

TABLE OF CONTENTS

INTRODUCTION AND SUMMARY

MASTER PLAN GOALS AND OBJECTIVES 2

INTRODUCTION TO SUSTAINABILITY 4

 What is Sustainability? 4

 Sustainability and the Federal Aviation Administration 5

THE MASTER PLAN AND THE SUSTAINABILITY PLANNING PROCESS 6

PUBLIC PARTICIPATION 7

SUMMARY AND RECOMMENDATIONS 7

 Sustainability Goals 8

 Proposed Master Plan Concept 10

 Sustainability Management Plan 15

 Capital Improvement Plan and Cost Summaries 16

 The Jetport’s Economic Benefit 17

Chapter One – INVENTORY

REGIONAL SETTING 2

 Airport Location 3

 Regional Transportation Network 3

 Climate 5

AIRPORT HISTORY 6

HISTORICAL AERONAUTICAL ACTIVITY 7

 Passenger Enplanements 9

 Air Cargo 11

 Aircraft Operations 12

 Based Aircraft 12

AIRPORT ADMINISTRATION 12

AIRPORT SYSTEM PLANNING ROLE 17

 Federal Airport Planning 17

 Regional System Planning 18

 State Airport Planning 18

 Local Airport Planning 20

14 CFR PART 139 CERTIFICATION 20

AIRFIELD FACILITIES 21

 Runways 21

 Taxiways 24

 Airfield Lighting 26

 Weather and Communication Aids 28

AREA AIRSPACE AND AIR TRAFFIC CONTROL 31

 Airspace Structure 31

Chapter One (Continued)

Special Use Airspace	34
Airspace Control	36
Navigational Aids	36
Instrument Approach Procedures	38
Regional Airports	40
LANDSIDE FACILITIES	40
Commercial Terminal Complex	40
Air Cargo Facilities	49
General Aviation	49
Support Facilities	55
SOCIOECONOMIC CHARACTERISTICS	63
AREA LAND USE	63
ENVIRONMENTAL INVENTORY	64
Air Quality	64
Coastal Resources	64
Department of Transportation Act: Section 4(f)	69
Fish, Wildlife and Plants	70
Floodplains	70
Hazardous Materials and Waste	73
Historical, Architectural, Archaeological and Cultural Resources	73
Noise and Compatible Land Use	74
Water Quality	74
Wetlands/Waters of the United States	75
Wild and Scenic Rivers	76
DOCUMENT SOURCES	79

Chapter Two – AVIATION DEMAND FORECASTS

NATIONAL AVIATION TRENDS	3
U.S. Economic Outlook	3
U.S. Travel Demand	5
SOCIOECONOMIC TRENDS	6
Population	6
Employment	7
Per Capita Personal Income	8
SERVICE AREA	8
COMMERCIAL PASSENGER SERVICE FORECASTS	11
FAA Commercial Air Carrier Forecasts	11
FAA Commercial Aircraft Fleet Forecast	12
Jetport Air Service History	14
Enplanement Forecast	18
Airline Operations Forecast	24

Chapter Two (Continued)

AIR CARGO	29
All-Cargo Operations	31
GENERAL AVIATION FORECASTS	32
National General Aviation Trends	32
The Jetport’s General Aviation Service Area	36
Based Aircraft Forecasts	43
Based Aircraft Fleet Mix	46
General Aviation Operations Forecasts.....	48
OTHER AIR TAXI	54
MILITARY ACTIVITY	54
SUMMARY	56

Chapter Three – SUSTAINABILITY BASELINE ASSESSMENT

INTRODUCTION	1
SUMMARY OF FINDINGS	3
GREENHOUSE GAS (GHG) EMISSIONS	7
Sustainability Context.....	8
Regulatory Overview	8
Relevance to Other Areas.....	9
Current Performance/Baseline Information	9
Sustainability Successes	10
Potential Opportunities for Performance Improvement	11
Data Gaps	11
ENERGY.....	11
Regulatory Overview	12
Relevance to other Areas	13
Current Performance/Baseline Information	14
Sustainability Successes	20
Potential Opportunities for Performance Improvement	21
WASTE MANAGEMENT AND RECYCLING	28
Sustainability Context.....	29
Regulatory Overview	29
Relevance to Other Areas.....	30
Current Performance/Baseline Information	30
Sustainability Successes	37
Potential Opportunities for Performance Improvement	37
Data Gaps	38
GROUND ACCESS AND TRANSPORTATION.....	38
Sustainability Context.....	38
Regulatory Overview	39
Relevance to Other Areas.....	39
Current Performance/Baseline Information	40
Sustainability Successes	46

Chapter Three (Continued)

Potential Opportunities for Performance Improvement	46
Data Gaps	47
SOCIAL RESPONSIBILITY.....	47
Sustainability Context.....	47
Relevance to Other Areas.....	48
Current Performance/Baseline Information	48
Sustainability Successes	55
Potential Opportunities for Performance Improvement	55
Data Gaps	56
GOVERNANCE	56
Sustainability Context.....	56
Regulatory Overview	57
Relevance to other Resource Areas	57
Current Performance/Baseline Information	57
Sustainability Successes	62
Potential Opportunities for Performance Improvement	63
Data Gaps	63
WATER QUALITY	64
Sustainability Context.....	64
Regulatory Overview	64
Relevance to Other Areas.....	65
Current Performance/Baseline Information	65
Sustainability Successes	67
Potential Opportunities for Performance Improvement	68
Data Gaps	68
NOISE	68
Sustainability Context.....	69
Regulatory Overview	69
Relevance to Other Areas.....	69
Current Performance/Baseline Information	69
Sustainability Successes	71
Potential Opportunities for Performance Improvement	72
Data Gaps	72
TENANT SUSTAINABILITY.....	72
Sustainability Context.....	75
Regulatory Framework.....	75
Relevance to Other Areas.....	75
Current Performance/Baseline Information	76
Sustainability Successes	78
Potential Opportunities for Performance Improvement	79
Data Gaps	80



Chapter Four – AIRPORT FACILITY REQUIREMENTS

PLANNING HORIZONS.....	2
PEAKING CHARACTERISTICS	3
Airline Peaking.....	3
General Aviation.....	4
Total Operations.....	4
AIRPORT DESIGN STANDARDS.....	4
Functional Design Categories	5
Current Design Aircraft.....	9
SUSTAINABILITY GOALS, OBJECTIVES, AND METRICS	14
AIRFIELD CAPACITY	17
AIRFIELD REQUIREMENTS.....	19
Runway Configuration	19
Runway Design Standards	20
Runways	32
Taxiways	35
Instrument Navigational Aids	40
Visual Navigational Aids	40
Weather and Communication Aids	41
LANDSIDE REQUIREMENTS.....	41
Passenger Terminal Complex	43
Vehicle Parking	49
Terminal Curb Frontage.....	50
Air Cargo Requirements	50
GENERAL AVIATION FACILITIES	51
Aircraft Hangars.....	52
General Aviation Aircraft Apron.....	54
General Aviation Terminal Services.....	55
General Aviation Vehicle Parking and Access	56
AIRPORT SUPPORT REQUIREMENTS	57
Aircraft Rescue and Firefighting (ARFF) Facilities.....	57
Snow Removal Equipment	58
Aircraft Deicing Recycling Facility.....	59
Aircraft Deicing Pad/Area.....	59
Fuel Storage.....	60
Airport Maintenance Facilities	60
Perimeter Fencing	61
Interior Access	61
SUMMARY	62

Chapter Five – AIRPORT DEVELOPMENT ALTERNATIVES

AIRPORT DEVELOPMENT OBJECTIVES.....	2
EVALUATION OF ALTERNATIVES.....	3

Chapter Five (Continued)

REVIEW OF PREVIOUS PLAN	4
NO ACTION/RELOCATION ALTERNATIVES	7
PLANNING CONSIDERATIONS	8
AIRFIELD DEVELOPMENT CONSIDERATIONS	10
Runway High Energy Area Considerations	10
Parallel Taxiway C Issues	13
Direct Runway to Apron Access Considerations	14
Holding Position Options	14
Aircraft Holding Apron Issues	19
Perimeter Service Road Options	20
Airfield Alternative Summary	26
PASSENGER TERMINAL COMPLEX CONSIDERATIONS	27
Departure Gate Expansion	27
Baggage Claim Options	28
Automobile Parking Options	31
Administrative and TSA Space Options	31
FIS Facility Development Options	32
Deicing and RON Apron Options	35
Air Carrier Cargo (Belly Freight)	41
Passenger Terminal Alternative Summary	41
GENERAL AVIATION AND AIR CARGO OPTIONS	42
General Aviation and Air Cargo Summary	45
SUSTAINABILITY INITIATIVES	46
Greenhouse Gas Emissions Initiatives	50
Energy Initiatives	52
Waste Management Initiatives	53
Ground Access and Transportation Initiatives	54
Social Responsibility Initiatives	56
Governance Initiatives	57
Water Quality Initiatives	58
Noise Initiatives	58
CONCLUSION	59

Chapter Six – RECOMMENDED MASTER PLAN CONCEPT

AIRSIDE CONCEPT	2
Design Standards	2
Design Aircraft	5
Runway Length	7
Runway Strength	8
Instrument Approaches	9
Runway/Taxiway Separation	9
Taxiways	10

Chapter Six (Continued)

Visual Navigation Aids	12
Airside Conclusion	13
LANDSIDE CONCEPT	13
Commercial Passenger Terminal Building	13
Commercial Apron	15
Deicing Apron	16
Runway 11 Holding Apron	16
Commercial Air Cargo	17
General Aviation	17
OFF-AIRPORT LAND USE COMPATIBILITY	17
Height and Hazard Land Use Zoning	19
Water Quality Treatment	19
SUSTAINABILITY TARGETS	20
SUMMARY	22

Chapter Seven – CAPITAL IMPLEMENTATION PLAN

SUSTAINABILITY ENHANCEMENTS FOR THE CAPITAL IMPROVEMENT PLAN	2
CAPITAL IMPROVEMENT PLAN AND COST SUMMARIES	3
Short Term Improvements	6
Intermediate Term Improvements	14
Long Term Improvements	15
CAPITAL IMPROVEMENT FUNDING SOURCES	15
AIP Grants	16
State Grants	18
Local Funds	18
Capital Outlay Projects	20
JETPORT’S FINANCIAL STRUCTURE	21
Jetport Accounting	21
Certificate	21
Airline Agreements	22
FINANCIAL FEASIBILITY	23
Capital Outlays and Long-Term Debt	23
M&O Expenses	24
Operating Revenues	25
Pro Forma Cash Flow	29
IMPLEMENTING THE JETPORT’S SUSTAINABILITY PROGRAM	30
Sustainability Roles and Responsibility	30
Sustainability Management System	31
SUPPORTING THE JETPORT’S SUSTAINABILITY PROGRAM	35
Sustainability Guiding Principles	35
Stakeholder Partnerships	35
Funding the Jetport’s Sustainability Program	36
REPORTING ON THE JETPORT’S SUSTAINABILITY PROGRAM	37
SUMMARY	38

EXHIBITS

INTRODUCTION

A Forecast Summary 9
 B Capital Improvement Plan 13

Chapter One – INVENTORY

1A Airport Vicinity/Location Map 4
 1B Historic Capital Improvement Projects 8
 1C Historic Passenger Enplanements 10
 1D Historic Aircraft Operations and Based Aircraft 13
 1E Airport Administration Organizational Chart 15
 1F Airfield Facility Data 22
 1G Airfield Signage 29
 1H Airspace Structure 32
 1J Vicinity Airspace 35
 1K PWM Published Instrument Approach Procedures 39
 1L Regional Airport Facility Data 41
 1M Landside Facilities 43
 1N Terminal Building Layout 47
 1P Commercial Passenger Airline Apron and Gate Locations 51
 1Q Deicing Facilities and RON Locations 53
 1R Airport Drainage 61
 1S Portland-South Portland MSA Socioeconomic Conditions 65
 1T Existing Generalized Land Uses 67
 1U Environmental Sensitivities 71
 1V Existing Wetlands 77

Chapter Two – AVIATION DEMAND FORECASTS

2A Jetport Commercial Service Area 9
 2B U.S. Commercial Air Carrier and Regional/Commuter Forecasts 13
 2C Historical Airline Passenger Enplanements 17
 2D Top Twenty Destinations/Non-Stop Service City Pairs 19
 2E Enplanements Forecast 21
 2F Aircraft Seating for PWM Carriers 25
 2G Air Cargo Forecasts 30
 2H U.S. Active General Aviation Aircraft Forecasts 34
 2J Registered Aircraft within 30 Miles of Portland 39
 2K Cumberland County Registered Aircraft Forecasts 42
 2L Based Aircraft Forecast 45
 2M General Aviation Operations Forecasts 50
 2N Forecast Summary 57

Chapter Three – SUSTAINABILITY BASELINE ASSESSMENT

3A	Airport Terminal Building Recycling and Trash Bin Locations	33
3B	Bikeway and Pedestrian Network	44
3C	PJM Environmental Assessment Noise Contours	73

Chapter Four – AIRPORT FACILITY REQUIREMENTS

4A	AIRCRAFT CLASSIFICATION PARAMETERS	6
4B	TYPICAL AIRCRAFT REFERENCE CODES	8
4C	AIRCRAFT OPERATIONS BY REFERENCE CODE	11
4D	AIRFIELD CAPACITY FACTORS	18
4E	WINDROSE	21
4F	FAA DESIGN STANDARDS	23
4G	APPLICATION OF ACCEPTED AIRFIELD DESIGN SOLUTIONS	25
4H	AIRSIDE REQUIREMENTS	42
4J	TERMINAL FACILITY REQUIREMENTS	45
4K	SUMMARY OF GENERAL AVIATION REQUIREMENTS	53

Chapter Five – AIRPORT DEVELOPMENT ALTERNATIVES

5A	PREVIOUS MASTER PLAN RECOMMENDATION	5
5B	ALTERNATIVE ISSUES	8
5C	NON-STANDARD AIRFIELD GEOMETRIC ALTERNATIVE	10
5D	NON-STANDARD HOLDING POSITION OPTIONS	13
5E	RELOCATE RUNWAY 29 GLIDESLOPE OPTION	17
5F	FAA HOLD APRON STANDARD DESIGN	19
5G	PERIMETER SERVICE ROAD ALTERNATIVES	21
5H	TERMINAL EXPANSION OPTIONS	24
5J	BAGGAGE EXPANSION ALTERNATIVE	27
5K	CUSTOMS AND BORDER PROTECTION	30
5L	RON/DEICING PAD ALTERNATIVES	32
5M	NORTH GENERAL AVIATION AND CARGO ALTERNATIVES	35
5N	SOUTH GENERAL AVIATION ALTERNATIVES	37

Chapter Six – RECOMMENDED MASTER PLAN CONCEPT

6A	RECOMMENDED DEVELOPMENT CONCEPT	3
----	---------------------------------------	---

Chapter Seven – CAPITAL IMPLEMENTATION PLAN

7A	SHORT TERM DEVELOPMENT	7
7B	INTERMEDIATE TERM DEVELOPMENT	9
7C	LONG TERM DEVELOPMENT	11

Appendix A – Glossary of Terms

Appendix B – Landside Building References

Appendix C – Greenhouse Gas (GHG) Inventory Methodology

Appendix D – Energy Baseline

Appendix E – Waste Management Baseline

Appendix F – Enhancing the CIP Through Sustainability

Appendix G – Environmental Overview

Appendix H – Economic Benefit Analysis

Appendix J – Outer Congress Street Land Use

Appendix K – Airport Layout Plan Set

Appendix L – Public Involvement