

***PROPOSED
EMERGENCY VENTILATION PLANT***

8th Avenue Subway Line
(between West 4th Street & 14th Street Stations)
&
7th Avenue Subway Line
(between Christopher Street & 14th Street Stations)
Greenwich Village, New York City, New York

D R A F T

ENVIRONMENTAL IMPACT STATEMENT

JANUARY 2008

VOLUME 1



NEW YORK CITY TRANSIT

Table of Contents

Volume 1

CHAPTER 1: PURPOSE AND NEED	1-1
1.1. INTRODUCTION.....	1-1
1.2. IDENTIFICATION OF THE PROPOSED ACTION.....	1-1
1.3. PROBLEM IDENTIFICATION	1-1
1.4. PROJECT PURPOSE AND NEED	1-2
1.5. PROJECT GOALS	1-2
CHAPTER 2: PROCEDURAL AND ANALYTICAL FRAMEWORK.....	2-1
2.1. INTRODUCTION.....	2-1
2.2. REQUIRED APPROVALS AND AGENCY COORDINATION.....	2-5
2.3. ENVIRONMENTAL REVIEW PROCESS	2-5
2.4. FRAMEWORK FOR ENVIRONMENTAL ANALYSIS	2-7
2.5. ANALYSES NOT INCLUDED.....	2-10
2.6. MITIGATION	2-11
CHAPTER 3: ALTERNATIVES	3-1
3.1. INTRODUCTION.....	3-1
3.2. PUBLIC INPUT TO DEVELOPMENT OF ALTERNATIVES.....	3-1
3.3. PRELIMINARY ALTERNATIVES CONSIDERED	3-2
3.4. DESCRIPTION OF ALTERNATIVES FOR DETAILED ANALYSIS IN DEIS.....	3-13
3.5. SUMMARY OF COMPARATIVE FEATURES OF ALTERNATIVES.....	3-31
CHAPTER 4: CONSTRUCTION METHODS AND ACTIVITIES.....	4-1
4.1. INTRODUCTION.....	4-1
4.2. MAJOR CONSTRUCTION ELEMENTS.....	4-2
4.3. DIFFERENCES AMONG ALTERNATIVES - SUMMARY	4-6
4.4. CONSTRUCTION MANAGEMENT ISSUES.....	4-11
4.5. OVERVIEW OF SPECIFIC CONSTRUCTION ACTIVITIES	4-61
CHAPTER 5: PUBLIC OUTREACH.....	5-1
5.1. INTRODUCTION.....	5-1
5.2. REGULATORY CONTEXT.....	5-1
5.3. PROJECT SCOPING PROCESS	5-1
5.4. ONGOING PUBLIC PARTICIPATION PROCESS.....	5-2
CHAPTER 6: TRAFFIC AND TRANSPORTATION CONDITIONS	6-1
6.1. INTRODUCTION.....	6-1
6.2. CONSTRUCTION ENVIRONMENTAL PROTECTION PLAN (CEPP).....	6-4
6.3. STUDY AREA.....	6-4
SUB-CHAPTER 6A: TRAFFIC AND PARKING	6-7
6A.1. INTRODUCTION.....	6-7
6A.2. ROADWAY NETWORK.....	6-7
6A.3. KEY INTERSECTIONS	6-7
6A.4. METHODOLOGY.....	6-8
6A.5. AFFECTED ENVIRONMENT.....	6-12
6A.6. ENVIRONMENTAL IMPACTS	6-18
6A.7. SUMMARY OF ADVERSE IMPACTS AND MITIGATION MEASURES.....	6-27
SUB-CHAPTER 6B: TRANSIT AND PEDESTRIANS.....	6-31
6B.1. INTRODUCTION.....	6-31
6B.2. STUDY AREA.....	6-31

6B.3.	METHODOLOGY.....	6-31
6B.4.	AFFECTED ENVIRONMENT.....	6-35
6B.5.	ENVIRONMENTAL IMPACT.....	6-37
6B.6.	SUMMARY OF ADVERSE IMPACTS AND MITIGATION MEASURES.....	6-45
CHAPTER 7:	SOCIAL AND ECONOMIC CONDITIONS.....	7-1
7.1.	OVERVIEW.....	7-1
7.2.	CONTEXT AND KEY ISSUES.....	7-1
7.3.	CONCLUSIONS.....	7-3
7.4.	CONSTRUCTION ENVIRONMENTAL PROTECTION PLAN (CEPP).....	7-6
SUB-CHAPTER 7A:	LAND USE, ZONING AND PUBLIC POLICY.....	7-9
7A.1.	METHODOLOGY.....	7-9
7A.2.	STUDY AREA.....	7-9
7A.3.	AFFECTED ENVIRONMENT.....	7-9
7A.4.	ENVIRONMENTAL IMPACTS.....	7-17
7A.5.	SUMMARY OF ADVERSE IMPACTS AND MITIGATION MEASURES.....	7-20
SUB-CHAPTER 7B:	ECONOMIC CONDITIONS.....	7-21
7B.1.	METHODOLOGY.....	7-21
7B.2.	STUDY AREA.....	7-22
7B.3.	AFFECTED ENVIRONMENT.....	7-22
7B.4.	ENVIRONMENTAL IMPACTS.....	7-28
7B.5.	SUMMARY OF ADVERSE IMPACTS AND MITIGATION MEASURES.....	7-36
SUB-CHAPTER 7C:	COMMUNITY CHARACTER.....	7-37
7C.1.	INTRODUCTION.....	7-37
7C.2.	METHODOLOGY.....	7-37
7C.3.	STUDY AREA.....	7-37
7C.4.	AFFECTED ENVIRONMENT.....	7-39
7C.5.	ENVIRONMENTAL IMPACTS.....	7-45
CHAPTER 8:	PUBLIC OPEN SPACE AND PARKLANDS.....	8-1
8.1.	INTRODUCTION.....	8-1
8.2.	CONTEXT AND KEY ISSUES.....	8-1
8.3.	CONCLUSIONS.....	8-2
8.4.	STUDY AREA.....	8-2
8.5.	METHODOLOGY.....	8-2
8.6.	AFFECTED ENVIRONMENT.....	8-2
8.7.	ENVIRONMENTAL IMPACTS.....	8-5
CHAPTER 9:	URBAN DESIGN AND VISUAL RESOURCES.....	9-1
9.1.	INTRODUCTION.....	9-1
9.2.	CONTEXT AND KEY ISSUES.....	9-1
9.3.	CONCLUSIONS.....	9-2
9.4.	METHODOLOGY.....	9-6
9.5.	STUDY AREA.....	9-6
9.6.	AFFECTED ENVIRONMENT.....	9-6
9.7.	ENVIRONMENTAL IMPACTS.....	9-22
CHAPTER 10:	DISPLACEMENT AND RELOCATIONS.....	10-1
10.1.	INTRODUCTION.....	10-1
10.2.	CONTEXT AND KEY ISSUES.....	10-1
10.3.	CONCLUSIONS.....	10-1
CHAPTER 11:	CULTURAL RESOURCES.....	11-1
11.1.	INTRODUCTION.....	11-1
11.2.	CONTEXT AND KEY ISSUES.....	11-1
11.3.	SUMMARY AND CONCLUSION.....	11-2
11.4.	PROCESS AND OVERVIEW.....	11-2

11.5.	CONSTRUCTION ENVIRONMENTAL PROTECTION PLAN (CEPP).....	11-3
11.6.	METHODOLOGY.....	11-3
11.7.	POTENTIALLY AFFECTED RESOURCES.....	11-7
11.8.	POTENTIAL IMPACTS	11-11
CHAPTER 12:	AIR QUALITY	12-1
12.1.	INTRODUCTION.....	12-1
12.2.	STUDY AREA.....	12-3
12.3.	POLLUTANTS	12-3
12.4.	KEY LAWS, REGULATIONS, GUIDELINES, AND MODELS.....	12-9
12.5.	DATA SOURCES ANALYZED	12-9
12.6.	MOBILE SOURCE ANALYSIS	12-9
12.7.	STATIONARY SOURCE ANALYSIS METHODOLOGY	12-13
12.8.	CUMULATIVE IMPACTS – MOBILE AND STATIONARY	12-17
12.9.	NYCT EMISSION REDUCTION REQUIREMENTS	12-18
12.10.	CUMULATIVE IMPACTS—MOBILE AND STATIONARY—WITH NYCT EMISSION REDUCTION REQUIREMENTS	12-20
12.11.	SUMMARY OF RESULTS WITH THE IMPLEMENTATION OF NYCT EMISSION REDUCTION REQUIREMENTS	12-21
CHAPTER 13:	NOISE AND VIBRATION.....	13-1
13.1.	INTRODUCTION.....	13-1
13.2.	SUMMARY FINDINGS	13-1
13.3.	CONCLUSIONS	13-1
13.4.	STUDY AREA.....	13-5
13.5.	NOISE AND VIBRATION CHARACTERISTICS	13-5
13.6.	REGULATORY FRAMEWORK.....	13-7
13.7.	EXISTING CONDITIONS	13-10
13.8.	ENVIRONMENTAL CONSEQUENCES.....	13-11
13.9.	SUMMARY OF SIGNIFICANT ADVERSE IMPACTS AND MITIGATION MEASURES.....	13-24
CHAPTER 14:	INFRASTRUCTURE, ENERGY, AND SOLID WASTE	14-1
14.1.	INTRODUCTION.....	14-1
14.2.	CONCLUSIONS	14-1
14.3.	STUDY AREA.....	14-2
14.4.	METHODOLOGY.....	14-2
14.5.	AFFECTED ENVIRONMENT.....	14-2
14.6.	ENVIRONMENTAL IMPACTS	14-12
14.7.	SUMMARY OF ADVERSE IMPACTS AND MITIGATION MEASURES.....	14-19
CHAPTER 15:	NATURAL RESOURCES.....	15-1
CHAPTER 16:	CONTAMINATED MATERIALS AND WASTE MANAGEMENT	16-1
16.1.	INTRODUCTION.....	16-1
16.2.	CONTEXT AND KEY ISSUES	16-1
16.3.	CONCLUSIONS	16-1
16.4.	STUDY AREA.....	16-4
16.5.	METHODOLOGY.....	16-4
16.6.	AFFECTED ENVIRONMENT.....	16-7
16.7.	ENVIRONMENTAL IMPACTS	16-15
16.8.	SUMMARY OF ADVERSE IMPACTS AND MITIGATION MEASURES.....	16-23
CHAPTER 17:	COASTAL ZONE	17-1
CHAPTER 18:	SAFETY AND SECURITY.....	18-1
18.1.	INTRODUCTION.....	18-1
18.2.	CONSTRUCTION SAFETY AND SECURITY	18-1
18.3.	OPERATIONAL SAFETY AND SECURITY	18-5
CHAPTER 19:	ENVIRONMENTAL JUSTICE.....	19-1

CHAPTER 20: CUMULATIVE EFFECTS ASSESSMENT 20-1
20.1. INTRODUCTION..... 20-1
20.2. COMMITMENTS TO MITIGATING ADVERSE EFFECTS 20-5

CHAPTER 21: IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES 21-1

CHAPTER 22: UNAVOIDABLE ADVERSE IMPACTS..... 22-1

CHAPTER 23: GROWTH INDUCING ASPECTS OF THE PROPOSED PROJECT..... 23-1

GLOSSARY

List of Tables

TABLE 3-1:	COMPARATIVE ENGINEERING ANALYSIS	3-6
TABLE 3-2:	COMPARATIVE ECONOMIC ANALYSIS.....	3-6
TABLE 3-3:	COMPARATIVE ENVIRONMENTAL ANALYSIS	3-7
TABLE 3-4:	INTEGRATED COMPARATIVE EVALUATION MATRIX.....	3-7
TABLE 4-1:	POTENTIAL STREET CLOSURES	4-56
TABLE 5-1:	SUMMARY OF PUBLIC OUTREACH ACTIVITIES.....	5-2
TABLE 6A-1:	SIGNALIZED INTERSECTION LOS CRITERIA	6-9
TABLE 6A-2:	UNSIGNALIZED INTERSECTION LOS CRITERIA	6-11
TABLE 6A-3:	LOS TABLES FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS (EXISTING CONDITIONS).....	6-13
TABLE 6A-4:	MAP KEY FOR CURBSIDE REGULATIONS WITHIN THE PARKING STUDY AREA.....	6-15
TABLE 6A-5:	MAP KEY FOR OFF-STREET PARKING FACILITIES.....	6-16
TABLE 6A-6:	LOS TABLES FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS (NO ACTION CONDITIONS).....	6-21
TABLE 6A-7:	LOS TABLES FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS: ALTERNATIVES P1, SB1, SB5 – STAGES 1 AND 2 (CONSTRUCTION CONDITIONS)	6-26
TABLE 6A-8:	ON-STREET PARKING SPACE LOSS DURING CONSTRUCTION (WEEKDAY MIDDAY).....	6-27
TABLE 6A-9:	LOS TABLES FOR TRAFFIC MITIGATION: ALTERNATIVES P1, SB1, SB5 – STAGES 1 AND 2 (CONSTRUCTION CONDITIONS).....	6-28
TABLE 6B-1:	LOS CRITERIA FOR CROSSWALKS/CORNERS	6-33
TABLE 6B-2:	LOS CRITERIA FOR SIDEWALKS/WALKWAYS	6-34
TABLE 6B-3:	LOS FOR SIDEWALKS AND CROSSWALKS (EXISTING CONDITIONS).....	6-38
TABLE 6B-4:	LOS FOR SIDEWALKS AND CROSSWALKS (NO ACTION CONDITIONS)	6-40
TABLE 6B-5:	LOS FOR SIDEWALKS AND CROSSWALKS ALTERNATIVES P1, SB1, SB5 (CONSTRUCTION CONDITIONS).....	6-44
TABLE 7-1:	SUMMARY OF COMPARISON OF ALTERNATIVES: SOCIAL AND ECONOMIC CONDITIONS	7-4
TABLE 7A-1:	STUDY AREA ZONING DISTRICT DESCRIPTIONS	7-15
TABLE 7B-1:	EMPLOYMENT STATISTICS IN 2000 BY INDUSTRY	7-22
TABLE 7B-2:	EMPLOYMENT STATISTICS IN 2000 BY AREA	7-24
TABLE 7B-3:	MEANS OF COMMUTING TO WORK IN 2000	7-24
TABLE 7B-4:	RETAIL BUSINESSES IN THE STUDY AREA.....	7-25
TABLE 7B-5:	RESTAURANTS WITH OUTDOOR SEATING	7-28
TABLE 7B-6:	ALTERNATIVE P1: VENTILATION PLANT CAPITAL BUDGET.....	7-29
TABLE 7B-7:	ALTERNATIVE P1: BUSINESSES POTENTIALLY AFFECTED BY CONSTRUCTION	7-30
TABLE 7B-8:	ALTERNATIVE SB1: VENTILATION PLANT CAPITAL BUDGET	7-31
TABLE 7B-9:	ALTERNATIVE SB1: BUSINESSES POTENTIALLY AFFECTED BY CONSTRUCTION.....	7-31
TABLE 7B-10:	ALTERNATIVE SB5: VENTILATION PLANT CAPITAL BUDGET	7-33
TABLE 7B-11:	ALTERNATIVE SB5: BUSINESSES POTENTIALLY AFFECTED BY CONSTRUCTION.....	7-33
TABLE 7C-1:	HOUSEHOLDS AND HOUSING UNITS, 1990–2000.....	7-40
TABLE 7C-2:	TRENDS IN HOUSING TENURE, 1990-2000.....	7-40
TABLE 7C-3:	POPULATION AND DEMOGRAPHIC CHARACTERISTICS FOR MANHATTAN COMMUNITY DISTRICT 2 AND STUDY AREA	7-41
TABLE 7C-4:	MAP KEY TO COMMUNITY FACILITIES AND SERVICES.....	7-43
TABLE 8-1:	SUMMARY OF COMPARISON OF ALTERNATIVES: OPEN SPACE.....	8-3

TABLE 8-2: OPEN SPACES WITHIN THE STUDY AREA..... 8-5

TABLE 9-1: SUMMARY OF COMPARISON OF ALTERNATIVES: URBAN DESIGN & VISUAL RESOURCES..... 9-4

TABLE 10-1: SUMMARY OF COMPARISON OF ALTERNATIVES: DISPLACEMENT AND RELOCATION.....10-2

TABLE 11-1: POTENTIAL IMPACTS ON HISTORIC RESOURCES.....11-4

TABLE 11-2: CONTRIBUTING AND NON-CONTRIBUTING STRUCTURES IN THE HISTORIC DISTRICT
ADJACENT TO THE STUDY AREA.....11-10

TABLE 12-1: SUMMARY OF COMPARISON OF ALTERNATIVES: AIR QUALITY12-2

TABLE 12-2: NATIONAL AND NEW YORK AMBIENT AIR QUALITY STANDARDS AND SIGNIFICANT
THRESHOLD VALUES12-6

TABLE 12-3: REPRESENTATIVE MONITORED AMBIENT AIR QUALITY DATA (2006)12-8

TABLE 12-4: BACKGROUND CONCENTRATIONS12-8

TABLE 12-5: PREDICTED EXISTING CONDITIONS – MAXIMUM 8-HOUR CO AND 24-HOUR PM₁₀ LEVELS.....12-12

TABLE 12-6: PREDICTED 2010 FUTURE CONDITIONS WITHOUT CONSTRUCTION ACTIVITIES – MAXIMUM
8-HOUR CO AND 24-HOUR PM₁₀ LEVELS.....12-12

TABLE 12-7: PREDICTED 2010 FUTURE CONDITIONS WITH CONSTRUCTION ACTIVITIES – MAXIMUM 8-
HOUR CO AND 24-HOUR PM₁₀ LEVELS12-13

TABLE 12-8: PREDICTED 2010 FUTURE CONDITIONS WITH THE PROPOSED ACTION – MAXIMUM PM_{2.5}
MOBILE SOURCE IMPACTS12-13

TABLE 12-9: ANNUAL EMISSION RATES FROM CONSTRUCTION EQUIPMENT AND ACTIVITIES12-16

TABLE 12-10: HIGHEST PREDICTED STATIONARY SOURCE IMPACTS12-17

TABLE 12.11: HIGHEST PREDICTED TOTAL POLLUTANT IMPACTS AND TOTAL CONCENTRATIONS
WITHOUT MITIGATION12-17

TABLE 12-12: ANNUAL EMISSION RATES FROM CONSTRUCTION EQUIPMENT AND ACTIVITIES WITH
NYCT EMISSION REDUCTION REQUIREMENTS.....12-19

TABLE 12-13: HIGHEST PREDICTED STATIONARY SOURCE IMPACTS WITH NYCT EMISSION REDUCTION
REQUIREMENTS12-20

TABLE 12.14: HIGHEST PREDICTED TOTAL POLLUTANT IMPACTS AND TOTAL CONCENTRATIONS WITH
NYCT EMISION REDUCTION REQUIREMENTS12-20

TABLE 13-1: FTA IMPACT CRITERIA FOR CONSTRUCTION13-9

TABLE 13-2: FTA GROUND-BORNE VIBRATION IMPACT CRITERIA13-10

TABLE 13-3: EXISTING NOISE MEASUREMENT RESULTS.....13-12

TABLE 13-4: EXISTING VIBRATION MEASUREMENT RESULTS.....13-13

TABLE 13-5: CONSTRUCTION NOISE EMISSION LEVELS AND USAGE FACTORS13-14

TABLE 13-6: ALTERNATIVE P1: CONSTRUCTION NOISE AT RECEPTOR LOCATIONS13-15

TABLE 13-7: ALTERNATIVE SB1: CONSTRUCTION NOISE AT RECEPTOR LOCATIONS.....13-16

TABLE 13-8: ALTERNATIVE SB5: CONSTRUCTION NOISE AT RECEPTOR LOCATIONS.....13-17

TABLE 13-9: SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT VIBRATION13-19

TABLE 13-10: ALTERNATIVE P1: CONSTRUCTION VIBRATION AT RECEPTOR LOCATIONS13-20

TABLE 13-11: ALTERNATIVE SB1: CONSTRUCTION VIBRATION AT RECEPTOR LOCATIONS.....13-21

TABLE 13-12: ALTERNATIVE SB5: CONSTRUCTION VIBRATION AT RECEPTOR LOCATIONS.....13-22

TABLE 14-1: SUMMARY OF COMPARISON OF ALTERNATIVES: INFRASTRUCTURE14-3

TABLE 16-1: SUMMARY OF COMPARISON OF ALTERNATIVES: CONTAMINATED MATERIALS16-3

TABLE 16-2: RCRA REGULATORY LIMITS16-10

TABLE 18-1: KEY MTA NYCT SAFETY AND SECURITY REQUIREMENTS (EXCERPTS)18-2

List of Figures

FIGURE 1-1:	8 TH AVENUE SUBWAY TUNNEL SECTION AND PROJECT STUDY AREA	1-3
FIGURE 2-1:	ALTERNATIVE P1	2-2
FIGURE 2-2:	ALTERNATIVE SB1	2-3
FIGURE 2-3:	ALTERNATIVE SB5	2-4
FIGURE 3-1:	ALTERNATIVE SITES UNDER CONSIDERATION	3-3
FIGURE 3-2A:	ALTERNATIVE P1 – PLAN	3-14
FIGURE 3-2B:	ALTERNATIVE P1 – CROSS SECTION AND SITE AREA PHOTOS	3-15
FIGURE 3-2C:	ALTERNATIVE P1 – PLAN VIEW	3-16
FIGURE 3-2D:	ALTERNATIVE P1 – SECTION VIEW	3-17
FIGURE 3-3A:	ALTERNATIVE SB1 – PLAN	3-20
FIGURE 3-3B:	ALTERNATIVE SB1 – CROSS SECTION AND SITE AREA PHOTOS	3-21
FIGURE 3-3C:	ALTERNATIVE SB1 – PLAN VIEW	3-22
FIGURE 3-3D:	ALTERNATIVE SB1 – SECTION VIEW	3-23
FIGURE 3-4A:	ALTERNATIVE SB5 – PLAN	3-26
FIGURE 3-4B:	ALTERNATIVE SB5 – CROSS SECTION AND SITE AREA PHOTOS	3-27
FIGURE 3-4C:	ALTERNATIVE SB5 – PLAN VIEW	3-28
FIGURE 3-4D:	ALTERNATIVE SB5 – SECTION VIEW	3-29
FIGURE 4-1(A):	ALTERNATIVE P1: PROJECT ELEMENTS	4-3
FIGURE 4-1(B):	ALTERNATIVE SB1: PROJECT ELEMENTS	4-4
FIGURE 4-1(C):	ALTERNATIVE SB5: PROJECT ELEMENTS	4-5
FIGURE 4-2(A):	ALTERNATIVE P1: PROJECT SCHEDULE	4-7
FIGURE 4-2(B):	ALTERNATIVE SB1: PROJECT SCHEDULE	4-8
FIGURE 4-2(C):	ALTERNATIVE SB5: PROJECT SCHEDULE	4-9
FIGURE 4-3(A):	ALTERNATIVE P1: CONSTRUCTION ACTIVITIES	4-13
FIGURE 4-3(B):	ALTERNATIVE P1: CONSTRUCTION ACTIVITIES	4-14
FIGURE 4-3(C):	ALTERNATIVE P1: CONSTRUCTION ACTIVITIES	4-15
FIGURE 4-3(D):	ALTERNATIVE P1: CONSTRUCTION ACTIVITIES	4-16
FIGURE 4-3(E):	ALTERNATIVE SB1: CONSTRUCTION ACTIVITIES	4-17
FIGURE 4-3(F):	ALTERNATIVE SB1: CONSTRUCTION ACTIVITIES	4-18
FIGURE 4-3(G):	ALTERNATIVE SB1: CONSTRUCTION ACTIVITIES	4-19
FIGURE 4-3(H):	ALTERNATIVE SB1: CONSTRUCTION ACTIVITIES	4-20
FIGURE 4-3(I):	ALTERNATIVE SB1: CONSTRUCTION ACTIVITIES	4-21
FIGURE 4-3(J):	ALTERNATIVE SB5: CONSTRUCTION ACTIVITIES	4-23
FIGURE 4-3(K):	ALTERNATIVE SB5: CONSTRUCTION ACTIVITIES	4-24
FIGURE 4-3(L):	ALTERNATIVE SB5: CONSTRUCTION ACTIVITIES	4-25
FIGURE 4-3(M):	ALTERNATIVE SB5: CONSTRUCTION ACTIVITIES	4-26
FIGURE 4-3(N):	ALTERNATIVE SB5: CONSTRUCTION ACTIVITIES	4-27
FIGURE 4-4(A):	ALTERNATIVE P1: STAGING AND LAYDOWN AREAS – STAGE 1	4-29
FIGURE 4-4(B):	ALTERNATIVE P1: STAGING AND LAYDOWN AREAS – STAGE 2	4-30
FIGURE 4-4(C):	ALTERNATIVE P1: STAGING AND LAYDOWN AREAS – STAGE 3	4-31
FIGURE 4-4(D):	ALTERNATIVE P1: STAGING AND LAYDOWN AREAS – STAGE 4	4-32
FIGURE 4-4(E):	ALTERNATIVE SB1: STAGING AND LAYDOWN AREAS – STAGE 1	4-33
FIGURE 4-4(F):	ALTERNATIVE SB1: STAGING AND LAYDOWN AREAS – STAGE 2	4-34
FIGURE 4-4(G):	ALTERNATIVE SB1: STAGING AND LAYDOWN AREAS – STAGE 3	4-35

FIGURE 4-4(H):	ALTERNATIVE SB1: STAGING AND LAYDOWN AREAS – STAGE 4	4-36
FIGURE 4-4(I):	ALTERNATIVE SB5: STAGING AND LAYDOWN AREAS – STAGE 1	4-38
FIGURE 4-4(J):	ALTERNATIVE SB5: STAGING AND LAYDOWN AREAS – STAGE 2	4-39
FIGURE 4-4(K):	ALTERNATIVE SB5: STAGING AND LAYDOWN AREAS – STAGE 3	4-40
FIGURE 4-4(L):	ALTERNATIVE SB5: STAGING AND LAYDOWN AREAS – STAGE 4	4-41
FIGURE 4-5(A):	ALTERNATIVE P1: MPT – STAGE 1	4-42
FIGURE 4-5(B):	ALTERNATIVE P1: MPT – STAGE 2	4-43
FIGURE 4-5(C):	ALTERNATIVE P1: MPT – STAGE 3	4-44
FIGURE 4-5(D):	ALTERNATIVE P1: MPT – STAGE 4	4-45
FIGURE 4-5(E):	ALTERNATIVE SB1: MPT – STAGE 1	4-46
FIGURE 4-5(F):	ALTERNATIVE SB1: MPT – STAGE 2	4-47
FIGURE 4-5(G):	ALTERNATIVE SB1: MPT – STAGE 3	4-48
FIGURE 4-5(H):	ALTERNATIVE SB1: MPT – STAGE 4	4-49
FIGURE 4-5(I):	ALTERNATIVE SB5: MPT – STAGE 1	4-50
FIGURE 4-5(J):	ALTERNATIVE SB5: MPT – STAGE 2	4-51
FIGURE 4-5(K):	ALTERNATIVE SB5: MPT – STAGE 3	4-52
FIGURE 4-5(L):	ALTERNATIVE SB5: MPT – STAGE 4	4-53
FIGURE 4-6:	ALTERNATIVE P1: STRUCTURAL WALL PLAN.....	4-69
FIGURE 4-7:	ALTERNATIVE SB5: STRUCTURAL WALL PLAN.....	4-70
FIGURE 4-8:	TYPICAL EIGHTH AVENUE TEMPORARY AND PROPOSED TRANSVERSE SECTION.....	4-71
FIGURE 4-9:	ALTERNATIVE SB5: PERRY STREET FAN PLANT TRANSVERSE SECTION	4-72
FIGURE 4-10:	TYPICAL SEVENTH AVENUE TEMPORARY TUNNEL FRAMING PART PLAN.....	4-73
FIGURE 4-11:	TYPICAL SEVENTH AVENUE TEMPORARY AND PROPOSED TRANSVERSE SECTION	4-74
FIGURE 4-12:	TYPICAL SEVENTH AVENUE TEMPORARY AND PROPOSED LONGITUDINAL SECTION	4-75
FIGURE 4-13:	SAMPLE CONSTRUCTION ENVIRONMENTAL PROTECTION PLAN (CEPP)	4-78
FIGURE 6-1:	TRAFFIC AND TRANSPORTATION STUDY AREA.....	6-5
FIGURE 6A-1:	AVERAGE AM, MIDDAY AND PM PEAK HOUR TRAFFIC VOLUMES (2007)	6-10
FIGURE 6A-2 :	CURBSIDE REGULATIONS WITHIN THE PARKING STUDY AREA	6-14
FIGURE 6A-3 :	OFF-STREET PARKING FACILITES	6-17
FIGURE 6A-4:	AVERAGE AM, MIDDAY AND PM PEAK HOUR NO ACTION TRAFFIC VOLUMES (2010)	6-20
FIGURE 6A-5:	AVERAGE AM, MIDDAY AND PM PEAK HOUR TRAFFIC VOLUMES (2010) DURING CONSTRUCTION ALTERNATIVES P1, SB1, SB5 – STAGES 1 AND 2.....	6-23
FIGURE 6A-6:	DETOUR ROUTE FOR PERRY STREET LEFT TURN PROHIBITION	6-24
FIGURE 6B-1:	STUDY AREA: PEDESTRIAN AND TRANSIT ANALYSIS	6-32
FIGURE 6B-2:	EXISTING PEDESTRIAN VOLUMES	6-36
FIGURE 6B-3:	NO ACTION 2010 PEDESTRIAN VOLUMES	6-39
FIGURE 6B-4:	2010 PEDESTRIAN VOLUMES DURING CONSTRUCTION ALTERNATIVE SB5 – STAGES 3 AND 4.....	6-43
FIGURE 7A-1:	LAND USE.....	7-10
FIGURE 7A-2:	ZONING MAP	7-14
FIGURE 7B-1:	COMMUNITY DISTRICT 2	7-23
FIGURE 7C-1:	COMMUNITY FACILITIES IN THE STUDY AREA	7-38
FIGURE 8-1:	OPEN SPACE STUDY AREA AND RESOURCES	8-4
FIGURE 9-1:	URBAN DESIGN STUDY AREA: PHOTO LOCATION KEY.....	9-8
FIGURE 9-2:	ALTERNATIVE P1: MASSING DIAGRAM.....	9-28
FIGURE 9-3:	ALTERNATIVE P1: INITIAL CONCEPT ARCHITECTURAL SKETCH	9-29
FIGURE 9-4:	ALTERNATIVE P1: ADVANCED CONCEPT ARCHITECTURAL SKETCH – STREETWALL AND BLOCK ARCHITECTURE.....	9-30

FIGURE 9-5: ALTERNATIVE P1: ADVANCED CONCEPT ARCHITECTURAL SKETCH – AMALGAMATED CELEBRATION OF INFRASTRUCTURE INTO NEIGHBORHOOD CHARACTER CONTEXT9-31

FIGURE 9-6: ALTERNATIVE SB1 AREA GRATING SKETCH9-34

FIGURE 9-7: CURRENT GENERATION OF VENTILATION GRATINGS AND EQUIPMENT HATCHES9-35

FIGURE 9-8: ALTERNATIVE SB5 AREA GRATING SKETCH9-37

FIGURE 11-1: HISTORIC/ARCHITECTURAL RESOURCES APE11-6

FIGURE 12-1: AIR QUALITY STUDY AREA12-4

FIGURE 13-1: NOISE AND VIBRATION STUDY AREA13-2

FIGURE 13-2: COMMON INDOOR AND OUTDOOR NOISE LEVELS13-6

FIGURE 13-3: COMMON VIBRATION SOURCES AND LEVELS13-8

FIGURE 14-1: INFRASTRUCTURE, ENERGY, AND SOLID WASTE STUDY AREA14-4

FIGURE 14-2: EXISTING WATER SUPPLY AND SEWER SYSTEM14-7

FIGURE 14-3: SUBSURFACE STRUCTURES14-8

FIGURE 14-4: GAS AND STEAM INFRASTRUCTURE.....14-10

FIGURE 14-5: ELECTRICITY, TELECOMMUNICATIONS, AND TRAFFIC SIGNAL INFRASTRUCTURE14-11

FIGURE 16-1: CONTAMINATED MATERIALS STUDY AREA.....16-5

FIGURE 16-2: POTENTIAL AREAS OF ENVIRONMENTAL CONCERN.....16-13

FIGURE 16-3: MTA NYCT STANDARD SPECIFICATION 12R16-17