# TABLE OF CONTENTS

CHARLES M. SCHULZ – SONOMA COUNTY AIRPORT
MASTER PLAN UPDATE IMPLEMENTATION PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>ES-1</td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td></td>
</tr>
<tr>
<td>1.1 Purpose of the DEIR</td>
<td>1-2</td>
</tr>
<tr>
<td>1.2 EIR Review Process</td>
<td>1-3</td>
</tr>
<tr>
<td>1.3 Proposed Project Overview</td>
<td>1-3</td>
</tr>
<tr>
<td>1.4 Initial Study Findings</td>
<td>1-6</td>
</tr>
<tr>
<td>1.5 Intended Uses of this DEIR</td>
<td>1-6</td>
</tr>
<tr>
<td>1.6 Agencies That May Use this DEIR</td>
<td>1-6</td>
</tr>
<tr>
<td>1.7 Relationship of this DEIR to the FAA</td>
<td></td>
</tr>
<tr>
<td>Environmental Assessment (EA)</td>
<td>1-7</td>
</tr>
<tr>
<td>1.8 Organization of this DEIR</td>
<td>1-7</td>
</tr>
<tr>
<td>2. PROPOSED PROJECT</td>
<td>2-1</td>
</tr>
<tr>
<td>2.1 Existing Facility</td>
<td>2-1</td>
</tr>
<tr>
<td>2.2 Project Objectives</td>
<td>2-2</td>
</tr>
<tr>
<td>2.3 Proposed Project</td>
<td>2-7</td>
</tr>
<tr>
<td>2.4 Permits and Approvals</td>
<td>2-21</td>
</tr>
<tr>
<td>3. EXISTING CONDITIONS, ENVIRONMENTAL IMPACTS</td>
<td></td>
</tr>
<tr>
<td>3.1 Aesthetics</td>
<td>3.1-1</td>
</tr>
<tr>
<td>3.2 Agricultural Resources</td>
<td>3.2-1</td>
</tr>
<tr>
<td>3.3 Air Quality</td>
<td>3.3-1</td>
</tr>
<tr>
<td>3.4 Biological Resources</td>
<td>3.4-1</td>
</tr>
<tr>
<td>3.5 Cultural Resources</td>
<td>3.5-1</td>
</tr>
<tr>
<td>3.6 Geology and Soils</td>
<td>3.6-1</td>
</tr>
<tr>
<td>3.7 Hazards and Hazardous Materials</td>
<td>3.7-1</td>
</tr>
<tr>
<td>3.8 Hydrology and Water Quality</td>
<td>3.8-1</td>
</tr>
<tr>
<td>3.9 Land Use and Planning</td>
<td>3.9-1</td>
</tr>
<tr>
<td>3.10 Noise</td>
<td>3.10-1</td>
</tr>
<tr>
<td>3.11 Safety</td>
<td>3.11-1</td>
</tr>
<tr>
<td>3.12 Transportation and Traffic</td>
<td>3.12-1</td>
</tr>
<tr>
<td>4. ALTERNATIVES ANALYSIS</td>
<td>4-1</td>
</tr>
<tr>
<td>4.1 Alternatives Screening Process</td>
<td>4-1</td>
</tr>
<tr>
<td>4.2 Alternatives Development and Screening</td>
<td>4-5</td>
</tr>
</tbody>
</table>
### Table of Contents

4.3 Alternatives Considered But Eliminated From Further Review 4-6  
4.4 No Project Alternative 4-22  
4.5 Alternative 11 4-27  
4.6 Alternative 12 4-30  
4.7 Long-Term Project Element Alternatives 4-32  
4.8 Environmentally Superior Alternative 4-34  

5. **IMPACT OVERVIEW** 5-1  
5.1 Significant and Unavoidable Adverse Impacts 5-1  
5.2 Significant Irreversible Environmental Changes 5-1  
5.3 Growth Inducing Impacts 5-2  
5.4 Cumulative Impacts 5-4  

6. **LIST OF PREPARERS** 6-1  
6.1 Sonoma county 6-1  
6.2 RS&H Team 6-2  

7. **LIST OF AGENCIES AND PERSONS CONSULTED** 7-1  
7.1 Federal Agencies 7-1  
7.2 State of California 7-1  
7.3 Local Jurisdictions 7-1  
7.4 Other Public/Private Entities 7-2  

8. **REFERENCES** 8-1  

9. **GLOSSARY AND ABBREVIATIONS** 9-1  
9.1 Glossary 9-1  
9.2 Abbreviations 9-7  

### APPENDICES

A. Initial Study  
B. Notice of Preparation  
C. Scoping Report  
D. Airport Layout Plan  
E. Forecasts  
F. Runway Safety Action Plan  
G. Air Quality Technical Study  
H. Biological Resource Technical Study  
I. Cultural Resource Technical Study  
J. Hydrology and Water Quality Technical Study  
K. Land Use  
L. Revisions to the Sonoma County general Plan 2020  
M. Noise
FIGURES

Figure 1-1 Runway Configuration of Charles M. Schulz – Sonoma County Airport
Figure 2-1 Existing Substandard Runway Safety Areas
Figure 2-2 Co-Located Approach Ends of Runways 14 and 19
Figure 2-3 Project Elements of the Proposed Project
Figure 2-4 Declared Distance for Runways 1 and 14
Figure 3.1-1 Sonoma County General Plan 2020 Open Space and Resource Conservation Element
Figure 3.2-1 Existing Farmland
Figure 3.2-2 Conversion of Farmland of Local Importance
Figure 3.2-3 Acquisition of Property Containing Farmland as a Result of Short-Term Project Elements
Figure 3.2-4 Acquisition of Property Containing Farmland Associated with Long-Term Project Elements
Figure 3.2-5 Acquisition of Property Containing Williamson Act Farmlands
Figure 3.3-1 HRA Receptor Sites in Airport Vicinity
Figure 3.4-1 Short-Term and Long-Term Projects – Airport Master Plan
Figure 3.4-2 Regional CNEL Occurrences of Federally-Listed Species and Critical habitat
Figure 3.4-3 Regional CNEL Occurrences of Non-Federally-Listed Species
Figure 3.4-4 Occurrences of Special Status Species in the Airport Study Area
Figure 3.4-5 Wetland Impact Areas
Figure 3.4-6 California Tiger Salamander Suitable Habitat
Figure 3.4-7 Western Pond Turtle Habitat
Figure 3.4-8 Suitable Burrowing Owl Habitat
Figure 3.4-9 Project Impacts: Location of Avoidance and Minimization Measures
Figure 3.5-1 Airport Study Area for Cultural Resources Analysis
Figure 3.6-1 Fault Lines in the Regional Study Area
Figure 3.6-2 Grading Areas Within the Airport Study Area
Figure 3.7-1 LUST Sites in the Airport Boundary
Figure 3.8-1 Airport Vicinity Tributary and Watershed Map
Figure 3.8-2 Airport Vicinity Floodplain Map
Figure 3.9-1 General Plan Land Use
Figure 3.9-2 Current CALUP Safety Zones
Figure 3.9-3 Relocated CALUP Safety Zones
Figure 3.10-1 2009 CNEL Contours
Figure 3.10-2 Noise Receptor Site Map
Figure 3.10-3 Construction Noise Receptor Sites
Figure 3.10-4 2015 CNEL Contours With Proposed Project
Figure 3.10-5 2015 CNEL Contours Without Proposed Project
Figure 3.10-6 2015 CNEL Change in Acres as a Result of the Proposed Project
Figure 3.10-7 Proposed Project – 2015 Aircraft Noise Impacts Areas
Figure 3.10-8 Proposed Project – 2015 Cumulative Impact
Figure 3.10-9 Proposed Project – Detailed View of the 2015 Cumulative Impact
Figure 3.10-10 2030 CNEL Contours With Proposed Project
Figure 3.10-11 2030 CNEL Contours Without Proposed Project
Figure 3.10-12 2030 CNEL Change in Acres as a Result of the Proposed Action
Figure 3.10-13 Proposed Project – 2030 Aircraft Noise Impact Areas
Table of Contents

Figure 3.10-14 Proposed Project – 2030 Cumulative Impact 3.10-43
Figure 3.10-15 Proposed Project – Detailed View of 2030 Cumulative Impact 3.10-44
Figure 3.10-16 Q400 85 dB and 90 dB SEL Contours for Runway 32 3.10-47
Figure 3.10-17 Q400 85 dB and 90 dB SEL Contours for Runway 14 3.10-48
Figure 3.10-18 C172 85 dB and 90 dB SEL Contours for Runways 1 and 32 3.10-49
Figure 3.10-19 C172 85 dB and 90 dB SEL Contours for Runways 14 and 19 3.10-50
Figure 3.10-20 MU3001 85 dB and 90 dB SEL Contours for Runways 1 and 32 3.10-51
Figure 3.10-21 MU3001 85 dB and 90 dB SEL Contours for Runway 14 3.10-52
Figure 3.10-22 MU3001 85 dB and 90 dB SEL Contours for Runway 19 3.10-53
Figure 3.10-23 G-IV 85 dB and 90 dB SEL Contours for Runway 32 3.10-54
Figure 3.10-24 G-IV 85 dB and 90 dB SEL Contours for Runway 14 3.10-55
Figure 3.10-25 G-IV 85 dB and 90 dB SEL Contours for Runway 19 3.10-56
Figure 3.11-1 General Aviation Accident Contours: Departures 3.11-2
Figure 3.11-2 General Aviation Accident Contours: Arrivals 3.11-3
Figure 3.11-3 Runway Protection Zones 3.11-6
Figure 3.12-1 Existing Lane Geometrics and Intersection Control 3.12-29
Figure 3.12-2 Area Map 3.12-30
Figure 3.12-3 Airport Roads 3.12-31
Figure 3.12-4 Existing AM Peak Hour Volumes 3.12-32
Figure 3.12-5 Existing PM Peak Hour Volumes 3.12-33
Figure 3.12-6 2015 AM Peak Hour Volumes Without Proposed Project 3.12-34
Figure 3.12-7 2015 PM Peak Hour Volumes Without Proposed Project 3.12-35
Figure 3.12-8 2015 Lane Geometrics and Intersection Control 3.12-36
Figure 3.12-9 2030 AM Peak Hour Volumes Without Proposed Project 3.12-37
Figure 3.12-10 2030 PM Peak Hour Volumes Without Proposed Project 3.12-38
Figure 3.12-11 2030 Lane Geometrics and Intersection Control Without Proposed Project 3.12-39
Figure 3.12-12 2015 AM Peak Hour Volumes with Proposed Project 3.12-40
Figure 3.12-13 2015 PM Peak Hour Volumes with Proposed Project 3.12-41
Figure 3.12-14 2030 AM Peak Hour Volumes with Proposed Project 3.12-42
Figure 3.12-15 2030 PM Peak Hour Volumes with Proposed Project 3.12-43
Figure 3.12-16 2015 AM Peak Hour Proposed Project Increment Volumes 3.12-44
Figure 3.12-17 2015 PM Peak Hour Proposed Project Increment Volumes 3.12-45
Figure 3.12-18 2030 AM Peak Hour Proposed Project Increment Volumes 3.12-46
Figure 3.12-19 2030 PM Peak Hour Proposed Project Increment Volumes 3.12-47
Figure 3.12-20 2015 Intersection Mitigation 3.12-48
Figure 3.12-21 2030 Intersection Mitigation 3.12-49
Figure 4-1 Alternative 1 4-8
Figure 4-2 Alternative 2 4-9
Figure 4-3 Alternative 3 4-10
Figure 4-4 Alternative 4 4-11
Figure 4-5 Alternative 5 4-12
Figure 4-6 Alternative 6 4-13
Figure 4-7 Alternative 7 4-14
Figure 4-8 Alternative 8 4-15
Figure 4-9 Alternative 9 4-16
Figure 4-10 Alternative 10 4-17
Figure 4-11 Alternative 11 4-18
Figure 4-12 Alternative 12 4-19
Figure 4-13 Alternative 13 4-20
## LIST OF TABLES

| Table 2-1 | Aviation Activity Forecasts for Charles M. Schulz – Sonoma County Airport | 2-2 |
| Table 2-2 | Existing and Required RSA Dimensions | 2-4 |
| Table 2-3 | Summary of Short-Term Project Elements of the Proposed Project | 2-8 |
| Table 2-4 | Summary of Long-Term Project Elements of the Proposed Project | 2-9 |
| Table 2-5 | Phase I Project Elements | 2-19 |
| Table 2-6 | Phase II Project Elements | 2-20 |
| Table 2-7 | Schedule for Programmatic Elements | 2-21 |
| Table 3.1-1 | Sonoma County Visual Assessment Guidelines Significance Thresholds | 3.1-2 |
| Table 3.2-1 | Acquisition of Property Containing Farmland as a Result of Short-Term Project Elements | 3-2-7 |
| Table 3.2-2 | Acquisition of Property Containing Farmland Associated with Long-Term Project Elements | 3-2-9 |
| Table 3.3-1 | BAAQMD Thresholds | 3.3-8 |
| Table 3.3-2 | BAAQMD Thresholds for Construction | 3.3-9 |
| Table 3.3-3 | Existing Conditions (2009) Emissions Inventory | 3.3-13 |
| Table 3.3-4 | Existing Conditions (2009) CO₂ Equivalent | 3.3-15 |
| Table 3.3-5 | Existing Conditions (2009) Inhalation Cancer Risk | 3.3-18 |
| Table 3.3-6 | Existing Conditions (2009) Acute Non-Cancer Hazard Index | 3.3-19 |
| Table 3.3-7 | Existing Conditions (2008) 8-Hour Non-Cancer Hazard Index | 3.3-20 |
| Table 3.3-8 | Existing Conditions (2009) Chronic Non-Cancer Hazard Index | 3.3-21 |
| Table 3.3-9 | Maximum Daily Construction Emissions for Short-Term Project Elements | 3.3-22 |
| Table 3.3-10 | GHG Emissions During Construction | 3.3-22 |
| Table 3.3-11 | 2015 Emissions Inventory Without Proposed Project | 3.3-24 |
| Table 3.3-12 | 2015 Emissions Inventory With Proposed Project | 3.3-25 |
| Table 3.3-13 | Annual Net Impact of Criteria and Precursor Pollutant Emissions in 2015 | 3.3-25 |
| Table 3.3-14 | 2015 GHG Emissions Without the Proposed Project | 3.3-26 |
| Table 3.3-15 | 2015 GHG Emissions With Proposed Project | 3.3-27 |
| Table 3.3-16 | Annual Net Impact of Greenhouse Gas Emissions in 2015 | 3.3-27 |
| Table 3.3-17 | Inhalation Cancer Risk in 2015 | 3.3-28 |
| Table 3.3-18 | Acute Non-Cancer Hazard Index for 2015 | 3.3-29 |
| Table 3.3-19 | Acute Hazard Index for Eyes in 2015 | 3.3-31 |
| Table 3.3-20 | Acute Hazard Index for Respiratory System in 2015 | 3.3-31 |
| Table 3.3-21 | 8-Hour Non-Cancer Hazard Index in 2015 | 3.3-32 |
| Table 3.3-22 | Chronic Non-Cancer Hazard Index for 2015 Without Proposed Project | 3.3-34 |
| Table 3.3-23 | Chronic Non-Cancer Hazard Index for 2015 With Proposed Project | 3.3-35 |
| Table 3.3-24 | 2030 Emissions Inventory Without Proposed Project | 3.3-37 |
| Table 3.3-25 | 2030 Emissions Inventory With the Proposed Project | 3.3-37 |
| Table 3.3-26 | Annual Net Impact of Criteria and Precursor Pollutant Emissions in 2030 | 3.3-38 |
| Table 3.3-27 | 2030 GHG Emissions Without Proposed Project | 3.3-39 |
Table 3.3-28 2030 GHG Emissions With Proposed Project 3.3-39
Table 3.3-29 Annual Net Impact of Greenhouse Gas Emissions in 2030 3.3-39
Table 3.3-30 Inhalation Cancer Risk in 2030 3.3-40
Table 3.3-31 Acute Non-Cancer Hazard Index for 2030 3.3-42
Table 3.3-32 Acute Hazard Index for Eyes in 2030 3.3-43
Table 3.3-33 Acute Hazard Index for Respiratory System in 2030 3.3-43
Table 3.3-34 8-Hour Non-Cancer Hazard Index in 2030 3.3-44
Table 3.3-35 Chronic Non-Cancer Hazard Index for 2030 Without Proposed Project 3.3-46
Table 3.3-36 Chronic Non-Cancer Hazard Index for 2030 With Proposed Project 3.3-47
Table 3.3-37 Comparison of Maximum On-Site 8-Hour TAC Concentration To CAL/OSHA PEL 3.3-48
Table 3.4-1 Special Status Plant and Animal Species Reviewed for the Charles M. Schulz – Sonoma County Airport 3.4-14
Table 3.4-2 Wetland Impacts Associated with the Proposed Project 3.4-45
Table 3.5-1 Cultural Resources in the Airport Study Area 3.5-9
Table 3.6-1 Geologic Formations of the Sonoma County Region 3.6-3
Table 3.6-2 Soils Within the Airport Study Area 3.6-5
Table 3.8-1 Uses for Hydrologic Unit/Mark West Hydrologic Subarea 3.8-3
Table 3.8-2 Capacities of Water Basins 3.8-9
Table 3.9-1 2002 Handbook Safety Zones 3.9-10
Table 3.10-1 Sonoma County CALUP Noise Compatibility Standards 3.10-3
Table 3.10-2 2009 CNEL Area in Acres 3.10-6
Table 3.10-3 Noise Receptor Sites 3.10-6
Table 3.10-4 Noise Receptor Modeled 2009 CNEL Noise Levels 3.10-9
Table 3.10-5 Ambient Noise Levels by Receptor Site 3.10-10
Table 3.10-6 CNEL at Receptor Sites 1 thru 4 3.10-11
Table 3.10-7 Average Daily Traffic Volumes for Traffic Noise Analysis 3.10-11
Table 3.10-8 Vehicle Traffic Mix 3.10-12
Table 3.10-9 2009 Traffic Noise Levels 3.10-13
Table 3.10-10 Summary of Construction Equipment and Construction Traffic Maximum Noise Levels 3.10-16
Table 3.10-11 Maximum Allowable Exterior Noise Exposures for Non-Transportation Noise Sources 3.10-17
Table 3.10-12 Aircraft Operations and Fleet Mix – 2009 and 2015 3.10-19
Table 3.10-13 2015 CNEL Exposure Area in Acres 3.10-20
Table 3.10-14 2015 CNEL at Receptor Sites 3.10-24
Table 3.10-15 Change of CNEL at Receptor Sites in 2015 3.10-25
Table 3.10-16 Traffic Noise Levels in 2015 Without Proposed Project 3.10-30
Table 3.10-17 Traffic Noise Levels in 2015 With Proposed Project 3.10-31
Table 3.10-18 Changes in Traffic Noise Levels in 2015 3.10-32
Table 3.10-19 2015 Traffic Noise Levels at the Nearest Homes 3.10-33
Table 3.10-20 Aircraft Operations and Fleet Mix – 2009 and 2030 3.10-35
Table 3.10-21 2030 CNEL Exposure Area in Acres 3.10-39
Table 3.10-22 2030 CNEL at Receptor Sites 3.10-39
Table 3.10-23 Change of CNEL at Receptor Sites in 2030 3.10-41
Table 3.10-24 Maximum Percentage of Awakenings Per Exterior SEL 3.10-45
Table 3.10-25 Traffic Noise Levels in 2030 Without Proposed Project 3.10-58
Table 3.10-26 Traffic Noise Levels in 2030 With Proposed Project 3.10-59
Table 3.10-27 Changes in Traffic Noise Levels in 2030 3.10-60
Table of Contents

Table 3.10-28  2030 Traffic Noise Levels at the Nearest Homes  3.10-61
Table 3.12-1   Signalized Intersection Level of Service Criteria  3.12-5
Table 2.12-2   Unsignalized Intersection Level of Service Criteria  3.12-5
Table 3.12-3   Basic Freeway Segments Level of Service Definitions  at 65 Miles Per Hour  3.12-7
Table 3.12-4   Existing Intersection Level of Service in Airport Vicinity  3.12-8
Table 3.12-5   Increase in Charles M. Schulz – Sonoma County Airport Trip Generation by 2015 Without Proposed Project  3.12-12
Table 3.12-6   Intersection Level of Service – Year 2015  3.12-13
Table 3.12-7   Freeway Level of Service – Year 2015  3.12-14
Table 3.12-8   Increase in Charles M. Schulz – Sonoma County Airport Trip Generation by 2030 Without Proposed Project  3.12-15
Table 3.12-9   Intersection Level of Service – Year 2030  3.12-16
Table 3.12-10  Freeway Level of Service – Year 2030  3.12-17
Table 3.12-11  Increase in Charles M. Schulz – Sonoma County Airport Trip Generation by 2015 With Proposed Project  3.12-19
Table 3.12-12  Increase in Charles M. Schulz – Sonoma County Airport Trip Generation by 2030 With Proposed Project  3.12-20
Table 3.12-13  Charles M. Schulz – Sonoma County Airport Trip Generation Summary for Proposed Project  3.12-21
Table 3.12-14  Trip Distribution for the Proposed Project  3.12-22
Table 4-1     Alternatives Screening Process  4-7
Table 4-2     Summary of Project Elements of the No Project Alternative and the Proposed Project  4-23
Table 4-3     Impacts of the No Project Alternative, Alternative 11, and Alternative 12 Compared to the Proposed Project  4-24