

TABLE OF CONTENTS

	<u>PAGE</u>
TABLE OF CONTENTS	i
LIST OF TABLES	v
LIST OF FIGURES	vii
1. SUMMARY	
1.1 ADMINISTRATIVE ACTION	1-1
1.2 INDIVIDUAL WHO MAY BE CONTACTED	1-1
1.3 ADDITIONAL REPORTS	1-1
1.4 EXISTING CONDITIONS SUMMARY	1-2
1.5 ALTERNATIVES UNDER CONSIDERATION	1-3
1.5.1 PROPOSED ACTION – THE MASTER PLAN 2003 UPDATE	1-3
1.5.2 NO ACTION ALTERNATIVE	1-5
1.6 SUMMARY OF IMPACTS AND MITIGATION	1-5
1.7 APPROVALS/ACTIONS REQUIRED BY OTHER GOVERNMENT AGENCIES	1-6
2. EXISTING CONDITIONS	
2.1 PROJECT LOCATION	2-1
2.2 NIH ORGANIZATION	2-1
2.2.1 OFFICE OF THE DIRECTOR	2-1
2.2.2 INSTITUTES (with date of inception)	2-4
2.2.3 CENTERS	2-6
2.3 EXISTING NIH FACILITIES	2-7
3. PURPOSE AND NEED	
3.1 PURPOSE	3-1
3.2 NEED FOR MASTER PLAN	3-2
3.2.1 CLINICAL-CENTER-RESEARCH RELATIONSHIPS	3-3
3.2.2 INSTITUTE-CLINICAL RESEARCH RELATIONSHIPS	3-4
3.2.3 ADMINISTRATIVE-INSTITUTE-CENTER FUNCTIONAL RELATIONSHIPS	3-6
3.2.4 TRAINING OF BIOMEDICAL RESEARCHERS	3-7
3.2.5 ESSENTIAL AND SPECIALIZED SUPPORT	3-8
4. ALTERNATIVES INCLUDING THE PROPOSED ACTION	
4.1 INTRODUCTION	4-1
4.2 SITE PLANNING PRINCIPLES	4-2
4.3 THE 1993 DRAFT MASTER PLAN	4-4
4.3.1 PRELIMINARY CONCEPTS	4-4
4.3.2 PRINCIPAL FEATURES	4-5
4.3.2.1 CLINICAL CENTER REPLACEMENT	4-5
4.3.2.2 CENTRAL HEATING AND COOLING PLANT CONSOLIDATION	4-5
4.3.2.3 BUILDING 21	4-5
4.3.2.4 RESEARCH AND ANIMAL CARE	4-5
4.3.2.5 OFFICE AND SUPPORT	4-6
4.3.2.6 AMENITIES	4-6
4.3.2.7 ROADS/PARKING/PEDESTRIAN	4-7
4.4 THE 1995 MASTER PLAN	4-7

	<u>PAGE</u>	
4.4.1	CLINICAL CENTER RENEWAL.....	4-8
4.4.2	CENTRAL HEATING AND COOLING PLANT CONSOLIDATION	4-10
4.4.3	RESEARCH AND ANIMAL CARE	4-11
4.4.4	OFFICE AND SUPPORT	4-11
4.4.5	AMENITIES.....	4-12
4.4.6	ROADS/PARKING/PEDESTRIAN	4-12
4.5	NORTHWEST SECTOR AMENDMENT	4-13
4.6	SECURITY PROJECTS.....	4-13
4.7	ALTERNATIVES UNDER CONSIDERATION	4-15
4.7.1	PROPOSED ACTION - THE MASTER PLAN 2003 UPDATE.....	4-15
4.7.1.1	CAMPUS POPULATION.....	4-15
4.7.1.2	BUILDING SPACE.....	4-17
4.7.1.3	MAJOR FEATURES.....	4-19
4.7.2	NO ACTION ALTERNATIVE.....	4-22
4.7.3	OFF CAMPUS DEVELOPMENT	4-26
5.	AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES	
5.1	SOCIOECONOMIC/LAND USE	5-1
5.1.1	OVERVIEW	5-1
5.1.2	LAND USE AND REGIONAL PLANNING	5-2
5.1.2.1	BETHESDA-CHEVY CHASE MASTER PLAN.....	5-3
5.1.2.2	THE BETHESDA CBD SECTOR PLAN.....	5-5
5.1.3	EMPLOYMENT/ECONOMIC	5-8
5.1.4	COMMUNITY FACILITIES.....	5-14
5.1.5	HOUSING/POPULATION	5-18
5.1.6	ECONOMIC ANALYSIS	5-26
5.1.7	ENVIRONMENTAL JUSTICE	5-28
5.2	PARKS AND RECREATION.....	5-28
5.3	TRANSPORTATION.....	5-30
5.3.1	ROAD NETWORK/NIH ACCESS.....	5-30
5.3.2	REGIONAL TRANSPORTATION PLANNING.....	5-34
5.3.3	MEMORANDUM OF UNDERSTANDING	5-37
5.3.4	EXISTING NIH TRANSPORTATION MANAGEMENT PROGRAM.....	5-38
5.3.5	EXISTING AND PROJECTED NIH TRIP GENERATION.....	5-42
5.3.5.1	COMMERCIAL VEHICLE TRAFFIC	5-46
5.3.5.2	VISITOR VEHICLE TRAFFIC	5-48
5.3.5.3	AVERAGE PASSENGER OCCUPANCY AND MODAL SPLIT.....	5-48
5.3.6	EXISTING AND PROJECTED TRAFFIC.....	5-50
5.3.7	INTERSECTIONS/CONGESTION.....	5-53
5.3.8	NIH PARKING.....	5-56
5.3.9	TRANSIT.....	5-60
5.3.10	NIH SHUTTLE SERVICE	5-63
5.3.11	PEDESTRIAN/BICYCLE ACCESS.....	5-65
5.3.12	FUTURE NIH TRANSPORTATION MANAGEMENT PROGRAM.....	5-67
5.4	UTILITIES.....	5-68
5.4.1	CENTRAL HEATING AND COOLING.....	5-69
5.4.1.1	BUILDINGS 11 AND 34	5-69
5.4.1.2	STEAM.....	5-70
5.4.1.3	CHILLED WATER.....	5-74

5.4.1.4	STEAM AND CHILLED WATER DISTRIBUTION	5-76
5.4.2	ELECTRIC POWER	5-78
5.4.2.1	EMERGENCY ELECTRIC POWER.....	5-84
5.4.3	WATER	5-85
5.4.4	SANITARY SEWER.....	5-89
5.4.5	STORM DRAINAGE.....	5-95
5.4.5.1	STORMWATER MANAGEMENT.....	5-95
5.4.6	COMMUNICATIONS	5-101
5.4.7	NATURAL GAS , FUEL OIL, AND GASOLINE	5-101
5.4.8	STRATEGIC CENTRAL PLANT OPERATING PROGRAM.....	5-104
5.4.9	COMPRESSED AIR	5-105
5.5	NOISE.....	5-105
5.5.1	GUIDELINES AND CRITERIA.....	5-105
5.5.2	TRAFFIC NOISE	5-106
5.5.3	NIH CHILLED WATER PLANT NOISE	5-110
5.5.4	ON CAMPUS NOISE	5-115
5.6	AIR QUALITY.....	5-116
5.6.1	REGIONAL CONDITIONS.....	5-116
5.6.2	MOBILE SOURCE AIR QUALITY.....	5-119
5.6.2.1	TRAFFIC.....	5-119
5.6.2.2	COMMERCIAL VEHICLE INSPECTION FACILITY	5-122
5.6.2.3	PARKING	5-123
5.6.3	STATIONARY SOURCE AIR QUALITY.....	5-126
5.6.3.1	CENTRAL STEAM PLANT.....	5-126
5.6.3.1.1	ANNUAL NO _x EMISSIONS.....	5-127
5.6.3.1.2	EMISSION POLLUTANT CONCENTRATIONS.....	5-133
5.6.3.2	LABORATORY EMISSIONS	5-134
5.7	WASTE.....	5-136
5.7.1	SOLID OR GENERAL WASTE.....	5-136
5.7.2	BIOMEDICAL RESEARCH WASTE.....	5-139
5.7.2.1	MEDICAL/PATHOLOGICAL WASTE (MPW)	5-141
5.7.2.2	RADIOACTIVE WASTE	5-142
5.7.2.3	CHEMICAL, MULTHAZARDOUS /MIXED WASTE	5-144
5.7.3	ANIMAL WASTE.....	5-146
5.8	CULTURAL RESOURCES	5-146
5.8.1	HISTORIC AND ARCHITECTURAL RESOURCES	5-146
5.8.1.1	IDENTIFIED HISTORIC RESOURCES.....	5-146
5.8.1.2	THE AREA OF POTENTIAL EFFECT	5-147
5.8.1.3	HISTORIC RESOURCES LOCATED OUTSIDE THE NIH	5-147
5.8.1.4	HISTORIC RESOURCES LOCATED ON THE NIH CAMPUS	5-149
5.8.1.5	POTENTIAL EFFECTS OF THE MASTER PLAN ON CAMPUS HISTORIC RESOURCES.....	5-151
5.8.2	ARCHEOLOGICAL RESOURCES	5-156
5.9	NATURAL CONDITIONS.....	5-161
5.9.1	TOPOGRAPHY.....	5-161
5.9.2	GEOLOGY AND SOILS	5-161
5.9.3	TERRESTRIAL VEGETATION AND HABITAT	5-169
5.9.3.1	TREES AND VEGETATION	5-169
5.9.3.2	FAUNA AND HABITAT	5-172

	<u>PAGE</u>
5.9.4 WATER RESOURCES	5-172
5.9.4.1 STREAM CHARACTERISTICS AND FLOWS.....	5-172
5.9.4.2 WATER QUALITY	5-175
5.9.5 AQUATIC HABITAT	5-178
5.9.6 WETLANDS	5-178
5.9.7 THREATENED AND ENDANGERED SPECIES.....	5-179
5.9.8 FLOODPLAINS	5-179
5.9.9 COASTAL ZONE	5-181
5.10 VISUAL AND AESTHETIC	5-181
5.11 ENERGY.....	5-185
5.12 CONSTRUCTION	5-188
5.12.1 NOISE.....	5-190
5.12.2 FUGITIVE DUST.....	5-192
5.12.3 SEDIMENTATION/SILTATION	5-192
5.12.4 SCHEDULING.....	5-192
5.12.5 CONSTRUCTION WASTE.....	5-193
5.12.6 HAZARDOUS AND OTHER MATERIALS	5-193
5.13 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS.....	5-193
5.14 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES	5-194
5.15 LOCAL SHORT TERM USE AND LONG TERM PRODUCTIVITY	5-195
6. COORDINATION AND COMMENT	
6.1 MEETINGS/PUBLIC PARTICIPATION.....	6-1
6.1.1 THE 1995 MASTER PLAN.....	6-1
6.1.2 DRAFT MASTER PLAN 2003 UPDATE.....	6-3
6.2 DRAFT MASTER PLAN 2003 UPDATE COMMENT	6-5
APPENDIX A SITE MAPS	A-1
APPENDIX B MASTER PLAN 2003 UPDATE SCHEMATIC	B-1
APPENDIX C NCPC-MCPB-NIH MEMORANDUM OF UNDERSTANDING.....	C-1
APPENDIX D LIST OF PREPARERS AND REVIEWERS	D-1
APPENDIX E DRAFT EIS DISTRIBUTION LIST	E-1
APPENDIX F ABBREVIATIONS AND ACRONYMS	F-1
APPENDIX G TRAFFIC DATA.....	G-1
APPENDIX H DRAFT EIS COMMENT	H-1
APPENDIX I INDEX.....	I-1

LIST OF TABLES

	<u>PAGE</u>
1-1 IMPACT SUMMARY	1-7
1-2 MITIGATION SUMMARY	1-10
2-1 NIH BUILDING DIRECTORY	2-1
4-1 EXISTING (YEAR 2003) OCCUPIABLE BUILDING SPACE BY TYPE	4-18
4-2 PROJECTED MASTER PLAN ALTERNATIVE OCCUPIABLE BUILDING SPACE	4-20
4-3 NO ACTION ALTERNATIVE PROJECTS	4-25
5-1 POTENTIAL DEVELOPMENT SITES NEAR NIH CAMPUS	5-10
5-2 COMMUNITY FACILITIES	5-16
5-3 AREA HOUSING UNITS AND PERIOD BUILT	5-22
5-4 HOUSEHOLD CHARACTERISTICS	5-23
5-5 POPULATION CHARACTERISTICS	5-24
5-6 NIH DIRECT ECONOMIC IMPACT IN MARYLAND IN FISCAL YEAR 1993	5-27
5-7 CAMPUS ACCESS SUMMARY	5-33
5-8 COMPARISON OF NIH TRIP GENERATION BETWEEN 1992 AND 1993	5-40
5-9 NIH <u>AM</u> PEAK HOUR TRIP GENERATION	5-43
5-10 NIH <u>PM</u> PEAK HOUT TRIP GENERATION	5-44
5-11 NIH EMPLOYEE VEHICLE ROUTES TO BETHESDA CAMPUS	5-47
5-12 AVERAGE HOURLY COMMERCIAL VEHICLE ARRIVALS IN 2003	5-47
5-13 AVERAGE HOURLY VISITOR ARRIVALS IN 2003	5-48
5-14 1993, EXISTING, AND PROJECTED <u>AM</u> PEAK HOUR TRAFFIC ON ROADS SERVING NIH BETHESDA	5-51
5-15 1993, EXISTING, AND PROJECTED <u>PM</u> PEAK HOUR TRAFFIC ON ROADS SERVING NIH BETHESDA	5-52
5-16 INTERSECTION CRITICAL LANE VOLUMES	5-55
5-17 NIH PARKING DATA	5-57
5-18 EXISTING AND PROJECTED STEAM GENERATION	5-71
5-19 DISTRIBUTION OF NIH DAILY PEAK STEAM DURING WINTER OF 2003	5-72
5-20 PROJECTED MASTER PLAN CHILLED WATER DEMANDS AND PLANT CAPACITY	5-76
5-21 NIH ELECTRIC POWER USAGE	5-81
5-22 PROJECTED MASTER PLAN MAXIMUM ELECTRIC POWER DEMANDS AND SUBSTATION CAPACITY	5-82
5-23 PROJECTED MASTER PLAN EMERGENCY POWER REQUIREMENTS	5-85
5-24 NIH AVERAGE DAILY WATER CONSUMPTION IN 2003 SUMMARY	5-87
5-25 EXISTING AND PROJECTED MAXIMUM WATER DEMAND	5-89
5-26 EXISTING AND PROJECTED DRY WEATHER MAXIMUM WEEKDAY SANITARY FLOWS	5-92
5-27 WSSC DISCHARGE LIMITS FOR NIH SANITARY WASTEWATER	5-94
5-28 NIH IMPERVIOUS SURFACE INVENTORY AND PROJECTED ULTIMATE CONDITIONS	5-98
5-29 PROJECTED MASTER PLAN PEAK NATURAL GAS DEMAND	5-103
5-30 1993 Leq TRAFFIC NOISE MEASUREMENTS	5-107
5-31 EXISTING AND PROJECTED TRAFFIC Leq NOISE LEVELS	5-109

	<u>PAGE</u>
5-32 EXISTING AND PROJECTED PEAK DAY AND NIGHT TIME Leq NOISE LEVELS AT GLENWOOD PROPERTY LINE	5-114
5-33 AMBIENT AIR QUALITY STANDARDS AND EXISTING AIR QUALITY DATA.....	5-117
5-34 PREDICTED WORST CASE TRAFFIC CO CONCENTRATIONS	5-122
5-35 WORST CASE PARKING CO CONCENTRATIONS.....	5-127
5-36 EMISSION FACTORS FOR ESTIMATING BOILER PLANT POLLUTANT EMISSIONS.....	5-128
5-37 BOILER SCENARIO FOR 2003 EMISSION ANALYSIS	5-129
5-38 STEAM DEMAND SCENARIOS	5-130
5-39 PROJECTED NO ACTION ALTERNATIVE ANNUAL BOILER SCENRIO	5-131
5-40 PROJECTED MASTER PLAN ANNUAL BOILER SCENARIO	5-131
5-41 ESTIMATED EXISTING AND PROJECTED NITROGEN OXIDES EMISSIONS	5-132
5-42 EXISTING AND PROJECTED MASTER PLAN BOILER PLANT AIR QUALITY CONCENTRATIONS	5-135
5-43 SOLID WASTE GENERATION AND RECYCLING	5-138
5-44 MEDICAL/PATHOLOGICAL WASTE GENERATION.....	5-143
5-45 RADIOACTIVE WASTE GENERATION	5-144
5-46 SITE SOILS.....	5-166
5-47 ADDITIONAL SOIL PARAMETERS	5-168
5-48 ESTIMATED STREAM DRAINAGE AREAS	5-174
5-49 PHYSICAL AND CHEMICAL CHARACTERISTICS OF NIH STREAMS	5-177
5-50 CONSTRUCTION EQUIPMENT NOISE LEVELS AND RANGES AT 50 FEET	5-191
5-51 CONSTRUCTION OPERATION OR PHASE NOISE AT 50 FEET	5-191
5-52 ATTENUATION OF CONSTRUCTION NOISE WITH DISTANCE.....	5-192
6-1 REPRESENTATION AT COMMUNITY LIAISON COUNCIL MEETING (10/24/04).....	6-4

LIST OF FIGURES

	<u>PAGE</u>
2-1 MONTGOMERY COUNTY LOCATION MAP	2-2
2-2 VICINITY MAP.....	2-3
2-3 EXISTING NIH BUILDINGS	2-8
2-4 GENERAL NIH FUNCTIONAL AREAS.....	2-9
4-1 THE 1995 ILLUSTRATIVE MASTER PLAN	4-9
4-2 THE MASTER PLAN 2003 UPDATE ILLUSTRATIVE PLAN	4-16
5-1 BETHESDA-CHEVY CHASE PLANNING AREA.....	5-4
5-2 THE BETHESDA CENTRAL BUSINESS DISTRICT	5-6
5-3 EXISTING LAND USE IN BETHESDA CBD.....	5-7
5-4 BCC MASTER PLAN RECOMMENDATIONS FOR OLD GEORGETOWN ROAD.....	5-9
5-5 COMMUNITY FACILITIES.....	5-15
5-6 NEIGHBORHOODS IN THE NIH VICINITY	5-19
5-7 U.S. CENSUS TRACTS	5-21
5-8 NIH ROAD ENTRANCES AND ADJACENT INTERSECTIONS	5-31
5-9 TRAFFIC IMPACT CONCEPTS	5-39
5-10 BUS TRANSIT SERVICE AT NIH	5-61
5-11 NIH PERIMETER AND FUTURE INTERNAL CAMPUS SHUTTLE ROUTES	5-64
5-12 NIH AND PUBLIC PEDESTRIAN/BICYCLE ROUTES	5-66
5-13 UTILITY CORRIDORS	5-77
5-14 NIH ELECTRIC POWER SERVICE AREAS AND SATELLITE SUBSTATIONS.....	5-83
5-15 TYPICAL NIH WATER USE PATTERNS	5-88
5-16 SANITARY SEWER MAINS.....	5-90
5-17 NIH STORMWATER DRAINAGE	5-96
5-18 BUILDING 11 NOISE IMPACT SITE EVALUATED IN GLENWOOD	5-111
5-19 REFRIGERATION PLANT SCHEMATIC	5-112
5-20 TRAFFIC AIR QUALITY ANALYSIS SITES.....	5-120
5-21 SITES FOR PARKING AIR QUALITY ANALYSIS.....	5-125
5-22 NIH HISTORIC RESOURCES.....	5-150
5-23 NIH ARCHEOLOGICAL RESOURCES	5-157
5-24 NATURAL FEATURES AND DRAINAGESHEDS.....	5-162
5-25 SUBSURFACE SOILS	5-164
5-26 SURFACE SOILS	5-165
5-27 TREE DISTRIBUTION	5-171
5-28 NIH STREAM 100 YEAR FLOODPLAIN.....	5-180
5-29 STONY CREEK 100 YEAR FLOODPLAIN AND SOUTH POND.....	5-182



