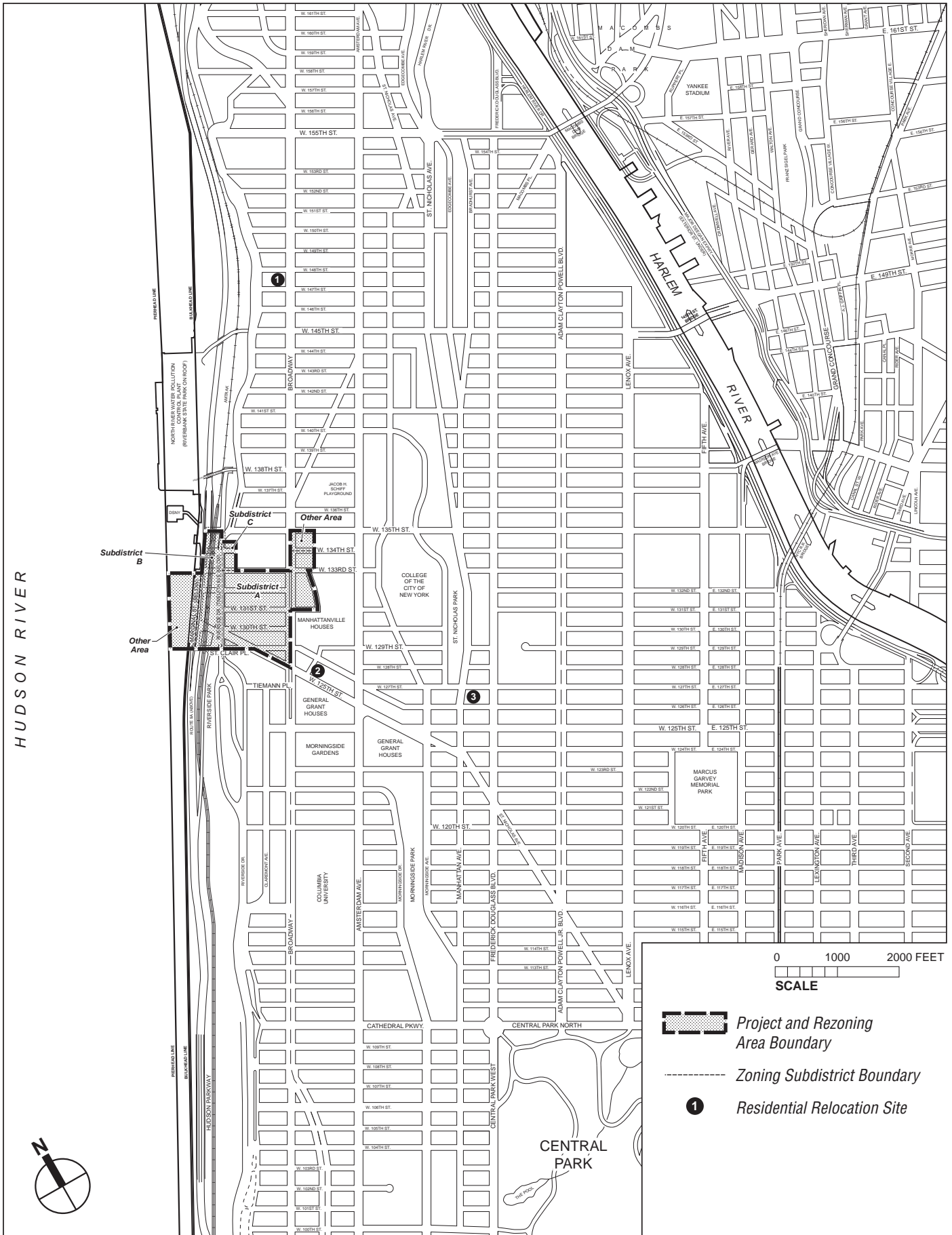


**A. PROJECT IDENTIFICATION**

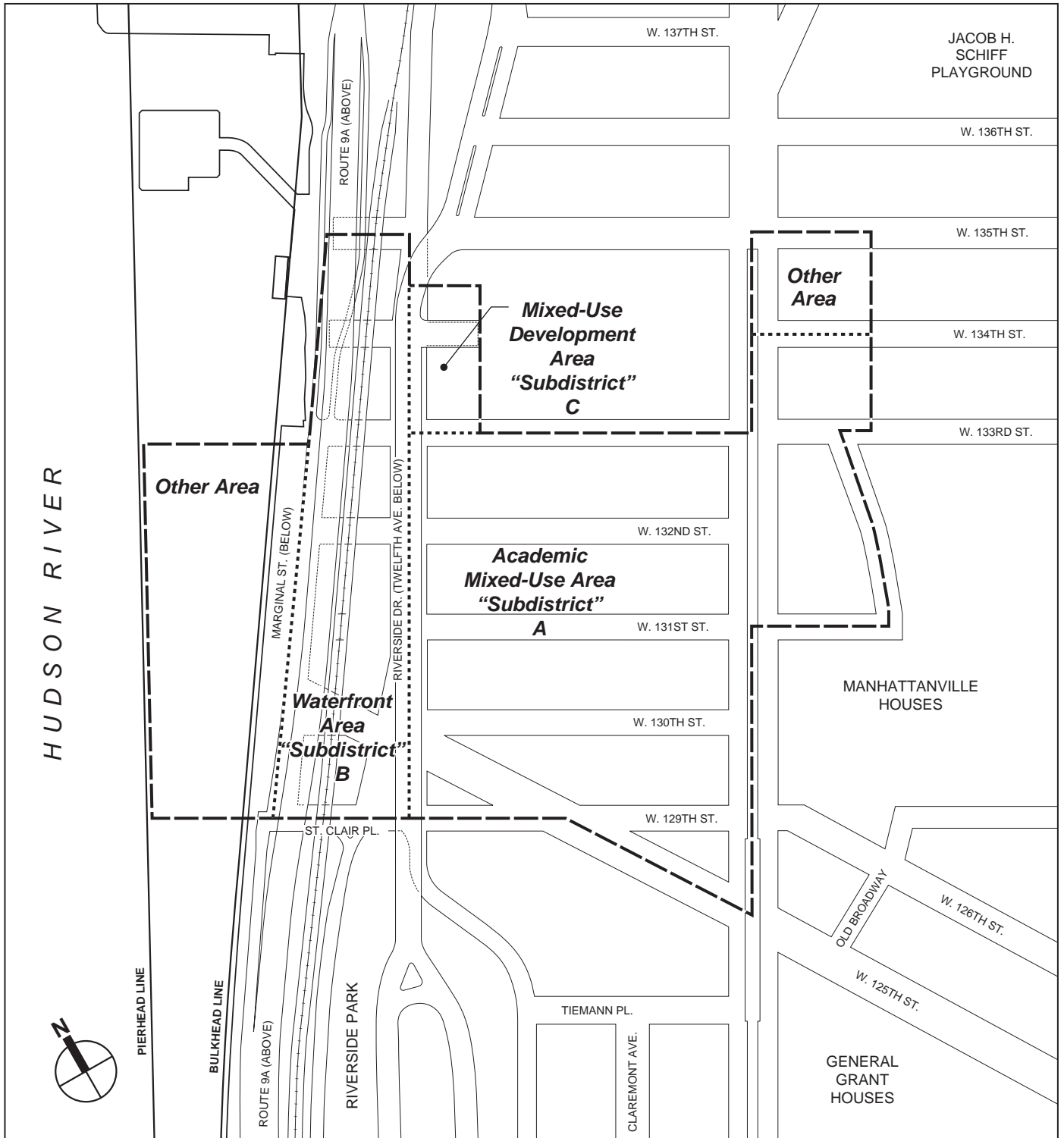
Columbia University proposes the Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development project (the “Proposed Actions”/“Proposed Project”) in an approximately 35-acre area (the “Project Area”) of Manhattanville in West Harlem in Manhattan (see Figure 1-1). The rezoning would amend the zoning map in the Project Area and create the Special Manhattanville Mixed-Use Zoning District, thereby facilitating Columbia’s development of an Academic Mixed-Use plan (the “Academic Mixed-Use Development”) on approximately 17 acres (the “Academic Mixed-Use Area”) within the 35-acre Project Area, as well as commercial and residential development in other portions of the Project Area. The Academic Mixed-Use Development, as proposed, would total approximately 6.8 million gross square feet (gsf) above and below ground. Such development would consist primarily of community facility uses serving the University, with street-level retail and other active ground-floor uses. The remaining 18 acres within the Project Area would consist of 9 acres located primarily between Twelfth Avenue and Marginal Street and east of Broadway (which are estimated to result in another 329,500 gsf of commercial and residential development); and 9 acres between Marginal Street and the pierhead line, of which 2 acres comprise the area of the new West Harlem Waterfront park and 7 acres comprise City-owned land under water. This land under water cannot be developed, nor can it generate development rights transferable to other parcels. In all, the proposed rezoning would result in an estimated 7.1 million gsf of development. Since publication of the DEIS, Columbia has identified and included as part of the Proposed Project three sites in West Harlem for the relocation of a church and residents who would be displaced by the Proposed Actions, also shown in Figure 1-1.

The Academic Mixed-Use Area constitutes Subdistrict A of the proposed Special Manhattanville Mixed-Use Zoning District (see Figure 1-2). In addition to the rezoning, implementation of the Academic Mixed-Use Development plan would entail the adoption of a General Project Plan (GPP) and subsequent acquisition of certain property within the Academic Mixed-Use Area by the New York State Urban Development Corporation (doing business as the Empire State Development Corporation [ESDC]), either through the discretionary exercise of ESDC’s power of eminent domain or otherwise under the New York State Urban Development Corporation Act (UDC Act) and the subsequent disposition by ESDC of any such property to Columbia for purposes of project development. The GPP would provide for the implementation of features of the Academic Mixed-Use Development plan that may not be mandated through zoning regulations or other mechanisms, such as preservation of specified historic resources, permitted uses in below-grade spaces, minimum and maximum floor area thresholds for all components, and limitations on the allowable uses on proposed development sites. Deed restrictions and other mechanisms enforceable by New York City and/or ESDC would be used to administer and enforce those features.

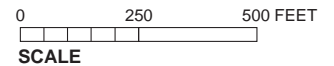


MANHATTANVILLE IN WEST HARLEM REZONING AND ACADEMIC MIXED-USE DEVELOPMENT

Figure 1-1 Project Location



- — — Proposed Special Manhattanville Mixed-Use District / Project Area
- ..... Subdistrict Boundary



Note: The subdistrict boundaries correspond to the proposed zoning subdistricts (see Figure 1-6)

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

This Final Environmental Impact Statement (FEIS) has been prepared pursuant to City Environmental Quality Review (CEQR) by the New York City Department of City Planning (DCP)—acting on behalf of the City Planning Commission (CPC), which is the “lead agency”—to assess the proposed Manhattanville Rezoning in West Harlem and Academic Mixed-Use Development project. This FEIS also meets the requirements of the State Environmental Quality Review Act (SEQRA).

### **B. PROJECT PURPOSE AND NEED**

#### **OVERVIEW: GOALS AND OBJECTIVES**

The Proposed Actions seek to establish a new Special Manhattanville Mixed-Use Zoning District in the Project Area to achieve two goals and their related objectives:

1. To allow Columbia to fulfill its role as a leading academic institution that makes a significant contribution to the economic, cultural, and intellectual vitality of New York City by enabling it to expand and modernize its facilities within a 17-acre Academic Mixed-Use Area within the proposed 35-acre Special District. Objectives to support this goal are:
  - Allow Columbia to construct 5 to 6 million square feet of University program space over the next 25 years;
  - Create a plan that permits Columbia to build modern and flexible space for state-of-the-art educational and research facilities, particularly in the dynamic field of scientific research (“academic research”);
  - Allow for Columbia’s expansion in a consolidated area to create an integrated, urban campus environment, which would promote interaction among students, faculty, and researchers of all disciplines;
  - Create an open university campus with a central publicly accessible open space and amenities for people associated with the University, and neighborhood residents and workers alike; and
  - Avoid attempted ad hoc acquisition of land to meet Columbia’s space needs through the purchase of property in neighborhoods outside of Columbia’s existing campuses, which would not create a campus environment and can cause community conflict.
2. To facilitate the revitalization, improvement, and redevelopment of a portion of the Manhattanville section of West Harlem by allowing greater density and a wider variety of land uses, within the context of the surrounding neighborhood. Objectives to support this goal are:
  - Rezone the Project Area to allow for a wider mix of uses and greater density, including community facility and residential uses;
  - Respect the context of surrounding neighborhoods by limiting the floor area ratio (FAR) in the new zoning to a maximum of 6;
  - Enliven and activate West 125th Street as the gateway to the West Harlem Waterfront park, now under construction;
  - Widen sidewalks and view corridors on east-west streets leading to the waterfront;
  - Widen the sidewalk on Twelfth Avenue sufficient to open up views of the Riverside Drive viaduct and provide an open air public market near the waterfront;

- Provide for expansion of commercial uses west of Twelfth Avenue, but with height limits to protect views of and from the Riverside Drive viaduct;
- Promote new residential development in the Project Area east of Broadway;
- Provide publicly accessible open spaces throughout the area, and promote north-south pedestrian movement through the open space system;
- Require publicly accessible ground-floor uses along key streets leading to the waterfront; and
- Prohibit walls and gates that would block pedestrian access to and through the area.

The needs for these goals and objectives are described below.

## **EXPANSION AND MODERNIZATION OF COLUMBIA UNIVERSITY**

### *INTRODUCTION AND OVERVIEW*

Columbia University, established in 1754, has been an independent institution of higher education in New York City for more than 250 years. Its main campus is in Morningside Heights, along Broadway between West 114th and West 120th Streets. This area contains the University's undergraduate colleges, academic and professional graduate schools, libraries, University administration, and student housing. Nearby affiliated schools include Barnard College, Teachers College, Jewish Theological Seminary, and Union Theological Seminary. Columbia's medical campus is in Washington Heights, centered at 168th Street and Broadway, and includes the new Audubon Center. The Columbia University Medical Center (CUMC) contains the medical, dental, nursing, and public health schools, and several areas of medical research, as well as the affiliated New York Presbyterian hospital. The University's stadium and sports facilities are located at Baker Field at the northern tip of Manhattan on the Harlem River. The University also operates the Lamont-Doherty Earth Observatory in Palisades, New York, and Nevis Laboratories in Irvington, New York. In total, the school has approximately 24,400 students and employs approximately 4,500 full- and part-time faculty.

### *Emerging Areas of Academic Scientific Research and Academic Study*

Universities do not only educate future scholars and leaders. They are also important centers of state-of-the-art research in the sciences and humanities. In the past century, major revolutionary advances in medicine and health care, biology, engineering, chemistry, physics, computers, and technology are the result of academic scientific research ("academic research") originating in major American universities.

Columbia shares this rich history of academic research and discovery. Most recently, for example, Columbia researchers have increased efforts devoted to unraveling the links between genetics and Alzheimer's disease, and have established the Motor Neuron Research Center to study the causes of neurological disorders, including spinal muscular atrophy—the major lethal genetic disease of infants.

While Columbia cannot currently envision every area of study that might define the long-term future of the University, emerging areas of academic research identified by the University include: Biomedical Engineering (the intersection of engineering and science that applies the methods of physics, chemistry, and mathematics to solve biological and biomedical problems); Nanotechnology (an interdisciplinary field that brings together engineering, chemistry, physics, and biology into a new realm of research activity at the atomic, molecular, or macromolecular

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

level to create new and improved structures, devices, and systems, ranging from more effective water filtration to better targeted cancer treatments); Neuroscience; Systems Biology; and Environmental Sciences. For purposes of this EIS, the term “academic research” refers to advanced scientific research by the University, including in the broad range of disciplines cited above.<sup>1</sup> Additional emerging areas of academic<sup>2</sup> study identified by the University include: Computer Science, Economics, International and Public Affairs, Global Health, and Global Thought (the study of the spread of global market systems, various forms of democracy, increased communication and increasingly global culture, and the actions of government and nongovernmental organizations).

### *Economic Contributions of Universities to New York City and State*

Universities are also important to the City and State economies. Today, there are 271 colleges and universities throughout New York State—64 in the State University system (SUNY), 19 in the City University system (CUNY), 146 independent colleges and universities, and 42 proprietary schools (post-secondary schools that typically provide technical and vocational skills). College and university enrollments in the State are high. As of the fall of 2004, enrollment in four-year undergraduate degree programs and graduate and professional degree programs in the State’s independent colleges and universities were the largest in the nation, at approximately 485,000. A 2006 report prepared by the Center for Government Research (CGR) for the Commission on Independent College and Universities<sup>3</sup> notes that direct spending by New York’s independent colleges and universities in 2005 was estimated at \$17.6 billion, with a total economic impact in excess of \$41 billion. Independent colleges and universities within New York City account for approximately \$9.1 billion of direct spending and \$21.2 billion of the total economic impact. Although some sectors of the economy in both the City and State have declined in recent years (e.g., manufacturing and agriculture), independent colleges and universities continue to grow, and they accounted for 139,000 jobs in 2005, with half of these jobs in New York City.

Columbia University, with more than 14,000 employees, accounts for more than 10 percent of Statewide employment in higher education. It is also the seventh largest nongovernmental employer in New York City. Of its more than 14,000 employees, 68 percent live in New York City. Columbia spends approximately \$2.4 billion annually (including in excess of \$1.25 billion in payroll), approximately 70 percent of which is spent in the greater New York metropolitan area. Columbia has stated a strong commitment to remain in New York City.

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<sup>1</sup> Academic research will be defined as a permitted use in the proposed GPP. Specifically, academic research requires laboratories that include special purpose equipment and/or a specific room configuration, and offices for researchers and administrators, as well as space for related activities, such as classrooms, library and study spaces, animal care facilities, and similar support spaces. Wet laboratories are currently the most common type of laboratory space; these typically include one or more of the following features: lab benches typically provided with sinks, outlets for compressed air, gas, vacuum, water, and electrical receptacles; de-ionized water outlets; fume hoods; chemical and solvent storage cabinets; chemical resistant finishes and flooring. Other types of specialized equipment may be required as well. The GPP will prohibit the leasing of space to commercial enterprises for the conduct of scientific research.

<sup>2</sup> Academic use will be defined in the proposed GPP as comprising instructional and related activities, including non-laboratory research, requiring classrooms, computational and other analytical space, library and study spaces, teaching laboratories, offices for faculty and administrators, and related support space.

<sup>3</sup> CGR, July 2006, “Solutions for New York: The Economic Significance of Independent Colleges and Universities in the New York State Economy.”

As detailed below, Columbia has determined that it faces a critical need for new, modern facilities to maintain its presence in New York City and its position as a leading university. Many existing facilities are old, and many academic and academic research spaces are inadequate to accommodate new demands in the affected disciplines. In recent years, Columbia has renovated and expanded existing buildings, replaced buildings, filled in the remaining spaces on its campuses where development is feasible, and acquired and built on properties near its campuses when they have become available. However, these efforts have not met the space requirements identified by the University, particularly the need to grow in emerging academic and academic research fields. Assuming current trends continue, Columbia estimates it will need 5 to 6 million square feet (sf) of program space over the next 25 years. This need for growth has been precipitated by major changes in academic disciplines and academic research fields, including an increased focus on interdisciplinary approaches, as well as the advent of new technologies. Without modern facilities for these fields and disciplines, Columbia believes that it will be unable to continue to attract top-ranked faculty and thus top-ranked students to the University.

*Note: The following portions of Section B, “Project Purpose and Need,” are statements provided by the University.*

### *COLUMBIA’S STATEMENT OF LONG-TERM SPACE NEEDS*

#### *Need to Remain Competitive*

Since its founding, and especially since the great expansion in higher education nationwide that began after World War II, Columbia has continually faced a competitive disadvantage resulting from the limits of its existing space and facilities to support its academic and academic research mission and to attract the best faculty and students. Columbia competes with a range of other institutions, depending on the program in question.<sup>1</sup>

The elements necessary to attract faculty and students have evolved over time. Aside from salary for faculty, and stipends and scholarships for students, Columbia believes that the following factors drive the decisions of talented faculty and students regarding where they will teach, conduct research, and study:

- Faculty are attracted by the intellectual vitality of the program, the quality of related disciplines, the intellectual level of the students, the availability of funding for research, and the staff and facilities available to support their teaching and research; for scientific researchers, modern laboratories and adequate office and other support space are a prerequisite.
- Students, particularly graduate students, are attracted by the stature of the faculty in the programs of their interest, the strength of the courses given, the intellectual level of fellow students, and the research projects under way in the programs. The physical facilities

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<sup>1</sup> For example, for graduate programs in medicine, Columbia competes with other top-ranked medical programs, at Harvard, Johns Hopkins, the University of Pennsylvania, Washington University in St. Louis, and the University of California at San Francisco; in science, the primary competitors include Harvard, Princeton, Yale, Stanford, and the University of Pennsylvania; Columbia Business School’s top competitors include the University of Pennsylvania’s Wharton School of Business, Harvard Business School, and the Kellogg School of Management at Northwestern; Columbia’s School of the Arts competes with New York University, University of California at Los Angeles, University of Southern California, Yale, the University of Iowa, and the California Institute of the Arts.

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

available for learning, research, and study, and for informal and formal discussions and conferences, also play a role in attracting students.

- Both faculty and students seek facilities that support their graduate study and research, and allow them to interact with each other outside the classroom and the laboratory. Support facilities, such as housing, dining venues, lounges, recreation facilities, and outdoor spaces, are all important to creating an environment in which faculty and students will want to teach, conduct research, and study.

Over the past few decades, the pace of technological change has quickened, leading several institutions that compete with Columbia to develop long-term physical expansion strategies. Harvard University, the University of Pennsylvania, Yale, Princeton, and Brown Universities, to name a few, are actively engaged in long-range campus planning and expansions covering significant acreage at or near their historic locations.

Harvard is developing its Allston campus, envisioned as “Harvard’s 21st Century Campus,” on approximately 130 acres that it owns across the Charles River from its main campus. This area includes the existing Business School and Soldiers Field Athletic Area, and considerable additional acreage that is currently occupied by non-university uses. As part of its long-term growth strategy, Harvard has renovated and expanded its Business School, including the new, 121,000-square-foot Spangler Center, and has built housing for Business School and other graduate students in Allston. Harvard now proposes to amend its institutional master plan with three new projects: construct a new scientific research and education complex of approximately 500,000 sf<sup>1</sup>; reuse existing commercial properties to create 90,000 sf of interim space for the Harvard University Art Museums; and renovate a 25,000-square-foot commercial building for additional interim space for Harvard arts and culture in Allston. These three projects will be followed by a multi-decade institutional master plan proposed for the extended Allston campus, which provides a comprehensive framework for Harvard’s evolving physical and academic growth plans for the next 50 years. This proposed multi-decade master plan comprises two phases: an initial 20-year phase for an estimated 4 to 5 million sf of university development, and a longer-term 30-year second phase to create up to 10 million sf of new space. The initial phase includes approximately 1.5 million sf of science space (including the 500,000 sf described above). Another 2 million sf of science space (i.e., academic research space) is proposed for the longer-term second phase, for a total of approximately 3.5 million sf of science space out of the 10 million.

Harvard’s first reason for the amendment to its master plan to allow the 500,000 sf research complex is, “For Harvard to maintain its leadership in the life sciences and compete effectively to attract preeminent research scientists and programs, it is critical that a state-of-the-art science complex be developed as soon as possible.” The proposal to the Boston Redevelopment Authority states:<sup>2</sup>

“Harvard’s world-class tradition of scientific inquiry, conducted within disciplines, must be complemented by a new style of science that is interdisciplinary, involving larger groups of scientists and large shared tools, and needing

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<sup>1</sup> The Boston Redevelopment Authority Board voted to approve the plans for the Harvard Allston Science Complex on October 3, 2007. Formal groundbreaking is expected before the end of the year.

<sup>2</sup> Harvard University, April 2006. “Institutional Master Plan Notification Form to Amend and Renew the Harvard University Allston Campus Institutional Master Plan.” Submitted to the Boston Redevelopment Authority, Boston, Massachusetts.



new kinds of space. The landscape of science is rapidly changing. New technologies, emerging fields, the ability to collect and analyze large amounts of data, the requirement for costly new high technology tools, and the blurring of disciplinary boundaries are creating new opportunities that could be missed if the University is not able to respond quickly by creating the finest and most advanced physical facilities for research. At risk are the University's ability to recruit premier faculty and students, to attract research funding, and to provide leadership within the area's extensive research community."

The University of Pennsylvania is expanding onto a 24-acre, former U.S. Postal Service property along the Schuylkill River in Philadelphia, where preliminary planning has identified interdisciplinary research space and health sciences as key components. According to an article in the *Penn Current*,<sup>1</sup> as a result of this project, Penn has been able to recruit "several top-flight researchers," who, according to the director of facilities for Penn Engineering, "...we definitely would not have been able to attract...without this [the new building]." In addition, Yale has launched a \$1 billion construction program for new science and research buildings, including several new buildings for the graduate school of medicine, that will accommodate both graduate and undergraduate science programs, beginning with three major facilities; and Brown University just opened Frank Hall for the Life Sciences, the largest construction project in the university's history, a building that includes both graduate and undergraduate science programs.

Clearly, space is not the only indication of a university's attractiveness to students and faculty; however, lack of such space is a distinct disadvantage. Looking at space per student as one indicator of Columbia's competitiveness reveals that the University is well behind other highly-ranked institutions. Columbia compared space devoted to education and research—which does not include associated medical schools, medical academic research space, and hospitals,<sup>2</sup> stadiums or apartment buildings, and other similar facilities—among eight universities.<sup>3</sup> As the list below reveals, Columbia's space per student is markedly lower than all others.

- Columbia University: 326 gsf per student
- Yale University: 866 gsf per student;
- Princeton University: 828 gsf per student;
- Stanford University: 800 gsf per student;
- University of Michigan: 785 gsf per student;
- Cornell University: 674 gsf per student;
- Harvard University: 673 gsf per student;
- University of California at Berkeley: 428 gsf per student.

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<sup>1</sup> Tim Hyland, "A High-Tech Home," article in *Penn Current*, May 11, 2006. Philadelphia, Pennsylvania.

<sup>2</sup> Because it is not possible on a medical campus to clearly identify and distinguish between hospital and medical research space, neither the Columbia figures nor those of the other universities include their hospital/medical school complexes in the count.

<sup>3</sup> Columbia University, survey of eight universities, 2004.

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

### *COLUMBIA PROGRAMS IN NEED OF SPACE*

Columbia is currently seeking space specifically for the Jerome L. Greene Science Center for Columbia's Mind, Brain and Behavior initiative, the Columbia Business School, and portions of the School of the Arts. The Jerome L. Greene Science Center for Columbia's Mind, Brain and Behavior initiative will be led by the renowned neurobiologist Dr. Thomas Jessell, and Nobel laureates Dr. Richard Axel and Dr. Eric Kandel. The Center will include laboratories in which the University's scientists will explore the causal relationship between gene function, brain wiring, and behavior, research which will have implications for the treatment of brain illness—probing the root causes of neurodegenerative diseases, such as Parkinson's and Alzheimer's, and motor neuron diseases, among others—and which will also assist in decoding disorders of mood and motivation, cognition and behavior, such as autism, dementia and schizophrenia. The Center will establish an educational outreach facility and clinical programs with a focus on childhood developmental disorders and diseases of the aging brain. Other academic research programs in need of space include Biomedical Engineering; Environmental Sciences; Nanotechnology; Neuroscience; and Systems Biology.

In its academic programs, Columbia has identified an early need for adequate space for its School of the Arts, which currently operates in eight different locations, both on and off campus. It has also identified an early need for a new home for the Columbia Business School, which operates in quarters that lack the space and accommodations to properly support its students and faculty and for the School of International and Public Affairs (SIPA). Other academic programs identified by Columbia as currently working in inadequate space also include Architecture, Planning and Historic Preservation; Astronomy; Astrophysics; Biological Sciences; Ecology, Evolution and Environmental Biology; Economics; English; Political Science; Psychology; and new interdisciplinary initiatives at CUMC.

### *CHARACTERISTICS OF MODERN FACILITIES*

#### *Performance and Functional Design Criteria*

*Academic Research Facilities.* Well-functioning, modern academic research facilities require more space than their predecessors, and are designed to be more flexible than in the past, in order to support new research philosophies and interdisciplinary communication. The following describes typical performance and functional design criteria for modern academic research buildings:

- *Flexibility and Adaptability:* There is no one standard for research labs, but references such as the National Science Foundation's (NSF) "Planning Academic Research Facilities: A Guidebook" and the National Institutes of Health (NIH) "Research Laboratory Design and Policy Guidelines" provide criteria for those projects to be funded by Federal programs. Both state that flexibility and adaptability are key objectives for new facilities. The NIH Guidelines state: "The goal of these guidelines is to produce laboratories that are adaptable. This concept encourages generic spaces with the ability to readily accommodate changes in function (within the same space category) without requiring significant physical or infrastructure changes to the space itself and within budget constraints. Excessively and individually planned, non-generic, or customized spaces are to be avoided."<sup>1</sup> Consistent with this guidance, new flexible systems for movable lab benches, plug-in plumbing, and utilities now make it possible to create flexible research facilities to respond to the changes caused by an increase or decrease in funding and changes in technology.

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<sup>1</sup> National Institutes of Health, "Research Laboratory Design and Policy Guidelines," p. B-4.

The NSF and NIH guidance documents reflect the fact that research labs characteristics now focus on multiple-purpose occupancy (as opposed to the single-discipline, stand-alone labs), and disciplines and organizations with shared support, amenities, and core facilities, creating a need for flexible and adaptable space configurations.

Within the increasingly competitive climate of securing funding for academic research, Columbia ranks in or near the top 10 nationally in total sponsored research grant income awarded by NSF and NIH,<sup>1</sup> thus making the development of academic research consistent with these guidelines an important factor in Columbia's future plans. As a result of the University's success in securing federally funded research, and the opportunity to seek funding for new academic research endeavors, the principles of flexibility and adaptability referenced in the NSF and NIH guidelines would govern the design of the academic research space proposed by Columbia.

- *Shared Academic Core Facilities and Equipment:* Modern academic research buildings are built around expensive, often large-scale, shared science support facilities. These typically include advanced imaging equipment, such as MRI and NMR machines, specialized laboratory procedure rooms, shared "clean rooms," and advanced computer systems.
- *Centralized Utilities and Maintenance Operations:* To be most efficient and environmentally sensitive, academic research buildings are typically served by a central plant that supplies steam and chilled water. (The majority of medical centers and university campuses are typically served by a central utility plant; local examples in New York City include Rockefeller University, New York University Medical Center, and Mount Sinai Medical Center.) Research buildings require uninterrupted utility service, because most studies require temperature-controlled environments full-time. The maintenance of the infrastructure requires 24-hour supervision.

### *Space Criteria*

*Academic Research Facilities.* The typical size of academic research buildings built today by universities and other research institutions is a minimum of approximately 250,000 sf. This size accommodates the scale of scientific activity necessary to support specialized and expensive shared equipment and support facilities (see Table 1-1). In designing an academic research facility, floor plate size and configuration are key to creating a building that will serve evolving state-of-the-art research functions well over the long term. Generally, large academic research buildings are made up of multiple floors, all with the same basic form and layout, and sharing the same vertical core and infrastructure. The functional design objectives of an academic research building floor plate are to: (1) create flexible space for the long-term life of the building; (2) promote interaction among the research teams; (3) support the research functions in floor layout; and (4) keep the building systems as simple as possible, as discussed below.

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<sup>1</sup> Information from American Association of Medical Colleges survey 2004.

**Table 1-1**  
**Recently Constructed and Proposed Academic Research Buildings**

<b>Facility</b>	<b>Total Building Floor Area</b>	<b>Gross Square Feet per Floor</b>	<b>Principal Investigators per Floor</b>	<b>Year Built</b>
University of Pennsylvania School of Medicine—Biomedical Research Building II/III	384,000	23,480	10	1999
University of Rochester—Kornberg Medical Research Building	290,000	40,187 <sup>1</sup>	20 <sup>1</sup>	1999
Princeton University—Lewis-Sigler Institute for Integrated Genomics and The Carl Icahn Lab	138,000	46,500	12	<u>2004</u>
University of Colorado HSC—Research Complex 1	601,000	35,000	20	2004
University of Minnesota—Molecular & Cellular Biology Building	263,000	32,511	16	2002
Johns Hopkins School of Medicine—Broadway Research Building	<u>692,000</u>	25,500	12	<u>2006</u>
Memorial Sloan Kettering—Cancer Research Building	629,000	22,000	8 <sup>2</sup>	2006
Ohio State University—Biomedical Research Tower	400,000	32,000	16	2005
University of Michigan—Biomedical Science Research Building	492,000	45,123 <sup>1</sup>	22 <sup>1</sup>	2006
Cornell University—Life Sciences Technology Building	258,000	33,333	12	2008
University of Colorado HSC—Research Complex 2	400,000	28,000	15	2008
University of Wisconsin—Interdisciplinary Research Building	445,000	38,333 <sup>1</sup>	18 <sup>1</sup>	2008
Harvard University—FAS Northwest Laboratory	465,000	51,993	15	2008
Rockefeller University—Collaborative Research Center	270,000	28,000	12	2009
Mount Sinai School of Medicine—Center for Science and Medicine	410,000	28,000	12	2011
City College of New York—Advances Science Research Center	<u>389,000</u>	37,800 <sup>1</sup>	25 <sup>1</sup>	2011

**Notes:**  
 1. Buildings accommodate 10-12 principal investigator teams in two separate wings.  
 2. Floor plate is smaller than optimal, because this constrained site was the only one available to Memorial Sloan-Kettering.  
**Source:** Jacobs Consultancy

*Flexibility and Interaction.* The demands of state-of-the-art, multidisciplinary academic research create a need for spaces that have large, open floor plates with a minimum of obstructions. This is because lab buildings are based on a repetitive and regular planning module to facilitate flexible groupings of three types of space that need to be in close proximity: laboratories, laboratory support space, and offices and meeting rooms. The current practice is therefore to create research “neighborhoods” within a large, open, rectangular floor plate with central meeting and break areas to maximize flexibility and interaction among scientists of various disciplines working on the next scientific breakthrough or medical advancement. The rectangular shape is particularly desirable because with this floor plate the laboratory can function with only one corridor, thus minimizing any loss of space due to additional corridors, which would increase the distance between the teams, thus discouraging interaction, and also could lead to the need to duplicate support facilities, and other obstructions. A simple rectangular shape also provides flexibility for expansion and contraction of space allocation quickly and without costly and time-consuming alterations to the facility. The easy adaptability of laboratory layouts within a rectangular shape is thus best suited to accommodate changing space requirements, as the needs of state-of-the-art modern science research evolve over time. In addition, the simple rectangular shape is best suited for sites on city blocks and lots, in an urban grid formation.

*Support for Research Functions.* The space needs for state-of-the-art academic research buildings are also a function of modern research methodologies, which have resulted in an increase on the research floor in the proportion of research support space to lab space, to a ratio of 1:1. This increase in support space closely parallels the advent of highly sophisticated analytical technologies, the widespread use of space-intensive computerized data analysis systems, and the introduction of imaging and gene sequencing equipment. The demanding environmental and space requirements of

these new technologies—which do not necessarily replace more traditional lab support functions such as cold/warm rooms, autoclaves, freezer rooms, and tissue culture rooms, but which instead are incremental additions to modern research facilities—have often forced them to be located outside of the lab proper, increasing the importance of a floor plate that is large and conducive to easy access among laboratories and all forms of support space.

*Simple and Efficient Building Systems.* With large open floor layouts, which must be flexible enough to respond to changes in technology and research teaming, academic research buildings need to have simple and efficient building systems. A central core for all vertical functions, one single, combined building system, rather than multiple systems, and a minimum of jogs or corners for pipes, conduits, and ducts are necessary to achieve this purpose. Another important reason for centralizing and simplifying buildings systems is that the ratio of usable spaces (such as lab benches, support facilities, and offices) to total space (including non-usable but necessary areas such as stair towers, ventilation shafts, public corridors, elevators, etc.) affects funding. Since the NIH and NSF reimburse institutions' overhead costs based on assignable square feet (i.e., usable space),<sup>1</sup> if the proportion of usable floor area drops too low, the institution cannot fully recover its base operating costs. This ratio is generally lower when the floor size is smaller, given that stair towers, ventilation shafts, public corridors, and elevators are required irrespective of floor size—they do not decrease in proportion to total floor area.

*Conclusion: Floor Plate Size.* Jacobs Consultancy, GPR Laboratory Planning Practice Collaborative, Inc., a nationally recognized expert in the layout of laboratory buildings which has worked closely with Columbia faculty, believes that the most productive and creative working environment is achieved when there are approximately 10 to 12 principal research investigators working in proximity on one floor. Based on its extensive experience in designing laboratories as well as review of research concerning group collaboration, Jacobs Consultancy believes that this number is optimal to result in high levels of collaboration among research groups and high efficiency in the utilization of specialized equipment that is shared among all the laboratories on the floor. For wet lab research, each principal investigator will typically have approximately six researchers in his or her lab (including graduate students, postdoctoral research fellows, and other research staff), although this number will vary depending on the type of research and the available funding. These requirements translate into an optimum size for a wet lab floor plate in freestanding academic research buildings of at least 25,000 sf, to accommodate the requisite number of lab benches and support facilities. (See Figure 1-3 for a floor plan typical of a modern academic research laboratory with 10 principal investigators heading teams of various sizes—i.e., utilizing between 2 and 4.5 lab bench modules.) The 25,000 sf floor area includes a prototype plan of a hypothetical 10 investigators averaging 2,500 gsf per team.<sup>2</sup> In addition, as explained above, the ratio of usable space to total space (which is key to federal cost reimbursements) is generally lower when the floor size is smaller, given that stair towers, ventilation shafts, public corridors, and

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<sup>1</sup> Office of Management and Budget (OMB) Circular A-21, “Cost Principles for Educational Institutions,” Part F, Subsections 4a and 4b.

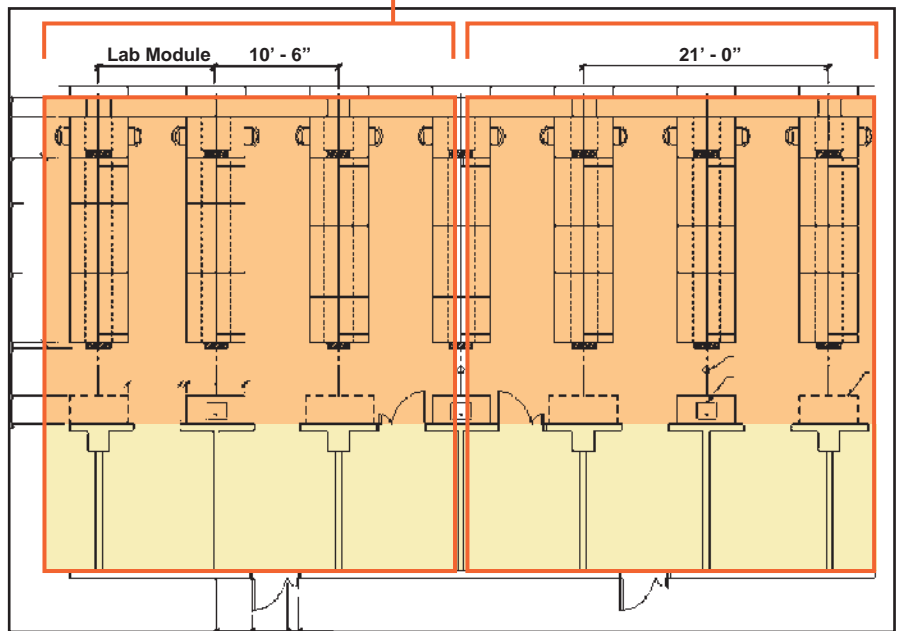
<sup>2</sup> Floor area per investigative team is defined in two ways: assignable square feet, which is the floor area that qualifies for federal research grants, and gross square feet, which includes all space on the floor (e.g., labs, support, corridors, offices, mechanical, etc.). Generally, the goal is to have assignable floor area represent at least 60 percent of gross floor area. Thus, the average gross floor area per team of 2,500 sf is equivalent to assignable floor area per team of at least 1,500 sf.

See Detail Below



- Lab Module Allocation for Principal Investigators
- Laboratory
- Lab Support
- Office

Principal Investigator  
Lab Module Allocation



**Detail**  
Typical Lab Modules

Figure 1-3

**Academic Research Building:  
Typical Floor Plan**

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elevators are required irrespective of floor size—they do not decrease in proportion to total floor area.

As shown in Table 1-1, a 25,000 sf floor plate is, however, often exceeded by research institutions. This may result from the type of research planned for the facility, which could require more than 2,500 sf per principal investigator, or from a research model (e.g., an interdisciplinary approach with multiple types of research) that necessitates more than 10 principal investigators on a floor. For example, the Jerome L. Greene Science Center for Columbia’s Mind, Brain and Behavior Initiative, which is proposed for Phase 1, would provide facilities for 9 to 10 principal investigators on each of its eight research floors. However, this Center is an interdisciplinary neuroscience program, which relies on large-scale behavioral research, complementary electrophysiology suites, and specialized analytical set-ups; this type of specialized program requires more researchers and research support space than a typical wet lab. Consequently, in the Jerome L. Greene building, each of the 9 to 10 principal investigators would need 10 to 12 researchers (more than the typical six researchers) with an average space requirement per team of approximately 3,500 sf, resulting in the need for a floor plate of between 35,000 and 40,000 sf—larger than the 25,000 sf minimum.

Height Criteria. Academic research buildings also need high floor-to-floor heights to accommodate large, specialized equipment in the laboratories (such as reagent stacks and water purification equipment) and mechanical facilities. Floor-to-floor heights are typically 14 feet, 6 inches to 16 feet to accommodate: 10 feet of clear ceiling height, 2 to 3 feet for a mechanical distribution zone, and 2 to 3 feet for a structural zone (see Figure 1-4).

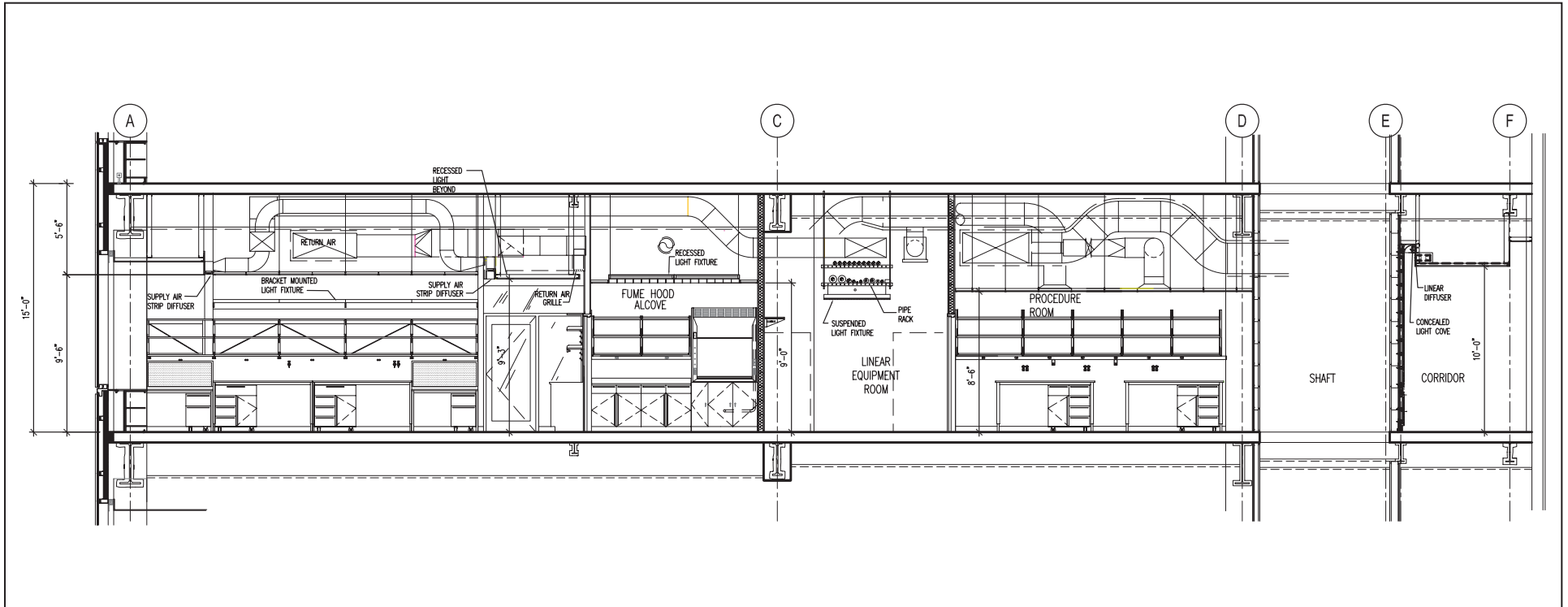
Columbia’s Long-Term Need for Academic Research Space. As shown in Table 1-2, Columbia’s research floor area is well below other universities with highly rated research programs. As noted in Table 1-2, total assignable square feet (a term used by NIH to denote program space only, not including corridors, common areas, mechanical, etc.) of academic research space at Columbia is approximately 2.15 million. This is the lowest of the list, which includes such institutions as Johns Hopkins, University of Pennsylvania, and Harvard, Yale, and Cornell Universities. The research space at these institutions ranges from 6 to 10.5 million assignable square feet—three to five times that of Columbia.

**Table 1-2  
Comparison of Floor Area for Academic Research  
Among Top-Ranked Universities**

<b>University</b>	<b>Assignable Square Feet</b>
University of California at Los Angeles	10,522,000
Stanford University	10,110,000
Cornell University	9,655,000
University of Washington	9,323,000
Harvard University	8,743,000
University of Pennsylvania	6,536,000
Johns Hopkins University	6,305,000
Yale University	6,025,000
Columbia University	2,147,000
<b>Source:</b> Council on Governmental Relations, F&A Rate Survey, 2006	

Academic Space. Academic buildings for graduate schools typically include classroom space, large lecture halls, student study rooms and group discussion rooms, faculty offices, academic research offices, administrative space, and student lounges/locker areas. Each discipline has

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specific space needs to support its program. For example, business schools, like other professional schools, need both classrooms and large lecture halls. Classrooms accommodate up to approximately 50 students, while large lecture halls often have the capacity for 100 students or more to accommodate multiple classes for presentations or speakers. Graduate arts programs need traditional classrooms, visual arts and performance studios, practice spaces, and musical and theatrical performance spaces. Modern academic buildings need relatively large floor plates, with a minimum of approximately 15,000 sf, for several reasons, as follows:

- New academic buildings typically have classrooms located together on the lower floors of the building to accommodate large groups of students moving from one room to another during class changes.
- Large lecture halls are typically clustered on the same floor, because they require a floor-to-floor height higher than ordinary classrooms, to accommodate sloped floors for auditorium-style seating; such clustering is only feasible with a large floor plate.
- Large floor plates make it feasible to create centralized informal meeting and gathering spaces that enhance the intellectual life of the school.
- Both construction and operating efficiencies are measurably higher with a larger floor-plate building. Larger floor plates allow for greater flexibility in planning and, over the long term, changing program space. With a larger footprint, the building would have fewer floors, fewer elevators, and less space devoted to elevator cores and lobbies. It is also more efficient to heat, cool, and clean buildings that have a lower ratio of exterior walls to program space.

As noted above in “Columbia Programs in Need of Space,” the three graduate academic programs for which the University is seeking space in the near term are the Business School, the School of International and Public Affairs (SIPA) and the School of the Arts. The Business School currently has 276,107 sf. Many of the other top-rated business schools in the country have been constructing large new academic facilities for their graduate business degree programs, including:

- Harvard Business School opened the Spangler Center in 2001. The Spangler Center contains a 350-seat auditorium, project rooms, dining rooms, meeting rooms, lounges, study rooms, and a variety of student service facilities such as a post office. The Harvard Business School has its own 47-acre campus, with 1.5 million sf of space (including housing).
- Wharton Business School at the University of Pennsylvania opened Huntsman Hall, with 320,000 sf, in 2002; this is only one of four buildings on the Wharton campus. Huntsman Hall contains a 300-seat auditorium and conference space on the top floor.
- The University of Chicago Business School opened a new building in 2004 with over 415,000 sf.

As shown in Table 1-3, the existing facilities at Columbia’s Business School compare poorly with other top-rated business schools in the amount of space provided for student education, study, and collaboration.

**Table 1-3**  
**Comparison of Available Space and Study Rooms Among Business Schools**

<b>School</b>	<b>Full-time students</b>	<b>Total students in facility</b>	<b>Gross square feet (GSF)</b>	<b>Dedicated student study rooms</b>	<b>Students per study room</b>	<b>GSF per full-time student</b>
Columbia	1,400	2,000	276,107	11	127	197
Chicago	1,070	2,420	325,000	31	34.5	303
Harvard	1,794	1,800	1,512,753	41	43.7	843
Wharton	1,600	2,242	524,000	57	28	327.5
Kellogg	1,314	1,725	430,000	57	23	327
Michigan	841	2,816	270,000	42	20	321
<b>Source:</b> Columbia University Business School survey of business schools, 2006.						

In the case of the School of the Arts, Columbia’s current facilities consist of approximately 135,000 gsf scattered throughout eight different locations (three of which are leased spaces) on and off the campus. The limited space does not meet either the current or future needs of this area of study.

In particular, there is insufficient space to host exhibits and performances. Gallery spaces, such as the Wallach Art Gallery (which Columbia intends to relocate to the Project Area), are too small and located deep within the Morningside Heights campus in the upper floors of academic buildings rather than centrally located and easily visible, and accessible to the general public. Academic classrooms and lounges often double as rehearsal space because there is a lack of adequate performance and rehearsal spaces. Public performances are limited because the Miller Theatre is the only genuine performance venue for the University.

Given the distinct needs of the programs that comprise Columbia’s School of the Arts, the range of space needs include traditional classrooms and offices for faculty; studios; rehearsal, performance, and film screening rooms; and gallery space. Existing limitations also constrain Columbia’s ability to compete in emerging areas such as digital media, contemporary dance and movement, and interdisciplinary studies. An overview of the specific programmatic deficiencies and requirements are described below.

*Film.* The Film division currently operates within approximately 11,000 sf of program space. Competitors, particularly those on the west coast, including UCLA and the University of Southern California, are based on less dense and less restricted campuses. Additional production facilities are needed for Columbia to compete effectively. The Film division requires an additional 12,000–15,000 sf for faculty, classrooms, seminar space, and screening facilities. Columbia has also identified a critical need for production, editing, and studio space of approximately 5,000 sf.

*Theatre.* The Theatre Division, with concentrations in acting, writing, directing, and producing, currently operates within 14,500 sf. Its requirements, however, exceed 31,000 sf, driven primarily by the need for rehearsal and performance space.

*Visual Arts.* Currently operating within 40,000 sf, the Visual Arts Division requires approximately 4,000 sf of double-height gallery space to showcase the work of its students, an essential element of the learning process. The quality and accessibility of this space is also important to New York City’s increasingly competitive visual arts market.

Writing. The Writing Division is currently operating within 4,500 sf. To meet its minimum requirements, the program requires an additional 1,500 sf to improve the quality of the teaching space, particularly classroom and seminar space.

A well-recognized public policy school, Columbia University's SIPA provides its students with the skills and knowledge for careers in government, business, media, nonprofit organizations, non-governmental organizations (NGOs), and international organizations..

SIPA is currently located in the International Affairs Building at Amsterdam Avenue and 118th Street on the Morningside Heights Campus. The building contains offices and classrooms for other academic departments, in addition to the School itself, as well as Lehman Library, one of the University's larger library collections. Both its academic programs and research institutes and centers have grown substantially during the past decade, and there has been no on-campus location into which the School can expand. Consequently, several of its research groups must move to leased off-campus spaces over the next two years.

In addition, the building, constructed in 1970, is obsolete and inefficiently configured. Offices and classrooms are spread out over 14 floors, and the typical floor (above a three-story base) is 11,700 sf. This results in congestion and long waits for elevators. The lobby floor, while larger, is also undersized for the growing flow of students and faculty and contains several level changes and a confusing circulation pattern. There are virtually no amenities for students and faculty, other than one coffee bar/computer lounge, which is typically noisy and crowded. A larger floor plate building with fewer floors is badly needed.

Modern business and government are closely intertwined, and the close proximity of the Business School and SIPA creates the potential for significant scholarly and intellectual interaction. If they are moved together, the new location would support the ability of SIPA students to cross-register in the Business School.

#### *COLUMBIA'S EFFORTS TO MEET ITS SPACE NEEDS*

Since moving to its Morningside Heights campus in 1897, Columbia has met its growth needs through a gradual program of campus expansion, infill development on its existing campuses, and ad hoc acquisitions of nearby off-campus properties, adding an average of 160,000 sf per year. The University has also evaluated remaining development sites at its existing campuses or on University-owned properties, as well as at its facilities in New York outside Manhattan, to understand its options for accommodating its long-term space needs. However, the space demands of modern facilities have increased the rate at which Columbia must expand. In the past 10 years, the University has added approximately 2 million sf—an average rate of 200,000 sf per year. Columbia projects that this rate of growth will continue for the long-term future. Based on this recent history and the trends toward increasing space requirements, described above, Columbia estimates that it must continue to expand at this current rate, of approximately 200,000 sf a year on average, over the next approximately 25 years, resulting in an addition of 5 to 6 million sf of program space over 25 years. Based on current estimates of trends in graduate programs and academic research, Columbia projects that approximately half of this program space will be needed for academic research.

#### *Campus Expansion*

Columbia's campus expansion over the past century has included development of the South Campus at Morningside Heights; relocation of athletic facilities to Baker Field in 1920; relocation of the medical school from Roosevelt Hospital at 59th Street to the 30-acre CUMC

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campus in 1928; and development of the five-acre East Campus from West 116th Street to West 118th Street, between Amsterdam Avenue and Morningside Drive. Recent expansion at CUMC (as shown in Table 1-4) has focused on providing space for academic research on land Columbia acquired and rezoned in the late 1980s, between Broadway and Audubon Avenue directly east of the main medical center block (between West 165th Street and West 168th Street). The most recent campus expansion initiative was the acquisition, rezoning, and development of the University's Audubon Research Park, consisting of four small blocks just east of the main medical center campus, beginning in the 1980s.

### *Renovations and Enlargements*

Throughout the last 30 years, the University has accommodated growth by enlarging existing buildings and replacing buildings with larger structures, an approach that has been limited in part by the historic and architectural significance of many of the Morningside Heights campus buildings; these could neither be demolished nor accommodate any substantial overbuild type of expansion. Nevertheless, there have been approximately 10 building enlargement projects during the past 20 years: the Havemeyer Chemistry Building Extension; a Rare Books penthouse on Butler Library; construction of administrative space and the Morningside Drive "storefronts" from unfinished space in the East Campus; construction of Career Services and the Institute for Social and Economic Research (ISERP) and the Language Resource Center (LRC) in the International Affairs Building extension; adaptive reuse of attic space in Journalism; several projects to "recapture" and retrofit underutilized basement spaces; and a planned ninth-floor addition to Jerome Greene Hall.

### *Infill Development on Campus and Off-Campus Construction*

As noted above, in the past decade, Columbia has expanded at the average rate of 200,000 sf per year, for a total of approximately 2 million sf. In addition to the building expansions described above, as shown in Table 1-4, new construction and major adaptive reuse provided space to enable expansion of undergraduate programs at Columbia College and the School of Engineering; provide for teaching and research programs at the medical school and four other professional schools (Business, Law, Social Work, and Public Health); and improve the quality of student life.

However, this construction program contained only three newly constructed buildings with floor areas of more than 150,000 sf, plus one large adaptive reuse. Columbia determined that none of the sites provided an opportunity to relocate larger academic programs, and only two (on the medical campus) could provide significant additional wet lab research space, due to the relatively small size and thus the limited floor plates and total building areas that could be developed.

To partially address this critical need, Columbia plans to construct a new academic research building for basic sciences on the last remaining development site on the Morningside Heights campus, at the southeast corner of Broadway and West 120th Street. The proposed floor plate—approximately 65 feet wide and 200 feet long—is consistent with adjacent historic buildings, but is not optimal for a state-of-the-art academic research building, where the floor plates are typically larger (at least 25,000 sf) and proportionally wider. This option is being pursued, however, to respond to an urgent need for academic research space adjacent to existing basic science buildings.

**Table 1-4**

**Major Columbia University Expansion Projects Since 1995  
(Projects of More Than 25,000 Square Feet)**

Year	Name/Use	Size (sf)	Location
<b>Student Services (Mainly Undergraduate)</b>			
1999	Alfred Lerner Hall: student center	240,000	Northeast corner of Broadway and West 114th Street (same site as former student center)—on campus
1999	Kraft Family Center for Jewish Student Life	33,000	West 115th Street—off campus
2000	Broadway Residence Hall: undergraduate housing	140,000	Northeast corner of West 113th Street—off campus
<b>Morningside Heights Graduate and Professional Schools</b>			
1996	Law School: Jerome Greene Hall extension and William C. Warren Hall	26,000	West 116th Street east of Amsterdam Avenue—on campus
1999	Business and Law Schools: William and June Warren Hall	83,000	Northwest corner of West 115th Street and Amsterdam Avenue—off campus
2004	School of Social Work	150,000	West 122nd Street and Amsterdam Avenue—off campus
2005	Law School: Lenfest Residence Hall	120,000	West 121st Street between Amsterdam Avenue and Morningside Drive—off campus
2003-2005	Three faculty and graduate student apartment buildings (includes condominium apartments and Columbia Elementary School)	400,000	West 103rd Street, West 106th Street, West 110th Street—off campus
<b>Columbia University Medical Center</b>			
1998	Russ Berrie Medical Science Pavilion (academic research)	175,000	St. Nicholas Avenue and West 167th Street—on campus
2003	Irving Cancer Research Center (academic research)	300,000	St. Nicholas Avenue and West 167th Street—on campus
2001	Mailman School of Public Health (acquisition and adaptive reuse)	247,000	Haven Avenue and West 168th Street (former New York State Psychiatric Institute building)—on campus
<b>Lamont-Doherty Earth Observatory</b>			
2000	Monell Building	26,000	Palisades, NY (Rockland County)—on campus
<b>Source:</b> Columbia University			

### *Remaining Development Sites*

The University has only three sites remaining at the existing Columbia campuses or on University-owned off-campus properties that could approximate the building sizes and layouts needed for academic research or major graduate academic buildings.<sup>1</sup> Taken together, these sites could accommodate 670,000 sf (see Table 1-5), which would not meet Columbia's long-term space needs. Moreover, the sites are in three different locations and so would not contribute to the creation of a single campus, and all three are already slated for near-term development: the site on West 115th Street is planned for University housing, the site between West 167th and West 168th Streets is adjacent to the Russ Berrie Medical Science Pavilion and planned to

<sup>1</sup> In addition, the University has an option to lease a site with significant physical limitations, but would permit development of approximately 300,000 sf on the Close of the Cathedral of St. John the Divine. The University would not be able to develop this site without approval from the Cathedral.

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become a new extension of that facility, and the site at the southwest corner of West 125th Street and Broadway is slated for a new academic building.

**Table 1-5  
Columbia-Controlled Development Sites: Maximum As-of-Right Floor Area**

Location	Lot Area SF	Zoning SF	Gross SF
115th Street/Amsterdam to Morningside	26,878	174,707	219,000
Broadway at 125th Street, SW corner	30,791	200,142	251,000
167th to 168th Sts west of Audubon Ave	17,660	138,631	200,000
<b>TOTAL</b>	<b>75,329</b>	<b>513,480</b>	<b>670,000</b>
<b>Source:</b> Columbia University			

The University has determined that 10 other, smaller sites could accommodate approximately 549,000 sf in total; the largest two sites could accommodate approximately 123,000 sf and 88,000 sf separately, and all others no more than 77,000 sf. The site with the largest lot area contains approximately 15,000 sf—substantially below what is required for an academic research building floor plate. These sites are planned to be developed for housing or small academic institutes or centers (not the teaching programs that are most needed for long-term expansion), since they all are limited by various constraints such as their small size. However, any such development would also displace existing University uses on many of these sites.

The University also evaluated the possible use of vacant land at the southern end of the Riverside South development area, a large-scale mixed-use project being built between West 59th Street and West 72nd Street west of West End Avenue. Riverside South could have provided about half of the needed floor area—up to 2.6 million zoning sf of development on 9 acres between West 59th and West 62nd Streets west of West End Avenue. Aside from its limited size, which would not meet Columbia’s articulated needs, the University concluded that this option was less desirable due to the substantial distance from Riverside South to the Morningside Heights campus and CUMC.

*Sites Outside New York City*

To understand its options to accommodate its long-term space needs, the University has also evaluated how best to make use of its facilities in New York outside Manhattan: Nevis Laboratories in Irvington (Westchester County), and Lamont-Doherty Earth Observatory in Palisades (Rockland County). Development at either location would be distant from Manhattan and thus not provide sufficient proximity to Columbia’s Morningside Heights and Medical Center campuses. It would also not meet Columbia’s strong commitment to stay and expand in New York City. In addition, neither outlying campus is physically suited for development of large academic research and academic buildings. Nevis and Lamont-Doherty are currently used for specialized research facilities and offices (for physics and earth sciences, respectively). They do not require large buildings or a critical mass of research scientists, and can thus be accommodated (albeit, inefficiently) in small buildings. Nevis has 18 buildings with approximately 200,000 sf of built space, and Lamont-Doherty contains 37 buildings with 332,000 sf of built space.

The 68-acre Nevis parcel is split into two pieces by New York City’s underground Croton Aqueduct, which is a publicly accessible recreation trail at grade. The parcel is located in a low-density residential neighborhood zoned for large-lot, single-family home development, with no

new as-of-right nonresidential development allowed (new University buildings could only be developed under special permits and would be subject to stringent bulk regulations).

The Lamont-Doherty Earth Observatory is on a 154-acre parcel that contains steep slopes, sensitive wetlands, mature forest areas (an adjacent University parcel is the Lamont Nature Preserve), and historic buildings. Only very limited portions are suitable for new development of University buildings, and no sites could accommodate large academic and academic research buildings. A 1999 Master Plan by Rafael Vinoly Architects estimated that, given the site constraints, approximately 260,000 additional gsf could be developed on the campus. The Vinoly plan proposed tearing down many of the existing buildings and constructing five replacement buildings with: 25,000 gsf (Oceanography), 30,000 gsf (Core Lab), 35,000 gsf (Seismology), 50,000 gsf (Geoscience), and 100,000 gsf (Geochemistry). There would then be four remaining sites with new buildings designated for future expansion, all of which would be under 100,000 gsf. Currently, one of the future expansion sites is being used for a new geochemistry research building with 65,000 gsf. This building will contain lab space focused on rock crushing analyses involving core samples. Any long-term planning that Columbia might undertake on this campus would contemplate buildings of a similar scale and for a similar purpose. Such planning would be separate from and in addition to Columbia's proposal to expand its main campuses in Manhattan.

### *ACCOMMODATING LONG-TERM GROWTH*

Columbia has determined that it has largely exhausted opportunities to meet space needs on its existing campuses and on properties that it owns nearby. In accommodating long-term growth over the next several decades, the University wishes to avoid reliance on ad hoc acquisitions of property, as was done in the area surrounding the Morningside Heights campus, and to instead engage in the systematic, long-range planning and development of integrated facilities. Columbia has determined that this is particularly necessary because the trends in academia toward coordination among programs and interdisciplinary education require an integrated campus setting, which could not be accommodated through ad hoc acquisitions. Moreover, the amount of space that Columbia needs makes the prospect of acquiring it in an ad hoc manner extremely difficult. In addition, Columbia believes that ad hoc acquisitions would create continual friction with local communities over individual building initiatives. Moreover, the outcome of ad hoc expansion would be a miscellaneous collection of University buildings scattered in several urban neighborhoods and lacking a cohesive identity. There would be little or no connection among them, as there would be if the expansion took place in one area, creating a new "campus."

Columbia believes that physical proximity of facilities in a campus setting is the best way to promote integration of disciplines and interaction among the faculty and students, and thus create a learning community. For example, the University's graduate schools and colleges share the Morningside Heights campus and use the same libraries, auditoriums, dining facilities, athletic center, and other facilities; students, faculty, and employees congregate in the open areas of the campus, and to some extent they share curricula. An interchange of ideas among various intellectual disciplines is greatly facilitated by having several schools in one place, and it is key to the accomplishments of the University's faculty, graduates, and students. A campus setting also makes possible the planned provision of open space and other amenities that benefit faculty, students, and neighborhood residents alike. Columbia's strategy is to establish a new campus for graduate programs and academic research. In addition to the creation of needed state-of-the-art buildings for academic research the new graduate campus would allow several of Columbia's

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existing schools in need of space to relocate, thus freeing up space on the Morningside Heights Campus for expansion of undergraduate programs.

As a result of its evaluations described above, Columbia has determined that expansion in Manhattanville is the only reasonable solution to its critical need for new facilities, particularly for academic research facilities. Columbia has identified the following principal reasons for its interest in Manhattanville for expansion: (1) adequate land area to accommodate Columbia's long-term space needs; (2) enough land to create integrated University facilities, which could stimulate the intellectual achievements of the students and faculties of several graduate schools and programs, as well as provide open space and other amenities as part of an open campus environment; (3) an area large enough to benefit from and make cost-effective a continuous, deep, below-grade space that would provide efficient shared facilities, including academic research support facilities, classrooms, and auditoriums, centralized loading and distribution systems, centralized mechanical systems (energy centers), and parking that meets anticipated demand; (4) location and proximity to the Morningside Heights campus and CUMC; (5) the prospect of improving Columbia's existing connection to West Harlem by providing greater access to and through the new campus, and building new—and enhancing existing—partnerships with the community; and (6) the opportunity to transform an aging, former manufacturing area into a vibrant, mixed-use development. The development of new graduate facilities in Manhattanville would also allow Columbia University to reorganize space at the Morningside Heights campus so that programs there can expand into space vacated by moving graduate programs to Manhattanville.

Manhattanville lies approximately ½ mile north of the Morningside Heights campus and 1.75 miles south of the Medical Center. All three locations are connected by subway and bus routes, with Manhattanville's central location offering a point of connection. Columbia believes that this proximity would allow the schools and departments to reap the benefits of interdisciplinary relationships and collaborations. Manhattanville is also close to City College, which is just a few blocks northeast of the Project Area, thus providing Columbia an opportunity to enhance its relationship with this largest campus in the CUNY system. Columbia currently collaborates with City College in a number of areas; together, they are part of a consortium of institutions that helped create and jointly share the use of the New York Center for Structural Biology on the City College campus. City College also participates in the consortium of outreach and education programs associated with the Columbia Nanoscale Science and Engineering Center and collaborates with the Columbia Materials Research Science and Engineering Center.

Columbia already has a presence in and adjacent to Manhattanville. Columbia intends to expand, as-of-right, this presence in Manhattanville by building a new entrance from West 125th Street to 560 Riverside Drive (a residential building); by renovating Prentis Hall, both on the south side of West 125th Street across from the Project Area; and by constructing a new academic building on the McDonald's site at the southwest corner of West 125th Street and Broadway. Columbia is also renovating the Studebaker Building on West 131st Street in the Project Area and converting it for administrative uses for the University. In addition, Columbia has agreed with the New York City Department of Education to locate a new science, math, and engineering public secondary school on its property, either within the Project Area, should the Proposed Actions not be approved, or in a mixed-use building on the site at the southwest corner of Broadway and West 125th Street, should the Proposed Actions be approved. The City would be responsible for construction of the school, which would have its own, separate public approval process.



## C. REVITALIZATION OF MANHATTANVILLE

### INTRODUCTION AND OVERVIEW

Manhattanville was one of the first areas of Manhattan to be settled by the Dutch during the 17th century. Manhattanville's gently sloped valley allowed easy entry from the Hudson River between the island's shoreline bluffs, which encouraged settlement and led to the establishment of an incorporated village in 1806. The village was centered on present-day West 125th Street and incorporated the blocks to the north and east of the Project Area. The village was organized around a street grid that followed the natural topography of the area, including Manhattan Street (now 125th Street) and Bloomingdale Road (now Old Broadway), which was based on a former Native American trail extending north-south on the island. The village was developed with a commercial waterfront that was supported by stables, warehouses, icehouses, and factories centered on Manhattan Street.

The village of Manhattanville began to be absorbed into the borough of Manhattan toward the middle of the 19th century, when condemnation and street improvements (based on the rectilinear grid proposed in 1811 by the New York State Commissioner's Plan) reached as far north as Manhattanville. In the early to mid-19th century, transportation improvements—including a rail station for the Hudson River and New York Central Railroad, and a ferry terminal providing access to New Jersey, both located at West 130th Street—spurred industrial growth. Dairies and meatpacking businesses, attracted to easy access to rail and river transportation for their perishable products, moved into the area at the turn of the 20th century; these businesses included Sheffield Farms (now Columbia University's Prentis Hall), on West 125th Street. The waterfront also had a pier that supported recreational activities for the community, which included immigrants of European descent who had settled around Manhattan Street.

The construction of the IRT subway system, including the Broadway viaduct from West 123rd Street to West 133rd Street over the Manhattan Valley in the first decade of the 20th century, effectively linked Manhattanville to the rest of the island and generated a housing boom that transformed the village into the urban area it is today. Commercial uses continued to move northward to Manhattanville along Broadway, including automobile showrooms, service centers, and other automobile-related activities. Excellent transportation access made Manhattanville a logical choice for the location of automobile service facilities. The prominent six-story Studebaker Building on West 131st Street west of Broadway was constructed in 1923, and the Warren Nash Service Station building was built in 1927. The construction of the George Washington Bridge (1927) and the Henry Hudson Parkway (1934) strengthened the automobile service industries in this area. However, the stock market crash of 1929, followed by the Great Depression, signaled the end of strong residential and commercial growth in Manhattanville. Although the outbreak of World War II curtailed this industry, automotive and service businesses have remained in the area. During the war, African-Americans from the South seeking industrial jobs settled in the area.

Urban renewal efforts in the 1950s, 1960s, and early 1970s resulted in the development of large-scale residential projects, including Grant Houses, Manhattanville Houses, and Riverside Park Community (3333 Broadway). During this time, ferry service ended, the recreational pier closed, and the waterfront piers and docks vanished. Trucking largely superseded water and rail transportation, so that Manhattanville's location in a valley with access to the waterfront was no longer particularly advantageous. No substantial development occurred during the late 1970s and 1980s. In 1991, the Metropolitan Transportation Authority (MTA) Manhattanville Bus Depot,

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

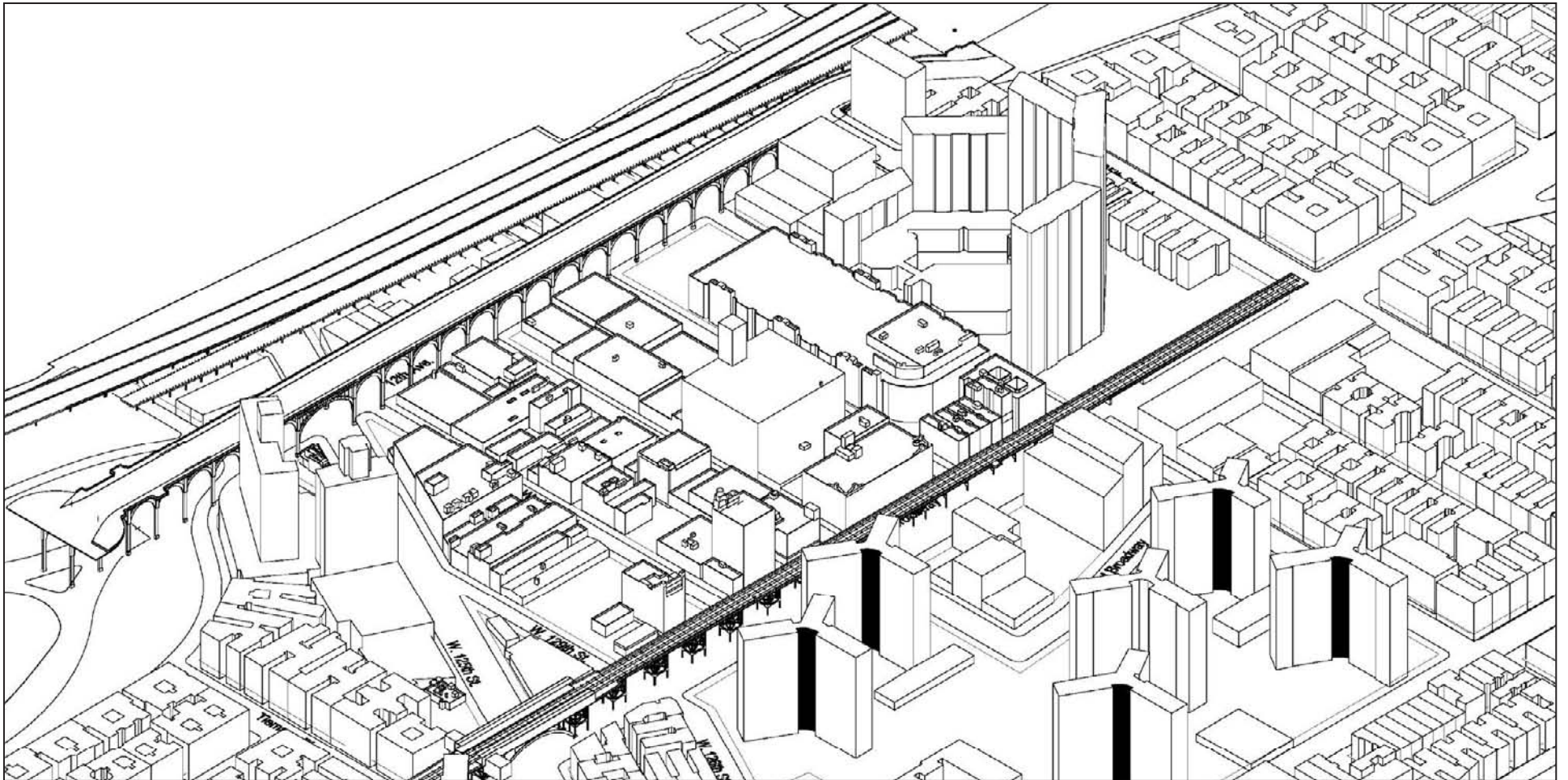
on the western end of the block bounded by Broadway, Twelfth Avenue, and West 132nd and 133rd Streets, was opened. The bus depot was built on the site of the former Manhattan and Bronx Surface Transit Operating Authority Depot, which was built in 1918. The area's prospect, lying well below the elevation of Broadway, flanked by steep bluffs to the north and south, and bracketed by four viaducts—three on the west (the Amtrak rail line, Henry Hudson Parkway, and Riverside Drive) and one on the east (New York City Transit [formerly IRT] No. 1 train)—makes Manhattanville geographically distinct and separates the area from Central Harlem.

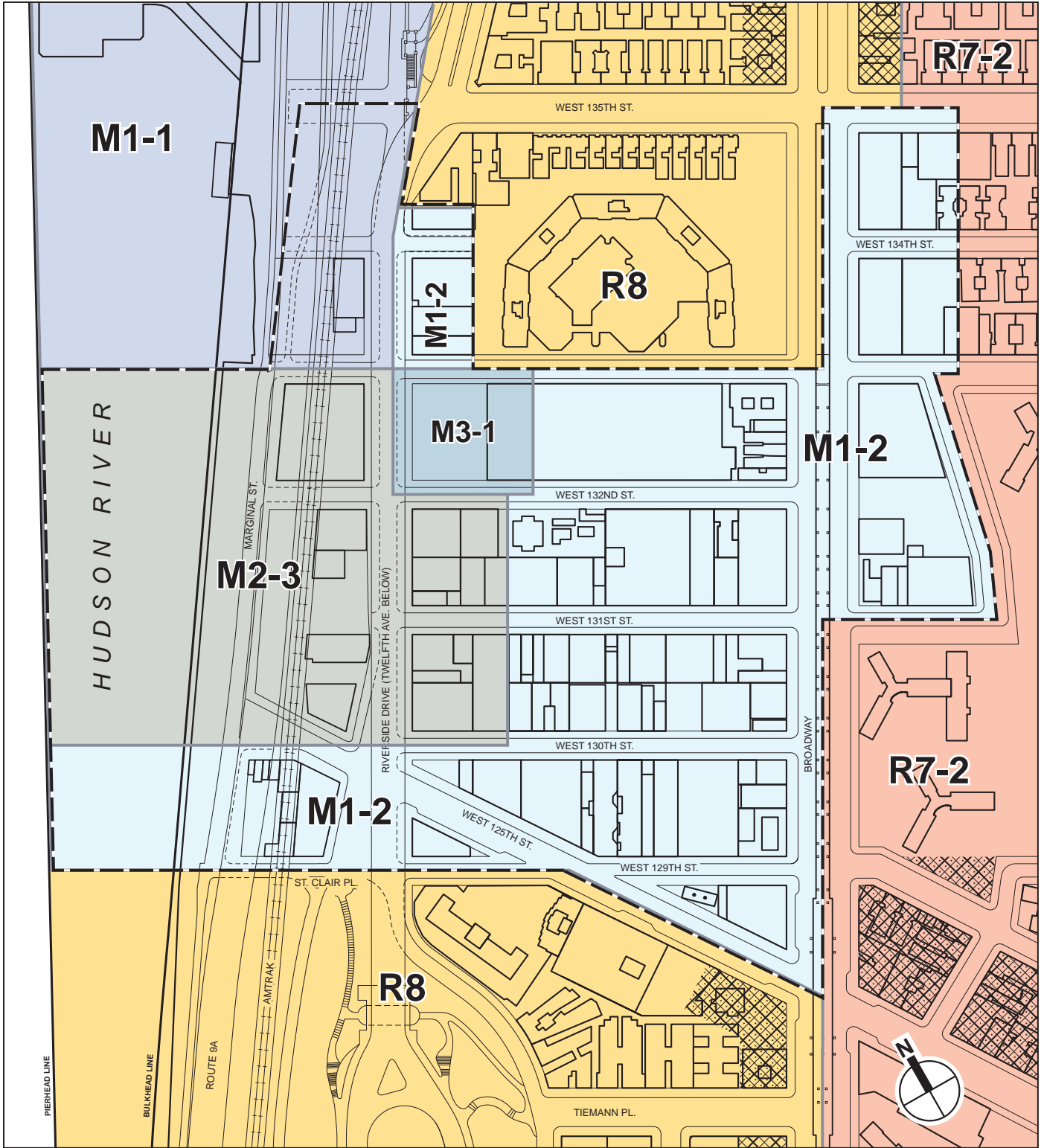
### **NEED FOR REVITALIZATION**

Today, the Project Area is notable for the age and the low density of many of its buildings, almost all of which date to this area's industrial prime prior to World War II. The Project Area is zoned predominantly for low-density manufacturing uses with maximum floor area ratios (FARs) of between 1 and 2. A City-owned vacant lot at the water's edge between St. Clair Place (West 129th Street) and West 133rd Street has constituted the Manhattanville waterfront for several decades (this portion of the waterfront is now under construction as the West Harlem Waterfront park); nothing remains of the waterfront's past as an active commercial and transportation corridor. The Riverside Drive viaduct, which runs above Twelfth Avenue, connects the discontinuous portions of Riverside Park to the north and south of the Project Area. Cyclists and pedestrians traveling along the Manhattan Waterfront Greenway in Riverside Park are currently detoured to Twelfth Avenue between West 125th and West 135th Streets.

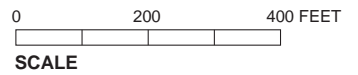
Generally developed in a street grid, as shown in Figure 1-5, the Project Area between the waterfront and Broadway consists of primarily low-rise buildings with a few taller buildings, including storage structures located along Broadway and the Studebaker Building located midblock between West 131st and West 132nd Streets. Several high-rise residential towers surround the Project Area—those of the Riverside Park Community to the north, the Manhattanville Houses to the east, and the Columbia University housing at 560 Riverside Drive to the south.

Current zoning (see Figure 1-6) is not conducive to redevelopment. The north side of West 125th Street is zoned for low-density manufacturing that allows only commercial uses and a limited range of community facility uses, thus preventing West 125th Street from functioning as an important commercial corridor west of Broadway or a strong pedestrian link to the waterfront. The two blocks north of West 125th Street and east of Twelfth Avenue are zoned M1-2 for manufacturing uses and are home to gas stations, storage facilities, and other automotive uses, with a few non-automotive retail uses. The Twelfth Avenue corridor from approximately St. Clair Place (West 129th Street) to West 135th Street is zoned M2-3, M3-1, and M1-2 for manufacturing uses. Meat wholesaling establishments and other manufacturing and warehousing uses remain in this area, although the number of these establishments has been consistently decreasing over the years. There are also a limited number of commercial uses along the Twelfth Avenue corridor, including Fairway Market and Dinosaur Bar-B-Que. However, most retail uses that are larger than 10,000 sf are not allowed in M2-3 districts. The remainder of the area is zoned M1-2, and there are several two-story industrial buildings that cannot expand because the current zoning limits the FAR to 2.0. Institutional uses, such as university space or museums, are not generally permitted. The use restrictions and FAR limitations therefore hinder both potential private and institutional development.





--- Project and Rezoning Area Boundary



**Existing Zoning**

<b>R8</b>	General Residence District	<b>M2-3</b>	Manufacturing District
<b>R7-2</b>	General Residence District	<b>M3-1</b>	Manufacturing District
<b>M1-1</b>	Light Manufacturing District	<b>C1-4</b>	Commercial Overlay
<b>M1-2</b>	Light Manufacturing District	<b>C2-4</b>	Commercial Overlay

Figure 1-6  
**Existing Zoning**

## **RECENT PLANNING**

Both the City and local community have recognized opportunities to revitalize the Project Area. In 2002, the New York City Economic Development Corporation (EDC) released a study of the Manhattanville area of West Harlem called the West Harlem Master Plan. The major objective of the Master Plan was to propose a cohesive plan for the economic development of West Harlem that enhances the character of the neighborhood and fulfills the vision of the community. To achieve these goals, the Master Plan proposed three components:

- 1) The first component proposes improvements to the City-owned parking lot on Marginal Street between St. Clair Place and West 133rd Street to transform the area into a new West Harlem Waterfront park. This EDC project, which is currently under way, is projected to be completed in 2008. The Master Plan recommends the development of an attractive waterfront amenity, links to the Manhattan Waterfront Greenway, and construction of two new piers, including an excursion pier, to allow docking for recreational excursions and ferry boats.
- 2) The second component focuses on various transportation improvements to encourage growth in the area. The plan recommends the development of an intermodal transportation center along the waterfront between West 125th Street and St. Clair Place that could provide access for ferry boats from the excursion pier, buses from West 125th Street, bicyclists from the surrounding paths, and the potential reestablishment of a Metro-North stop on the Amtrak line at West 125th Street. This component also includes the implementation of streetscape improvements along West 125th Street to encourage access to the waterfront; these improvements are currently in the design phase.
- 3) The third component proposes to build on the waterfront transportation improvements (components 1 and 2) and to encourage economic development of the upland. It identifies the need to change the restrictive manufacturing zoning to allow a greater variety of uses and greater building bulk in the area near Broadway, while also recommending the reuse of existing buildings. In addition, the plan recommends partnering development with the neighboring institutions of Columbia University and City College, using the tax incentives and financial benefits of the Upper Manhattan Empowerment Zone, and expanding and enhancing community partnerships to attain economic development in West Harlem.

In addition to the EDC study, Manhattan Community Board 9 (CB9) has proposed a plan for Manhattanville, pursuant to Section 197-a of the New York City Charter (197-a Plan). The stated goals of the 197-a Plan include: improving the quality of life of neighborhood residents, preserving traditional building patterns and neighborhood scale, encouraging the creation and development of job-intensive businesses to benefit local residents, providing affordable housing, and allowing future growth while preserving the district's physical and demographic character without displacement of existing CB9 residents. The 197-a Plan calls for a mix of manufacturing, commercial, community facility, and residential uses in the Project Area. This mix of uses, achieved through a rezoning that would facilitate new construction and conversions, is aimed at preserving building patterns and neighborhood scale, while allowing for future growth.

The goals of the West Harlem Master Plan, the proposed 197-a Plan, and the Proposed Actions are similar in certain respects. All three would seek to widen the variety of uses that could be permitted in Manhattanville and to increase allowable densities. However, fulfilling Columbia's goal of an integrated "campus" with 5 to 6 million sf of university program space would create a development dominated by University uses over a large portion of the Project Area, unlike the more mixed-use development suggested by the West Harlem Master Plan and proposed in the CB9 197-a Plan.

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

Given the planning history and context in Manhattanville, the goals and objectives of the Proposed Actions have been framed to acknowledge the important role that the Project Area plays in the future of the neighborhood. These goals would promote use of the new Columbia campus by members of the community, as well as students, faculty, and other employees of the University, as follows:

- Use the streets through the Academic Mixed-Use Area to connect to the river and planned West Harlem Waterfront park to areas east of the Project Area.
- Create a lively, welcoming urban environment for community residents and visitors as well as Columbia students, faculty, and other employees.
- Promote meaningful employment opportunities for local residents.

To accomplish these goals, Columbia has incorporated the following objectives in its planning approach:

- Retain key aspects that recall Manhattanville's history.
- Revitalize West 125th Street.
- Connect West Harlem to the waterfront right through the university area.
- Construct significant new privately owned, publicly accessible open spaces.
- Employ publicly accessible ground-floor uses, widened sidewalks, landscaping, and lighting to create vibrant streets leading through the Project Area.
- Minimize the presence of cars and trucks on the streets.
- Create a welcoming urban design by barring the use of fences or walls and formulating appropriate bulk controls, setbacks, and landscaping requirements.

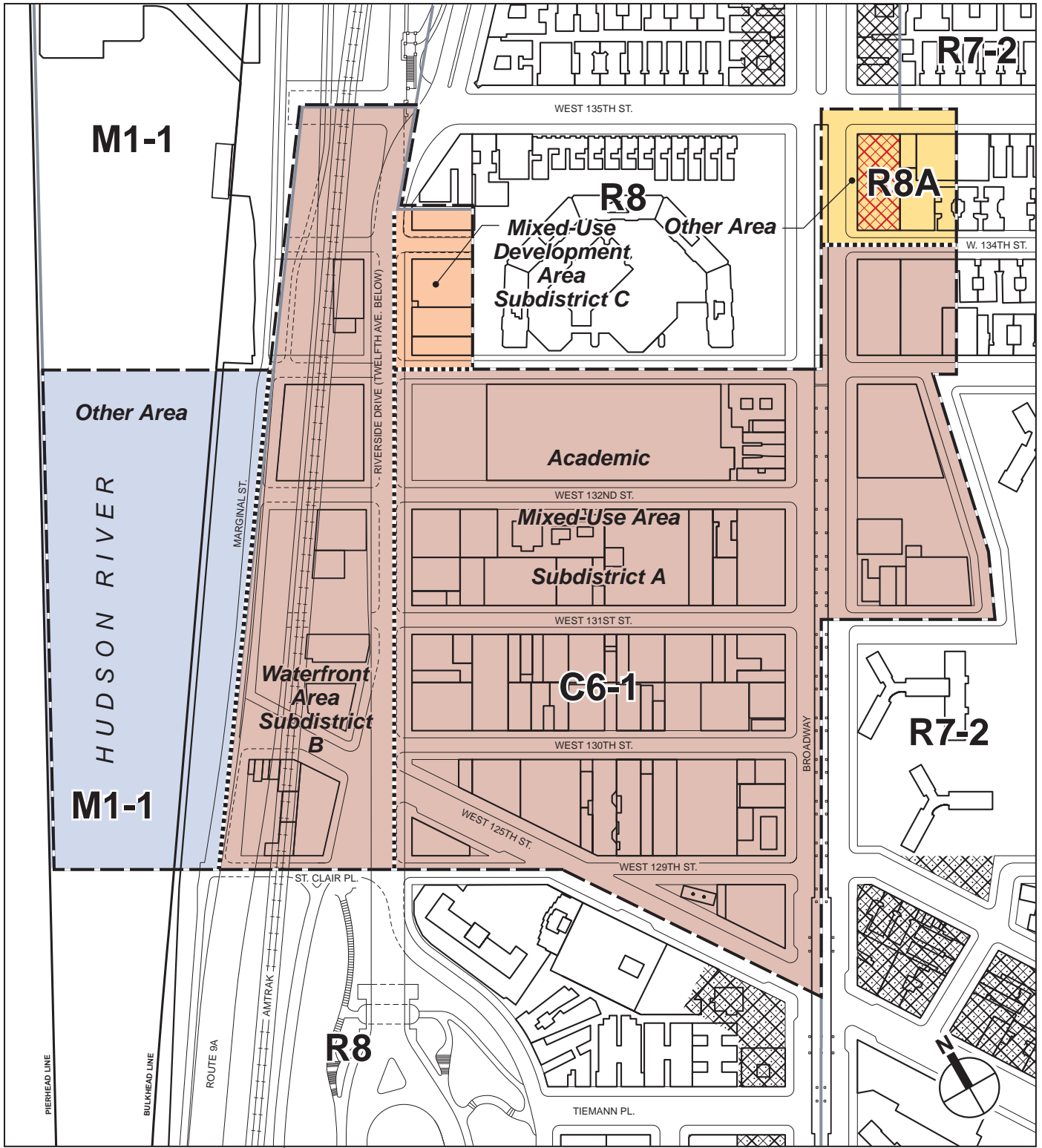
In addition, the University has agreed to work with the City on its proposal to create a specialized science high school on property Columbia owns. The school initially will be located in transitional space in a temporary location. Its permanent location will be in Manhattanville. Enrollment will be selective, and priority will be given to high performing local students from northern Manhattan above 96th Street. At least half of the school's total enrollment will comprise students from northern Manhattan. (Approvals of site selection and funding for the school are not included as part of the proposed rezoning and Academic Mixed-Use Development.)

### **D. LAND USE AND RELATED ACTIONS**

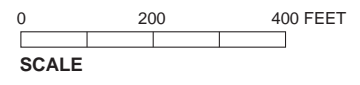
As discussed above and detailed below, the land use actions required to permit changes in land uses and densities, and to create an Academic Mixed-Use Development, include rezonings and related actions by the City, and adoption of a GPP by ESDC.

#### **SPECIAL MANHATTANVILLE MIXED-USE ZONING DISTRICT**

The boundaries of the proposed Special Manhattanville Mixed-Use Zoning District are coterminous with the Project Area (see Figure 1-7). The proposed rezoning would replace most of the current manufacturing districts in the Project Area and promote redevelopment adjacent to the waterfront consistent with several of the recommendations and planning objectives of the EDC's West Harlem Master Plan. The rezoning would also allow Columbia University to develop the Academic Mixed-Use Development to meet its long-term needs for modernization and expansion of the institution's facilities. The proposed rezoning includes: (1) Subdistrict A, within which the Academic Mixed-Use Development would occur, and (2) adjoining



- - - - Project Area and Proposed Manhattanville Special Mixed-Use District Boundary  
 ..... Subdistrict Boundary



**Proposed Zoning Districts**

- |  |                                |
|--|--------------------------------|
| <b>R8A</b> General Residence District    | <b>C6-2</b> Commercial Overlay |
| <b>M1-1</b> Light Manufacturing District | <b>C1-4</b> Commercial Overlay |
| <b>C6-1</b> Commercial District          |                                |

Figure 1-7  
**Proposed Zoning**

Subdistricts B and C and the two “Other Areas,” one area east of Broadway and a second area along the waterfront west of Marginal Street (see Figure 1-7). The proposed Special Manhattanville Mixed-Use Zoning District text is provided in Appendix A.1.

The urban design requirements of the Special Manhattanville Mixed-Use Zoning District would promote strong visual and pedestrian connections linking the residential communities located east of Broadway and the Academic Mixed-Use Area to the waterfront. To keep the streets active and lively, Twelfth Avenue, West 125th Street, and Broadway would be designated for active ground-floor uses (see Figure 1-8), such as retail, galleries, performance spaces, and other space for community services. On such streets, any new development, change of use, or enlargement that would increase the floor area of the ground floor of a building by more than 25 percent would require that a minimum of 75 percent of the ground-floor frontage, for a minimum depth of 30 feet or the depth of the building, whichever is less, be allocated for active ground-floor uses.

This Special Zoning District would also have transparency requirements in which at least 70 percent of a building’s streetwall surface would be glazed, with at least 50 percent transparency from the floor level at the ground to the height of the first floor ceiling, or not less than 15 feet, whichever is lower, for any new development, changes of use on the ground floor of a building, or enlargement that increases the floor area of the ground floor by more than 25 percent. These transparency requirements would not apply to a change of use in the Studebaker Building or the former Warren Nash Service Station building, or a change of use in an existing building from manufacturing to permitted manufacturing, community facility, or certain office uses. There would also be mandatory streetwall and widened sidewalk requirements, and controls on building heights. See Appendix A.1 for the proposed Special Zoning District text.

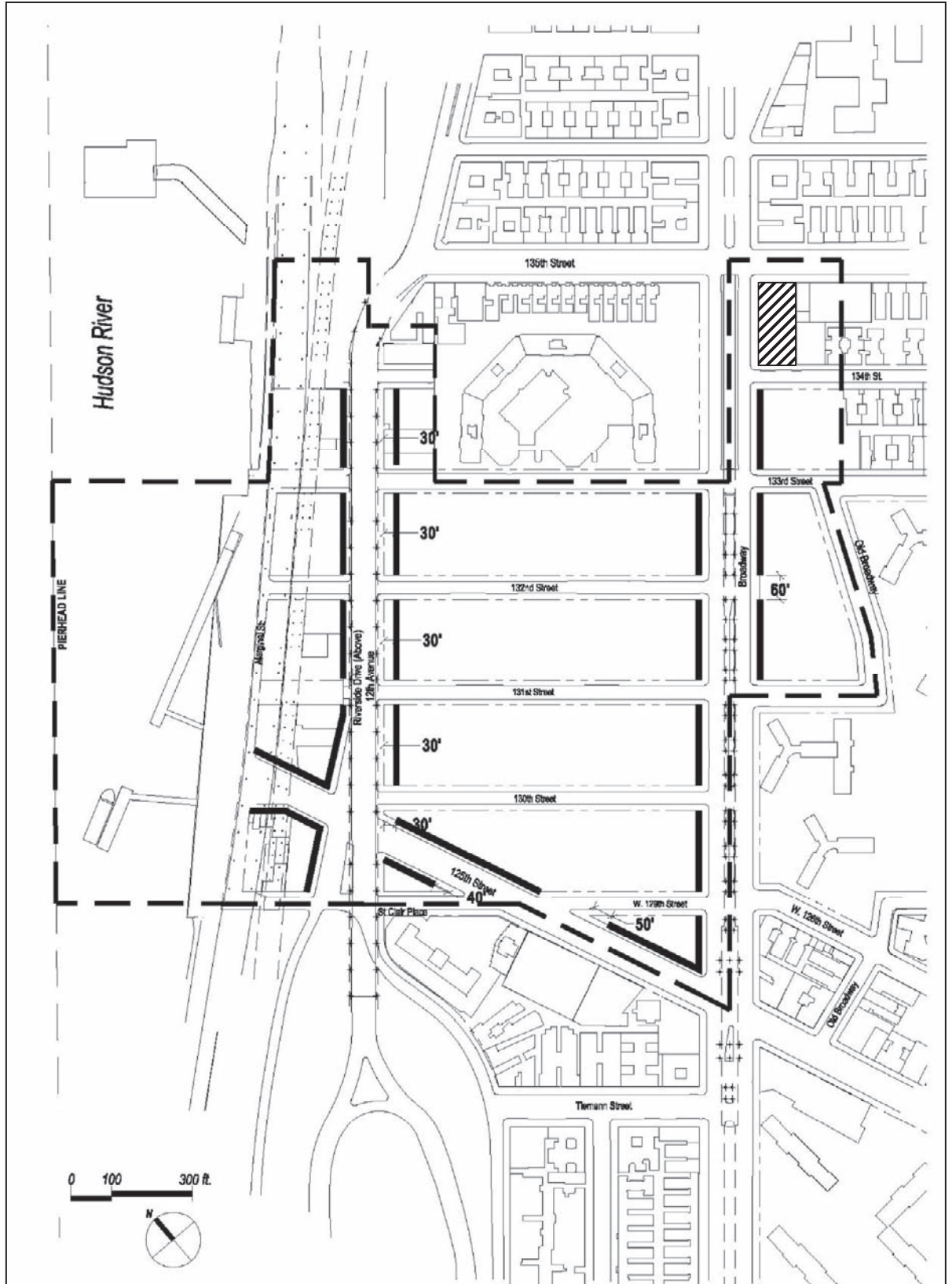
The zoning would also require widened sidewalks in Subdistrict A (except along Broadway, West 125th Street, and on the north side of West 131st Street, the south side of West 132nd Street, and the south side of West 129th Street), effectively widening the view toward the waterfront from Broadway. These widened sidewalks would also provide additional light and air beneath the Riverside Drive viaduct along Twelfth Avenue. The zoning would also set maximum building heights on each site in the rezoning area. As shown in Figure 1-9, these would range from 60 feet on the west side of Twelfth Avenue, close to the waterfront, to as much as 260 feet on Broadway. An additional 20 to 60 feet would be allowed to accommodate mechanical equipment in Subdistrict A. There would also be mandatory streetwall requirements in Subdistricts A and B.




As part of the zoning map amendments, E-designations would be mapped, as appropriate, to address potential issues related to hazardous materials, air quality, and noise. E-designations are applied to specific properties that could require remediation or other measures, should an owner want to demolish, excavate, or otherwise construct on his/her property. Specific language for E-designations, and blocks and lots to which they would apply, are described in greater detail in Chapter 12, “Hazardous Materials,” Chapter 19, “Air Quality,” Chapter 20, “Noise,” and Chapter 21, “Construction.”

### *ACADEMIC MIXED-USE AREA (SUBDISTRICT A)*

Subdistrict A constitutes approximately 17 acres, or 48 percent, of the Project Area. In this subdistrict, the Special Manhattanville Mixed-Use Zoning District would change the existing low-density manufacturing zoning (Figure 1-6)—light (M1-2), medium (M2-3), and heavy manufacturing (M3-1)—to a medium-density C6-1 district (see Figure 1-7). Subdistrict A would allow for a range of uses that would provide for the expansion of Columbia University, including

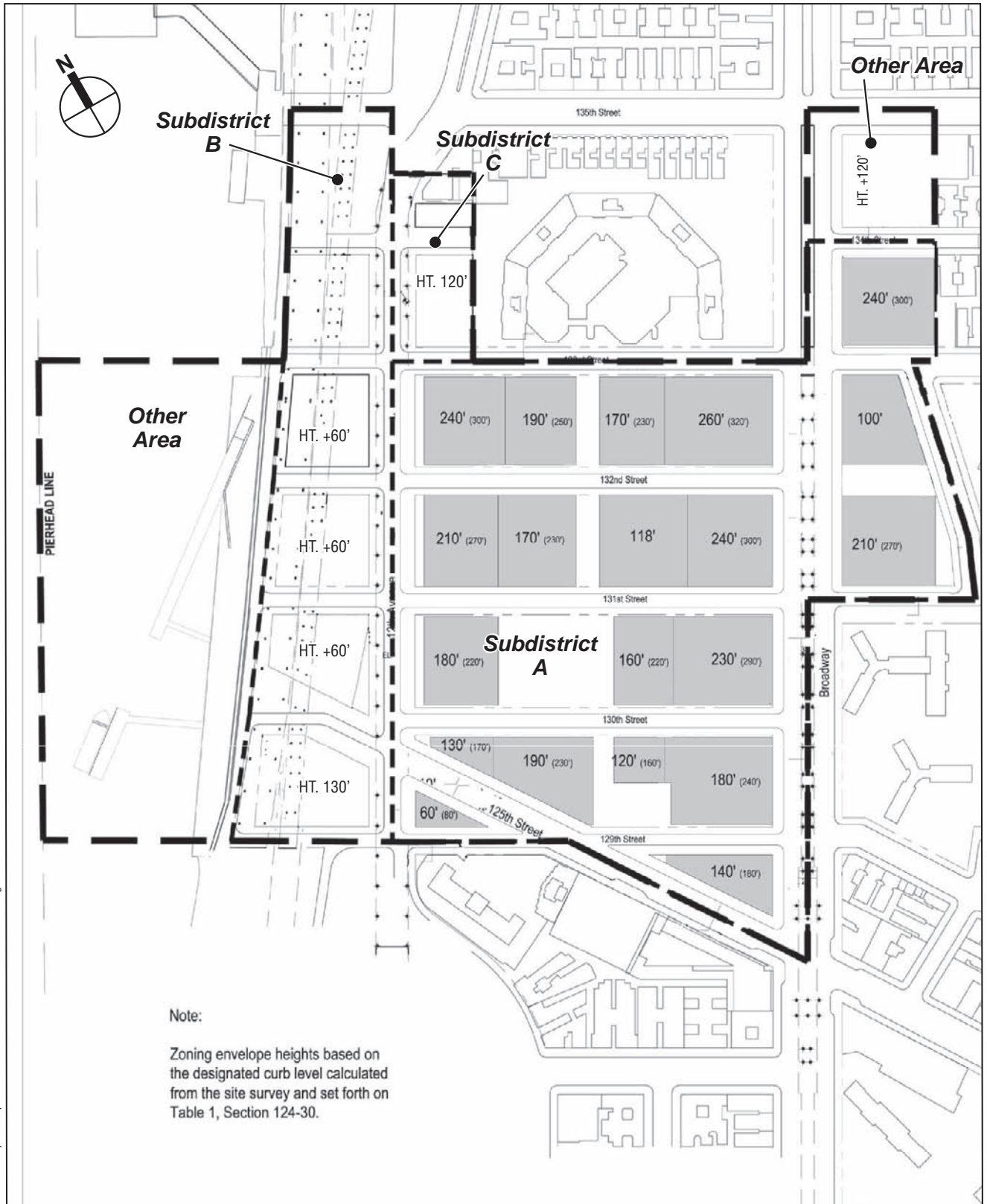




-  Project and Rezoning Area Boundary
-  Mandatory Active Ground Floor Uses
-  C1-4 Overlay

NOT TO SCALE

Figure 1-8  
**Areas of Mandatory Active Ground-Floor Uses**



- Project and Rezoning Area Boundary
- - -** Subdistrict Boundary
- 120' Maximum Building Height not including mechanical
- (160') Maximum Building Height with mechanical

NOT TO SCALE

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

academic space, academic research facilities<sup>1</sup> containing laboratories, and housing for graduate students, faculty, and other employees. The 3.44 FAR for residential use corresponds to the R7 districts that are mapped to the north and east of the rezoning area. Under the Special Manhattanville Mixed-Use Zoning District regulations, the maximum floor area would be 6.0 FAR for commercial and community facility uses in Subdistrict A, which is below the 6.5 FAR maximum for community facility use in C6-1 districts. The maximum floor area permitted for manufacturing uses would be 2.0 FAR. These provisions are intended to maintain an appropriate scale and density.

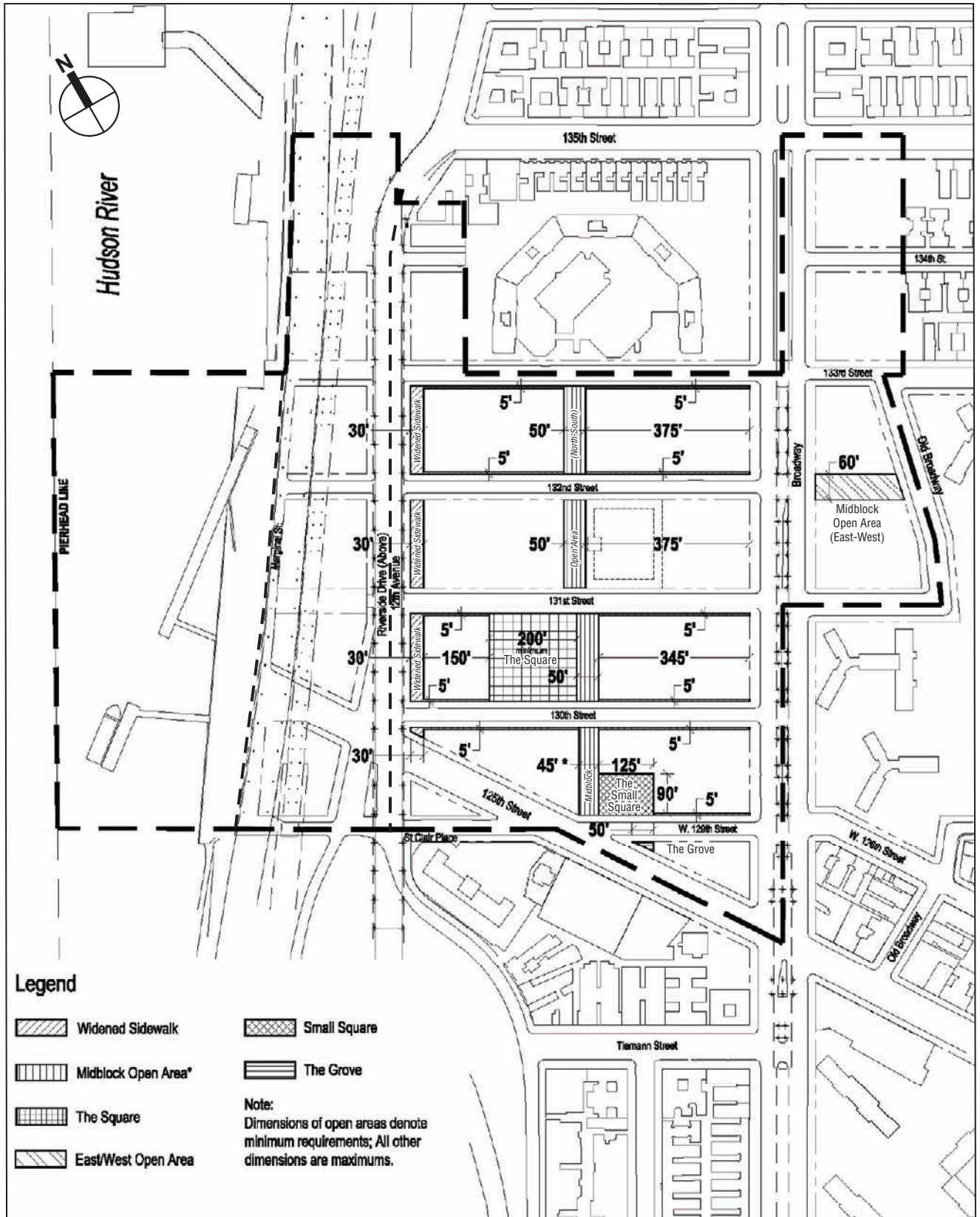
In recognition that Columbia University would develop facilities in the area over time, the Special District would continue to permit a range of manufacturing uses to allow such uses at the same 2.0 FAR density currently in effect in existing and new buildings in Subdistrict A (except in the Other Area east of Broadway) prior to development by Columbia. (The 2.0 FAR limit would not apply in existing non-complying buildings to changes of use to permitted manufacturing uses.) In addition, to allow flexibility for Columbia University to develop its facilities in response to evolving needs, the proposed Special District zoning text would allow for three types of floor area transfers within Subdistrict A; all would be subject to the maximum floor area permitted overall. Those transfers to be made from three open spaces delineated in the proposed Special District would be “as-of-right” by notice and would require certification by the Chair of the CPC that the open space will be built to the specifications in the zoning. These bulk transfers are included in the Illustrative Plan, discussed below. It is anticipated that Columbia will apply for such certifications at the time of development. All other transfers of floor area that would stay within the design “envelopes” set forth in the zoning’s height, setback, and streetwall regulations for each site would be subject to both CPC Authorization and CEQR review. If the transfer would create a building that did not conform to the design regulations in the zoning, a CPC Special Permit subject to both the City’s Uniform Land Use Review Procedure [ULURP] and CEQR review would be required. To create visual differentiation between the base and upper floors of new buildings and to maintain an appropriate streetscape, the proposed zoning would set mandatory streetwall heights for narrow streets and wide streets and distinguish between lower and upper streetwalls. These regulations would apply on most streets within Subdistrict A for buildings above a height of 60 feet on a narrow street or 85 feet on a wide street (see Appendix A.1 for the proposed Special Manhattanville Mixed-Use Zoning District text).

The Special Manhattanville Mixed-Use District text would also have design controls and other requirements in Subdistrict A for on-site open areas to ensure the quality of, and public use and access to, privately owned, publicly accessible open space areas. As shown in Figure 1-10, these open areas would include a large through-block central open space (the Square) of approximately 40,000 sf, located between West 130th and West 131st Streets. An additional approximately 82,500 sf of open space would be provided, including a Small Square on the block between Broadway, Twelfth Avenue, and West 129th and West 130th Streets; the Grove, at the western tip of the triangular-shaped block formed by the intersections of Broadway, West 125th Street, and West 129th Street; and midblock open areas that also serve as pedestrian passageways through the midblocks.







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<sup>1</sup> No commercial research space is proposed for the Project Area. Section 74-48 of the Zoning Resolution, which allows for commercial research facilities in C6 districts by Special Permit, would not apply in the Special Manhattanville Mixed-Use District. Commercial research space will also not be permitted within Subdistrict A by the proposed GPP. The GPP will prohibit the leasing of space to commercial enterprises for the conduct of scientific research.



Source: Proposed Special Manhattanville Mixed-Use District Zoning text



**Legend**

-  Widened Sidewalk
-  Small Square
-  Midblock Open Area\*
-  The Grove
-  The Square
-  East/West Open Area

**Note:**  
 Dimensions of open areas denote minimum requirements; All other dimensions are maximums.

-  Project and Rezoning Area Boundary
-  Subdistrict Boundary

NOT TO SCALE

Figure 1-10  
**Location and Dimensions  
 of Required Open Spaces in Subdistrict A**

These midblock open areas would be a minimum of 50 feet wide with no obstructions, oriented north–south between West 125th/West 129th Streets and West 133rd Street and a minimum of 60 feet oriented east–west between Broadway and old Broadway. In addition, the Special Zoning District would require mandatory widened sidewalks within Subdistrict A. Five-foot mandatory widened sidewalks would be required on the east–west streets, except on West 125th Street, which is a wide street, on the south side of West 129th Street, and on the block between West 131st and West 132nd Streets, to account for the existing Studebaker Building. The mandatory widened sidewalks along the east side of Twelfth Avenue would be 30 feet with a 15-foot-wide zone for the provision of an open market and an adjacent 15-foot-wide clear path. Within the 15-foot open market zone, the zoning would also require permanent, fixed elements, such as landscaping and seating, with a minimum coverage of 5 percent of the market area.

#### *SUBDISTRICTS B, C, AND THE OTHER AREAS*

The Special Manhattanville Mixed-Use Zoning District would change the existing zoning in Subdistricts B, C and the two Other Areas from M2-3, M1-1, and M1-2 (see Figure 1-6) to M1-1, R8A, R8A with C1-4 overlay, C6-1, and C6-2 (see Figure 1-7)<sup>1</sup>. The Special District is intended to permit development in Subdistricts B, C, and the Other Areas in a manner generally consistent with the recommendations of the EDC’s West Harlem Master Plan, such as the new West Harlem Waterfront park and other public uses. The rezoning is intended to expand the range of permitted land uses and increase density to encourage commercial development in the westerly subdistricts and a mix of commercial and residential use in the Other Area east of Broadway.

In Subdistricts B, C, and the Other Areas of the proposed Special District, new uses and uses with greater densities may develop as a result of the proposed rezoning. Changes to the land use regulatory controls could allow subsequent future projects in Subdistricts B, C, and the Other Areas, as yet undefined, to be developed that may not require further environmental review. Therefore, the EIS also considers a reasonable worst-case development scenario for the sites within Subdistrict B, C, and the Other Areas, which is described in Chapter 2, and as shown in Figure 1-11. Although the physical form of the development for this area is unknown, its potential characteristics are considered for analysis purposes. Regardless of what is actually developed for Subdistricts B, C, and the Other Areas, the impacts would be no worse than those considered in the EIS for the reasonable worst-case development scenario.

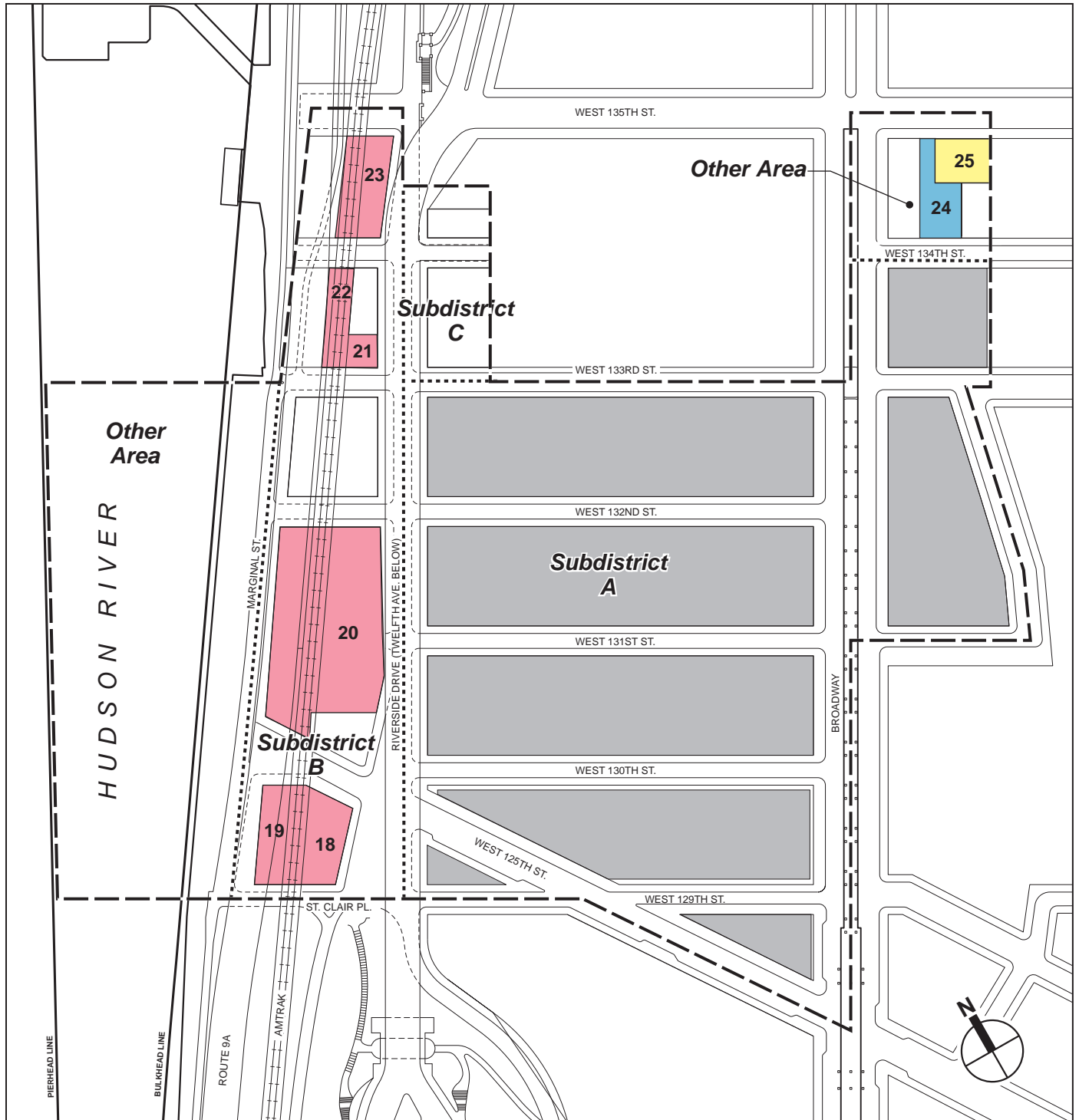
#### *Subdistrict B*

The area along the west side of Twelfth Avenue to Marginal Street, consisting of approximately 8 acres, or approximately 21 percent of the Project Area, constitutes proposed Subdistrict B. Subdistrict B would be rezoned from M1-1 and M2-3 to a C6-1 underlying zoning district to encourage commercial uses in this area<sup>2</sup>. However, to promote appropriate land uses and

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<sup>1</sup> CPC is contemplating certain modifications to Subdistrict B. The proposed modifications would rezone Subdistrict B to a modified M1-2 light manufacturing district to support light manufacturing and retail uses. It is anticipated that this modification would not result in any projected development sites in Subdistrict B. The proposed modifications are more fully described in Chapter 29, “Modifications to the Proposed Actions.” Chapter 29 also analyzes the potential environmental impacts that could result from the proposed modifications.

<sup>2</sup> As described earlier, CPC is contemplating certain modifications to Subdistrict B that would not result in any projected development sites in Subdistrict B. The proposed modifications are more fully described in Chapter 29, “Modifications to the Proposed Actions.”



- Project Area Boundary
- Subdistrict Boundary
- Academic Mixed-Use Development
- Residential
- Commercial (Retail and/or Office)
- Community Facility
- 21** Projected Development Site

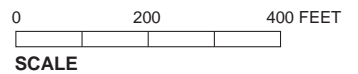


Figure 1-11  
**Subdistricts B, C, and the Other Areas:  
Reasonable Worst-Case Development Scenarios**

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

strengthen the visual east–west corridors to the waterfront within this subdistrict, additional regulations would apply: residential development would be prohibited, commercial and community facility development would be limited to a maximum FAR 2.0 for both uses, and a range of manufacturing uses would still be permitted. Community facility uses (use groups 3 and 4) would be further limited to 5,000 sf per establishment in Subdistrict B. Subdistrict B would also contain a height limitation of 60 feet, except for the southernmost block between St. Clair Place and West 125th Street, Marginal Street, and Twelfth Avenue, which would have a height limitation of 130 feet. The proposed rezoning changes for Subdistrict B would also allow the existing Fairway Market potential for expansion.

Twelfth Avenue and West 125th Street in Subdistrict B would also be designated for required active ground-floor uses in the Special Manhattanville Mixed-Use Zoning District. Any new development, enlargements, or change of use fronting on such streets would require 75 percent of the ground-floor frontage be allocated for active ground-floor uses (see Appendix A.1 for the proposed Special Manhattanville Mixed-Use Zoning District text).

### *Subdistrict C*

Subdistrict C, which constitutes approximately 2 percent of the Project Area, comprises six parcels on the east side of Twelfth Avenue between West 133rd Street and north of West 134th Street. It is proposed for inclusion in the Special Manhattanville Mixed-Use Zoning District because it is part of the existing manufacturing district, and its location adjacent to the Riverside Park Community apartments makes it important that any new development that might occur in the future be compatible with its residential neighbors. Thus, Subdistrict C would be remapped to an underlying C6-2 zoning district, which would permit residential use at an R8 equivalent—consistent with the adjacent R8 district associated with Riverside Park Community—with a maximum 6.02 FAR, and commercial uses with a maximum FAR of 6.0. As in the Academic Mixed-Use Area just to the south, community facility uses would be limited to an FAR of 6.0 instead of 6.5. Subdistrict C would also contain a height limit of 120 feet above curb level, which is the height of the existing buildings.

### *Other Areas*

As shown in Figure 1-7, the Other Areas of the proposed Special District would include two separate areas: an area containing several parcels on the east side of Broadway between West 134th and West 135th Streets, and a second area comprising all of the waterfront west from Marginal Street to the pier line. Together, the two Other Areas constitute approximately 10.5 acres, or 29 percent, of the Project Area. The Other Area east of Broadway is less than an acre, and constitutes approximately 3 percent of the Project Area. The remaining 26 percent of the Other Areas comprises 7 acres of City-owned land under water (which cannot be developed, nor can it generate development rights transferable to other parcels), and the approximately 2-acre West Harlem Waterfront park, now under construction west of Marginal Street.

All of the Other Area east of Broadway would be mapped as an R8A contextual zoning district, which applies height and setback regulations designed to be compatible with the character of the neighborhood. The R8A district would require a base height of 60 to 85 feet followed by a setback, with a maximum building height of 120 feet. A C1-4 overlay would be mapped along the entire frontage of Broadway to a depth of 100 feet east from Broadway. As governed by the underlying zoning, the maximum FAR would be 6.02 for residential uses and 6.5 for community facility uses. Where the C1-4 overlay is mapped, the maximum FAR would be 2.0 for commercial uses, although in a building with residential use, commercial uses must be located

below the second story. The remaining area located east of the C1-4 overlay on the same block would be mapped R8A, with a maximum FAR of 6.02 for residential uses and 6.5 for community facility uses. Commercial and manufacturing uses are not permitted in R8A districts, and manufacturing uses would not be permitted in the C1-4 overlay area, either.

The Other Area west of Marginal Street would be mapped as M1-1. This is the area planned to be developed as the West Harlem Waterfront park. The proposed zoning change would allow the park to conform to zoning, since the existing M2-3 district does not allow for a park use.

### GENERAL PROJECT PLAN

In addition to the regulations of the Special Manhattanville Mixed-Use Zoning District, Subdistrict A would also be subject to requirements in the GPP, which would control certain aspects of the plan that are not subject to City zoning. These would control development of the proposed subsurface spaces and include a requirement for preservation of a historic resource. In addition, to allow for flexibility in Columbia's future planning within an appropriate framework, the GPP would limit land uses on each development site to certain permitted uses (not including street-level active ground-floor uses, which would be widely permitted), and would set overall minimum and maximum floor areas for each land use component.

The Academic Mixed-Use Development would have an extensive below-grade component to provide contiguous support space. The GPP would specify support uses permitted in the below-grade area, including, but not limited to, central energy plants to provide heating, ventilation, and air conditioning (HVAC) to all but one of the proposed buildings west of Broadway, academic research support facilities, parking and loading facilities, storage space, and recreational facilities. Under the GPP, Columbia would be required to retain and adapt for its use the former Warren Nash Service Station building at 3280 Broadway at the corner of West 133rd Street. This building has been determined to be a historic resource.

Under the GPP, only specified uses would be permitted on each development site, as shown in Table 1-6. As noted above, commercial research is not allowed under the zoning text. As shown in Table 1-7, the GPP would include maximum and minimum total floor areas for each proposed land use. However, in no case would the total zoning floor area in Subdistrict A exceed the 6.0 FAR equivalent of 4.4 million sf<sup>1</sup>, nor would the total gross floor area (including space above and below grade) exceed 6.8 million sf. The minimum floor area requirements represent Columbia's commitment to the basic elements of its proposal. The requirements of the GPP would be administered and enforced by the City of New York and/or ESDC through deed restrictions on the land and other mechanisms.

Because the GPP may not be adopted by the time that CEQR Findings are adopted or the proposed rezoning is adopted, Columbia University will execute a Restrictive Declaration. That document will ensure that the above noted requirements and proscriptions are met.

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<sup>1</sup> The zoning floor area of a building is the gross floor area above grade less space devoted to mechanical uses.



**Table 1-6  
Permitted Uses by Development Site**

Development Site	Illustrative Plan Use	Alternate Uses
1	Academic	–
2	Academic research	–
3	Academic	–
4	Academic	–
5	Retail	–
6	Academic research	Recreation
6b	Academic research	Academic
7	University housing and Academic	–
8	Academic research	Academic
9	Recreation	Academic research
10	Academic	Academic research
11	Academic research	Academic
12	Academic research	Academic
13	Academic	University housing
14	University housing	Academic
15	Academic research	Academic
16	Academic	–
17	Academic research	University housing

**Note:** See Figure 1-12 for Development Site locations.

## E. PROPOSED ACADEMIC MIXED-USE DEVELOPMENT PLAN

### PLANNING AND DESIGN APPROACH

As noted above, Columbia’s planning and design of the Academic Mixed-Use Development seeks to realize the following major goals:

- Use the streets through the Academic Mixed-Use Area to connect to the river and planned West Harlem Waterfront park to areas east of the Project Area.
- Create a lively, welcoming urban environment for community residents, workers, and visitors, as well as Columbia graduate students, faculty, and other employees.
- Promote meaningful employment opportunities for local residents.

**Table 1-7  
Subdistrict A: 2015 and 2030 Maximum and Minimum Proposed  
Academic Mixed-Use Above-Grade Development**

Use	Maximum GSF <sup>1</sup>		Minimum GSF	
	2015	2030	2015	2030
<b>Community Facility</b>				
Academic research <sup>2</sup>	370,000	2,700,000	300,000	960,000
Academic	705,000	2,000,000	200,000	1,000,000
Housing for graduate students, faculty, and other employees	175,000	1,300,000	0	350,000
Recreation <sup>3</sup>	0	350,000	0	0
<b>Commercial</b>				
Active ground-floor uses	180,000	600,000	36,500	130,000
Retail <sup>4</sup>	90,000	300,000	18,250	65,000
<b>Notes:</b>				
Maximum academic uses would not occur with maximum housing for graduate students, faculty, and other employees.				
<sup>1.</sup> In no case will the zoning floor area within the Academic Mixed-Use Area exceed 4,417,956 sf (6.0 FAR equivalent), nor will the total gross floor area (including space above and below grade) exceed 6,760,673 sf.				
<sup>2.</sup> Does not include below-grade support.				
<sup>3.</sup> Does not include below-grade swimming and diving center.				
<sup>4.</sup> Included in active ground floor uses.				

To accomplish these goals, Columbia has incorporated the following objectives in the design approach:

*1) Retain key aspects that recall Manhattanville’s history.*

The Academic Mixed-Use Development plan approach would retain the existing street grid as well as the IRT and Riverside Drive viaducts, and would preserve the former Warren Nash Service Station building, a former automobile service station, which would be adapted for new use. The Studebaker Building within the Project Area on West 131st Street would be adapted for administrative uses of the University in the future without (as well as with) the Proposed Actions.

*2) Revitalize West 125th Street.*

The design approach is intended to revitalize West 125th Street as the gateway to the Project Area and to the West Harlem Waterfront park, now under construction. West 125th Street would be enlivened through the creation of ground-floor retail and other uses to create a lively streetscape similar to that of the street in Central Harlem. Several features, such as a crossing light, clearly marked crosswalks, and landscaped open spaces fronting on the street, would make this street more pedestrian friendly and draw people toward the waterfront.

*3) Connect West Harlem to the waterfront.*

The Academic Mixed-Use Area would remain open to the community without traditional campus walls or gates. All streets would also remain open and public at grade. Building on the streetscape improvements consistent with the recommendations in the West Harlem Master Plan, which include the reconfiguration of the West 125th Street intersections with Twelfth Avenue and Broadway, the plan includes ground-floor setbacks, which would result in wider sidewalks on most side streets, and open areas and landscaping adjacent to sidewalks to enhance views to the waterfront and encourage pedestrians to walk through the Academic Mixed-Use Area to get to the waterfront.

*4) Construct significant new privately owned, publicly accessible open spaces.*

Special District Regulations mandate the development of approximately 93,965 sf of privately owned, publicly accessible open space. These would be located in two “squares” on the blocks between West 125th and West 131st Streets between Broadway and Twelfth Avenue; at the western tip of the triangular-shaped block formed by the intersections of Broadway, West 125th Street, and West 129th Street; and in approximately 50-foot-wide midblock open areas, which would extend north–south from West 129th to West 133rd Streets and east–west between Broadway and Old Broadway (approximately 60 feet wide) on a line with West 132nd Street. The north–south midblock open areas would create a network of landscaped open spaces connecting the focal point of the “bowtie” intersection of West 129th and West 125th Streets, through to I.S. 195 on the north side of West 133rd Street.

*5) Generate street vibrancy.*

Visually open and accessible space would be required at the base of the new buildings to make streets in the Academic Mixed-Use Development Area lively and welcoming to students and the community. This space would constitute the ground floor of many of the new buildings and would contain community-oriented uses such as retail, galleries, performance spaces, and other space for community services. Active ground-floor uses would be mandated along West 125th Street, Broadway, and Twelfth Avenue and would be permitted elsewhere throughout the Project Area.

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

### *6) Minimize the presence of cars and trucks on the streets.*

The Academic Mixed-Use Development would have a below-grade area, which would include parking and loading, to minimize vehicular presence on the streets and enhance the pedestrian environment at street level. The below-grade area would also include central energy plants and virtually all the support services for the academic research buildings. Locating all service uses below-grade would facilitate the goal of creating visually open and accessible space along the base of buildings.

### *7) Create a welcoming urban design by barring the use of fences or walls and formulating appropriate bulk controls, setbacks, and landscaping requirements.*

Building height controls and streetwall requirements would be intended to ensure a design that relates to the topography and allows for a coordinated design of buildings of various uses. The maximum building heights would reflect the topography of the existing valley by stepping up the slope in height northward along Broadway and Twelfth Avenue and stepping down toward the valley's southwest low point roughly at West 125th Street and Twelfth Avenue. The academic research buildings that would be developed along Broadway require large floor plates and would be set back from the street along most of the cross streets. The setback at street level would generate additional open areas that would accommodate wider sidewalks. The setback would also allow light and air into the narrow side streets and expand and enhance views through the viaduct arches to the Hudson River. Fences and walls, except certain low retaining walls, would not be permitted anywhere in the Academic Mixed-Use Development Area.

## **DESCRIPTION OF THE ACADEMIC MIXED-USE DEVELOPMENT PLAN**

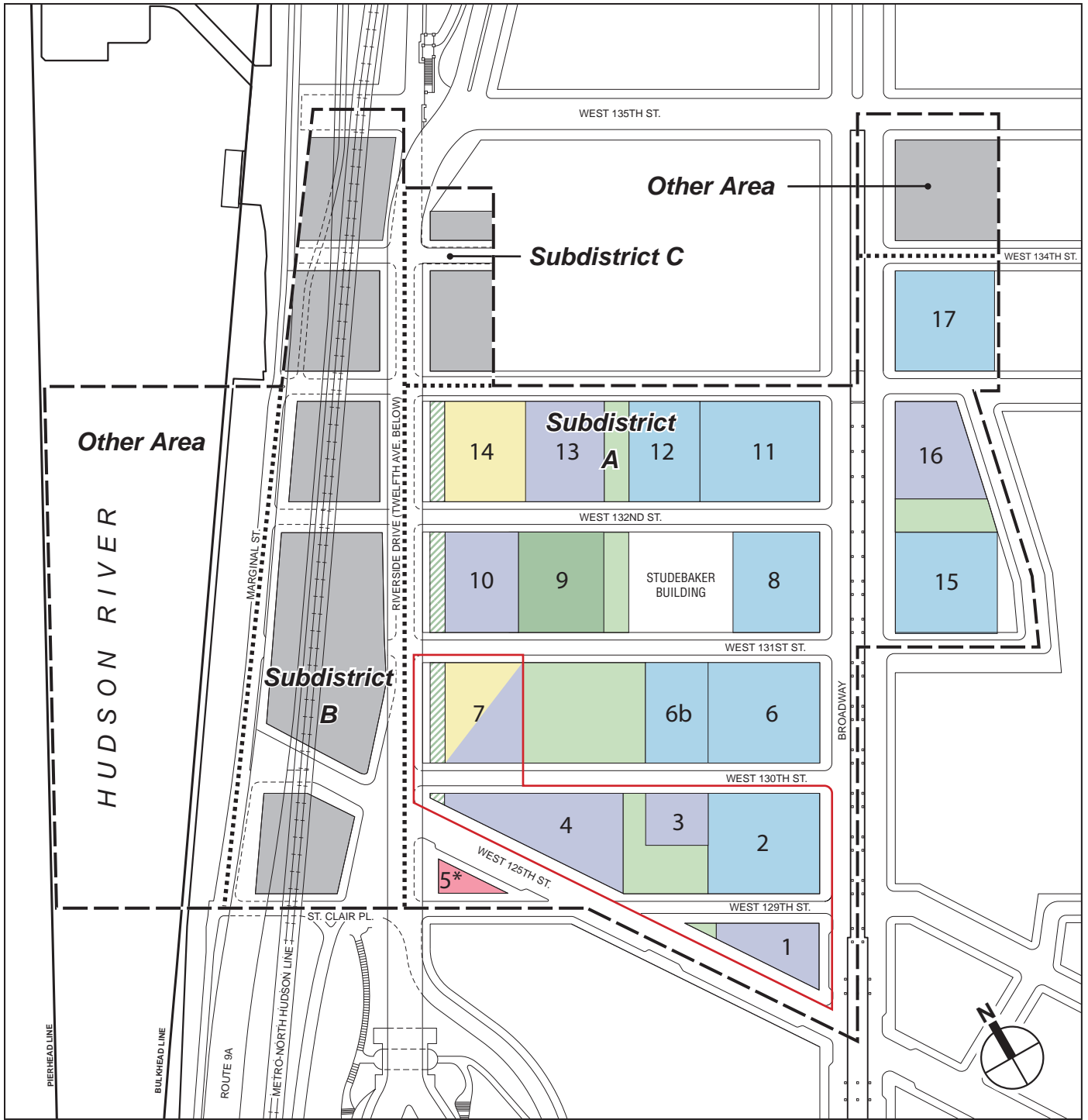
As shown in Table 1-8, the Proposed Actions would enable Columbia to develop 6.8 million gsf feet of space, above and below grade, in the Academic Mixed-Use Development area (Subdistrict A). Of this amount, the total program space,<sup>1</sup> both above and below grade, is 4.8 million sf. In addition, active ground-floor use (at a minimum) would be 162,618 sf. The remaining 1.8 million sf would comprise below-grade support space.<sup>2</sup> The support space would include 296,200 sf for academic research support. Irrespective of the use, the plan would include 4.8 million sf of development above grade (equivalent to 4.4 million sf of zoning floor area, and approximately 2 million sf below grade).

The proposed uses are illustrated in Figure 1-12, which presents Phase 1 as it is now proposed on Sites 1-4 and 7, and one of the specified uses on each of the other Academic Mixed-Use development sites; taken together, these sites and uses constitute the Phase 1 Plan and a Phase 2 Illustrative Plan, analyzed in this EIS. The Illustrative Plan represents the maximum 6.0 FAR equivalent for the Academic Mixed-Use Area and Columbia's current concept of its planned future development for the Academic Mixed-Use Area; however, it is possible that as the area develops over time, the plan may change.

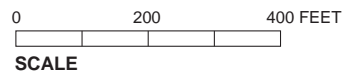
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<sup>1</sup> Columbia University program space includes academic research, academic, University housing, and recreation, including the below-grade swimming and diving center.

<sup>2</sup> Support space includes academic research support, central energy plants, mechanical and loading space, parking, and storage.



- Project and Rezoning Area Boundary
- Subdistrict Boundary
- 2015 Development
- Academic Research
- Academic
- Housing for Graduate Students, Faculty, and Other Employees
- Recreation Facility
- Open Space
- Twelfth Avenue 30-foot Widened Sidewalk with Open Market Area
- Subdistricts B,C, and the Other Areas
- 1 Development Site



\* NOTE: Public Open Space to be developed as partial open space mitigation (see Chapter 23)

**Table 1-8  
Subdistrict A: Illustrative Plan by Development Site (in GSF)**

Site # <sup>1</sup>	Academic	Academic Research	University Housing	Recreation	Active Ground- Floor Uses	Total
<b>2015 Development Sites</b>						
1	114,082				16,144	130,226
2		351,310			11,400	362,710
3	64,020					64,020
4	354,738				21,505	376,243
7	210,350		53,560		11,400	275,350
<b>2015 Above Grade</b>	<b>743,190</b>	<b>351,310</b>	<b>53,600</b>	<b>0</b>	<b>60,449</b>	<b>1,208,549</b>
<b>Below-Grade Components</b>						
	Academic research support					58,563
	Below-grade program					69,830
	Central energy plant					50,870
	Ramp, mechanical, freight, egress, switchgear, and loading facilities					94,638
	Storage					31,294
	<b>2015 Below Grade</b>					<b>305,195</b>
	<b>2015 TOTAL</b>					<b>1,513,744</b>
<b>2030 Development Sites</b>						
5					10,969	10,969
6		367,261			11,400	378,661
6b		138,890				138,890
8		301,101			11,400	312,501
9				250,713		250,713
10	260,370				11,400	271,770
11		398,193			11,400	409,593
12		214,225				214,225
13	160,890					160,890
14			350,360		11,400	361,760
15		386,792			11,400	398,192
16	196,318				11,400	207,718
17		439,185			11,400	450,585
<b>2030 Above Grade</b>	<b>1,360,768</b>	<b>2,596,957</b>	<b>403,960</b>	<b>250,713</b>	<b>162,618</b>	<b>4,775,016</b>
<b>Below-Grade Components</b>						
<b>West of Broadway</b>						
	Academic research support					296,201
	Below-grade program					69,830
	Central energy plant					70,199
	Ramp, mechanical, freight, egress, switchgear, and loading facilities					384,512
	Storage					189,225
	Columbia University parking					556,933
	Parking for Bus Depot employees					80,000
	Swimming and diving center					145,431
	<b>Subtotal West of Broadway</b>					<b>1,792,331</b>
<b>East of Broadway</b>						
	Ramp, mechanical, freight, egress, switchgear, and loading facilities					44,651
	Parking					148,675
	<b>Subtotal East of Broadway</b>					<b>193,326</b>
	<b>2030 Total Below-Grade</b>					<b>1,985,657</b>
	<b>2030 TOTAL (Including 2015 Sites)</b>					<b>6,760,673</b>
<b>Note:</b> <sup>1</sup> Site reference corresponds to Figure 1-12.						

**ABOVE GRADE**

The Academic Mixed-Use development is anticipated to take place incrementally over approximately 25 years. Since publication of the DEIS, programs identified in the DEIS as likely for the first phase of the development have become definite; the first phase would thus contain the Jerome L. Greene Science Center for Columbia’s Mind, Brain, and Behavior Initiative, the Business School, the School of the Arts, University housing, and publicly accessible open space. In addition, SIPA, and related programs have been identified as the academic program for Site 7.

Specifically, Columbia proposes that the academic research building on Site 2 would house the Jerome L. Greene Science, the academic building on Site 4 would house the Columbia Business

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

School, and the academic building on Site 3 would be used for the Columbia Business School and the School of the Arts. Site 1 would contain academic support spaces for the School of the Arts, the Columbia Business School, and the Jerome L. Greene Science, including a large auditorium, meeting room space, and other academic space. The mixed-use academic and university housing building on Site 7 would house SIPA, International Research Centers and Institutes, and Global Health, as well as housing for graduate students, faculty, and other employees. Across West 125th Street the Phase 1 development would face a renovated Prentiss Hall (see Figure 1-13), a new academic building containing a new City high school for math, science, and engineering, and 560 Riverside Drive, the base of which would be renovated and enlivened with publicly accessible uses.<sup>1</sup> A new traffic light would be installed at the intersection of West 125th and West 129th Streets to ease the connection between the two sets of University buildings.

This first phase of the Academic Mixed-Use Development plan would also provide 28,855 sf of publicly accessible open space (the Small Square and the Grove) surrounding and across West 129th Street from the building on Site 3. These open spaces would also constitute the first leg of the midblock open area, a north-south pedestrian pathway that would eventually extend from West 125th to West 133rd Street. As mandated in the proposed zoning, the buildings would be set back from their property lines (except along Broadway), allowing for wider sidewalks with street trees and landscaping at the building bases. With new and renovated academic uses on both sides of the street, the Small Square and Grove in the midblock plus the setback and landscaping requirements of the proposed zoning, Phase 1 is intended to enliven West 125th Street, establish a gateway to the waterfront and create an entrance to the new campus.

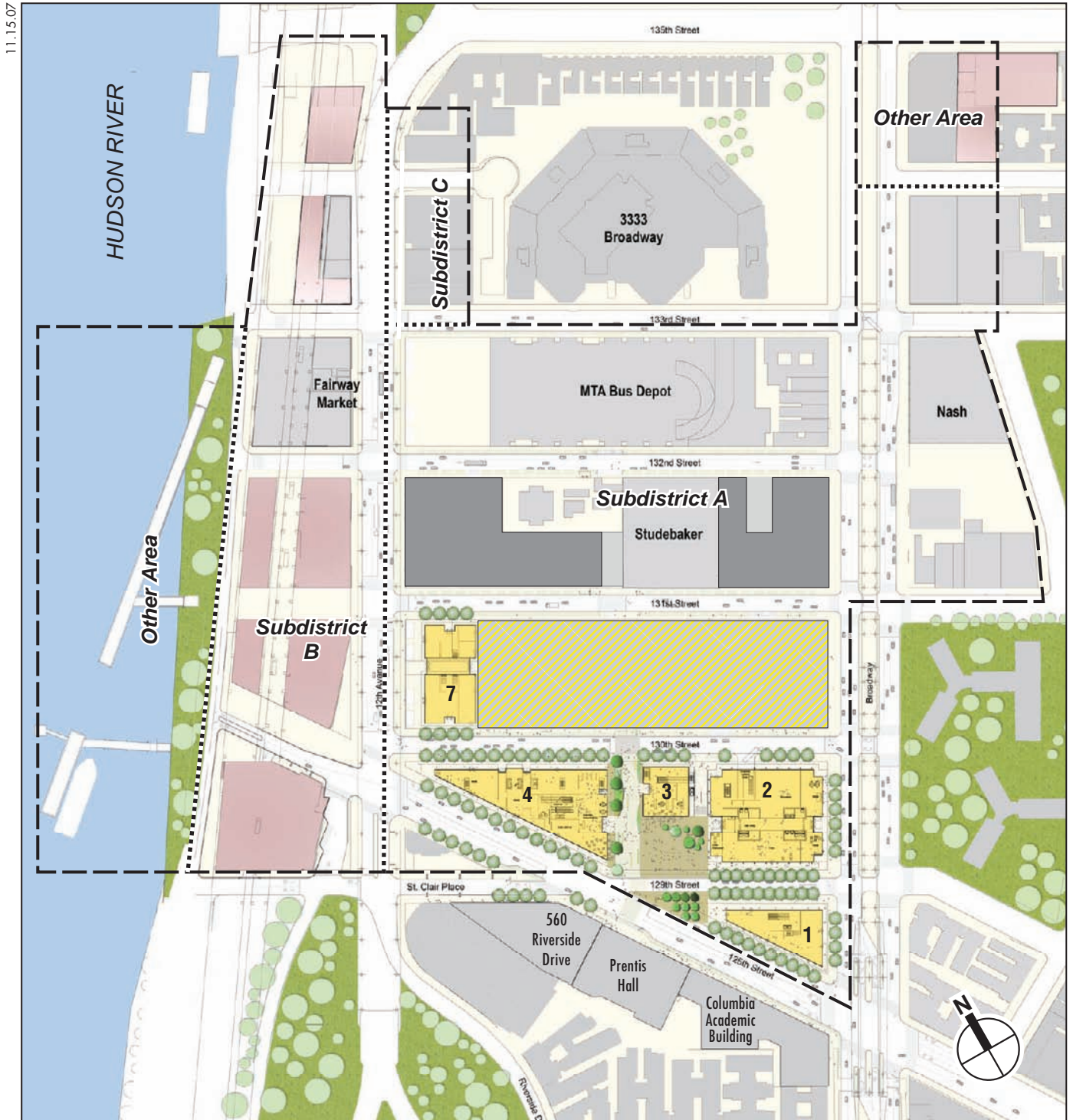
Although the development is proposed as a long-term plan that could take more than 25 years to complete, the analysis conservatively assumes that the remainder of the Academic Mixed-Use Area would be developed by 2030, for a total of 6.8 million gsf, according to the Illustrative Plan uses listed above in Table 1-6 and the floor areas shown in Table 1-8. (Choosing the earliest reasonable completion date is conservative for EIS purposes. For example, the impacts of construction would be more constant and concentrated with a shorter schedule and vehicular emissions diminish over time, as earlier less pollution controlled vehicles are retired from service. (See Chapter 2, “Analytical and Procedural Framework.”))

As shown in Figures 1-12 and 1-14, the full build-out of the Illustrative Plan would create a university area extending from West 125th Street to West 133rd Street, from Twelfth Avenue on the west to Broadway on the east; an additional academic area would occupy the frontage on the east side of Broadway, from West 131st Street to West 134th Street. The academic research buildings would be located primarily along the Broadway corridor, on Sites 2, 6, 6b, 8, 11, 12, 15, and 17. The Phase 1 plan includes academic uses along the West 125th/129th Street corridor on Sites 1, 3, 4 and 7; the Phase 2 Illustrative Plan proposes these uses on Twelfth Avenue (Site 10) in the midblock between West 132nd and West 133rd Streets (Site 13), and on the east side of Broadway in the former Warren Nash Service Station building (Site 16).

University housing is assumed on two Twelfth Avenue sites, Sites 7 and 14. Site 9, in the midblock between West 131st and West 132nd Streets, would house a recreation center. In the full build-out, a landscaped midblock open area would be located adjacent to a large publicly accessible open space (the “Square”) between Sites 6b and 7 on the block extending from West

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<sup>1</sup> As-of-right development on the south side of West 125th Street is not part of the Proposed Actions. The secondary school will be subject to its own Site Selection process, including environmental review. This development is slated for completion before 2015.



- Project and Rezoning Area Boundary
- ..... Subdistrict Boundary
- 1** Development Site
- Construction Staging/ Interim Parking
- Under Construction
- Existing Development
- Columbia University Development
- New Open Space
- Subdistricts B, C, and the Other Areas Projected Development Sites

NOT TO SCALE

Note: Building articulations and design features illustrative



NOT TO SCALE

- — — Project and Rezoning Area Boundary
- ..... Subdistrict Boundary
- 1** Development Site
- Existing Development
- Columbia University Development
- New Open Space
- Subdistricts B, C, and the Other Areas Projected Development Sites



130th to West 131st Streets. Another landscaped midblock open area would extend north-south from West 131st to West 132nd Streets between the Studebaker Building<sup>1</sup> and the recreation building on Site 9, and from West 132nd to West 133rd Streets between Sites 12 and 13.<sup>2</sup>

As shown in Figures 1-15 and 1-16, building heights would vary, ranging from 140 feet to 260 feet to the roofline (without mechanical equipment). These rooflines would be lower than the building at 3333 Broadway to the north, which rises to an elevation of 325 feet, and within the range of the buildings of Manhattanville Houses to the south and east, which rise to 180 feet. A bird's-eye view of the entire Academic Mixed-Use Development Area (see Figures 1-17 and 1-18) shows the variety of building heights and shapes proposed in the Illustrative Plan, with the lower buildings ranged in the south and westerly portions of the subdistrict, and taller buildings along Broadway and toward the north of the subdistrict. As shown in these figures, the building heights would all be equivalent to or less than the heights of several neighboring buildings.

In addition to rooftop mechanical space, the buildings on Sites 1, 2, 14, 15, 16, and 17 would have several exhaust stacks. Each building's exhaust stacks would be clustered together as they extended upward through the structure and out above the roof. The configuration of the cluster on the roof visible from the street would most likely appear as two stacks, as shown in Figures 1-15 and 1-16. This configuration is assumed for the EIS analysis. It is also possible that the clustered stacks could be contained within a single structure; that structure would not be larger than the two-stack configuration shown in Figures 1-15 and 1-16.

The height of the stacks on Site 1 would be approximately 20 feet above the maximum building height to the roofline of 140 feet; on this site the maximum height for mechanical space would be 40 feet. Thus, the stacks would be within the maximum envelope allowed for mechanical space at this site, and each stack would be approximately 1.5 feet in diameter. It is possible that Site 1 would connect to the central energy plant at Site 2 and therefore would not have any stacks on its roof. If this were the case, approval by the New York City Department of Transportation Division of Franchises, Concessions, and Consents would be required for a revocable consent to connect Site 1 to Site 2 beneath West 129th Street.

The height of the stacks on Site 2 would be approximately 135 feet above the maximum building height to the roofline of 180 feet; on this site the maximum height for mechanical space would be 60 feet. Thus, the stacks would rise 75 feet above the maximum height of the building with mechanical equipment on the roof, and each stack would be approximately 5 feet in diameter.

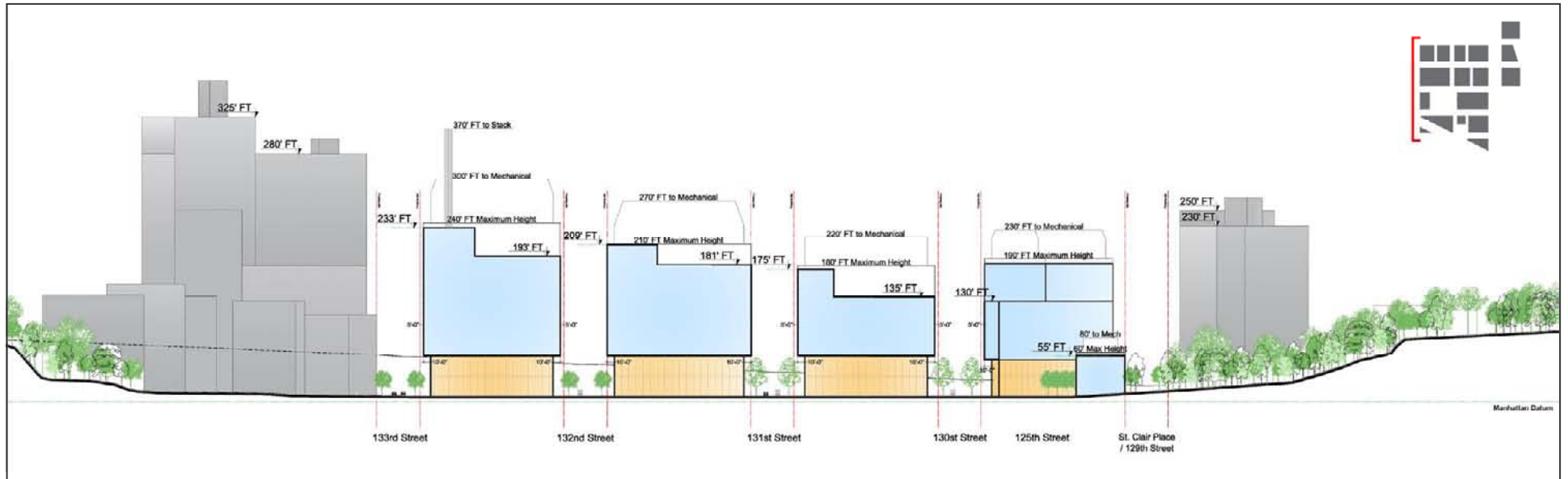
The height of the stacks on Site 14 would be 130 feet above the maximum building height to the roofline of 240 feet; the stacks would rise 70 feet above the maximum height of the building with mechanical equipment on the roof (on this site, as well as on Site 15 and Site 17, the maximum height for mechanical space would be 60 feet), and each stack would be approximately 5 feet in diameter. The height of the stacks on Site 15 would be approximately 90 feet above the maximum building height to the roofline of 210 feet; the stacks would rise 30 feet above the maximum height of the building with mechanical equipment on the roof, and each

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<sup>1</sup> The Studebaker Building will be renovated for Columbia's administrative facilities in the future without the Proposed Actions.

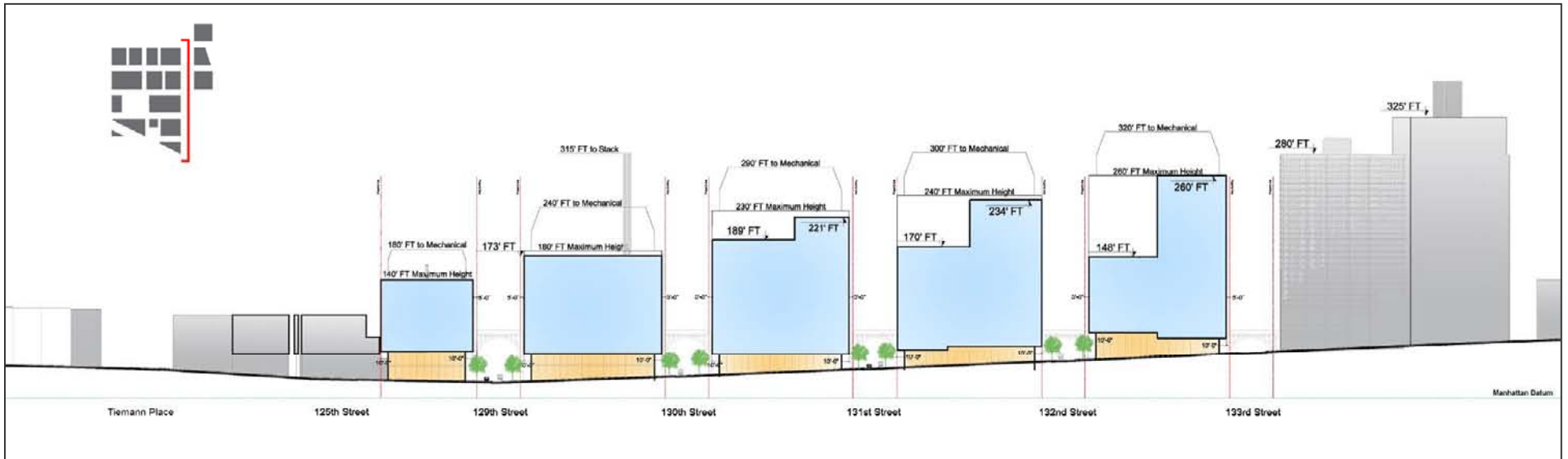
<sup>2</sup> As shown in Figure 1-12, construction on the western portion of the block between West 132nd and West 133rd Streets, which is occupied by the MTA Manhattanville Bus Depot, would require that Columbia and MTA enter into an agreement with MTA for modifying or reconstructing the Manhattanville Bus Depot; this agreement has not been reached.

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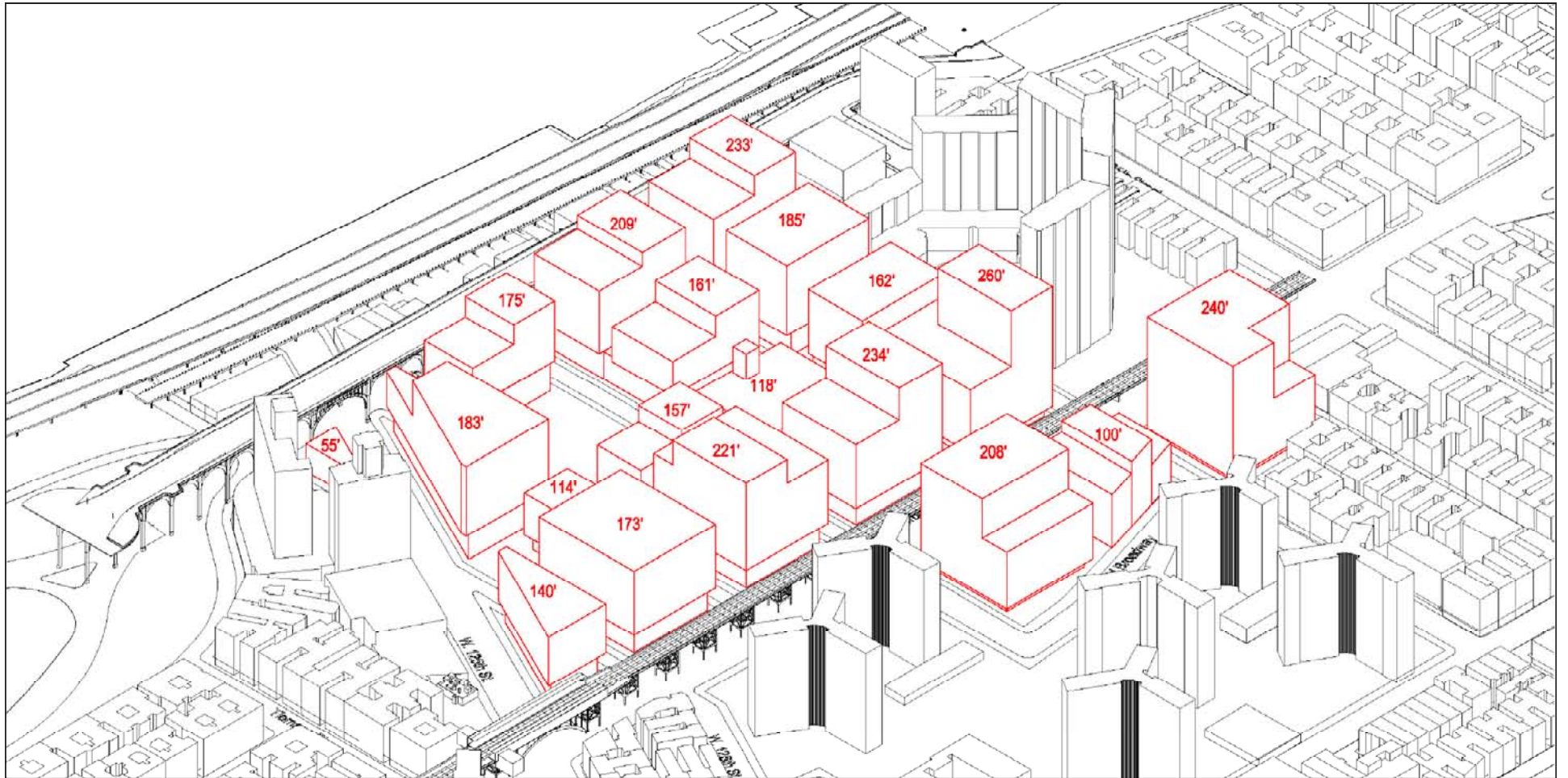


ILLUSTRATIVE PLAN SHOWN.

4.30.07



ILLUSTRATIVE PLAN SHOWN.



FOR ILLUSTRATIVE PURPOSES ONLY  
NOTE: Stacks not included



ILLUSTRATIVE PLAN SHOWN.

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

stack would be approximately 3.5 feet in diameter. The height of the stacks on Site 17 would be approximately 90 feet above the maximum building height to the roofline of 240 feet; the stacks would rise 30 feet above the maximum height of the building with mechanical equipment on the roof, and each stack would be approximately 3.5 feet in diameter.

In addition, there would be 23-foot-tall stack on the roof of the 100-foot-tall former Warren Nash Service Station building on Site 16. The Special District would regulate maximum widths of stacks or stack structures on the roofs and the placements of these structures to minimize views from the street. The diameter of the stacks would range from approximately 1 to 5 feet—the largest diameter stacks would only be for the central energy plants on Sites 2 and 14. If stacks are housed within a common structure, this structure would be appropriately sized to accommodate the stacks based on their overall number and diameter. As noted above, however, the structure would not be wider than the width of two stacks standing side by side as illustrated in Figures 1-15 and 1-16.

The views of the proposed Academic Mixed-Use Development in Subdistrict A, shown in Figures 1-19 to 1-23, demonstrate the design approach currently contemplated in the Illustrative Plan. The view from West 125th Street, looking toward the Riverside Drive viaduct and the Hudson River waterfront beyond (Figure 1-19), demonstrates the effect of proposed street-level retail and other publicly accessible uses, and street trees in seeking to making this important thoroughfare a lively and inviting place. The view on Twelfth Avenue (Figure 1-20) reveals the effect of the mandated street-level setbacks for buildings along the viaduct. There would be room for market stalls and kiosks supported by mandated retail and other publicly accessible uses along the avenue. The view in Figure 1-21 demonstrates the effect of the proposed zoning active ground-floor use and transparency requirements. The view in Figure 1-22 shows the effect on the narrow side streets of the proposed zoning mandatory widened sidewalks and streetwall regulations, which would widen the east–west view corridors through the Academic Mixed-Use Development to provide fuller views of the Riverside Drive viaduct arches. The view from the proposed Square through the Riverside Drive viaduct toward the waterfront in Figure 1-23 shows how this space will serve to open the university area to its surroundings.

As noted above, although the Illustrative Plan represents Columbia’s current proposal for the Academic Mixed-Use Area, Columbia’s plans may evolve over several decades and change (within the bounds of the uses specified in the GPP). To allow for flexibility in Columbia’s future planning within an appropriate framework, maximum and minimum ranges of floor area have been developed for each component use in the Academic Mixed-Use Area. The maximums and minimums will be included in the GPP. These ranges have been used to establish “reasonable worst-case development scenarios” for analysis purposes in the EIS, as described in Chapter 2, “Procedural and Analytical Framework.” Both the Illustrative Plan and reasonable worst-case development scenarios follow the project’s design principles and would conform to the proposed rezoning in Subdistrict A.

### *BELOW GRADE*

The proposed Academic Mixed-Use Development would include a central below-grade service area beneath the entire portion of Subdistrict A, west of Broadway and north of West 125th Street and West 129th Street (except for the area beneath the Studebaker Building). This area would contain science support space for academic research; a central loading area for all trucking associated with the University area; freight and utility distribution corridors connecting all the buildings below grade; University parking; two energy centers that would centralize



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delivery of steam, chilled water, and other utilities systems to the buildings above; program space for the Business School and other programs; a swimming and diving center; the reconstructed MTA Manhattanville Bus Depot with parking for bus depot employees; and a space for a large electrical switch gear, other mechanical space, ramps, maintenance, and storage (see Figure 1-24). The new buildings on the periphery—Sites 1 (south of West 129th Street), 15, and 17 (east of Broadway)—would contain conventional basements, each containing boilers, utility access and service, loading areas, and storage. The former Warren Nash Service Station building (Site 16) contains only a partial cellar. The basements on Sites 15 and 17 would also provide accessory parking spaces.

The central below-grade service area would have a total of seven levels, but because of changes in grade across the site—the ground level rises from a low of 10 feet above Manhattan datum<sup>1</sup> at West 130th Street and Twelfth Avenue to a high of 60 feet above Manhattan datum at Broadway and West 133rd Street—the actual depth and number of levels of the central below-grade service area would vary. At the southern end of the site and near or along Twelfth Avenue, the depth of the lowest level would be 50 feet below grade and approximately 80 feet below grade on the eastern portion of the site near Broadway and West 131st Street.

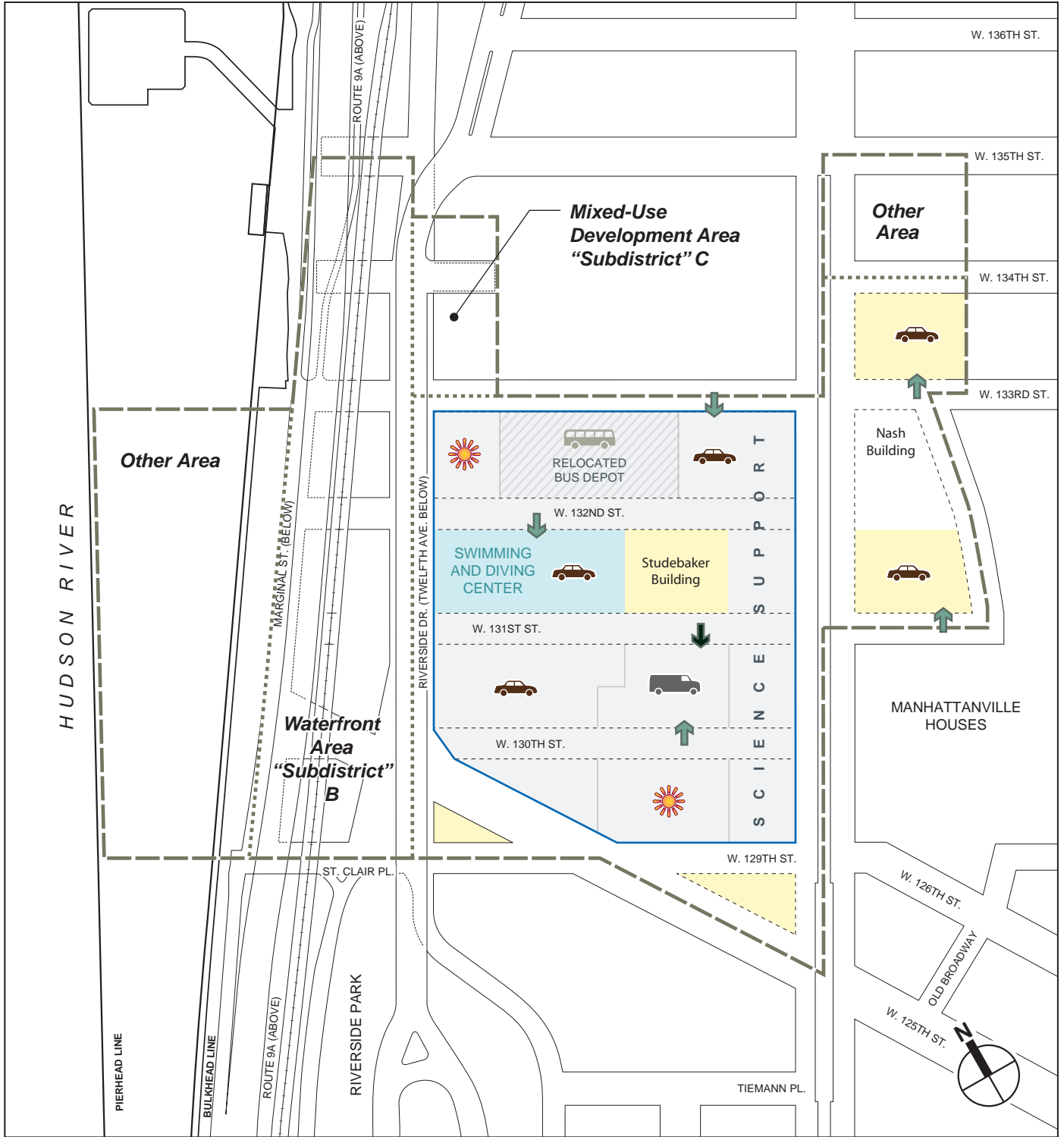
The lowest level (Level 7) is shown in Figure 1-25. The uses on this level would include science support for the Jerome L. Greene Science Center for Columbia’s Mind, Brain and Behavior initiative, the energy center intended to serve all of the development south of West 132nd Street, and mechanical and program space (e.g., classrooms, auditorium, etc.) for the Business School. These uses would lie beneath the block from West 125th/129th to West 130th Streets. To the north, extending up to West 131st Street, a large area would be used for University parking. Along Twelfth Avenue, from the south side of West 131st Street to the south side of West 132nd Street, would be a swimming and diving center. The second energy center would occupy a portion of the Twelfth Avenue side of the block between West 132nd and West 133rd Streets.

All of these uses would extend up to at least Level 6, as shown in Figure 1-26. The energy centers extend approximately 40 feet in height (through Level 6 and into Level 5), and the science support levels extend approximately 20 feet. Level 6 would contain a second floor of parking, an additional floor of program space for the Business School, a volume of space above the science support area and energy centers, and a portion of the swimming and diving center, all of which would require heights of greater than one level. Both energy centers and the swimming and diving center would extend upward through Level 5, which at 15 to 19 feet below Manhattan datum would be approximately 29 feet below ground level along Twelfth Avenue and from 53 to 75 feet below ground level along Broadway.

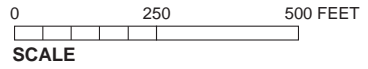
Level 5 would extend over all of the central below-grade area, as shown in Figure 1-27. The major science support area would extend the entire length of Broadway at this level. This level would also contain a central truck loading facility located above the parking levels underneath the midblock between West 130th and West 131st Streets. On the perimeter of the loading area and connecting to all buildings, a two-way, 20-foot-wide corridor would provide continuous access and numerous connections among all the below-grade building cores and the loading docks at this level, for distribution of freight and collection of waste. The loading area and science support area would meet the requirements for laboratories, including a special “clean” receiving dock and area. In addition, the science support areas beneath the buildings would be

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<sup>1</sup> Manhattan datum is defined as 2.75 feet above mean sea level.



- Proposed Special Manhattanville Mixed-Use District / Project Area
- Subdistrict Boundary
- Central Service Area
- Conventional Basement
- Parking with Swimming and Diving Center Below
- Central Energy Plant
- Below-Grade Parking
- Truck Loading
- Auto Access
- Truck Access








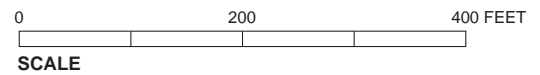
Note: The subdistrict boundaries correspond to the proposed zoning subdistricts (see Figure 1-7)  
The former Warren Nash Service Station Building (existing building) does not contain a basement

Figure 1-24

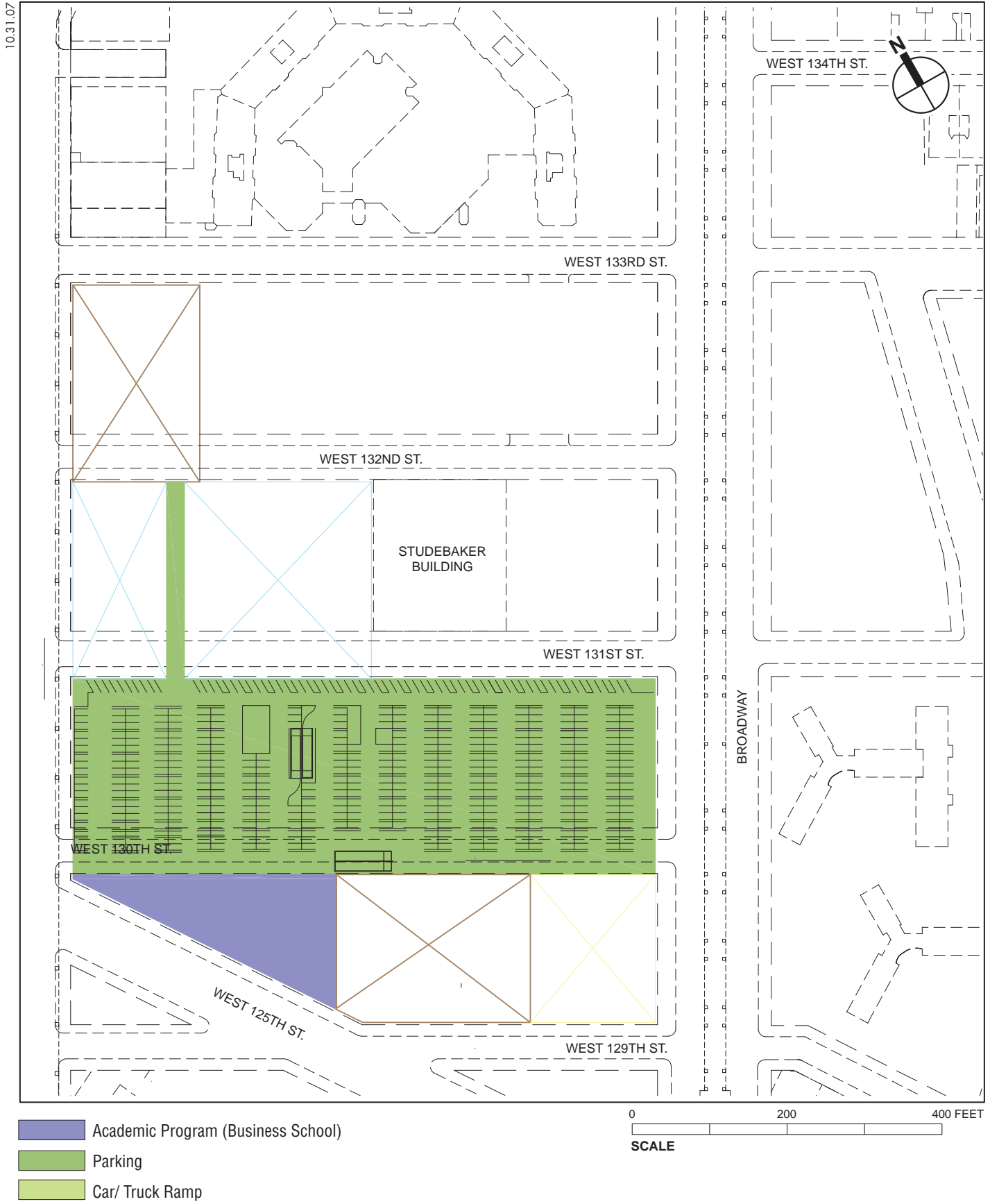
**Proposed Below-Grade Areas:  
Illustrative Plan for Subdistrict A**



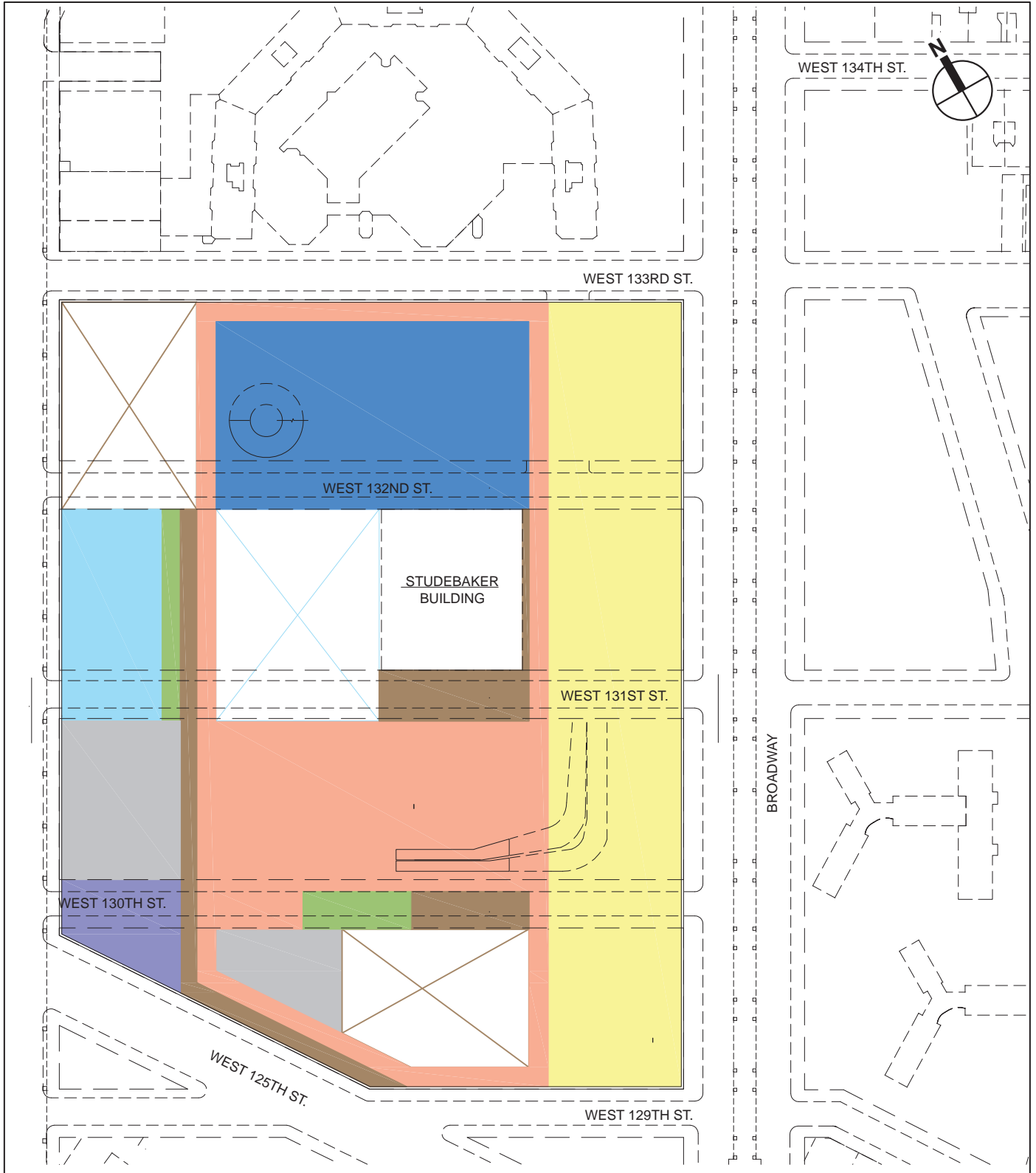
- |   |                                       |   |            |
|---|---------------------------------------|---|------------|
|  | Science Support                       |  | Parking    |
|  | Mechanical                            |  | Mechanical |
|  | Academic Program<br>(Business School) |   |            |



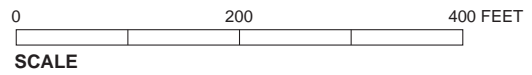
Note: For illustrative purposes only. Subject to change based on final design



Note: For illustrative purposes only. Subject to change based on final design



- |  |  |
|--|--|
|  Science Support                    |  Freight/Loading          |
|  Mechanical                         |  MTA Bus Depot            |
|  Academic Program (Business School) |  Car Ramp                 |
|  Swimming and Diving Center         |  Building Storage Support |



*Note: For illustrative purposes only. Subject to change based on final design*



## Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS

interconnected. With this interconnection and shared loading and distribution, the proposed development could achieve substantial space efficiencies, by eliminating redundant equipment (e.g., MRIs) and facilities (lab cold storage, freezer, etc.).

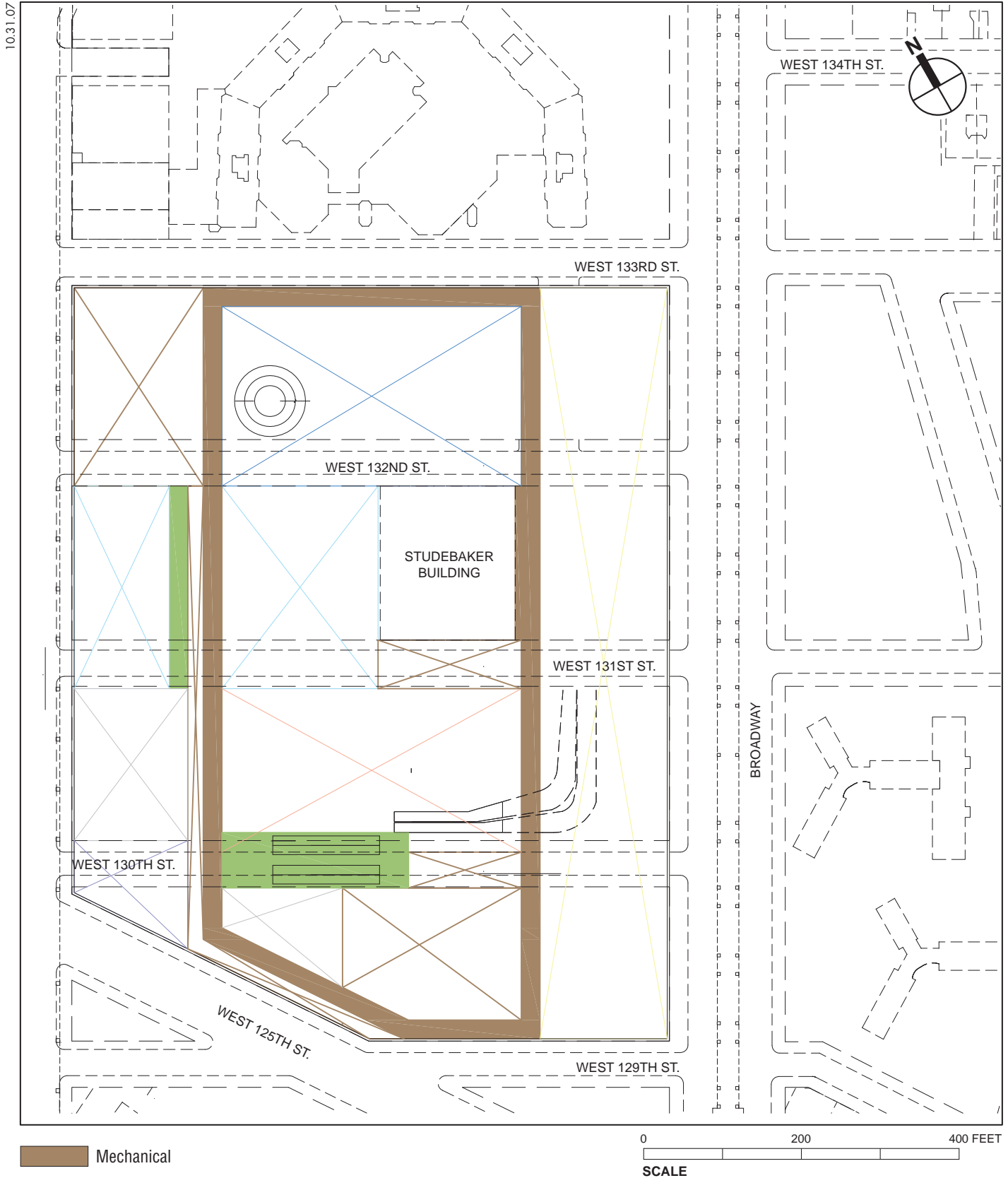
Also at this level would be program space for the Business School, space for recreation, and the lower level of the MTA Manhattanville Bus Depot, which is proposed to be reconstructed underground as part of the Proposed Actions.

Level 4 would be dedicated to mechanical distribution from the energy centers and electrical distribution to all the buildings (Figure 1-28) and would be approximately 15 feet below grade level along Twelfth Avenue, and 29 to 61 feet below grade along Broadway. Level 3, at 5 feet above Manhattan datum, would be approximately 5 feet below grade at Twelfth Avenue, and from 29 to 59 feet below grade at Broadway (see Figure 1-29). This level would offer additional science support areas and program space for the Business School, retail and building storage, major mechanical space for the energy centers, additional parking levels for Columbia, and employee parking and bus storage for the MTA Manhattanville Bus Depot.

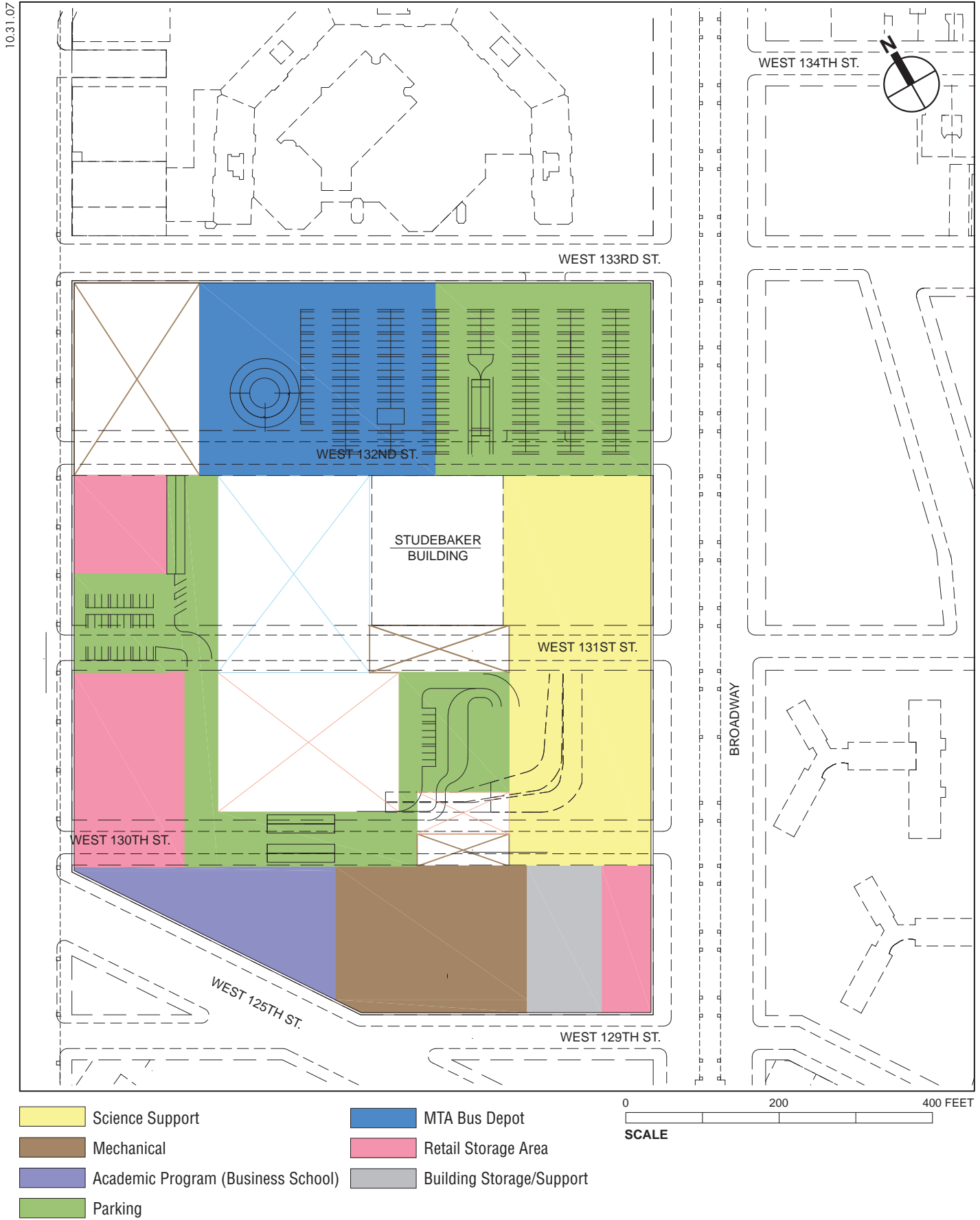
Level 2 would be 9 to 41 feet below grade and would provide a large parking area in the northeast corner of the site, where it would still be well below the surface, and access ramps, as necessary, to parking and loading throughout the central below-grade service area below (see Figure 1-30). Level 1 (25 feet above Manhattan datum) would only be below grade along Broadway between West 131st and West 133rd Streets; it would contain additional parking at the northern end, and retail and building storage along Broadway. As shown in Figure 1-31, major truck access would be from West 131st Street, and access to the largest parking area would be from West 130th Street. Additional access to below-grade parking would be provided along West 132nd and West 133rd Streets, and the bus ramp for the MTA Manhattanville Bus Depot would be on West 133rd Street.

The central below-grade service area is critical to meeting Columbia's need for program space, and it would enhance the above-grade urban environment, as follows:

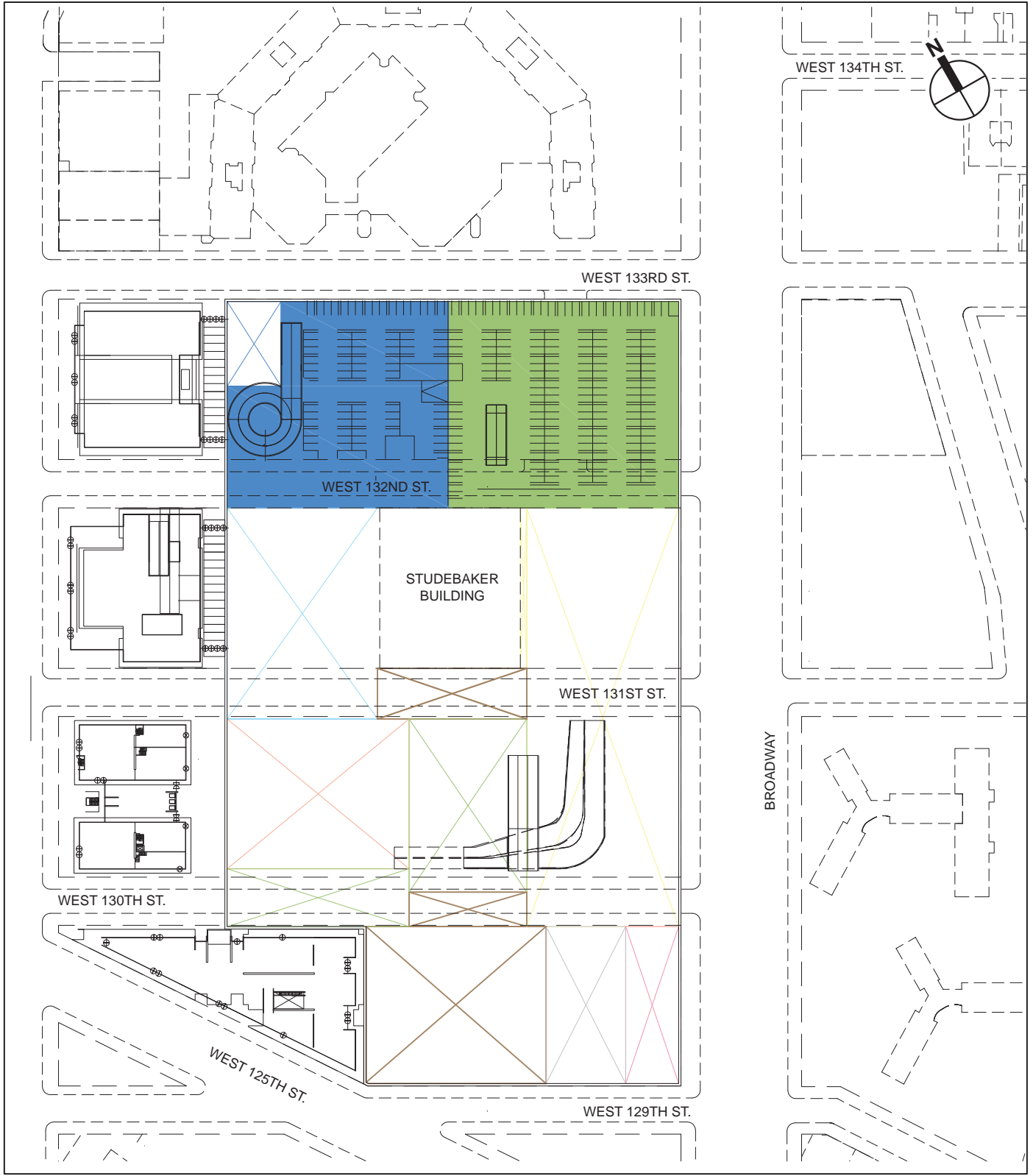
- The science support space for academic research, which would lie beneath the academic research buildings proposed along the west side of Broadway, would be interconnected. This would avoid redundancy of equipment (such as a full range of imaging equipment and computational support) and service space (such as large climate-controlled storage facilities) that would occur if each of these facilities had to be provided above grade in separate, unconnected buildings (i.e., each research building would need its own separate above-grade support space with such facilities). At approximately 296,200 sf, the ratio of this below-grade space to the 2.6 million sf of above-grade academic research program space proposed in the Illustrative Plan would be 11 percent. If the science support space had to be provided in individual buildings, it would have to be 500,000 sf—a ratio of 20 percent of the academic research program space, or more nearly twice the space provided underground. The deep basement of the central below-grade service area is a highly efficient way to provide science support space below grade. Conventional basements cannot serve this purpose, as they cannot feasibly provide adequate head space to accommodate the necessary large-scale equipment and facilities. Thus, the use of conventional basements would necessitate use of floor area above grade for science support. This would result in a reduction in the amount of academic research program space to approximately 2.1 million sf.
- The central loading area would focus all truck access into one major entrance and exit on West 131st Street, thus avoiding curb cuts and truck circulation throughout the Project Area



*Note: For illustrative purposes only. Subject to change based on final design*



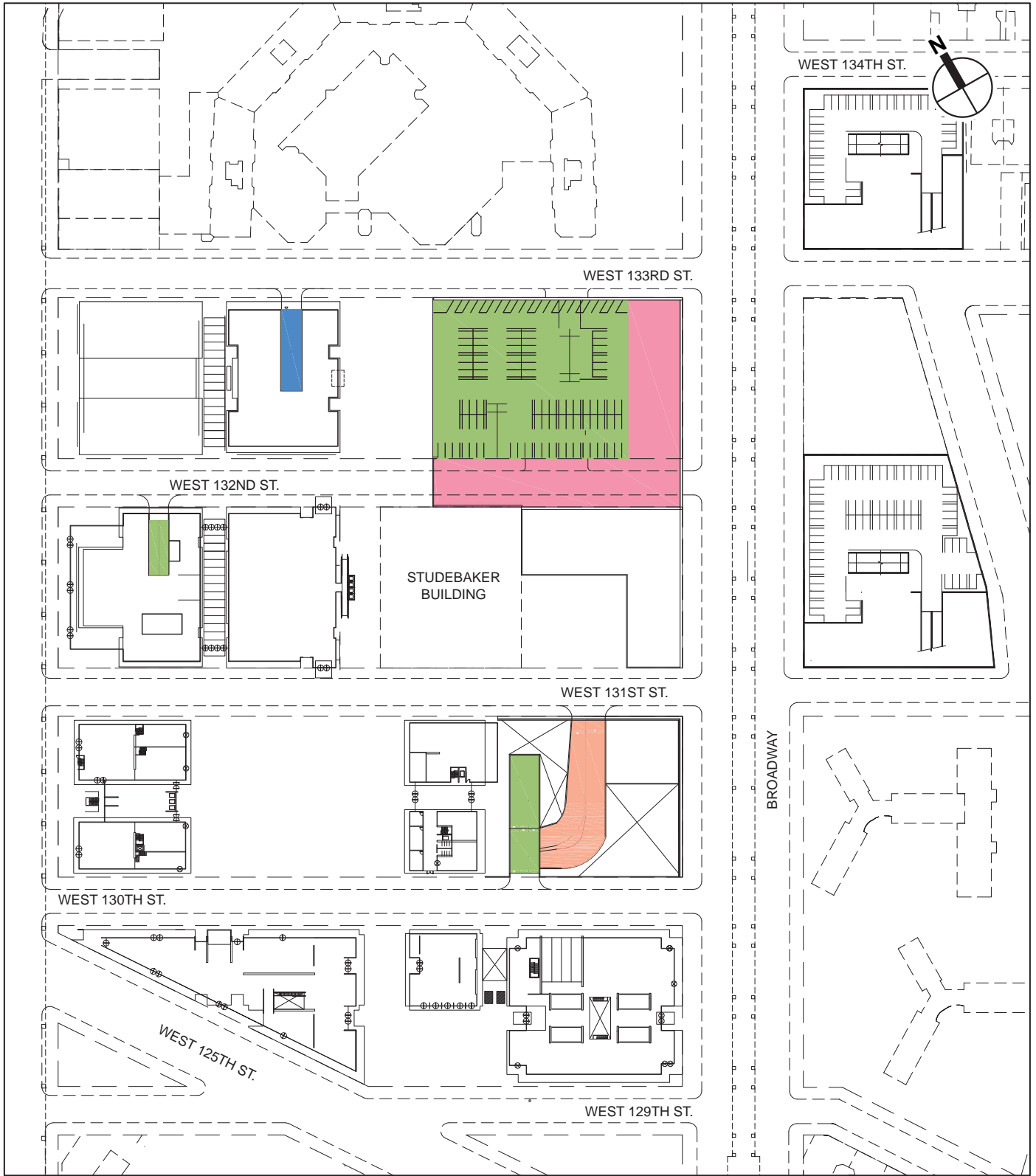
*Note: For illustrative purposes only. Subject to change based on final design*



- Parking
- MTA Bus Depot

0 200 400 FEET  
SCALE

*Note: For illustrative purposes only. Subject to change based on final design*



- Parking and Parking Ramps
- Truck Ramp
- Retail Storage Area
- MTA Bus Depot Ramp

*Note: For illustrative purposes only. Subject to change based on final design*

**Figure 1-31  
Central Below-Grade Service Area: Level 1**

- at individual buildings. All trucks would enter one central space on Level 5 (see description above), where deliveries could be off-loaded and trash/garbage loaded up. A 20-foot-wide, two-way corridor would allow the freight to be distributed to or from every building (see Figure 1-27). Fewer loading docks and curb cuts at grade would improve the pedestrian and avoid interruption of active ground-floor uses.
- Providing substantial parking below grade would allow Columbia to meet its own parking demand while reducing the need for curb cuts on the streets in Subdistrict A. Parking would be located on Levels 1, 2, 3, 6, and 7 (see Figures 1-25, 1-26, and 1-29–1-31) and would be accessed via only three curb cuts, one each on West 130th, West 132nd, and West 133rd Streets. There would be one additional curb cut on West 133rd Street for entry to the MTA Manhattanville Bus Depot reconstructed below grade. If separate parking was provided in each building, there would be many more curb cuts in Subdistrict A, including five separate entries/exits, plus a curb cut for access to the bus depot, and separate truck access for loading at 12 locations. This would result in a total of 18 curb cuts west of Broadway as compared with 6 curb cuts required for the central below-grade area for the Proposed Actions. In addition, a scenario that has parking only in the basements of the few buildings where deep enough basements could be constructed would not provide the number of spaces available in the central below-grade service area. With only conventional basements, satisfying parking demand on site would require that the cars be accommodated in above-grade parking structures, with a consequent loss of above-grade program space.
  - The proposed central energy centers' large boilers would operate more efficiently than would individual boilers in all 12 buildings; they would use less fuel and produce proportionally lower air pollutant emissions than the sum of the smaller boilers. Also, larger boilers associated with central energy systems offer better environmental performance compared with smaller boiler systems, since the larger systems must be designed to meet more stringent federal, state, and local regulatory requirements.
  - The below-grade space would allow the University to provide space for program elements that do not need windows, such as the swimming and diving center beneath Sites 9 and 10, and additional classroom and auditorium space for the Business School and other instructional programs.

In summary, the central below-grade service area would provide for shared academic research support space, minimize circulation of trucks and cars within the Project Area and reduce the number of curb cuts and loading docks that would result from having to provide such access in each building. The central below-grade service area would also reduce use of fuel and related pollutant emissions in operation of the University area, and would provide needed program space for academic and athletic programs.

#### *CONSTRUCTION SEQUENCING*

Since the issuance of the DEIS, modifications have been made to the proposed scheduling and sequencing of construction within the Academic Mixed-Use Area (see also Chapter 21, "Construction"). The advantages of these changes would be as follows:

- The central Square would be completed and open to the public in 2016, up to five years earlier than under the schedule assumed in the DEIS.
- The central truck-loading area, as well as several levels of parking, would be completed by 2015, earlier than the schedule presented in the DEIS.

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- The academic buildings on Sites 6 and 6b could be completed early in Phase 2.

The reasonable worst-case development scenario for construction analyzed in the FEIS (see Figure 1-32) assumes that all new construction would initially occur on the three blocks between West 125th and West 131st Streets and Broadway and Twelfth Avenue. This would be the project's Phase 1, slated for completion in 2015. The first activity would be abatement of asbestos and other hazardous materials within existing buildings and demolition of above-grade structures on the blocks bounded by West 125th and West 129th Streets, West 129th and West 130th Streets, and West 130th and West 131st Streets. Portions of the block bounded by West 131st and West 132nd Streets would also be abated and demolished. During this time, West 130th Street would be closed to traffic and pedestrians. Following abatement and demolition on these blocks, a slurry wall would be constructed to enclose the two blocks from the north side of West 129th Street to the south side of West 131st Street, and the soil excavated to allow for below- and above-grade construction. The Phase 1 above-grade buildings would include an academic research building on Site 2 along Broadway; two academic buildings adjacent to the west on Sites 3 and 4; and an approximately 11,800-sf landscaped open space (the Small Square) surrounding the building on Site 3. An academic building plus a small triangle of open space (the Grove) on Site 1 to the south between West 129th and West 125th Streets at Broadway and the mixed-use academic and University housing building on Site 7 would also be constructed at this time.<sup>1</sup> Construction would also begin on the properties to the east of Site 7 on the block between West 130th and West 131st Streets (the Square—an approximately 40,000-sf privately owned, publicly accessible open space, the midblock open area, and Sites 6 and 6b). Based on this Phase 1 construction schedule, the buildings on Sites 1, 2, 3, 4, and 7 would be operational by 2015. In addition, the public open space proposed as partial open space mitigation (see Chapter 23, "Mitigation") would be constructed on the triangular Site 5 block by 2015, assuming that the site could be acquired in that time frame.

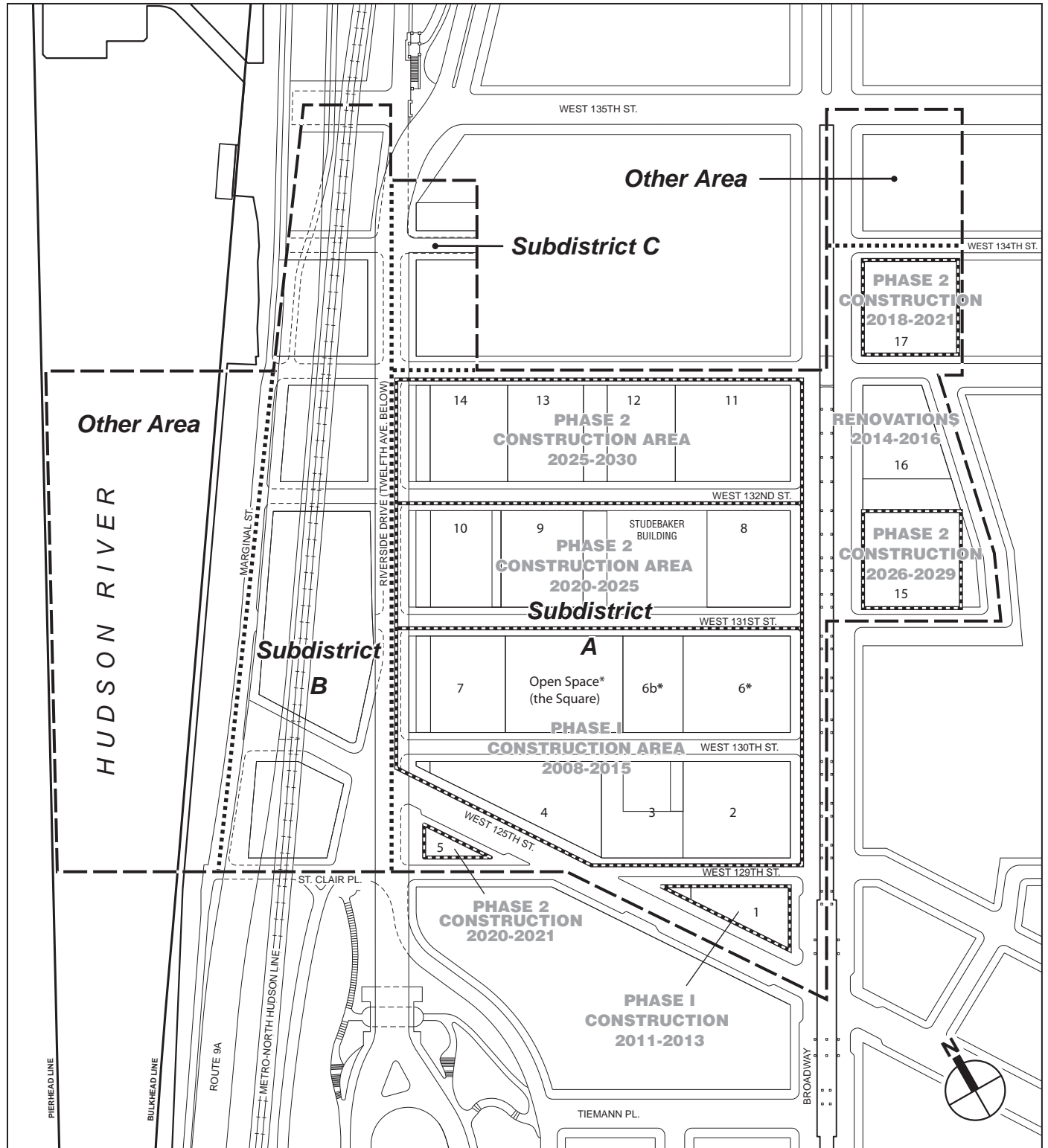
Properties on the block to the north (between West 131st and West 132nd Streets) would be in use to support these construction activities with land for staging of construction materials and equipment and other construction support. Columbia would also use properties it currently owns on a portion of Sites 8, 9, 15, and 17 for interim parking (see Figure 1-33).

After 2015, construction would continue into Phase 2. The buildings on Sites 6 and 6b, and the Square and midblock open area would be completed early in Phase 2. East of Broadway, renovations, begun in 2014, to allow for the reuse of the former Warren Nash Service Station building (Site 16) would be completed by mid-2016. In 2018, construction of the building on Site 17 would begin.

West of Broadway, construction would proceed northward to the block between West 131st and West 132nd Streets. West 131st Street would be closed to traffic and pedestrians at this time. Following abatement and demolition, the slurry wall would be extended, encircling the portion of the block from West 131st to West 132nd Streets, Broadway to Twelfth Avenue, west of the Studebaker Building. East of the building, the area would be too small for cost-effective slurry wall construction, and subsurface conditions would permit more conventional construction of this portion of deep basement. Construction of the below-grade facility, new buildings (on Sites 8, 9, and 10), and reconstruction of West 131st Street would follow. Construction on the western

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<sup>1</sup> As noted in Table 1-6, two of the Phase 1 sites and all but one of the Phase 2 sites could be constructed with an alternate use. The construction sequencing discussion assumes the uses of the Illustrative Plan listed in Table 1-6.



- Project and Rezoning Area Boundary
- ..... Subdistrict Boundary
- Construction Boundary
- 1 Development Site
- \* Above-grade construction to be completed during Phase 2 Construction

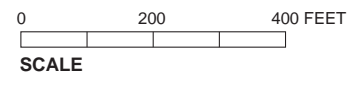


Figure 1-32



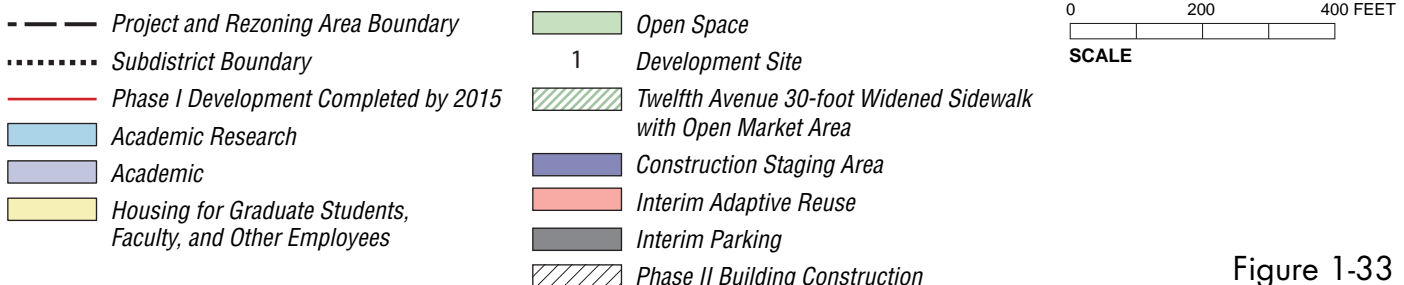
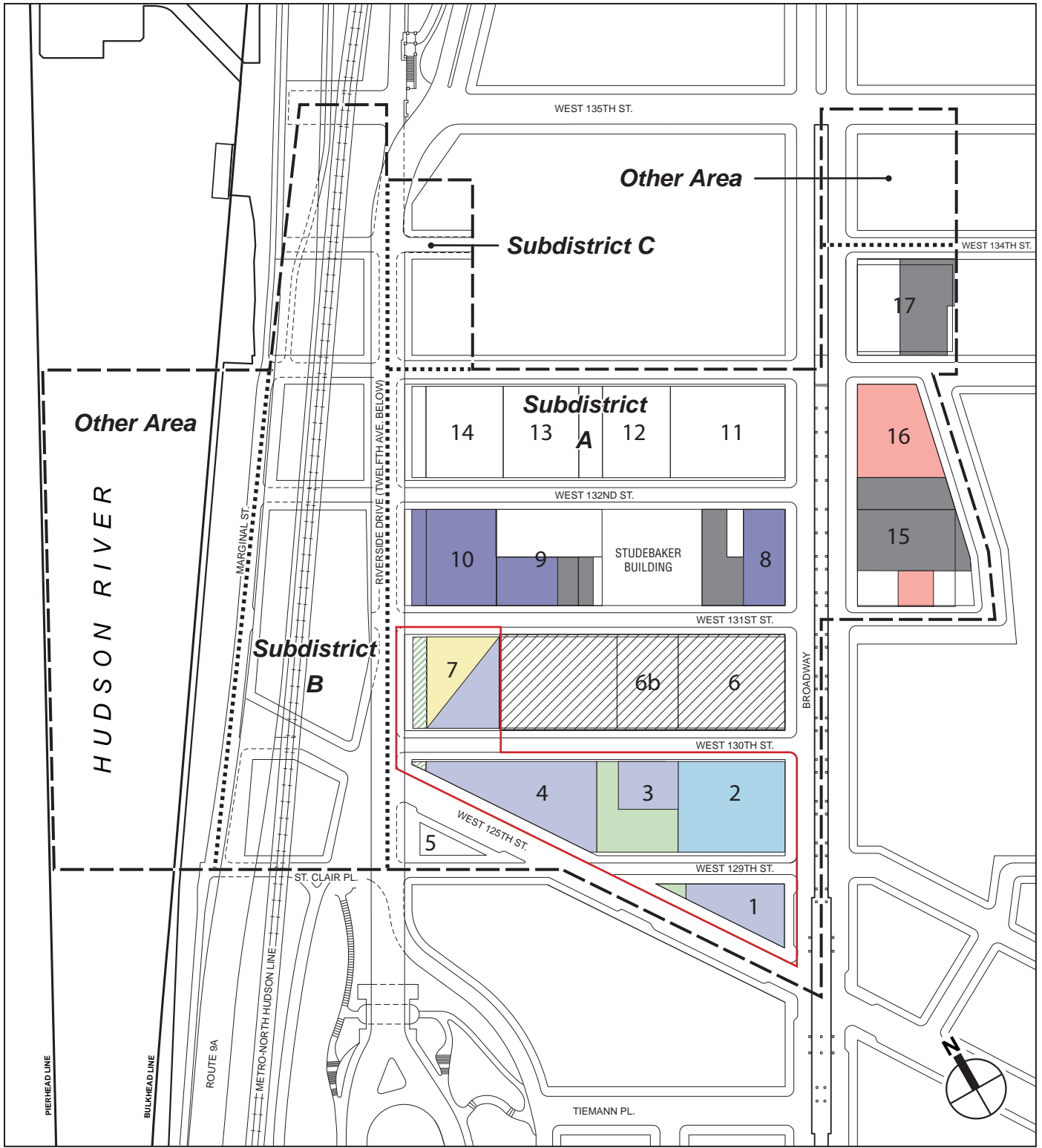


Figure 1-33  
**Subdistrict A: Status of Above-Grade Uses as of 2015**

portion of the block between West 131st and West 132nd Streets, which contains a cooling station for underground equipment belonging to Con Edison (see Chapter 16, “Energy,” for additional information about the cooling station), would be contingent upon Columbia entering into an agreement with Con Edison for relocating the cooling station; this agreement has not been reached. Such an agreement would require the approval of the New York State Public Service Commission (PSC) pursuant to Public Service Law (PSL) Section 70, and such approval by PSC would be subject to review under SEQRA. Columbia and Con Edison are considering relocation sites within the Academic Mixed-Use Area (Subdistrict A), and have preliminarily identified a portion of the former Warren Nash Service Station building as a potential location. The equipment can operate either on an open site or within an enclosed space. Additional information regarding this potential relocation site (or any alternative site identified by Columbia and Con Edison) to the extent available, will be described in the Final EIS. In the event that a relocation site outside Subdistrict A is later selected, the environmental impact of this relocation will be assessed in the PSC SEQRA review.

Construction on the block between West 132nd and West 133rd Streets would begin after all of the construction directly to its south was completed.<sup>1</sup> West 132nd Street would be closed to traffic and pedestrians at this time. Following abatement and demolition, the slurry wall would be extended. The slurry wall would be limited to the western half of this block, because bedrock is higher on the eastern half and the underground space can be built there without a slurry wall. Construction of the below-grade facility, new buildings (on Sites 11, 12, 13, and 14), and reconstruction of West 132nd Street would follow. Construction on the western portion of this block, which is occupied by the MTA Manhattanville Bus Depot, would be contingent upon Columbia entering into an agreement with MTA for modifying or reconstructing the Manhattanville Bus Depot; this agreement has not been reached. Such an agreement would involve a variety of MTA processes addressing a modification or reconstruction plan, including but not limited to SEQRA and/or the National Environmental Policy Act (NEPA) and Title VI of the U.S. Civil Rights Act of 1964. These processes would include review and analysis of the feasibility and environmental and other impacts of any proposed modification or reconstruction plan, as of the time such a plan was to be formulated prior to any implementation. To address a reasonable worst case, the EIS analyzes a scenario in which the bus depot remains in the Project Area at a below-grade location generally beneath its existing site with Columbia buildings developed above. In the event that a different bus depot plan would ultimately be pursued, additional environmental review of the new scenario may be required at that time.

The last building to be completed would be on Site 15. At that point (anticipated to be 2030), the Proposed Project would be fully constructed.

As discussed above, construction activities associated with the Proposed Actions would include temporary street and sidewalk closures. Side streets between Broadway and Twelfth Avenue in Subdistrict A—West 130th, West 131st, and West 132nd Streets—would be closed to vehicular traffic and pedestrians for up to three years when the slurry walls and below-grade facilities are being constructed. West 132nd Street would be closed for a total period of up to five years—

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<sup>1</sup> As noted in Chapter 2, “Procedural and Analytical Framework,” it is possible that construction on this block would be delayed, if the building at 3291 Broadway on the corner of West 133rd Street and Broadway, which was constructed under federal and City agreements that remain in force until 2015 and 2029, respectively, cannot be demolished until after that year. The description of construction activities would remain the same even if the construction takes place at a later date.

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

three years while the below-grade space is being constructed, followed by two years, when the street would be used for access and staging while the block between West 132nd and West 133rd Streets is under construction. Access to the waterfront would be provided at all times; other than for intermittent periods (i.e., hours), no more than one of these three streets (West 130th, West 131st, and West 132nd Streets) would be closed for construction at any one time.

### **RELOCATION SITES**

The proposed Academic Mixed-Use Development Plan would result in the direct displacement of existing residential units in seven residential buildings and in two church properties in Subdistrict A. Six of the residential buildings are located on the Broadway frontage of Block 1999, between West 132nd and West 133rd Streets, and one is located one block to the south (Block 1998) on the south side of West 132nd Street, between Broadway and Twelfth Avenue. The Iglesia el Encuentro con Dios is located on West 130th Street and Broadway; the Iglesia de Dios Pentecostal is located on West 131st Street west of Broadway. The building on West 132nd Street and one of those on Broadway (Block 1999) are owned by the New York City Department of Housing Preservation and Development (HPD) in connection with its Tenant Interim Lease (TIL) Program, which provides assistance and training to organized tenant associations in occupied City-owned buildings of three or more dwelling units to develop economically self-sufficient, low-income, tenant-owned cooperatives. Two of the other Broadway residential buildings are owned and operated by Charles Inniss Housing Development Fund Corporation, a subsidiary of the Harlem Congregations for Community Improvement, Inc. (HCCI). This HCCI project is funded by the City of New York and State of New York Homeless Housing Assistance Program (HHAP) and is subject to regulations which impose restrictions on the maximum rents within the buildings. Another two of the Broadway residential buildings are owned and operated by the WHGA Renaissance Apartments, Limited Partnership, a subsidiary of West Harlem Group Assistance (WHGA). This WHGA project is funded by the City of New York and Low Income Housing Tax Credits and is also subject to a regulatory agreement which imposes restrictions on the maximum rents within the buildings.

In order to be able to offer replacement housing to those displaced from the six buildings (HCCI, WHGA, HPD) described above, Columbia has acquired control of three sites outside of the Project Area (see Figure 1-1). Housing on the replacement sites would be of the same or better quality than those occupied by tenants in these buildings at the same rents. Tenants would be able to relocate from the Project Area buildings, or from interim housing, when their new housing is ready for occupancy, which could occur prior to the 2015 analysis year.

Two of the relocation sites are located in Community Board 9: at 3581 Broadway, on the southwest corner of West 148th Street; and 555 West 125th Street, on the northeast corner of Old Broadway and West 125th Street. Tenants in the HPD buildings would be offered relocation apartments in the new building at 3581 Broadway; those tenants in the TIL program would be able to purchase their units in the new building. This building would also offer relocation space to the Iglesia el Encuentro con Dios, which would be displaced from its current location on the northwest corner of West 130th Street and Broadway, and would replace the two units that are on the church property. Occupants of the other church property will be relocated to another property owned by the church whether the project is approved or not. Tenants in the WHGA buildings would be offered relocation units at 555 West 125th Street.

Tenants in the HCCI buildings would be offered relocation apartments in the new building at the third relocation site, located in Community Board 10 at 322-328 St. Nicholas Avenue and 319

West 126th Street, on the east side of St. Nicholas Avenue between West 126th Street and West 127th Street. The occupants of the eight housing units on the Iglesia de Dios Pentacostal property would be offered replacement housing in any of the three buildings.

The seventh residential building is a privately owned apartment building at 600 West 133rd Street, for which Columbia has entered into a contract to purchase. The units in this building are subject to federal and City regulatory agreements which expire in 2015 and 2029, respectively. Before start of construction on that site under the Academic Mixed-Use Development Plan, ESDC would require that equal or better housing be provided for the tenants occupying these units.

A description of the replacement housing is also provided in Chapter 4, “Socioeconomic Conditions,” and an analysis of the potential environmental impacts that could result from the construction and operation of the off-site new residential and mixed-use buildings is provided in Appendix B.2.

## **F. TRANSPORTATION IMPROVEMENTS**

Specific traffic and pedestrian improvements have been included by Columbia as part of the Proposed Project where the need for such improvements to maintain the safe and efficient vehicular and pedestrian flows and to avoid impacts has been identified in project design and development. These improvements, which are described in greater detail in Chapter 17, “Traffic and Parking,” will be subject to NYCDOT approval. Although these improvements would be included as part of the Proposed Project, this FEIS also examines potential traffic impacts of the Proposed Actions without any improvements, to clearly disclose potential significant adverse traffic and related air and noise impacts of the Proposed Actions if the improvements were not implemented, and also to identify the effects the improvements would have in avoiding potential significant adverse traffic impacts. Those improvements that would be completed by 2015 are as follows:

- *Broadway and West 125th Street*—Dual northbound and southbound left-turn bays would be created at this intersection. In addition, eastbound and westbound right-turn-only lanes would be created by prohibiting on-street parking at these approaches, and minor signal timing changes would be made at this intersection.
- *West 129th Street and West 125th Street*—A new signal would be installed with a pedestrian-only phase. At this signal, eastbound/westbound left turns would be prohibited (with pavement markings) and the crosswalk would be reconfigured.
- *Twelfth Avenue and West 125th Street*—The southbound approach would be moved north of West 130th Street. Lane configuration/pavement markings would be made on the intersection approaches. In addition, minor signal timing changes would be made at this intersection and the crosswalks would be reconfigured.
- *Broadway and West 126th, West 130th, West 131st, West 132nd, and West 133rd Streets*—Minor signal timing changes, and pavement markings at the intersection approaches would be made at each of these intersections.
- *Marginal Street and St. Clair Place, West 132nd, and West 133rd Streets*—New signals would be installed at each of these intersections and pavement markings would be made at the intersection approaches.

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- *Twelfth Avenue and St. Clair Place and West 131st Street*—New signals would be installed at each of these intersections and pavement markings would be made at the intersection approaches.
- *Twelfth Avenue and West 132nd and 133rd Streets*—Minor signal timing changes would be made and pavement markings would be made at the intersection approaches.
- *West 125th Street between Twelfth Avenue and Marginal Street*—This 62-foot-wide roadway segment would be converted to one-way westbound.
- *West 131st Street between Broadway and Twelfth Avenue*—This roadway segment would be converted to one-way westbound while maintaining a roadway width of 30 feet.
- *West 132nd Street between Broadway and Marginal Street*—This roadway segment would be converted to one-way eastbound while maintaining a roadway width of 30 feet.
- *West 133rd Street between Broadway and Twelfth Avenue*—This roadway segment would be converted to one-way westbound while maintaining a roadway width of 38 feet.
- *West 129th Street between Broadway and West 125th Street*—This roadway segment would be narrowed to 24 feet.
- *Area sidewalks*—Additional widths facilitated by building setbacks would be incorporated fronting each of the development sites.

DOT will investigate the feasibility of implementing the improvements at the intersection of Broadway and West 125th Street, based on a study of traffic and pedestrian conditions to be prepared by the applicant and its consultants.

Those improvements that would become necessary only later in project development are as follows:

- *Broadway and West 125th Street*—In addition to the improvements described above for 2015, and minor signal timing changes would be made at this intersection by 2030.The applicant or its consultants will also conduct a study of these changes.
- *West 129th Street and West 125th Street*—In addition to the improvements described above for 2015, minor signal timing changes would be made at this intersection by 2030.
- *Twelfth Avenue and West 125th Street*—In addition to the improvements described above for 2015, minor signal timing changes would be made at this intersection and pavement markings would be made at the intersection approaches by 2030.
- *Broadway and West 126th Street*—In addition to the improvements described above for 2015, minor signal timing changes would be made at this intersection by 2030.
- *Broadway and West 133rd Street*—In addition to the improvements described above for 2015, an additional widening of the northbound left-turn lane would be necessary by 2030.
- *Twelfth Avenue and West 133rd Street*—In addition to the improvements described above for 2015, minor signal timing changes would be made at this intersection by 2030.
- *Area sidewalks*—Additional widths facilitated by building setbacks would be incorporated fronting each of the development sites.
- *New pedestrian spine between Broadway and Twelfth Avenue*—Mid-block crosswalks and new signals would be installed along West 130th, 131st and 132nd Streets.
- *Twelfth Avenue between West 125th and West 133rd Streets*—This 58-foot-wide roadway segment would be reconfigured to include two travel lanes in each direction plus parking.

## G. PROJECT APPROVALS

The Proposed Actions would entail a number of City and State approvals. Several of these are discretionary actions requiring review under CEQR and SEQRA. Others are ministerial and do not require environmental review; nonetheless, these are subject to review under each relevant agency's public mandate, as discussed below.

### DISCRETIONARY ACTIONS SUBJECT TO CEQR AND SEQRA<sup>1</sup>

#### *NEW YORK CITY ACTIONS*

The Proposed Actions would entail the following land use actions to permit the range of proposed uses, as follows:

- Zoning Text amendment to establish a Special Manhattanville Mixed-Use Zoning District coterminous with the Project Area.
- Changes to zoning sectional maps 5c and 6a (1) to map a Special Manhattanville Mixed-Use Zoning District coterminous with the Project Area and (2) change underlying zoning districts, which are subject to ULURP.
- City approval pursuant to Section 14 of the UDC Act of dispositions of City-owned property to ESDC (City-owned property currently operated by MTA and property under the jurisdiction of the New York City Department of Housing Preservation and Development).
- City approval of the transfer of HPD restrictions from HCCI and WHGA projects to replacement housing sites.

#### *STATE-REQUIRED ACTIONS*

- Adoption of a GPP by the ESDC and the making of related findings under the Urban Development Corporation Act,<sup>2</sup> SEQRA, and the Eminent Domain Procedure Law (EDPL).
- Pursuant to the GPP, and after the conduct of a public hearing, the acquisition of property by ESDC either through the exercise of its power of eminent domain, in the discretion of the ESDC directors, or otherwise under the UDC Act, and the subsequent disposition of such property by ESDC to Columbia for project development.
- Pursuant to a GPP, ESDC override of the City map with respect to certain below-grade areas of West 130th, West 131st, and West 132nd Streets and adjacent streets (for tie-backs and other structural supports) within the Academic Mixed-Use Area of the Special Manhattanville Mixed-Use District.

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<sup>1</sup> Although still unknown, it is possible that Columbia may apply for financing assistance from government agencies at some time in the future. If that were to occur, these actions would be subject to CEQR and SEQRA, and such review would take place at the time each application was made.

<sup>2</sup> The New York State Urban Development Corporation (UDC) was established by the New York State Legislature in 1968 as a corporate governmental agency for the purposes of acquisition and construction on industrial, manufacturing, and commercial sites for the purpose of cultural, educational, or recreational facility use. UDC was granted the authority to acquire property from any individual or entity by purchase, condemnation, or other means.

## **Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS**

- New York State Department of Environmental Conservation (DEC) permit for construction and operation of the central energy plants.
- DEC State Pollutant Discharge Elimination System (SPDES) permit for stormwater discharges into the Hudson River through a connection to an existing outfall.
- MTA/New York City Transit (NYCT) approval of the modification of the MTA Manhattanville Bus Depot and any temporary relocation of this bus depot during construction, as well as of the relocation of the MTA 131st Street Shop located on Block 1997 Lot 6.
- PSC approval pursuant to Public Service Law Section 70 for the sale and relocation of the Con Edison facility on West 132nd Street located on Block 1998 Lot 49.
- HHAP approval of the development plan for the replacement housing building, the release of the lien on the existing building, and the transfer of funds to the replacement site.

### **CITY AND STATE APPROVALS NOT SUBJECT TO CEQR OR SEQRA**

- Public Authorities Control Board approval of ESDC actions.
- New York City Department of Environmental Protection (DEP) approval for an Amended Drainage Plan, a Private Drain Plan, and construction and operation of the central energy plants.
- New York City Department of Transportation (NYCDOT) approval for the proposed transportation improvements.
- NYCDOT permits/approvals to build within and rebuild West 130th, West 131st, and West 132nd Street above the Academic Mixed-Use Development below-grade support facility.
- NYCDOT, Division of Franchises, Concessions, and Consents possible approval for revocable consent.
- The Proposed Actions are within the boundaries of the coastal zone, and will require a determination of consistency with New York City's Local Waterfront Revitalization Program from the City Planning Commission. \*