

Cornell NYC Tech

Final Environmental Impact Statement

CEQR No.:

12DME004M

ULURP Nos.:

130076ZMM

N130077ZRM

130078PPM

Lead Agency:

Office of the Deputy Mayor for Economic Development

Lead Agency Contact:

Robert R. Kulikowski, Ph.D.

Project Applicants:

Cornell University

New York City Department of Citywide Administrative Services

New York City Economic Development Corporation

Prepared by:

AKRF, Inc.

Philip Habib & Associates

VHB

March 2013

Cornell NYC Tech
FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS)

Project Location: Community District 8
Roosevelt Island
Borough of Manhattan

CEQR No. 12DME004M

Type of Action: Type I

ULURP Nos. 130076ZMM
N130077ZRM
130078PPM

Lead Agency: Office of the Deputy Mayor for Economic Development
Lead Agency Contact: Robert R. Kulikowski, Ph.D.
Project Applicants: Cornell University
New York City Department of Citywide Administrative Services
New York City Economic Development Corporation

Preparers: AKRF, Inc.
440 Park Avenue South
New York, NY 10016
Philip Habib & Associates
102 Madison Avenue
New York, NY 10016
VHB
Two Penn Plaza, Suite 2602
New York, NY 10121

Acceptance Date: March 8, 2013

The FEIS is available for review on the website of the Mayor's Office of Environmental Coordination.

<http://www.nyc.gov/oec>

Table of Contents

Foreword	F-1
Executive Summary	S-1
1: Project Description	1-1
A. Introduction	1-1
B. Applied Sciences NYC Initiative and Purpose and Need for the Cornell NYC Tech Project.....	1-2
C. Site Conditions	1-3
D. Cornell NYC Tech Project Planning	1-4
Introduction	1-4
Campus Framework	1-4
E. Proposed Actions	1-5
F. Reasonable Worst-Case Development Scenario	1-7
Introduction	1-7
Phase 1	1-9
Full Build (Phases 1 and 2)	1-10
Sustainability Measures.....	1-11
Proposed Programming and Population	1-12
G. Analysis Framework	1-12
Analysis Approach	1-12
Environmental Review Process.....	1-14
2: Land Use, Zoning, and Public Policy	2-1
A. Introduction	2-1
B. Methodology	2-1
C. Background and Development History	2-2
Roosevelt Island	2-2
Project Site	2-3
D. Existing Conditions	2-4
Land Use	2-4
Zoning	2-6
Public Policy	2-7
E. Future Without the Proposed Project	2-8
2018 Analysis Year	2-8
2038 Analysis Year	2-9
F. Probable Impacts of the Proposed Project.....	2-10
2018 Analysis Year (Phase 1)	2-10
2038 Analysis Year (Full Build)	2-21
G. Conclusions	2-30

3: Socioeconomic Conditions	3-1
A. Introduction	3-1
B. Methodology.....	3-1
Background.....	3-1
Determining Whether A Socioeconomic Assessment Is Appropriate	3-2
Study Area Definition.....	3-3
Data Sources	3-3
C. Preliminary Assessment	3-4
Direct Residential Displacement	3-4
Direct Business Displacement	3-4
Indirect Residential Displacement	3-4
Indirect Business Displacement.....	3-7
Adverse Impacts On Specific Industries.....	3-9
D. Conclusions	3-9
Direct Residential Displacement	3-9
Direct Business Displacement	3-9
Indirect Residential Displacement	3-9
Indirect Business Displacement.....	3-10
Adverse Effects On Specific Industries	3-10
4: Community Facilities and Services	4-1
A. Introduction	4-1
B. Preliminary Screening	4-1
Direct Effects	4-1
Indirect Effects.....	4-2
C. Indirect Effects On Public Elementary and Intermediate Schools	4-5
Methodology.....	4-5
Existing Conditions	4-6
Future Without the Proposed Project (2038 Analysis Year)	4-7
Probable Impacts of the Proposed Project (2038 Full Build)	4-8
Alternative Schools Analysis.....	4-10
D. Indirect Effects On Public Libraries	4-10
Methodology.....	4-10
Existing Conditions	4-11
Future Without the Proposed Project (2038 Analysis Year)	4-12
Probable Impacts of the Proposed Project (2038 Full Build)	4-12
E. Conclusions	4-14
Indirect Effects On Public Schools	4-14
Indirect Effects On Libraries	4-15
5: Open Space	5-1
A. Introduction	5-1
B. Methodology.....	5-1
Study Areas.....	5-1
Open Space User Populations.....	5-2
Inventory of Open Space Resources	5-2
Adequacy of Open Space Resources	5-2
C. Existing Conditions	5-3

Open Space User Population	5-3
Open Space Inventory	5-3
Adequacy of Open Spaces.....	5-5
D. Future Without the Proposed Project	5-6
2018 Analysis Year	5-6
2038 Analysis Year	5-7
E. Probable Impacts of the Proposed Project.....	5-7
2018 Analysis Year (Phase 1)	5-8
2038 Analysis Year (Full Build)	5-10
F. Conclusions	5-13
6: Shadows	6-1
A. Introduction	6-1
B. Definitions and Methodology	6-1
Definitions	6-1
Methodology	6-2
Analysis Framework	6-3
Determining Impact Significance.....	6-3
C. Preliminary Screening Assessment	6-3
Tier 1 Screening Assessment	6-4
Tier 2 Screening Assessment	6-4
Tier 3 Screening Assessment	6-4
Resources of Concern.....	6-6
D. Detailed Shadow Analysis	6-6
Phase 1 (2018).....	6-7
Phase 2 (2038).....	6-11
E. Conclusions.....	6-14
Promenade—West Side.....	6-14
Promenade—East Side	6-15
Sportspark Outdoor Basketball Court	6-16
South Point Park.....	6-16
Firefighter Field.....	6-17
Sutton Place Park	6-17
East River	6-17
7: Historic Resources	7-1
A. Introduction	7-1
B. Methodology	7-1
Archaeological Resources	7-1
Architectural Resources	7-2
C. Background History	7-4
D. Existing Conditions.....	7-6
Project Site and Rezoning Area.....	7-6
Study Area.....	7-8
E. Future Without the Proposed Project	7-9
2018 Analysis Year	7-9
2038 Analysis Year	7-10
F. Probable Impacts of the Proposed Project.....	7-10

2018 Analysis Year (Phase 1).....	7-10
2038 Analysis Year (Full Build).....	7-15
G. Conclusions	7-18
8: Urban Design and Visual Resources	8-1
A. Introduction	8-1
B. Preliminary Assessment	8-1
C. Methodology.....	8-2
D. Existing Conditions	8-3
Project Site and Rezoning Area.....	8-3
Study Area	8-5
E. Future Without the Proposed Project.....	8-10
2018 Analysis Year.....	8-10
2038 Analysis Year.....	8-10
F. Probable Impacts of the Proposed Project.....	8-11
2018 Analysis Year (Phase 1).....	8-12
2038 Analysis Year (Full Build).....	8-16
G. Conclusions	8-19
9: Natural Resources	9-1
A. Introduction	9-1
B. Methodology.....	9-1
Overview	9-1
Existing Conditions	9-2
Future Without the Proposed Project (2018 and 2038)	9-2
Future With the Proposed Project.....	9-2
C. Regulatory Context.....	9-4
Federal	9-4
State	9-4
Local Regulations	9-5
D. Existing Conditions	9-5
Water Quality	9-5
Aquatic Biota.....	9-6
Groundwater	9-7
Wetlands	9-8
Floodplains	9-8
Terrestrial Ecological Communities and Vegetation.....	9-8
Wildlife.....	9-11
Threatened, Endangered, and Special Concern Species and Significant Habitat Areas...	9-14
E. Future Without the Proposed Project.....	9-14
2018 Analysis Year.....	9-14
2038 Analysis Year.....	9-16
F. Probable Impacts of the Proposed Project.....	9-17
2018 Analysis Year (Phase 1).....	9-17
2038 Analysis Year (Full Build).....	9-20
G. Conclusions	9-22
H. References	9-24

10: Hazardous Materials	10-1
A. Introduction	10-1
B. Existing Conditions	10-1
Subsurface Conditions.....	10-1
Hazardous Materials Assessment.....	10-2
C. The Future Without the Proposed Project	10-4
D. The Future With the Proposed Project	10-4
E. Conclusions	10-5
11: Water and Sewer Infrastructure.....	11-1
A. Introduction	11-1
B. Methodology	11-1
C. Existing Conditions.....	11-2
Sanitary Sewage	11-2
Stormwater	11-3
D. Future Without the Proposed Project	11-4
E. Probable Impacts of the Proposed Project.....	11-4
2018 Analysis Year (Phase 1)	11-4
2038 Analysis Year (Full Build)	11-7
F. Conclusions.....	11-9
12: Solid Waste and Sanitation Services	12-1
A. Introduction	12-1
B. Methodology	12-1
C. Existing Conditions.....	12-1
Description of Current Sanitation Services	12-1
Quantitative Analysis of Solid Waste Generation.....	12-3
D. Future Without the Proposed Project	12-3
2018 Analysis Year	12-3
2038 Analysis Year	12-3
E. Probable Impacts of the Proposed Project.....	12-3
2018 Analysis Year (Phase 1)	12-3
2038 Analysis Year (Full Build)	12-5
F. Conclusions.....	12-6
13: Energy.....	13-1
A. Introduction	13-1
B. Methodology	13-1
C. Existing Conditions.....	13-2
Energy Provider.....	13-2
Recent Energy Conservation Directives.....	13-2
Distributed Generation and PlaNYC 2030	13-3
Project Site	13-3
D. Future Without the Proposed Project	13-3
E. Probable Impacts of the Proposed Project.....	13-3
2018 Analysis Year (Phase I).....	13-4
2038 Analysis Year (Full Build)	13-4
Cornell NYC Tech Energy Conservation Measures	13-5

F. Conclusions	13-6
14: Transportation	14-1
A. Introduction	14-1
B. CEQR Screening Assessment.....	14-1
Level 1 Screening Assessment	14-2
Level 2 Screening Assessment	14-5
C. Transportation Analyses Methodology.....	14-15
Traffic Operations.....	14-15
Transit Operations	14-17
Pedestrian Operations	14-19
Vehicular and Pedestrian Safety Evaluation.....	14-20
Parking Conditions Assessment	14-21
D. Traffic	14-21
2011 Existing Conditions	14-21
2018 No Action Condition.....	14-27
2018 With Action Condition	14-34
2038 No Action Condition.....	14-43
2038 With Action Condition	14-51
E. Transit.....	14-58
Transit Study Areas	14-58
2011 Existing Conditions—Subway Station Operations.....	14-59
2011 Existing Conditions—Bus Line-Haul Operations	14-61
2011 Existing Conditions—Tram Line-Haul Operations.....	14-61
2018 No Action Condition—Subway Station Operations.....	14-62
2018 No Action Condition—Bus Line-Haul Levels	14-63
2018 No Action Condition—Tram Line-Haul Operations	14-63
2018 With Action Condition —Subway Station Operations.....	14-63
2018 With Action Condition—Bus Line-Haul Levels	14-66
2018 With Action Condition—Tramway Line-Haul Levels	14-66
2038 No Action Condition—Subway Station Operations.....	14-67
2038 No Action Condition—Bus Line-Haul Levels	14-69
2038 No Action Condition—Tram Line-Haul Levels.....	14-69
2038 With Action Condition—Subway Station Operations.....	14-69
2038 With Action Condition—Bus Line-Haul Levels	14-72
2038 With Action Condition—Tram Line-Haul Levels.....	14-73
F. Pedestrians.....	14-73
2011 Existing Conditions	14-73
2018 No Action Condition.....	14-73
2018 With Action Condition	14-75
2038 No Action Condition.....	14-75
2038 With Action Condition	14-75
G. Vehicular and Pedestrian Safety.....	14-80
H. Parking.....	14-81
Existing Conditions	14-81
2018 No Action Condition.....	14-82
2018 With Action Condition	14-83
2038 No Action Condition.....	14-83

2038 With Action Condition	14-84
I. Conclusions	14-86
Traffic	14-86
Transit	14-87
Pedestrians.....	14-87
Vehicular and Pedestrian Safety.....	14-87
Parking	14-87
15: Air Quality	15-1
A. Introduction.....	15-1
B. Pollutants for Analysis	15-1
Carbon Monoxide.....	15-2
Nitrogen Oxides, VOCs, and Ozone	15-2
Lead.....	15-3
Respirable Particulate Matter—PM ₁₀ and PM _{2.5}	15-3
Sulfur Dioxide	15-4
C. Air Quality Regulations, Standards, and Benchmarks	15-4
National and State Air Quality Standards	15-4
NAAQS Attainment Status and State Implementation Plans.....	15-6
Determining the Significance of Air Quality Impacts.....	15-7
D. Methodology	15-9
Mobile Sources.....	15-9
Stationary Sources.....	15-14
E. Existing Conditions.....	15-20
Modeled CO Concentrations for Existing Traffic Conditions	15-21
F. The Future Without the Proposed Project	15-22
2018 Analysis Year	15-22
2038 Analysis Year	15-23
G. Probable Impacts of the Proposed Project.....	15-24
2018 Analysis Year (Phase 1).....	15-24
2038 Analysis Year (Full Build).....	15-28
H. Conclusions.....	15-34
Mobile Sources.....	15-34
Stationary Sources.....	15-34
16: Greenhouse Gases and Climate Change.....	16-1
A. Introduction.....	16-1
B. Policy, Regulations, Standards, and Benchmarks for Reducing GHG Emissions	16-1
C. Methodology	16-2
Pollutants of Concern	16-3
Building Operational Emissions.....	16-4
Mobile Source Emissions.....	16-5
Construction Emissions.....	16-5
Emissions from Solid Waste Management	16-5
D. Projected GHG Emissions from the Proposed Project.....	16-6
2018 Analysis Year (Phase 1)	16-6
2038 Analysis Year (Full Build).....	16-6
E. Elements of the Proposed Project That Would Reduce GHG Emissions	16-7

Build Efficient Buildings	16-7
Use Clean Power.....	16-8
Enhance and Use Transit-Oriented Development and Sustainable Transportation	16-9
Reduce Construction Operation Emissions	16-9
Use Building Materials With Low Carbon Intensity	16-10
F. Adaptation to Climate Change	16-10
Resilience to Climate Change.....	16-11
G. Conclusions	16-12
17: Noise	17-1
A. Introduction	17-1
B. Acoustical Fundamentals.....	17-1
“A”-Weighted Sound Level (dBA).....	17-1
Community Response to Changes in Noise Levels	17-2
Sound Level Descriptors.....	17-3
C. Noise Standards and Criteria	17-3
New York City Department of Environmental Protection	17-3
New York CEQR Noise Criteria	17-3
Impact Definition.....	17-5
D. Noise Prediction Methodology	17-5
Study Area	17-5
Baseline Noise Monitoring (Existing Conditions).....	17-5
Determination of Future Noise Levels.....	17-7
Determination of Building Attenuation Requirements.....	17-8
Determination of Noise Levels in Project Created Open Spaces	17-9
Mechanical Equipment	17-9
E. Existing Conditions	17-9
F. Future Without the Proposed Project.....	17-10
2018 Analysis Year.....	17-10
2038 Analysis Year.....	17-11
G. The Future With the Proposed Project.....	17-12
2018 Analysis Year (Phase 1).....	17-12
2038 Analysis Year (Full Build).....	17-13
H. Building Attenuation for Project Buildings.....	17-14
I. Noise Levels At Open Space Areas.....	17-15
J. Conclusions	17-16
18: Public Health	18-1
19: Neighborhood Character.....	19-1
A. Introduction	19-1
B. Methodology.....	19-1
Neighborhood Character Components.....	19-2
Study Areas.....	19-2
Impact Assessment	19-2
C. Preliminary Assessment	19-2
Defining Features.....	19-2
Potential to Affect the Defining Features of the Neighborhood	19-4

D. Detailed Assessment	19-5
Future Without the Proposed Project	19-5
Probable Impacts of the Proposed Project.....	19-6
E. Conclusions.....	19-11
20: Construction.....	20-1
A. Introduction.....	20-1
B. Governmental Coordination and Oversight	20-2
C. Construction Phasing and Schedule	20-3
D. Construction Description	20-4
Overview	20-4
General Construction Practices	20-5
General Construction Tasks	20-7
E. Number of Construction Workers and Material Deliveries	20-12
F. Environmental Effects of Project Construction Activities	20-12
Transportation	20-13
Air Quality.....	20-30
Noise and Vibration	20-35
Other Technical Areas.....	20-44
G. Barging.....	20-48
Introduction	20-48
Description	20-48
Assessment.....	20-51
H. Conclusions.....	20-55
Transportation	20-55
Air Quality.....	20-57
Noise and Vibration	20-57
Other Technical Areas.....	20-58
Barging.....	20-60
21: Alternatives	21-1
A. Introduction.....	21-1
B. Applied Sciences NYC	21-1
C. No Action Alternative.....	21-2
Description	21-2
No Action Alternative Compared With the Proposed Actions	21-2
D. No Unmitigated Significant Adverse Impact Alternative	21-7
Historic and Cultural Resources.....	21-7
Transportation	21-7
Construction	21-8
E. Conclusions.....	21-9
No Action Alternative	21-9
No Unmitigated Significant Adverse Impact Alternative	21-9
22: Mitigation	22-1
A. Introduction.....	22-1
B. Historic and Cultural Resources.....	22-1
C. Transportation	22-1

Traffic	22-1
Transit.....	22-33
Pedestrians	22-34
Effects of Traffic Mitigations On Pedestrian Operations	22-35
Mitigation Implementation	22-36
D. Construction	22-36
Transportation.....	22-36
Noise Impacts On Open Space	22-37
23: Unavoidable Adverse Impacts	23-1
A. Introduction	23-1
B. Historic and Cultural Resources	23-1
C. Transportation.....	23-2
Traffic	23-2
D. Construction	23-3
Transportation.....	23-3
Noise Impacts On Open Space	23-3
24: Growth-Inducing Aspects of the Proposed Actions	24-1
25: Irreversible and Irretrievable Commitments of Resources	25-1
26: Response to Comments.....	26-1
Appendices¹	
Appendix 1: Special Southern Roosevelt Island District Zoning Text	
Appendix 2: Consistency Assessment Form	
Appendix 7: Historic and Cultural Resources	
Appendix 9: Natural Resources	
Appendix 10: Hazardous Materials	
Appendix 11: Water and Sewer Infrastructure	
Appendix 20: Construction	
Appendix 26: Written Comments Received on the DEIS	

¹ Appendices are numbered to correspond with the first chapter in which they are referenced.

List of Tables

S-1	Reasonable Worst-Case Development Program for CEQR.....	S-6
S-2	Cornell NYC Tech Population.....	S-10
S-3	Cornell NYC Tech On-Campus Residential Population.....	S-11
S-4	With Action Condition: Open Space Ratios Summary.....	S-16
S-5	Mitigation Future With Action Condition: Bus Line Haul Levels	S-41
1-1	Reasonable Worst-Case Development Program for CEQR.....	1-8
1-2	Cornell NYC Tech Population.....	1-13
1-3	Cornell NYC Tech On-Campus Residential Population.....	1-13
2-1	Residential Development on Roosevelt Island	2-5
2-2	2018 RWCDS Program	2-11
2-3	2038 RWCDS Program (Full Build Out).....	2-21
3-1	Average Household Income (1999, 2006-2010).....	3-5
4-1	Preliminary Screening Analysis Criteria	4-2
4-2	Public Schools Serving the Project Sites, Enrollment and Capacity Data, 2011-2012 School Year	4-6
4-3	Estimated Number of Students Introduced By Development in the 2038 No-Action Condition	4-7
4-4	Estimated Public Elementary and Intermediate School Enrollment, Capacity, and Utilization: 2038 No-Action Condition.....	4-8
4-5	Estimated Number of Students Introduced in the Study Area: 2038 With Action Condition.....	4-8
4-6	Estimated Public Elementary and Intermediate School Enrollment, Capacity, and Utilization: 2038 With Action Condition.....	4-9
4-7	Estimated Public Elementary and Intermediate School Enrollment, Capacity, and Utilization: 2038 With Action Condition, Using the Alternative Methodology ...	4-10
4-8	Public Library Serving the Project Site	4-12
4-9	Catchment Area Population in the 2038 No-Action Condition	4-12
4-10	Catchment Area Population in the 2038 With Action Condition	4-13
5-1	Roosevelt Island Open Space Inventory	5-4
5-2	Adequacy of Existing Open Space Resources	5-5

5-3	2018 No-Action Condition: Adequacy of Open Space Resources.....	5-7
5-4	2018 With-Action Condition: Adequacy of Open Space Resources.....	5-9
5-5	2038 With-Action Condition: Adequacy of Open Space Resources.....	5-11
5-6	With-Action Condition: Open Space Ratios Summary	5-13
6-1	Incremental Shadow Durations—Phase 1 (2018)	6-8
6-2	Incremental Shadow Durations—Phase 2 (2038)	6-12
9-1	Plant Species Observed Within the Study Area	9-10
9-2	2000-2005 Breeding Bird Atlas Results for Block 5851c.....	9-12
11-1	Existing Water Consumption Goldwater Hospital	11-3
11-2	Project Site Surface Coverage: Existing Conditions	11-4
11-3	Projected Water Consumption: 2018	11-5
11-4	NYCDEP Volume Calculation Matrix—Existing, No Action and With Action (Phase 1) Volume Comparison	11-6
11-5	Projected Water Consumption: 2038	11-7
11-6	NYCDEP Volume Calculation Matrix—Existing, No Action and With Action (Full Build) Volume Comparison	11-8
12-1	Solid Waste Generation of Phase 1 of the Proposed Project.....	12-4
12-2	Solid Waste Generation of the Full Build Out of the Proposed Project	12-6
13-1	Annual Energy Consumption, Phase 1 (2018)	13-4
13-2	Annual Energy Consumption, Full Build (2038)	13-4
14-1	Reasonable Worst-Case Development Scenario Program (gsf)	14-2
14-2	Projected Academic Population Residents.....	14-3
14-3	Travel Demand Assumptions	14-6
14-4	Weekday Trip Generation Summary—Phase 1 (2018).....	14-8
14-5	Weekday Trip Generation Summary—Full Build (2038).....	14-10
14-6	Subway Line Haul Screening Analysis	14-13
14-7	Sidewalk Capacity Analysis Locations	14-15
14-8	LOS Criteria for Signalized Intersections	14-15
14-9	LOS Criteria for Unsignalized Intersections	14-16
14-10	LOS Criteria for Subway Station Elements	14-17
14-11	Significant Impact Guidance for Stairs and Passageways.....	14-18
14-12	LOS Criteria for Sidewalks	14-19
14-13	Significant Impact Guidance for Sidewalks	14-20

14-14a	2011 Existing Traffic Level of Service Summary – Overall Intersections	14-23
14-14b	2011 Existing Traffic Level of Service Summary – Traffic Movements	14-24
14-15	2011 Existing Conditions Traffic Level of Service Analysis Signalized Intersections.....	14-24
14-16	2011 Existing Conditions Traffic Level of Service Analysis Unsignalized Intersections	14-26
14-17	2018 Analysis Year No Action Projects	14-28
14-18a	2018 No Action Traffic Level of Service Summary – Overall Intersections	14-30
14-18b	2018 No Action Traffic Level of Service Summary – Traffic Movements.....	14-30
14-19	2018 No Action Traffic Level of Service Analysis Signalized Intersections	14-31
14-20	2018 No Action Traffic Level of Service Analysis Unsignalized Intersections	14-33
14-21a	2018 With Action Traffic Level of Service Summary – Overall Intersections	14-38
14-21b	2018 With Action Traffic Level of Service Summary – Traffic Movements.....	14-38
14-22	2018 With Action Traffic Level of Service Analysis Signalized Intersections	14-39
14-23	2018 With Action Traffic Level of Service Analysis Unsignalized Intersections.....	14-41
14-24	Phase 2 (2038) No Action Projects.....	14-44
14-25a	2038 No Action Traffic Level of Service Summary – Overall Intersections	14-46
14-25b	2038 No Action Traffic Level of Service Summary – Traffic Movements.....	14-46
14-26	2038 No Action Traffic Level of Service Analysis Signalized Intersections	14-46
14-27	2038 No Action Traffic Level of Service Analysis Unsignalized Intersections	14-49
14-28a	2038 With Action Traffic Level of Service Summary – Overall Intersections	14-52
14-28b	2038 With Action Traffic Level of Service Summary – Traffic Movements.....	14-52
14-29	2038 With Action Traffic Level of Service Analysis Signalized Intersections	14-53
14-30	2038 With Action Traffic Level of Service Analysis Unsignalized Intersections.....	14-55
14-31	Local Bus Routes Serving the Study Area.....	14-59
14-32	2011 Existing Conditions Subway Control Area Analysis.....	14-59
14-33	2011 Existing Conditions Subway Escalator Analysis	14-60
14-34	2011 Existing Conditions Subway Stairway Analysis.....	14-60
14-35	2011 Existing Bus Line-Haul Analysis.....	14-61
14-36	2011 Existing Tram Line-Haul Analysis	14-61
14-37	2018 No Action Condition Subway Control Area Analysis	14-62
14-38	2018 No Action Condition Subway Escalator Analysis	14-62
14-39	2018 No Action Condition Subway Stairway Analysis.....	14-63
14-40	2018 No Action Bus Line-Haul Analysis	14-64

Cornell NYC Tech FEIS

14-41	2018 No Action Condition Tram Line-Haul Analysis	14-64
14-42	2018 With Action Condition Subway Control Area Analysis	14-65
14-43	2018 With Action Condition Subway Escalator Analysis	14-65
14-44	2018 With Action Condition Subway Stairway Analysis	14-66
14-45	2018 With Action Bus Line-Haul Analysis	14-67
14-46	2018 With Action Condition Tram Line-Haul Analysis	14-67
14-47	2038 No Action Condition Subway Control Area Analysis	14-68
14-48	2038 No Action Condition Subway Escalator Analysis.....	14-68
14-49	2038 No Action Condition Subway Stairway Analysis	14-69
14-50	2038 No Action Bus Line-Haul Analysis.....	14-70
14-51	2038 No Action Condition Tram Line-Haul Analysis	14-70
14-52	2038 With Action Condition Subway Control Area Analysis	14-70
14-53	2038 With Action Condition Subway Escalator Analysis	14-71
14-54	2038 With Action Condition Subway Stairway Analysis	14-71
14-55	2038 With Action Bus Line-Haul Analysis	14-72
14-56	2038 With Action Condition Tram Line-Haul Analysis	14-73
14-57	2011 Existing Conditions Sidewalk Analysis	14-74
14-58	2018 No Action Condition Sidewalk Analysis	14-76
14-59	2018 With Action Condition Sidewalk Analysis	14-77
14-60	2038 No Action Condition Sidewalk Analysis	14-78
14-61	2038 With Action Condition Sidewalk Analysis	14-79
14-62	Accident Summary	14-81
14-63	2011 Existing Weekday Parking Inventory and Utilization.....	14-82
14-64	2018 No Action Weekday Parking Inventory and Utilization (Projected).....	14-82
14-65	Phase 1—2018 Parking Accumulation Table	14-83
14-66	2038 No Action Weekday Parking Inventory and Utilization (Projected).....	14-84
14-67	Phase 2—2038 Parking Accumulation Table	14-85
15-1	National Ambient Air Quality Standards (NAAQS).....	15-5
15-2	Mobile Source Analysis Sites	15-12
15-3	Stack Parameters and Emission Rates for Potential CHP Plants	15-16
15-4	Stack Parameters and Emission Rates for Potential Boiler Systems in Phase 1	15-16
15-5	Stack Parameters and Emission Rates for Potential Boiler Systems in Phase 2	15-17
15-6	Sensitive Receptor Sites	15-20

15-7	Representative Monitored Ambient Air Quality Data	15-21
15-8	Modeled Existing (2011) 8-Hour Average CO Concentrations (ppm).....	15-21
15-9	Future (2018) Maximum Predicted 8-Hour Average CO Concentrations Without the Proposed Project (ppm)	15-21
15-10	Future (2018) Maximum Predicted 24-Hour Average PM ₁₀ Concentrations Without the Proposed Project (µg/m ³).....	15-21
15-11	Future (2038) Maximum Predicted 8-Hour Average CO Concentrations Without the Proposed Project (ppm)	15-23
15-12	Future (2038) Maximum Predicted 24-Hour Average PM ₁₀ Concentrations Without the Proposed Project (µg/m ³).....	15-23
15-13	Future (2018) Maximum Predicted 8-Hour Average CO Concentrations With and Without the Proposed Project (ppm).....	15-24
15-14	Future (2018) Maximum Predicted 24-Hour Average PM ₁₀ Concentrations With and Without the Proposed Project (µg/m ³).....	15-24
15-15	Future (2018) Maximum Predicted 24-Hour Average PM _{2.5} Increments (µg/m ³).....	15-25
15-16	Future (2018) Maximum Predicted Annual Average PM _{2.5} Increments (µg/m ³)	15-25
15-17	Maximum Modeled Pollutant Concentrations from the Proposed Project’s Potential Phase 1 CHP Plant (in µg/m ³).....	15-26
15-18	Maximum Modeled Pm2.5 Concentrations from the Proposed Project’s Potential Phase 1 CHP Plant (in µg/m ³).....	15-26
15-19	Maximum Modeled Pollutant Concentrations from the Proposed Project’s Potential Phase 1 Boiler Systems (in µg/m ³)	15-27
15-20	Maximum Modeled Pm2.5 Concentrations from the Proposed Project’s Potential Phase 1 Boiler Systems (in µg/m ³).....	15-27
15-25	Maximum Modeled Pollutant Concentrations from the Proposed Project’s Potential CHP Plants in the Full Build (in µg/m ³).....	15-31
15-26	Maximum Modeled Pm2.5 Concentrations from the Proposed Project’s Potential CHP Plants in the Full Build (in µg/m ³).....	15-31
15-27	Maximum Modeled Pollutant Concentrations from the Project’s Boiler Systems in the Full Build (in µg/m ³).....	15-32
15-28	Maximum Modeled PM _{2.5} Concentrations from the Project’s Boiler Systems (in µg/m ³). 15-32	
16-1	Global Warming Potential (GWP) for Major GHGs	16-3
16-2	Annual Building Energy Consumption.....	16-4
16-3	Estimated Total Annual Vehicle Miles Traveled for the Proposed Project.....	16-5
17-1	Common Noise Levels.....	17-2
17-2	Average Ability to Perceive Changes in Noise Levels	17-2
17-3	Noise Exposure Guidelines for Use in City Environmental Impact Review	17-4

Cornell NYC Tech FEIS

17-4	Required Attenuation Values to Achieve Acceptable Interior Noise Levels	17-4
17-5	Noise Receptor Locations	17-6
17-6	Existing Noise Levels At Noise Receptor Sites 2 Through 8 (in dBA)	17-9
17-7	Existing Noise Levels At Receptor 1	17-10
17-8	2018 No-Action Noise Levels (in dBA).....	17-11
17-9	2038 No-Action Noise Levels (in dBA).....	17-12
17-10	Phase 1 (2018) With Action Noise Levels (in dBA).....	17-13
17-11	Full Build (2038) With Action Noise Levels (in dBA).....	17-14
17-12	Minimum Required Building Attenuation at Project Buildings.....	17-15
20-1	Construction Oversight in New York City.....	20-3
20-2	Anticipated Construction Schedule	20-4
20-3	Average Number of Daily Workers and Trucks By Quarter.....	20-12
20-4	Phase 1 Construction Trip Generation	20-14
20-5	Phase 2 Construction Trip Generation	20-15
20-6	Phase 1 Peak Construction Vehicle Trip Projections	20-16
20-7a	Phase 2a Peak Construction Vehicle Trip Projections	20-16
20-7b	Phase 2b Peak Construction Vehicle Trip Projections	20-17
20-8	Phase 1 No Action Construction Traffic Levels of Service	20-19
20-9	Phase 1 No Action, With Action, Mitigated Conditions Construction AM Peak Hour Traffic Levels of Service.....	20-21
20-10	Phase 1 No Action, With Action, Mitigated Conditions Construction PM Peak Hour Traffic Levels of Service.....	20-23
20-11	Comparison of Weekday Vehicle Trip Generation—Construction and Operational	20-26
20-12	Mobile Source Analysis Sites	20-32
20-13	Maximum Predicted 8-Hour Average CO Concentrations	20-33
20-14	Maximum Predicted 24-Hour Average PM ₁₀ Concentrations.....	20-33
20-15	Maximum Predicted 24-Hour Average PM _{2.5} Concentrations	20-34
20-16	Maximum Predicted Annual Average PM _{2.5} Concentrations.....	20-34
20-17	Typical Construction Equipment Noise Emission Levels (dBA).....	20-38
22-1a	Phase 1—2018 Analysis Year (2018 With Action Condition) Traffic Impact Mitigation Summary	22-2
22-1b	Full Build—2038 Analysis Year (2038 With Action Condition) Traffic Impact Mitigation Summary	22-3

22-2a 2018 No Action, With Action, and Mitigated Traffic Levels of Service Comparison (Unsignalized Intersections) 22-9

22-2b 2018 No Action, With Action and Mitigated Traffic Levels of Service Comparison (Signalized Intersections) 22-11

22-3a 2038 No Action, With Action, and Mitigated Traffic Levels of Service Comparison (Unsignalized Intersections) 22-17

22-3b 2038 No Action, With Action and Mitigated Traffic Levels of Service Comparison (Signalized Intersections) 22-19

22-4 Mitigated Future With Action Condition (Capacity Improvement): Bus Line Haul Levels..... 22-30

22-5 2038 No Action, With Action, and Mitigated Conditions Pedestrian Level of Service Analysis 22-31

22-6 2038 With Action Condition Crosswalk Analysis With Traffic Mitigation 22-32

List of Figures

		<i>Following page</i>
S-1	Project Location	S-1
S-2	Project Site: Current Ownership	S-1
S-3	Current Zoning	S-3
S-4	Proposed Zoning	S-4
S-5	Proposed Roadway Mapping	S-5
S-6	Phase I—Illustrative Site Plan	S-7
S-7	Full Build—Illustrative Site Plan.....	S-8
S-8	Proposed Loop Roadway Configuration.....	S-9
1-1	Project Location	1-1
1-2	Project Site: Current Ownership	1-1
1-3	Current Zoning	1-3
1-4	Proposed Zoning	1-6
1-5	Proposed Roadway Mapping	1-6
1-6	Phase I—Illustrative Site Plan	1-9
1-7	Full Build—Illustrative Site Plan.....	1-10
1-8	Proposed Loop Roadway Configuration.....	1-11
2-1	Land Use Study Area	2-1
2-2	Residential Development on Roosevelt Island	2-4
2-3	Existing Zoning.....	2-6
2-4	Coastal Zone	2-8
2-5	Future Development Projects.....	2-9
2-6	Proposed Zoning	2-13
3-1	Socioeconomic Study Area.....	3-3
4-1	Public Schools Serving the Study Area	4-5
4-2	Public Libraries Study Area.....	4-11
5-1	Open Space Resources	5-1
6-1	Tier 1 and Tier 2 Assessment.....	6-3
6-2	Tier 3 Assessment	6-5
6-3	Photos of Waterfront Promenade—Western Side.....	6-6
6-4	Photos of Waterfront Promenade—Eastern Side and Basketball Court	6-6
6-5	Three-Dimensional Computer Model—View North	6-7
6-6	Phase 1 March 21/Sept. 21—8:00 AM	6-7
6-7	Phase 1 March 21/Sept. 21—9:00 AM	6-7
6-8	Phase 1 March 21/Sept. 21—10:00 AM	6-7

6-9	Phase 1 March 21/Sept. 21—11:00 AM.....	6-7
6-10	Phase 1 March 21/Sept. 21—12:00 PM	6-7
6-11	Phase 1 March 21/Sept. 21—2:00 PM	6-7
6-12	Phase 1 March 21/Sept. 21—3:00 PM	6-7
6-13	Phase 1 March 21/Sept. 21—4:00 PM	6-7
6-14	Phase 1 May 6/August 6—7:00 AM	6-7
6-15	Phase 1 May 6/August 6—8:00 AM	6-7
6-16	Phase 1 May 6/August 6—9:00 AM	6-7
6-17	Phase 1 May 6/August 6—10:00 AM	6-7
6-18	Phase 1 May 6/August 6—11:00 AM	6-7
6-19	Phase 1 May 6/August 6—2:00 PM.....	6-7
6-20	Phase 1 May 6/August 6—3:00 PM.....	6-7
6-21	Phase 1 May 6/August 6—4:00 PM.....	6-7
6-22	Phase 1 May 6/August 6—5:00 PM.....	6-7
6-23	Phase 1 June 21—6:00 AM.....	6-7
6-24	Phase 1 June 21—7:00 AM.....	6-7
6-25	Phase 1 June 21—8:00 AM.....	6-7
6-26	Phase 1 June 21—9:00 AM.....	6-7
6-27	Phase 1 June 21—10:00 AM.....	6-7
6-28	Phase 1 June 21 11:00 AM.....	6-7
6-29	Phase 1 June 21—1:00 PM.....	6-7
6-30	Phase 1 June 21—2:00 PM.....	6-7
6-31	Phase 1 June 21—3:00 PM.....	6-7
6-32	Phase 1 June 21—4:00 PM.....	6-7
6-33	Phase 1 June 21—5:00 PM.....	6-7
6-34	Phase 1 June 21—6:00 PM.....	6-7
6-35	Phase 1 December 21—8:51 AM.....	6-7
6-36	Phase 1 December 21—9:30 AM.....	6-7
6-37	Phase 1 December 21—10:30 AM.....	6-7
6-38	Phase 1 December 21—11:30 AM.....	6-7
6-39	Phase 1 December 21—12:30 PM.....	6-7
6-40	Phase 1 December 21—1:30 PM.....	6-7
6-41	Phase 1 December 21—2:10 PM.....	6-7
6-42	Phase 1 December 21—2:50 PM.....	6-7
6-43	Phase 2 March 21/Sept. 21—8:00 AM.....	6-11
6-44	Phase 2 March 21/Sept. 21—9:00 AM.....	6-11
6-45	Phase 2 March 21/Sept. 21—10:00 AM.....	6-11
6-46	Phase 2 March 21/Sept. 21—11:00 AM.....	6-11
6-47	Phase 2 March 21/Sept. 21—12:00 PM	6-11
6-48	Phase 2 March 21/Sept. 21—3:00 PM	6-11
6-49	Phase 2 March 21/Sept. 21—4:00 PM	6-11
6-50	Phase 2 May 6/August 6—7:00 AM	6-11

6-51	Phase 2 May 6/August 6—8:00 AM.....	6-11
6-52	Phase 2 May 6/August 6—9:00 AM.....	6-11
6-53	Phase 2 May 6/August 6—10:00 AM.....	6-11
6-54	Phase 2 May 6/August 6—11:00 AM.....	6-11
6-55	Phase 2 May 6/August 6—12:00 PM	6-11
6-56	Phase 2 May 6/August 6—2:00 PM	6-11
6-57	Phase 2 May 6/August 6—3:00 PM	6-11
6-58	Phase 2 May 6/August 6—4:00 PM	6-11
6-59	Phase 2 May 6/August 6—5:00 PM	6-11
6-60	Phase 2 June 21—6:00 AM	6-11
6-61	Phase 2 June 21—7:00 AM	6-11
6-62	Phase 2 June 21—8:00 AM	6-11
6-63	Phase 2 June 21—9:00 AM	6-11
6-64	Phase 2 June 21—10:00 AM	6-11
6-65	Phase 2 June 21 11:00 AM	6-11
6-66	Phase 2 June 21—12:00 PM	6-11
6-67	Phase 2 June 21—1:00 PM	6-11
6-68	Phase 2 June 21—2:00 PM	6-11
6-69	Phase 2 June 21—3:00 PM	6-11
6-70	Phase 2 June 21—4:00 PM	6-11
6-71	Phase 2 June 21—5:00 PM	6-11
6-72	Phase 2 June 21—6:00 PM	6-11
6-73	Phase 2 December 21—8:51 AM	6-11
6-74	Phase 2 December 21—9:30 AM	6-11
6-75	Phase 2 December 21—10:30 AM	6-11
6-76	Phase 2 December 21—11:30 AM	6-11
6-77	Phase 2 December 21—12:30 PM	6-11
6-78	Phase 2 December 21—1:30 PM	6-11
6-79	Phase 2 December 21—2:10 PM	6-11
6-80	Phase 2 December 21—2:50 PM	6-11
7-1a	Project Location Map.....	7-1
7-1b	Project Aerial Location	7-3
7-2	Project Site—Goldwater Hospital.....	7-7
7-3	Project Site—Goldwater Hospital.....	7-7
7-4	Project Site—Goldwater Hospital.....	7-7
7-5	Project Site—Goldwater Hospital.....	7-7
7-6	Project Site—Goldwater Hospital.....	7-7
7-7	Project Site—Goldwater Hospital.....	7-7
7-8	Project Site—Goldwater Hospital.....	7-7
7-9	Study Area—Known Architectural Resources	7-8
7-10	Study Area—Known Architectural Resources	7-9
8-1	Project Site and Study Area Reference Map.....	8-3

8-2	Visual Resources Study Area	8-3
8-3	Aerial of Project Site and Rezoning Area.....	8-3
8-4	Photograph View Locations	8-3
8-5	Photographs of Project Site	8-3
8-6	Photographs of Project Site	8-4
8-7	Photographs of Project Site	8-4
8-8	Photographs of Project Site	8-4
8-9	Views from the Project Site and Rezoning Area	8-4
8-10	Views from the Project Site and Rezoning Area	8-5
8-11	Photographs of Study Area.....	8-5
8-12	Photographs of Study Area.....	8-5
8-13	Major Developments on Roosevelt Island.....	8-5
8-14	Photographs of Study Area.....	8-5
8-15	Photographs of Study Area.....	8-6
8-16	Photographs of Study Area.....	8-6
8-17	Photographs of Study Area.....	8-6
8-18	Photographs of Study Area.....	8-6
8-19	Photographs of Study Area.....	8-7
8-20	Photographs of Study Area.....	8-7
8-21	Views from Study Area	8-7
8-22	Open Spaces on Roosevelt Island.....	8-7
8-23	Views from Study Area	8-8
8-24	Views from Study Area	8-8
8-25	Views from Study Area	8-8
8-26	Views from Study Area	8-9
8-27	Views from Study Area	8-9
8-28	Views from Study Area	8-9
8-29	Photographs of Study Area.....	8-9
8-30	Views from Off-Island Locations.....	8-9
8-31	Views from Off-Island Locations.....	8-9
8-32	Views from Off-Island Locations.....	8-10
8-33	Phase I—Illustrative Site Plan	8-12
8-34	Illustrative View of No Action vs. With Action Conditions: 2018 On-Island View North	8-16
8-35	Illustrative View of No Action vs. With Action Conditions: 2018 View from Sutton Place in Manhattan.....	8-16
8-36	Illustrative View of No Action vs. With Action Conditions: 2018 View from East River Waterfront in Manhattan	8-16
8-37	Illustrative View of No Action vs. With Action Conditions: 2018 View from Queensbridge Park in Queens	8-16
8-38	Illustrative View of No Action vs. With Action Conditions: 2018 View from Gantry State Park in Queens	8-16

8-39	Illustrative View of No Action vs. With Action Conditions: 2018 View from Roosevelt Island Tram.....	8-16
8-40	Full Build—Illustrative Site Plan.....	8-17
8-41	Illustrative View of No Action vs. With Action Conditions: 2038 On-Island View North.....	8-19
8-42	Illustrative View of No Action vs. With Action Conditions: 2038 View from Roosevelt Island Tram.....	8-19
8-43	Illustrative View of No Action vs. With Action Conditions: 2038 View from Gantry State Park in Queens.....	8-19
8-44	Illustrative View of No Action vs. With Action Conditions: 2038 View from Queensbridge Park in Queens.....	8-19
8-45	Illustrative View of No Action vs. With Action Conditions: 2038 View from East River Waterfront in Manhattan.....	8-19
8-46	Illustrative View of No Action vs. With Action Conditions: 2038 View from Sutton Place in Manhattan.....	8-19
9-1	Aerial.....	9-1
9-2	FEMA Flood Zone.....	9-8
14-1	Weekday AM Peak Hour 2018 Build Traffic Increments.....	14-12
14-2	Weekday Midday Peak Hour 2018 Build Traffic Increments.....	14-12
14-3	Weekday PM Peak Hour 2018 Build Traffic Increments.....	14-12
14-4	Weekday AM Peak Hour 2038 Build Traffic Increments.....	14-12
14-5	Weekday Midday Peak Hour 2038 Build Traffic Increments.....	14-12
14-6	Weekday PM Peak Hour 2038 Build Traffic Increments.....	14-12
14-7	Traffic Analysis Locations.....	14-12
14-8	Transit Map.....	14-13
14-9	2018 Proposed Project Net Incremental Pedestrian Volumes AM Peak Hour.....	14-14
14-10	2018 Proposed Project Net Incremental Pedestrian Volumes Midday Peak Hour.....	14-14
14-11	2018 Proposed Project Net Incremental Pedestrian Volumes PM Peak Hour.....	14-14
14-12	2038 Proposed Project Net Incremental Pedestrian Volumes AM Peak Hour.....	14-14
14-13	2038 Proposed Project Net Incremental Pedestrian Volumes Midday Peak Hour.....	14-14
14-14	2038 Proposed Project Net Incremental Pedestrian Volumes PM Peak Hour.....	14-14
14-15	Transit and Pedestrian Analysis Locations.....	14-14
14-16	Weekday AM Peak Hour Existing Traffic Volumes.....	14-23
14-17	Weekday Midday Peak Hour Existing Traffic Volumes.....	14-23
14-18	Weekday PM Peak Hour Existing Traffic Volumes.....	14-23
14-19	Future Development Projects in the 2018 No Action Condition.....	14-27
14-20	Weekday AM Peak Hour 2018 No Build Traffic Volumes.....	14-29

List of Figures

14-21	Weekday Midday Peak Hour 2018 No Build Traffic Volumes.....	14-29
14-22	Weekday PM Peak Hour 2018 No Build Traffic Volumes	14-29
14-23	Weekday AM Peak Hour 2018 Build Traffic Volumes	14-37
14-24	Weekday Midday Peak Hour 2018 Build Traffic Volumes	14-37
14-25	Weekday PM Peak Hour 2018 Build Traffic Volumes	14-37
14-26	Future Development Projects in the 2038 NO Action Condition.....	14-43
14-27	Weekday AM Peak Hour 2038 No Build Traffic Volumes.....	14-43
14-28	Weekday Midday Peak Hour 2038 No Build Traffic Volumes.....	14-43
14-29	Weekday PM Peak Hour 2038 No Build Traffic Volumes	14-43
14-30	Weekday AM Peak Hour 2038 Build Traffic Volumes	14-52
14-31	Weekday Midday Peak Hour 2038 Build Traffic Volumes	14-52
14-32	Weekday PM Peak Hour 2038 Build Traffic Volumes	14-52
14-33	Existing Peak 15 Minute Pedestrian Volumes AM Peak 15 Minutes	14-73
14-34	Existing Peak 15 Minute Pedestrian Volumes Midday Peak 15 Minutes	14-73
14-35	Existing Peak 15 Minute Pedestrian Volumes PM Peak 15 Minutes	14-73
14-36	2018 No Action Peak 15 Minute Pedestrian Volumes AM Peak 15 Minutes	14-73
14-37	2018 No Action Peak 15 Minute Pedestrian Volumes Midday Peak 15 Minutes ...	14-73
14-38	2018 No Action Peak 15 Minute Pedestrian Volumes PM Peak 15 Minutes.....	14-73
14-39	2018 With Action Peak 15 Minute Pedestrian Volumes AM Peak 15 Minutes	14-75
14-40	2018 With Action Peak 15 Minute Pedestrian Volumes Midday Peak 15 Minutes	14-75
14-41	2018 With Action Peak 15 Minute Pedestrian Volumes PM Peak 15 Minutes.....	14-75
14-42	2038 No Action Peak 15 Minute Pedestrian Volumes AM Peak 15 Minutes	14-75
14-43	2038 No Action Peak 15 Minute Pedestrian Volumes Midday Peak 15 Minutes ...	14-75
14-44	2038 No Action Peak 15 Minute Pedestrian Volumes PM Peak 15 Minutes.....	14-75
14-45	2038 With Action Peak 15 Minute Pedestrian Volumes AM Peak 15 Minutes	14-75
14-46	2038 With Action Peak 15 Minute Pedestrian Volumes Midday Peak 15 Minutes	14-75
14-47	2038 With Action Peak 15 Minute Pedestrian Volumes PM Peak 15 Minutes.....	14-75
15-1	Air Quality Building Nomenclature	15-16
17-1	Noise Receptor Location	17-6
20-1	Anticipated Construction Schedule (Phase 1)	20-3
20-2	Anticipated Construction Schedule (Phase 2)	20-3

*