

## Table of Contents

---

<b>Foreword</b> .....	<b>F-1</b>
<b>Executive Summary</b> .....	<b>S-1</b>
<b>1: Introduction</b> .....	<b>1-1</b>
National Environmental Policy Act (NEPA).....	1-1
Section 106 of the National Historic Preservation Act.....	1-1
Section 4(f) of the U.S. Department Of Transportation Act.....	1-2
Executive Order 12898, Environmental Justice .....	1-2
Federal, State, and Local Regulatory Oversight.....	1-2
<b>2: Project Purpose and Need</b> .....	<b>2-1</b>
A. Introduction.....	2-1
B. Project Identification.....	2-1
C. Existing Conditions.....	2-2
Regional Passenger Rail System .....	2-2
Navigation Along the Hackensack River .....	2-4
D. Problem Identification and Need .....	2-6
Aging and Limiting Infrastructure .....	2-6
Capacity Constraints and Operational Inflexibility .....	2-7
Maintenance Difficulties .....	2-7
Conflicts with Maritime Uses.....	2-8
E. Planning Context.....	2-8
Prior Studies .....	2-8
Current Planning Context.....	2-9
F. Project Purpose, Goals, and Objectives .....	2-10
G. Environmental Review Process .....	2-12
<b>3: Project Alternatives</b> .....	<b>3-1</b>
A. Introduction.....	3-1
B. No Action Alternative.....	3-1
Major Planned Projects .....	3-2
Minor Planned Projects .....	3-4
Other Projects.....	3-4
Track Configuration .....	3-5
C. Build Alternatives.....	3-6
Elements Common to All Build Alternatives.....	3-7
Description of Alternatives .....	3-10
Rail Systems.....	3-13
D. Capital Costs.....	3-14

**Portal Bridge Capacity Enhancement Project FEIS**

---

E. Permits Required ..... 3-15

F. Preferred Alternative ..... 3-16

**4: Transportation Effects..... 4-1**

A. Introduction and Methodology ..... 4-1

B. Existing Conditions ..... 4-1

    Intercity Rail ..... 4-2

    Public Transportation..... 4-2

    Navigable Waters..... 4-4

    Regional Highway System ..... 4-5

C. No Action Alternative ..... 4-7

    Population and Employment Growth ..... 4-7

    Intercity Rail ..... 4-8

    Public Transportation..... 4-8

    Navigable Waters..... 4-9

    Regional Highway System ..... 4-9

    Energy ..... 4-10

D. Probable Impacts of the Build Alternatives ..... 4-10

    Intercity Rail ..... 4-10

    Public Transportation..... 4-11

    Navigable Waters..... 4-12

    Regional Highway System ..... 4-12

    Safety and Security ..... 4-12

    Energy..... 4-13

**5: Social, Economic, and Environmental Considerations**

**5.1: Land Use and Social Conditions ..... 5.1-1**

A. Introduction ..... 5.1-1

B. Regulatory Context and Methodology ..... 5.1-1

    Regulatory Context..... 5.1-1

    Methodology..... 5.1-2

C. Existing Conditions ..... 5.1-3

    Land Use ..... 5.1-3

    Zoning and Public Policy..... 5.1-6

    Parkland and Open Space ..... 5.1-10

    Economic Conditions..... 5.1-10

    Social Conditions..... 5.1-11

D. No Action Alternative ..... 5.1-11

    Land Use, Zoning, and Public Policy ..... 5.1-11

    Zoning and Public Policy..... 5.1-12

    Parkland and Open Space ..... 5.1-12

    Economic Conditions..... 5.1-13

    Social Conditions..... 5.1-14

E. Probable Impacts of the Build Alternatives ..... 5.1-14

    Property Acquisitions ..... 5.1-14

    Land Use..... 5.1-17

    Zoning and Public Policy..... 5.1-18

Parkland and Open Space.....	5.1-18
Social Conditions .....	5.1-20
<b>5.2: Historic Resources .....</b>	<b>5.2-1</b>
A. Introduction.....	5.2-1
Methodology .....	5.2-1
APE Delineation.....	5.2-2
B. Background History.....	5.2-3
C. Existing Conditions.....	5.2-5
Archaeological Resources .....	5.2-5
Architectural Resources .....	5.2-7
D. No Action Alternative.....	5.2-11
E. Probable Impacts of the Build Alternatives .....	5.2-12
Archaeological Resources .....	5.2-12
Architectural Resources .....	5.2-13
F. Mitigation Measures .....	5.2-15
G. References.....	5.2-16
<b>5.3: Visual and Aesthetic Considerations .....</b>	<b>5.3-1</b>
A. Introduction and Methodology .....	5.3-1
B. Existing Conditions.....	5.3-2
Existing Visual Character.....	5.3-2
Visually Sensitive Resources .....	5.3-3
Viewer Groups and View Durations .....	5.3-4
C. No Action Alternative.....	5.3-7
D. Probable Impacts of Build Alternatives .....	5.3-8
<b>5.4: Air Quality .....</b>	<b>5.4-1</b>
A. Introduction and Methodology .....	5.4-1
Pollutants for Analysis .....	5.4-1
Regulatory Context .....	5.4-3
NAAQS Attainment Status and State Implementation Plans.....	5.4-4
B. Existing Conditions.....	5.4-5
Existing Monitored Air Quality Conditions .....	5.4-5
C. No Action Alternative.....	5.4-6
D. Probable Impacts of the Build Alternatives .....	5.4-7
<b>5.5: Noise and Vibration.....</b>	<b>5.5-1</b>
A. Introduction.....	5.5-1
B. Noise Fundamentals, Standards, and Impact Criteria .....	5.5-1
Airborne Noise Fundamentals.....	5.5-1
Vibration Fundamentals .....	5.5-3
Noise Standards and Criteria.....	5.5-5
C. Regulatory Context And Methodology.....	5.5-7
Airborne Noise Analysis Methodology.....	5.5-7
Vibration Analysis Methodology .....	5.5-8
D. No Action Alternative.....	5.5-9

**Portal Bridge Capacity Enhancement Project FEIS**

---

E. Probable Impacts of the Build Alternatives .....5.5-10

**5.6: Ecology ..... 5.6-1**

A. Introduction .....5.6-1

B. Regulatory Context and Methodology .....5.6-1

    Federal .....5.6-1

    New Jersey .....5.6-3

    Methodology .....5.6-5

C. Existing Conditions .....5.6-8

    Water Quality .....5.6-8

    Floodplains .....5.6-10

    Wetlands .....5.6-10

    Open Water .....5.6-11

    Ecologically Sensitive Areas .....5.6-15

    Threatened and Endangered Species .....5.6-16

    Terrestrial .....5.6-16

    Aquatic Environment .....5.6-19

D. No Action Alternative .....5.6-20

    New York/New Jersey Harbor Estuary Program Projects .....5.6-20

    NJDEP Projects .....5.6-21

    ACOE Navigation Projects .....5.6-21

    General Electric PCB Removal .....5.6-22

    Wetlands and Wildlife .....5.6-22

E. Probable Impacts of the Build Alternatives .....5.6-22

    Essential Fish Habitat .....5.6-23

    Aquatic Impacts .....5.6-24

    Wetland Impacts .....5.6-26

    Terrestrial Impacts .....5.6-30

    Water Quality .....5.6-30

    Floodplains .....5.6-31

    Alternative-Specific Impacts .....5.6-32

F. Mitigation .....5.6-32

G. References .....5.6-35

**5.7: Contaminated Materials ..... 5.7-1**

A. Introduction .....5.7-1

    Potential Contaminants of Concern .....5.7-1

B. Regulatory Context and Methodology .....5.7-2

    Applicable Regulations .....5.7-2

    Methodology .....5.7-6

C. Existing Conditions .....5.7-9

    Additional Information on Selected Proximate Sites .....5.7-15

D. No Action Alternative .....5.7-17

E. Probable Impacts of the Build Alternatives .....5.7-18

    Existing Structures .....5.7-18

    Subsurface Disturbance .....5.7-19

<b>5.8: Coastal Zone Management .....</b>	<b>5.8-1</b>
A. Introduction.....	5.8-1
Waterfront Revitalization Program Policies in New Jersey .....	5.8-1
New Jersey .....	5.8-1
Project Study Area Within the Coastal Zone .....	5.8-1
B. New Jersey Department of Environmental Protection Coastal Zone Management Policies .....	5.8-2
<b>5.9: Environmental Justice.....</b>	<b>5.9-1</b>
A. Introduction.....	5.9-1
B. Regulations and Methodology .....	5.9-1
Regulations.....	5.9-1
Methodology .....	5.9-2
C. Existing Conditions.....	5.9-4
Identification of Study Areas .....	5.9-4
D. Environmental Effects of the Proposed Project .....	5.9-5
Open Space.....	5.9-5
Noise and Vibration .....	5.9-6
Cultural Resources .....	5.9-6
Ecological Resources .....	5.9-6
Construction-Related Effects .....	5.9-6
Direct Displacement Impacts .....	5.9-7
E. Conclusion on Disproportionate Impacts.....	5.9-7
<b>6: Construction Impacts .....</b>	<b>6-1</b>
A. Introduction.....	6-1
B. Construction Sequencing and Schedule.....	6-1
Initial Start-Up.....	6-3
Stage 1: Construct Northern Bridge and Track 3 Infrastructure .....	6-3
Stage 2: Track 2 Connections.....	6-4
Stage 3: Complete Track Connections to Northern Bridge.....	6-4
Stage 4: Remove Existing Bridge and Construct New Southern Bridge .....	6-4
Stage 5: Complete Track 4 .....	6-5
Stage 6: Complete Track 6 .....	6-5
Concurrent Construction Schedule.....	6-5
C. Construction of Key Elements .....	6-6
Northern Fixed Bridge .....	6-6
Southern Moveable Bridge.....	6-7
Removal of Existing Portal Bridge .....	6-7
Approach Spans.....	6-8
Fly-Over / Duck-Under .....	6-10
Bridges Over Roadways/Rail Lines .....	6-11
Embankment and Retaining Walls .....	6-11
Staging and Lay-Down Areas .....	6-11
Material Transport and Debris Removal .....	6-12
D. Potential Social, Environmental, and Economic Impacts .....	6-12
Transportation .....	6-13
Land Use and Social Conditions .....	6-16

**Portal Bridge Capacity Enhancement Project FEIS**

---

Historic Resources .....6-16  
Visual and Aesthetic Considerations .....6-17  
Air Quality .....6-18  
Noise and Vibration.....6-19  
Ecology.....6-23  
Contaminated Materials.....6-26  
Utilities .....6-27

**7: Secondary and Cumulative Effects ..... 7-1**  
A. Introduction .....7-1  
B. Methodology .....7-2  
    Secondary and Indirect Effects Methodology .....7-2  
    Cumulative Effects Methodology .....7-2  
C. Secondary and Indirect Effects.....7-3  
    Steps 1, 2, 3.....7-3  
    Step 4.....7-4  
    Steps 5 and 6.....7-4  
    Steps 7 and 8.....7-5  
D. Cumulative Effects .....7-5  
    Step 1: Assessment Goals .....7-5  
    Step 2: Geographic Scope and Step 3: Analysis Time Frames.....7-6  
    Step 4: Other Actions and Conditions Affecting Cumulative Effects .....7-8  
    Steps 5, 6, and 7: Characterization of the Resources, Stresses, and Baseline Conditions ..7-8  
    Steps 8 and 9: Identify Cause-and-Effect Relationships and Determine Cumulative Effects ....7-9  
    Step 10: Modify or Add Alternatives to Avoid, Minimize, or Mitigate  
    Significant Cumulative Effects.....7-16

**8: Section 4(f) Evaluation..... 8-1**  
A. Introduction and Methodology .....8-1  
B. Applicability of Section 4(f) to the Project .....8-2  
    Project Description .....8-2  
    Section 4(f) Applicability .....8-3  
C. Use of Section 4(f) Properties .....8-3  
    Portal Bridge.....8-3  
    Pennsylvania Railroad Historic District .....8-7  
    Hudson County Park at Laurel Hill .....8-10  
    Historic Cemeteries of Hudson County .....8-14  
D. Coordination.....8-17  
E. References .....8-17

**9: Preferred Alternative..... 9-1**  
A. Introduction.....9-1  
B. Project Goals and Objectives .....9-1  
    Goal 1: Enhance Capacity to Meet Current and Future Demand—  
    Including New Service—Along the Northeast Corridor. ....9-2  
    Goal 2: Improve Service Reliability and Operational Flexibility.....9-2  
    Goal 3: Provide a Redundant Hackensack River Crossing to Facilitate  
    Maintenance and Enhance Passenger Safety and Security.....9-3

Goal 4: Minimize Conflicts with Maritime Traffic.....	9-3
Goal 5: Optimize Existing Infrastructure and Planned Improvements.....	9-3
Goal 6: Minimize Impacts on the Surrounding Environment .....	9-3
C. Construction Schedule .....	9-7
D. Project Cost .....	9-8
E. Selection of Preferred Alternative.....	9-9
<b>10: Public Participation and Agency Coordination .....</b>	<b>10-1</b>
A. Introduction.....	10-1
Public Involvement and Agency Coordination Plan .....	10-1
Agency and Public Involvement Activities .....	10-2
Scoping Meetings.....	10-2
Committees.....	10-3
Informational Materials.....	10-6
B. Permitting and Regulatory Agencies .....	10-6
C. DEIS Hearings .....	10-8
D. Correspondence and Stakeholder Meetings.....	10-9
E. Section 106 .....	10-9
<b>11: Response to Comments .....</b>	<b>11-1</b>
A. Introduction.....	11-1
B. List of Organizations and Individuals Who Commented on the DEIS .....	11-1
Organizations .....	11-1
Interested Public.....	11-2
C. Comments and Responses .....	11-2
General Comments .....	11-2
Purpose and Need.....	11-3
Alternatives .....	11-5
Transportation .....	11-11
Environmental Impacts .....	11-12
Secondary and Cumulative Effects .....	11-34
Section 4(f) Evaluation.....	11-37
Miscellaneous Comments .....	11-38
<b>12: List of Preparers .....</b>	<b>12-1</b>
A. Federal Railroad Administration (FRA) .....	12-1
B. New Jersey Transit Corporation .....	12-1
C. Amtrak .....	12-1
Engineering .....	12-1
Operations Planning .....	12-1
D. Port Authority of New York And New Jersey.....	12-2
E. Environmental Impact Statement Consultant Team .....	12-2
AKRF, Inc. ....	12-2
Figg Bridge.....	12-3
Gannett Fleming.....	12-3
Howard/Stein-Hudson Associates.....	12-4
Modjeski and Masters .....	12-4
Prestige Environmental .....	12-4

**Portal Bridge Capacity Enhancement Project FEIS**

---

Radin Consulting ..... 12-4  
Reichman Frankle, Inc..... 12-5  
Robinson Aerial Surveys ..... 12-5

**13: List of Agencies, Organizations, and Persons to Whom Copies of the FEIS Were Sent ..... 13-1**

A. List of Notified Parties ..... 13-1  
    Federal Agencies ..... 13-1  
    New Jersey State Agencies ..... 13-1  
    Local Agencies ..... 13-1  
    Elected Officials ..... 13-2  
    Section 106 Consulting Parties ..... 13-3  
    Major Institutions, Community Groups, and Interest Groups ..... 13-3  
    Local Businesses, Property Owners, and Property Managers ..... 13-3  
    Utility Companies ..... 13-3  
B. Public Viewing Locations ..... 13-4  
    Website ..... 13-4  
    Government Offices..... 13-4  
    Libraries ..... 13-4

**APPENDICES**

Appendix A: Engineering Alignments  
Appendix B: Historic Resources  
Appendix C: Ecology  
Appendix D: Contaminated Materials (CD only)  
Appendix E: Comments to DEIS

## List of Tables

---

2-1	Existing NJ TRANSIT AM Peak Hour (7:30-8:30 AM) Eastbound Ridership.....	2-3
2-2	Hackensack River Bridges.....	2-5
2-3	Portal Bridge Openings, by Vessel Clearance (2004-2006) .....	2-5
3-1	Amtrak and NJ TRANSIT’s Capital Improvement Program.....	3-4
3-2	Capital Cost—Build Alternatives (in Millions) .....	3-15
3-3	List of Potential Federal, State, and Local Permits.....	3-15
4-1	2000 Northern New Jersey Daily Total Trips.....	4-1
4-2	2005 NJ TRANSIT AM Peak Hour (7:30 – 8:30 AM) Ridership .....	4-3
4-3	Hackensack River Bridges.....	4-5
4-4	2006 Vehicle Crossings Between New Jersey and New York City .....	4-6
4-5	2030 Forecasted Percent Change in Population.....	4-7
5.1-1	Zoning Within the Study Area.....	5.1-7
5.1-2	Potential Land Acquisitions by Build Alternative .....	5.1-15
5.2-1	Architectural Resources Within Study Area.....	5.2-8
5.2-2	Potential Impacts to Historic Resources Within Study Area .....	5.2-13
5.4-1	National Ambient Air Quality Standards (NAAQS) .....	5.4-4
5.4-2	Most Recent Monitored Ambient Air Quality Data – New Jersey .....	5.4-6
5.4-3	Most Recent Monitored Ambient Air Quality Data – New York.....	5.4-6
5.5-1	Common Noise Levels.....	5.5-2
5.5-2	Typical Levels of Ground-Borne Vibration.....	5.5-5
5.5-3	FTA’s Land Use Category and Metrics for Transit Noise Impact Criteria.....	5.5-5
5.5-4	Ground-Borne Vibration (GBV) and Ground-Borne Noise (GBN) Impact Criteria for General Assessment .....	5.5-7
5.5-5	Screening Distances for Vibration Assessment .....	5.5-9
5.5-6	No Action Alternative – General Noise Assessment Results .....	5.5-10
5.5-7	Build Alternatives – General Noise Assessment Results.....	5.5-11
5.6-1	Data Sources .....	5.6-5
5.6-2	Wetlands Identified Within Study Area, by Type.....	5.6-11

**Portal Bridge Capacity Enhancement Project FEIS**

---

5.6-3 List of Fish Species Common in the Hackensack River .....5.6-13

5.6-4 Christmas Bird Count Hackensack-Ridgewood, New Jersey December 2006.....5.6-17

5.6-5 Essential Fish Habitat.....5.6-23

5.6-6 Probable Impacts on Wetlands, Open Water, and Benthic Habitat (in Acres).....5.6-27

5.6-7 Probable Impacts on Wetland Habitat Type (in Acres).....5.6-28

5.7-1 Federal and State Regulations for Contaminated Materials .....5.7-3

5.7-2 Databases Searched .....5.7-7

5.7-3 Evaluation Criteria .....5.7-9

5.7-4 Secondary Screening – Sites Potentially Requiring Further Investigation.....5.7-10

5.8-1 List of CZM Policies .....5.8-2

5.9-1 Study Area Population and Economic Characteristics .....5.9-4

6-1 Construction Equipment Noise Emission Levels .....6-20

6-2 Vibration Source Levels for Construction Equipment .....6-22

6-3 Construction Vibration Damage Criteria .....6-22

6-4 Temporary Wetland Impacts (in Acres).....6-25

7-1 Potential Direct, Indirect, and Cumulative Effects.....7-6

9-1 Permanent Ecological Effects (in Acres) By Alternative.....9-6

9-2 Capital Cost—Build Alternatives (in Millions) .....9-8

## List of Figures

---

S-1	Project Study Area .....	S-2
S-2	Existing Track Schematic .....	S-2
S-3	Proposed Track Schematic.....	S-6
S-4	Alternatives by Geographic Section .....	S-6
2-1	Project Study Area .....	2-2
2-2	NJ TRANSIT Rail System.....	2-4
2-3	Hackensack River Bridges.....	2-4
2-4	Train Traffic During Bridge Opening Restrictions.....	2-8
3-1	Project Study Area .....	3-2
3-2	Existing Bridge Plan and Elevation .....	3-2
3-3	Existing Track Schematic .....	3-6
3-4	Proposed Northern and Southern Bridges.....	3-8
3-5	Proposed Track Schematic.....	3-10
3-6	Alternatives by Geographic Section .....	3-10
3-7	Alternative DE .....	3-10
3-8	Alternative DE .....	3-10
3-9	Alternative DS .....	3-10
3-10	Alternative DS .....	3-10
3-11	Alternative FE.....	3-10
3-12	Alternative FE.....	3-10
3-13	Alternative FS .....	3-10
3-14	Alternative FS .....	3-10
4-1	Amtrak Service .....	4-2
4-2	NJ TRANSIT Rail System.....	4-2
4-3	Hackensack River Marine Facilities .....	4-4
4-4	Regional Highway System.....	4-6
5.1-1	Project Study Area Land Use.....	5.1-2
5.1-2	Project Study Area Zoning Map .....	5.1-6
5.1-3	Required Property Acquisitions for All Alternatives.....	5.1-14
5.2-1	Architectural and Archaeological APE.....	5.2-2
5.2-2	Hudson County Burial Grounds Sensitivity Map .....	5.2-6
5.2-3	Architectural Resources .....	5.2-8
5.3-1	Visual Resources Study Area.....	5.3-2

**Portal Bridge Capacity Enhancement Project FEIS**

---

5.3-2 General View of Study Area, Looking West from Secaucus ..... 5.3-2  
5.3-3 Visual Resources ..... 5.3-4  
5.3-4 Visual Resources ..... 5.3-4  
5.3-5 Visual Resources ..... 5.3-4  
5.3-6 Visual Resources ..... 5.3-4  
5.3-7 Visual Resources ..... 5.3-6  
5.3-8 Visual Resources ..... 5.3-6  
5.3-9 Visual Resources ..... 5.3-6  
5.3-10 Visual Resources ..... 5.3-6  
5.3-11 Visual Resources ..... 5.3-6  
5.3-12 Visual Resources ..... 5.3-6  
5.5-1 FTA’s Noise Impact Criteria for Transit Projects ..... 5.5-6  
5.6-1 Wetlands Map ..... 5.6-8  
5.6-2 Floodplain Map ..... 5.6-10  
5.7-1 Contaminated Materials ..... 5.7-16  
6-1 Concurrent Construction Schedule..... 6-2  
6-2 Sequential Construction Schedule..... 6-2  
6-3a Construction Sequence Template Stage 1 ..... 6-4  
6-3b Construction Sequence Template Stage 2 ..... 6-4  
6-3c Construction Sequence Template Stage 3 ..... 6-4  
6-3d Construction Sequence Template Stage 4 ..... 6-4  
6-3e Construction Sequence Template Stage 5 ..... 6-6  
6-3f Construction Sequence Template Stage 6 ..... 6-6  
6-4 Typical Bridge Pier Section ..... 6-6  
6-5 Adjacent Land Use ..... 6-16  
8-1 Section 4(f) Properties..... 8-4  
8-2 Historic Cemeteries of Hudson County Sensitivity Map ..... 8-14

\*