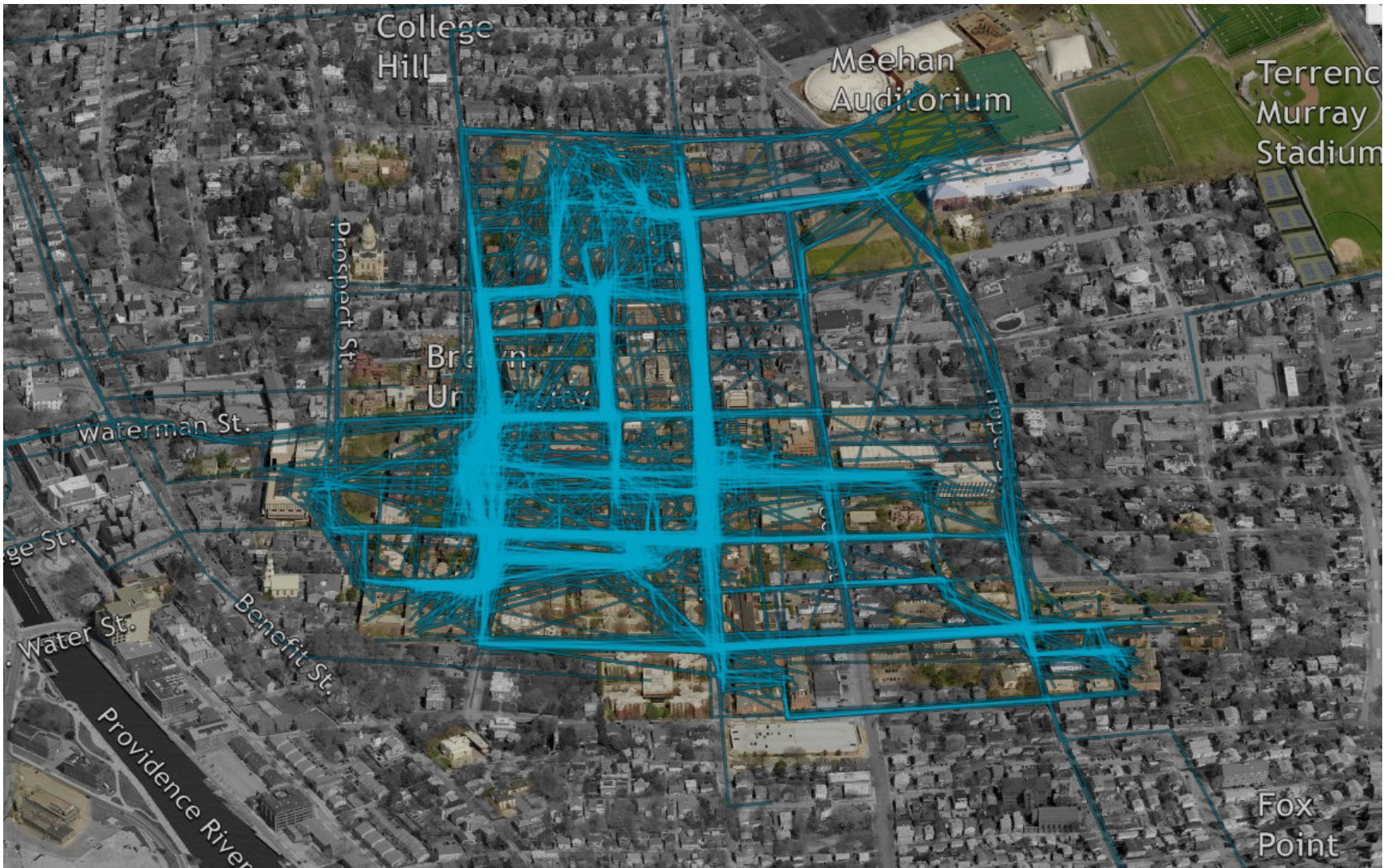
- Dining
- Study



Open Space and Socializing

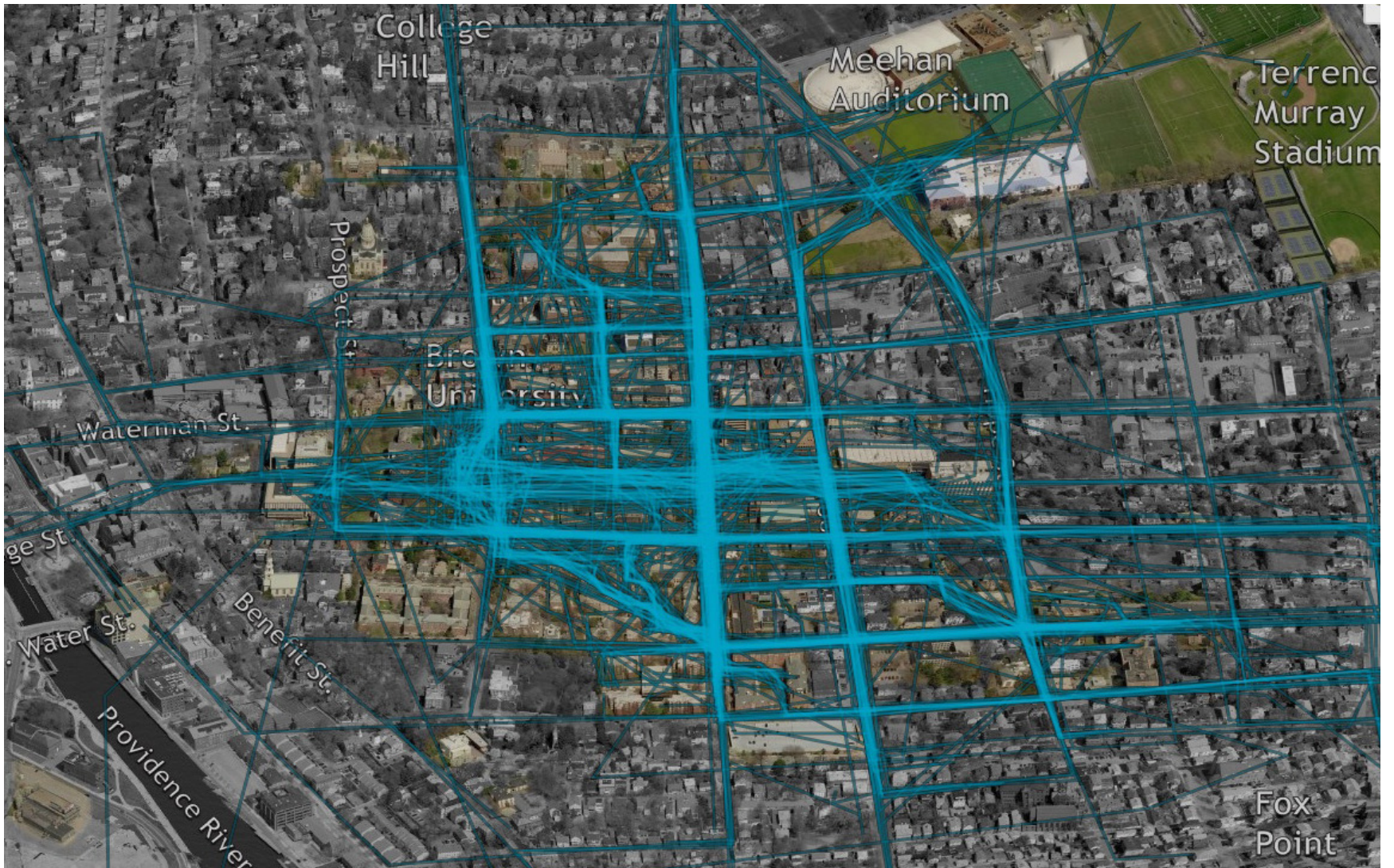
By contrast, the open space and socializing icons are generally dissociated from one another. This suggests that while traditional quads and courtyards are clearly delineated, they do not serve as primary nodes for social activity. Results may have been affected by winter weather during the survey period.

- Open Space
- Socializing



Mobility: 1st-year students

In addition to icons, respondents were also able to trace major pedestrian, bicycle, and vehicular routes. These images show student pedestrian and bicycle routes. Looking at only first-year students, the concentration of north-south activity between the residence halls and campus is apparent. By students' fourth year, when many students are living off-campus, the movement pattern is more about east-west connections. In both cases, Thayer Street is a dominant spine of pedestrian activity.



Mobility: 4th-year students



Mobility: All students, faculty and staff

The composite mobility diagram demonstrates both local and regional transportation networks, combining pedestrian (blue) and vehicular (purple) routes. Of note is the significant use of the Point Street Bridge as a means for getting from College Hill and environs to the Jewelry District.



Campus Comparisons

This study examined eight institutions, including a number of academic peers, with compact academic cores, five of which are shown here. Academic buildings are highlighted in white. Generally, the campuses are similarly configured with a concentration of academic functions at the core, small-scale buildings framing green spaces, and other programs such as housing, athletics, and professional schools nearby. The dotted circle in the diagrams represents a ten-minute walk circle, which generally covers the time allotted between classes. The intent of a ten-minute walk circle is to establish the relative bounds of the campus academic core. Notably, even campuses with larger landholdings, such as Stanford and Ohio State, still have compact academic cores that are relatively contained within the ten-minute walk circle.

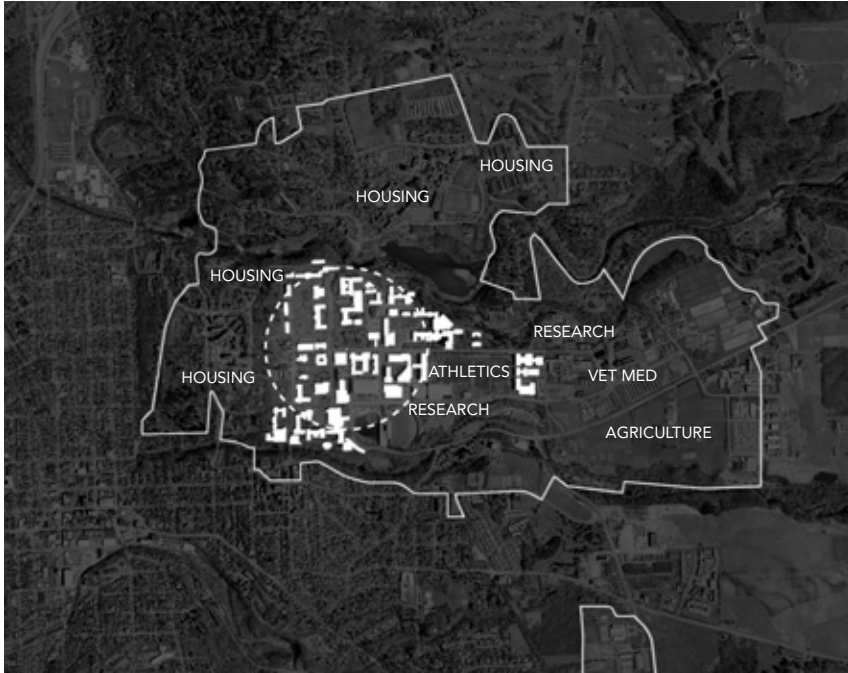
The ten-minute circle is particularly important at Brown because the open curriculum encourages broad-based non-siloed learning communities. Therefore, academic facilities should be located near one another to offer maximum class choice for students.



Brown University's compact academic core



Harvard University



Cornell University



MIT



The Ohio State University



Stanford University

Space Considerations

College Hill Capacity

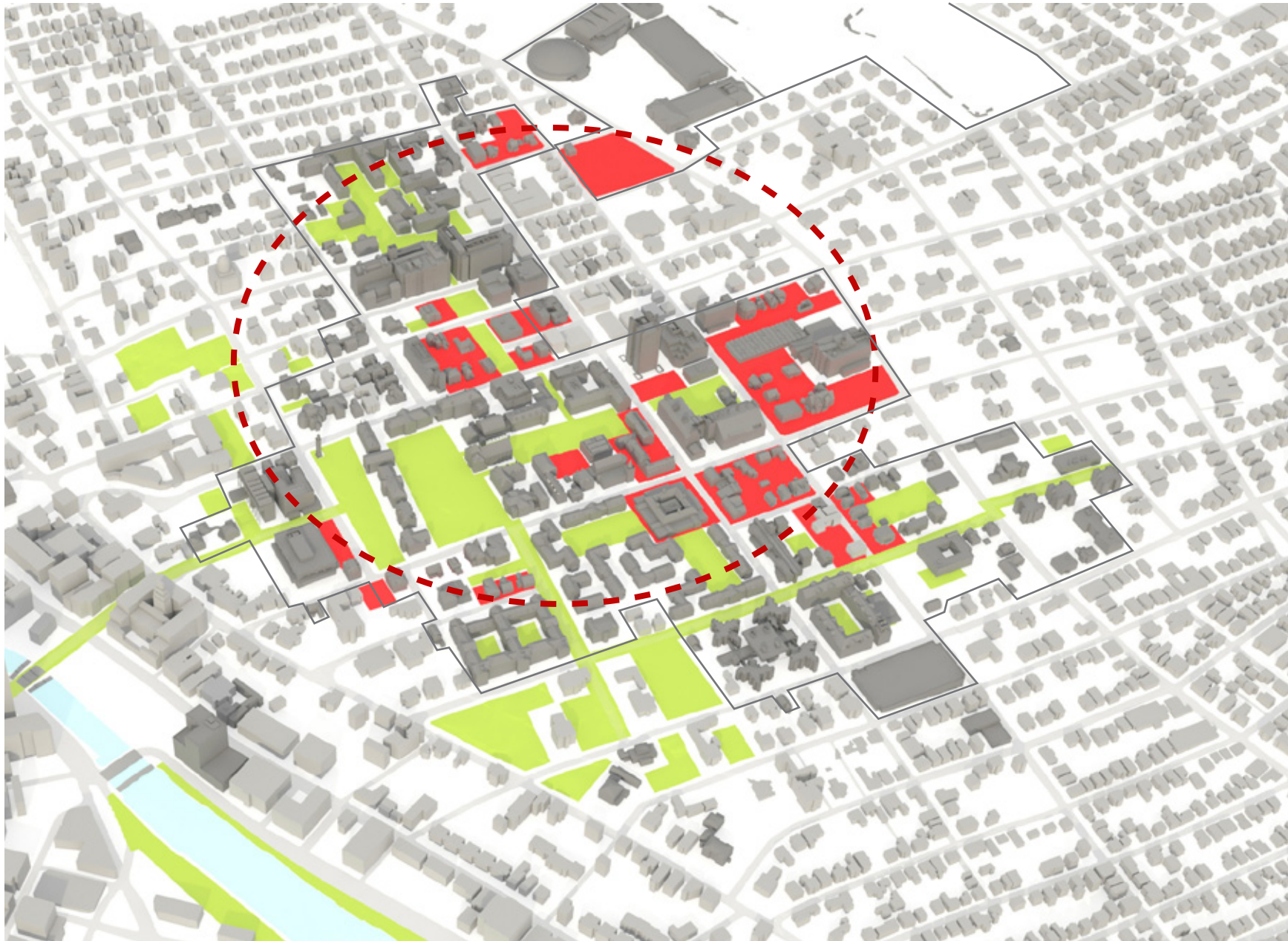
The nature of Brown's open curriculum and the highly connected nature of student course enrollments suggest that future core academic programmatic growth is most appropriate on College Hill. This study carefully examined available and/or under-utilized parcels within a ten-minute walk from the academic core to determine remaining development capacity. The ten-minute circle is important to encourage cross-pollination and collaborative learning communities. Renovation or additional academic facilities should be located near one another in keeping with the spirit of the open curriculum. The capacity analysis, which strongly considered future development of a size and scale in keeping with Brown's historic character, and which was respectful of neighborhood sensitivities, suggests remaining capacity is approximately 1.7-1.9 million gross square feet (GSF) of net additional space, approximately 250,000 GSF of which could be located close to the School of Engineering.

Classroom Utilization

The existing quantity of classroom space is adequate at Brown, although there are scheduling challenges due to the desire of faculty and students for courses to be taught primarily between the hours of 10 am and 2 pm.

Office Space

Two critical issues impact office space use. First, there is a general lack of graduate student office space. Second, there is significant administrative office space in the academic core and limited flexibility in size and clustering of offices. This finding suggests that as much as 100,000 square feet of administrative office space could be relocated from the core to peripheral locations to allow for the backfill of academic instructional and/or academic office space.



Potential additional capacity on Brown-owned land

- Potential capacity
- Open space
- 10-minute walk within academic core
- Edge of campus

Lab Suitability

The goal of this analysis was to identify buildings that contain some laboratory activity, whose long-term future warrants significant reinvestment to support various lab activities. The team conducted a detailed building walk-through of laboratory facilities to document the suitability of existing spaces and the potential for reuse, modernization, and reinvestment. Suitability of these buildings was measured using criteria such as floor-to-floor height, structural bays, shafts, basement, elevators, vibration sensitivity, etc. These individual scores were rolled up to an overall building suitability assessment which informed whether the buildings may benefit from reinvestment, or should instead be replaced or converted to non-laboratory uses.

The suitability analysis suggests that Geochem and Barus & Holley are suited to computational or dry lab use, while Lincoln Field should not support lab-based activities in the long term. Medical Research Lab may be a candidate for demolition.



Lab Suitability Assessment

■	4.00 - 3.50	Service intensive / wet
■	3.49 - 3.00	Intermediate / wet to dry
■	2.99 - 2.00	Dry
■	1.99 - 1.50	Non-lab use
■	1.49 - 0.00	Candidate for demolition

principles

Overview of Principles

The principles provide a basis for evaluating alternative capital strategies to ensure that future investment aligns with the University's mission. For each principle, a corresponding project scenario is identified. These scenarios provide examples of how the principles might be implemented. Testing of the principles' philosophy was necessary to ensure their validity. While the detailed scenarios contain much good thinking, they are offered as illustrations, not as prescriptions. The entire purpose of the framework is to create an environment for generating, testing, and comparing alternative solutions. Specific future decisions, especially questions of building siting, form and massing, will occur in future district and project planning efforts. These future scenarios can then be assessed against the principles outlined here.

One over-arching principle forms the foundation from which the others follow:

Strengthen the physical campus analog for the open curriculum

The open curriculum denotes a vibrant academic environment where students forge connections between interests and disciplines. This suggests a mode of discovery, vitality, experimentation, and exploration which is distinctively Brown. The University must always ask itself how the physical environment can best reflect this ethos. Certainly, Brown places an emphasis on engaged collaborative spaces, but the deep question of the physical analog to the open curriculum is one which the University can richly mine for many years to come.

The motivation for this principle comes from a reflection on what is uniquely Brown. The student course enrollment and faculty collaboration data highlight the essential inter-connected nature of the institution: we are stronger when we work together. It is therefore critical that the physical campus supports and encourages these interactions.

From this meta-principle, five other principles emerge:

- Prioritize academic uses in the core
- Celebrate the Brown scale
- Energize the core with a mixture of uses
- Engage Thayer Street
- Connect the campus
- Consolidate landholdings and catalyze partnerships



COLLEGE HILL

RESIDENTIAL

THAYER ST

CENTRAL SPINE

RESIDENTIAL

JEWELRY DISTRICT

RICHMOND ST

PROPOSED CAMPUS SHUTTLE

Strengthen the physical campus analog for the open curriculum

- Residential
- Green space
- Organizing spine
- Academic core
- Campus shuttle

Prioritize academic uses on College Hill:

College Hill will remain the core of undergraduate instruction and faculty research. Brown's highly collaborative culture in which faculty work across academic boundaries and students are free to explore subject areas across the curriculum is facilitated by the physical proximity of classrooms, faculty, and academic support, within an easily walkable distance of one another. Priority for space on College Hill will be given to academic departments and programs that involve undergraduates, as well as to classrooms and services for students.

The student and faculty collaboration data are the primary drivers for devoting finite land resources to academic uses in the campus core. That said, this study recognizes that social spaces are a key component of academic life, and the informal collaboration that happens therein is vital and must be not only accommodated, but also encouraged; this in turn suggests the need for food and socializing spaces.

While residential uses may be moved to the edge of the core over time, their proximity to the core remains essential. The framework recommends that zones directly adjacent to the academic core provide the best opportunities (along with Thayer Street) for residential life, and discourages campus-wide distribution of this critical student function.

Other uses, particularly administrative office space (except for administrative functions with a demonstrated need to be proximate to the core, such as student academic support services), should be moved to the center of College Hill as academic needs are formulated. It will be important to keep administration connected with academics and the student body.

The motivation for this principle came from several data sources. The student enrollment data showed how intertwined undergraduate academic life is, with resultant challenges associated with distancing core academic units from a convenient class change walking circle. The faculty data similarly emphasized the research advantages of inter-disciplinary collaboration, and while proximity is not always necessary to ensure this activity, it plays a critical role in those serendipitous interactions which so often fuel genuine innovation. An examination of peer institution use patterns highlighted alternatives to academic disaggregation. The College Hill infill study provides compelling evidence that significant square footage could be added within the academic core should this prove desirable (this is not inconsistent with a "renovation-first" strategy), and that several administrative and other uses could easily be moved to nearby convenient locations to further maximize opportunities for academic programs.



ACADEMIC

RESIDENTIAL

ADMINISTRATION

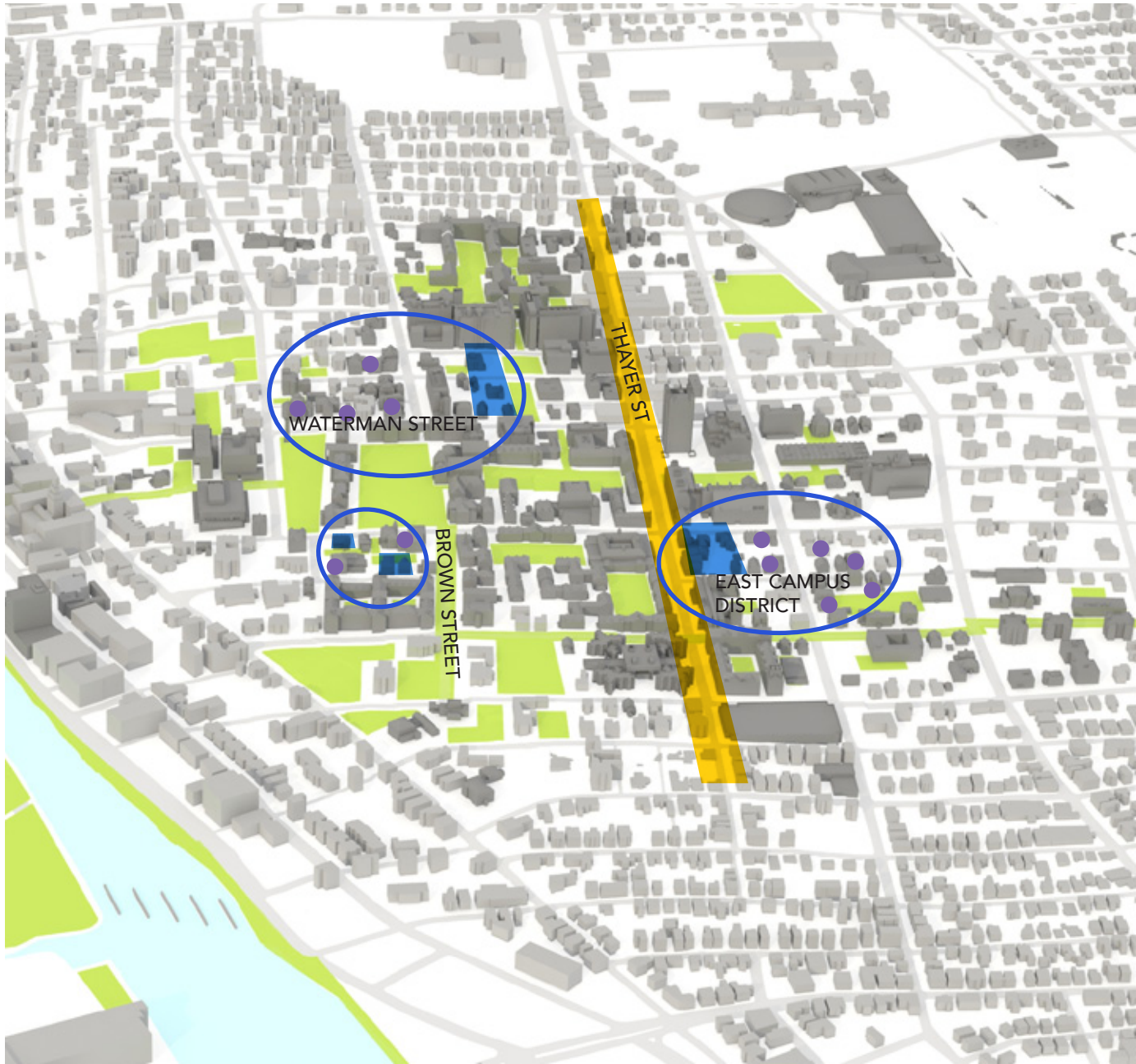
Prioritize academic uses in the core: collaboration through consolidation

Scenario: Former Houses





Brown's facility inventory includes a number of former houses. These buildings are often small relative to potential program options, and their renovations are usually not cost-efficient. As such, they are often smaller than the best examples of the "Brown scale." That said, they are a sizable portion of the university's overall inventory, and occupy valuable core real estate. In some cases, former houses have been linked, and others have gained additions, making them more effective. Where this is not possible, a replacement strategy may be advisable.

In considering future directions for Brown's former houses, there can be no one-size-fits-all solution. The variations between structures are such that each project will need its own careful thought. It is, however, possible to structure this individual thinking within several broader framework concepts. The first is the identification of three districts: Waterman Street, east campus, and Brown Street.

The general principle applied across all three districts is to increase density along major corridors (the Walk, Thayer Street, the new open space that will result when Brown Street is closed between George Street and Charlesfield Street). Increasing density is directly related to consolidating the academic core. In some cases, this means replacing (or moving) houses to allow for new buildings. For the Waterman Street district, the framework confirms previous planning directions: the nature of Waterman Street itself is established and should continue with density increasing along the open space connector (i.e. largely a replacement strategy). The east campus district has experienced success with the Brown-to-Brown initiative, and this should be further encouraged, allowing many of the houses to remain, but is otherwise likely not a focus for near-term investment. The Brown Street district is, in a real sense, the discovered opportunity. Here, existing houses could be linked or new structures introduced.



Houses are primarily located in three key districts

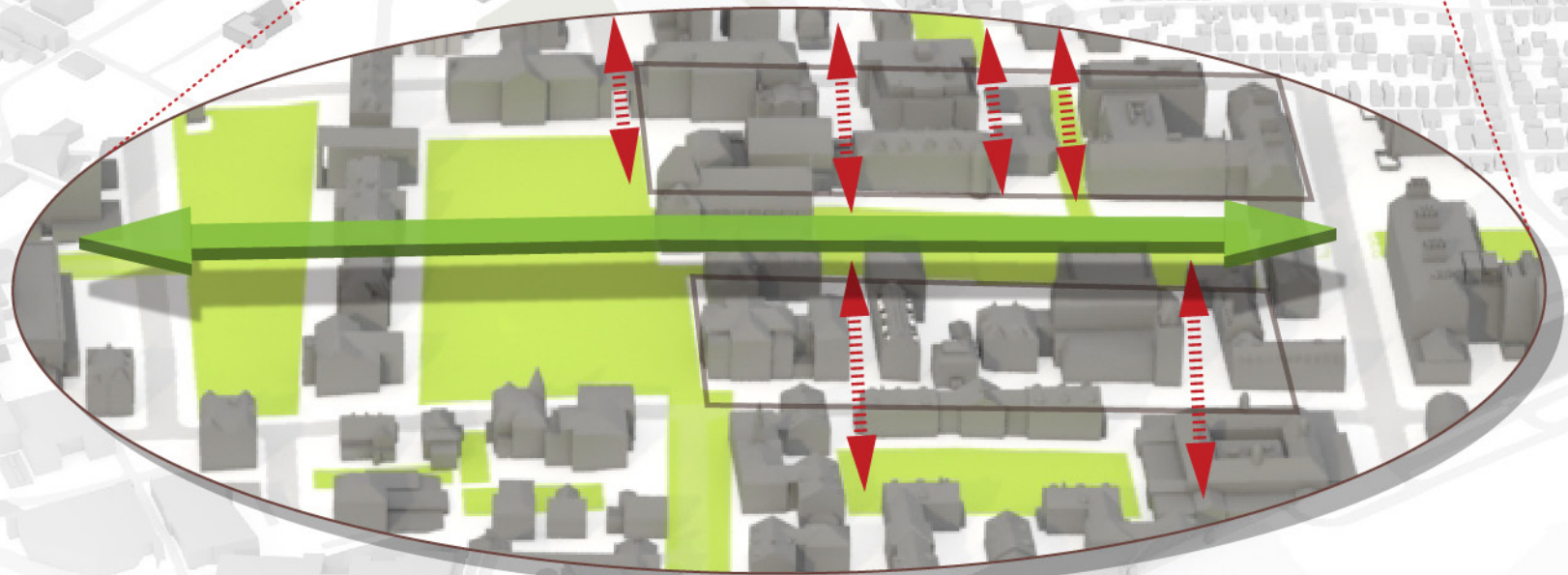
-  House district
-  Organizing spine
-  Potential for increased density
-  House to keep

Celebrate the Brown scale

There is a certain intimate scale—not too big and not too small—that represents Brown at its best. When the university has operated outside of this scale, for example in small houses or imposing science facilities, an essential aspect of the campus’s nature is compromised. While the university must always prioritize functional need in new facilities, it should encourage innovative design solutions which meet these needs in a manner that is most consistent with the scale of the beloved campus core. This character includes porosity on the ground plane, smaller footprint buildings that maximize efficiency, and contextual massing that respects neighboring uses and scale. It speaks to block size and the importance of mid-block connections where the urban street network has been interrupted.

The principle is motivated in part by soft considerations derived from a healthy self-reflection on the relative success of previous campus building projects, documented through wide-ranging stakeholder interviews. It is ultimately the result of a rigorous analysis of different campus zones, and an effort to translate the experienced sense of place into measurable quantities, as follows:

COLLEGE HILL



Celebrate the Brown scale: buildings and open space

- Open space
- Mid-block porosity
- Academic core
- Connection across campus

Density and Open Space

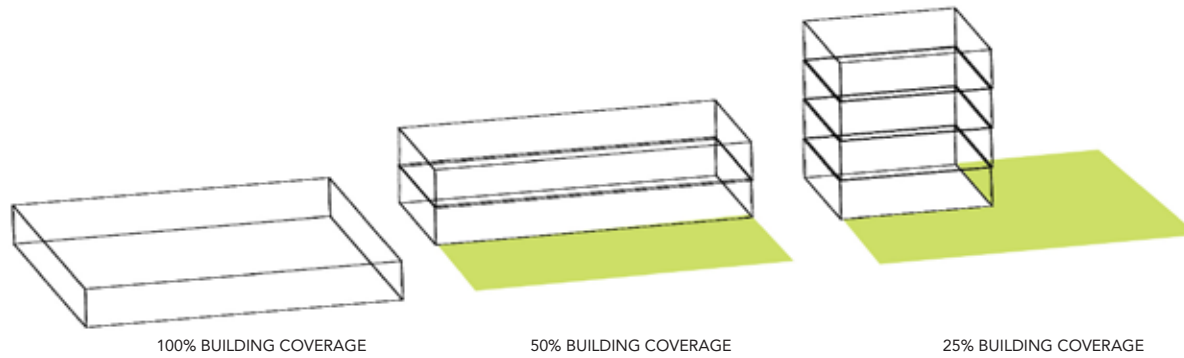
While appropriate scale and density are difficult to quantify, one way to define the intimate scale of Brown's historic core is to examine the Floor Area Ratio (FAR). Traditional FAR calculations measure density at the parcel level by comparing the combined area of a building's floors to the area of the parcel on which that building sits. In a campus setting, FAR can also be calculated for a district to show the relationship of buildings to land area (including open space such as quads, pathways, courtyards, etc.). An analysis shows that the FAR of the historic Brown Campus averages to 1.0, meaning building floor area and open space are balanced at a 1:1 ratio. The area containing the Robert Campus Center, Stuart Theater and Metcalf Hall is denser, with a FAR of 1.5. This is a helpful metric by which to consider the character and density of future development within other districts on campus.

Building Scale

Similarly, building scale is important to defining the Brown scale. Typical building widths in this part of campus average 118 feet by 63 feet, with a range of about 40 to 200 feet at the longest. Robert Campus Center and Stuart Theater combined are 350 feet long, but the facade is broken in two parts. The tallest buildings in this zone are Rockefeller Library, List Art, John Hay Library, and the Carrie Tower.

Porosity

The buildings in the historic Brown core allow and promote pedestrian connections through campus. This porosity is mainly due to the compact nature of the buildings, which frame open space and support important linkages between buildings. Mid-block cut-throughs running north-south are never more than 250 feet apart. New structures should take FAR, scale, and porosity into account, as they can guide creative design solutions that are in keeping with this well-loved and successful part of campus.



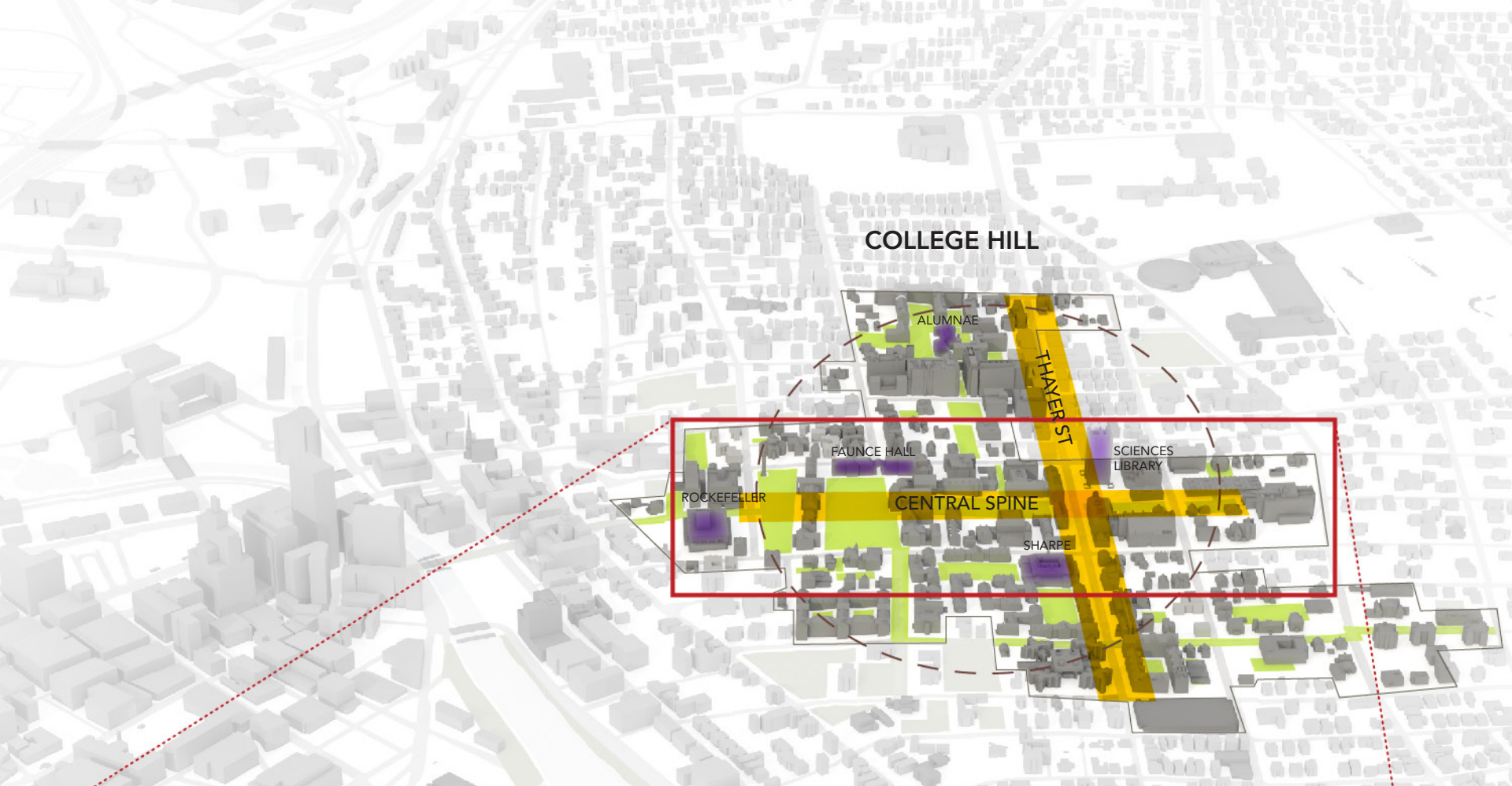
Three examples of a 1.0 FAR; Brown's campus tends to fit the third example, with three to four story buildings and large quads



Detail of Brown's historic campus: the whole block containing Rockefeller Library, List Art Center, Quiet Quad, College Green, and Simmons Quad has a FAR of 1.0 although areas within the block are more dense










Energize the core with a mixture of uses

Programmatically, the campus should favor mixed-use projects linking academic and residential uses with active student oriented ground floor activities. In particular, Brown should continue to create a vibrant campus environment by strategically inserting mixed-use centers within the campus core. Landmark buildings can be renovated or repurposed to amplify vitality in key areas. This strategy has been successfully employed in a number of campus locations today including the Robert Campus Center, Rockefeller Library, Sharpe Refectory, the Sciences Library, and Alumnae Hall. The Robert Campus Center within Faunce Hall is a particularly good example. The building houses a theater, the campus center, a café, administrative offices, and meeting rooms, amongst other uses. Faunce is successful partly because its mix of uses ensure activity at different times, and because it is strategically located within the historic center of campus close to dormitories and classes.



The myCampus data revealed a mixing of many response types at Rockefeller Library, Faunce Hall, Sharpe Refectory, and the Sciences Library

Energize the core with mixed use buildings

- | | |
|---|---|
|  Open space |  Dining |
|  Organizing spine |  Socializing |
|  Academic core |  Studying |
|  Mixed-use building |  Working |
| |  Collaboration |

Scenario: Sharpe Refectory

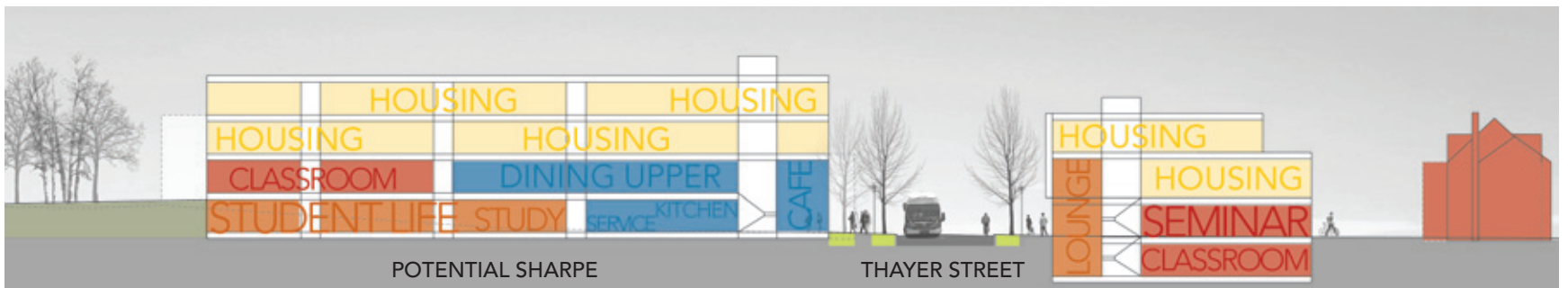
Sharpe Refectory requires significant reinvestment because of its condition. The building does not currently make best use of its important Thayer Street location. Exciting possibilities exist to radically rethink this critical campus landmark to energize the core with mixed-use buildings. One possibility is the introduction of a significant residential component and a new layout for dining. As the university considers options for this site, it will carefully need to weigh the cost premium associated with a new facility against the inherent real estate value of the site. The primary framework consideration should be to have active and engaged ground floor uses on both sides of Thayer Street.



Location of Sharpe Refectory along Thayer Street



Existing configuration of Sharpe Refectory



Future scenario showing the relationship of active uses to Thayer Street

Engage Thayer Street

Thayer Street occupies critical campus geography in the center of the academic core, an area where the University needs to invest to achieve its goals. While the nature of the street today does not always exemplify the best traditions of the university, it is not a location the university can ever abandon. The street represents a critical internal north-south corridor and a connective spine to existing university housing districts, which anchor each end of Thayer Street. Moreover, the myCampus data suggests Thayer is heavily used by the university community. The existing retail mix can be further improved, but the notion of a vibrant retail and multi-generational residential environment represents an enormous opportunity for the university. The mix of ownership along the street is consistent with this principle, with the private sector section bookended by university owned parcels; the character of these sections should reflect this ownership pattern. For these reasons, Thayer Street should be reinforced as a future center of campus life.

The myCampus data provides compelling evidence of the importance of Thayer Street, both as a critical pedestrian connection between significant university residential populations, and as a social hub of the university. Given the amount of activity on the street, and its central location relative to the academic core, it is a frontier the university must embrace.



COLLEGE HILL

RESIDENTIAL

THAYER ST

CENTRAL SPINE

RESIDENTIAL

Thayer Street as a center

- Residential
- Open space
- Organizing spine
- Academic core

Scenario: Thayer Street

Consistent with the principle of Thayer Street as a center, the nature of this street is such that it should always support mixed-use activity with a vibrant pedestrian-oriented ground floor and numerous potential uses (residential, office, academic, etc.) above. This strategy provides the opportunity for a significant residential component within the academic core: potentially 865 - 1350 beds could be located across the street's three zones: the Thayer North university zone with potential increased Brown student housing; the mixed-use Academic Core zone with ground floor retail and residential above (three story and four story configurations were explored); and then a second university zone, Thayer South, which includes the reuse of Sharpe Refectory for residential and dining as discussed below.



THAYER NORTH

UNIVERSITY ZONE: 200 - 250 BEDS

PARTNERSHIP ZONE
350 - 600 BED-POTENTIAL,
LONG TERM

ACADEMIC CORE

THAYER SOUTH

UNIVERSITY ZONE: 315-500 BEDS

Potential building sites exist along Thayer Street

Connect the campus

The open space and road network are critical conduits of activity. Given the emphasis throughout Brown on collaboration, the ability of people to easily move between neighborhoods, districts, and campus communities is a basic requirement for the success of the institution. This is true within both College Hill and the Jewelry District, and between these two districts. Interconnected green spaces on College Hill reinforce the notion of a cohesive campus and should be augmented. Likewise, city streets and sidewalks are critical to campus mobility. Transit must also play a key role, both university-run shuttles and potential city street cars. The university therefore requires a comprehensive transportation plan including pedestrian and bicycle transportation. Initiatives that facilitate more effective physical transit between the two parts of the campus should be pursued, as should technological tools that make possible virtual meetings and other interactions with ease and predictability.

myCampus provided compelling data on faculty, staff, and student movement patterns, highlighting both opportunities and challenges. If the overarching planning principle is one that rests on collaboration and integration, then it follows closely that establishing physical connections is critical. Indeed, the centrality of this idea makes “connection” not only a driving principle of the university’s physical planning framework, but also a driver of its new strategic plan.



COLLEGE HILL

JEWELRY DISTRICT

Connect the campus

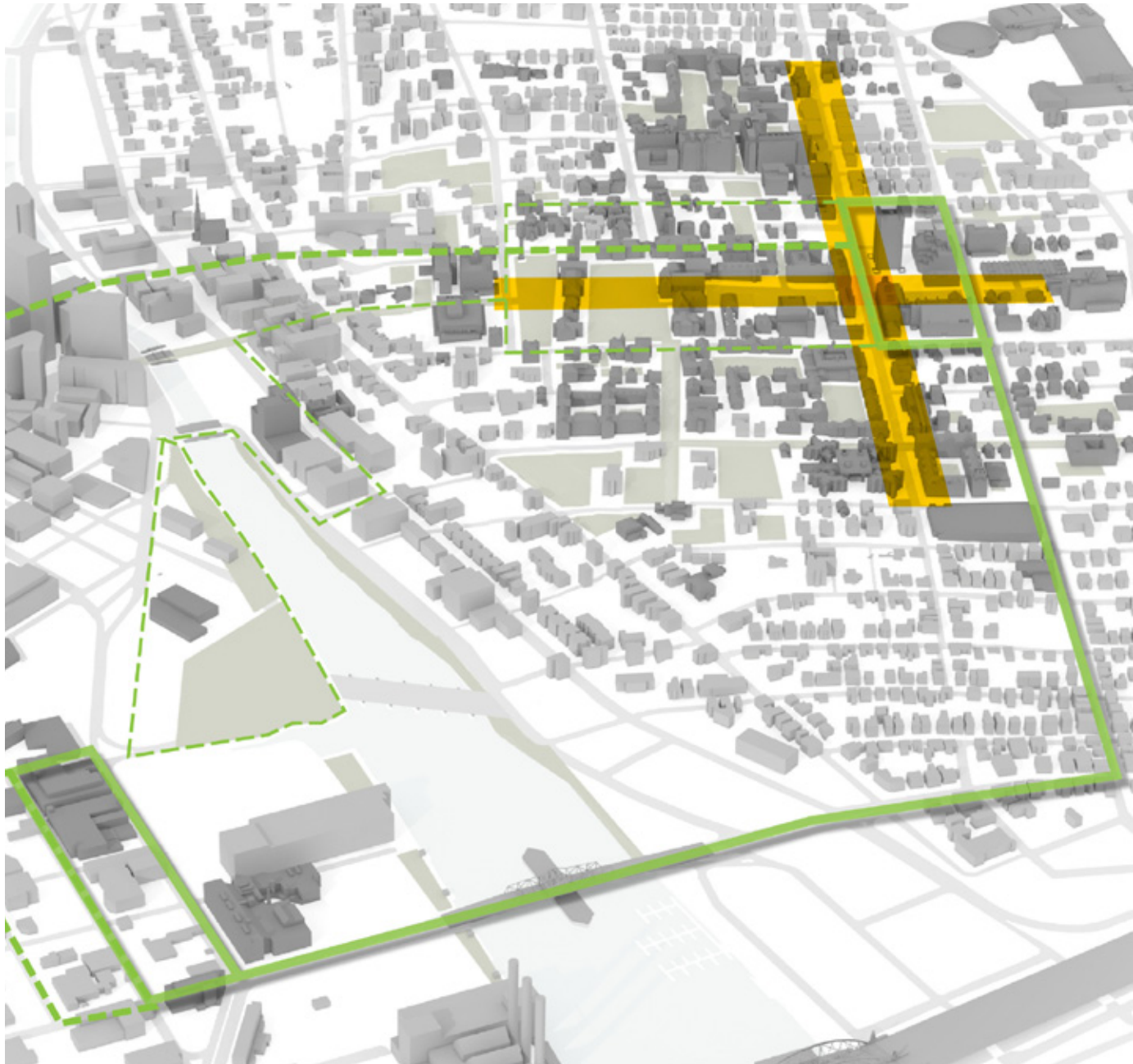
- Open space
- Organizing spine
- Academic core
- Proposed campus connector
- Existing shuttle
- Planned city trolley





Scenario: Campus Shuttle

The campus shuttle system can better connect the campus, not only within the College Hill district but also from College Hill to the Jewelry District. Modifications to the existing campus circulator will improve efficiency and levels of service. At the same time, the University should consider implementing a campus connector to provide point-to-point service between College Hill and the Jewelry District. A third transit system, the city's proposed trolley project, would more directly connect College Hill to downtown Providence. A transit hub at Thayer Street can serve as a central gathering node and shuttle transfer station and would provide a powerful partnership opportunity with city and regional transportation modes.



The myCampus data shows an efficient vehicular connection along Brook Street and Point Street to the Jewelry District



-  Academic core
-  Proposed campus connector
-  Existing shuttle
-  Planned city trolley

Consolidate landholdings and catalyze partnerships

The university must identify key acquisition parcels consistent with the tenets of the framework and use these to consolidate critical zones of activity, and where appropriate, to incentivize partnership activity.




Brown is committed to Providence. It can and must catalyze economic partnerships for the city, and to facilitate knowledge transfer and the creation of solutions to real world problems. The university will thrive when it identifies appropriate avenues for others to support its key mission—student housing is a good example—and the financial consequences of this type of partnership will ensure the university can focus internal investments on key academic opportunities. The Jewelry District and the College Hill core are good examples of locations where the university can leverage partnerships to catalyze change.



COLLEGE HILL

JEWELRY DISTRICT

Consolidate critical landholdings and catalyze partnership opportunities

-  Open space
-  Organizing spine
-  Academic core

Scenario: Jewelry District

By leveraging partnerships within the Jewelry District, Brown could create an exciting new academic cluster of programs like Translational and Brain Science that can be disaggregated from College Hill. In the spirit of consolidating critical landholdings, Richmond Street can serve as the organizing spine for initial investment.

Scenario: Richmond Street

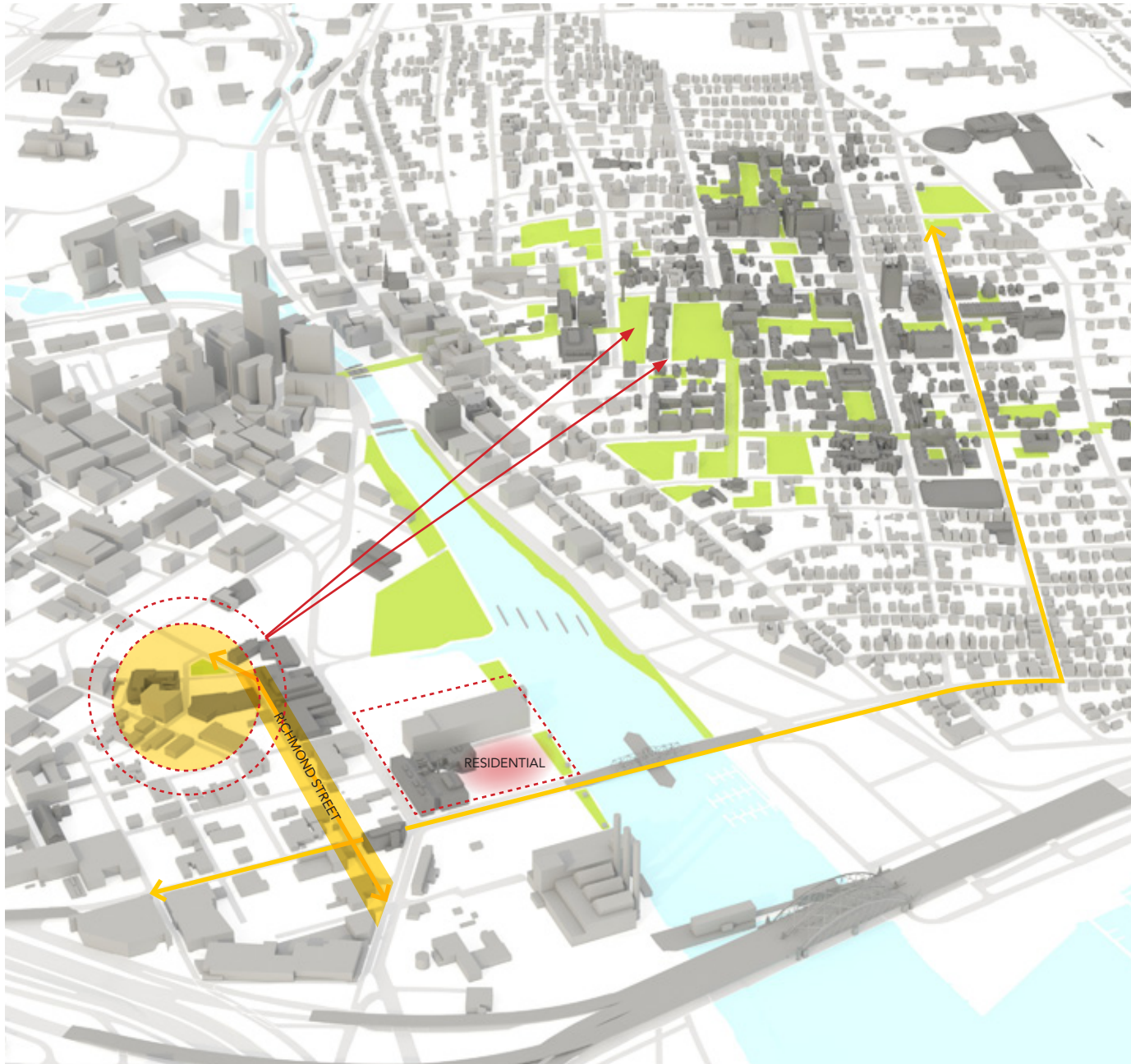
Richmond Street has the potential to be a critical organizing spine for Brown's presence in the Jewelry District. It connects the Ship Street Square open space (the location of many of Brown's existing Jewelry District facilities) to a proposed major new open space directly north of the South Street Power Station. For this reason, it would make an excellent transit corridor, and could potentially host additional Brown program in the long term.

Scenario: South Street Power Station

The redevelopment of the South Street Power Station is an important partnership opportunity for Brown. The anticipated redevelopment will include graduate student housing, administrative office space, and potentially collaboration with the University of Rhode Island and Rhode Island College to bring their nursing programs into the Jewelry District in close proximity to the Alpert Medical School and nearby hospitals. This critical site has tremendous visibility and will create a prominent gateway into the district.

Scenario: Translational and Brain Science

Self-contained academic units with a focused research agenda and no logistical constraints associated with the undergraduate curriculum are good candidates for relocation to the Jewelry District. An initial catalyst project focused on Translational and Brain Science, and the opportunity to finish the Jewelry District Ship Street Square, currently anchored by the Medical Education Building. Proximity to 70 Ship Street is another compelling factor, which allows for consolidating research activities and essential landholdings while reinforcing a critical mass.



Richmond Street serves as the primary spine of the Jewelry District, and the area near the South Street Power Station could accommodate future residential. Translational and Brain Science facilities are anchored along Richmond Street, with visual connectivity back to College Hill.

- Open space
- South Street Power Station
- Translational and Brain Science
- Visual connection
- Key axes

case study

School of Engineering

The university has identified its School of Engineering as a near-term strategic focus. New faculty lines will be created, and significant new research activity is anticipated. This programmatic growth will require corresponding development of new facilities. Given the likely size of the required new facilities, the university's initial assumption was that this expansion would need to be located off of College Hill. Two important planning questions arose: (1) what kinds of space, and with what square footage, will the school require, and (2) where should this enhanced engineering school be located. Brown selected an architect, Payette, to address the first of these questions in a companion engineering building program study. The second question presents the perfect testing ground for this study's data-driven principle-based approach.

Process

The first step in addressing the location question was the identification and creation of relevant data sets. This process revolved around five key questions:

- How does this decision impact students and their learning patterns?
- How does this decision impact faculty and their research collaborations?
- What can we learn from the existing building stock?
- What is the capacity of various campus districts?
- What have other institutions done when faced with opportunities of this type?

The course enrollment analysis strongly suggested engineering could not be disentangled from the undergraduate population and the faculty collaboration survey revealed that engineering was the nexus for research in the physical sciences. Furthermore, significant development capacity exists on College Hill, particularly in the neighborhood around existing engineering facilities. The existing building stock suggests the need for reinvestment, and supports the notion that some existing facilities could be renovated to support many kinds of engineering activity if needed. When other schools have felt pressures on their core campuses, they have tended to disaggregate residential, applied research, athletics, professional schools, and administrative functions, rather than core academic units.

These factors, particularly the student and faculty data, argued strongly for engineering's continued presence on College Hill—in effect, because of the data, the university changed its mind.

The second and final step in the case study was the exploration of specific design ideas proximate to existing engineering facilities.

Solution

The architect determined that the School of Engineering requires additional space, which can and should be located on College Hill in the existing Science and Engineering district. The current district is constrained by several large existing facilities—including Prince Laboratory and Barus & Holley, both in need of significant renovation—and several large houses, whose location does not represent the highest and best use of the land. The solution requires smaller building modules built in phases to allow for the incremental renovation of existing facilities. New development must also be contextual to align with campus-wide planning efforts and to connect the district to the broader campus.

Strengthen the physical campus analog for the open curriculum

Solution: Locate engineering expansion in the existing College Hill district to preserve the tight interconnectivity of the undergraduate experience as well as proximity to other researchers in the physical sciences.

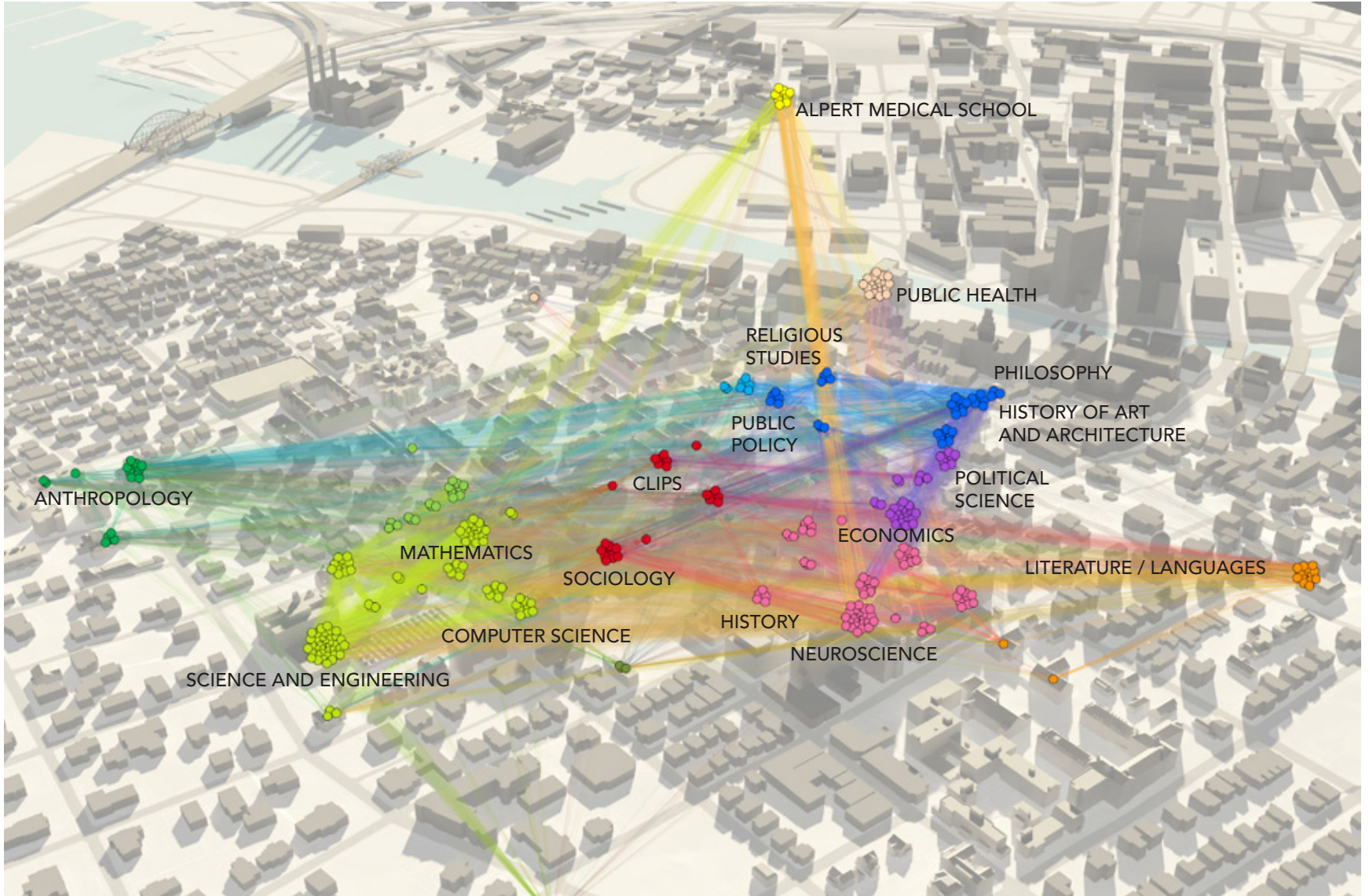


Strengthening the physical campus by the phased addition of Brown-sized building modules within the existing Science and Engineering District

- Open space
- Science and Engineering District
- Areas with additional capacity
- Hope Street Campus Edge

Prioritize academic uses in the core: collaboration through consolidation

Solution: Because the School of Engineering is central to so many students' undergraduate education, the new building should be located near both the existing engineering complex and the center of campus. At the same time, a transition between the campus and the abutting neighborhoods could be created through the potential relocation of former houses within the engineering complex to, or construction of appropriately scaled new buildings at, the edge of campus along Hope Street (the historic nature of this street, in particular, needs to be respected).



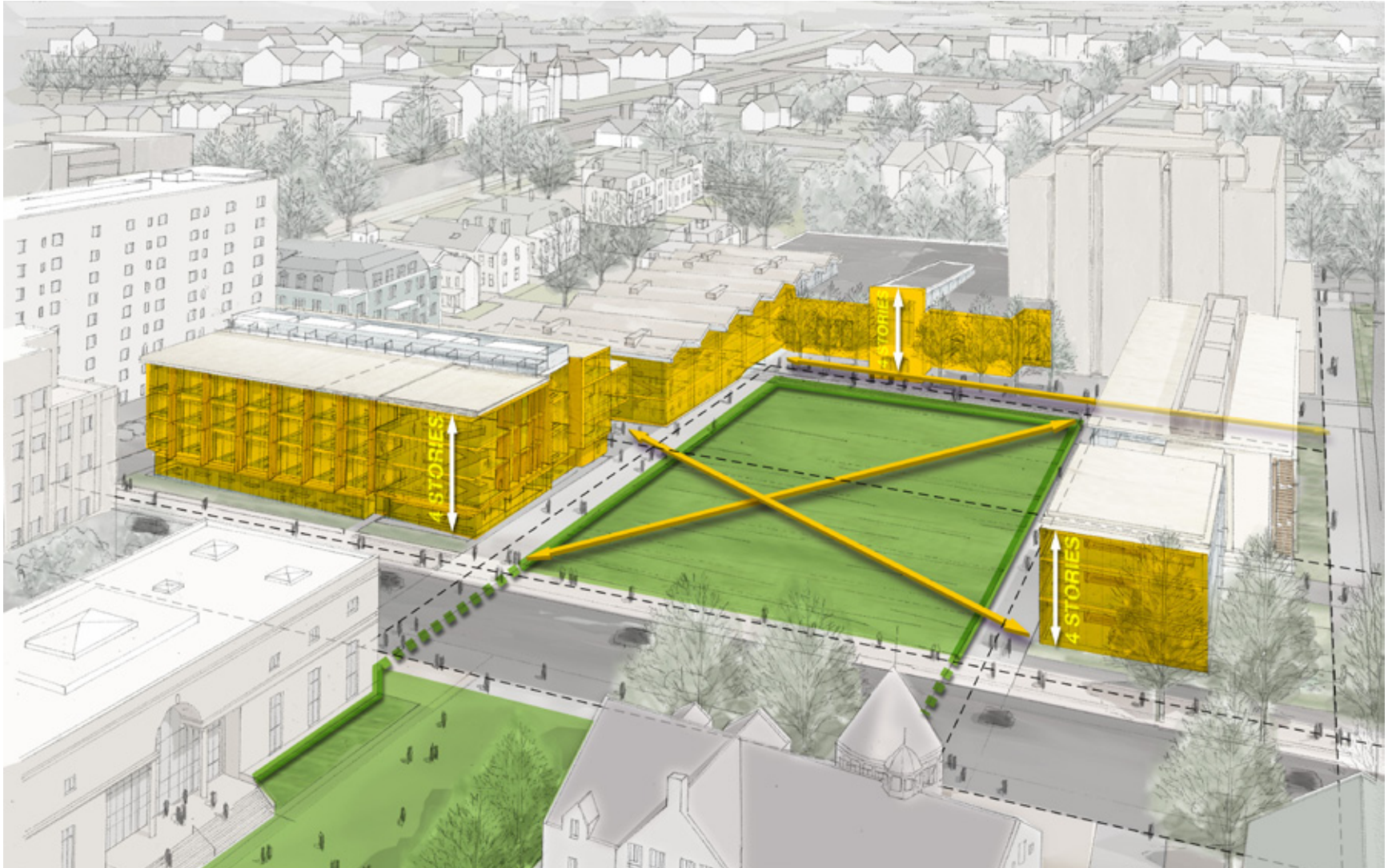
Discipline clusters and faculty collaborations from the faculty survey. Science and Engineering maintain close collaborative relationships with many academic units on College Hill

Celebrate the Brown scale: buildings and open space

Solution: Maximize building type floor efficiency and porosity on the ground plane while minimizing building footprint size, building height, and building mass. In the case of the School of Engineering, this translates to three-to-four laboratory bays, each 24 feet in width, for a total building width of between 72 and 96 feet. Overall building footprints in this district should range between 15,000 and 20,000 gross square feet, with the opportunity for a larger basement level, as necessary. Building height should be kept to three-to-four stories, with the lower-height buildings sited along the neighborhood edge. Block sizes should be consistent with the campus core. Where larger blocks are required because of the existing street network, mid-block connections (particularly north-south connections) must be provided as exemplified in the campus core.

Energize the core with mixed-use buildings

The mixed-use program principle creates exciting opportunities for development in the engineering sector. It suggests active ground floor uses, particularly on the north side of the new building, facing Manning Walk. Here there is tremendous potential for transparency and a dynamic and vibrant social zone. Further renovations of both Prince and Barus & Holley can amplify this idea, again using transparency, and potentially placing engaging activities like “maker spaces” (in Prince) and high-traffic programs like those around innovation (in Barus & Holley).

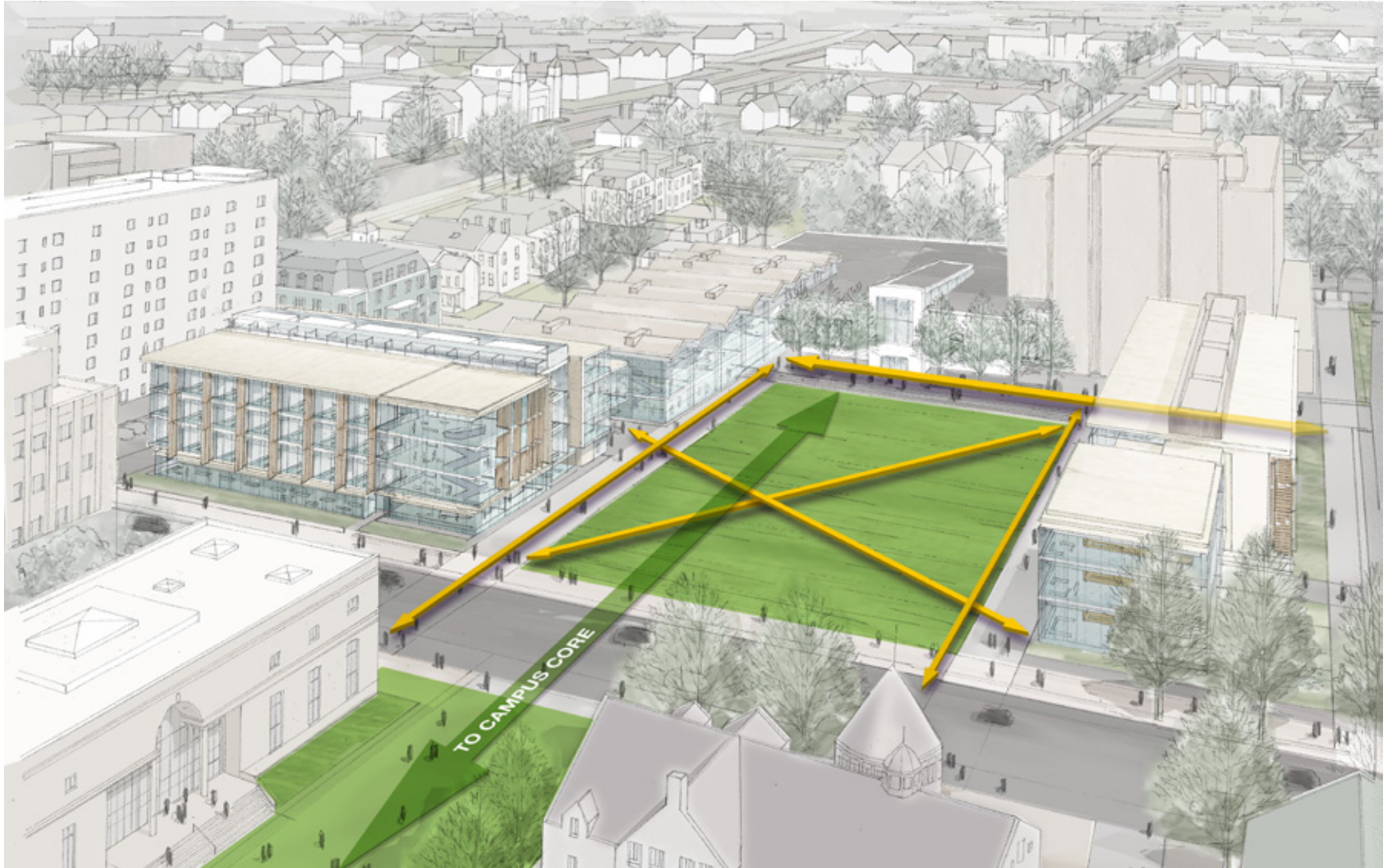


Conceptual view of School of Engineering and associated facilities from Brook Street, looking east




- Campus green space
- Visual connection between greens
- Pedestrian path
- Active building facade

Connect the campus

Solution: Create main organizing green with walks along the edges and mid- or cross-block porosity. Site buildings around interconnected green spaces to create exterior gathering spaces and allow for natural light. Buildings should have entrances off the green space with pedestrian or public-oriented activities on the first floor. The district should also promote connectivity to the campus green space network, particularly across Brook Street and Thayer Street to Simmons Quad, as well as internal connections to Prince and Barus & Holley.



Conceptual view of porosity between buildings and connectivity to the academic core

-  Campus green space
-  Connection between greens
-  Pedestrian path

potential catalyst projects

Implementation

The handbook describes a range of near-term catalyst projects that align with the planning principles and *Building on Distinction: A New Plan for Brown*. Each project offers the potential to not only accommodate significant needs but also transform the campus.

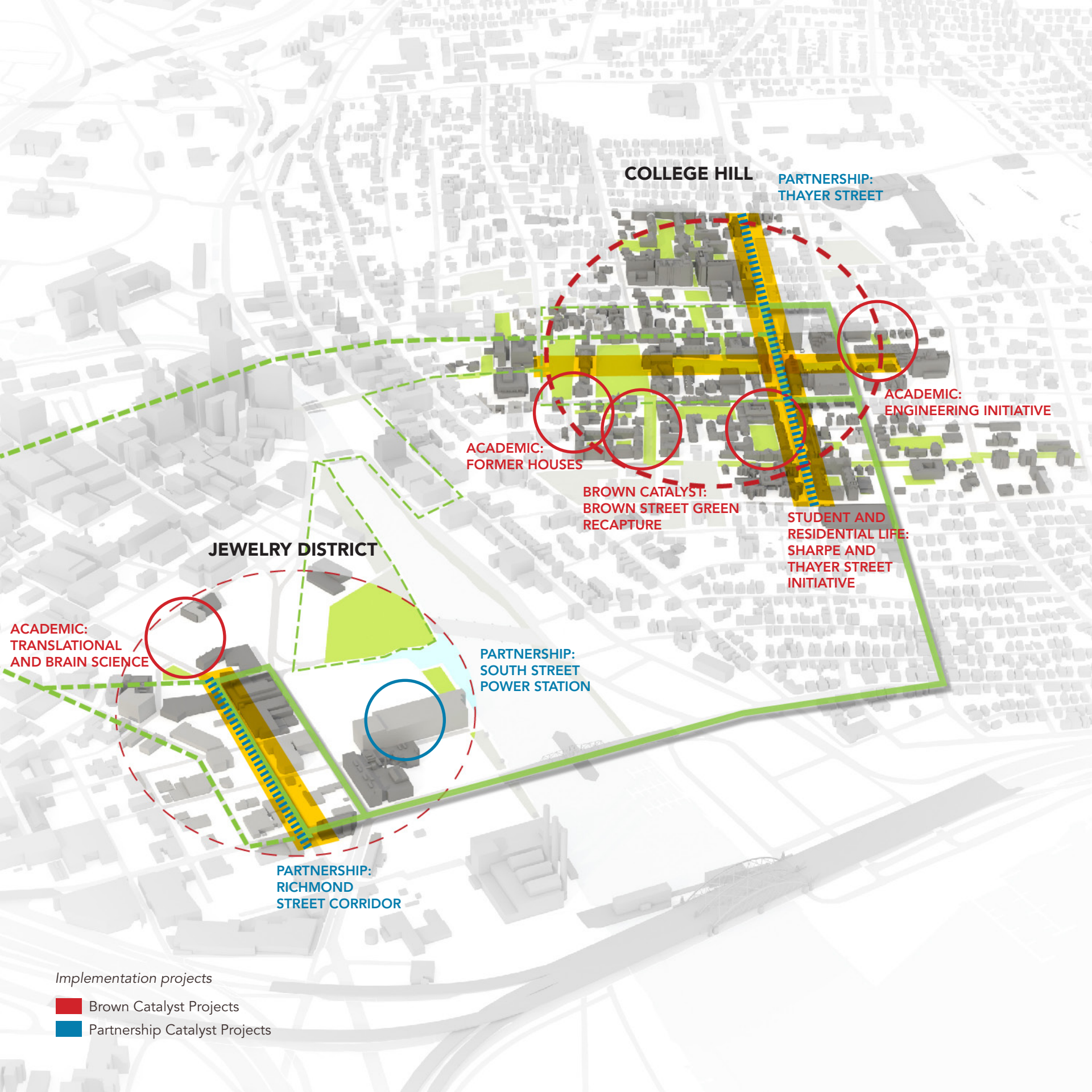
The diagram at right shows the relative locations of the potential projects explored in the handbook. Distinction is made between those projects that Brown will lead versus those that may be implemented through a partnership.

Brown Catalyst Projects

- Engineering
- Translational and Brain Science
- Sharpe Refectory
- Former Houses
- Brown Green Street Recapture

Partnership Catalyst Projects

- Thayer Street
- South Street Power Station
- Richmond Street



COLLEGE HILL

PARTNERSHIP:
THAYER STREET

ACADEMIC:
ENGINEERING INITIATIVE

ACADEMIC:
FORMER HOUSES

BROWN CATALYST:
BROWN STREET GREEN
RECAPTURE

STUDENT AND
RESIDENTIAL LIFE:
SHARPE AND
THAYER STREET
INITIATIVE

JEWELRY DISTRICT

PARTNERSHIP:
SOUTH STREET
POWER STATION

ACADEMIC:
TRANSLATIONAL
AND BRAIN SCIENCE

PARTNERSHIP:
RICHMOND
STREET CORRIDOR

Implementation projects

- Brown Catalyst Projects
- Partnership Catalyst Projects



S A S A K I