Chapter 1: Project Description

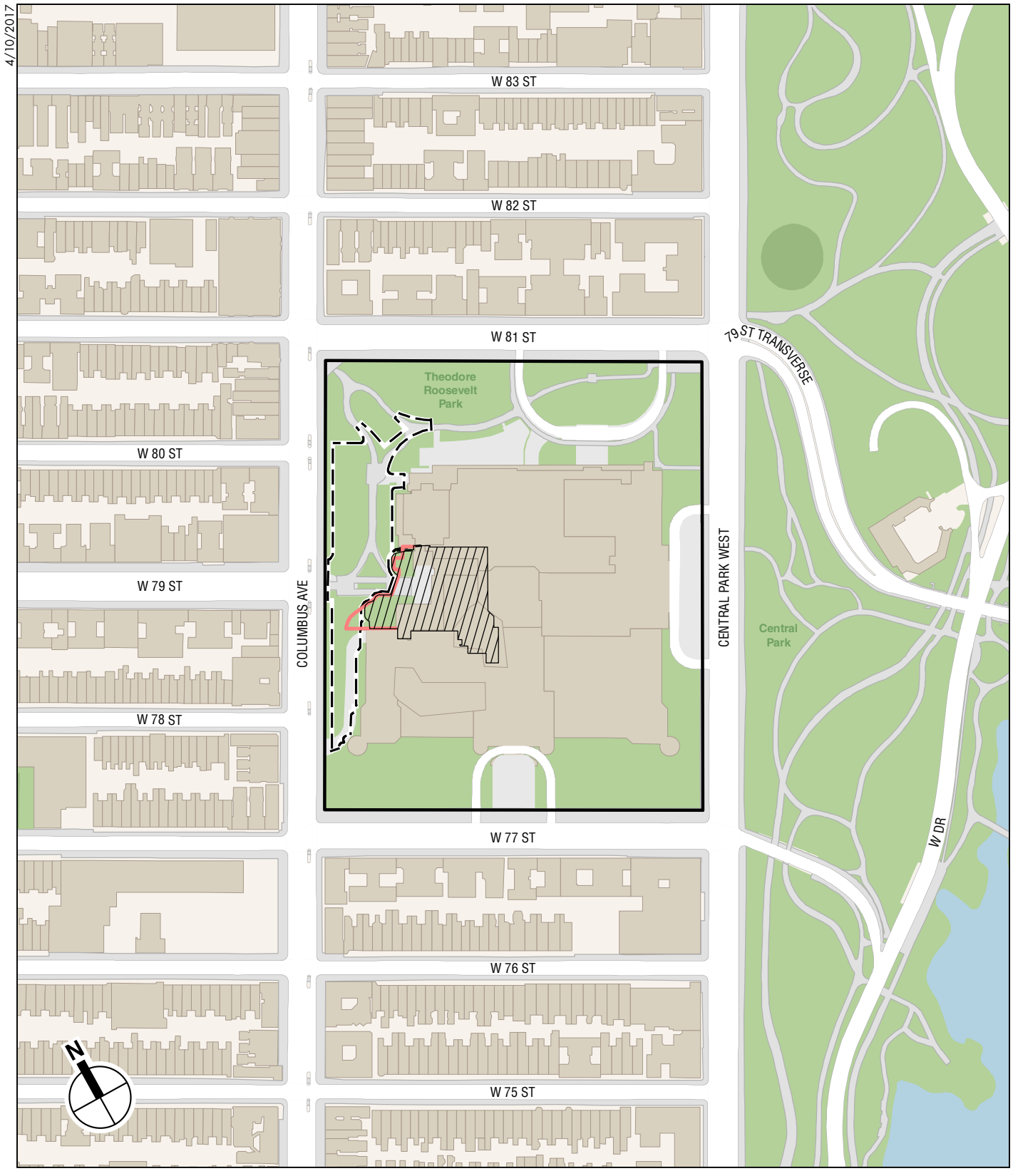
A. INTRODUCTION

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).

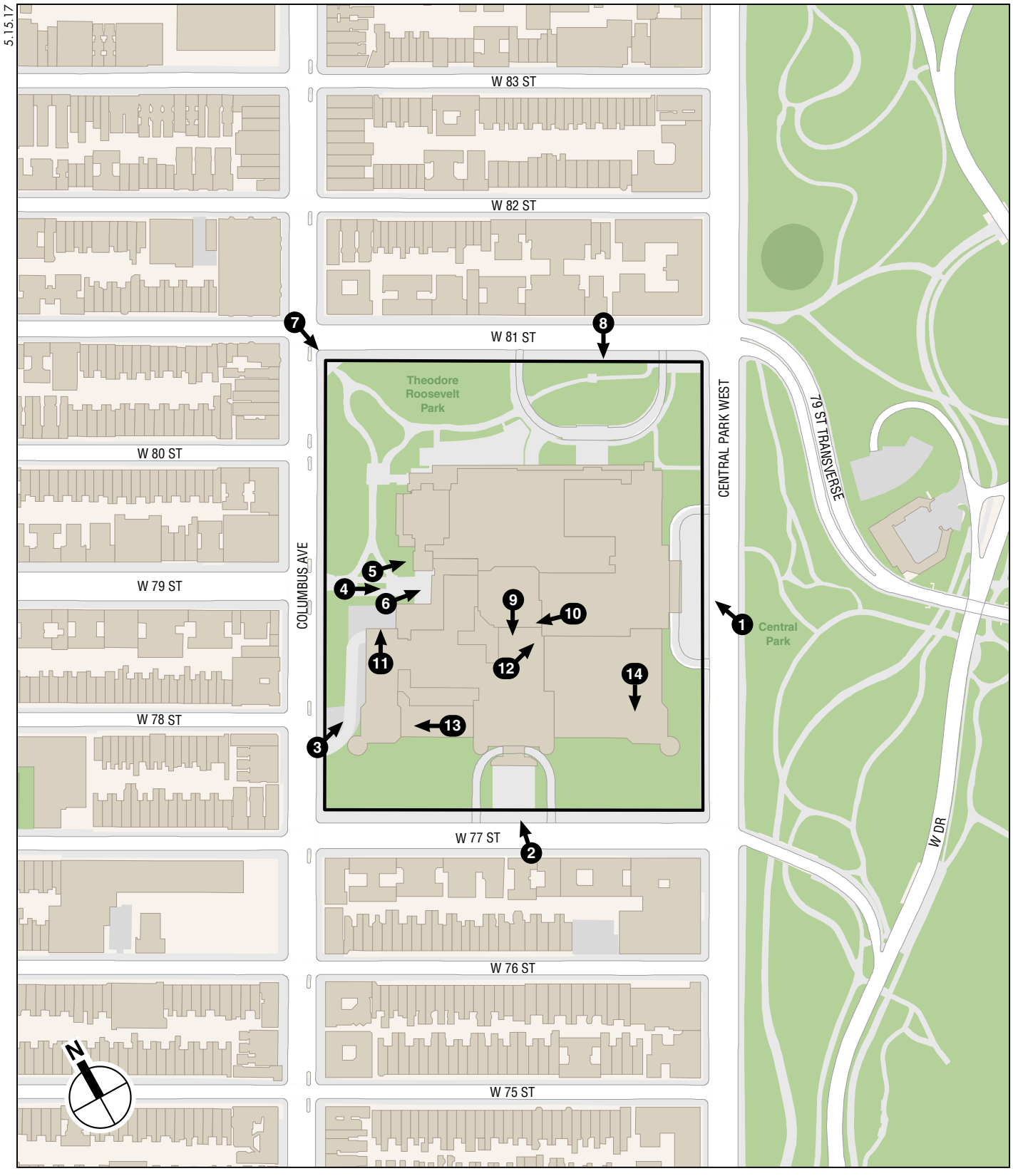
The Museum is located on the superblock bounded by West 81st Street, West 77th Street, Central Park West, and Columbus Avenue, in the Upper West Side neighborhood of Manhattan (Block 1130, Lot 1). The Museum is located in Theodore Roosevelt Park, which is City-owned parkland under the jurisdiction of 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 1-1**). The site is located in Manhattan Community District 7. See **Figures 1-2 through 1-6** 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.



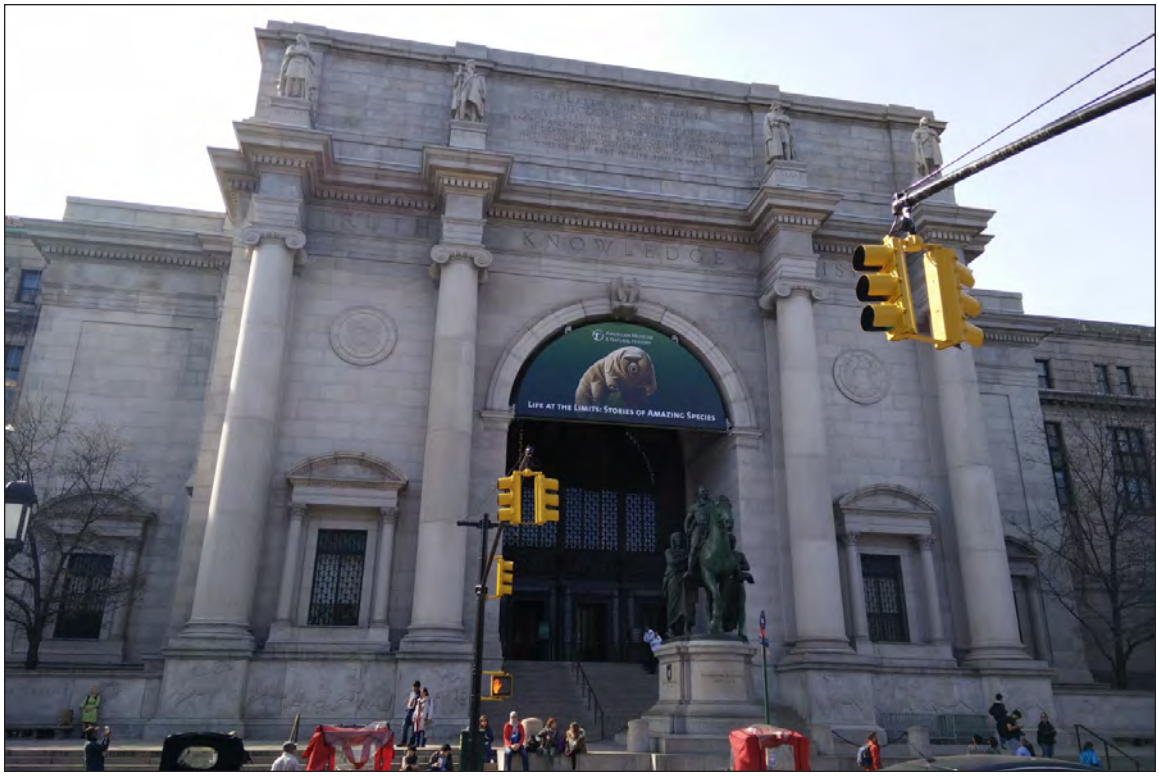
AMNH Gilder Center for Science, Education, and Innovation

Project Location
Figure 1-1



AMNH Gilder Center for Science, Education, and Innovation

Key to Photographs
Figure 1-2



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

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

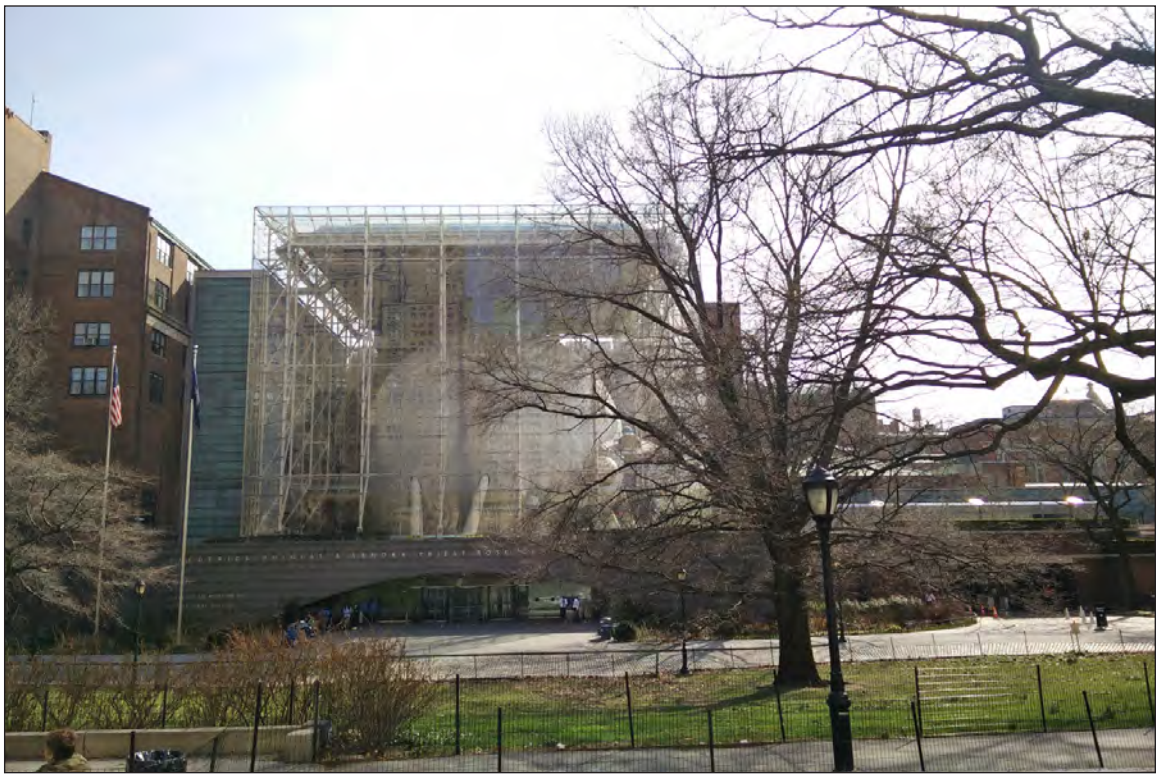
View Facing Northeast at Columbus Avenue Entrance to 78th Street Service Driveway **3**

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**

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 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.

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. This Draft EIS (DEIS), 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.

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

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

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 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 1-7 and 1-8**). Dead-ends in exhibition spaces require visitors to double back in order to explore other Museum exhibits (see **Figures 1-7 and 1-8**). 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 **Figures 1-9**). 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 1-7 and 1-8**). 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.

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

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**

some or all of those needs. The Museum made substantial investments in its facilities to renovate, reorganize, and revitalize existing space. 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 1-10** for a plan of the existing campus). 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 a restricted-access entrance on West 77th Street.[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.

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. 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 1-11 and 1-12**). 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

[2] The West 77th Street entrance does not provide public ticketing facilities; this entrance is available for Museum staff and public programs.

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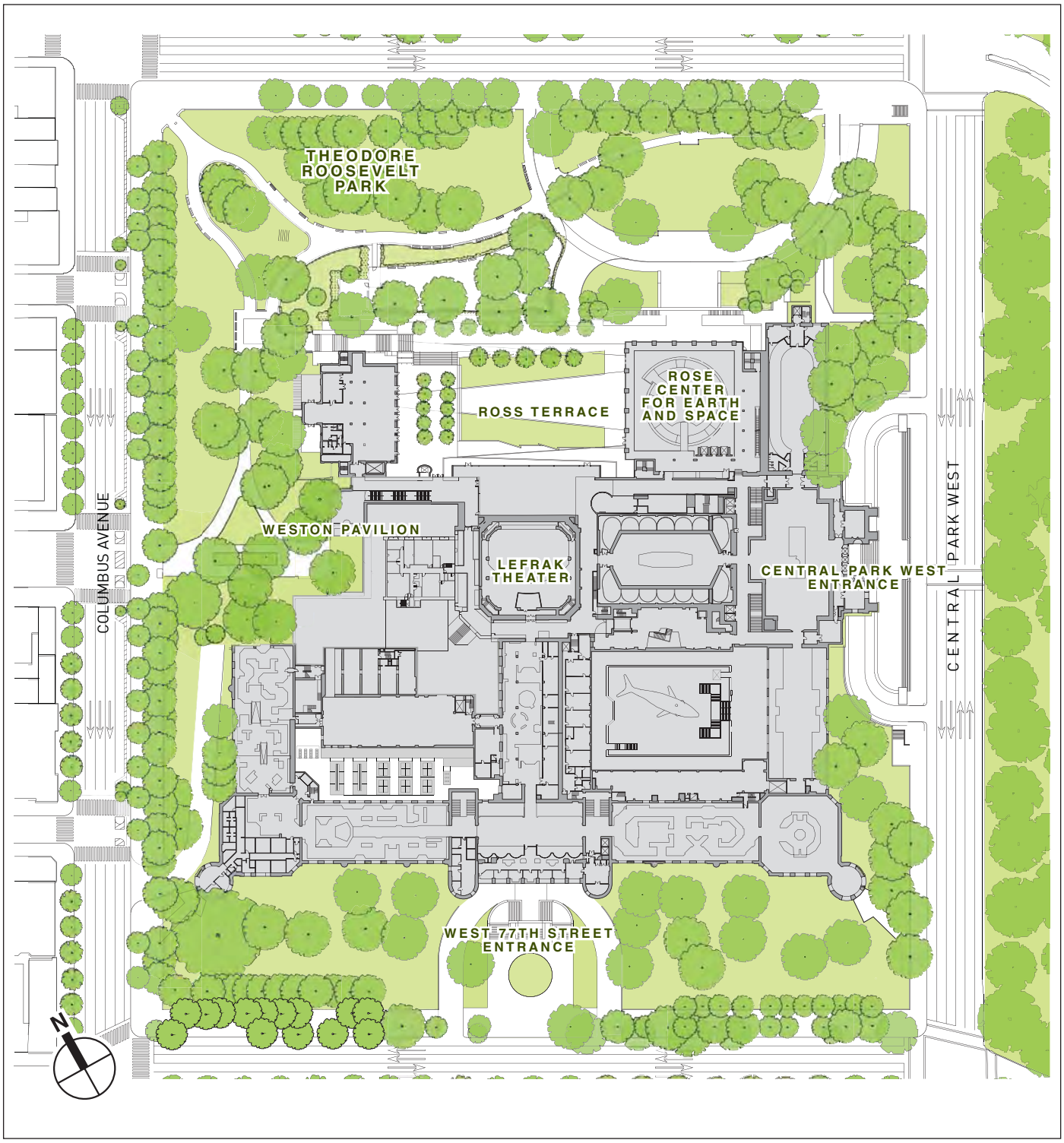
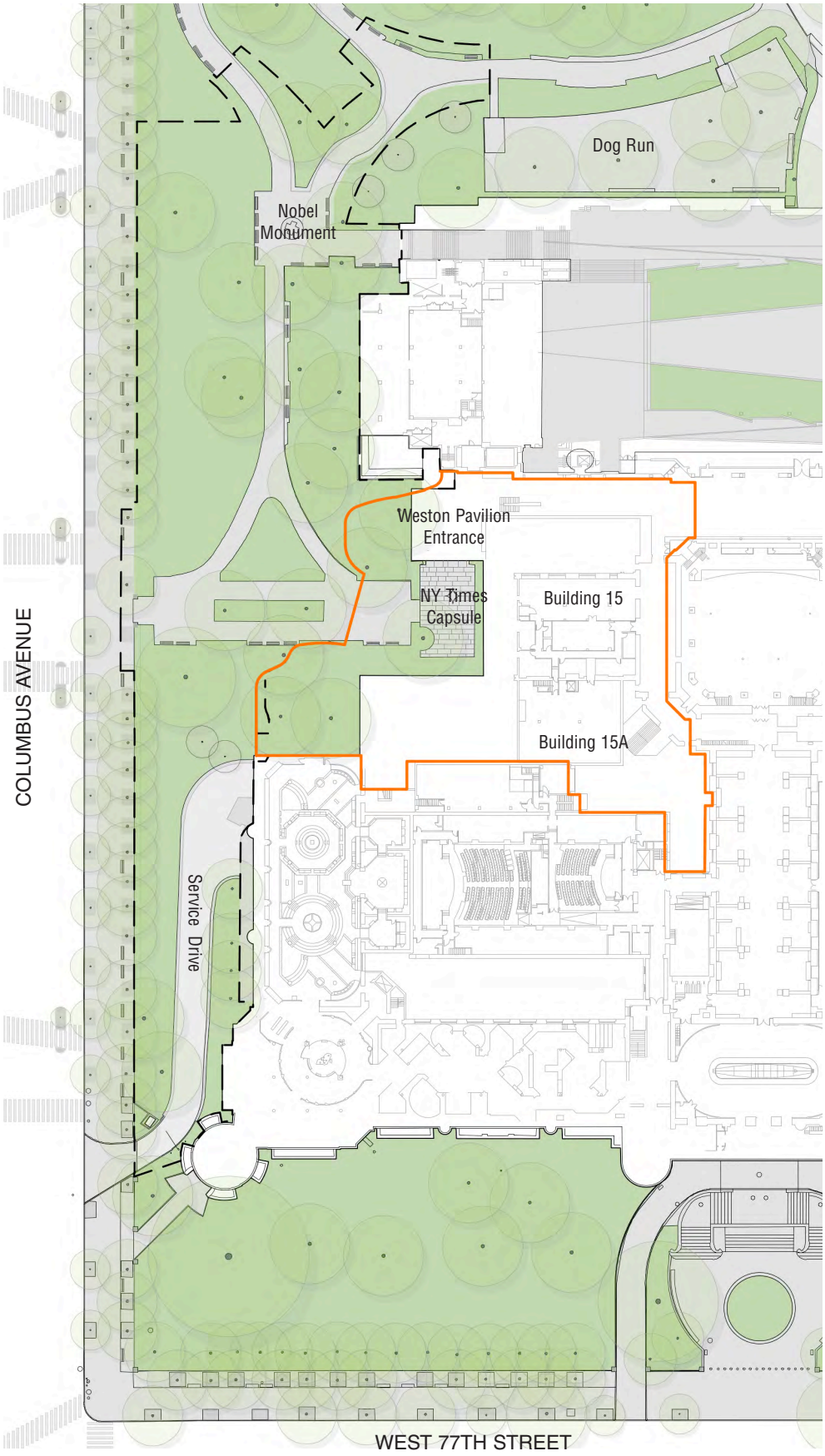


Existing AMNH Campus Plan

AMNH Gilder Center for Science, Education, and Innovation

Figure 1-10

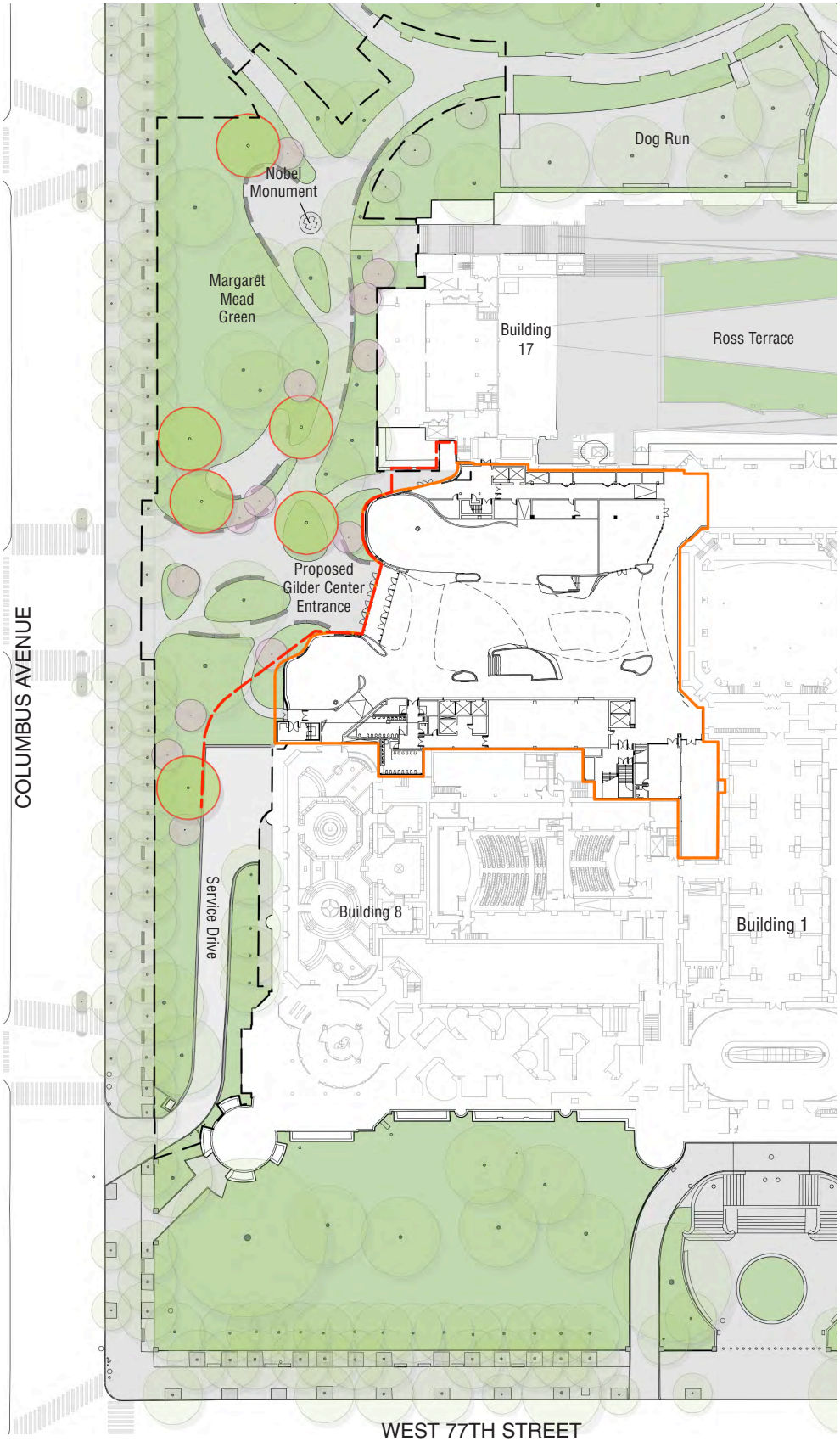


Building Site *Park Improvement Boundary*

Existing Site Plan

AMNH Gilder Center for Science, Education, and Innovation

Figure 1-11



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 1-12

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. The portion of the building site that is outside of the existing Museum footprint contains a terrace, walkways, seating areas, fenced lawns, and trees and plantings.

PROPOSED PROJECT

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 1-12** for the proposed site plan and **Figure 1-13** for an elevation view of the proposed project).

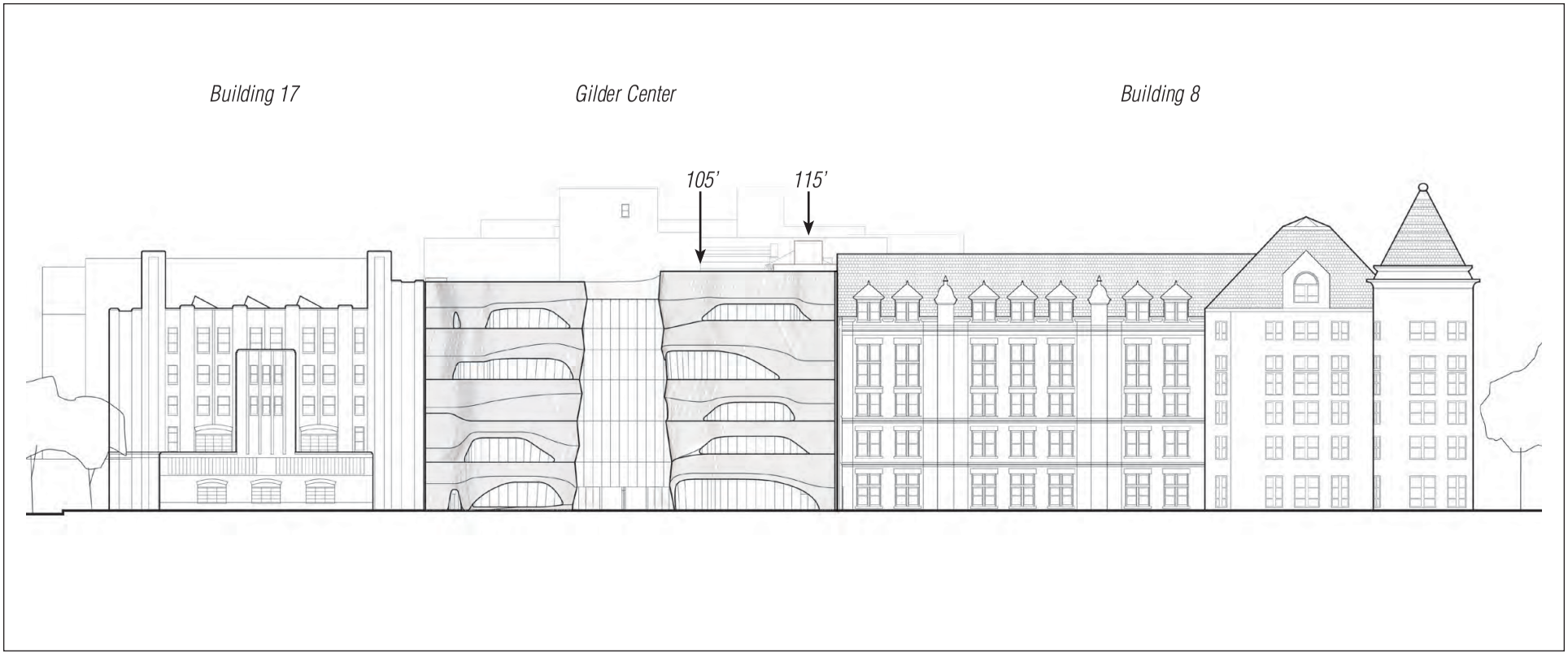
The proposed project would be designed to reveal the behind-the-scenes work of the Museum and integrate it into the visitor experience, to create an authentic and direct encounter with science. It would showcase the active scientific research collections underlying the Museum's exhibitions and educational 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 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;



Elevation View of Proposed Project

- 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. 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 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

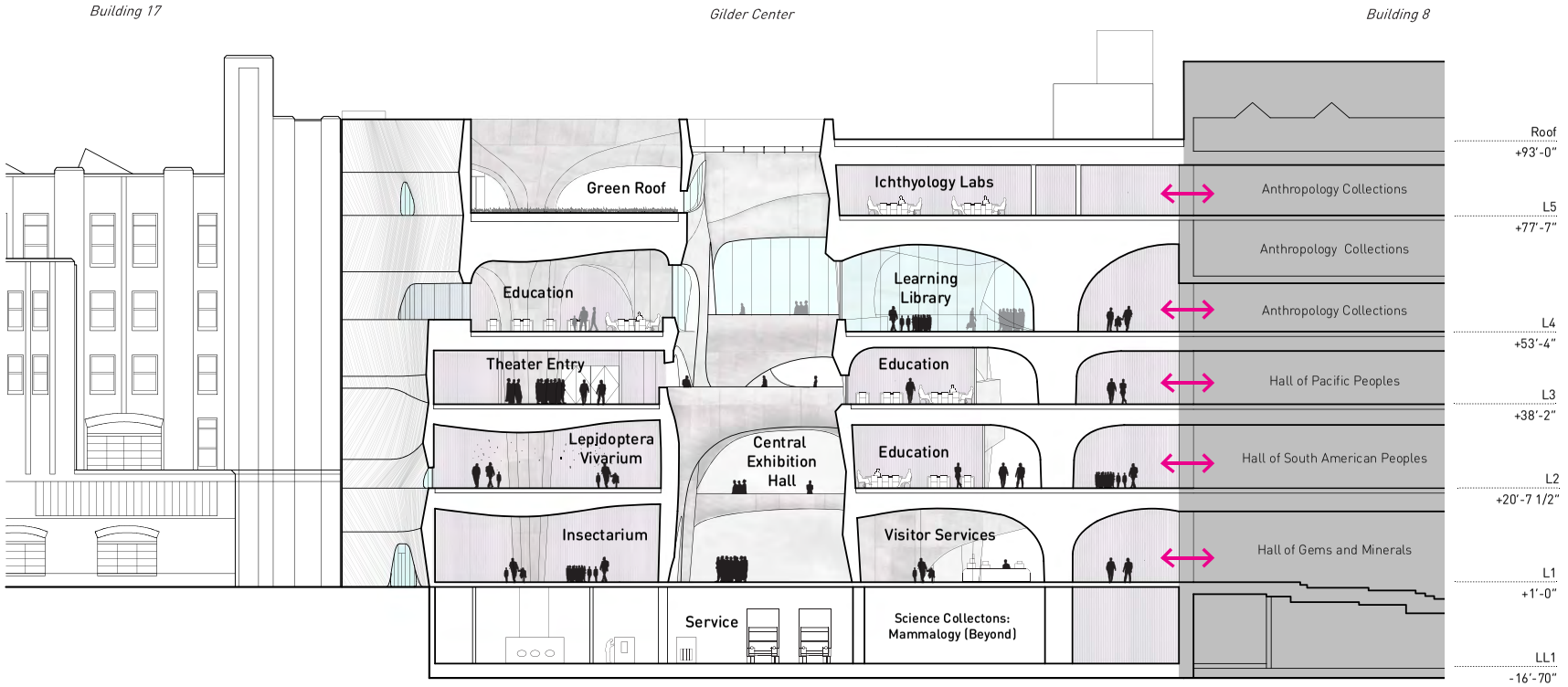
The Gilder Center would include a modernized loading and service area, replacing the service yard currently located on the project site. This below-grade loading and service area would be accessed through the existing West 78th Street service driveway that extends from Columbus Avenue, which would be 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 1-14 and 1-15**). 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



Section View of Proposed Project

Figure 1-14

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)

5.11.17

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)

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 1-12**). 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.
- 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 currently fenced Margaret Mead Green lawn would be made available for managed public access in a manner consistent with and supportive of the current character of Theodore Roosevelt Park. In addition, a portion of the currently fenced area adjacent to the Columbus Avenue sidewalk between West 78th Street and West 79th Street would be made available for public access.

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 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, and the other paths in the Park would remain.

PUBLIC PROGRAMS AND EVENTS

The Museum currently 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.

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.

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. 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.

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 New York State Office of Parks, Recreation, and Historic Preservation (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 Department of Buildings (DOB) filing drawings (see **Appendix A**). LPC's Binding Report is summarized in Chapter 5, "Historic and Cultural Resources."

D. 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.

E. ENVIRONMENTAL REVIEW PROCESS

Responding to SEQRA and its implementing regulations, New York City has established rules for its environmental review process, CEQR. CEQR provides a means for decision-makers to systematically consider environmental effects along with other aspects of project planning and design, to evaluate reasonable alternatives, and to identify and—when practicable—mitigate

significant adverse environmental impacts. CEQR rules guide environmental review through the following steps:

- **Establishing a Lead Agency**. Under CEQR, the "lead agency" is the public entity responsible for conducting the environmental review. Usually, the lead agency is also the entity primarily responsible for carrying out, funding, or approving the proposed project. NYC Parks is the CEQR lead agency for the proposed project.
- **Determination of Significance**. The lead agency's first charge is to determine whether the proposed project might have a significant impact on the environment. To do so, NYC Parks prepared an Environmental Assessment Statement (EAS). Based on the information contained in the EAS, NYC Parks determined that the project might result in significant adverse environment impacts and issued a Positive Declaration on March 2, 2016.
- **Scoping**. Along with its issuance of a Positive Declaration, NYC Parks issued a draft Scope of Work for the EIS on March 2, 2016. This draft scope was made available to concerned citizens, public agencies, and other interested groups. "Scoping," or creating the scope of work, is the process of focusing the environmental impact analyses on the key issues that are to be studied. A public scoping meeting was held for the proposed project on April 6, 2016, and additional comments were accepted until April 20, 2016. Modifications to the draft Scope of Work for this DEIS were made as a result of public and agency input during the scoping process. A Final Public Scoping Document for the project (dated April 25, 2017), which reflected comments made on the draft scope and responses to those comments, was prepared and issued.
- **Draft Environmental Impact Statement**. In accordance with the Final Public Scoping Document, a DEIS was prepared. After reviewing the DEIS and determining that the document has fully disclosed the project program, its potential environmental impacts, and recommended mitigation, the NYC Parks issued a Notice of Completion on May 18, 2017. Having been accepted as complete, the DEIS has been circulated for public review.
- **Public Review**. Publication of the DEIS and issuance of the Notice of Completion signal the start of the public review period. During this time, which extends for a minimum of 30 days, the public has the opportunity to review and comment on the DEIS either in writing or at a public hearing convened for the purpose of receiving such comments. In any event, the lead agency must publish a notice of the hearing at least 14 days before it takes place and must accept written comments for at least 10 days following the close of the hearing. All substantive comments received at the hearing or during the comment period become part of the CEQR record and are summarized and responded to in the Final EIS (FEIS).
- **Final Environmental Impact Statement**. After the close of the public comment period for the DEIS, NYC Parks will prepare an FEIS. This document will include a summary restatement of each substantive comment made about the DEIS and a response to each such comment. Once NYC Parks has determined that the FEIS is complete, it will issue a Notice of Completion and circulate the FEIS.
- **Findings**. To demonstrate that the responsible public decision-makers have taken a hard look at the environmental consequences of a proposed project, any agency taking a discretionary action regarding a project must adopt a formal set of written findings. These findings reflect their conclusions about the significant adverse environmental impacts of the proposed project, potential alternatives, potential mitigation measures and, as appropriate, the balancing of social and economic considerations with the impacts. The findings may not be adopted until 10 days after the Notice of Completion has been issued for the FEIS. Once

findings are adopted, the lead and involved agencies may take their actions (or take "no action").

F. FRAMEWORK FOR ANALYSIS

SCOPE OF ENVIRONMENTAL ANALYSIS

As set forth in the Positive Declaration, the lead agency has determined that the proposed project may result in one or more significant adverse environmental impacts and thus requires preparation of an EIS. The EIS has been prepared in accordance with the guidelines set forth in the *CEQR Technical Manual*, which provides methodologies and guidelines for environmental impact assessment consistent with SEQRA.

For all technical analyses in the EIS, the assessment includes a description of existing conditions, an assessment of conditions in the future without the proposed project for the year that the proposed project would be completed, and an assessment of conditions for the same year with the completion of the proposed project. Identification and evaluation of impacts of the proposed project are based on the change from the future without the proposed project (No Action condition) to the future with the proposed project (With Action condition).

ANALYSIS YEAR

An EIS analyzes the effects of a proposed action on its environmental setting. Since a proposed action, if approved, would take place in the future, the action's environmental setting is not the current environment but the environment as it would exist at project completion, in the future. Therefore, future conditions must be projected. This prediction is made for a particular year, generally known as the "analysis year" or the "build year," which is the year when the action would be substantially operational.

As previously described, the analysis year is 2021, which is when the proposed project is expected to be fully operational.

DEFINITION OF STUDY AREAS

For each technical area in which impacts may occur, a study area is defined for analysis. This is the geographic area likely to be affected by the proposed project for a given technical area, or the area in which impacts of that type could occur. Appropriate study areas differ depending on the type of potential impact being analyzed. The methods and study areas for addressing impacts are discussed in the individual technical analysis sections.

DEFINING BASELINE CONDITIONS

EXISTING CONDITIONS

For each technical area being assessed in the EIS, the current conditions must first be described. The assessment of existing conditions establishes a baseline from which future conditions can be projected. The prediction of future conditions begins with an assessment of existing conditions because these can be measured and observed. Studies of existing conditions are generally selected for the reasonable worst-case conditions.

DEFINITION OF FUTURE WITHOUT THE PROPOSED PROJECT

The "future without the proposed project," or "No Action condition," describes a baseline condition, which is evaluated and compared to the incremental changes due to the proposed project. The No Action condition uses existing conditions as a baseline and adds to it changes known or expected to be in place by 2021. For many technical areas, the No Action condition incorporates known development projects that are likely to be built by the analysis year. This includes development currently under construction or which can be reasonably anticipated due to the current level of planning and public approvals. The No Action analyses for some technical areas, such as traffic, use a background growth factor to account for a general increase expected in the future. The No Action analyses must also consider any other applicable future changes that will affect the environmental setting. These could include technology changes (such as advances in vehicle pollution control and roadway improvements) or changes to applicable public policies.

IDENTIFYING SIGNIFICANT ADVERSE ENVIRONMENTAL IMPACTS

Identification of significant adverse environmental impacts is based on the comparison of future conditions without and with the proposed project. In certain technical areas (e.g., traffic, air quality, and noise) this comparison can be quantified and the severity of impact rated in accordance with the *CEQR Technical Manual*. In other technical areas, (e.g., neighborhood character) the analysis is more qualitative. The methodology for each technical analysis is presented at the start of each technical chapter.

MITIGATION

CEQR requires that any significant adverse impacts identified in the EIS be minimized or avoided to the fullest extent practicable, given costs and other factors. In the DEIS, options for mitigation can be presented for public review and discussion, without the lead agency having selected one for implementation. Where no mitigation is available, the EIS must disclose the potential for unmitigatible significant adverse impacts. ✷