A. PROJECT IDENTIFICATION

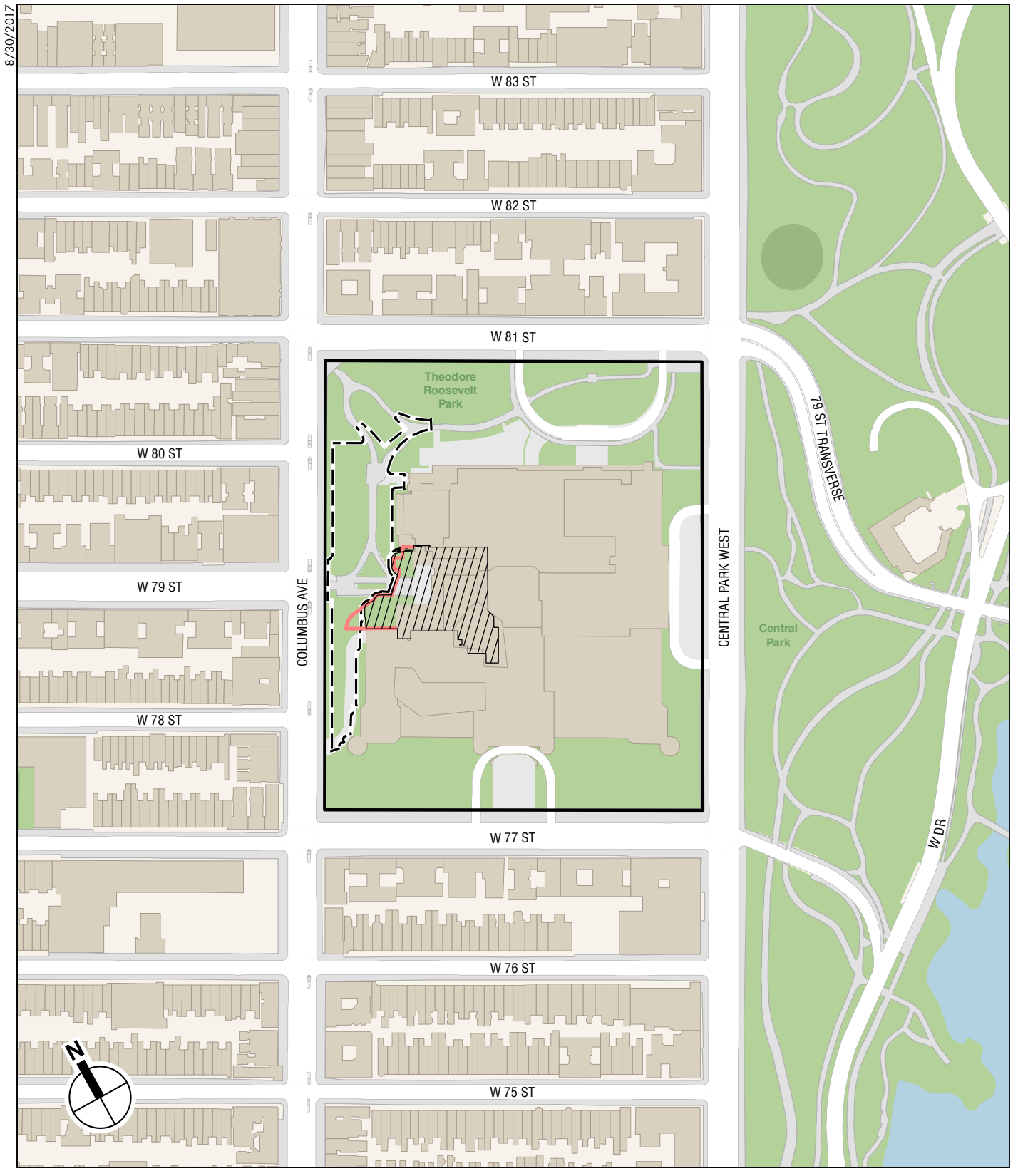
The American Museum of Natural History (AMNH or the Museum) is seeking discretionary actions in connection with a proposed new building, the Richard Gilder Center for Science, Education, and Innovation (the Gilder Center). The Gilder Center would be an approximately 105-foot-tall (five stories above grade; taking into account mechanical and elevator bulkheads, a portion of the rooftop would reach 115 feet), approximately 203,000-gross-square-foot (gsf) addition located on the Columbus Avenue side of the Museum campus. Because the building would be integrated into the Museum complex, an additional approximately 42,000 gsf of existing space would be renovated to accommodate the program and make connections into the new building, for a total of approximately 245,000 gsf of new construction and renovation. Alterations also would be made to adjacent portions of Theodore Roosevelt Park. The Gilder Center, together with these other alterations, is the project proposed to be implemented by the Museum.

Approximately 80 percent of the square footage of the project would be located within the area currently occupied by the Museum. Three existing buildings within the Museum complex would be removed to minimize the footprint on land that is now open space in Theodore Roosevelt Park, to about 11,600 square feet (approximately a quarter acre).

The Museum is located on the superblock bounded by West 81st Street, West 77th Street, Central Park West, and Columbus Avenue, in the Upper West Side neighborhood of Manhattan (Block 1130, Lot 1). The Museum is located in Theodore Roosevelt Park, which is City-owned parkland under the jurisdiction of the New York City Department of Parks and Recreation (NYC Parks). The site for the proposed project is on the west side of the Museum complex facing Columbus Avenue (see **Figure S-1**). The site is located in Manhattan Community District 7. See **Figures S-2 through S-6** and **S-8 through S-10** for photographs of the Museum.

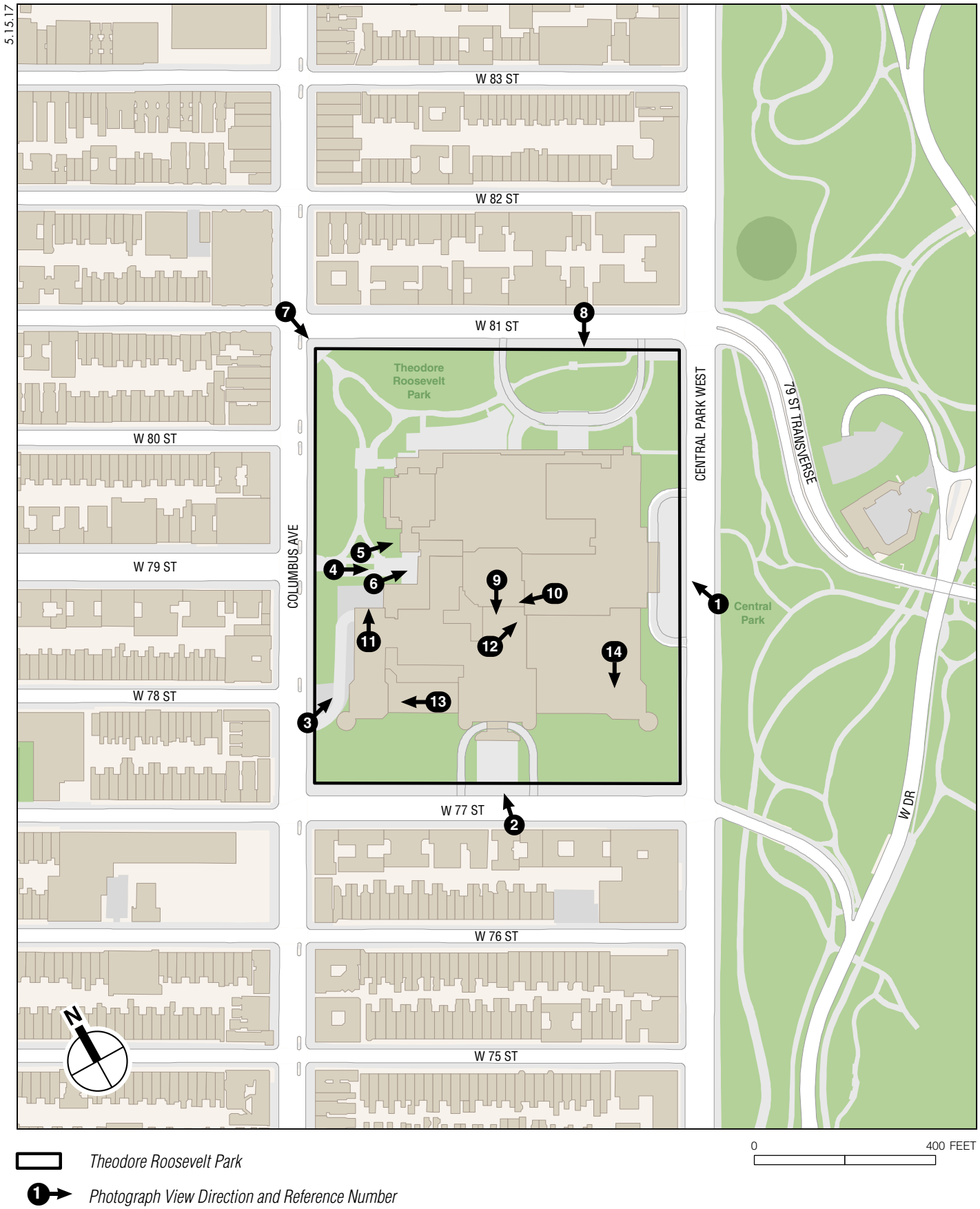
AMNH, a not-for-profit educational corporation, was formed by the New York State Legislature in 1869 to establish a museum and library of natural history in New York City, to encourage the study of natural science, and to provide popular instruction and recreation with the goal of advancing general scientific knowledge. Since that time, the Museum has grown to become one of the most important centers for the study of natural history in the world. The Museum currently employs approximately 200 scientists and offers a master's degree program in teaching science and a Ph.D. program in comparative biology. The Museum is one of the top visitor destinations in New York City, with total annual attendance and utilization of approximately five million people, including approximately 500,000 school and camp visitors. The purpose of the proposed project is to integrate the Museum's scientific research, collections, and exhibitions with its educational programming, provide new innovative exhibition space, improve circulation, and upgrade and revitalize the Museum's facilities.

The proposed project will require discretionary approvals from NYC Parks ~~and the New York City Public Design Commission (PDC)~~ and a report and approval from the New York City



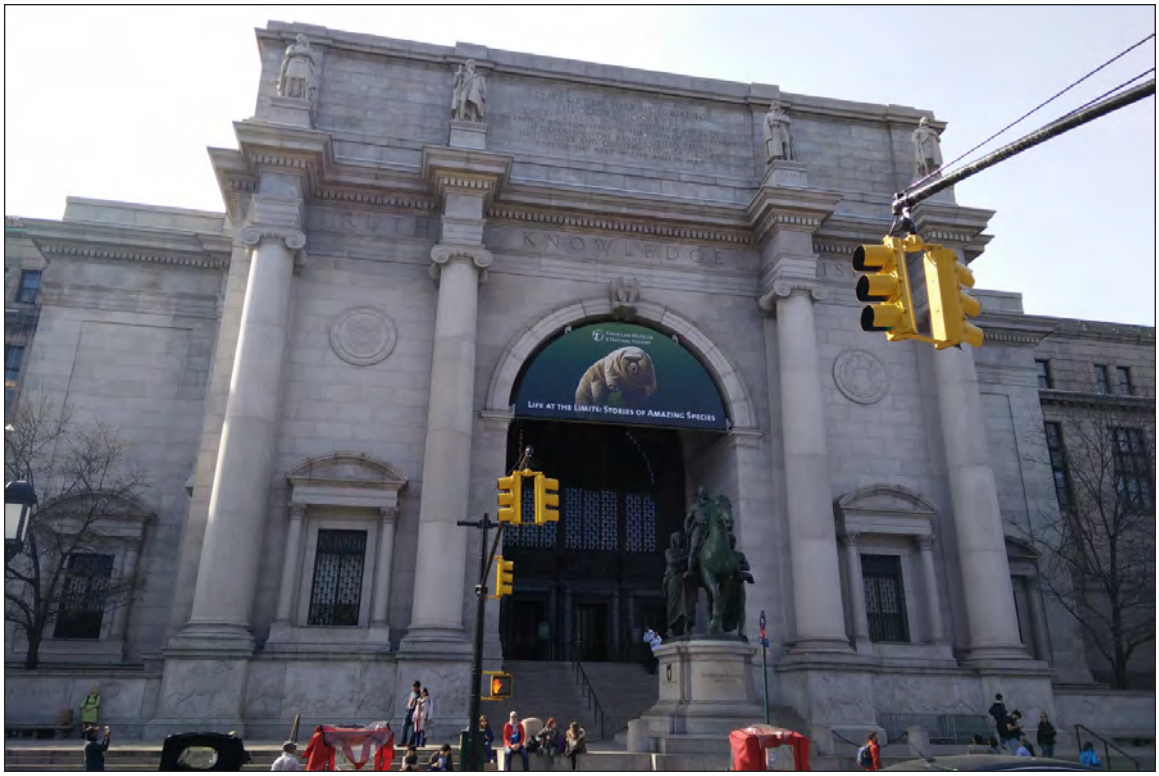
AMNH Gilder Center for Science, Education, and Innovation

Project Location
Figure S-1



AMNH Gilder Center for Science, Education, and Innovation

Key to Photographs
Figure S-2



View Facing West at the Museum's Central Park West Entrance **1**

View Facing North at the Museum's West 77 Street Entrance **2**

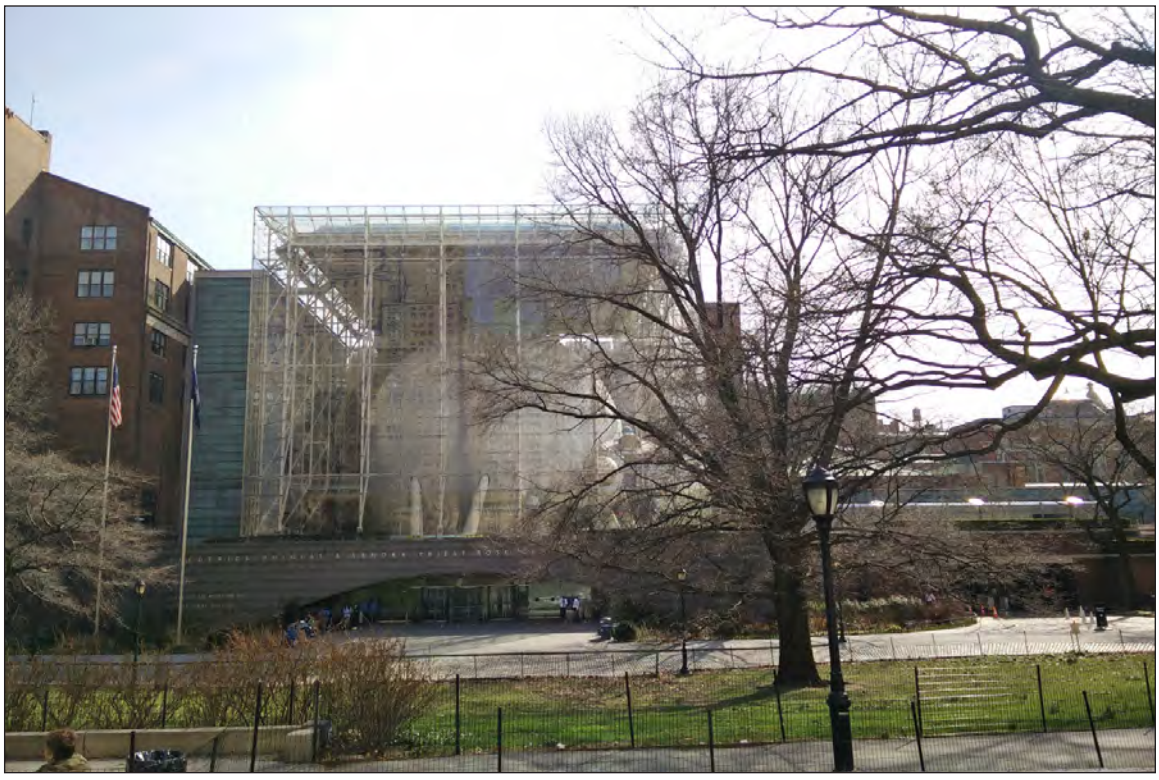
View Facing Northeast at Columbus Avenue Entrance to 78th Street Service Driveway **3**

View of Weston Pavilion and Building 15
Facing East from Columbus Avenue **4**

View of Existing Building 17 and Weston Pavilion **5**

View of The New York Times Capsule and Building 15 Facing East within Theodore Roosevelt Park **6**

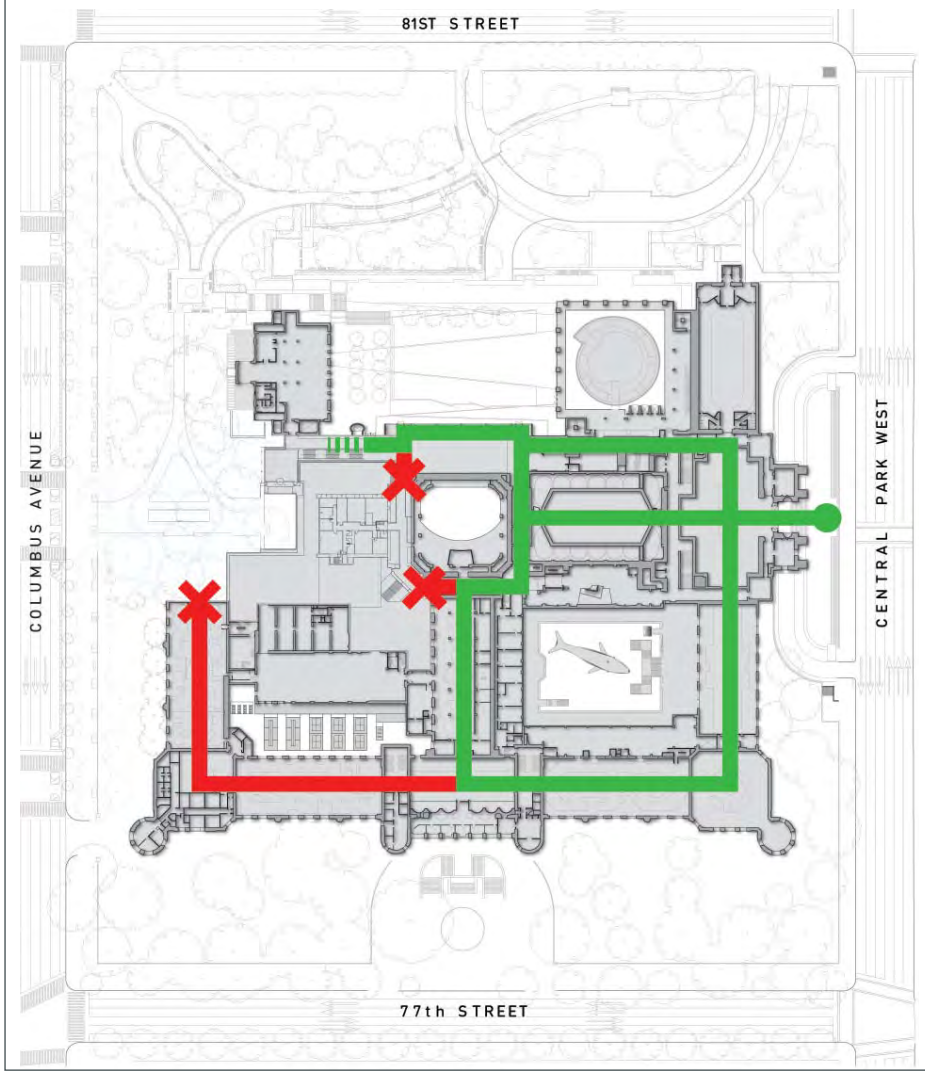
View of Entrance to Theodore Roosevelt Park at Columbus Avenue and West 81 Street **7**



View of Rose Center Facing South from West 81 Street **8**

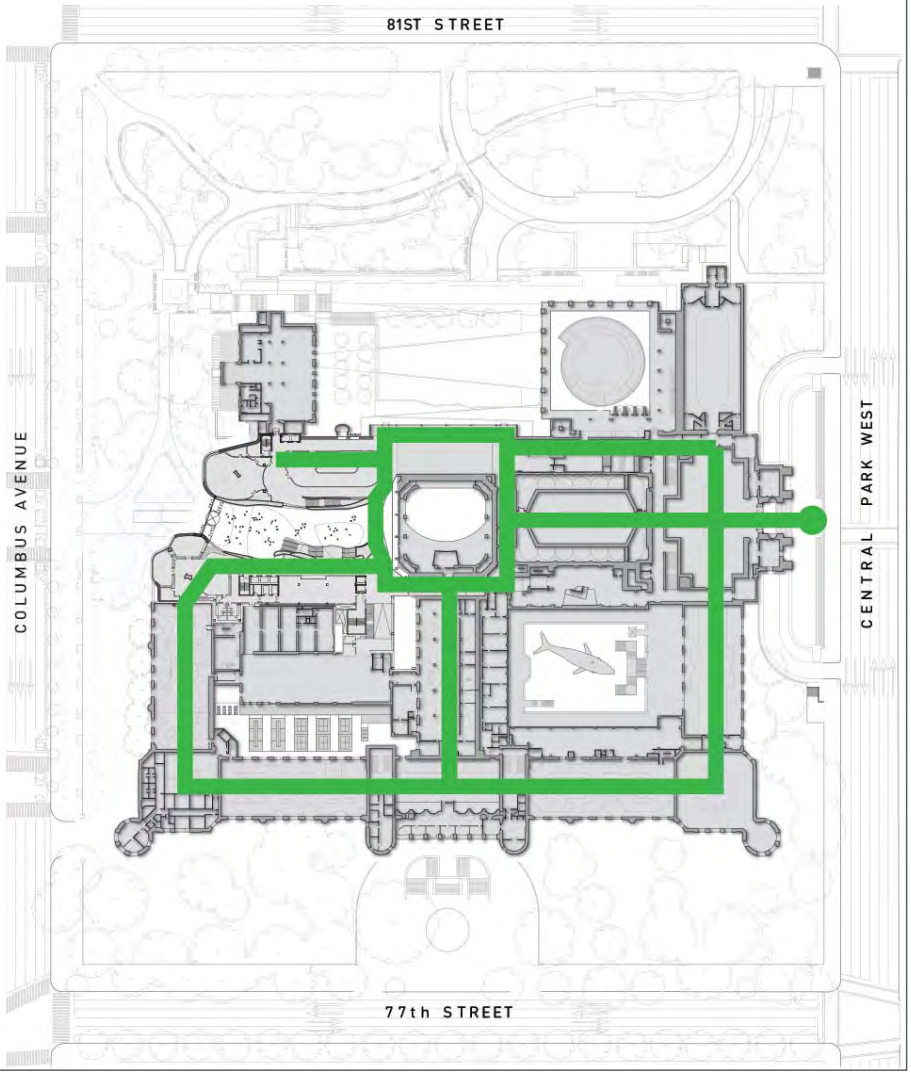
Existing Site Plan

Visitor Circulation



Proposed Site Plan

Visitor Circulation



Existing and Proposed Visitor Circulation Routes

Figure S-7

View South toward Building 1 **9**
(overcrowding, even at wide connections)

View West from Hall of Small Mammals **10**
(narrow connections create “pinch points” in visitor circulation)

View of Margaret Mead Hall of Pacific Peoples (Building 8) **11**
(visitors must double back at dead end)

View from Hall of African Peoples **12**
(lack of sight lines)

View from Hall of Birds of the World to Hall of Mexico and Central America (clear sightlines) **13**

View from Hall of Biodiversity; Connection Into Hall of North American Forests (clear sightlines) **14**

Landmarks Preservation Commission (LPC). LPC issued its Binding Report on November 2, 2016, approving the proposed design of the Gilder Center and modifications to the existing Museum complex and site, subject to LPC's further review and approval of final Department of Buildings (DOB) filing drawings. Funding for the project has been appropriated by the City of New York, through the New York City Department of Cultural Affairs (DCLA), and by the State of New York, through the New York State Urban Development Corporation (d/b/a Empire State Development [ESD]). The New York State Office of Parks, Recreation, and Historic Preservation's Office of Historic Preservation (OPRHP) ~~will also review the proposed project~~ has reviewed the proposed project and, as set forth in a draft Letter of Resolution to be signed by the Museum, OPRHP, and ESD (included as **Appendix A-1**), will continue to consult regarding the proposed design and connections to the surrounding Museum buildings. The relocation of *The New York Times* Capsule requires the approval of the New York City Public Design Commission (PDC), which undertook a Conceptual level review on September 19, 2016 and noted that the proposed new location is respectful and appropriate. A further application is required for Preliminary review of the relocation, including the methods and procedures for moving and reinstalling the artwork.

It is anticipated that the proposed project, if approved, would be completed by 2020, with its first full year of operation in 2021. Therefore, the Environmental Impact Statement (EIS) analyses for the proposed project have been performed for 2021.

The proposed discretionary actions are subject to the State Environmental Quality Review Act (SEQRA) and City Environmental Quality Review (CEQR). NYC Parks, as lead agency for the environmental review, issued a predictive determination that the project may have a significant impact on the environment, requiring that an EIS be prepared. The Draft EIS (DEIS) was issued on May 18, 2017. This ~~Draft~~ Final EIS (~~DEIS~~FEIS), in conformance with the final scope dated April 25, 2017, has been prepared to describe the proposed project, present the proposed framework for the EIS analysis, and assess the potential for project impacts. The 2014 *City Environmental Quality Review* (CEQR) *Technical Manual* serves as a guide on the methodologies and impact criteria for evaluating the proposed project's potential effects on the various environmental areas of analysis.

B. PURPOSE AND NEED

The Gilder Center is designed to address critical external and internal needs in furtherance of the Museum's statutory mission of encouraging and developing the study of natural science and providing popular instruction with the goal of advancing general scientific knowledge.

EXTERNAL NEEDS

At a time when science underpins many pressing societal issues—human health, climate change, and biodiversity conservation, among others—there is a critical need to enhance the public understanding of and access to science. The country and the City face challenges in STEM (Science, Technology, Engineering, and Math) fields, both in educating students and in supporting teachers. Next Generation Science Standards, K-12 science curriculum content standards developed by states to improve science education in the U.S., emphasize learning science by doing science—engaging in actual, hands-on, discovery-based science research (referred to as "authentic research"). Yet many New York City schools are ill-equipped to provide more than basic science education, lacking classroom laboratories, materials, and equipment, and lacking access to teachers with experience in authentic research or advanced

degrees in science and the teaching of science. In addition, there is a need to support lifelong learning and provide opportunities for adult learners.

Millions of visitors, including hundreds of thousands of school children, come to the Museum each year to view its world-class collections. But only a small fraction have a chance to take a class, work directly with a Museum scientist, or see the latest research tools in action. The project is being designed and implemented to enable more visitors to experience an aspect of the Museum's active, discovery-based scientific study and instruction. School children—especially those in under-resourced schools—would benefit from the opportunity to participate in laboratory investigations with scientists and educators, and with real specimens. There is a need for advanced technologies and equipment to be made available, and for science teachers to have access to professional development programs that deliver the practical experiences in inquiry-based science required to equip and to facilitate student learning back in their classrooms.

The Museum is well-positioned to take up these challenges, with approximately 200 working scientists on staff who conduct their work through field expeditions and in laboratories onsite using the Museum's collections and state-of-the-art scientific equipment. It houses collections containing more than 33 million artifacts and specimens, of which only a very small percentage can be on display at any given time, and one of the most comprehensive natural history libraries in the world.

Further, over the past two decades the Museum has partnered with the City, State, and federal departments of education, private, and foundation supporters, and other science institutions to help develop and model programs that result in more and improved STEM education for a greater population of students and teachers. The Museum administers a variety of important educational programs, such as the Urban Advantage Middle School Science Initiative, undertaken in partnership with the New York City Department of Education. In 2016, Urban Advantage served over 77,000 students from more than 280 public middle schools, making it the largest formalized science program in the country. In 2009, AMNH became the first non-university affiliated museum in the United States to grant its own Ph.D., and in 2011 AMNH also became the first such museum to offer a stand-alone master's degree program in teaching science. Planning for the Gilder Center's educational elements is based on the Museum's years of experience teaching science at all levels, in a long-term partnership between scientists and educators.

The Museum's on-site scientific collections play an essential role in the Museum's research and educational programs. The collections represent one of the world's greatest assemblages of evidence for the scope, richness, and deep history of the cosmos, Earth and its myriad species, and human cultures. They are the central and indispensable resource for all of the Museum's scientific research and training. Museum scientists and students explore these collections on a daily basis, and their proximity on site is essential in providing opportunities for new discoveries and rigorous scientific analyses. Powerful new technologies and tools and current areas of study, such as genomics, advanced microscopy, and high resolution imaging, render these collections more critical than ever for advancements in 21st-century science. Because the Gilder Center's educational programming is enveloped and fueled by the Museum's on-site assets and resources, the co-location of science, education, and exhibition uses on the Museum campus is essential to achieving the project goals. See also **Appendix D-3**.

INTERNAL NEEDS

Total Museum attendance and utilization has grown over the past 20 years, from approximately 2.77 million annually in 1994[1] to approximately 5 million in 2015, including an annual average of approximately 500,000 visitors in school and camp groups each year, as well as thousands more who participate in after-school programs, family visits, and professional development programs for teachers. Over that period, the Museum's scientific research enterprise and educational programming have expanded dramatically to include new areas of study and innovative educational programs. These include the establishment of an astrophysics department, the founding of the Richard Gilder Graduate School Ph.D. program in comparative biology, the launch of the Urban Advantage middle school science initiative, and the establishment of the Master's degree in teaching science program. The research collections have grown to include more than 33 million artifacts and specimens, which form the basis for the scientific research and training at the Museum.

As a result of this strong growth and expansion of programs, a portion of the Museum's facilities are overcrowded and inefficient. There is a shortfall of instructional space and some existing spaces are out of date, fragmented, and difficult to access. Today, scientists use technologies such as computed tomography (CT) scanners and scanning electron microscopes, computer models and simulations, and high-resolution and high-speed cameras to observe, measure, and analyze. The Museum's existing educational spaces are not equipped to share this work with students and fail to provide high-quality science, technology, engineering, and math (STEM) learning relevant to today's students and tomorrow's workforce. Additional capacity and improved storage conditions are also needed for collections.

Circulation through the Museum complex is confusing due to dead-end pathways and narrow connections that lack clear sightlines (see **Figures ~~S-7~~S-8 and ~~S-8~~S-9**). Dead-ends in exhibition spaces require visitors to double back in order to explore other Museum exhibits (see **Figures S-8 and S-9~~S-7 and S-8~~**). For exhibition spaces that do connect, clear sightlines are important because they allow visitors to see where they are going and anticipate their route of travel (see **Figure S-10~~S-9~~**). Without clear sightlines, navigation is confusing for visitors, resulting in increased congestion. This failure of the Museum's existing circulation is most evident at the southwest wing on Columbus Avenue (Building 8) and in navigating around the LeFrak Theater at the physical heart of the Museum (see **Figures S-8 and S-9~~S-7 and S-8~~**). When Building 8 was constructed, it was intended to connect to a future Museum building to its north. As a result, Building 8 already has penetrations on its north side for future connections to a new building, but its exhibit spaces currently dead-end. The space around LeFrak Theater is lacking the necessary cross-axial connection envisioned by the Museum's original master plan. Further, the Museum's library, which is open to the public on a limited basis, is located deep in the Museum's interior and visitors too rarely find their way to it. The failure of the Museum's existing circulation pathways to accommodate growth in attendance and the popularity of certain exhibits results in overcrowding in exhibition halls and corridors. Overcrowding reduces visitor access to programs and exhibits—delaying and discouraging visitors from accessing science and education program elements—undercutting the Museum's ability to fulfill its mission of disseminating scientific knowledge.

[1] Fiscal Year 1994, i.e., from July 1, 1993 to June 30, 1994.

Visitor services (e.g., restrooms, elevators, food service, and gift shop) are insufficient to meet demand. The Museum's operational service facilities are undersized and outdated. For example, the Museum's service yard is currently accessed through a cobblestone drive and tunnel designed for vehicles used in 1908, when it was built.

SPACE PLANNING AND GOALS

Prior to making the decision that a new building was needed, the Museum undertook a comprehensive space planning initiative, which included a series of evaluations of its existing spaces, identification of its highest priority needs, and consideration of alternatives for achieving some or all of those needs. The Museum made substantial investments in its facilities to renovate, reorganize, and revitalize existing space, as described in more detail in **Appendix D-1**. Even with these improvements within the existing footprint of the Museum, the space planning effort identified the need for the construction of an addition to the Museum to effectively address the key deficiencies described above, as well as to meet the scientific, educational, and other programmatic needs of the Museum. Accordingly, the goals and objectives of the proposed project are:

- Accommodate growth in science and education programming and exhibits: provide immersive exhibition space, new and modernized classrooms, labs, and other learning environments that use technology to relay complex scientific concepts relevant to today's highly complex and science-based societal issues, as well as space for hands-on, interactive learning aligned with national educational standards.
- Improve the Museum's circulation and connections: improve the Museum's overall circulation and flow for the growing number of visitors by creating new, well-organized and easily accessible north-south and east-west connections among buildings, eliminating dead end pathways, and designing entries and spaces that are accessible to children, strollers and the mobility-impaired.
- Enhance and integrate the Museum's science, exhibition and educational programming: connect new and existing galleries in ways that highlight and reinforce intellectual links among different scientific disciplines and place educational experiences in the context of current scientific practice by creating adjacencies among classrooms, exhibits, collections, and library resources.
- Provide greater access to the Museum's scientists and scientific resources: provide opportunities for family and general learning and structured school visits led by the Museum's scientists and educators, leveraging Museum collections and resources to situate science learning in the context of current research by providing hands-on access to the advanced tools and methods for gathering data and making scientific observations.
- Provide greater access to library resources: reveal a key scholarly asset for the Museum's scientific staff and for visiting scholars from all over the world by making library resources more accessible to visitors, including new access, assistance in navigating printed and digital information, and opportunities for public programming.
- Improve and expand collections storage and visibility: provide new, state-of-the-art space to display actual specimens and artifacts that scientists use to investigate and answer fundamental questions, identify new species, and formulate new research questions and directions, and to accommodate continuing growth in the Museum's collections.
- Enhance the sustainability features of the Museum: consistent with the Museum's commitment to reducing energy usage and carbon footprint in its existing facilities, address

sustainability and the efficient use of energy, water and space as an integrated part of the design process.

- Provide multi-disciplinary and flexible spaces for science and education: support customized programs and curricula while exposing learners to constantly developing research tools and initiatives by providing spaces that are flexible in both use and physical arrangement, and that can draw on the full spectrum of the Museum's multi-disciplinary resources.
- Provide a new Columbus Avenue entrance: provide a new entrance that activates the Columbus Avenue side of the Museum and welcomes visitors and neighborhood residents into a high-quality civic setting that uses design, scale, and proportionality to create an inspiring visitor experience and sense of place.
- Upgrade visitor and operational services: provide space in the new building for visitor services, such as restrooms, elevators, a restaurant and a gift shop, to accommodate growth in Museum attendance, and upgrade and modernize operational services, including loading, storage, food service, utility connections, and service areas.

C. PROJECT DESCRIPTION

PROJECT SITE

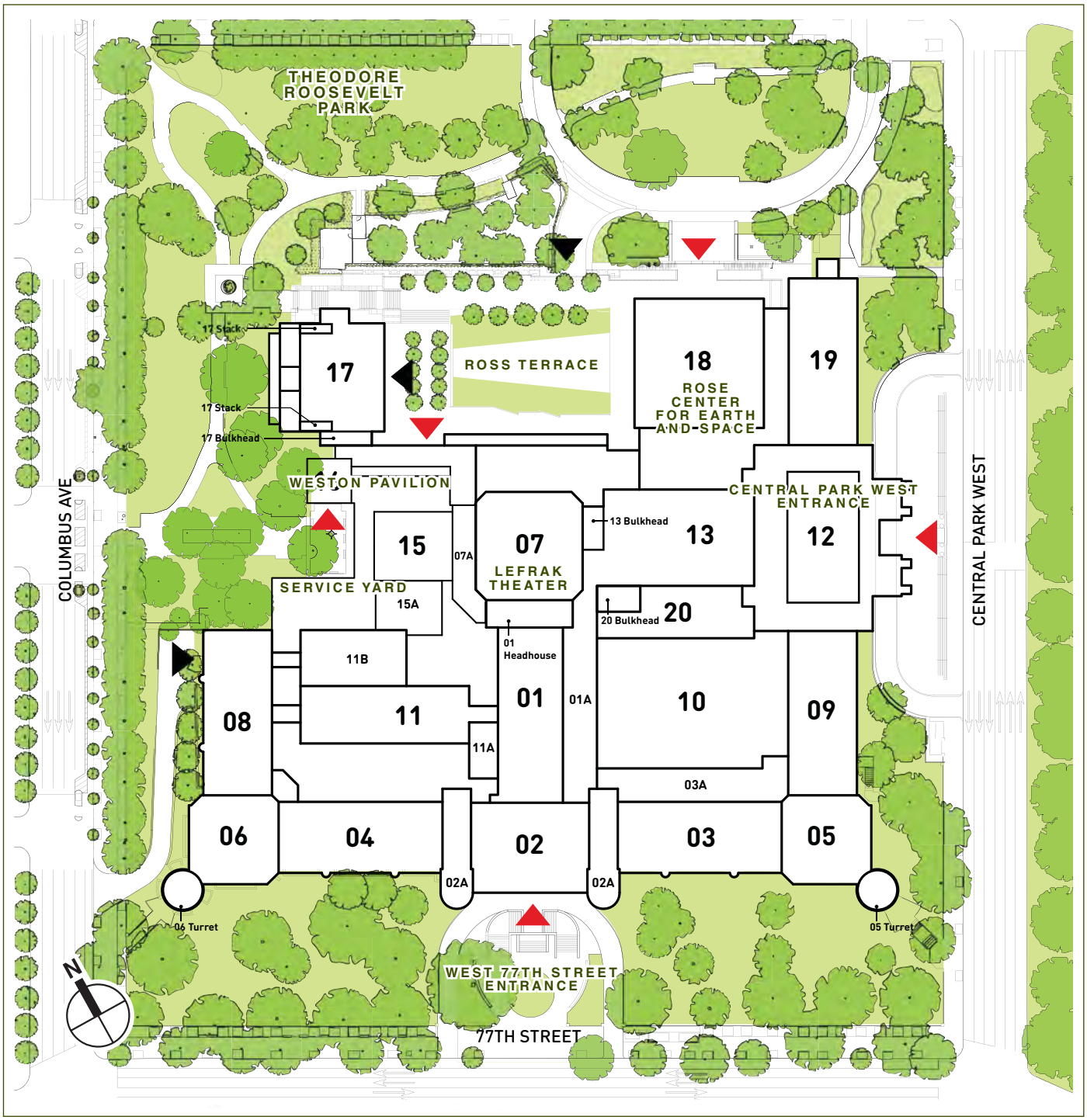
The Museum is located within, and bounded by, Theodore Roosevelt Park, on the 17.58-acre superblock formed by West 81st Street, West 77th Street, Central Park West, and Columbus Avenue.

The Museum complex consists of numerous interconnected buildings, covering a 7.7-acre footprint (see **Figure S-11~~S-10~~** for a plan of the existing campus and **Figure S-12** for existing and proposed campus overview). Uses within the Museum complex include science laboratories and research space; collections storage; a library; exhibit space; theater spaces such as the LeFrak Theater and the Hayden Planetarium Space Theater; classrooms, education space, lecture halls, and support space for visiting school groups; café and food court uses; publicly accessible open space on the Ross Terrace; gift shops; a parking garage; and maintenance, administrative, and operational space. Vehicular access to the Museum's parking garage is provided via a driveway that extends from West 81st Street. Vehicular access to the Museum's service yard is provided via a driveway that extends from Columbus Avenue at West 78th Street. The main pedestrian entrance to the Museum faces Central Park West; additional entrances include the connection from the 81st Street subway station, the Rose Center for Earth and Space (facing West 81st Street), the Weston Pavilion (facing Columbus Avenue), and an ~~restricted-access~~ entrance on West 77th Street (public and non-public entrances are indicated on **Figure S-11**).[2]

Beyond the Museum complex, open space uses in Theodore Roosevelt Park include bench-lined walking paths, fenced lawns and gardens, and a dog run. On the west side of the park, the Nobel Monument is located in a small square at the northwest corner of the Museum complex and *The New York Times* Capsule, designed by architect Santiago Calatrava, is located on a terrace adjacent to the Weston Pavilion. A protected bike lane runs along Columbus Avenue, adjacent to the western boundary of Theodore Roosevelt Park.

[2] The West 77th Street entrance is open to the public with a kiosk for purchase of tickets~~does not provide public ticketing facilities~~; this entrance is primarily used ~~available~~ for Museum staff and public programs.

11.2.17



PUBLIC ENTRANCE

NON-PUBLIC ENTRANCE

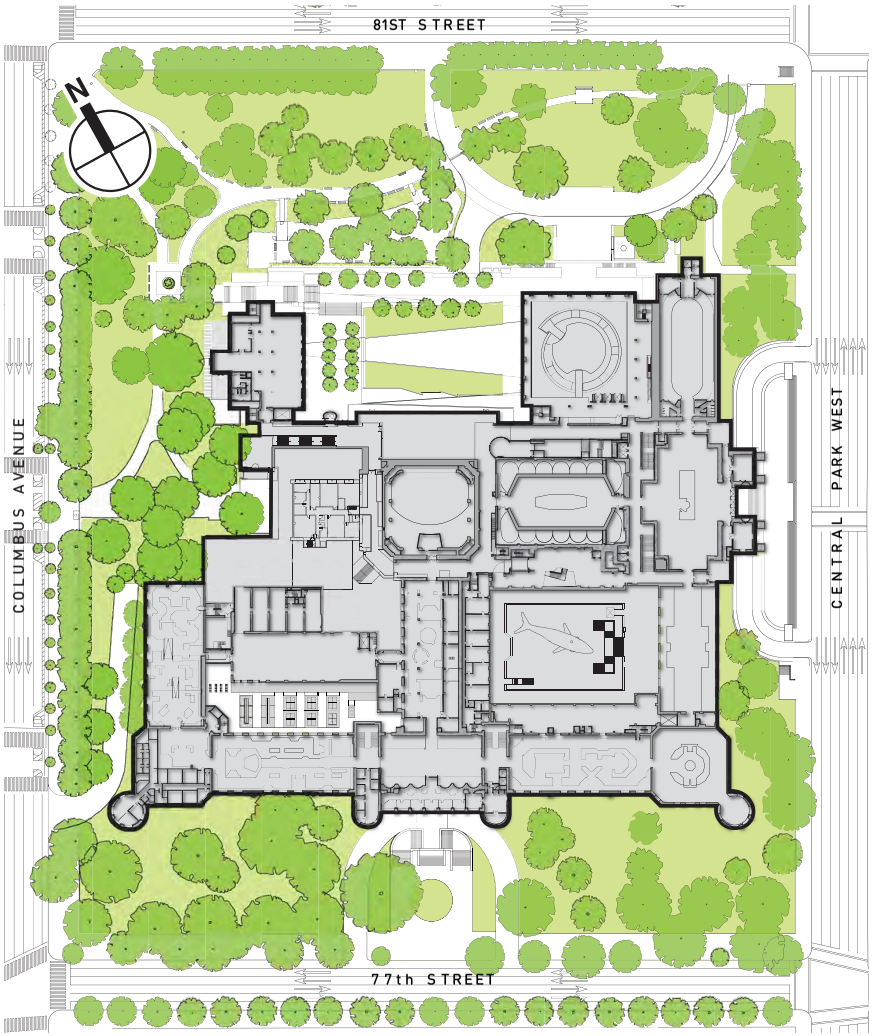
01 *Building Number*

10′ 50′ 100′

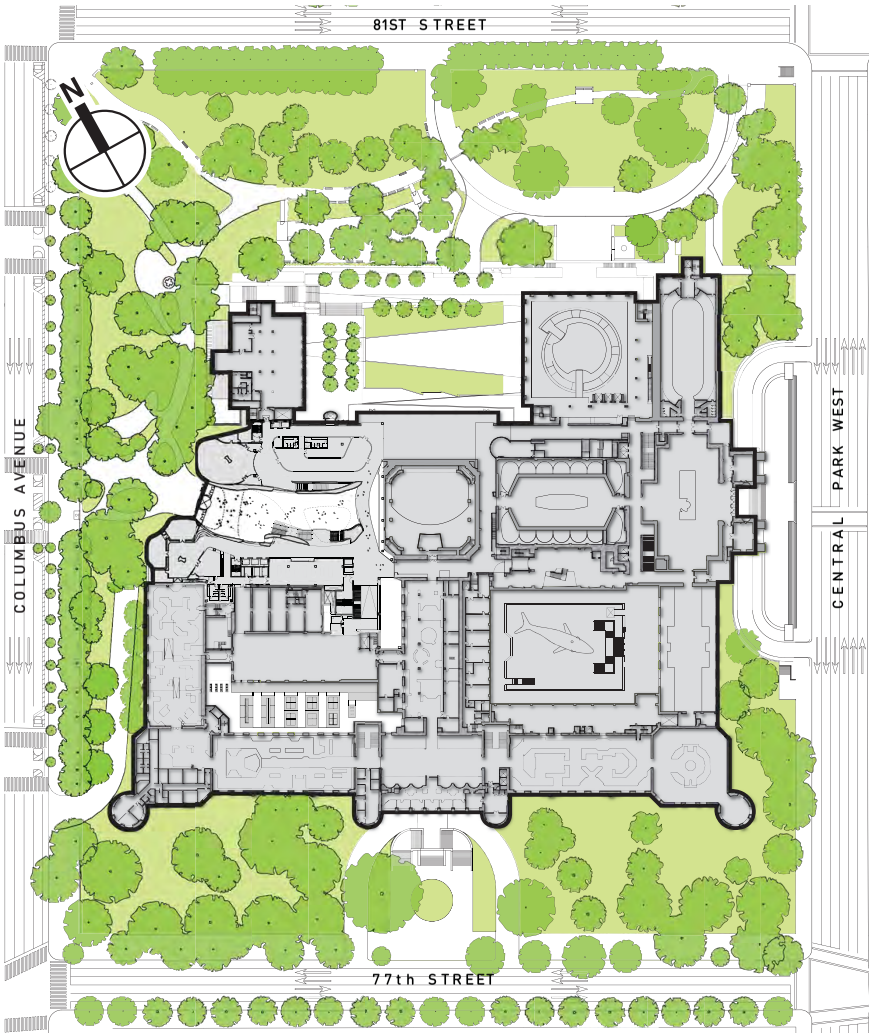
Note: *See Chapter 9, "Transportation," for a description of the entrances (page 9-10).*

Existing AMNH Campus Plan

Existing Site Plan



Proposed Site Plan



Existing and Proposed Campus Overview
Figure S-12

The below-grade footprint of the Gilder Center would be 35,307 square feet for new construction and 14,222 square feet for renovated space and the at-grade footprint would be 43,691 square feet. **Figure S-13** shows the proposed campus plan with the Gilder Center project, including public and non-public entrances. Of the at-grade footprint, 11,600 square feet would be outside the existing built area of the Museum (13,730 square feet of the below-grade footprint would be outside the existing built area of the Museum) (see **Figures S-~~11~~ 14 and S-~~12~~15**). Overall, the below-grade footprint would extend an additional 2,130 square feet beyond the above-grade footprint. The portion of the building site that is inside of the existing Museum footprint contains the Weston Pavilion and adjacent corridors, two other Museum buildings and adjacent corridors, and the Museum's service yard. The three existing buildings within the footprint of the proposed Gilder Center are the Weston Pavilion and Buildings 15 (former power house) and 15A (an addition to Building 15 originally used as a boiler house), which are both currently used for science collections and research. These buildings would be demolished as part of the proposed project; **Figure S-16** shows the buildings proposed to be demolished or renovated. The portion of the building site that is outside of the existing Museum footprint contains a terrace, *The New York Times* Capsule (which will be relocated), walkways, seating areas, fenced lawns, and trees and plantings.

BUILDING PROGRAM AND USES

The Gilder Center would be an approximately 105-foot tall, approximately 203,000 gsf addition to the Museum (the Gilder Center would be five stories above grade; taking into account mechanical and elevator bulkheads, a portion of the rooftop would reach 115 feet). The proposed project would also include approximately 42,000 gsf of renovations to existing space and improvements to an approximately 75,000 square-foot adjacent public open space in Theodore Roosevelt Park (see **Figure S-12** for the proposed site plan**, Figure S-13** for the proposed AMNH campus plan, and **Figure S-17~~S-13~~** for an elevation view of the proposed project).

The proposed project would be designed to reveal the behind-the-scenes work of the Museum and integrate it into the visitor experience, to create an authentic and direct encounter with science. It would showcase the active scientific research collections underlying the Museum's exhibitions and educational programs and connect scientific facilities and collections to innovative exhibition and learning spaces for students of all ages and levels. Collection storage spaces and the research library would be co-located with immersive galleries and interactive education spaces for children and adults in family and school groups, transcending traditional boundaries between scientific research, education and exhibition.

The Museum's education facilities, serving school and camp groups, after-school programs, family visits, and professional development programs for teachers, would be substantially improved by the proposed project's comprehensive addition and modernization of educational spaces. Upon completion of the project, approximately 75 percent of the Museum's classroom facilities will be new or renovated, allowing the Museum to offer programs and facilities that align with national educational standards and offer high-quality STEM learning.

The proposed project would address the circulation shortcomings of the existing campus by creating approximately thirty new connections into ten existing Museum buildings on multiple levels, improving circulation and better utilizing existing space. It would create a connective loop around the Lefrak Theater to connect all quadrants of the campus, greatly enhancing visitor flow and access to all of the Museum's offerings. It would redistribute visitor flow by providing multiple new pathways, reducing crowding at existing pinch points. Utilizing the existing

11.2.17

Public Entrance

Non-Public Entrance

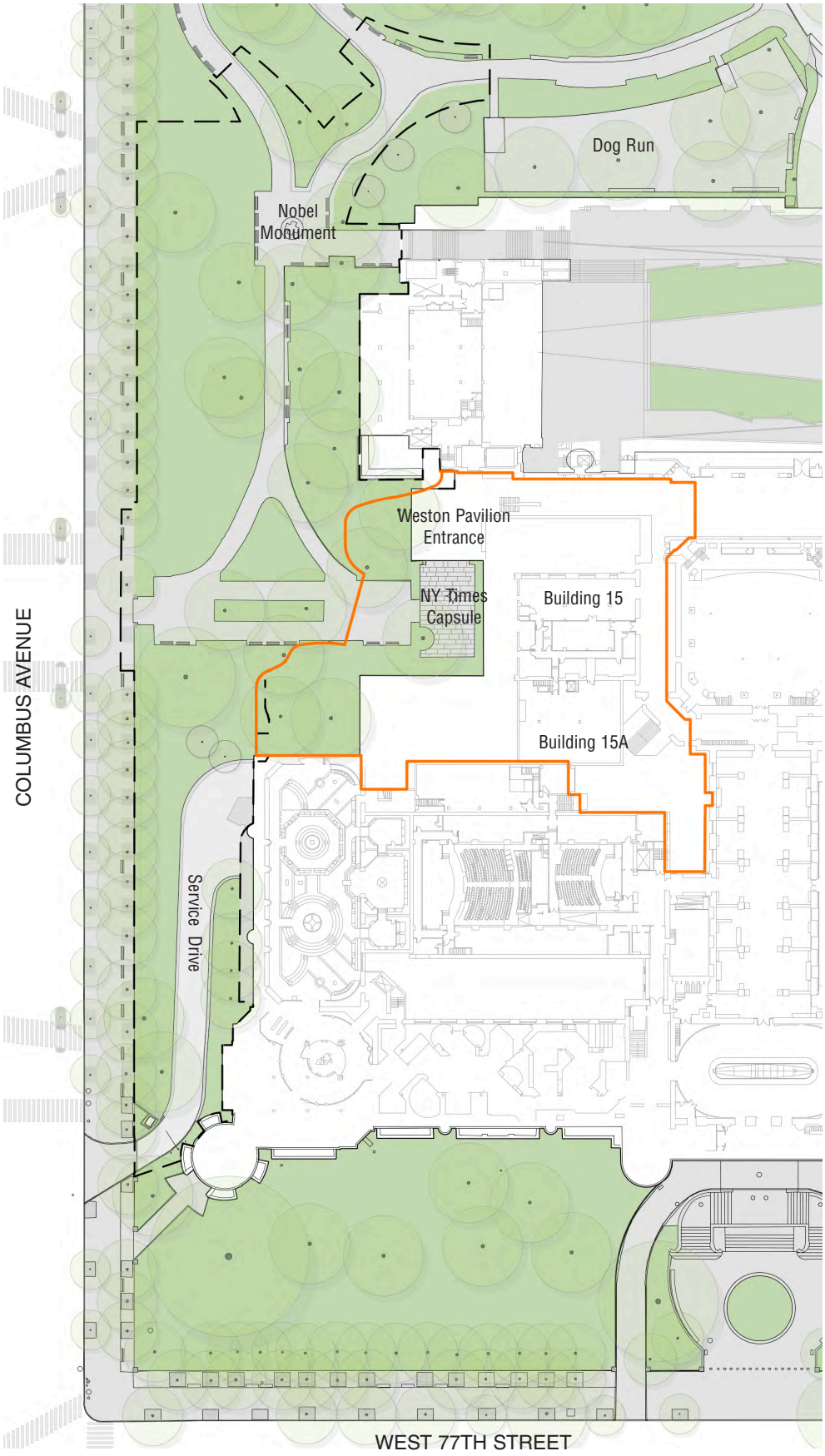
05 *Building Number*

10' 50' 100'

AMNH Gilder Center for Science, Education, and Innovation

Proposed AMNH Campus Plan

Figure S-13

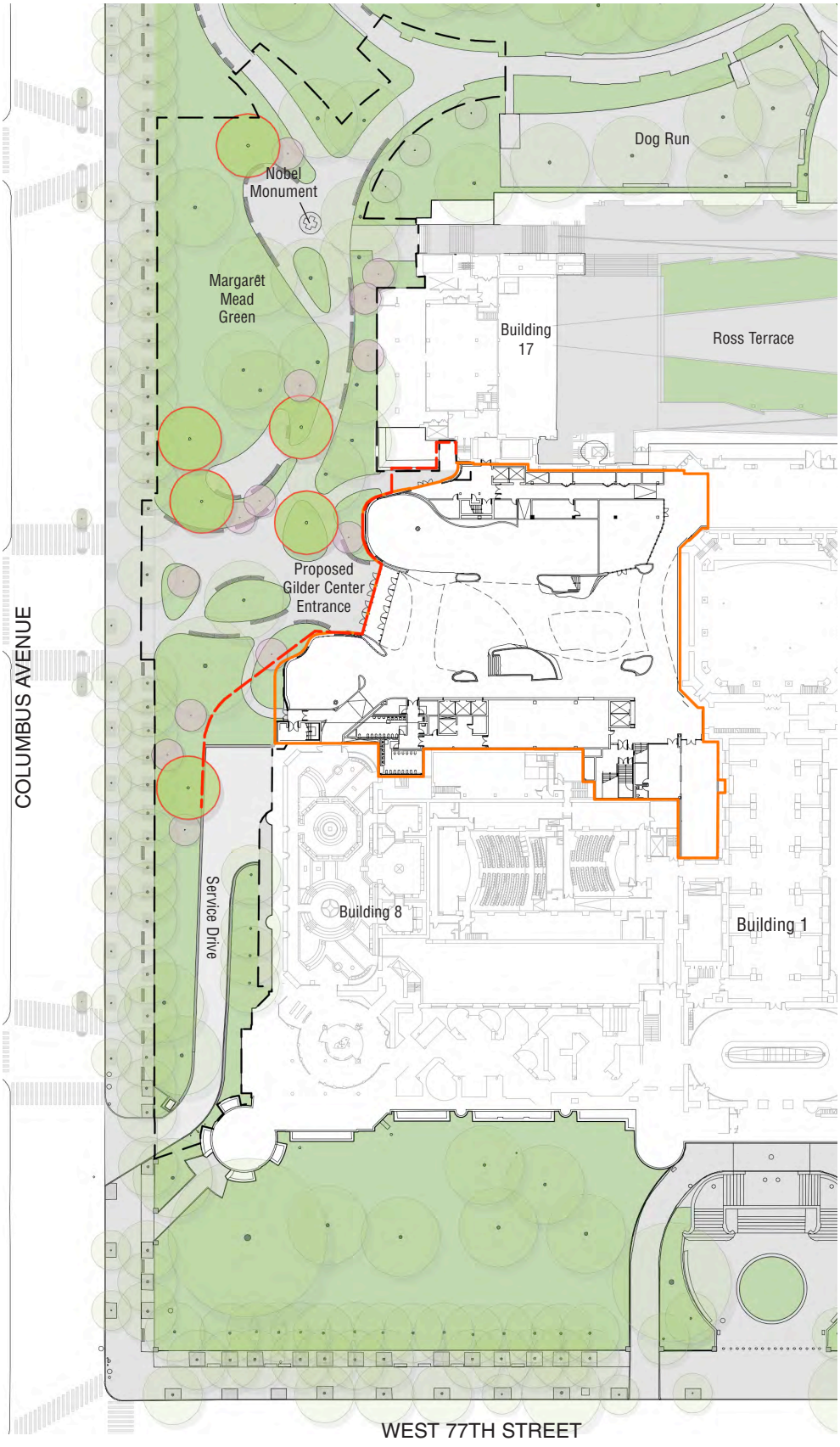


Building Site *Park Improvement Boundary*

Existing Site Plan

AMNH Gilder Center for Science, Education, and Innovation

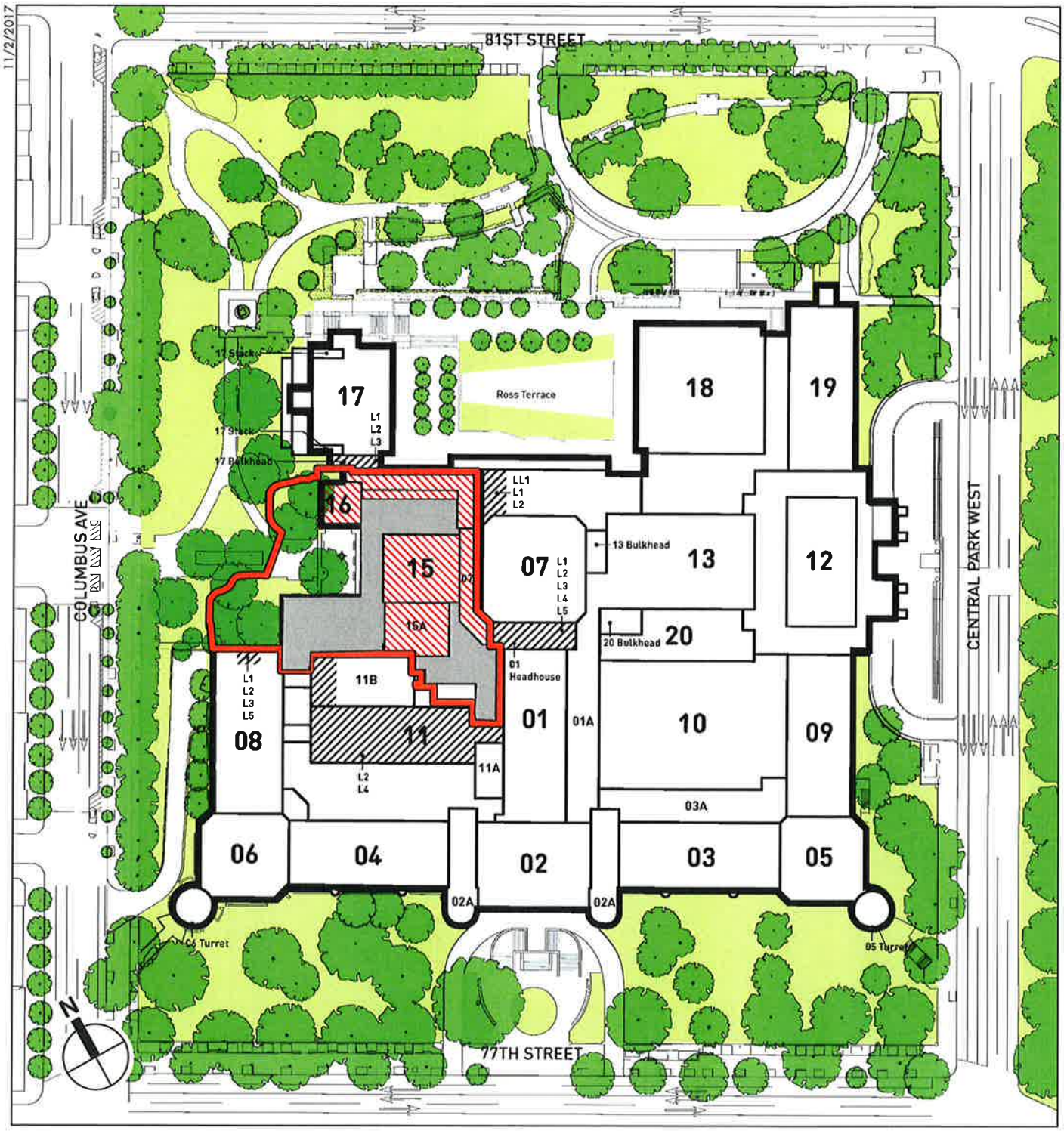
Figure S-14



Building Site
Below-Grade Footprint
Park Improvement Boundary
Bench
Proposed Trees
Understory Tree
Canopy Tree

AMNH Gilder Center for Science, Education, and Innovation

Proposed Site Plan
Figure S-15



Building Site

Renovated Area

Demolished Building

05 *Building Number*

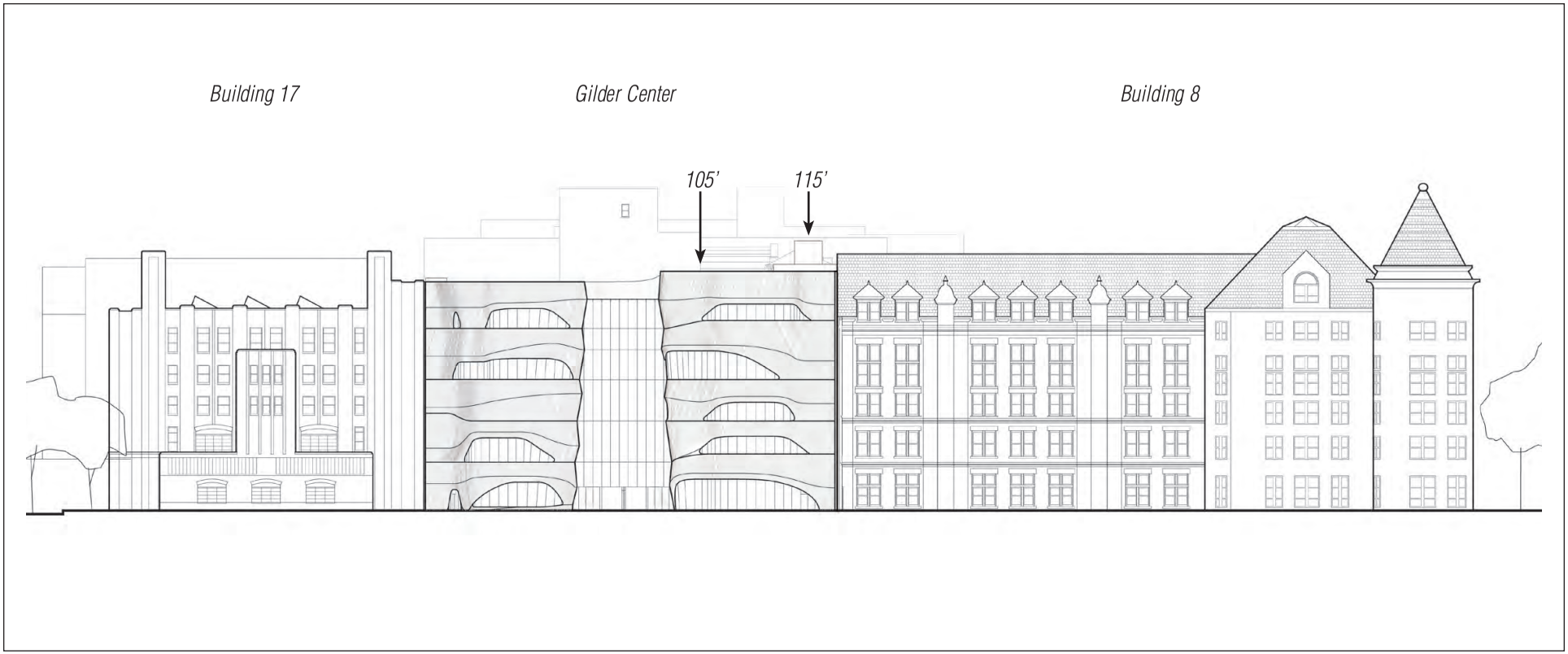
Service Yard Excavation and Infill

0 200 FEET

Buildings Proposed to be Demolished or Renovated

AMNH Gilder Center for Science, Education, and Innovation

Figure S-16



Elevation View of Proposed Project

Figure S-17

penetrations at the north end of Building 8, the proposed project would physically and visually connect Building 8's exhibit halls to the Gilder Center.

Among the major new features that would be included in the proposed project are:

- A physical articulation of the Museum's full, integrated mission of science, education, and exhibition, that will provide visitors with cross-disciplinary exposure to the natural world;
- New kinds of exhibition and learning spaces infused with advanced digital and technological tools, linked to scientific facilities and collections;
- Connections with clear sightlines that would accommodate increased attendance and improve visitor flow and circulation;
- Innovative spaces devoted to the teaching of science—including for middle and high school, early childhood, family, and adult learners and teachers;
- Spaces for carrying out scientific research—particularly in natural sciences—and facilitating public understanding of this vital scientific field;
- Increased storage capacity and greater visibility and access to the Museum's world-class collections;
- Exhibitions and interpretations of new areas of scientific study;
- Improved access to the natural history library for visitors, creating a dynamic hub that would connect users with its many unparalleled resources and help them navigate flows of information, both printed and digital;
- Enhanced visitor experience and services;
- Improved building services;
- Sustainable systems and high performance/energy-efficient technologies; and
- A more visible and accessible entrance on the west side of the Museum complex.

As noted above, 11,600 square feet of the at-grade footprint of the Gilder Center would be outside the existing built area of the Museum (13,730 square feet of the below-grade footprint would be outside the existing built area of the Museum). Leaving aside the lower level service areas, approximately 80 percent of the Gilder Center is comprised of spaces that support public science, education, and exhibition programs. Just over 10 percent supports non-public science space (such as the Ichthyology Department, described below), and 5 percent is visitor amenity space such as dining and a gift shop. The balance—about 5 percent—supports other miscellaneous building services. At the current phase of design, decisions continue to be made about the final configuration and size of program spaces, and the details of materials, equipment and finishes. The proposed project is expected to include the following program elements (square footages are current estimates):

Central Exhibition Hall

The 18,662-gsf Central Exhibition Hall is designed to reveal the Museum's mission, visually and physically integrating science, education, and exhibition to provide visitors with cross-disciplinary exposure to the natural world, the process of scientific discovery, and the role of evidence and collections in scientific research and discovery. The scale of the hall is intended to inspire visitors and encourage exploration inside the Museum by providing a large civic space that showcases the Museum's offerings, similar to the Museum's Roosevelt Rotunda or the Rose Center. Opening onto Theodore Roosevelt Park and creating a route through the Museum to

Central Park West, the Central Exhibition Hall would orient visitors and invite the public to experience the Museum. The exhibits and other project elements described below would be accessed through, visible from, and/or displayed in the Central Exhibition Hall, which would also make connections to the surrounding existing Museum spaces. It would provide a welcoming, engaging, and architecturally notable entry point to the Museum.

Collections Core

Visible to the public from the Central Exhibition Hall, the proposed 21,210-gsf, glass-walled Collections Core would display working sections of the Museum's collections and feature specimens and artifacts from across the Museum's scientific divisions, including areas where scientists and visiting scholars would carry out research. The Collections Core would house 3.9 million specimens, or approximately 10 percent of the Museum's more than 33 million specimens and objects. Visitors would be able to view selected collections, conservation areas, and storage facilities. As visitors move along walkways at each of the five levels, there would be observation areas where they would encounter storage spaces and view the current work being conducted within. On the first floor, the Collections Core would house the Museum's butterfly collection, one of the largest in the world. The butterfly collection would be located directly opposite the new Insectarium (described below) and would be visible from the Central Exhibition Hall.

Insectarium and Butterfly Vivarium

Opening directly onto the Central Exhibition Hall, the 5,000-gsf Insectarium would be a major feature of the Gilder Center's first level. The Insectarium would display the Museum's extensive collections of insects, spiders, and related groups. This space would include live insects, collections of insect specimens, scientific tools used for conducting research, exhibits, and digital displays for general visitors as well as structured school group visits. A major feature of the Insectarium would be areas where visitors could use the tools and methods of entomologists to observe insects and gather data. Access to current information about insects is particularly important for school group visitors, since New York State's K-8 standards include the study of insects.

The Museum's Butterfly Vivarium~~, one of the largest in the world,~~ would be relocated to the Gilder Center as part of the proposed project. Located above the Insectarium, the 3,415-gsf Butterfly Vivarium would double the space of the existing Butterfly Conservatory and, unlike the current seasonal use, would be available year-round. The Butterfly Vivarium would include a pupae incubator to highlight the life cycle, an identification system for visitors, and would show different environments, such as a meadow and a pond.

Invisible Worlds Immersive Theater

The 9,520-gsf Invisible Worlds Immersive Theater would use visualization and projection technologies to showcase current scientific research, enabling immersive experiences and exploration of emerging areas of science such as the study of the microbiome and the ocean biosphere.

Education Spaces: Classrooms, Learning Labs, and Age-Specific and Teacher Zones

The proposed project would include approximately 26,390 gsf of new and renovated spaces to provide educational programming to young children, middle-schoolers, high school students, adults, and teachers. As such, the proposed project would be the most comprehensive addition and modernization of educational spaces in the Museum since 1928. The areas for education

programming would include space for immersive, visual learning experiences that use technology to relay complex scientific concepts, as well as space for hands-on, interactive learning. By creating adjacencies among classrooms, exhibits, collections, and library resources, education space would be placed in the context of current scientific practice, reinforcing intellectual links among different scientific disciplines. The proposed spaces would incorporate the interdisciplinary scientific concepts of the Next Generation Science Standards and would support customized programs and curricula while exposing learners to constantly developing research tools and initiatives by providing spaces that are flexible in both use and physical arrangement, and that can draw on the full spectrum of the Museum's multi-disciplinary resources. These spaces would include the following:

- Family Learning Zone: six classrooms serving pre-K through fourth grade, located in renovated space in the existing Museum complex directly adjacent to and connected to the Gilder Center.
- Middle School Learning Zone: three classrooms serving grades five through eight, located on the second floor in the southwest section of the Gilder Center. This zone would be integrated with the Museum's Urban Advantage Program, which focuses on middle school teachers, students, and families to strengthen science learning. This space would also be used in coordination with the New York City Department of Education (DOE) to provide research field trips for schools without laboratory facilities.
- High School Learning Zone: six classrooms serving high school students, in the west side of the Gilder Center, including a new science visualization learning lab. This space would accommodate growth in the Museum's high school programs, including the Science Research Mentoring Program (SRMP), which includes a year of research with a Museum scientist.
- Teacher Professional Development Zone: three classrooms in the existing Museum complex would be used to prepare teachers to use Museum resources in support of science learning.

Research Library and Learning Center

Linking directly to the Museum's existing Fossil Halls, the ~~3,255 gsf~~ Research Library and Learning Center would <u>be expanded to 4,700 gsf to</u> provide a multi-disciplinary convening and learning space for education, graduate work, and general scientific exploration and research with a new entrance on the fourth floor of the Gilder Center. Diverse information sources, including GIS data, rare books, contemporary publications, digital media, and actual physical specimens would be co-located, providing an integrated opportunity for learning. A cloud-based scientific workbench would be made accessible to the public through the Library and Learning Center and visitors would have real-time access to results of current scientific research. Utilizing space in the Museum's proposed Learning Library, the Center for Adult Education would serve as an intellectual hub that would enable the Museum to formalize and expand its educational offerings for adults.

Interpretive Wall/ArcLife

The Architecture of Life (ArcLife) initiative launched in January 2017 to develop a comprehensive approach to understanding the history and diversity of life on Earth. This initiative would be reflected in a new large-scale Interpretive Wall that would orient visitors, aid wayfinding, and encourage exploration of current science by illuminating important concepts through video, data imagery, or interactive exhibits.

Ichthyology and Collections Storage

The proposed project would include new space for scientists and collections storage, including space for the Ichthyology Department to replace space lost with the demolition of Building 15 and 15A.

Visitor Services

The Gilder Center would include a new entrance and ticketing area, restrooms, additional elevators, and circulation and egress areas with connections to existing Museum buildings. Approximately 6,395 gsf of restaurant and retail areas would be provided to meet increased visitor demand. An atrium would provide views of the recently restored façade of Building 1, an interior building adjacent to the LeFrak Theater building.

Building Services

The Gilder Center would include a modernized loading and service area, replacing the service yard currently located on the project site. This below-grade loading and service area would be accessed through the existing West 78th Street service driveway that extends from Columbus Avenue, which would be extended north and partially reconstructed as part of the proposed project. The existing 1908 access tunnel, which requires a sharp turn from the driveway into the narrow tunnel below Building 8, would be replaced with a head-on entry into the lower level of the Gilder Center to allow clearance for larger trucks into the loading and service area. The new location would be shielded from the Park and nearby residences due to its enclosed location, reducing noise from operations. To provide the necessary truck access, loading area, and turning radius, the footprint of the lower level extends beyond the footprint at grade by approximately 2,130 square feet, reflecting refinements to the design that were made with the goal of preserving two trees (a Pin oak and an English elm). In addition to loading and related service functions, uses in the lower level of the Gilder Center will include food services, utility connections, storage, some limited collections storage, and other service areas supporting the program space above.

ARCHITECTURAL AND DESIGN PLAN

The Gilder Center's architecture is designed to support the Museum's mission both inside and out. It is intended to inspire a sense of discovery, by creating openings among buildings, circulation spaces, and program elements that allow visitors to see the activities inside, and physical access through continuous, connected spaces that would allow visitors to traverse the integrated science, exhibition, and educational program areas. The Gilder Center would feature natural light, providing the types of spaces in nature that are fluid, connective, and enticing to navigate. Visitors would see—and be invited to experience—collections unlike anywhere else in the Museum.

The design would advance crucial aspects of the Museum's original master plan while reflecting a contemporary architectural approach that is responsive to the Museum's needs and the character of the surrounding public park and neighborhood. It would include five stories above grade (approximately 105 feet tall; taking into account mechanical and elevator bulkheads, a portion of the rooftop would reach 115 feet), and one below-grade, situated between buildings of different heights, diverse architectural styles, and varied relationships to the surrounding park and city. The building mass and proportion would carefully respond to this multilayered context, maintaining the height and scale of the existing Museum buildings. Critical alignments—in both elevation and plan—would weave the new building into its site, maximizing utility while

minimizing impact on the historic surroundings (see **Figures S-18 and S-19a and S-19b~~S-14 and S-15~~**). The façade of the Gilder Center would include a mix of glass (with a range of opacity) and granite. The granite is expected to be either Milford pink granite, the granite used for the Theodore Roosevelt Memorial main entry on Central Park West, or granite of a similar type and coloration to Milford pink. In addition to bringing natural daylight into the Museum complex, the openness of the Central Exhibition Hall would serve the important purpose of making Museum resources visible and accessible. This accessibility is essential to the goals of the proposed project and the mission of the Museum.

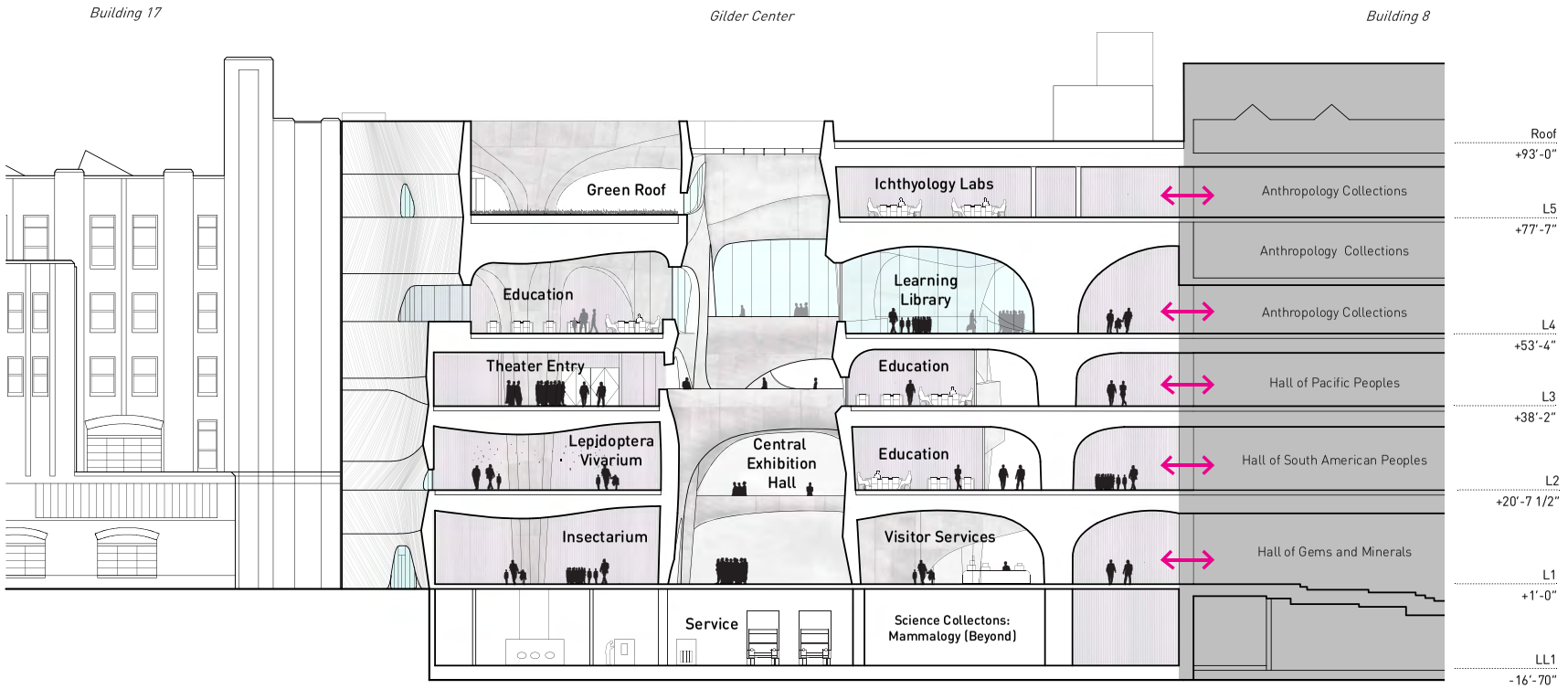
As further described in Chapter 6, "Urban Design and Visual Resources," the lighting plan for the Park and the new building would be in keeping with the surrounding area and consistent with other sides of the Museum complex. After hours, dimmable light sources would allow the Museum to selectively light interior features. The after-hour lighting would be modest while highlighting features within the Gilder Center and providing sufficient lighting for walking in the surrounding open space.

The architectural concept has been developed to reclaim the physical heart of the Museum complex at its center and to complete connections between and among existing Museum halls and the new space. From Columbus Avenue, visitors would access the building through the park and enter a Central Exhibition Hall that would link the west side of the Museum to all other parts of the campus, thereby enhancing accessibility and simplifying circulation. Entry into the new building would be at grade, and all elements of the building will be compliant with the Americans with Disabilities Act (ADA). The proposed project would improve the connectivity, spatial logic, and function of the Museum's interior spaces. Functionally, the new building completes the east-west axis of circulation and exhibition spaces which was envisioned in the original master plan for the Museum, and for the first time create~~s~~ a north-south connection on the west side of the campus.

LANDSCAPE PLAN

Paths and landscaping in an approximately 75,000 square-foot portion of Theodore Roosevelt Park adjacent to the building site would be modified, removed, or relocated to accommodate the proposed project and to provide more areas for seating and public access (see **Figure S-12**). The proposed project's landscaping modifications and improvements are intended to address an increased number of Museum visitors in the Park and ensure Park users would continue to have access to areas for gathering, play, and respite, as well as pathways for Museum entry and traversing the Park. It is anticipated that these changes would include:

- Path adjustments by the Nobel Monument area to improve circulation, provide more seating, and create a gathering space off of the path network and away from Museum entry.
- Enlargement of Margaret Mead Green (from approximately 26,725 square feet to approximately 27,137 square feet) by shifting a park path farther to the east, and addition of an adjacent hard scape gathering area with seating that would be away from the path network, Museum entry, and the street.
- Relocation of *The New York Times* Capsule to a location adjacent to the Rose Center entrance.
- A wider entrance from Columbus Avenue and path adjustments between Columbus Avenue and the Gilder Center entrance to accommodate greater pedestrian traffic. The paths and entrance would be designed to be accessible to children, strollers and the mobility-impaired.



Section View of Proposed Project

Figure S-18

Note: *Subsequent to initial design effort, below-grade service area and service drive modified with goal of preserving Pin Oak and English Elm labeled above.*

Illustrative Rendering of Proposed Project (Spring)

10.6.17

Note: *Subsequent to initial design effort, below-grade service area and service drive modified with goal of preserving Pin Oak and English Elm labeled above.*

Illustrative Rendering of Proposed Project (Winter)

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Figure S-19b

- New planted islands would be created, incorporating the Pin oak and English elm trees that the Museum plans to protect and conserve, and areas for respite would be provided away from the path network and Museum entry.
- New and revitalized plant beds, extending from the Nobel Monument to the service drive, would incorporate the existing oaks and Siberian elm trees. Species would be selected for native and adaptive characteristics, and would include shade- and moisture-tolerant groundcovers and shrubs, flowering understory trees, and ephemeral bulbs, providing year-round interest.
- Installation of 15 new benches, increasing the total number in this area from 23 to 38.
- Park infrastructure improvements, including upgraded fencing, and drainage and irrigation where needed.

Taking into account the improvements associated with the proposed project, the character of the park along Columbus Avenue is anticipated to be similar to the existing paths and landscaped areas, primarily designed for walking and quiet activities. The area in front of the Gilder Center would (as it currently does through the Weston Pavilion) provide an entrance point to the Museum. Given increased attendance and utilization it would be more heavily utilized by Museum visitors, and could therefore at times be more populated and active, with visitors sometimes queuing for entry on the Museum's more heavily visited days.

As noted above, 11,600 square feet of the at-grade footprint of the Gilder Center would be outside the existing built area of the Museum. As part of the initial design effort, the Museum reduced the building footprint with the goal of minimizing the number of trees and the amount of public open space that would be impacted. Subsequent refinements have reduced the size of the proposed below-grade service area and modified the design of the service drive with the goal of preserving two trees. AMNH is developing plans to protect and conserve these two trees, a Pin oak and an English elm. It is currently expected that the proposed project would directly affect seven canopy trees in Theodore Roosevelt Park that would be removed and one understory tree that would be relocated. Construction would be performed in compliance with an approved tree protection plan and NYC Parks tree protection protocols. Any trees that are removed and not transplanted would be replaced, consistent with NYC Parks rules and regulations, which would include six new canopy trees and thirteen new understory trees that would be planted post-construction as part of the landscape plan for the western portion of the Park.

The proposed open space plan incorporates two enhancements that would result in a net increase in the amount of publicly accessible space in the park. Specifically, as part of the proposed project, the enlarged, approximately 27,137-square-foot Margaret Mead Green lawn, which is currently fenced and not open to the public, would be made available for managed public access in a manner consistent with and supportive of the current character of Theodore Roosevelt Park. It is anticipated that the lawn would continue to be fenced, access would be available through one or more public gates, and plantings and other improvements would be made within the lawn area. The Museum, in consultation with NYC Parks, would develop a proposed operating and maintenance plan for providing and managing public access to the lawn while also protecting the grass and surrounding plantings (e.g., during reseeding, wet conditions, etc.). In addition, a portion of the lawn area adjacent to the Columbus Avenue sidewalk between West 78th Street and West 79th Street would be made available for public access. This approximately 6,400-square foot lawn is located behind the Park boundary fence, between the existing entrance to the

Museum's West 78th Street service driveway and the proposed new entry paths in front of the proposed Gilder Center. The Museum, in consultation with NYC Parks, would develop a proposed operating and maintenance plan, as well as a design for any needed improvements (such as seating), for providing and managing public access within this area while also protecting the grass and surrounding plantings and maintaining security along the Museum's service driveway. The Museum also would consult with the Park Working Group as plans and designs for these two areas are developed for presentation to NYC Parks. These enhancements would respond to the project's loss of open space by increasing the amount of publicly accessible open space available to park users, resulting in a net increase with the proposed project.

Further, in conjunction with the proposed project, the Museum has committed to provide one hundred thousand dollars ($100,000) per year for a minimum of 10 years for the management and maintenance of Theodore Roosevelt Park.

To accommodate construction logistics, four newly planted, smaller caliper trees (two on the sidewalk and two in the bike lane traffic islands) would be temporarily moved prior to ~~the~~ commencement of construction and replanted (or replaced after completion of construction). The existing dog run is outside of the project area and would not be altered in conjunction with the proposed project, and the other paths in the Park would remain.

PUBLIC PROGRAMS AND EVENTS

The Museum presently hosts conferences, public programs, and events throughout the Museum campus; spaces within the proposed Gilder Center would be similarly utilized towards this purpose. The types of events include scientific symposia, academic conferences, exhibition previews, government agency or Museum meetings, educator evenings, outreach educational programs, public lectures and other public programming, and some events for Museum patrons and corporate sponsors. Consistent with the Museum's current practice, such programs and events would occur during Museum hours and after hours, and attendees would typically enter at the Museum entrance generally nearest to the location of the event.

SUSTAINABILITY

Background

As an institution dedicated to the understanding and preservation of the natural world, the Museum has a deep commitment to sustainability—in its facilities, its operations, and its scientific and educational programs.

In 1998, the Museum initiated a formal review of its sustainability practices and convened a cross-department Sustainable Practice Committee to explore and take advantage of new and existing strategies and technology. Between 2003 and 2013, with competitive funding from New York City and other sources, the Museum reduced energy consumption by 26 percent overall, including a 46 percent savings in the Bernard Hall of North American Mammals; and it is currently in the process of installing new energy efficient fixtures, lighting control systems and lighting that will further advance this goal. Construction practices include recycling up to 75 percent of refuse on capital projects and procurement of sustainably harvested "smart wood." Staff and visitors are also involved in sustainability: the Museum encourages "green practices" throughout the complex, including office energy savings, multi-stream recycling, and reusable bottles or cups rather than plastic water bottles. A recent program diverts pre-consumer food waste for use as topsoil and fertilizer. On an ongoing basis, the analysis of new and emerging

opportunities to reduce the Museum's carbon footprint is continuing. Plans include an update of a 2008 energy audit that will help in analysis and prioritization of needs and next steps.

The work of the Museum's Center for Biodiversity and Conservation and of scientists across the institution provide a broader frame for these efforts and the Museum's commitment. Their research underscores the fragility of the planet, the impacts of anthropogenic climate change, the importance of protecting biodiversity, and the role of individuals and institutions. With an education as well as a science mission, the Museum communicates these messages through its public programs, exhibitions, and out of school time experiences for K-12 students.

Gilder Center Sustainability Planning

As noted above, one of the proposed project's goals is to enhance the sustainability features of the Museum. As planning for the Gilder Center continues, the design team is collaborating with Atelier Ten, an international environmental consulting firm on an enhanced integrated approach to sustainability. Strategies include water efficient landscaping with adaptive vegetation and retention of storm water on site; a high performance building envelope; ample natural daylight coupled with fritted glass for shading and bird safety; lighting designs that consider impact on the night sky; and water conservation strategies including collecting water from the roof and from HVAC systems and various possible reuses of gray water. The collaborative effort will continue as the design is advanced, with a commitment to seeking the US Green Building Council's Leadership in Energy and Environmental Design (LEED) Gold certification level.

Several design aspects of the proposed project incorporate passive sustainability features. The Gilder Center would be an addition to the existing Museum, and is, therefore, efficient by virtue of being an infill project that requires less new infrastructure, benefiting from the efficiency of combined energy systems with the existing Museum. The design includes renovated space and reuse of existing assets, reducing the need for new construction. The extensive interconnection with the Museum campus would allow the institution overall to function more effectively, reducing the need for new space. The Gilder Center would be largely surrounded by existing buildings, reducing the exterior envelope and increasing energy efficiency and increasing self-shading.

Chapter 13, "Greenhouse Gas Emissions," includes a description of relevant measures to reduce energy consumption and GHG emissions that could be incorporated into the proposed project.

GILDER CENTER ADMISSIONS

The Gilder Center would follow the Museum's admission policies. New York City school and camp visits are free of charge. Some key features at the Museum, like the Space Show and the 3D films in the LeFrak Theater, require an additional charge to visit. It is expected that certain elements in the Gilder Center would require the additional charge, such as the Invisible Worlds Theater and the relocated Butterfly Vivarium.

MUSEUM ATTENDANCE

Total attendance and utilization at AMNH was approximately 5.0 million in 2015. That figure primarily consists of approximately 4.1 million ticketed visitors, tracked through AMNH's ticketing system. The balance of the attendance includes visiting scientists, graduate school students, teachers, vendors, people attending conferences, public programs and events, visitors to free spaces, and other miscellaneous trips.

Absent the proposed project, annual ticketed visitation is estimated to grow at less than 1 percent per year, reaching approximately 4.4 million ticketed visitors by 2021. Based on historic attendance, non-ticketed attendance is expected to remain roughly flat at the current figure of approximately 900,000 per year. Therefore, accounting for non-ticketed attendance, total attendance, and utilization would be approximately 5.3 million by 2021, without the proposed project.

For conditions with the proposed project, based on an analysis of the Museum's historic attendance data and the impact of major capital projects at other museums and visitor attractions, annual ticketed attendance is estimated to increase by an additional approximately 630,000 visitors. Added to the ticketed attendance projection of 4.4 million absent the proposed project, this increase would result in just over 5.0 million ticketed visitors per year with the project. For purposes of conservatively estimating total building population based on historic trends, non-ticketed attendance is estimated to increase by an amount equivalent to 18 percent of incremental ticketed visitors; when added to the 630,000 ticketed attendance, this yields a total project attendance and utilization increment of approximately 745,000 annual visitors. Therefore, the total estimated attendance and utilization with the project is just over 6.0 million per year.

In addition, as typically occurs for a major new Museum facility, during the first year of operation there would likely be a more pronounced attendance increase, which is estimated to bring the ticketed increment to roughly one million and result in an overall annual attendance of up to 6.4 million following the opening. While the EIS analyses are appropriately focused on the more stabilized attendance increment, where relevant they also address the shorter term increase that would occur following the opening.

The methodology used to estimate the proposed project's effect on the Museum's attendance and utilization is described in **Appendix D-2**.

CONSTRUCTION

Construction of the proposed project is expected to begin in 2017 with an anticipated duration of 36 months. It is anticipated that the proposed project, if approved, would be completed by 2020, with its first full-year of operation in 2021.

D. PROPOSED ACTIONS

The Museum and its original buildings were created pursuant to New York State statutes passed between 1869 and 1875; then, an 1876 State statute set aside the entire site of Theodore Roosevelt Park for the Museum and authorized the City's then Department of Public Parks to enter into a contract (the Museum's lease) granting the Museum exclusive use of the buildings erected or to be erected in the park. Thus, the Museum is a permitted use in the Park, and no further legislative action or disposition of property is required. See **Appendix D-4** for the Museum's lease and **Appendix D-5** for the 1876 state statute authorizing the Museum's lease. Since Theodore Roosevelt Park is City-owned parkland, the project site does not bear a zoning designation and is not subject to the New York City zoning resolution.

However, the proposed project requires approval from NYC Parks pursuant to the Museum's lease, from DCLA for City funding, and from ESD for State funding. The new location of *The New York Times* Capsule requires the approval of PDC, which undertook a Conceptual level review on September 19, 2016 and noted that the proposed new location is respectful and

appropriate. A further application is required for Preliminary review of the relocation, including the methods and procedures for moving and reinstalling the artwork.

The Museum is a New York City Landmark (NYCL) and is listed on the State and National Registers of Historic Places (S/NR). Therefore, prior to making its determination, NYC Parks must obtain a report and approval from LPC, and ESD is required to undertake a historic preservation review in consultation with OPRHP.

LPC issued its Binding Report on November 2, 2016, approving the proposed design of the Gilder Center and modifications to the existing Museum complex and site, subject to LPC's further review and approval of final DOB filing drawings (see **Appendix A-3**). LPC's Binding Report is summarized in Chapter 5, "Historic and Cultural Resources."

E. ONGOING CAPITAL PROJECTS AT THE MUSEUM

As part of the Museum's ongoing management of capital projects, a range of improvements are typically made during any given year. These projects are not part of the proposed project and would proceed regardless of the status of the proposed project. Therefore, within the framework of the EIS, these projects will be considered part of the background condition in which the proposed project would be built. The program of ongoing projects includes repairs, upgrades, and construction of existing facilities and infrastructure. Specific projects are expected to include renovation of the Hall of Minerals and Gems, upgrade of chiller plant and cooling towers, mammology hides collection storage upgrade, replacement of bollards at the 77th Street and Central Park West entrances, and Section 17 elevator upgrades.

F. PROBABLE IMPACTS OF THE PROPOSED PROJECT

LAND USE, ZONING, AND PUBLIC POLICY

The proposed project would result in improvements to the Museum's existing cultural, educational, and scientific research uses, and would not introduce any new or incompatible uses. Three existing buildings within the Museum complex would be removed to accommodate the project, thereby minimizing the new building's footprint on land that is now open space in Theodore Roosevelt Park. The proposed project would enhance the accessibility of the Museum, improve internal circulation, and provide new modern spaces for exhibition, collections, education, and scientific research, among other functions.

The improvement of existing land uses within the project site would not result in a significant adverse impact on adjacent land uses in the study area, as the proposed project would not affect land use conditions outside of Theodore Roosevelt Park. AMNH is compatible with the surrounding mixed-use area, which includes other museum uses such as the New-York Historical Society and the Children's Museum of Manhattan. The Museum is a well-established use, as an 1876 State statute set aside the entire site of Manhattan Square (now Theodore Roosevelt Park) for the Museum. Museum uses are also permitted in residential zoning districts under the New York City Zoning Resolution, indicating that such uses are considered compatible with residential and other uses. As the types of uses would be the same as currently exist in the project site and in the study area, they would continue to be compatible with surrounding residential, commercial, institutional, and open space uses. The proposed project would benefit study area residents and the City as a whole by providing new and enhanced spaces for exhibition, collections, education, and scientific research, which would further AMNH's ability to carry out its mission. While the proposed project is not subject to zoning, the project has been reviewed by LPC, which indicated that the project's bulk is appropriate within the context of

its surrounding land uses and historic character. In addition, the proposed project would be consistent with applicable public policies.

Overall, the proposed project, which is an expansion of a long-established, permitted use in Theodore Roosevelt Park, would not result in any significant adverse impacts to land use, zoning, and public policy.

OPEN SPACE

The proposed project would reconfigure paths and landscaping in Theodore Roosevelt Park adjacent to the building site to accommodate the new building and to provide more areas for seating and circulation. The proposed project also would result in a reduction in available open space in Theodore Roosevelt Park of approximately 0.27 acres (approximately 11,600 square feet). While adverse, this loss of open space would not result in a significant adverse impact under the guidelines of the *CEQR Technical Manual*. Nearby sections of the Park and other resources in the area would accommodate the largely passive recreation activities displaced from the affected area. With the project's proposed landscaping modifications and improvements, park users would continue to have access to areas for gathering, play, and respite, as well as pathways for Museum entry and traversing the Park. The overall quality in the rebuilt portion of the Park would be improved (see **Figures S-20, S-21, and S-22~~S-16, S-17, and S-18~~**).

While the project would increase the number of Museum visitors and stimulate more activity on the Columbus Avenue side of the complex, this change would not overburden Park facilities, as the reconfigured Park paths would be expected to accommodate the anticipated pedestrian flow and there is a substantial supply of accessible open space in the immediate vicinity. The proposed project would expand areas available for gathering separated from the Museum entry paths and increase the number of benches available for park users.

It is currently expected that the proposed project would directly affect seven canopy trees in Theodore Roosevelt Park that would be removed and one understory tree that would be relocated. The Museum modified the design of the project with the goal of protecting and conserving two trees, a pin oak and an English elm. Construction would be performed in compliance with an approved tree protection plan and NYC Parks tree protection protocols. Any trees that are removed and not transplanted would be replaced, consistent with NYC Parks rules and regulations, which would include six new canopy trees and thirteen new understory trees that would be planted post-construction as part of the landscape plan for the western portion of the Park.

With respect to the surrounding neighborhood, the site is located in an area identified by the *CEQR Technical Manual* as well-served by existing open space resources. In the future with the proposed project, the anticipated ratio of 3.68 acres of open space per 1,000 residents in the surrounding ½-mile study area would be well above the City's planning goal of 2.5 acres per 1,000 residents and the City-wide community district median of 1.5 acres per 1,000 residents. The total and passive open space ratios per 1,000 residents would decrease by less than one percent compared to the future without the proposed project; this decrease would not substantially change the availability of open space resources for study area residents. Even taking Museum attendance and utilization into account, the total open space ratio would be above the City's planning goal and the City-wide community district median. In addition, as typically occurs for a major new Museum facility, during the first year of operation there would likely be a temporary attendance increase at all Museum entrances, including the primary entrance on Central Park West. This temporary condition would not be considered significant,

Proposed View towards Nobel Plaza from South

Proposed View towards Margaret Mead Green Lawn & Paved Terrace

Source: *Park Working Group*

Aerial View of Proposed Landscape with Street Trees

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Figure S-22

since it would be short-term and the area would continue to be well-served by open space resources.

The loss of the 0.27 acres with the proposed project does not represent a significant impact. Nonetheless, in response to the loss of open space, the proposed open space plan incorporates enhancements that would result in a net increase in publicly accessible open space with the proposed project along with an annual $100,000 contribution from AMNH for the management and maintenance of the Park for at least 10 years. Overall, the proposed project would not result in significant adverse impacts on open space resources.

SHADOWS

The analysis found that the proposed project would cast new shadows on Theodore Roosevelt Park in all seasons. The new shadows would fall primarily on portions of the adjacent Columbus Avenue entrance area that would be re-landscaped and reconfigured as part of the proposed project. New shadow would also fall on portions of the Arthur Ross Terrace in all seasons, but would be limited in extent, and would briefly fall on a very small area of the west façade of the Rose Center for Earth and Space in certain seasons. The analysis concluded that project-generated shadows would not significantly alter public use of the park or threaten the viability of trees or other vegetation. Therefore, the proposed project would not result in any significant adverse shadow impacts.

HISTORIC AND CULTURAL RESOURCES

The proposed project would not adversely impact archaeological resources, as LPC and OPRHP have determined that the project site does not possess archaeological significance.

The proposed scale, massing, and materials of the Gilder Center have been designed to respect the historic Museum setting and surrounding historic context that includes buildings within the Upper West Side/Central Park West Historic District and other historic resources located within 400 feet of Theodore Roosevelt Park. The proposed Gilder Center would be consistent with the heights of adjacent Museum Building 8 and Building 17 (the 1931 power house) fronting on Columbus Avenue, with materials, such as granite, complementing the materials of historic buildings at the Museum and in the study area. The granite for the Gilder Center is expected to either be Milford pink granite, the granite used for the Theodore Roosevelt Memorial main entry on Central Park West, or granite of a similar type and coloration to Milford pink. The proposed Gilder Center would not obscure significant Museum façades or Museum façades that have not previously been obscured or partially obscured from view.

The proposed project would require the removal of three buildings on the site of the proposed Gilder Center and connections to, and renovations of, spaces in adjoining Museum buildings. The proposed Gilder Center would occupy approximately 11,600 sf of existing open space and would include improvements to adjacent portions of Theodore Roosevelt Park, including creating curving paths and planted areas that would be in keeping with the naturalistic character of the park.

Two of the buildings that would be removed on the site of the proposed Gilder Center are of recent construction and not historically significant (the Weston Pavilion built in 2000 and Building 15A, a 1965 conversion of the original one-story south adjoining Boiler House portion of Building 15, the Museum's original Power House). A third, Building 15, the original Power House, was built in the early 20th century but has subsequently been substantially altered including full interior renovations and recladding and removal of original façades. Since

Building 15 was constructed as part of the 1874-1935 development of the Museum (although highly altered subsequently), demolition of this S/NR listed building would constitute a significant adverse impact on architectural resources. Therefore, a feasibility study was undertaken that evaluated the potential for avoiding the adverse impact in a manner that would allow the Museum to meet its program goals. This feasibility study was prepared in consultation with OPRHP and found that there are no prudent and feasible alternatives, as the alternatives all pose one or more constraints on the Museum's ability to meet its program goals and certain of the alternatives perpetuate or exacerbate the existing deficiencies the Museum is seeking to rectify with the proposed project. Furthermore, certain of the alternatives would a) result in a loss of publicly accessible open space including open space that is of concern to the community, b) would require that the Museum acquire off-site property which the Museum does not own nor have rights to, and c) would result in other potential adverse impacts to the historic character of the Museum.

Demolition of the buildings in the project site, followed by site preparation and construction of the Gilder Center, could potentially result in inadvertent damage to nearby historic Museum buildings if adequate precautions are not taken. Therefore, a Construction Protection Plan (CPP) would be developed in coordination with LPC and OPRHP to protect nearby historic Museum buildings. Historic resources in the study area surrounding Theodore Roosevelt Park would not be adversely affected by construction activities, as they are over 90 feet away from the proposed site of the Gilder Center.

Measures to partially mitigate the project's adverse impacts on architectural resources are set forth in a draft Letter of Resolution (LOR) to be executed among the Museum, OPRHP, and ESD. The draft LOR is included as **Appendix A-1**. Because the project site is a NYCL, the proposed project has been reviewed by LPC under the New York City Landmarks Law. LPC issued a Binding Report on November 2, 2016, based on information provided by the Museum, including a *Historic Preservation Background Research Report* prepared by Higgins Quasebarth & Partners (see **Appendix A-2**). The Binding Report approved the proposed design of the Gilder Center and modifications to the existing Museum complex and site, subject to LPC's further review and approval of final DOB filing drawings (see **Appendix A-3**).

URBAN DESIGN AND VISUAL RESOURCES

The proposed project would not have adverse effects on the urban design of the project site or study area. The proposed Gilder Center would be compatible with the height, massing, and proportions of the other buildings composing the Museum complex and with buildings in the study area. The design of the Gilder Center would be in keeping with the Museum's architectural history of constructing buildings in the style of their time, while simultaneously relating to the historic context in form, scale, massing, and materiality. The lighting plan would be in keeping with the surrounding area and consistent with other sides of the Museum complex. Although the proposed project would occupy a small section of Theodore Roosevelt Park, it would also widen the park entrance on Columbus Avenue making it more accessible, reconfigure the path network in front of the Museum, add benches, plant new trees, and include landscape improvements at other nearby locations. All of these improvements would enhance the visual quality and function of this section of the park. Further, by creating a more visible and accessible entrance to the Museum, the proposed project would improve the experience of Museum and park users in this area of Theodore Roosevelt Park resulting in beneficial effects on the streetscape and on pedestrians and park users.

The proposed Gilder Center would not obstruct any view corridors in the study area nor would it obstruct views of any visual resources. It would also not result in adverse visual effects to the Museum or Theodore Roosevelt Park, both of which are visual resources in the study area. The proposed Gilder Center would not obscure significant Museum façades or Museum façades that have not previously been obscured or partially obscured from view. The Gilder Center would obscure a portion of the newly restored west façade of Building 1; however this building is mostly blocked from public view. The Gilder Center would ~~include a two-story gallery adjacent to Building 1, which would~~ leave the newly restored west façade of Building 1 exposed ~~in this location~~ and visible to Museum visitors circulating through the ~~gallery~~building.

NATURAL RESOURCES

Construction of the proposed project would result in disturbance of areas that provide limited habitat to wildlife species common to urban areas. While the loss of this habitat area may displace individual wildlife to suitable available habitat in the vicinity of the project area, the displacement of some individuals of common urban species would not result in significant adverse impact to populations of these species within the New York City metropolitan region. The new building would incorporate design features that are recommended in the bird-safe building guidelines developed by NYC Audubon and others, including fritted glass, to deter daytime bird collisions. The new building would have a maximum height of 115 feet (with mechanical and elevator bulkheads), similar to that of the existing AMNH buildings, and would be far below building and other artificial structure heights (650 to 2,500 feet) associated with nighttime bird collisions. Thus, the new building is not expected to contribute to increased bird collision rates within the study area. Three planted willow oak (*Quercus phellos*) are to be removed during construction of the new building, however these individuals are not part of a natural population and do not constitute one of the "five or fewer sites or very few remaining individuals" of this species in New York State as is intended by the New York Natural Heritage Program (NYNHP) "S1" rank. Therefore the removal of these trees would not be considered a significant adverse impact to protected willow oak populations. In addition, landscaping and replacement and/or restitution for removed trees in compliance with Local Law 3 and Chapter 5 of Title 56 of the Rules of the City of New York would prevent adverse significant impacts to natural resources.

HAZARDOUS MATERIALS

The findings and conclusions of the Phase I and Phase II investigations revealed site conditions that are similar in type and extent of contaminants to many urban areas, including throughout Manhattan. The proposed project would have no known risks with respect to hazardous materials that cannot be controlled through the use of ~~the~~ measures commonly used at construction sites throughout New York City and further described in the Remedial Action Plan (RAP)~~identified below~~. These measures would be implemented prior to, during, and following construction of the proposed project to control or avoid the potential for human or environmental exposure to known or unexpectedly encountered hazardous materials. These measures are also consistent with those that are used to effectively protect human health and the environment at many sites, including sites where contamination types and extent are greater than those identified at the project site. The New York City Department of Environmental Protection (NYCDEP)-approved RAP and associated Construction Health and Safety Plan (CHASP) are provided in **Appendix E-4**.

~~As part of the environmental review process for the proposed project and based on the findings of the Phase I ESA, a Subsurface (Phase II) Investigation was performed in accordance with the~~

~~New York City Department of Environmental Protection (DEP) approved work plan to assess subsurface conditions at the project site.~~

~~The Phase II investigation included the collection of soil, groundwater, and soil vapor samples for laboratory analysis, the results of which would be used to establish construction and post-construction measures to be implemented as part of the proposed project. The measures, including pre-construction ACM surveys; soil stockpiling, soil disposal and transportation measures; dust control; contingency measures if additional petroleum storage tanks or other contamination should be unexpectedly encountered; and a minimum two foot clean fill buffer in any landscaped or uncapped areas, would be documented in a DEP-approved Remedial Action Plan (RAP) and associated Construction Health and Safety Plan (CHASP), which would be implemented during project construction.~~

TRANSPORTATION

Based on *CEQR Technical Manual* guidelines, most of the ~~D~~EIS analyses would not be warranted as the project's incremental visitation does not exceed certain specified thresholds for required analysis. However, in consideration of existing congested conditions experienced in the area and in response to public comments made during scoping of the DEIS, key traffic and pedestrian locations surrounding the Museum were included in the analyses. Because existing traffic and pedestrian conditions are already congested at times and susceptible to worsening in service levels, even small increases in traffic and pedestrian levels could result in significant adverse impacts. Since the maximum incremental increase at any of the impacted lane groups was projected to generate only 1 additional vehicle every 6 minutes in any of the peak hours, the reported change in vehicle delays are likely to be overstated due to these small increases in incremental traffic. Within this framework, traffic impacts were identified at three locations and pedestrian impacts at one location, as summarized below.

TRAFFIC

Traffic conditions were evaluated at ~~nine~~ eleven intersections for the weekday midday, weekday PM, and Saturday peak hours. In the 2021 With Action condition, significant adverse traffic impacts were identified at four intersections during the analysis peak periods. **Table S-1** provides a summary of the impacted locations by lane group and analysis time period. Potential measures to mitigate the projected traffic impacts are described in Chapter 17, "Mitigation."

Table S-1
Summary of Significant Adverse Traffic Impacts

Intersection		Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
EB/WB Street	**NB/SB Street**			
West 77th Street	Columbus Avenue			SB-L
West 81st Street	Central Park West		WB-L	WB-L
West 77th Street	Central Park West			NB-LT
Total Impacted Intersections/Lane Groups		**0/0**	**1/1**	**3/3**

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = Defacto Left Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound.

In accordance with the methodology of the *CEQR Technical Manual*, Saturday was selected for analysis as the peak weekend day based on traffic volumes. GrowNYC, a New York City-sponsored green market organization, hosts a Sunday year-round Greenmarket Farmers' Market (9:00 AM to 5:00 PM) on the east sidewalk of Columbus Avenue immediately adjacent to Theodore Roosevelt Park from 77th Street to 81st Street. While the Greenmarket is expected to

be relocated during construction of the proposed project, upon completion it could relocate back to its current location in front of the project site. An assessment of traffic conditions for the Sunday peak hour during the weekly Greenmarket operations determined that further detailed traffic analysis would not be warranted, as traffic volumes are lower in the traffic study area on Sunday relative to Saturday, and Museum attendance is also generally lower on Sundays relative to Saturdays. Therefore, traffic conditions and potential impacts would be similar to or less severe than those presented for the Saturday peak hour, and could be mitigated using the same recommended mitigation measures for the Saturday peak hour. (See below regarding analysis of Sunday pedestrian operations).

TRANSIT

A detailed analysis of station elements at the 81st Street/Museum of Natural History subway station was prepared. The results show that the proposed project would not result in any significant adverse impacts on circulation and control area elements at the 81st Street/Museum of Natural History station.

PEDESTRIANS

Pedestrian conditions were evaluated at ten sidewalks, four corners, and four crosswalks for the weekday midday, PM, and Saturday peak hours. In the 2021 With Action condition, a significant adverse impact was identified at one crosswalk during the Saturday peak hour, at Columbus Avenue and West 81st Street. The potential measure to mitigate the projected pedestrian impact is a one-foot crosswalk widening.

In accordance with the methodology of the *CEQR Technical Manual*, Saturday was selected for analysis as the peak weekend day based on pedestrian volumes. However, an analysis of pedestrian conditions at four sidewalks, two corners, and two crosswalks along Columbus Avenue for the Sunday peak hour was also conducted to assess the effects of pedestrian diversions and changes in pedestrian circulation patterns due to the Greenmarket operations. The results show that the proposed project would not result in any significant adverse pedestrian impacts at these locations during the Sunday peak hour.

VEHICULAR AND PEDESTRIAN SAFETY

Crash data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the time period between May 1, 2012, and April 30, 2015. A rolling total of accident data identified no high accident locations in the 2012 to 2015 period. As defined in the *CEQR Technical Manual*, a high accident location is one where there were 48 or more total crashes (reportable and non-reportable) or five or more pedestrian/bicycle injury crashes in any consecutive 12 months of the most recent 3-year period for which data is available. Therefore, the proposed project is not expected to result in a significant adverse vehicular and pedestrian safety impact.

PARKING

Accounting for the incremental parking demand generated by the proposed project, off-street public parking utilization is expected to increase to 73, 81, and 66 percent of total off-street parking capacity during the weekday midday, weekday PM, and Saturday peak periods respectively. Since these parking utilization levels are within the area's parking capacity, the proposed project is not expected to result in the potential for a parking shortfall or a significant adverse parking impact. The No Action condition accounts for t~~T~~he implementation of Select Bus Service (SBS) on 81st Street, reflecting~~could result in~~ the loss of parking spaces on the

south curbside of West 81st Street between Central Park West~~Amsterdam Avenue~~ and Columbus Avenue. In addition, in conjunction with the SBS implementation there is~~would be~~ increased weekday parking for school buses along northbound Central Park West. Parking demand displaced by these reductions in on-street parking capacity would~~could~~ be absorbed by available parking capacity elsewhere in the surrounding neighborhood.

AIR QUALITY

The proposed project would not result in any significant air quality impacts.

Incremental vehicle trips are not expected to exceed the *CEQR Technical Manual* carbon monoxide (CO) or fine particulate matter (PM2.5) emission screening thresholds. Therefore, no mobile source analysis is required.

There are no large or major emission sources, as defined in the *CEQR Technical Manual*, within a distance of 1,000 feet of the project site. Therefore, no assessment of large or major emission sources is warranted.

Heating, ventilation, and air conditioning (HVAC) systems serving the Museum are currently steam and/or electrically powered. It is expected that the proposed project would be steam and/or electricity powered and that no new systems would be installed. While the project would include a new rooftop emergency generator, under CEQR no analysis is needed for systems used only occasionally for backup purposes. Therefore, no assessment of potential stationary air quality impacts is warranted.

GREENHOUSE GAS EMISSIONS

The Museum is currently evaluating the specific energy efficiency measures and design elements that may be implemented, and is seeking to achieve Gold-level certification under the LEED rating system, version 4. The applicant is committed at a minimum to achieve the prerequisite energy efficiency requirements under LEED and would likely exceed them. To qualify for LEED, the project would be required to exceed the energy requirements of ASHRAE 90.1-2010, resulting in energy expenditure lower than a baseline building designed to meet but not exceed that standard by 5 percent. Given the LEED Gold target, the project is seeking at least 26 percent reduction in energy expenditure relative to ASHRAE 90.1-2010. New York City has recently adopted enhancements to the building energy code, applying the ASHRAE 90.1-2013 standard. It is estimated that meeting the minimum prerequisite requirements for LEED would result in energy expenditure that is 2 to 4 percent lower than the minimum New York City building code requirements, and the LEED Gold target will result in much higher reductions. The current design includes measures which achieve much higher reduction in GHG emissions relative to code. The project's commitment to building energy efficiency, substantially exceeding the building code energy requirements, ensures consistency with the efficient buildings goal defined in the *CEQR Technical Manual* as part of the City's GHG reduction goal. The project would also reduce emissions indirectly by using sustainable and recycled materials, and reducing water consumption and runoff.

The proposed project would also support the other GHG goals identified in the *CEQR Technical Manual* by virtue of its nature and location: its proximity to public transportation, reliance on Con Edison steam and combined cooling water system with the existing Museum, and the fact that as a matter of course, construction in New York City uses recycled steel and includes cement replacements. All of these factors demonstrate that the proposed development supports the GHG reduction goal.

Therefore, based on the commitment to energy efficiency and sustainable design, and by virtue of its location, the proposed project would be consistent with the City's emissions reduction goals, as defined in the *CEQR Technical Manual*.

NOISE

The proposed project would not result in any significant adverse noise impacts. The proposed project would not generate sufficient traffic to have the potential to cause a significant noise impact. Columbus Avenue is already a busy and heavily trafficked roadway, with relatively high levels of noise from vehicular traffic. The building's mechanical systems would be designed to meet all applicable noise regulations and to avoid producing levels that would result in any significant increase in ambient noise levels. Therefore, the proposed project would not result in any significant adverse noise impacts related to building mechanical equipment. Noise generated by the relocated service and loading area would not have the potential to adversely affect nearby receptors, as the new location would be shielded from nearby receptors due to its location in the below-grade space of the proposed expansion and would be farther away from any noise receptors than the existing loading dock. The proposed project, when completed and occupied, would not have the potential to affect noise levels within the surrounding Theodore Roosevelt Park, or nearby residences; rather, loading dock noise is expected to be reduced compared to existing conditions because the proposed project would move the loading dock to a place where it is shielded from the surrounding Park and residences.

With regard to the interior noise environment of the Gilder Center, the proposed project would provide acoustically rated windows and air conditioning as an alternate means of ventilation. The building façade, including these elements, would provide a composite Outdoor-Indoor Transmission Class (OITC) such that interior noise levels would be less than CEQR guidelines of 45 dBA for museum, theater, classrooms, and education spaces, and less than 50 dBA for office rooms, meeting rooms, and retail uses.

PUBLIC HEALTH

The proposed project would have no known risks with respect to hazardous materials that cannot be controlled through the use of the measures described in Chapter 8, "Hazardous Materials," and Chapter 15, "Construction." The measures, including pre-construction ACM surveys; soil stockpiling, soil disposal and transportation measures; dust control; contingency measures if additional petroleum storage tanks or other contamination should be unexpectedly encountered; and a minimum two foot clean fill buffer in any landscaped or uncapped areas, ~~would be~~were documented in a NYCDEP-approved Remedial Action Plan RAP and associated CHASP, which would be implemented during project construction.

As analyzed in Chapter 10, "Air Quality," there would not be any significant adverse air quality impacts and as analyzed in Chapter 15, "Construction," construction activities associated with the proposed project would not result in any significant adverse stationary or mobile source air quality impacts. The proposed project would adhere to *New York City Air Pollution Control Code* regulations regarding construction-related dust emissions, and to *New York City Administrative Code* limitations on construction-vehicle idling time.

As analyzed in Chapter 12, "Noise," there would not be any significant adverse noise impacts upon completion of construction. As analyzed in Chapter 15, "Construction," construction of the proposed project would not only include noise control measures as required by the *New York City Noise Control Code*, but would include additional measures such as the use of quieter equipment (i.e., cranes, ~~quieter~~ generators, person lifts, landscaping excavators, and landscaping

loaders), materials delivery and truck queuing within the enclosed construction area rather than on the street, additional shielding of equipment, and the installation of partially enclosed structures to house the concrete pump and two concrete mixer trucks as they access the pump and to house concrete mixer trucks as they are washed out before leaving the site. Notwithstanding these noise control measures, the updated construction noise analysis identified locations that would experience temporary exceedances of *CEQR Technical Manual* noise impact criteria. At times over the course of construction of the proposed project, and particularly during the most noise-intensive construction activities, noise would be readily noticeable and potentially intrusive.

At open space receptors within Theodore Roosevelt Park the greatest noise levels during construction were predicted to occur intermittently over the course of up to approximately 13 months. At the nearest residential receptors to the construction work area, the greatest noise levels during construction were predicted to occur intermittently over the course of up to approximately 3 months. While the noise from construction would be noticeable at times, the duration of the highest levels of construction noise at any given area would be limited and would typically occur during weekday daytime hours, rather than during the evening or night-time hours when residences are most sensitive to noise. At other receptors near the project area, including school receptors, noise resulting from construction of the proposed project may at times be noticeable, but would be temporary and would generally not exceed typical noise levels in the general area. Furthermore, the expected levels of noise are typical of New York City construction projects and would comply with all *New York City Noise Control Code* and DOB restrictions on construction noise. Based on the limited duration of the predicted construction noise, the moderate total noise levels during most of the construction period, and the other factors discussed above, construction noise associated with the proposed project would not be expected to result in significant adverse impacts.

~~the detailed construction noise analysis identified two residential buildings (101 and 112 West 79th Street [which uses the address 118 West 79th Street]) where construction of the proposed project would result in increases in noise levels that would exceed CEQR noise impact criteria and result in interior noise levels that exceed CEQR noise exposure guidance at times throughout the 36-month construction period. While the expected levels of noise are typical of New York City construction projects and would comply with all *New York City Noise Control Code* and DOB restrictions on construction noise, the level and duration of construction noise at these buildings would constitute a temporary significant adverse noise impact under SEQRA and CEQR. The highest levels of construction noise at these receptors would result from rock excavation using mounted impact hammers. The greatest noise levels would occur intermittently over a period of approximately 5 months. However, the predicted impacts at 101 and 112 (118) West 79th Street could be fully mitigated using either receptor control measures or source control measures, as described in Chapter 17, "Mitigation."~~ Accounting for the proposed construction and logistics plan, construction noise from the proposed project does not represent a significant impact. Nonetheless, because receptor control measures were previously considered for 101 West 79th Street and 112 (118) West 79th Street based on the findings of the DEIS (i.e., storm windows and air conditioning units at residences that do not already have air conditioning), AMNH has committed to make an offer of these measures to residents of those two buildings. In addition, the predicted construction noise levels would be below relevant health-based thresholds, including World Health Organization (WHO) and Occupational Health and Safety Administration (OSHA) thresholds for potential hearing damage. Outside of the construction work hours, nearby residences and open space users would not experience elevated noise levels

as a result of construction. Consequently, the predicted ~~significant adverse~~ construction noise levels ~~impacts~~ would not have the potential to result in a significant adverse public health impact.

Therefore, the proposed project would not result in significant adverse public health impacts.

NEIGHBORHOOD CHARACTER

The proposed project would not substantially change the character of the neighborhood. The Museum, notable open space resources, and well-trafficked streets and sidewalks are well established defining features of the character of the neighborhood. With the exception of historic resources and transportation, the proposed project would not result in significant adverse impacts that could impact neighborhood character. The impacts in those two areas would not be of a scale or character as to adversely impact neighborhood character. In addition, the proposed project would not result in a combination of moderate effects to several elements that could cumulatively impact neighborhood character. Overall, the proposed project would be consistent with the existing character of the neighborhood and would not result in any significant adverse impacts on neighborhood character.

CONSTRUCTION

Construction of the proposed project—as is the case with most large construction projects—would result in temporary disruptions in the surrounding area and therefore temporary significant adverse impacts. However, AMNH has committed to implementing a variety of measures during construction to minimize impacts to the nearby community, including:

COMMUNICATION WITH COMMUNITY

- Members of the communities would be informed of upcoming construction activities through notifications and/or newsletters. A construction working group would be established during construction of the proposed project to serve as the contact for the community and local leaders, and would be available to address concerns or problems that may arise during the construction period. There would also be an email address and 24-hour project telephone hotline established for members of the community to report concerns. In addition, New York City maintains a 24-hour telephone hotline (311) so that concerns can be registered with the city.

COMMUNITY SAFETY

- A number of measures would be employed to ensure public safety during the construction of the proposed project including the employment of flaggers and the installation of safety nettings;
- Maintenance and Protection of Traffic (MPT) plans would be developed to ensure the safety of pedestrian, bicyclist, and vehicle circulation near the project site during construction of the proposed project. Approval and implementation of these plans would be coordinated with the New York City Department of Transportation (DOT)'s Office of Construction Mitigation and Coordination (OCMC); and
- The existing pedestrian entrance to Theodore Roosevelt Park on West 79th Street to the west of the project site would be temporarily relocated further north to a location just north of West 80th Street so Park users would continue to have access from Columbus Avenue to pathways in other areas within the Park for circulation and passive recreation during construction.

ENVIRONMENTAL PERFORMANCE

- An emissions reduction program would be implemented during construction to minimize the effects on air quality and would include measures such as the use of dust control, ultra-low sulfur diesel (ULSD) fuel, best available tailpipe technologies, and newer and cleaner equipment;
- A NYCDEP-approved RAP and associated CHASP would be implemented during project construction. The RAP and CHASP ~~would~~ address requirements for items such as pre-construction ACM surveys, soil stockpiling, soil disposal and transportation; dust control; contingency measures if additional petroleum storage tanks or other contamination should be unexpectedly encountered; and a minimum two foot clean fill buffer in any landscaped or uncapped areas, designed to control or avoid the potential for human or environmental exposure to known or unexpectedly encountered hazardous materials during and following construction of the proposed project;
- Construction of the proposed project would not only include noise control measures as required by the *New York City Noise Control Code*, but would include additional measures such as the use of quieter equipment (i.e., cranes, ~~quieter~~ generators, person lifts, landscaping excavators, and landscaping loaders), materials delivery and truck queuing within the enclosed "construction area" (the project site and the associated construction staging area) rather than on the street, additional shielding of equipment, and the installation of a partially enclosed structures to house the concrete pump and two concrete mixer trucks as they access the pump and to house concrete mixer trucks as they are washed out before leaving the site;
- A CPP would be developed in coordination with LPC and OPRHP to protect nearby historic Museum buildings; and
- All work would be performed in compliance with Local Law 3 of 2010 and the NYC Parks Tree Protection Protocol approved by the NYC Parks Manhattan Borough Forester, to minimize potential adverse impacts to existing trees that will remain in place during construction.

With the measures described above in place, the construction effects of the proposed project on the surrounding area would be substantially reduced. As described in detail below, construction activities associated with the proposed project would result in temporary significant adverse traffic ~~and noise~~ impacts. Additional information for key technical areas is summarized below.

TRANSPORTATION

Based on the construction trip projections, construction of the proposed project would result in significant adverse traffic impacts, during peak construction, at one study area intersection in the weekday PM construction peak hour—Columbus Avenue and West 81st Street. The significant adverse impact at the Columbus Avenue and West 81st Street intersection could be fully mitigated by applying minor temporary shifts in signal timing.

No significant adverse impacts to transit, pedestrian, or parking conditions due to construction are anticipated.

AIR QUALITY

Construction activities associated with the proposed project would not result in any significant adverse stationary or mobile source air quality impacts. To minimize the effects of the proposed

project's construction activities on the surrounding community, the proposed project would implement an emissions reduction program that would include, to the extent practicable: diesel equipment reduction, the use of ULSD fuel; best available tailpipe reduction technologies; and the utilization of newer equipment. The proposed project would also adhere to *New York City Air Pollution Control Code* regulations regarding construction-related dust emissions, and to *New York City Administrative Code* limitations on construction-vehicle idling time.

NOISE

Between the Draft EIS and Final EIS, AMNH modified the construction logistics plan and examined additional noise control measures to reduce the magnitude and duration of noise that would occur at nearby receptors as a result of construction of the proposed project. Changes include selection of quieter equipment, reductions in truck activity, and modification of the construction schedule. The construction schedule was also updated based on additional information from the geotechnical report for the project site, indicating that rock excavation would occur over a shorter period (3 months rather than the 5 months accounted for in the DEIS), and that pile installation for support of excavation (SOE) would be necessary over a duration of approximately 3 months during substructure work. These changes are reflected in the FEIS construction noise analysis, which includes detailed noise modeling for multiple stages during the construction period.

The construction noise analysis accounts for the following noise control commitments. Construction of the proposed project would not only include noise control measures as required by the *New York City Noise Control Code*, but would include additional measures such as the use of quieter equipment (i.e., cranes, ~~quieter~~ generators, person lifts, landscaping excavators, and landscaping loaders) materials delivery and truck queuing within the enclosed construction area rather than on the street, additional shielding of equipment, and the installation of partially enclosed structures to house the concrete pump and two concrete mixer trucks as they access the pump and to house concrete mixer trucks as they are washed out before leaving the site. ~~Notwithstanding these noise control measures, the detailed construction noise analysis identified two residential buildings (101 and 112 West 79th Street [which uses the address 118 West 79th Street]) where construction of the proposed project would result in increases in noise levels that would exceed CEQR noise impact criteria and result in interior noise levels that exceed CEQR noise exposure guidance at times throughout the 36-month construction period. While the expected levels of noise are typical of New York City construction projects and would comply with all New York City Noise Control Code and DOB restrictions on construction noise, the level and duration of construction noise at these buildings would constitute a temporary significant adverse noise impact under SEQRA and CEQR. The highest levels of construction noise at these receptors would result from rock excavation using mounted impact hammers. The greatest noise level increments up to 12 dBA would occur intermittently over a period of approximately 5 months and noise level increments up to 9-11 dBA are predicted for the other 31 months of construction. However, the predicted impacts at 101 and 112 (118) West 79th Street could be fully mitigated using either receptor control measures or source control measures, as described in Chapter 17, "Mitigation." Mitigation options include receptor controls (i.e., provision of storm windows and air conditioning units at residences that do not already have air conditioning) or source controls (i.e., quieter equipment, changes to the logistics plan, alternative noise barriers or other shielding methods). Between the DEIS and Final EIS (FEIS), further noise reduction measures to reduce or eliminate the potential for these temporary significant construction noise impacts will be considered and evaluated.~~

Notwithstanding these noise control measures, at times over the course of construction of the proposed project, and particularly during the most noise-intensive construction activities, noise would be readily noticeable and potentially intrusive.

At open space receptors within Theodore Roosevelt Park ~~and nearby residential receptors~~, the greatest noise levels during construction were predicted to occur intermittently over the course of up to approximately ~~14~~ 13 months. At the nearest residential receptors to the construction work area, the greatest noise levels during construction were predicted to occur intermittently over the course of up to approximately ~~5~~ 3 months. While the noise from construction would be noticeable at times, the duration of the highest levels of construction noise at any given area would be limited and would typically occur during weekday daytime hours, rather than during the evening ~~and weekend peak usage periods for the Park~~ or night-time hours when residences are most sensitive to noise. At other receptors near the project area, including school receptors, noise resulting from construction of the proposed project may at times be noticeable, but would be temporary and would generally not exceed typical noise levels in the general area. Furthermore, the expected levels of noise are typical of New York City construction projects and would comply with all *New York City Noise Control Code* and DOB restrictions on construction noise. Based on the limited duration of the predicted construction noise, the moderate total noise levels during most of the construction period, and the other ~~these~~ factors discussed above, construction noise associated with the proposed project ~~at these receptors~~ would not be expected to result in significant adverse impacts.

~~The conclusions of the construction noise analysis as described above are based on truck access and construction staging being shielded from surrounding receptors by site perimeter barriers. In the absence of an approval for the proposed site perimeter barrier configuration, if alternative noise control measures are not identified, noise levels at surrounding receptors could be approximately 4 dBA higher during truck staging operations, which would result in unavoidable significant adverse impacts.~~

~~At other receptors near the project area, including residential, school, and hospital receptors, noise resulting from construction of the proposed project may at times be noticeable, but would be temporary and would generally not exceed typical noise levels in the general area and so would not rise to the level of a significant adverse noise impact.~~ Accounting for the proposed construction and logistics plan, construction noise from the proposed project does not represent a significant impact. Nonetheless, because receptor control measures were previously considered for 101 West 79th Street and 112 (118) West 79th Street based on the findings of the DEIS (i.e., storm windows and air conditioning units at residences that do not already have air conditioning), AMNH has committed to make an offer of these measures to residents of those two buildings.

VIBRATION

Vibration resulting from construction of the proposed project is not expected to result in exceedances of the acceptable limit specified by DOB *Technical Policy and Procedure Notice (TPPN) #10/88*, including at the adjacent existing Museum buildings. Vibration monitoring would be required by the project's CPP for existing historic Museum buildings adjacent to demolition and excavation work to ensure vibration does not exceed the acceptable limit for historic structures. In terms of potential vibration levels that would be perceptible and annoying, the pieces of equipment that would have the most potential for producing levels that exceed the 65 VdB limit are impact pile drivers, hydraulic break rams, and drill rigs. They would produce perceptible vibration levels (i.e., vibration levels exceeding 65 VdB) at receptor locations within

a distance of approximately ~~135~~ 550 feet. However, the operation of this equipment would only occur for limited periods of time at a particular location. While the vibration may be noticeable at times, it would be temporary and would consequently not rise to the level of a significant adverse impact.

OPEN SPACE

Portions of Theodore Roosevelt Park would be closed for the duration of the approximately three-year-long construction period to accommodate the construction of the proposed project. While a temporary displacement, this loss of open space would not result in a significant adverse impact. Nearby sections of the Theodore Roosevelt Park and other open space resources in the area such as Central Park would accommodate the largely passive recreation activities displaced from the affected area. The existing pedestrian entrance to Theodore Roosevelt Park on West 79th Street to the west of the project site would be temporarily relocated further north to a location just north of West 80th Street so Park users would continue to have access from Columbus Avenue to sidewalks or pathways in other areas of the park for circulation and for passive recreation during the entire construction period. Additional portions of Theodore Roosevelt Park would be closed for a shorter period while improvements are being made but when complete, the overall quality in the rebuilt portion of the Park would be enhanced, including landscaping and circulation improvements. Construction may generate noise that could impair the enjoyment of Theodore Roosevelt Park users, but such noise effects would be temporary. As described above under "Noise," construction of the proposed project would be required to follow the requirements of the *NYC Noise Control Code* and would use additional measures to minimize the effects of the proposed project's construction.

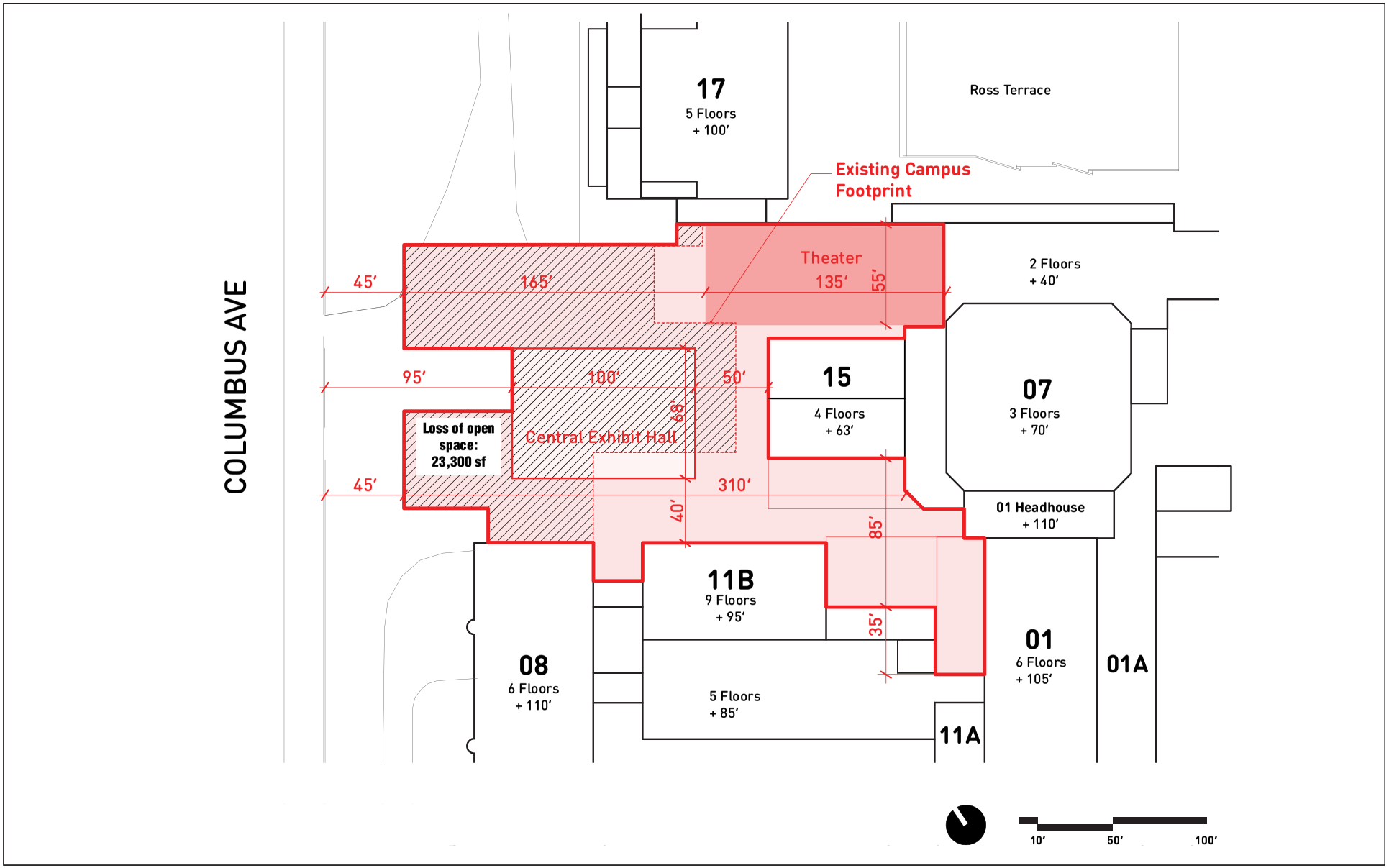
BULL MOOSE DOG RUN RECONSTRUCTION

Independent of the proposed Gilder Center project, NYC Parks is developing plans to reconstruct and upgrade the approximately 0.29 acre Bull Moose Dog Run, on the 81st Street side of Theodore Roosevelt Park. Given the small area of disturbance, the limited duration of approximately 12 months, as well as the landscaping-type nature of the construction activities, the potential overlap of the Dog Run project construction with the Gilder Center construction is not expected to result in significant adverse cumulative impacts.

ALTERNATIVES

The analysis considers eight alternatives to the proposed project:

- Alternative 1: No Action Alternative, which is mandated by SEQRA and CEQR, and is intended to provide the lead and involved agencies with a baseline assessment of the consequences of not approving the proposed project. The No Action Alternative assumes the Museum remains in its current condition.
- Alternative 2: Reuse of Administrative Space Alternative, in which some of the project's proposed program elements are located within existing administrative space rather than within newly constructed areas. In this alternative, a portion of the Museum's administrative functions would have to be moved off-site.
- Alternative 3: Expanded Footprint Alternative, which avoids the demolition of Building 15 (a contributing building to the S/NR-listed Museum complex) by extending the development area farther into Theodore Roosevelt Park, beyond the proposed project's development footprint (see **Figures S-23~~S-19~~ and S-24~~S-20~~**).



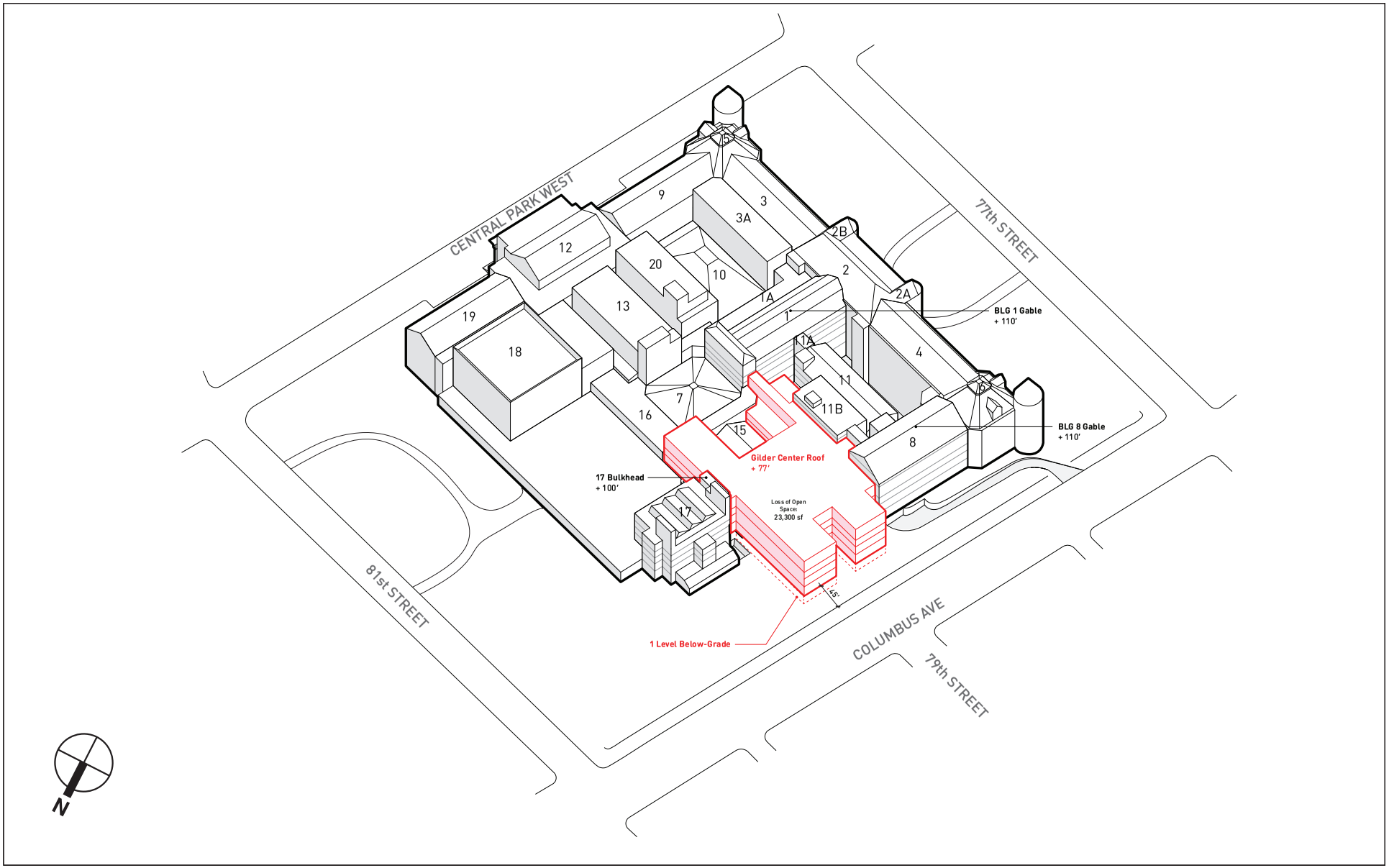
Alternative 3 Building Footprint

Loss of Open Space

AMNH Gilder Center for Science, Education, and Innovation

Alternative 3
Conceptual Site Plan
Figure S-23

10.6.17



Alternative 3 Building Footprint

Below- Grade Footprint

Alternative 3
Conceptual View of AMNH Campus
Figure S-24

- Alternative 4: Infill Alternative, which would avoid the demolition of Building 15 (a contributing building to the S/NR-listed Museum complex) and the loss of open space in Theodore Roosevelt Park by constructing above Building 17 and abutting Building 15 (see **Figures S-25 and S-26~~S-21 and S-22~~**).
- Alternative 5: Reduced Footprint Alternative A, which would avoid the loss of open space in Theodore Roosevelt Park by limiting new construction to the area occupied by existing Museum buildings; this alternative includes the demolition of Building 15 (see **Figures S-27 and S-28~~S-23 and S-24~~**).
- Alternative 6: Reduced Footprint Alternative B, which would avoid the loss of open space in Theodore Roosevelt park by limiting new construction to the area occupied by existing Museum buildings; this alternative includes the demolition of Building 15. It would have the same footprint but would be two levels taller than Alternative 5, above, with only one below-grade level (see **Figures S-29 and S-30~~S-25 and S-26~~**).
- Alternative 7: Ross Terrace Alternative, which would avoid the demolition of Building 15 and the loss of open space in Theodore Roosevelt Park by moving the development site to the Ross Terrace above the AMNH garage; the existing publicly open space at the Ross Terrace would be eliminated (see **Figures S-31 and S-32~~S-27 and S-28~~**).
- Alternative 8: Off-Site Alternative, in which the proposed project is constructed at an off-site location. This alternative is assumed to have a similar size and program as the proposed project. Since the Museum does not own or own a right to such a property, the location and characteristics of an alternative site are unknown.

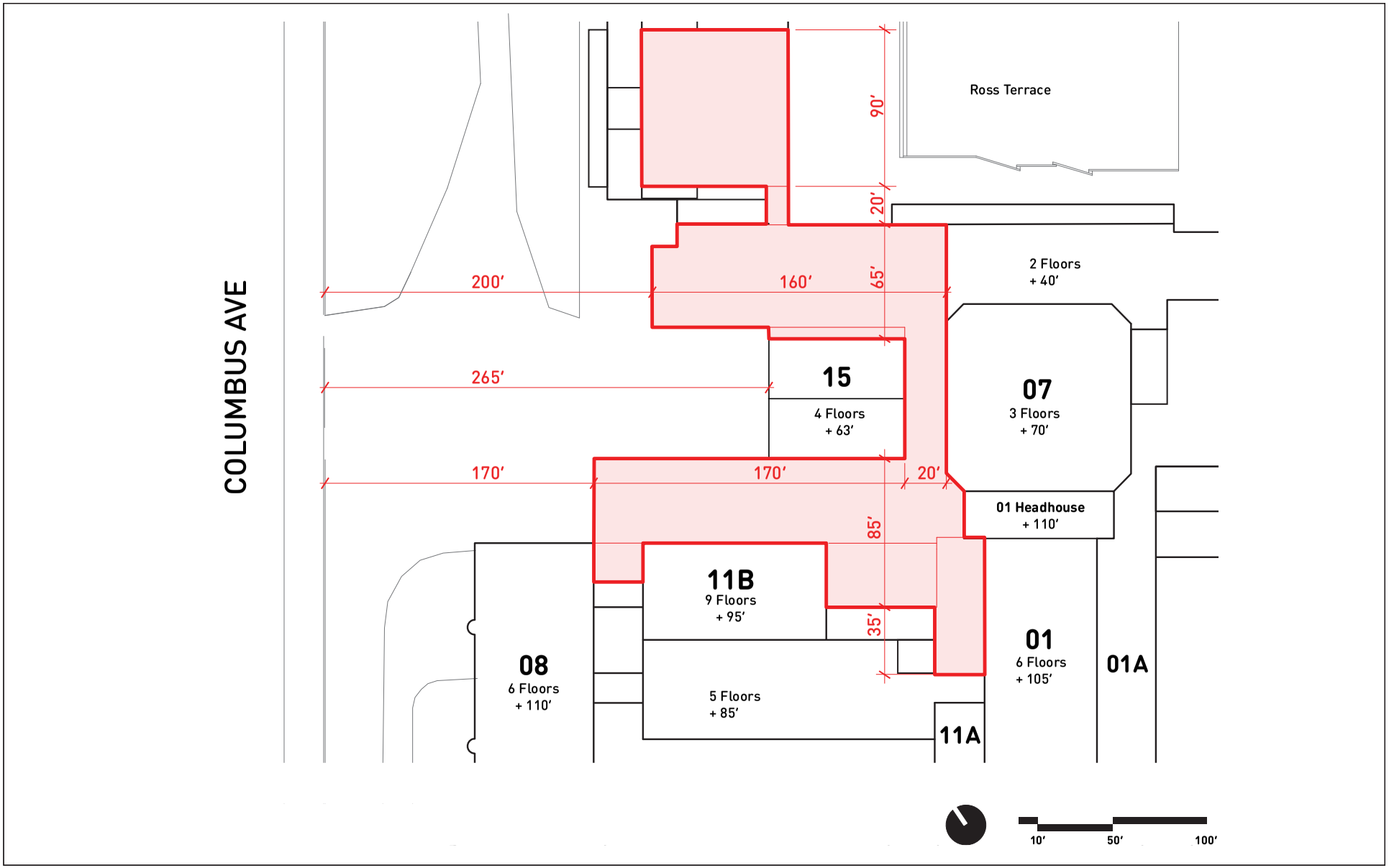
The conclusions of the alternatives analysis with regard to each of these alternatives are provided below.

ALTERNATIVE 1: NO ACTION ALTERNATIVE

The No Action Alternative would not accomplish any of the objectives of the proposed project. The Gilder Center would not be constructed and the portion of the Park in front of the Weston Pavilion would retain its current design. Substantial spaces for science and education programming, exhibits, and collections would not be created, and constrained circulation within the Museum would not be improved.

ALTERNATIVE 2: REUSE OF ADMINISTRATIVE SPACE ALTERNATIVE

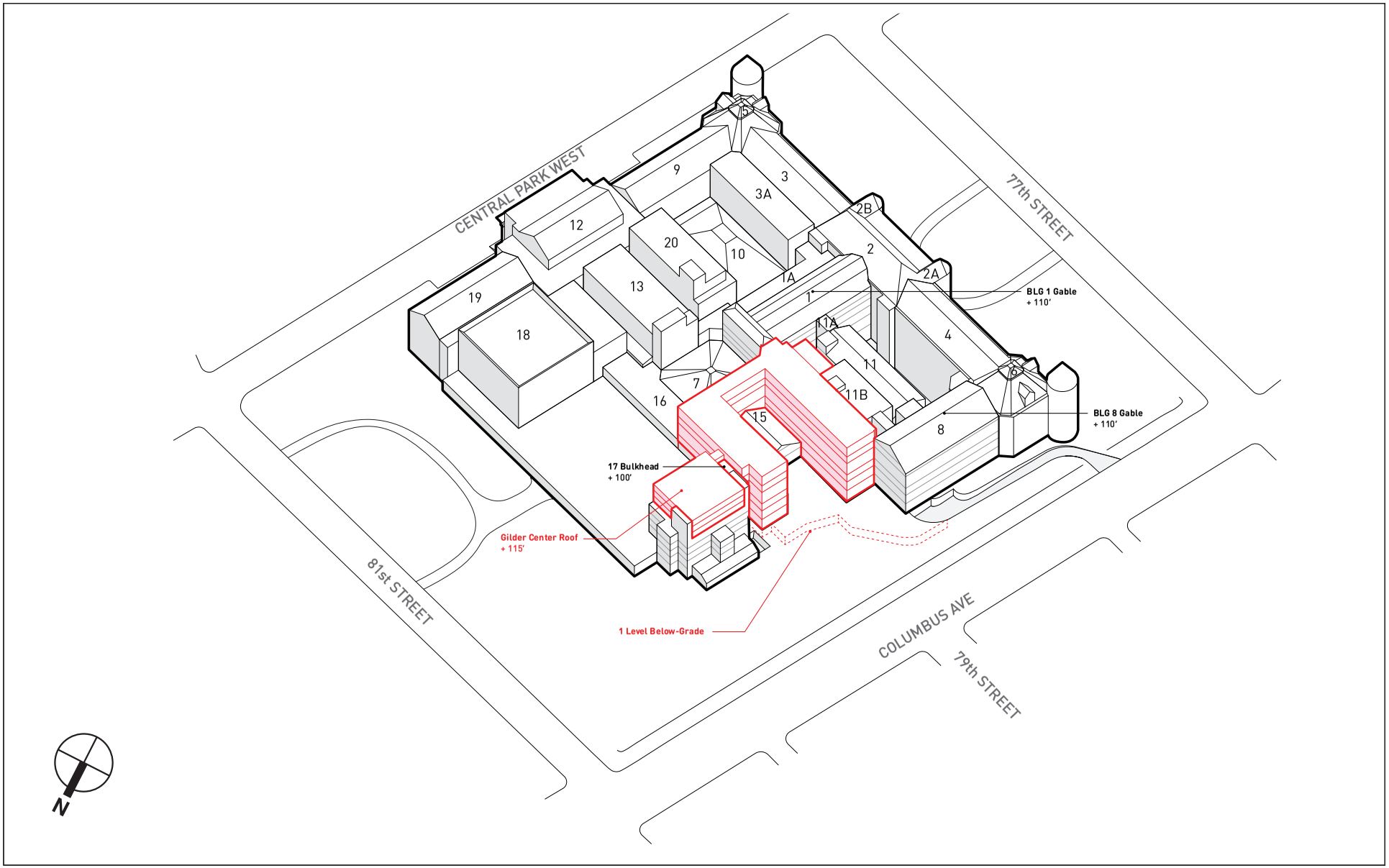
Alternative 2 would not achieve the objectives of the proposed project. Under this alternative, some of the project's proposed program elements would be located within existing administrative space rather than within newly constructed areas, and a portion of the Museum's administrative functions would have to be moved off-site. As described in Chapter 1, "Project Description," the space planning effort for the proposed project identified the need for the construction of an addition to the Museum to address the key deficiencies within the Museum. This alternative would exacerbate the existing problem of spaces that are fragmented and difficult to access, and would not improve circulation or the connectivity, spatial logic, and function of the Museum's interior spaces, as navigation through the Museum would continue to be confusing and complex. Important program elements of the proposed project, such as the cohesive design of exhibition and education spaces, the Collections Core and the Invisible Worlds Theater, would not be accommodated under this alternative, since adequately sized and located space would not be available. Without improvements to circulation and the added space of the proposed project, this alternative would not address the attendance growth expected to occur with or without the proposed project, leading to additional crowding in the Museum.



Alternative 4 Building Footprint

Alternative 4
Conceptual Site Plan
Figure S-25

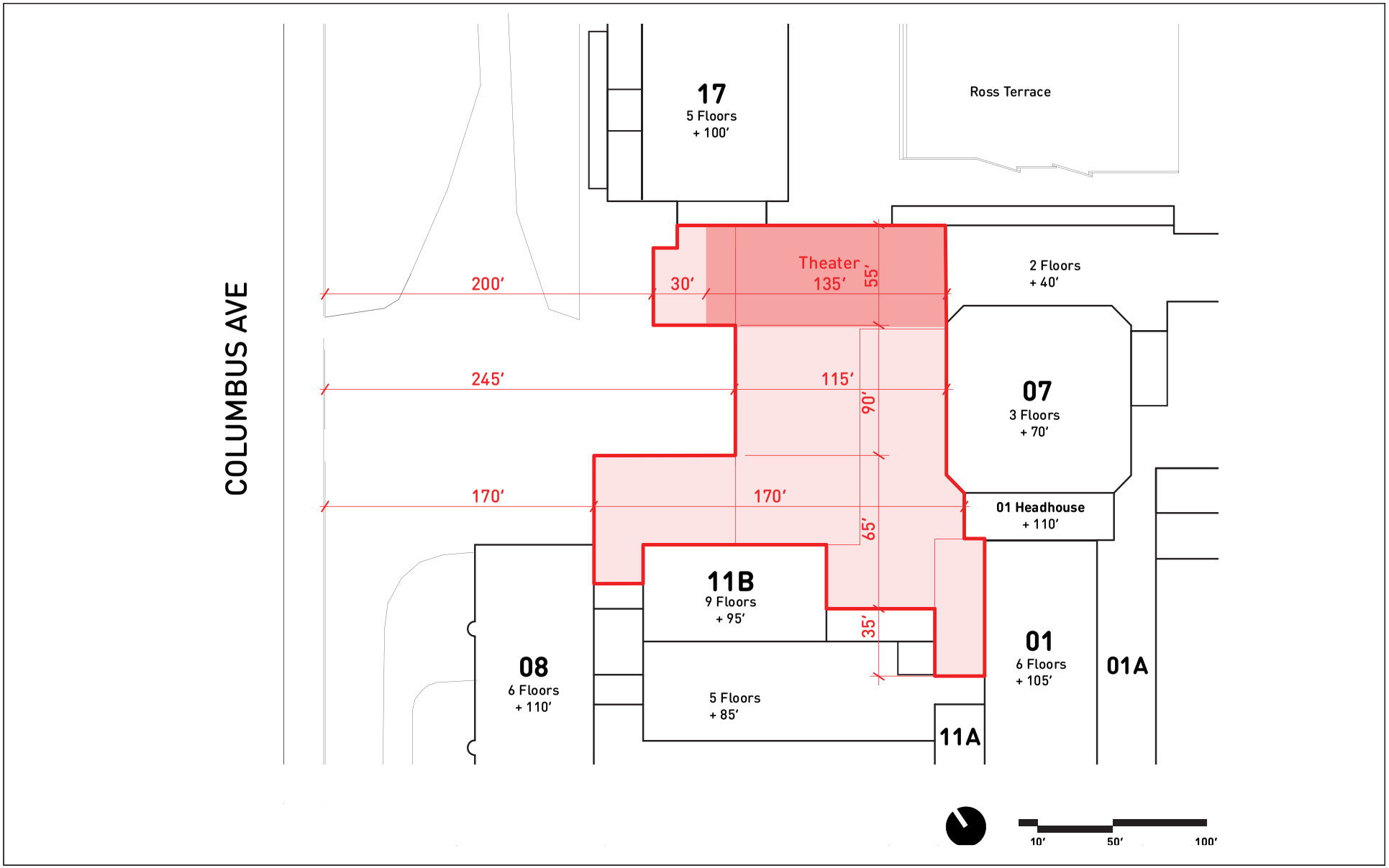
10.6.17



Alternative 4 Building Footprint

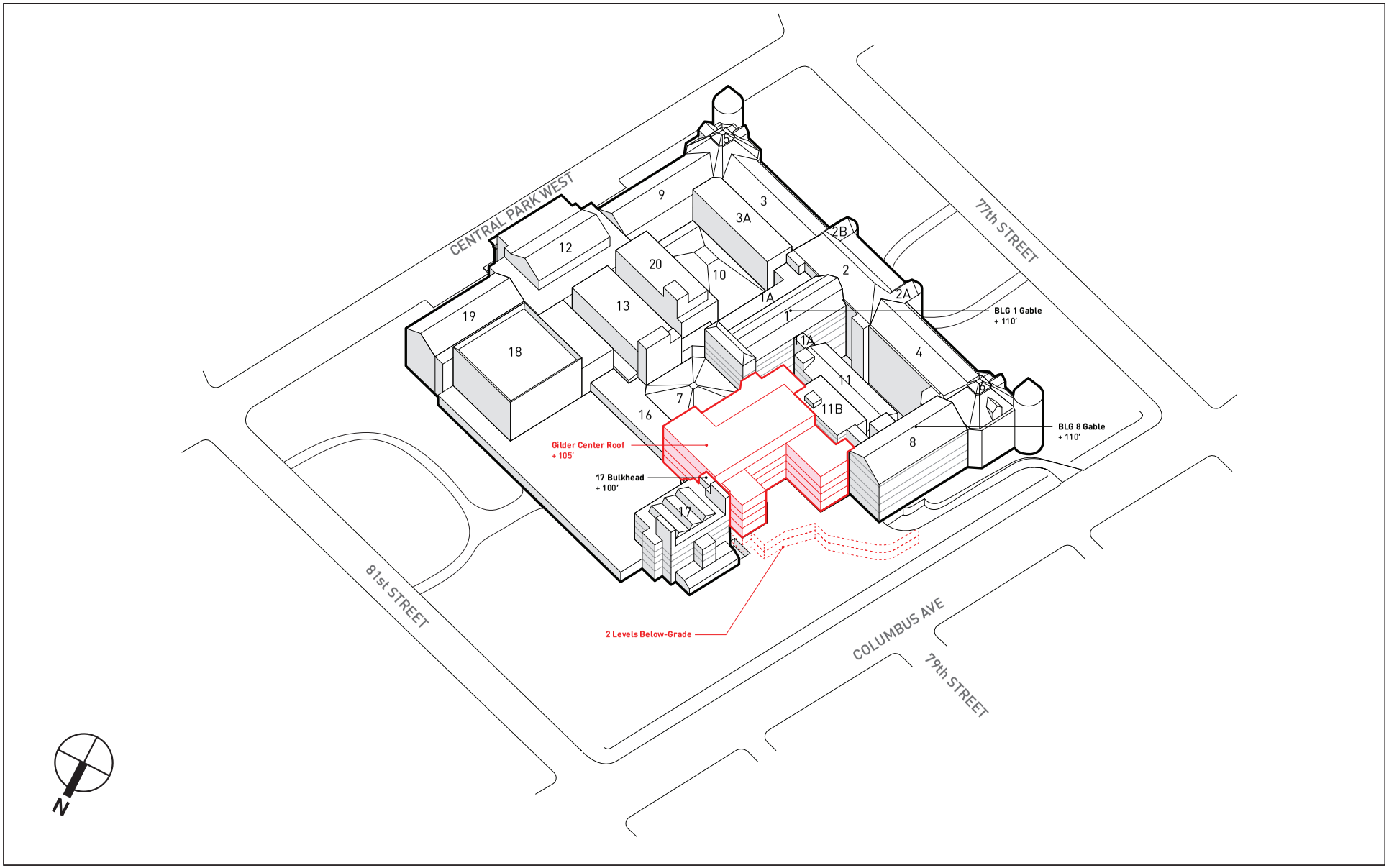
Below- Grade Footprint

Alternative 4
Conceptual View of AMNH Campus
Figure S-26



Alternative 5 Building Footprint

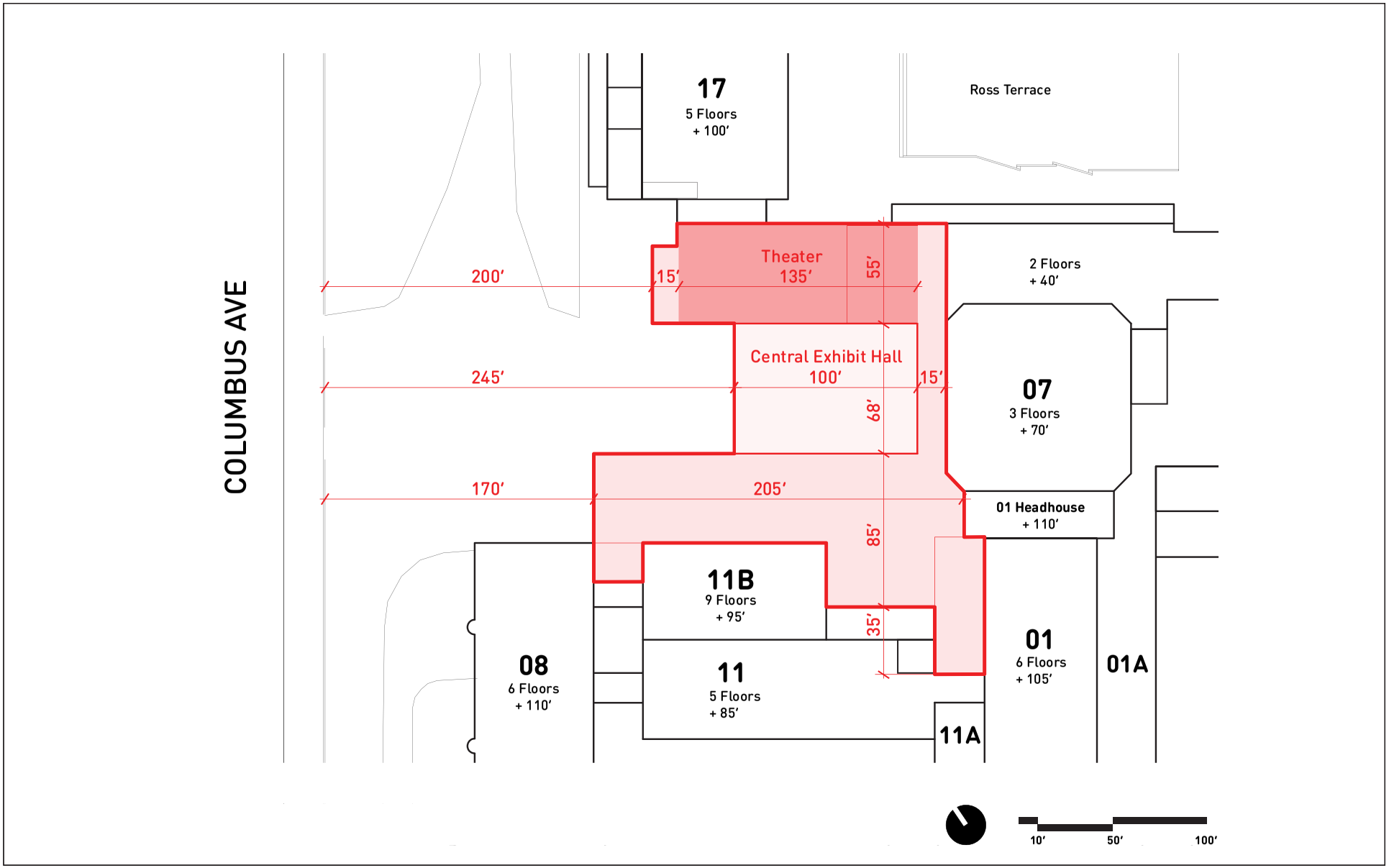
Alternative 5
Conceptual Site Plan
Figure S-27



Alternative 5 Building Footprint

Below- Grade Footprint

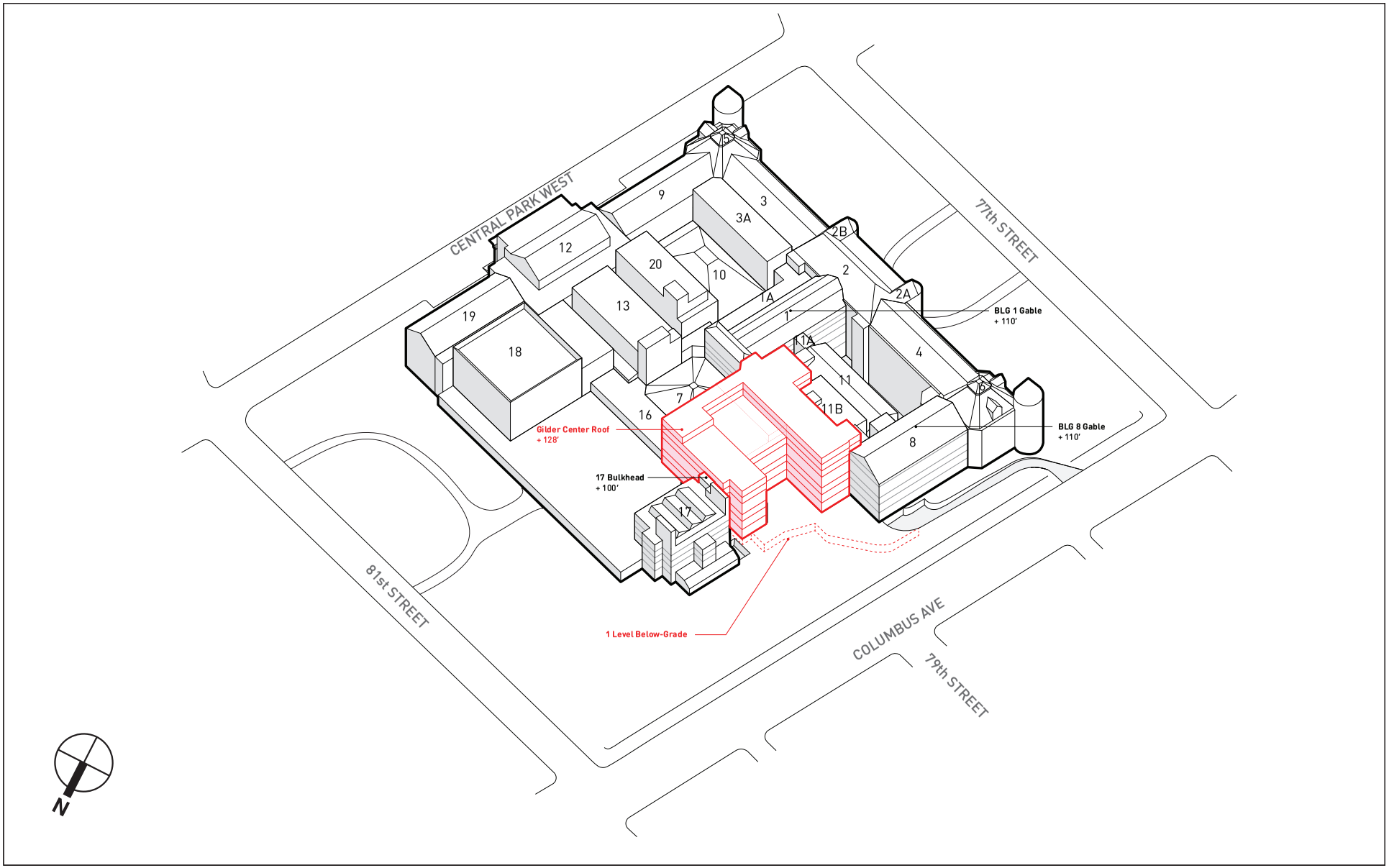
Alternative 5
Conceptual View of AMNH Campus
Figure S-28



Alternative 6 Building Footprint

Alternative 6
Conceptual Site Plan
Figure S-29

10.6.17

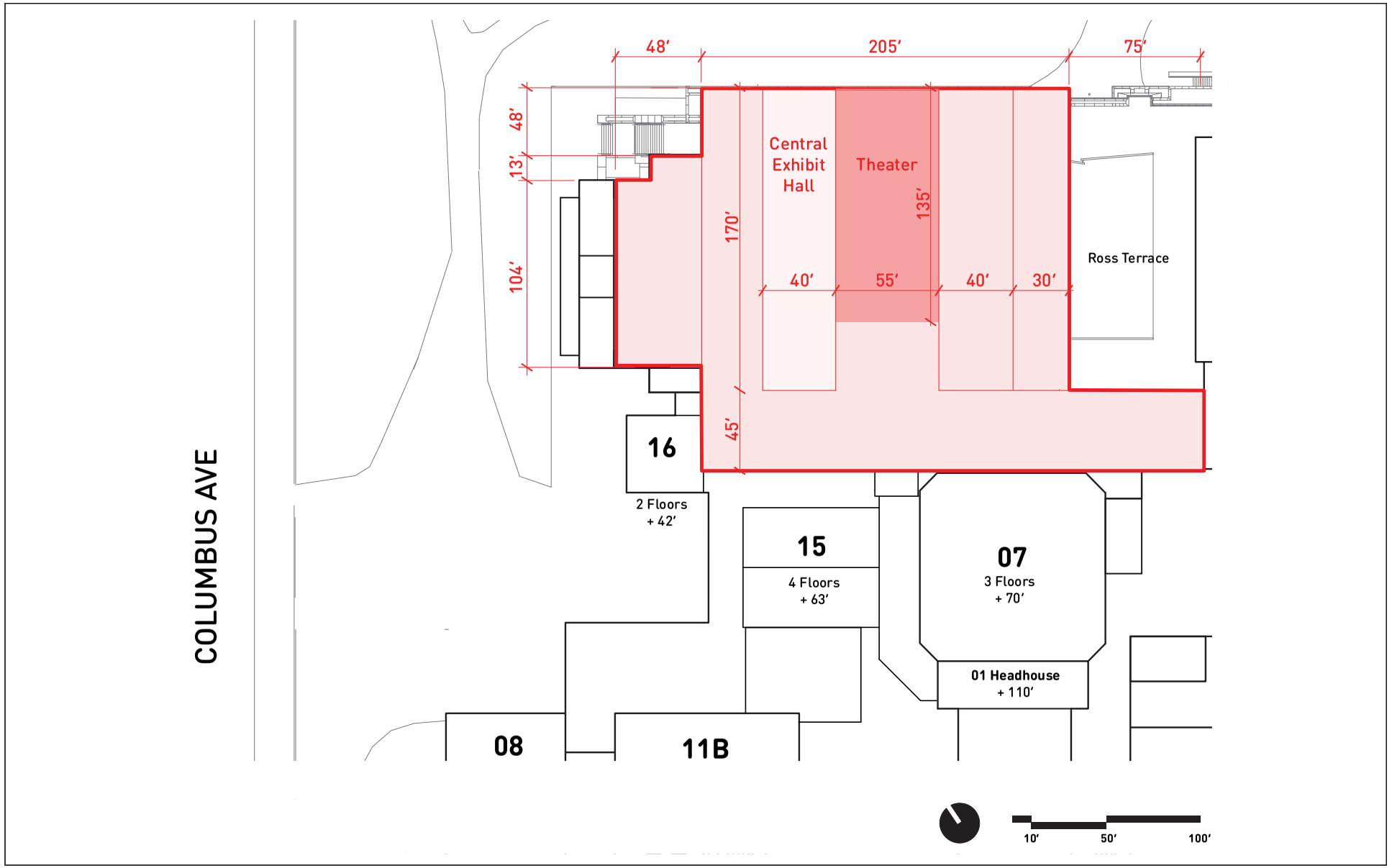


Alternative 6 Building Footprint

Below- Grade Footprint

Alternative 6
Conceptual View of AMNH Campus
Figure S-30

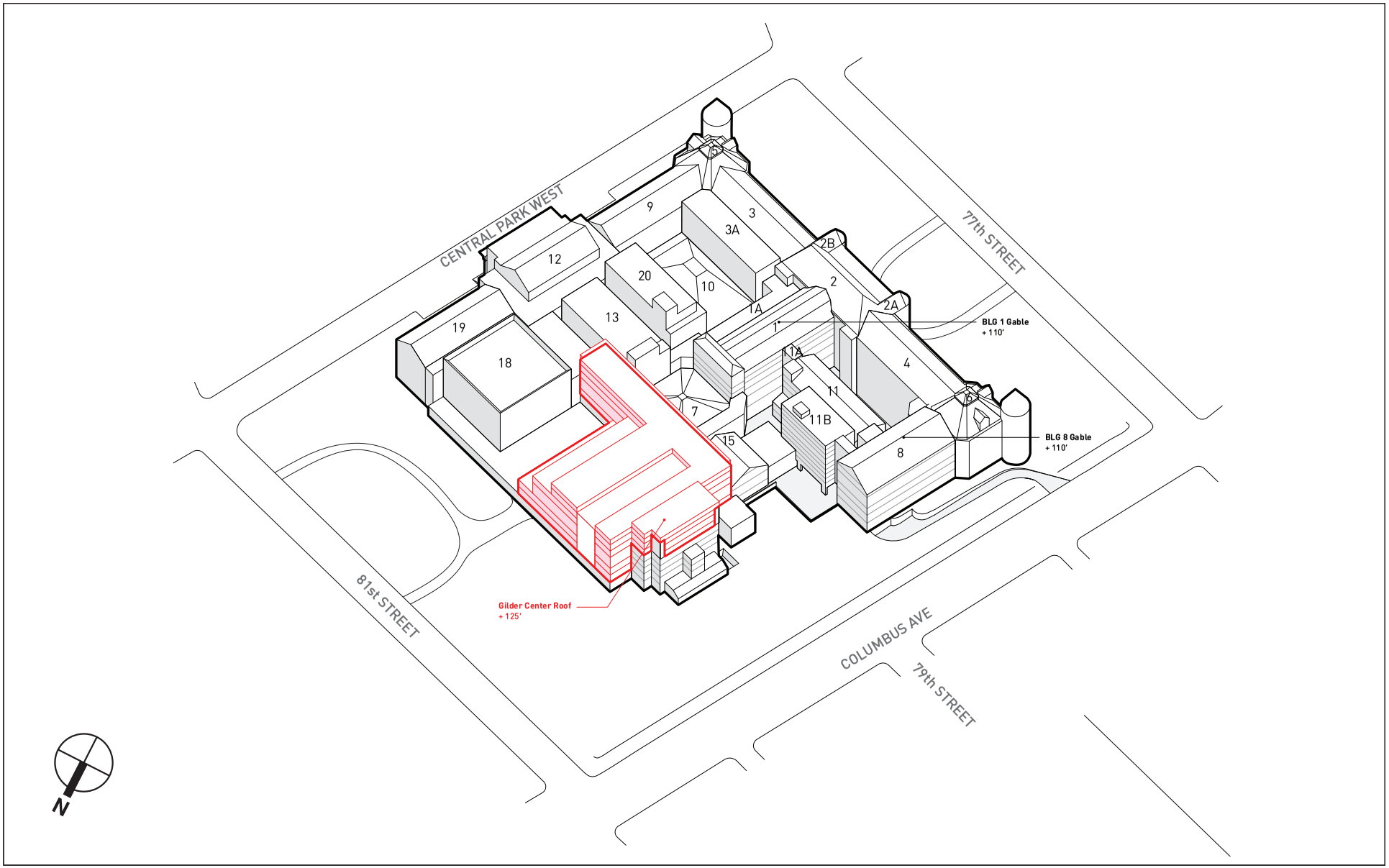
10.6.17



Alternative 7 Building Footprint

Ross Terrace Alternative 7
Conceptual Site Plan
Figure S-31

10.6.17



Alternative 7 Building Footprint

Ross Terrace Alternative 7
Conceptual View of AMNH Campus

Figure S-32

Under this alternative, while some additional visitor services (such as restrooms and restaurant space) could be provided, they would not likely be located where most useful to Museum visitors, due to the dispersed nature and inconvenient locations of many existing administrative spaces, away from the predominant areas of visitor activity. The Museum's service and delivery yard would remain undersized and outdated. Therefore, compared to the proposed project, there would be a loss of connectivity of scientific, exhibition, and education programs.

Compared to the proposed project, this alternative would not result in a significant adverse impact to historic resources or construction-related impacts. However, like the proposed project it would continue to result in a significant adverse transportation impact.

As stated above, according to the *CEQR Technical Manual*, sites which a private applicant like the Museum does not own or does not have a right to use are not required to be considered as alternative sites, rendering this alternative not applicable on that basis alone under SEQRA and CEQR. Further, as described above, this alternative would not fulfill many of the proposed project's goals and objectives.

ALTERNATIVE 3: EXPANDED FOOTPRINT ALTERNATIVE

Alternative 3 would generally meet the goals and objectives of the proposed project, but would require a greater loss of public open space. It is expected that, as in the past, there would be community concerns regarding this alternative, due to the additional loss of open space and trees compared to the proposed project. Alternative 3 would address key deficiencies within the Museum as well as the need for additional space, as described in Chapter 1, "Project Description." Like the proposed project, this alternative would integrate scientific research, collections, and exhibition with its educational programming. This alternative would also provide for a more notable presence on the western side of the Museum than the proposed project, as the Gilder Center would extend closer to Columbus Avenue. However, retaining Building 15 would result in a less efficient layout than the proposed project, with fewer visual connections among project elements and existing Museum uses.

The proposed project's significant adverse transportation impacts would not be expected to be reduced or avoided with this alternative, nor would the significant adverse construction-period traffic ~~and noise~~ impacts identified for the proposed project be avoided.

ALTERNATIVE 4: INFILL ALTERNATIVE

Alternative 4 would not meet the objectives of the proposed project. Unlike the proposed project, Alternative 4 would exacerbate existing problems with the Museum's congested and confusing circulation. Since the footprint of Alternative 4 would be reduced compared to the proposed project, connections cannot be made to Building 8's north façade, and would instead be made to its east façade. When Building 8 was constructed, it was intended to connect to a future Museum building to its north. As a result, Building 8 already has penetrations on its north side for future connections to a new building. Utilizing these existing penetrations, the proposed project would connect efficiently and as originally intended with Building 8, enhancing circulation and connectivity. The connections made with this alternative to Building 8 would have sharp turns, without clear sightlines for visitor wayfinding, resulting in visitor confusion and crowding.

Retaining Building 15 would also result in a less efficient layout than the proposed project, accommodating less program space, with fewer visual connections among project elements and existing Museum uses. With respect to programming, Alternative 4 would not include some of

the proposed project's important features, including the Collections Core, a theater, and central exhibition hall. The dispersed arrangement of space in this alternative would not provide visual and physical integration of science, education, and exhibition programming. The scale of the hall is intended to inspire visitors and encourage exploration inside the Museum and in the world. This objective requires a large civic space that showcases the Museum's offerings, similar to the Museum's Roosevelt Rotunda or the Rose Center for Earth and Space. Opening onto Theodore Roosevelt Park and creating an important circulation route through the Museum to Central Park West, the central exhibition hall would orient visitors and invite the public to experience the Museum.

Without a central exhibition hall and given the long connector corridor and dispersed, infill nature of this alternative, Alternative 4 would fail to achieve the visual, physical and intellectual links between exhibits, learning spaces, and collections that would be achieved by the proposed project.

While the proposed project has been designed to relate to the Museum's west side context in scale and massing, with deferential at-grade setbacks to ensure the prominence of historical Museum buildings, Alternative 4 would be taller than adjacent historic buildings, with a large addition above Building 17. There would be substantially more bulk at the rear of the new building; Alternative 4 would therefore affect pedestrian views from the Ross Terrace and the north side of Theodore Roosevelt Park and be less compatible with this area of the Museum's form, scale, and massing than the proposed project.

While it would avoid the demolition of Building 15 (a contributing building to the S/NR-listed Museum complex) and the loss of public open space, Alternative 4 does not meet the project objectives, as it would fail to achieve the critical circulation improvements of the proposed project, needed to address current and future increased attendance. Alternative 4 would also not include important components of the proposed project with respect to connectivity and programming and its building massing would be less contextual. Similar to the proposed project, Alternative 4 would result in significant adverse impacts related to transportation, historic resources, and construction-period traffic ~~and noise~~.

ALTERNATIVE 5: REDUCED FOOTPRINT ALTERNATIVE A

This alternative would not meet the project objectives. Unlike the proposed project, Alternative 5 would replicate existing problems with the Museum's congested and confusing circulation. Since the footprint of Alternative 5 would be reduced compared to the proposed project, connections cannot be made to Building 8's north façade, and would instead be made to its east façade. As described above, the connections made with Alternative 5 to Building 8 would have sharp turns, without clear sightlines for wayfinding, resulting in visitor confusion and crowding. By creating below-grade space that would not connect to any existing Museum buildings, this alternative would exacerbate the Museum's congested circulation, creating new dead end pathways. In addition, the additional below-grade space would not be appropriate for most programs uses or collections storage.

With respect to programming, Alternative 5 would not include some of the proposed project's important features, including a central exhibition hall, which—as described above—is an important element of the proposed project. Without a central exhibition hall, Alternative 5 would fail to achieve the visual, physical, and intellectual links between exhibits, learning spaces, and collections that would be achieved by the proposed project.

While the building height would be the same as the proposed project, under this alternative there would be more bulk at the rear of the new building than the proposed project, which would affect the pedestrian experience on and views from the adjacent Ross Terrace and from the north side of Theodore Roosevelt Park, as well as causing additional shadows on the Ross Terrace. In order to keep this Alternative 5 the same height as the proposed project, there would be an additional level below-grade, increasing the total below-grade space by 35,000 gsf. However, this additional below-grade space would not be appropriate for most programs uses, as it would have poor connections to the rest of the Museum, resulting in new dead ends that limit circulation. If the second below-grade level were not built, that space would be added in two additional above-grade levels, with similar impacts as described below for Alternative 6.

While it would avoid the loss of public open space, Alternative 5 does not meet the project objectives, as it would fail to achieve the critical circulation improvements of the proposed project, needed to address current and future increased attendance, and would instead create additional dead-end spaces with no connectivity to surrounding buildings. Compared to the proposed project, there would also be a loss of program connectivity and key design features that would help address the objectives of the proposed project. Like the proposed project, Alternative 5 would result in significant adverse impacts related to transportation, historic resources, and construction-period traffic~~ and noise~~. Alternative 5 also has the potential for temporary construction noise impacts not identified with the proposed project, due to the need for increased excavation activities.

ALTERNATIVE 6: REDUCED FOOTPRINT ALTERNATIVE B

Alternative 6 would not meet the objectives of the proposed project. Unlike the proposed project, Alternative 6 would replicate existing problems with the Museum's congested and confusing circulation. Since the footprint of Alternative 6 would be reduced compared to the proposed project, connections cannot be made to Building 8's north façade, and would instead be made to its east façade. When Building 8 was constructed, it was intended to connect to a future Museum building to its north. As a result, Building 8 already has penetrations on its north side for future connections to a new building. Utilizing these existing penetrations, the proposed project would connect efficiently and as originally intended with Building 8, enhancing circulation and connectivity.

The connections made with Alternative 6 to Building 8 would be inferior to the proposed project, as they would feature sharp turns, without clear sightlines for visitor wayfinding. Sightlines are important to visitor navigation through the extensive Museum complex because they allow visitors to see where they are going and anticipate their route of travel. Without clear sightlines, navigation is confusing for visitors, resulting in increased congestion. There would be insufficient space for queuing at the elevators on the ground floor, creating additional points of crowding and delay. Inefficient connector corridors would be required for visitor circulation, displacing program space. In addition, by creating two floors that would not connect to any existing Museum buildings, this alternative would create new dead end pathways. Overcrowding reduces visitor access to programs and exhibits, undercutting the Museum's ability to fulfill its mission of disseminating scientific knowledge. Overall, this alternative would replicate some of the existing problems with the Museum's congested and confusing circulation, which the proposed project is intended to address.

This alternative would be out of scale with the existing Museum complex, as compared to the proposed project. While the proposed project has been designed to relate the Museum's west side context in scale and massing, with deferential at-grade setbacks to ensure the prominence of

historical Museum buildings, Alternative 6 would be taller than adjacent historic buildings. The added two stories create an inappropriate relationship to the lower-height roof and gables of Building 8. In addition, under this alternative there would be substantially more bulk at the rear of the new building, with no setbacks above the Ross Terrace. Alternative 6 would therefore affect pedestrian views from the Ross Terrace and the north side of Theodore Roosevelt Park and be less compatible with this area of the Museum's form, scale, and massing than the proposed project, potentially resulting in additional adverse impacts to the Museum complex. If the two additional above-grade levels were not built, that space would be added in a second below-grade level, with similar impacts as described for Alternative 5.

While it would avoid the loss of public open space, Alternative 6 does not meet the project objectives, as it would fail to achieve the critical circulation improvements of the proposed project, needed to address current and future increased attendance, and would instead create additional dead-end spaces with no connectivity to surrounding buildings. The height and bulk of Alternative 6 would be out of scale with the historic Museum complex and, like the proposed project, Alternative 6 would result in significant adverse impacts related to transportation, historic resources, and construction-period traffic ~~and noise~~.

ALTERNATIVE 7: ROSS TERRACE ALTERNATIVE

Alternative 7 would not meet the project objectives. This alternative would not address key circulation deficiencies within the Museum, including connection improvements to Building 8 and the library, and dead end pathways. Instead, this alternative would repeat some of the Museum's current circulation issues by constructing a long, narrow wing with upper floors that would not connect to any existing Museum buildings, resulting in new dead ends that limit circulation.

While this alternative would include a central exhibition hall, it would be smaller than with the proposed project and would not achieve some of the project's objectives. This alternative would also not provide the Museum with an upgraded and modernized service and delivery area.

While Alternative 7 would avoid the loss of open space and trees in Theodore Roosevelt Park, it would displace 30,745 square feet of public open space on the Ross Terrace and could replace some of it with new rooftop open space(s). Certain features of the park, including the dog run, would need to be temporarily closed to accommodate construction logistics. The height of this alternative and its location atop Ross Terrace would result in new incremental shadows in additional areas of the Park not affected by the proposed project's shadows. Compared to the proposed project, this alternative would not create a new entrance on the Columbus Avenue side of the Museum. Instead, it would result in substantial building mass in close proximity to the Rose Center, which would adversely affect the context of that building. While Alternative 7 would avoid the demolition of Building 15, it would potentially adversely affect the historic character of the Museum due to the large size and massing of the Alternative 7 building and inappropriate overbuild of Building 17.

While Alternative 7 would avoid using parkland in Theodore Roosevelt Park, it would result in a loss of publicly accessible open space on the Ross Terrace; would not include important components of the proposed project with respect to programming and circulation; and would adversely affect the historic character of the Museum. Compared to the proposed project, construction of this alternative would result in greater disturbance to the Museum and the neighborhood, due to temporary disruption of the north side of Theodore Roosevelt Park (including the dog run), the Museum parking garage, and other Museum operations. Similar to

the proposed project, Alternative 7 would result in significant adverse impacts related to transportation, historic resources, and construction-period traffic~~ and possibly noise~~. This alternative has the potential to result in construction-related noise impacts and additional construction-related traffic impacts due to the temporary closing of the garage and relocation of its functions, including school bus operations.

ALTERNATIVE 8: OFF-SITE ALTERNATIVE

Alternative 8 would not meet the project objectives. This alternative would not address the key circulation deficiencies within the Museum, including connection improvements to Building 8 and the library, and dead end pathways. While the proposed project would result in connections with clear sightlines that would improve visitor flow and circulation, under this alternative Museum circulation would continue to be confusing and congested, resulting in crowding and delay. Overcrowding reduces visitor access to programs and exhibits, undercutting the Museum's ability to fulfill its mission of disseminating scientific knowledge.

By locating some exhibition, collections, and classroom space off-site, this alternative would create a small new museum of limited scope, without addressing any of the existing on-site deficiencies. The off-site location would not offer access to the bulk of the Museum's collections, library materials, exhibition spaces, and other on-site scientific resources for students, teachers, families, and other visitors. This is completely contrary to the project objective of creating adjacencies among classrooms, exhibits, collections, and library resources. Operational services would not be upgraded and the Museum's service and delivery yard would remain undersized and outdated. Further, there would be no improvements to the Museum's on-site visitor services or Columbus Avenue entrance.

The proposed project has been designed to enable more visitors to experience an aspect of the Museum's active, discovery-based scientific study and instruction. Unlike the proposed project, the Off-Site Alternative would not integrate the behind-the-scenes work of the Museum with the visitor experience, connect scientific facilities and collections to innovative exhibition and learning spaces, or co-locate collection storage spaces and the research library with immersive galleries and interactive education spaces. Overall, as compared to the proposed project, this alternative does not meet the project's goals and objectives and would not necessarily minimize impacts, but instead relocate them.

MITIGATION

The technical analyses determined that there would be significant adverse environmental impacts related to transportation, historic and cultural resources, and construction associated with the proposed project.

As discussed in Chapter 9 "Transportation," traffic conditions were evaluated at ~~nine~~ eleven intersections for the weekday midday, weekday PM, and Saturday peak hours. Because existing traffic and pedestrian conditions in the study area are already severe and susceptible to worsening in service levels, even small increases in traffic and pedestrian levels could result in significant adverse impacts. Therefore, in the 2021 With Action condition, significant adverse traffic impacts were identified at one intersection during the weekday PM peak hour, and at three intersections during the Saturday peak hour. All of the identified significant adverse traffic impacts could be fully mitigated with the implementation of standard traffic mitigation measures (e.g., signal retiming). Pedestrian conditions were evaluated at ten sidewalks, four corners, and four crosswalks for the weekday midday, weekday PM, and Saturday peak hours. In the 2021 With Action condition, significant adverse pedestrian impacts were identified at one crosswalk

during the Saturday peak hour. Widening this crosswalk would mitigate the projected pedestrian impact. No significant adverse impacts were identified for transit, vehicular and pedestrian safety, and parking.

As discussed in Chapter 5, "Historic and Cultural Resources," demolition of Building 15, a former power house built in 1903-1904, would constitute a significant adverse impact on architectural resources. The building was constructed as part of the 1874-1935 development of the Museum (although highly altered subsequently) and is included as part of the State and National Register listing of the Museum. Measures to mitigate the project's adverse impacts on architectural resources would be implemented in consultation with OPRHP. In addition, demolition of the buildings on the project site, followed by site preparation and construction of the Gilder Center, could potentially result in inadvertent damage to nearby historic Museum buildings if adequate precautions are not taken. Therefore, a CPP would be developed in coordination with LPC and OPRHP and implemented in consultation with a licensed professional engineer. The CPP would describe the measures to be implemented during construction of the Gilder Center to protect the historic Museum buildings, including monitoring the buildings for cracks and movement and installation of physical protection as appropriate at the buildings surrounding the building site (Building 17, 7, 1, and 8). The mitigation measures are set forth in a draft LOR to be signed by the Museum, OPRHP, and ESD.

As discussed in Chapter 15 "Construction," traffic period conditions were evaluated at ~~nine~~ eleven intersections for the weekday PM construction peak hour. Because existing traffic conditions in the study area are already severe and susceptible to worsening in service levels, even small increases in traffic could result in significant adverse impacts. Therefore, in the ~~2018~~ 2019 With Action condition, significant adverse traffic impacts were identified at one intersection during the weekday PM construction peak hour. The identified significant adverse traffic impacts could be fully mitigated with the implementation of standard traffic mitigation measures (e.g., signal retiming). No significant adverse impacts were identified for transit, pedestrians, vehicular and pedestrian safety, and parking.

~~As discussed in Chapter 15 "Construction,"~~Based on information available at the time, the DEIS identified that the proposed project ~~has~~ had the potential to result in construction noise levels that exceed *CEQR Technical Manual* noise impact criteria for an extended period of time at two buildings on West 79th Street immediately across Columbus Avenue west of the "construction area" (the project site and the associated construction staging area).The DEIS disclosed that 101 West 79th Street and 112 West 79th Street (which uses the address 118 West 79th Street) could experience noise levels that would constitute significant adverse construction noise impacts. ~~The identified significant adverse construction noise impacts could be fully mitigated with receptor controls (i.e., storm windows and air conditioning units at residences that do not already have air conditioning).~~

As discussed in Chapter 15, "Construction," b~~B~~etween the DEIS and FEIS, further noise reduction measures to reduce or eliminate the potential for these temporary significant construction noise impacts ~~will be~~were considered and evaluated. AMNH has identified further construction noise controls to reduce construction noise, including quieter person lifts and quieter excavators and loaders for landscaping. Furthermore, the schedule has been updated to reflect a shorter period of rock excavation based on the geotechnical report, the addition of pile installation for Support of Excavation (SOE), and separation of the landscaping work across two planting seasons. In addition, construction logistics during façade installation and interior work have been refined to reflect the typical condition of unloading one tractor trailer in the materials

delivery lane (i.e., just inside the construction site fence along Columbus Avenue) and one box truck at the construction hoist. Based on these changes to the construction program, an updated construction noise analysis for the FEIS predicted lower noise levels throughout the latter 2 years of construction, and a reduction in the duration of the worst-case construction noise (3 months rather than 5). Based on the new construction noise control commitments and refined schedule and logistics, while construction noise would still be noticeable and potentially intrusive at times, there would not be any nearby receptors at which the duration and magnitude of construction noise would constitute a significant adverse impact (see NYCDEP correspondence in **Appendix C-3**). ~~In the event noise source control measures are not sufficient to mitigate the significant adverse construction noise impacts, then the receptor mitigation measures described above would be offered to residents at 101 and 112 (118) West 79th Street.~~

Accounting for the proposed construction and logistics plan, construction noise from the proposed project does not represent a significant impact. Nonetheless, because receptor control measures were previously considered for 101 West 79th Street and 112 (118) West 79th Street based on the findings of the DEIS (i.e., storm windows and air conditioning units at residences that do not already have air conditioning), AMNH has committed to make an offer of these measures to residents of those two buildings.

GROWTH INDUCING ASPECTS OF THE PROPOSED PROJECT

The proposed project and related actions are specific to the project site only. While the proposed project would result in improvements to the existing cultural, educational, and scientific uses on the project site, the Museum has been one of the top visitor destinations in New York City for decades, and Museum visitors already frequent businesses in the study area. Aside from the surrounding parkland, the area is heavily developed, with the level of development controlled by zoning, including contextual regulations. Any development in the surrounding historic district would also require review and approval by LPC. Therefore, the proposed project would not be expected to induce new growth in the study area.

In addition, the proposed project would not include the introduction of new infrastructure or an expansion of infrastructure capacity that could result in indirect development.

Therefore, the proposed project would not induce significant new growth in the surrounding area.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The natural and man-made resources that would be expended in the construction and operation of the proposed project are considered irretrievably committed because their reuse for some purpose other than the proposed project would be highly unlikely. The proposed project's commitment of these resources must be weighed against its long-term benefits. For example, seven canopy trees are expected to be removed and one understory tree relocated in Theodore Roosevelt Park as a result of the proposed project. However, any trees that are removed and not transplanted would be replaced, consistent with NYC Parks rules and regulations, including the six new canopy trees and thirteen new understory trees that the Museum anticipates planting as part of the Park improvements. The proposed project would also result in an 11,600-square foot reduction in available open space in Theodore Roosevelt Park, a temporary loss of use of a portion of the Park during construction, and removal of existing landscape materials. However, with the project's proposed landscaping modifications and improvements, park users would continue to have access to areas for gathering, play, and respite, and the overall quality in the rebuilt portion of the Park would be improved. While Museum buildings (Building 15, Building

15A, and the Weston Pavilion) would be removed, there would also be benefits associated with enhancing the Museum's ability to fulfill its mission of encouraging and developing the study of natural science and providing popular instruction with the goal of advancing general scientific knowledge. Although the proposed project would require energy in the form of fuel and electricity consumed during construction and operation, one of the proposed project's goals is to enhance the sustainability features of the Museum, with a commitment to seeking the US Green Building Council's LEED Gold certification level. The proposed project would consume building materials for construction, dispose materials from renovated areas that would be removed and not reused, and utilize human effort (i.e., time and labor) to develop, construct, and operate various components of the proposed project. However, jobs would be created during construction and upon completion, and there would be substantial long-term educational, scientific, and economic benefits to Manhattan and New York City.

The commitments of resources described above are weighed against the benefits of the proposed project, which are described above. Overall, while the proposed project would result in the commitment of certain man-made and natural resources, it would also result in substantial long-term educational, scientific, recreational, cultural, and economic benefits.

UNAVOIDABLE ADVERSE IMPACTS

Measures to partially mitigate the proposed project's impacts on architectural resources are set forth in a draft LOR to be signed by the Museum, OPRHP, and ESD. With these measures, the impact would be considered partially mitigated. As the significant adverse impact would not be fully mitigated, the proposed project would result in an unavoidable adverse impact on historic resources. ✷