

Joslin Field, Magic Valley Regional Airport



Master Plan Update

PREPARED FOR:

City of Twin Falls and Twin Falls County

PREPARED BY:

RICONDO & ASSOCIATES, INC.

IN ASSOCIATION WITH:

Riedesel Engineering, Inc.

North Wind, Inc.



RICONDO[®]
& ASSOCIATES

December 2012

Ricondo & Associates, Inc. (R&A) prepared this document for the stated purposes as expressly set forth herein and for the sole use of the City of Twin Falls and Twin Falls County and its intended recipients. The techniques and methodologies used in preparing this document are consistent with industry practices at the time of preparation.

Table of Contents

1.	Introduction.....	1-1
1.1	Organization of This Report.....	1-1
1.2	Master Plan Update Elements and Process	1-2
1.2.1	Strategic Planning Initiative.....	1-3
1.2.2	Technical Analyses	1-5
1.2.3	Key Deliverables.....	1-5
1.2.4	Public Involvement Program.....	1-5
1.3	Previous Planning Studies	1-6
1.3.1	Nationwide Planning Studies.....	1-6
1.3.2	Statewide Planning Studies.....	1-7
1.3.3	Local Planning Studies	1-7
1.4	Summary of Key Master Plan Update Recommendations.....	1-9
2.	Existing Conditions	2-1
2.1	Background	2-1
2.1.1	Airport Location	2-1
2.1.1	Airport History	2-4
2.1.2	Airport Administration and Certification.....	2-4
2.1.3	Airport Role.....	2-5
2.1.4	Meteorological conditions.....	2-8
2.2	Inventory of Existing Airport Facilities	2-11
2.2.1	Airfield Facilities	2-11
2.2.2	Passenger Terminal Facilities	2-20
2.2.3	Tenant Facilities.....	2-25
2.2.4	Support Facilities	2-29
2.2.5	Airport Ground Access	2-31
2.2.6	Utilities and Stormwater	2-38
2.3	Airspace and Air Traffic Control	2-38
2.3.1	Airspace Structure.....	2-39
2.3.2	Air Traffic Control	2-41

Table of Contents (Continued)

2.4	Regional Setting and Land Use	2-44
2.4.1	Airport Service Area.....	2-44
2.4.2	Socioeconomic Data and Analysis.....	2-46
2.4.3	Regional Planning and Development.....	2-54
2.5	Environmental Overview	2-61
2.5.1	Air Quality.....	2-61
2.5.2	Noise	2-62
2.5.1	Aquatic Features	2-64
2.5.2	Terrestrial Features	2-67
2.5.3	Cultural Features.....	2-70
2.5.4	Summary of Principal Environmental Concerns.....	2-72
3.	Aviation Activity Forecasts	3-1
3.1	Forecast Highlights and Summary	3-2
3.2	Historical Aviation Activity	3-2
3.2.1	Enplaned Passengers	3-2
3.2.2	Aircraft Operations	3-3
3.3	Enplaned Passenger Forecasts	3-5
3.3.1	Air Carrier Enplaned Passenger ForecastS.....	3-5
3.3.2	Regional/Commuter Enplaned Passenger Forecast	3-7
3.3.3	Enplaned Passenger Forecast Summary and Comparison to TAF	3-12
3.3.4	Alternative Enplaned Passenger Forecast Scenarios	3-14
3.4	Air Cargo Forecasts	3-16
3.5	Aircraft Operations Forecasts and Fleet Mix Projections	3-19
3.5.1	Air Carrier Aircraft Operations and Fleet Mix.....	3-19
3.5.2	Regional/Commuter Aircraft Operations and Fleet Mix.....	3-20
3.5.3	All-Cargo Aircraft Operations.....	3-23
3.5.4	Air Taxi Operations	3-24
3.5.5	General Aviation Operations and Fleet Mix.....	3-25
3.5.6	Based Aircraft and Fleet Mix.....	3-29
3.5.7	Military Aircraft Operations.....	3-30
3.5.8	Aircraft Operations Forecast Summary and Comparison to TAF	3-32

Table of Contents (Continued)

3.6	Enplaned Passengers and Aircraft Operations Peaking Activity.....	3-33
3.6.1	Peak Month Enplaned Passengers	3-34
3.6.2	Peak Month Aircraft Operations.....	3-34
4.	Facility Requirements.....	4-1
4.1	Airfield Facility Requirements.....	4-2
4.1.1	Airfield Design Standards.....	4-2
4.1.2	Airfield Demand/Capacity Analysis	4-4
4.1.3	Runway System Requirements.....	4-5
4.1.4	Taxiway System Requirements.....	4-11
4.1.5	Airfield Lighting Requirements	4-13
4.1.6	Airfield Markings and Signage Requirements	4-13
4.1.7	Navigational Aid Requirements.....	4-14
4.1.8	Airfield Safety and Protection Areas Requirements	4-15
4.2	Passenger Terminal Facility Requirements.....	4-18
4.2.1	Terminal Building Requirements	4-18
4.2.2	Terminal Curb Requirements.....	4-28
4.2.3	Terminal Apron Requirements	4-28
4.3	Tenant Facility Requirements.....	4-29
4.3.1	General Aviation Facilities Requirements.....	4-29
4.3.2	Bureau of Land Management Facility Requirements	4-33
4.3.3	Other Tenant Facility Requirements	4-33
4.4	Support Facility Requirements.....	4-34
4.4.1	Airport Rescue and Fire-fighting Facility Requirements	4-34
4.4.2	Air Traffic Control Facility Requirements	4-34
4.4.3	Snow Removal Equipment and equipment storage Facility Requirements.....	4-35
4.4.4	Fueling Facility Requirements.....	4-35
4.5	Airport Ground Access Requirements.....	4-35
4.5.1	Regional and Local Roadway Access Requirements	4-35
4.5.2	Airport Roadway Access Requirements.....	4-36
4.5.3	Vehicle Circulation and Parking Facility Requirements	4-36
4.5.4	Rental Car Facility Requirements.....	4-37
4.6	Utilities and Stormwater Requirements	4-37

Table of Contents (Continued)

4.7	Summary of Facility Requirements	4-38
5.	Development Concepts	5-1
5.1	Airfield Development Concepts.....	5-1
5.1.1	Crosswind Runway Realignment Concepts.....	5-1
5.1.2	Taxiway Development Concepts	5-21
5.2	Passenger Terminal Development Concepts.....	5-23
5.2.1	Terminal Modification Concepts	5-23
5.2.2	Recommendations.....	5-25
5.3	Tenant Facility Development Concepts	5-27
5.3.1	General Aviation Development Concepts	5-27
5.3.2	Bureau of Land Management Development Concept.....	5-29
5.3.3	Air Cargo Development Concepts.....	5-31
5.4	Ground Access and Support Facility Development Concepts	5-31
5.4.1	Ground Access Development Concepts	5-31
5.4.2	Support Facility Development Concepts.....	5-34
6.	Land Use Plan	6-1
6.1	On-Airport Land Use Plan.....	6-1
6.1.1	Land Use Classifications.....	6-1
6.1.2	Key Land Use Plan Elements	6-3
6.2	Off-Airport Land Use Plan	6-6
6.2.1	Background.....	6-6
6.2.2	Recommendations for Land Use Compatibility Planning and Zoning.....	6-6
7.	Implementation Plan.....	7-1
7.1	Factors Affecting Implementation and Phasing	7-1
7.2	Phased Implementation Plan	7-2
7.2.1	Short-Term Projects (2013-2016).....	7-2
7.2.2	Mid-Term Projects (2017-2021).....	7-5
7.2.3	Long-Term Projects (2022-2029)	7-6
7.3	Environmental Considerations.....	7-7
7.4	Implementation Plan Project Costs and Schedule.....	7-8

Table of Contents (Continued)

- 8. Financial Plan..... 8-1**
 - 8.1 Background Information 8-1**
 - 8.1.1 Airport Financial Structure8-1
 - 8.1.2 Rates and Charges8-2
 - 8.1.3 Historical Airport Cash Flow.....8-2
 - 8.2 Capital Improvement Program – Projects and Funding Sources 8-6**
 - 8.2.1 Projects8-6
 - 8.2.2 Capital Improvement Program Funding Sources8-7
 - 8.3 Cash Flow Analysis..... 8-15**
 - 8.3.1 Capital Improvement Program Cash Flow Analysis8-15
 - 8.3.2 Airport Cash Flow Analysis8-17
 - 8.4 Conclusion and Recommendations 8-19**
- 9. Airport Layout Plan Narrative 9-1**
 - 9.1 Airport Data Sheet..... 9-2**
 - 9.2 Airport Layout Plan 9-3**
 - 9.3 Airport Airspace..... 9-3**
 - 9.4 Inner Portion of Runway Approach 9-4**
 - 9.4.1 Inner Approach Obstructions9-4
 - 9.4.2 Obstruction Mitigation.....9-4
 - 9.5 On and Off Airport Land Use Plan 9-5**
 - 9.6 Airport Property Map 9-5**

List of Appendices

- Appendix A – Strategic Planning Initiative
- Appendix B – Public Involvement Program
- Appendix C – Airfield Demand/Capacity Analysis
- Appendix D – Wind Coverage Analysis Output
- Appendix E – Runway Length Analysis

List of Tables

Table 2-1	Comparison of Commercial Service Airports in Idaho	2-6
Table 2-2	Economic Impact of Commercial Airports	2-7
Table 2-3	Summary of Twin Falls Vicinity Meteorological Conditions (1971-2000).....	2-9
Table 2-4	Summary of Area Visibility and Cloud Ceiling Heights (2000-2009)	2-9
Table 2-5	Runway Characteristics	2-14
Table 2-6	Taxiway Characteristics	2-15
Table 2-7	Runway Markings Inventory	2-16
Table 2-8	Breakdown of Terminal Facility Space	2-22
Table 2-9	Inventory of Snow Removal Equipment at the Airport.....	2-31
Table 2-10	Roadway Level of Service Description	2-35
Table 2-11	Summary of Published Instrument Approach Procedures for the Airport.....	2-43
Table 2-12	Comparison of TWF with Other Commercial Service Airports.....	2-45
Table 2-13	Comparison of TWF and General Aviation Airports.....	2-47
Table 2-14	Historical and Projected Resident Population.....	2-49
Table 2-15	Historical and Projected Personal Income per Capita	2-50
Table 2-16	Historical and Projected Total Employment.....	2-52
Table 2-17	Average Annual Unemployment Rates	2-53
Table 2-18	Airport Service Area Employment by Sector.....	2-54
Table 2-19	Federally Listed and Candidate Fish and Wildlife Species in Twin Falls County	2-70
Table 2-20	Previously Recorded Historic Sites in the Vicinity of TWF	2-71
Table 3-1	Historical Enplaned Passengers.....	3-3
Table 3-2	Historical Aircraft Operations	3-4
Table 3-3	Air Carrier Enplaned Passenger Forecasts.....	3-6
Table 3-4	Air Carrier Enplaned Passenger Forecast Comparison.....	3-7
Table 3-5	Socioeconomic Regression Variables	3-8
Table 3-6	Summary of Regression and Trend Analyses.....	3-9
Table 3-7	Historical and Forecast Regional/Commuter Enplaned Passengers.....	3-11
Table 3-8	Historical and Baseline Forecast Total Enplaned Passengers	3-13
Table 3-9	Enplaned Passenger Forecasts and Comparison to FAA TAF.....	3-14

List of Tables (Continued)

Table 3-10	Enplaned Passenger Forecasts – High and Low Growth Scenarios.....	3-15
Table 3-11	Historical and Forecast Air Cargo Weight.....	3-18
Table 3-12	Air Carrier Aircraft Operations Forecast.....	3-19
Table 3-13	Forecast Air Carrier Aircraft Operations by Projected Fleet Mix	3-20
Table 3-14	Historical and Forecast Regional/Commuter Aircraft Operations.....	3-21
Table 3-15	Forecast Regional/Commuter Aircraft Operations by Projected Fleet Mix	3-22
Table 3-16	Historical and Forecast All-Cargo Aircraft Operations.....	3-23
Table 3-17	Historical and Forecast Air Taxi Operations	3-24
Table 3-18	Historical and Forecast General Aviation Operations.....	3-26
Table 3-19	Historical and Forecast General Aviation Operations by Projected Fleet Mix	3-28
Table 3-20	Historical and Forecast Based Aircraft.....	3-29
Table 3-21	Historical and Projected Based Aircraft Fleet Mix.....	3-31
Table 3-22	Historical and Forecast Military Aircraft Operations.....	3-32
Table 3-23	Aircraft Operations Forecasts and Comparison to FAA TAF.....	3-33
Table 3-24	Historical Peak Month Enplaned Passengers.....	3-34
Table 3-25	Peaking Profile – Enplaned Passengers.....	3-35
Table 3-26	Historical Peak Month Operations.....	3-35
Table 3-27	Peaking Profile – Aircraft Operations.....	3-36
Table 4-1	Annual Demand, Annual Service Volume, and Average Annual Aircraft Delay	4-4
Table 4-2	FAA Runway Design Criteria	4-5
Table 4-3	Existing Runway System Wind Coverage	4-7
Table 4-4	FAA Taxiway Design Criteria.....	4-12
Table 4-5	Generalized Terminal Building Space Requirements.....	4-27
Table 4-6	Conventional Hangar Development Requirements	4-30
Table 4-7	Itinerant Aircraft Parking Position Demand.....	4-31
Table 4-8	Itinerant Aircraft Parking Requirements.....	4-32
Table 5-1	Recommended Crosswind Runway Realignment Concept Specifications.....	5-20
Table 6-1	Nonaeronautical Development Examples.....	6-5
Table 7-1	Short-Term Development Projects (2013-2016).....	7-4

List of Tables (Continued)

Table 7-2	Mid-Term Development Projects (2017-2021).....	7-5
Table 7-3	Long-Term Development Projects (2022-2029)	7-6
Table 7-4	Airport Development Plan Estimated Costs and Schedule	7-9
Table 8-1	Airport Rates and Charges	8-2
Table 8-2	Historical Airport Revenues and Expenses (1 of 2).....	8-3
Table 8-2	Historical Airport Revenues and Expenses (2 of 2).....	8-4
Table 8-3	Capital Improvement Program Summary.....	8-7
Table 8-4	Capital Improvement Program Funding Sources (1 of 3)	8-8
Table 8-4	Capital Improvement Program Funding Sources (2 of 3)	8-9
Table 8-4	Capital Improvement Program Funding Sources (3 of 3)	8-10
Table 8-5	Airport Improvement Program Grant History.....	8-12
Table 8-6	Passenger Facility Charge Revenue Projection	8-13
Table 8-7	Summary of Estimated CIP Cash Flow – Fiscal Years Ending September 30.....	8-16
Table 8-8	Projection of Airport Operating Revenues.....	8-18
Table 8-9	Projection of Airport Operating Expenses	8-19
Table 8-10	Summary of Estimated Airport Cash Flow	8-20

List of Exhibits

Exhibit 1-1	TWF Master Plan Update Process.....	1-3
Exhibit 2-1	Airport Location Map	2-2
Exhibit 2-2	Airport Vicinity Map.....	2-3
Exhibit 2-3	TWF Wind Conditions (2000-2009).....	2-10
Exhibit 2-4	Airport Layout.....	2-12
Exhibit 2-5	Airfield Facilities.....	2-13
Exhibit 2-6	Passenger Terminal Facilities.....	2-21
Exhibit 2-7	Passenger Terminal Building Layout	2-23
Exhibit 2-8	Tenant Facilities	2-26
Exhibit 2-9	Support Facilities.....	2-30

List of Exhibits (Continued)

Exhibit 2-10 Regional Roadway Access2-32

Exhibit 2-11 Local Roadway Access.....2-34

Exhibit 2-12 On-Airport Roadway Access.....2-36

Exhibit 2-13 Terminal Circulation and Parking.....2-37

Exhibit 2-14 Airspace Structure.....2-40

Exhibit 2-15 Twin Falls City Limits and Area of Impact.....2-56

Exhibit 2-16 Existing Land Use2-58

Exhibit 2-17 Future Land Use Plan.....2-59

Exhibit 2-18 Existing Zoning.....2-60

Exhibit 2-19 Noise Exposure Contour2-63

Exhibit 2-20 Aquatic Features.....2-65

Exhibit 2-21 Terrestrial Features.....2-68

Exhibit 3-1 Historical and Forecast Enplaned Passengers – Comparison and Scenarios3-17

Exhibit 5-1 Initial Crosswind Runway Realignment Concepts..... 5-3

Exhibit 5-2 Evaluation of Initial Crosswind Runway Realignment Concepts 5-5

Exhibit 5-3 Initial Crosswind Runway Realignment Concepts – Environmental Considerations 5-7

Exhibit 5-4 Refined Crosswind Runway Realignment Concepts.....5-13

Exhibit 5-5 Evaluation of Refined Crosswind Runway Realignment Concepts.....5-14

Exhibit 5-6 Recommended Crosswind Runway Realignment Concept.....5-19

Exhibit 5-7 Recommended Taxiway Development Concepts.....5-22

Exhibit 5-8 Terminal Modification Concepts.....5-24

Exhibit 5-9 General Aviation Development Concepts5-28

Exhibit 5-10 Bureau of Land Management Development Concept5-30

Exhibit 5-11 Conceptual Air Cargo Development Locations.....5-32

Exhibit 5-12 Recommended Secondary Airport Access Road Concept.....5-33

Exhibit 5-13 Conceptual Public Parking Improvements.....5-35

Exhibit 5-14 Conceptual Snow Removal Equipment Storage Facility.....5-36

Exhibit 6-1 On-Airport Land Use Plan..... 6-2

Exhibit 7-1 Recommended Airport Development Plan..... 7-3