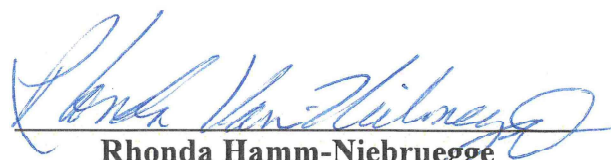


AIRPORT CERTIFICATION MANUAL

St. Louis Lambert International Airport

APRIL 2020

MTN – 2276, Terminal 1
St. Louis Lambert International Airport
St. Louis, MO 63145


Rhonda Hamm-Niebruegge
Director of Airports

FAA Approved

M. Cozad

Date: 4/1/20

INTRODUCTION

The purpose of this document is to provide an Airport Certification Manual clearly defining objectives, structures, and functions as well as ensuring maximum assignment and utilization of personnel in order to achieve the highest degree of operational efficiency and safety in compliance with the requirements of Part 139 of the Federal Aviation Regulations at St. Louis Lambert International Airport in St. Louis, Missouri.

Original Date
Revision Date MAY 23 2019

FAA Approval J. Potrudis

AIRPORT CERTIFICATION MANUAL DISTRIBUTION LIST

DISTRIBUTION OF ACM IS AS FOLLOWS:

- A. Distribution “1” Entire ACM to include – **Bomb Threat and Sabotage/Hijacking**
- B. Distribution “2” Entire ACM **EXCEPT** – **Bomb Threat and Sabotage/Hijacking**

Distribution “1”

Director of Airports
Deputy Director of Operations & Maintenance
Deputy Director of Finance & Administration
Deputy Director of Planning & Development
Assistant Director of Air Service & Business Development
Assistant Director of Finance & Accounting
Assistant Director of Engineering & Construction
Assistant Director of Operations & Maintenance
Construction & Maintenance Manager
Airport Properties Division Manager
Public Information Manager
Airport Operations
Airport Police Chief
Battalion Fire Chief
Environmental Regulatory Compliance & Safety Manager
Airfield Maintenance Supervisor
Airport Fleet Maintenance Manager
Airport Power Plant Manager
Electrical Supervisor
Airport Building Maintenance Supervisor
General Counsel
FAA, Regional Office
FAA, Air Traffic Control Tower
FAA, Flight Standards District Office
Transportation Security Administration
Boeing
Landscaping Supervisor
Emergency Preparedness Coordinator
Station Managers
Ground Handler Manager
Airport Security Manager

Original Date

Revision Date AUG 07 2019

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Distribution “2”

All Airport Personnel
USDA
Rescue Vehicle
Volunteers
All tenants involved in refueling and ground operations
Human Resource Manager
Housekeeping Manager
Distribution to individual employees, where applicable

Each manual holder shall be responsible for keeping his/her manual current at all times, and shall insert revised pages immediately upon receipt.

All correspondence related to this manual, suggestions for revisions or improvements, and information regarding corrections or updating should be address to:

**Rhonda Hamm-Niebruegge
Director of Airports
St. Louis Lambert International Airport
P.O. Box 10212
St. Louis, Missouri 63145**

Original Date _____
Revision Date **AUG 07 2019**

FAA Approval *J. F. Feltner*

RECORD OF AMENDMENTS

DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
August 2005	I	Not Applicable	Entire ACM	Entire ACM
March 2006	II	Not Applicable	Title Page	Title Page
March 2006	II	Index	Entire Section	Entire Section
March 2006	II	ACM	Entire Section	Entire Section
March 2006	II	139.201	Entire Section	Entire Section
March 2006	II	139.205	Entire Section	Entire Section
March 2006	II	139.303	Entire Section	Entire Section
March 2006	II	139.305	305-2	305-2
March 2006	II	139.309	309-1, 309-2	309-1, 309-2
March 2006	II	139.311	Entire Section	Entire Section
March 2006	II	139.313	313-2	313-2
March 2006	II	139.317	Entire Section	Entire Section
March 2006	II	139.319	319-1, 319-2, 319-4	319-1, 319-2, 319-4, 319-7
March 2006	II	139.321	Entire Section	Entire Section
March 2006	II	139.323	Entire Section	Entire Section
March 2006	II	139.325	325-2 thru 7, 325-9, 325-18, 325-37, 325-38, 325-42, 325-44, 325-52, 325-63 thru 148, 325- 157 thru 291	325-2 thru 7, 325-9, 325-18, 325-37, 325-38, 325-42, 325-44, 325-52, 325-63 thru 148, 325- 157 thru 298
March 2006	II	139.327	327-1	327-1
March 2006	II	139.329	329-1, 329-2, 329-5	329-1, 329-2, 329-5
March 2006	II	139.331	Entire Section	Entire Section
March 2006	II	139.337	337-2, 337-3, 337-6	337-2, 337-3, 337-6
March 2006	II	139.339	Entire Section	Entire Section
March 2006	II	139.341	341-1	341-1
March 2006	II	139.343	Entire Section	Entire Section
March 2006	II	Appendix A	Entire Section	Entire Section
March 2006	II	Appendix B	Entire Section	Entire Section
March 2006	II	Appendix C	Entire Section	Entire Section

Original Date _____
Revision Date MAY 23 2019

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DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
October 2006	III	Not Applicable	Title Page	Title Page
October 2006	III	Index	i thru x	i thru x
October 2006	III	ACM	ACM-6 thru ACM-10	ACM-6 thru ACM-13
October 2006	III	139.303	303-3 thru 303- 15	303-3 thru 303- 15
October 2006	III	139.313	313-1	313-1
October 2006	III	139.317	Entire Section	Entire Section
October 2006	III	139.319	319-2	319-2
October 2006	III	139.321	Entire Section	Entire Section
October 2006	III	139.325	Entire Section	Entire Section
October 2006	III	Appendix A	AA-1, AA-1a, AA-4	AA-1, AA-1A, AA-4
October 2006	III	Appendix B	Entire Section	Entire Section
October 2006	III	Appendix C	Entire Section	Entire Section
January 2007	IV	Not Applicable	Title Page	Title Page
January 2007	IV	Index	ii	ii
January 2007	IV	ACM	ACM-6 thru ACM-13	ACM-6 thru ACM-14
January 2007	IV	139.311	Entire Section	Entire Section
December 2007	V	Not Applicable	Title Page	Title Page
December 2007	V	Index	Entire Section	Entire Section
December 2007	V	ACM	ACM-2, ACM- 3, ACM-7 thru ACM-14	ACM-2, ACM- 3, ACM-7 thru ACM-15
December 2007	V	139.201	201-1	201-1
December 2007	V	139.205	205-1	205-1
December 2007	V	139.303	3-15	3-15
December 2007	V	139.305	305-2	305-2
December 2007	V	139.309	309-2, 309-3	309-2, 309-3
December 2007	V	139.311	311-1, 311-4 thru 311-6	311-1, 311-4 thru 311-6
December 2007	V	139.313	313-1 thru 313- 4, 313-6, 313-7	313-1 thru 313- 4, 313-6, 313-7
December 2007	V	139.317	317-2	317-2
December 2007	V	139.321	321-1, 321-2, 321-4, 321-14 thru 321-18	321-1, 321-2, 321-4, 321-14 thru 321-18
December 2007	V	139.325	Entire Section	Entire Section

Original Date

Revision Date **MAY 23 2019**

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DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
December 2007	V	139.325	Entire Section	Entire Section
December 2007	V	139.327	327-1, 327-2	327-1, 327-2
December 2007	V	139.329	329-4	329-4
December 2007	V	139.331	Entire Section	Entire Section
December 2007	V	139.333	333-1	333-1
December 2007	V	139.335	335-1	335-1
December 2007	V	139.337	Entire Section	Entire Section
December 2007	V	139.339	339-1	339-1
December 2007	V	139.341	Entire Section	Entire Section
December 2007	V	Appendix A	AA-12, AA-13, AA-26 thru AA- 42	AA-12, AA-13, AA-26 thru AA- 33
December 2007	V	Appendix B	Entire Section	Entire Section
December 2007	V	Appendix C	AC-2	AC-2
November 2008	VI	Index	Entire Section	Entire Section
November 2008	VI	ACM	ACM-9 thru ACM-15	ACM-9 thru ACM-19
November 2008	VI	139.201	201-1	201-1
November 2008	VI	139.303	303-3 thru 303- 15	303-3 thru 303- 16
November 2008	VI	139.311	311-1 thru 311-7	311-1 thru 311-6
November 2008	VI	139.319	319-1	319-1
November 2008	VI	139.321	321-4 thru 321- 6, 321-9	321-4 thru 321- 6, 321-9
November 2008	VI	139.325	Entire Section	Entire Section
November 2008	VI	139.327	327-2	327-2
November 2008	VI	139.337	337-5	337-5
November 2008	VI	139.339	339-2	339-2
November 2008	VI	139.341	341-1	341-1
November 2008	VI	Appendix A	AA-2 thru AA- 7, AA-9, AA-21 thru AA-33	AA-2 thru AA- 7, AA-9, AA-21 thru AA-31
November 2008	VI	Appendix B	AB-3 thru AB- 4C, AB-7A thru AB-8K	AB-3 thru AB- 4C, AB-7 thru AB-8K
November 2008	VI	Appendix C	AC-2	AC-2
April 2009	VII	Appendix A	AA-12, AA-13	AA-12, AA-13

Original Date

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DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
November 2009	VIII	Not Applicable	Title Page	Title Page
November 2009	VIII	Index	i, iv thru x	i, iv thru x
November 2009	VIII	ACM	ACM-10 thru ACM-20	ACM-10 thru ACM-20
November 2009	VIII	139.105	105-1	105-1
November 2009	VIII	139.201	201-1, 201-2	201-1, 201-2
November 2009	VIII	139.205	205-1	205-1
November 2009	VIII	139.303	303-3 thru 303-16	303-3 thru 303-16
November 2009	VIII	139.305	305-1	305-1
November 2009	VIII	139.309	309-1, 309-2	309-1, 309-2
November 2009	VIII	139.311	311-4	311-4
November 2009	VIII	139.313	Entire Section	Entire Section
November 2009	VIII	139.319	319-3, 319-4	319-3, 319-4
November 2009	VIII	139.321	321-4	321-4
November 2009	VIII	139.325	Entire Section	Entire Section
November 2009	VIII	139.327	327-1, 327-3 thru 327-5	327-1, 327-3 thru 327-5
November 2009	VIII	139.329	329-1, 329-5 thru 329-8	329-1, 329-5 thru 329-8
November 2009	VIII	139.331	331-1	331-1
November 2009	VIII	139.333	333-1	333-1
November 2009	VIII	139.335	335-1	335-1
November 2009	VIII	139.337	337-2 thru 337-6	337-2 thru 337-6
November 2009	VIII	139.339	339-1, 339-2	339-1, 339-2
November 2009	VIII	139.343	343-1	343-1
November 2009	VIII	Appendix A	AA-1A, AA-2, AA-4	AA-1A, AA-2, AA-4
November 2009	VIII	Appendix B	Entire Section	Entire Section
November 2009	VIII	Appendix C	AC-2	AC-2
July 2010	IX	Index	Entire Section	Entire Section
July 2010	IX	ACM	ACM-2, ACM- 3, ACM-11 thru ACM-20	ACM-2, ACM- 3, ACM-11 thru ACM-25
July 2010	IX	139.303	303-3 thru 303- 16	303-3 thru 303- 18

Original Date _____
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DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
July 2010	IX	139.313	313-1, 313-2, 313-6	313-1, 313-2, 313-6
July 2010	IX	139.317	317-4	
July 2010	IX	139.319	319-4	319-4
July 2010	IX	139.325	325-1 thru 325-7, 325-9 thru 325-55 thru 325-61, 325- 65 thru 325-68, 325-71, 325-72, 325-77, 325-80, 325-86 thru 325- 89, 325-93, 325- 97 thru 325-105, 325-109 thru 325- 114, 325-116, 325-118 thru 325- 131, 325-133, 325-135 thru 325- 180, 325-191 thru 325-197, 325-199, 325-201 thru 325- 203, 325-206 thru 325-211, 325-223 thru 325-231, 325-236 thru 325- 259, 325-262 thru 325-265, 325-271, 325-272, 325-274 thru 325-276, 325-279 thru 325- 291, 325-295, 325-297, 325-299 thru 325-301, 325-304, 325-311, 325-322, 325-327, 325-335, 325-338, 325-340, 325-347	325-1 thru 325-7, 325-9 thru 325-55 thru 325-61, 325- 65 thru 325-68, 325-71, 325-72, 325-77, 325-80, 325-86 thru 325- 89, 325-93, 325- 97 thru 325-105, 325-109 thru 325- 114, 325-116, 325-118 thru 325- 131, 325-133, 325-135 thru 325- 180, 325-191 thru 325-197, 325-199, 325-201 thru 325- 203, 325-206 thru 325-211, 325-223 thru 325-231, 325-236 thru 325- 259, 325-262 thru 325-265, 325-271, 325-272, 325-274 thru 325-276, 325-279 thru 325- 291, 325-295, 325-297, 325-299 thru 325-301, 325-304, 325-311, 325-322, 325-327, 325-335, 325-338, 325-340, 325-347
July 2010	IX	139.329	329-1, 329-4	329-1, 329-4
July 2010	IX	139.331	331-1	331-1
July 2010	IX	139.335	335-2	335-2
July 2010	IX	139.337	Entire Section	Entire Section
July 2010	IX	139.339	339-1	339-1

Original Date _____
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DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
July 2010	IX	139.341	341-1	341-1
July 2010	IX	139.343	343-1	343-1
July 2010	IX	Appendix A	AA-9	AA-9
July 2010	IX	Appendix B	AB-1A, AB-4A, AB-4B, AB-4C, AB-6, AB-7A, AB-7C, AB-8D, AB-8F, AB-8G	AB-1A, AB-4A, AB-4B, AB-4C, AB-6, AB-7A, AB-7C, AB-8D, AB-8F, AB-8G
July 2010	IX	Appendix C	AC-2	AC-2
October 2011	X	139.303	303-3, 4, 303-6, 7, 303-9 thru 303-16	303-3, 4, 303-6, 7, 303-9 thru 303-16
October 2011	X	139.321	321-20, 21	321-20, 21
October 2011	X	139.325	Entire Section	Entire Section
October 2011	X	139.337	337-1 thru 337- 3, 337-6	337-1 thru 337- 3, 337-6
October 2011	X	Appendix A	AA-26 thru AA- 30	AA-26 thru AA- 30, AA-32 thru AA-35
August 2012	XI	ACM	ACM-14, 15, 21, 22, 27, 29	ACM-14, 15, 21, 22, 27, 29
August 2012	XI	139.105	105-1	105-1
August 2012	XI	139.303	Entire Section	Entire Section
August 2012	XI	139.309	309-1	309-1
August 2012	XI	139.311	311-3, 4	311-3, 4
August 2012	XI	139.313	313-1, 4	313-1, 4
August 2012	XI	139.317	317-2	317-2
August 2012	XI	139.319	319-1	319-1
August 2012	XI	139.321	321-3 thru 321- 25	321-3 thru 321- 25
August 2012	XI	139.325	325-1, 325-13, 325- 34, 325-43, 325-49, 325-52, 325-61, 325- 73, 325-76, 325-78, 325-117, 325-162 thru 325-169, 325- 173, 325-209 thru 325-211, 325-354, 325- 355, 325-45, 325-68, 325-72, 325- 86, 325-93, 325-101, 325-133	325-1, 325-13, 325- 34, 325-43, 325-49, 325-52, 325-61, 325- 73, 325-76, 325-78, 325-117, 325-162 thru 325-169, 325- 173, 325-209 thru 325-211, 325-354, 325- 355, 325-45, 325-68, 325-72, 325- 86, 325-93, 325-101, 325-133

Original Date

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DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
August 2012	XI	139.337	Entire Section	Entire Section
August 2012	XI	139.341	341-2	341-2
August 2012	XI	Appendix B	Entire Section	Entire Section
August 2013	XII	Index	Entire Section	Entire Section
August 2013	XII	ACM	ACM-15, 16, 23, 28, 29	ACM-15, 16, 23, 28, 29
August 2013	XII	139.115	Entire Section	Entire Section
August 2013	XII	139.303	303-1, 303-3 thru 303-17	303-1, 303-3 thru 303-17
August 2013	XII	139.313	313-3, 313-5, 313-6	313-3, 313-5, 313-6
August 2013	XII	139.317	317-2, 317-3	317-2, 317-3
August 2013	XII	139.319	319-1	319-1
August 2013	XII	139.319	319-1	319-1
August 2013	XII	139.325	Entire Section	Entire Section
August 2013	XII	139.329	329-1, 329-2 329-4	329-1, 329-2 329-4
August 2013	XII	139.337	337-6, 337-7	337-6, 337-7
August 2013	XII	Appendix B	AB-3 thru AB- 3J	AB-3 thru AB- 3J
August 2013	XIII	ACM	Entire Section	Entire Section
June 2014	XIII	Index	Entire Section	Entire Section
June 2014	XIII	139.313	4,5,7	4,5,7
June 2014	XIII	139.325	Entire Section	Entire Section
June 2014	XIII	139.341	341-1	341-1
January 2015	XIV	ACM	Entire Section	Entire Section
January 2015	XIV	Index	Entire Section	Entire Section
January 2015	XIV	139.205	Entire Section	Entire Section
January 2015	XIV	139.301	Entire Section	Entire Section
January 2015	XIV	139.303	Entire Section	Entire Section
January 2015	XIV	139.305	Entire Section	Entire Section
January 2015	XIV	139.309	Entire Section	Entire Section
January 2015	XIV	139.311	Entire Section	Entire Section
January 2015	XIV	139.313	Entire Section	Entire Section
January 2015	XIV	139.317	Entire Section	Entire Section
January 2015	XIV	139.319	Entire Section	Entire Section
January 2015	XIV	139.329	Entire Section	Entire Section
January 2015	XIV	139.331	Entire Section	Entire Section
January 2015	XIV	139.333	Entire Section	Entire Section

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Revision Date MAY 23 2019

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DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
January 2015	XIV	139.335	Entire Section	Entire Section
January 2015	XIV	139.339	Entire Section	Entire Section
January 2015	XIV	139.341	Entire Section	Entire Section
January 2015	XIV	Appendix C	Entire Section	Entire Section
January 2016	XV	ACM	ACM 2, ACM 18, ACM 26, ACM 32	ACM 2, ACM 18, ACM 26, ACM 32
January 2016	XV	Index	ii, iii, ix thru xii	ii, iii, ix thru xii
January 2016	XV	139.313	Entire Section	Entire Section
January 2016	XV	139.317	317-2	317-2
January 2016	XV	139.325	325-1, 325-11, 325-76	325-1, 325-11, 325-76
January 2016	XV	139.327	Entire Section	Entire Section
January 2016	XV	139.337	337-3, 337-4, 337-6 thru 337-12	337-3, 337-4, 337-6 thru 337-13
January 2016	XV	Appendix A	AA-1, AA-1A, AA-4 thru AA-7	AA-1, AA-1A thru AA-1C, AA-4 thru AA-7
January 2016	XV	Appendix B	AB-3 thru AB-3J, AB-8 thru AB-8Q, AB-9 thru AB-9E	AB3 thru AB-3J, AB-8 thru AB-8E
January 2016	XV	Appendix C	Entire Section	Entire Section
August 2016	XVI	ACM	ACM 19 – ACM 35	ACM 19 – ACM 38
August 2016	XVI	Index	i, iv, x, xi, xii	i, iv, x, xi, xii
August 2016	XVI	139.313	313-1 thru 313.3, 313.7 thru 313.10	313-1 thru 313.3, 313.7 thru 313.10
August 2016	XVI	139.317	317-2	317-2
August 2016	XVI	139.321	321-29, 321-30	321-29 thru 321-31
August 2016	XVI	139.337	337-6 thru 337-13	337-6 thru 337-10
August 2016	XVI	139.339	339.1	339.1
August 2016	XVI	Appendix A	AA-1A, AA-1C, AA-4 thru AA-7	AA-1A, AA-1C thru AA-1F, AA-4 thru AA-7

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DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
August 2016	XVI	Appendix B	AB-1, AB-2, AB-3E, AB-3F, AB-3H, AB-3I, AB-4A thru AB- 4C, AB-5, AB-6, AB-7E, AB-7F, AB-7H, AB-7I	AB-1, AB-2, AB-3E, AB-3F, AB-3H, AB-3I, AB-4, AB-4A, AB-5, AB-6, AB-7E, AB-7F, AB-7H, AB-7I
August 2016	XVI	Appendix C	5556-4, 5557-3, 5457-1	5556-4, 5557-3, 5457-1
June 2018	XX	Not Applicable	Title Page	Title Page
June 2018	XX	Index	Entire Section	Entire Section
June 2018	XX	ACM	Entire Section	Entire Section
June 2018	XX	139.105	105-1	105-1
June 2018	XX	139.201	Entire Section	Entire Section
June 2018	XX	139.303	Entire Section	Entire Section
June 2018	XX	139.305	Entire Section	Entire Section
June 2018	XX	139.311	Entire Section	Entire Section
June 2018	XX	139.313	Entire Section	Entire Section
June 2018	XX	139.315	Entire Section	Entire Section
June 2018	XX	139.317	Entire Section	Entire Section
June 2018	XX	139.319	Entire Section	Entire Section
June 2018	XX	139.321	Entire Section	Entire Section
June 2018	XX	139.329	Entire Section	Entire Section
June 2018	XX	139.335	Entire Section	Entire Section
June 2018	XX	139.337	Entire Section	Entire Section
June 2018	XX	139.339	Entire Section	Entire Section
June 2018	XX	139.341	Entire Section	Entire Section
June 2018	XX	139.343	Entire Section	Entire Section
June 2018	XX	Appendix A	Entire Section	Entire Section
June 2018	XX	Appendix B	Entire Section	Entire Section
June 2018	XX	Appendix C	Entire Section	Entire Section
November 2018	XXI	Index	ii, iii, xi, xii	ii, iii, xi, xii
November 2018	XXI	ACM	Entire Section	Entire Section
November 2018	XXI	139.313	Entire Section	Entire Section
November 2018	XXI	139.321	321-35 thru 321- 37	321-35 thru 321- 37

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Revision Date MAY 23 2019

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DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
November 2018	XXI	Appendix A	AA-1 thru AA-1F; AA-2 thru AA- 2G, AA-10F	AA-1 thru AA-1F; AA-2 thru AA- 2G, AA-10, AA- 10F
November 2018	XXI	Appendix B	Entire Section	Entire Section
November 2018	XXI	Appendix C	Entire Section	Entire Section
June 2019	XXII	Not Applicable	Title Page	Title Page
June 2019	XXII	Index	Entire Section	Entire Section
June 2019	XXII	ACM	Entire Section	Entire Section
June 2019	XXII	139.101		Entire Section
June 2019	XXII	139.105	Entire Section	Entire Section
June 2019	XXII	139.111	Entire Section	Entire Section
June 2019	XXII	139.113	Entire Section	Entire Section
June 2019	XXII	139.115	Entire Section	Entire Section
June 2019	XXII	139.201	Entire Section	Entire Section
June 2019	XXII	139.205	Entire Section	Entire Section
June 2019	XXII	139.301	Entire Section	Entire Section
June 2019	XXII	139.303	Entire Section	Entire Section
June 2019	XXII	139.305	Entire Section	Entire Section
June 2019	XXII	139.309	Entire Section	Entire Section
June 2019	XXII	139.311	Entire Section	Entire Section
June 2019	XXII	139.313	Entire Section	Entire Section
June 2019	XXII	139.315	Entire Section	Entire Section
June 2019	XXII	139.317	Entire Section	Entire Section
June 2019	XXII	139.319	Entire Section	Entire Section
June 2019	XXII	139.321	Entire Section	Entire Section
June 2019	XXII	139.323	Entire Section	Entire Section
June 2019	XXII	139.325	Entire Section	325-1
June 2019	XXII	139.327	Entire Section	Entire Section
June 2019	XXII	139.329	Entire Section	Entire Section
June 2019	XXII	139.331	Entire Section	Entire Section
June 2019	XXII	139.333	Entire Section	Entire Section
June 2019	XXII	139.335	Entire Section	Entire Section
June 2019	XXII	139.337	Entire Section	Entire Section
June 2019	XXII	139.341	Entire Section	Entire Section
June 2019	XXII	139.343	Entire Section	Entire Section
June 2019	XXII	Appendix A	Entire Section	Entire Section
June 2019	XXII	Appendix B	Entire Section	Entire Section
June 2019	XXII	Appendix C	Entire Section	Entire Section

Original Date

Revision Date **MAY 23 2019**

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DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
August 2019	XXIII	Not Applicable	Title Page	Title Page
August 2019	XXIII	Index	I, VI	I, VI
August 2019	XXIII	ACM	Entire Section	Entire Section
August 2019	XXIII	139.325	Separate Cover: Delete All Pages	Separate Cover: Add All Pages
August 2019	XXIII	139.337	337-1 thru 337-5	337-1 thru 337-5
August 2019	XXIII	Appendix A	AA-2A thru AA-2G	AA-2A thru AA-2E
August 2019	XXIII	Appendix C	AC-7, AC-10, AC-13	AC-7, AC-10, AC-13
September 2019	XXIV	Not Applicable	Title Page	Title Page
September 2019	XXIV	ACM	ACM-14, ACM-20	ACM-14, ACM-20
September 2019	XXIV	139.313	313-1	313-1
October 2019	XXV	Not Applicable	Title Page	Title Page
October 2019	XXV	Index	I	I
October 2019	XXV	ACM	ACM-14 thru ACM-24	ACM-14 thru ACM-25
October 2019	XXV	139.325	Separate Cover: 325-1, 325-11, 325-209, 325-210	Separate Cover: 325-1, 325-11, 325-209, 325-210
October 2019	XXV	139.341	341-1 thru 341-2	341-1 thru 341-2
October 2019	XXV	Appendix A	AA-1, AA-1A, AA-1C thru 1F, AA-2D, AA-3B, AA-3C	AA-1, AA-1A, AA-1C thru 1F, AA-2D, AA-3B, AA-3C
October 2019	XXV	Appendix B	Entire Section	Entire Section
October 2019	XXV	Appendix C	AC-7, AC-10, AC-13, AC-14, AC-18	AC-7, AC-10, AC-13, AC-14, AC-18

Original Date
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DISTRIBUTION 1

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
December 2019	XXVI	Not Applicable	Title Page	Title Page
December 2019	XXVI	Index	I, VI	I, VI
December 2019	XXVI	ACM	ACM-15 thru ACM-25	ACM-15 thru ACM-26
December 2019	XXVI	139.313	Separate Cover: Delete All Pages	Separate Cover: Add All Pages
December 2019	XXVI	Appendix A	AA-4A thru AA- 12B	AA-4A thru AA- 11B
December 2019	XXVI	Appendix A	AA-4A thru AA- 12B	AA-4A thru AA- 11B
April 2020	XXVII	Not Applicable	Title Page	Title Page
April 2020	XXVII	ACM	ACM-15, ACM- 22 thru ACM-26	ACM-15, ACM- 22 thru ACM-26
April 2020	XXVII	Entire ACM	Submitted Electronic Copy of ACM for Approval	

RECORD OF AMENDMENTS

DISTRIBUTION 2

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
August 2005	I	139.313	Entire Section	Entire Section
August 2005	I	139.321	Entire Section	Entire Section
August 2005	I	139.325	Entire Section	Entire Section
August 2005	I	139.329	Entire Section	Entire Section
August 2005	I	Appendix B	Entire Appendix	Entire Appendix
March 2005	I	Appendix C		Entire Appendix
March 2006	II	Not Applicable	Title Page	Title Page
March 2006	II	Index	Entire Section	Entire Section
March 2006	II	ACM	Entire Section	Entire Section
March 2006	II	139.313	313-2	313-2
March 2006	II	139.321	Entire Section	Entire Section
March 2006	II	139.325	325-2 thru 7, 325-9, 325-18, 325-37, 325-38, 325-42, 325-44, 325-52, 325-63 thru 148, 325- 157 thru 291	325-2 thru 7, 325-9, 325-18, 325-37, 325-38, 325-42, 325-44, 325-52, 325-63 thru 148, 325- 157 thru 298
March 2006	II	139.329	329-1, 329-2, 329-5	329-1, 329-2, 329-5
March 2006	II	Appendix B	Entire Section	Entire Section
March 2006	II	Appendix C	Entire Section	Entire Section
October 2006	III	Not Applicable	Title Page	Title Page
October 2006	III	Index	i thru x	i thru x
October 2006	III	ACM	ACM-6 thru ACM-10	ACM-6 thru ACM-13
October 2006	III	139.313	313-1	313-1
October 2006	III	139.321	Entire Section	Entire Section
October 2006	III	139.325	Entire Section	Entire Section
October 2006	III	Appendix B	Entire Section	Entire Section
October 2006	III	Appendix C	Entire Section	Entire Section
December 2007	V	Index	Entire Section	Entire Section
December 2007	V	ACM	ACM-2, ACM- 3, ACM-7 thru ACM-14	ACM-2, ACM- 3, ACM-7 thru ACM-15
December 2007	V	139.313	313-1 thru 313- 4, 313-6, 313-7	313-1 thru 313- 4, 313-6, 313-7

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DISTRIBUTION 2

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
December 2007	V	139.321	321-1, 321-2, 321-4, 321-14 thru 321-18	321-1, 321-2, 321-4, 321-14 thru 321-18
December 2007	V	139.325	Entire Section	Entire Section
December 2007	V	139.329	329-4	329-4
December 2007	V	Appendix B	Entire Section	Entire Section
December 2007	V	Appendix C	AC-2	AC-2
November 2008	VI	Index	Entire Section	Entire Section
November 2008	VI	ACM	ACM-9 thru ACM-15	ACM-9 thru ACM-19
November 2008	VI	139.321	321-4 thru 321- 6, 321-9	321-4 thru 321- 6, 321-9
November 2008	VI	139.325	Entire Section	Entire Section
November 2008	VI	Appendix B	AB-3 thru AB- 4C, AB-7A thru AB-8K	AB-3 thru AB- 4C, AB-7 thru AB-8K
November 2008	VI	Appendix C	AC-2	AC-2
November 2009	VIII	139.313	Entire Section	Entire Section
November 2009	VIII	139.321	321-4	321-4
November 2009	VIII	139.325	Entire Section	Entire Section
November 2009	VIII	139.329	329-1, 329-5 thru 329-8	329-1, 329-5 thru 329-8
November 2009	VIII	Appendix B	Entire Section	Entire Section
November 2009	VIII	Appendix C	AC-2	AC-2
July 2010	IX	Index	Entire Section	Entire Section
July 2010	IX	ACM	ACM-2, ACM- 3, ACM-11 thru ACM-20	ACM-2, ACM- 3, ACM-11 thru ACM-25
July 2010	IX	139.313	313-2 & 313-6	313-2 & 313-6

Original Date

Revision Date **DEC 09 2019**

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DISTRIBUTION 2

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
July 2010	IX	139.325	325-1 thru 325-7, 325-9 thru 325-55 thru 325-61, 325- 65 thru 325-68, 325-71, 325-72, 325-77, 325-80, 325-86 thru 325- 89, 325-93, 325- 97 thru 325-105, 325-109 thru 325- 114, 325-116, 325-118 thru 325- 131, 325-133, 325-135 thru 325- 180, 325-191 thru 325-197, 325-199, 325-201 thru 325- 203, 325-206 thru 325-211, 325-223 thru 325-231, 325-236 thru 325-259, 325-262 thru 325-265, 325-271, 325-272, 325-274 thru 325- 276, 325-279 thru 325-291, 325-295, 325-297, 325-299 thru 325-301, 325-304, 325-311, 325-322, 325-327, 325-335, 325-338, 325-340, 325-347	325-1 thru 325-7, 325-9 thru 325-55 thru 325-61, 325- 65 thru 325-68, 325-71, 325-72, 325-77, 325-80, 325-86 thru 325- 89, 325-93, 325- 97 thru 325-105, 325-109 thru 325- 114, 325-116, 325-118 thru 325- 131, 325-133, 325-135 thru 325- 180, 325-191 thru 325-197, 325-199, 325-201 thru 325- 203, 325-206 thru 325-211, 325-223 thru 325-231, 325-236 thru 325- 259, 325-262 thru 325-265, 325-271, 325-272, 325-274 thru 325-276, 325-279 thru 325- 291, 325-295, 325-297, 325-299 thru 325-301, 325-304, 325-311, 325-322, 325-327, 325-335, 325-338, 325-340, 325-347
July 2010	IX	139.329	329-1 & 329-4	329-1 & 329-4
July 2010	IX	Appendix B	AB-1A, AB-4A, AB-4B, AB-4C, AB-6, AB-7A, AB-7C, AB-8D, AB-8F, AB-8G	AB-1A, AB-4A, AB-4B, AB-4C, AB-6, AB-7A, AB-7C, AB-8D, AB-8F, AB-8G
July 2010	IX	Appendix C	AC-2	AC-2
October 2011	X	139.321	321-20, 21	321-20, 21
October 2011	X	139.325	Entire Section	Entire Section

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Revision Date **DEC 09 2019**

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DISTRIBUTION 2

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
October 2011	X	Appendix A	AA-26 thru AA-30	AA-26 thru AA-30, AA-32 thru AA-35
August 2012	XI	139.313	313-1, 4	313-1, 4
August 2012	XI	139.321	321-3 thru 321-25	321-3 thru 321-25
August 2012	XI	139.325	325-1, 325-13, 325-34, 325-43, 325-49, 325-52, 325-61, 325-73, 325-76, 325-78, 325-117, 325-162 thru 325-169, 325-173, 325-209 thru 325-211, 325-354, 325-355, 325-45, 325-68, 325-72, 325-86, 325-93, 325-101, 325-133	325-1, 325-13, 325-34, 325-43, 325-49, 325-52, 325-61, 325-73, 325-76, 325-78, 325-117, 325-162 thru 325-169, 325-173, 325-209 thru 325-211, 325-354, 325-355, 325-45, 325-68, 325-72, 325-86, 325-93, 325-101, 325-133
August 2012	XI	Appendix B	Entire Section	Entire Section
August 2013	XII	139.313	313-3, 313-5, 313-6	313-3, 313-5, 313-6
August 2013	XII	139.321	321-29, 321-30	321-29, 321-30
August 2013	XII	139.325	Entire Section	Entire Section
August 2013	XII	139.329	329-1, 329-2, 329-4	329-1, 329-2, 329-4
August 2013	XII	Appendix B	Ab-3 thru Ab-3j	Ab-3 thru Ab-3j
June 2014	XIII	ACM	Entire Section	Entire Section
June 2014	XIII	Index	Entire Section	Entire Section
June 2014	XIII	139.313	4,5,7	4,5,7
June 2014	XIII	139.325	Entire Section	Entire Section
January 2015	XIV	ACM	Entire Section	Entire Section
January 2015	XIV	Index	Entire Section	Entire Section
January 2015	XIV	139.313	Entire Section	Entire Section
January 2015	XIV	139.329	Entire Section	Entire Section

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Revision Date **DEC 09 2019**

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DISTRIBUTION 2

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
January 2015	XIV	Appendix C	Entire Section	Entire Section
January 2016	XV	ACM	ACM 2, ACM 18, ACM 26, ACM 32	ACM 2, ACM 18, ACM 26, ACM 32
January 2016	XV	Index	ii, iii, ix thru xii	ii, iii, ix thru xii
January 2016	XV	139.313	Entire Section	Entire Section
January 2016	XV	139.325	325-1, 325-11, 325-76	325-1, 325-11, 325-76
January 2016	XV	Appendix B	AB-3 thru AB-3J, AB-8 thru AB-8Q, AB-9 thru AB-9E	AB3 thru AB-3J, AB-8 thru AB-8E
January 2016	XV	Appendix C	Entire Section	Entire Section
August 2016	XVI	ACM	ACM 19 – ACM 35	ACM 19 – ACM 38
August 2016	XVI	INDEX	i, iv, x, xi, xii	i, iv, x, xi, xii
August 2016	XVI	139.313	313-1 thru 313.3, 313.7 thru 313.10	313-1 thru 313.3, 313.7 thru 313.10
August 2016	XVI	139.321	321-29, 321-30	321-29 thru 321 - 31
August 2016	XVI	Appendix B	AB-1, AB-2, AB-3E, AB-3F, AB-3H, AB-3I, AB-4A thru AB-4C, AB-5, AB-6, AB-7E, AB-7F, AB-7H, AB-7I	AB-1, AB-2, AB-3E, AB-3F, AB-3H, AB-3I, AB-4, AB-4A, AB-5, AB-6, AB-7E, AB-7F, AB-7H, AB-7I
August 2016	XVI	Appendix C	5556-4, 5557-3, 5457-1	5556-4, 5557-3, 5457-1
June 2018	XX	Not Applicable	Title Page	Title Page
June 2018	XX	Index	Entire Section	Entire Section
June 2018	XX	ACM	Entire Section	Entire Section
June 2018	XX	139.313	Entire Section	Entire Section
June 2018	XX	139.321	Entire Section	Entire Section
June 2018	XX	139.329	Entire Section	Entire Section
June 2018	XX	Appendix B	Entire Section	Entire Section
June 2018	XX	Appendix C	Entire Section	Entire Section

Original Date

Revision Date **DEC 09 2019**

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DISTRIBUTION 2

DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
November 2018	XXI	Index	ii, iii, xi, xii	ii, iii, xi, xii
November 2018	XXI	ACM	Entire Section	Entire Section
November 2018	XXI	139.313	Entire Section	Entire Section
November 2018	XXI	139.321	321-35 thru 321-37	321-35 thru 321-37
November 2018	XXI	Appendix B	Entire Section	Entire Section
November 2018	XXI	Appendix C	Entire Section	Entire Section
June 2019	XXII	Not Applicable	Title Page	Title Page
June 2019	XXII	Index	Entire Section	Entire Section
June 2019	XXII	ACM	Entire Section	Entire Section
June 2019	XXII	139.313	Entire Section	Entire Section
June 2019	XXII	139.321	Entire Section	Entire Section
June 2019	XXII	139.325	Entire Section	325-1
June 2019	XXII	139.329	Entire Section	Entire Section
June 2019	XXII	Appendix B	Entire Section	Entire Section
June 2019	XXII	Appendix C	Entire Section	Entire Section
August 2019	XXIII	Not Applicable	Title Page	Title Page
August 2019	XXIII	Index	I, VI	I, VI
August 2019	XXIII	ACM	Entire Section	Entire Section
August 2019	XXIII	139.325	Separate Cover: Delete All Pages	Separate Cover: Add All Pages
August 2019	XXIII	139.337	337-1 thru 337-5	337-1 thru 337-5
August 2019	XXIII	Appendix A	AA-2A thru AA-2G	AA-2A thru AA-2E
August 2019	XXIII	Appendix C	AC-7, AC-10, AC-13	AC-7, AC-10, AC-13
September 2019	XXIV	Not Applicable	Title Page	Title Page
September 2019	XXIV	ACM	ACM-14, ACM-20	ACM-14, ACM-20
September 2019	XXIV	139.313	313-1	313-1

Original Date
Revision Date **DEC 09 2019**

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DISTRIBUTION 2


DATE	AMENDMENT NUMBER	SECTION NUMBER	DELETE PAGES	ADD PAGES
October 2019	XXV	Not Applicable	Title Page	Title Page
October 2019	XXV	Index	I	I
October 2019	XXV	ACM	ACM-14 thru ACM-24	ACM-14 thru ACM-25
October 2019	XXV	139.325	Separate Cover: 325-1, 325-11, 325-209, 325- 210	Separate Cover: 325-1, 325-11, 325-209, 325- 210
October 2019	XXV	139.341	341-1 thru 341-2	341-1 thru 341-2
October 2019	XXV	Appendix A	AA-1, AA-1A, AA-1C thru 1F, AA-2D, AA-3B, AA-3C	AA-1, AA-1A, AA-1C thru 1F, AA-2D, AA-3B, AA-3C
October 2019	XXV	Appendix B	Entire Section	Entire Section
October 2019	XXV	Appendix C	AC-7, AC-10, AC-13, AC-14, AC-18	AC-7, AC-10, AC-13, AC-14, AC-18
December 2019	XXVI	Not Applicable	Title Page	Title Page
December 2019	XXVI	Index	I, VI	I, VI
December 2019	XXVI	ACM	ACM-15 thru ACM-25	ACM-15 thru ACM-26
December 2019	XXVI	139.313	Separate Cover: Delete All Pages	Separate Cover: Add All Pages
December 2019	XXVI	Appendix A	AA-4A thru AA- 12B	AA-4A thru AA- 11B
April 2020	XXVII	Not Applicable	Title Page	Title Page
April 2020	XXVII	ACM	ACM-15, ACM- 22 thru ACM-26	ACM-15, ACM- 22 thru ACM-26
April 2020	XXVII	Entire ACM	Submitted Electronic Copy of ACM for Approval	

Airport Certification Manual – St. Louis Lambert International Airport

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		AIRPORT MASTER RECORD		PRINT DATE: 3/30/2020 AFD EFF 03/26/2020 FORM APPROVED OMB 2120-0015																																								
> 1 ASSOC CITY: ST LOUIS > 2 AIRPORT NAME: ST LOUIS LAMBERT INTL 3 CBD TO AIRPORT (NM): 10 NW		4 STATE: MO 6 REGION/ADO: ACE/NONE		LOC ID: STL 5 COUNTY: ST LOUIS MO 7 SECT AERO CHT: ST LOUIS FAA SITE NR: 12077.*A																																								
GENERAL 10 OWNERSHIP: PUBLIC > 11 OWNER: CITY OF ST LOUIS > 12 ADDRESS: 1320 MARKET ST. ST LOUIS, MO 63103 > 13 PHONE NR: 573-662-3201 > 14 MANAGER: MS. RHONDA HAMM-NIEBRUEGGE > 15 ADDRESS: BOX 10212 ST LOUIS, MO 63145 > 16 PHONE NR: 314-426-8000 > 17 ATTENDANCE SCHEDULE: ALL ALL ALL		SERVICES > 70 FUEL: 100LL A > 71 AIRFRAME RPRS: MAJOR > 72 PWR PLANT RPRS: MAJOR > 73 BOTTLE OXYGEN: HIGH/LOW > 74 BULK OXYGEN: HIGH/LOW 75 TSNT STORAGE: HGR, TIE 76 OTHER SERVICES: AFRT, AVNCS, CARGO, CHTR, INSTR, RNTL, SALES		BASED AIRCRAFT 90 SINGLE ENG: 0 91 MULTI ENG: 0 92 JET: 20 TOTAL: 20 93 HELICOPTERS: 0 94 GLIDERS: 0 95 MILITARY: 2 96 ULTRA-LIGHT: 0																																								
18 AIRPORT USE: PUBLIC 19 ARPT LAT: 38-44-55.3100N ESTIMATED 20 ARPT LONG: 090-22-12.1040W 21 ARPT ELEV: 618.0 SURVEYED 22 ACREAGE: 2,800 > 23 RIGHT TRAFFIC: 11, 30R, 12R > 24 NON-COMM LANDING: YES 25 NPIAS/FED AGREEMENTS: NGPY3 > 26 FAR 139 INDEX: I D S 05/1973		FACILITIES > 80 ARPT BCN: CG > 81 ARPT LGT SKED: BCN LGT SKED: SS-SR > 82 UNICOM: 122.950 > 83 WIND INDICATOR: YES-L 84 SEGMENTED CIRCLE: NONE 85 CONTROL TWR: YES 86 FSS: SAINT LOUIS 87 FSS ON ARPT: NO 88 FSS PHONE NR: 89 TOLL FREE NR: 1-800-WX-BRIEF		OPERATIONS 100 AIR CARRIER: 139,321 102 AIR TAXI: 46,025 103 G A LOCAL: 611 104 G A ITNRNT: 6,416 105 MILITARY: 1,625 TOTAL: 193,988 OPERATIONS FOR 12 MONTHS ENDING: 06/30/2019																																								
RUNWAY DATA > 30 RUNWAY IDENT: > 31 LENGTH: > 32 WIDTH: > 33 SURF TYPE-COND: > 34 SURF TREATMENT: 35 GROSS WVT: S 36 (IN THSDS) D 37 2D 38 2D/2D2 > 39 PCN:		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>06/24</th> <th>11/29</th> <th>12L/30R</th> <th>12R/30L</th> </tr> </thead> <tbody> <tr> <td>7,607</td> <td>9,001</td> <td>9,003</td> <td>11,019</td> </tr> <tr> <td>150</td> <td>150</td> <td>150</td> <td>200</td> </tr> <tr> <td>CONC-F</td> <td>CONC-E</td> <td>CONC-G</td> <td>CONC-G</td> </tr> <tr> <td>GRVD</td> <td>GRVD</td> <td>GRVD</td> <td>GRVD</td> </tr> <tr> <td>75.0</td> <td>75.0</td> <td>75.0</td> <td>75.0</td> </tr> <tr> <td>176.0</td> <td>200.0</td> <td>200.0</td> <td>200.0</td> </tr> <tr> <td>280.0</td> <td>325.0</td> <td>350.0</td> <td>350.0</td> </tr> <tr> <td>660.0</td> <td>700.0</td> <td>760.0</td> <td>760.0</td> </tr> <tr> <td>85 / R/B/W/T</td> <td>85 / R/B/W/T</td> <td>85 / R/B/W/T</td> <td>85 / R/B/W/T</td> </tr> </tbody> </table>			06/24	11/29	12L/30R	12R/30L	7,607	9,001	9,003	11,019	150	150	150	200	CONC-F	CONC-E	CONC-G	CONC-G	GRVD	GRVD	GRVD	GRVD	75.0	75.0	75.0	75.0	176.0	200.0	200.0	200.0	280.0	325.0	350.0	350.0	660.0	700.0	760.0	760.0	85 / R/B/W/T	85 / R/B/W/T	85 / R/B/W/T	85 / R/B/W/T
06/24	11/29	12L/30R	12R/30L																																									
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280.0	325.0	350.0	350.0																																									
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LIGHTING/APCH AIDS > 40 EDGE INTENSITY: > 42 RWY MARK TYPE-COND: > 43 VSGI: 44 THR CROSSING HGT 45 VISUAL GLIDE ANGLE: > 46 CNTRLN-TDZ: > 47 RVR-RVV: > 48 REIL: > 49 APCH LIGHTS:		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>HIGH</th> <th>HIGH</th> <th>HIGH</th> <th>HIGH</th> </tr> </thead> <tbody> <tr> <td>PIR - G / PIR - G</td> <td>PIR - G / PIR - G</td> <td>PIR - G / PIR - G</td> <td>PIR - G / PIR - G</td> </tr> <tr> <td>P4R / P4L</td> <td>P4R / P4L</td> <td>P4R / P4R</td> <td>P4L / P4R</td> </tr> <tr> <td>51 / 53</td> <td>67 / 73</td> <td>56 / 55</td> <td>54 / 58</td> </tr> <tr> <td>3.00 / 3.00</td> <td>3.00 / 3.00</td> <td>3.00 / 3.00</td> <td>3.00 / 3.00</td> </tr> <tr> <td>- / -</td> <td>Y - Y / Y - Y</td> <td>Y - Y / Y - Y</td> <td>Y - Y / Y - N</td> </tr> <tr> <td>TR - / TR - N</td> <td>TMR - / TMR -</td> <td>TMR - / TMR - N</td> <td>TR - N / TR - N</td> </tr> <tr> <td>/</td> <td>/</td> <td>Y</td> <td>/</td> </tr> <tr> <td>MALSR / MALSR</td> <td>ALSF2 / ALSF2</td> <td>ALSF2 / ALSF2</td> <td>MALSR / MALSR</td> </tr> </tbody> </table>			HIGH	HIGH	HIGH	HIGH	PIR - G / PIR - G	PIR - G / PIR - G	PIR - G / PIR - G	PIR - G / PIR - G	P4R / P4L	P4R / P4L	P4R / P4R	P4L / P4R	51 / 53	67 / 73	56 / 55	54 / 58	3.00 / 3.00	3.00 / 3.00	3.00 / 3.00	3.00 / 3.00	- / -	Y - Y / Y - Y	Y - Y / Y - Y	Y - Y / Y - N	TR - / TR - N	TMR - / TMR -	TMR - / TMR - N	TR - N / TR - N	/	/	Y	/	MALSR / MALSR	ALSF2 / ALSF2	ALSF2 / ALSF2	MALSR / MALSR				
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> 110 REMARKS A 012 202 MUNICIPAL COURT BLDG. A 014 DIRECTOR OF AIRPORTS. A 024 LNDG FEE BASED ON ACFT WEIGHT COLLECTED BY FBO. A 030 RWY 30X THIS RWY EXISTS TO SUPPORT THE (RMK) LDA/DME ASSOCIATED WITH RWY 30L. A 035 RWY 12L/30R RUNWAY LOAD CAPACITY: ST175 A 035 RWY 12R/30L RUNWAY LOAD CAPACITY: ST175 A 036 RWY 06/24 RUNWAY LOAD CAPACITY: ST175 A 057 RWY 12R APCH RATIO FM DSPLCD THR 25:1. A 057 RWY 30L APCH RATIO FM DSPLCD THR 34:1. A 110-010 WAIVER TO CONDUCT SIMULTANEOUS APCHS TO PARALLEL RYS SEPARATED BY 1,300 FT IN EFFECT. A 110-015 WG TIP CLNC WITH GND VEH NOT ADEQUATE ALONG N SIDE OF MAIN TRML APN. A 110-016 MISC: MIL ACFT PLANNING TO ARR WHEN WX IS ANTICIPATED TO BE LESS THAN 1200/5 MUST FILE F/T PLAN BEFORE 0900Z+. A 110-033 ASDE-X IN USE. OPERATE TRANSPONDERS WITH ALTITUDE REPORTING MODE AND ADS-B (IF EQUIPPED) ENABLED ON ALL AIRPORT SURFACES. 111 INSPECTOR: (F) 112 LAST INSP: 08/15/2019 113 LAST INFO REQ:																																												


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Airport Certification Manual – St. Louis Lambert International Airport

 U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		AIRPORT MASTER RECORD		PRINT DATE: 3/30/2020 AFD EFF 03/26/2020 FORM APPROVED OMB 2120-0015	
> 1 ASSOC CITY: ***CONTINUED*** > 2 AIRPORT NAME: 3 CBD TO AIRPORT (NM):		4 STATE: MO 6 REGION/ADO: ACE/NONE		LOC ID: STL 5 COUNTY: 7 SECT AERO CHT:	
				FAA SITE NR: 12077.*A	
GENERAL 10 OWNERSHIP: > 11 OWNER: > 12 ADDRESS: > 13 PHONE NR: > 14 MANAGER: > 15 ADDRESS: > 16 PHONE NR: > 17 ATTENDANCE SCHEDULE: 18 AIRPORT USE: 19 ARPT LAT: 20 ARPT LONG: 21 ARPT ELEV: 22 ACREAGE: > 23 RIGHT TRAFFIC: > 24 NON-COMM LANDING: 25 NPIAS/FED AGREEMENTS: > 26 FAR 139 INDEX: RUNWAY DATA > 30 RUNWAY IDENT: > 31 LENGTH: > 32 WIDTH: > 33 SURF TYPE-COND: > 34 SURF TREATMENT: 35 GROSS WVT: S 36 (IN THSDS) D 37 2D 38 2D/2D2 > 39 PCN: LIGHTING/APCH AIDS > 40 EDGE INTENSITY: > 42 RWY MARK TYPE-COND: > 43 VGSi: 44 THR CROSSING HGT 45 VISUAL GLIDE ANGLE: > 46 CNTRLN-TDZ: > 47 RVR-RVV: > 48 REIL: > 49 APCH LIGHTS: OBSTRUCTION DATA 50 FAR 77 CATEGORY > 51 DISPLACED THR: > 52 CTLG OBSTN: > 53 OBSTN MARKED/LGTD: > 54 HGT ABOVE RWY END: > 55 DIST FROM RWY END: > 56 CNTRLN OFFSET: 57 OBSTN CLNC SLOPE: 58 CLOSE-IN OBSTN: DECLARED DISTANCES > 60 TAKE OFF RUN AVBL (TORA): > 61 TAKE OFF DIST AVBL (TODA): > 62 ACLT STOP DIST AVBL (ASDA): > 63 LNDG DIST AVBL (LDA):		SERVICES > 70 FUEL: > 71 AIRFRAME RPRS: > 72 PWR PLANT RPRS: > 73 BOTTLE OXYGEN: > 74 BULK OXYGEN: 75 TSNT STORAGE: 76 OTHER SERVICES: FACILITIES > 80 ARPT BCN: > 81 ARPT LGT SKED : BCN LGT SKED: > 82 UNICOM: > 83 WIND INDICATOR: 84 SEGMENTED CIRCLE: 85 CONTROL TWR: 86 FSS: 87 FSS ON ARPT: 88 FSS PHONE NR: 89 TOLL FREE NR:		BASED AIRCRAFT 90 SINGLE ENG: 91 MULTI ENG: 92 JET: TOTAL: 93 HELICOPTERS: 94 GLIDERS: 95 MILITARY: 96 ULTRA-LIGHT: OPERATIONS 100 AIR CARRIER: 102 AIR TAXI: 103 G A LOCAL: 104 G A ITNRNT: 105 MILITARY: TOTAL: OPERATIONS FOR 12 MONTHS ENDING:	
(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >					
> 110 REMARKS A 110-043 TAXILANE CHARLIE, FM TWY SIERRA TO TWY ROMEO, RSTRD TO B-767 OR SMLR ACFT (156 FT AVBL) WHEN ACFT ARE PARKED IN THE CHARLIE PAD. RSTRN IS FOR TAX ACFT, LRGR ACFT MAY BE TOWED THRU THE AREA. A 110-044 TAXILANE CHARLIE, FROM TWY PAPA TO TWY QUEBEC, RSTRD TO A B757-300 SERIES OR SMLR. A 110-045 TAXILANE CHARLIE, FROM TWY PAPA TO TWY DELTA FOUR, RSTRD TO B757-300 SERIES OR SMLR WHEN PASSING BHND ACFT THAT HAVE MADE THE INITIAL 10 FT PUSHBACK. A 110-046 TWY ALPHA EAST OF TWY TANGO, TWY SIERRA AND RWY 6/24 SOUTH OF TWY BRAVO, NO ACFT OR VEHICLE OPNS WHEN ARRIVING OR DEPG RWY 11 OR ARRIVING RWY 29. A 110-047 TWY LIMA, NORTH OF RWY 12L/30R, ACFT LRGR THAN A GULFSTREAM VI TAX NBND ARE PROHIBITED FM MAKING A RIGHT TURN EBND ON TWY FOXTROT. A 110-048 TWY VICTOR 2 IS UNAVBL TO B-767 OR LRGR ACFT (WINGSPAN 118 FT OR GTR). A 110-049 TWY VICTOR 2, B-737 (WINGSPAN GTR THAN 79 FT BUT LESS THAN 118 FT) MUST PERFORM JUDGMENTAL OVERSTEERING INSTEAD OF COCKPIT OVR CNTRLN STEERING WHEN TAX. A 110-050 TWY KILO 1 IS UNAVBL TO B-767 OR LRGR ACFT (WINGSPAN 118 FT OR GTR). 111 INSPECTOR: (F) 112 LAST INSP: 08/15/2019 113 LAST INFO REQ:					

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139.101 GENERAL REQUIREMENTS

1. Purpose

This manual provides direction and lines of responsibility in the day-to-day operation of the St. Louis Lambert International Airport. It details operating procedures to be followed for both routine matters and unusual circumstances or emergencies that may arise. The content of this manual will comply with the Federal Aviation Administration rules and regulations Title 14 CFR Part 139, effective June 9, 2004.

2. Airport Information

Under this regulation, St. Louis Lambert International Airport operates as a **Class I** airport with scheduled air carrier service with over 30 passenger seats, unscheduled passenger operations of large air carrier aircraft, and scheduled operations of small air carrier. St. Louis Lambert International Airport is owned by the City of St. Louis and it is operated by the City of St. Louis Airport Authority as directed by the City of St. Louis Airport Commission.

3. Mailing Address:

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
10701 Lambert International Boulevard, Room MTN 2276
P.O. Box 10212, Lambert Station
St. Louis, MO, 63145
Office Hours: 08:30 A.M. to 05:00 P.M., Monday – Friday
Phone: 314-426-8000 / Fax: 314-426-5733
www.flystl.com

4. Location

St. Louis Lambert International Airport is located approximately 10 miles Northwest of Downtown St. Louis.

Original Date

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FAA Approval J. Fotedar

139.105 INSPECTION AUTHORITY

The Director of Airports, or his/her designee, shall allow properly identified FAA personnel to conduct such inspections or tests, announced or unannounced, as necessary to ensure compliance of St. Louis Lambert International Airport with the requirements set forth in FAR Part 139, and those set forth in this Certification Manual for Airport Certification.

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139.111 EXEMPTIONS FROM CERTIFICATION

At this time, there are no exemptions to FAR Part 139 relative to this Airport Certification Manual.

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FAA Approval J. Fotel.

139.113 DEVIATIONS TO PART 139 REQUIREMENTS

1. Deviations:

In emergency conditions requiring immediate action for the protection of life or property, the certificate holder may deviate from any requirement of Subpart D of this part, or the Airport Certification Manual, to the extent required to meet that emergency.

2. Reporting:

Each certificate holder who deviates from a requirement under this section must, within 14 days after the emergency, notify the Regional Airports Division Manager of the nature, extent, and duration of the deviation. When requested by the Regional Airports Division Manager, the certificate holder must provide this notification in writing.

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139.115 FALSIFICATION, REPRODUCTION, OR ALTERATION OF CERTIFICATES,
REPORTS, OR RECORDS

1. The Airport shall not make or cause to be made:
 - A. Any fraudulent or internally false entry in any record or report that is required to be made, kept, or used to show compliance with any requirement under this part.
 - B. Any reproduction, for a fraudulent purpose, of any certificate or approval issued under this part.
 - C. Any alteration, for a fraudulent purpose, of any certificate or approval issued under this part.
2. The Airport understands that the commission of an act prohibited under Part 139.115 is a basis for suspending or revoking the Airport Operating Certificate by the FAA.

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139.201 GENERAL REQUIREMENTS

The Airport will:

1. Keep the Airport Certification Manual (ACM) current at all times. The Deputy Director of Operations & Maintenance or designee is responsible for maintaining the ACM.
2. Maintain at least one complete and current copy of the approved ACM on the Airport, which will be available for inspection by the FAA. This copy will be maintained in the Airport Director's Office and the Airport Operations Center.
3. Furnish the applicable portions of the FAA approved ACM to airport personnel responsible for its implementation (see Distribution List).
4. Ensure that the FAA Regional Airports Division is provided a complete copy of the most current ACM including any approved amendments.

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139.205 AMENDMENT OF AIRPORT CERTIFICATION MANUAL

The following procedure is in effect for amendments to the ACM:

1. The ACM will be submitted to the following address:

Federal Aviation Administration
Central Region
Airports Division (ACE – 601), Room 364
901 Locust St.
Kansas City, MO 64106

2. Amendments to the ACM will be submitted at least 30 days prior to the proposed effective date. They will be submitted as needed to maintain currency.
3. The ACM Page Amendment Log will be completed and submitted with each amendment.
4. Each page of the amendment, including the Page Amendment Log, will have the date of the amendment and the original approval date of the ACM.
5. Upon FAA approval, copies of the approved amendment will be made and distributed to the holders of the Airport Certification Manual on the Distribution List.

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139.301 Records

1. Furnish Records

Upon request by the Administrator, the airport will furnish records listed under this part.

2. List of Required Records

The airport will maintain the following records:

- A. *Personnel Training*. Twenty-four consecutive calendar months for personnel training records, as required under Part 139.303 and 139.327. Records are kept via AAAE Computers.
- B. *Emergency Personnel Training*. Twenty-four consecutive calendar months for ARFF and emergency medical service personnel training records, as required under 139.319. Records are kept by ARFF via hardcopies.
- C. *Airport Fueling Agent Inspection*. Twelve consecutive calendar months for records of inspection of airport fueling agents, as required under 139.321. Records are kept by ARFF via hardcopies.
- D. *Fueling Personnel Training*. Twelve consecutive calendar months for training records of fueling personnel, as required under 139.321. Records are maintained by Fueling agencies, but Airport Ops provide hardcopies for the FAA Annual Inspection.
- E. *Self-Inspection*. Twelve consecutive calendar months for self-inspection records, as required under 139.327. Records are maintained electronically.
- F. *Movement Areas and Safety Areas Training*. Twenty-four consecutive calendar months for records of training given to pedestrians and ground vehicle operators with access to movement areas and safety areas, as required under 139.329. Initial driver records are maintain via hardcopies, and recurrent training via AAAE Computers.
- G. *Accident and Incident*. Twelve consecutive calendar months for each accident or incident in movement areas and safety areas involving an air carrier aircraft and/or ground vehicle, as required under 139.329. Records are maintained electronically.
- H. *Airport Condition*. Twelve consecutive calendar months for records of airport condition information dissemination, as required under 139.339. Records are maintained electronically.

3. Additional Records

The Airport will make and maintain any additional records required by the Administrator.

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139.303 PERSONNEL

1. Personnel Requirements

The Airport Authority at St. Louis Lambert International Airport shall maintain sufficient, qualified personnel at all times to meet the requirements of both this ACM and the requirements of FAR Part 139.

The Airport Authority shall equip personnel with sufficient resources needed to comply with the requirements of FAR Part 139.

2. List of Key Personnel

The Organization Charts, as shown on the following pages of this section, list the key personnel of the Airport Authority at St. Louis Lambert International Airport.

3. Lines of Succession

In addition to listing the key personnel, the Organizational Chart also shows the direct lines of succession from the Director of Airports down through the Director's Assistants and the department they head.

The departments listed under the responsibility of the Assistant Directors are headed by Managers or Department Supervisors who report directly to the Assistant Directors. Personnel in the various departments report to the department Supervisor or Manager.

4. Training

The Airport Operations Center shall train all personnel who access movement and safety areas and perform duties in compliance with the requirements of the ACM and Part 139. This training must be completed on the Interactive Employee Training (IET) computers through the airports' Safety & Operations Departments' computers before the initial performance of such duties, and at least once every twelve consecutive calendar months. The curriculum for initial and recurrent training must include at the least the following areas:

- A. Airport Familiarization, including airport markings, lightings, and sign systems.
- B. Procedures for access to, and operations, in movement areas and safety areas, as specified in Part 139.
- C. Airport communications, including radio communication between air traffic control tower and personnel.
- D. Duties required under the Airport Certification Manual and the requirements of Part 139.
- E. Any additional subject areas required under Part 139, Sections 319, 321, 325, 327, 329, 337, and 339, as appropriate.

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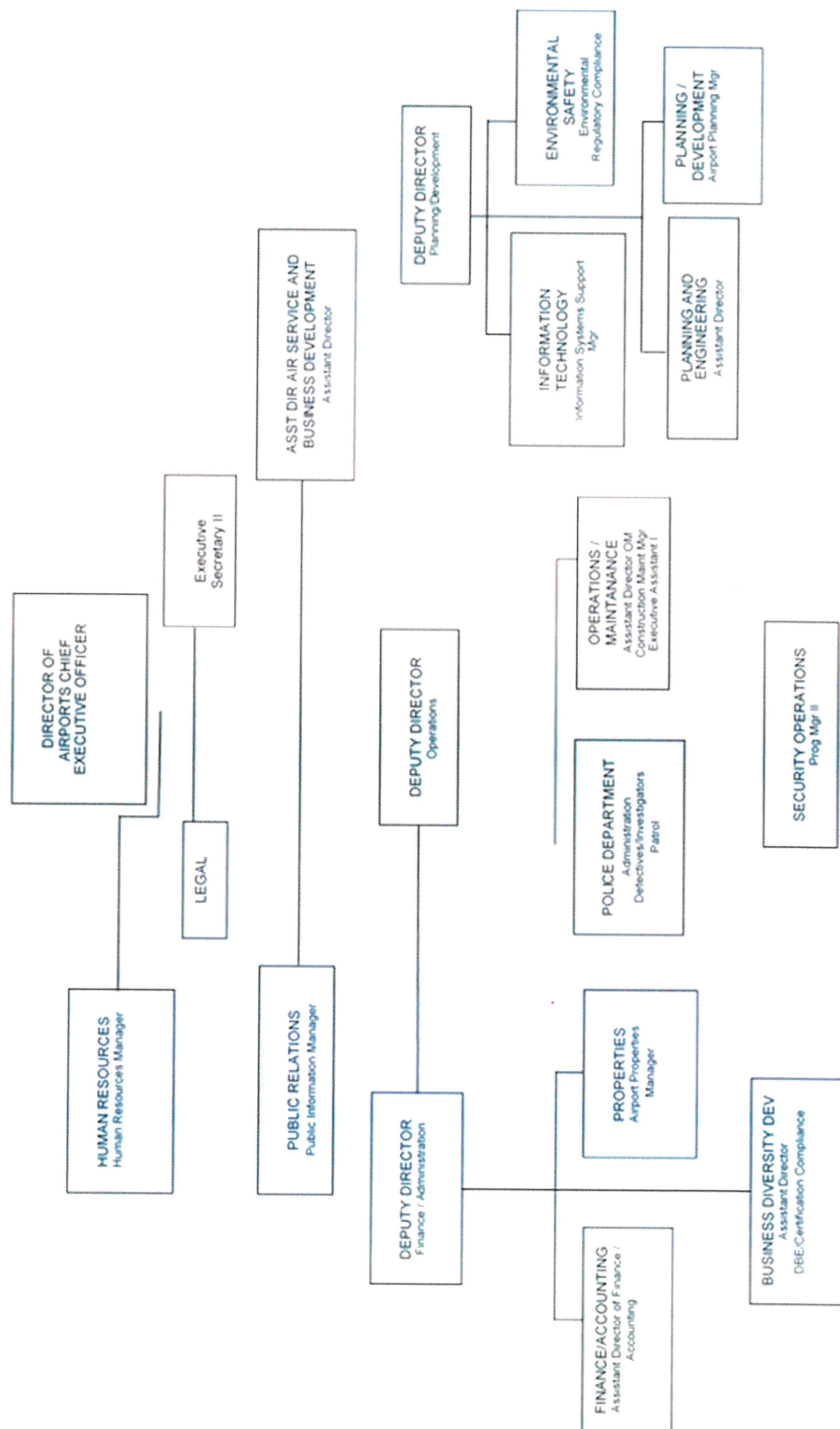
- F. All initial training will be done through the classroom training that is already established. All recurrent training will be done through the Interactive Employee Training computers.

Make a record of all training completed by each individual in compliance with this section that includes, at a minimum, a description and date of training received. Such records shall be maintained for twenty – four consecutive calendar months after completion of training.

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ST. LOUIS LAMBERT
INTERNATIONAL AIRPORT
ORGANIZATIONAL CHART
June 01, 2018
EXECUTIVE STAFF

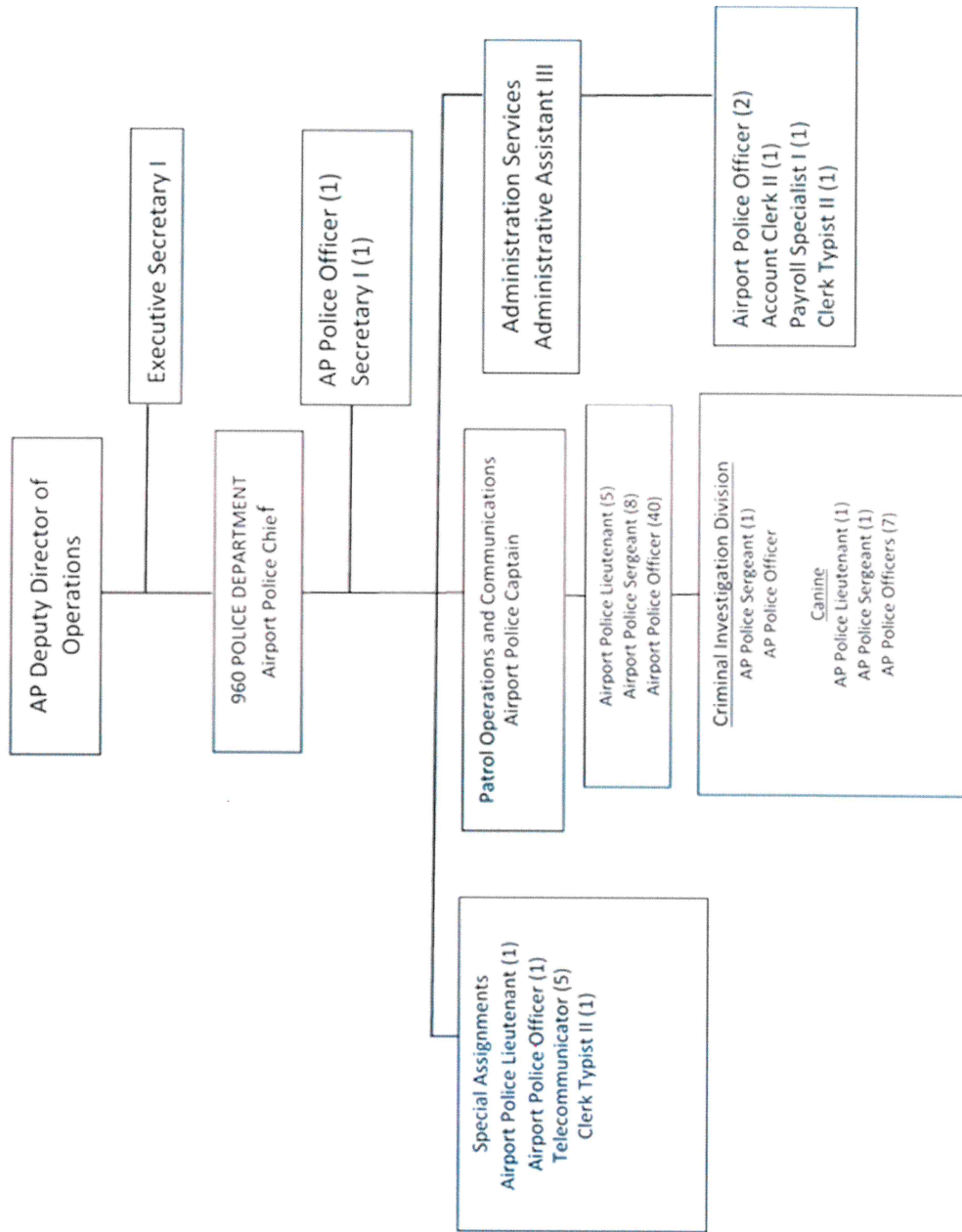


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ST. LOUIS LAMBERT INTERNATIONAL
AIRPORT

ORGANIZATIONAL CHART
JUNE 1, 2018

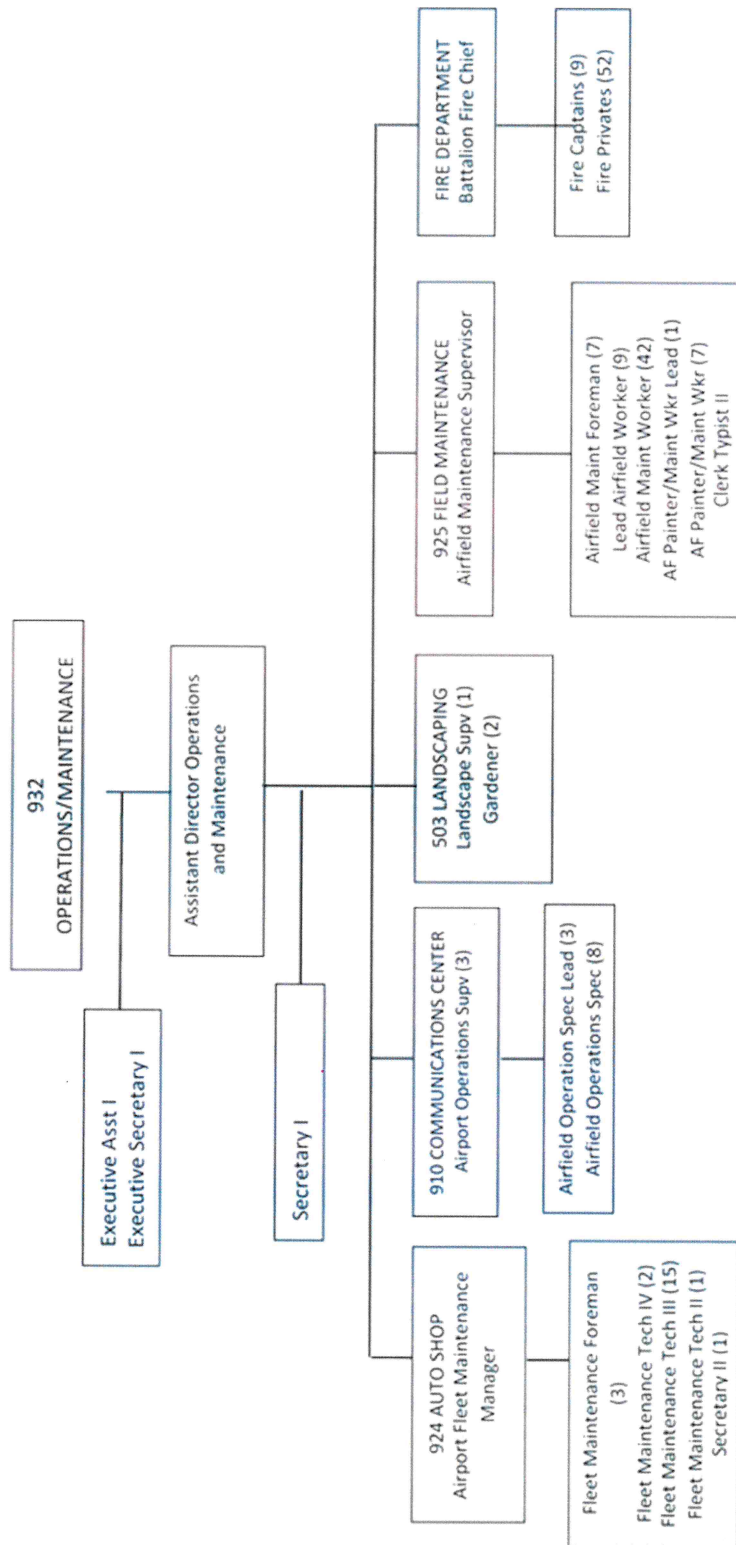
POLICE DEPARTMENT



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ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
ORGANIZATIONAL CHART
JUNE 1, 2018

OPERATIONS AND MAINTENANCE – FIELD
OPERATIONS

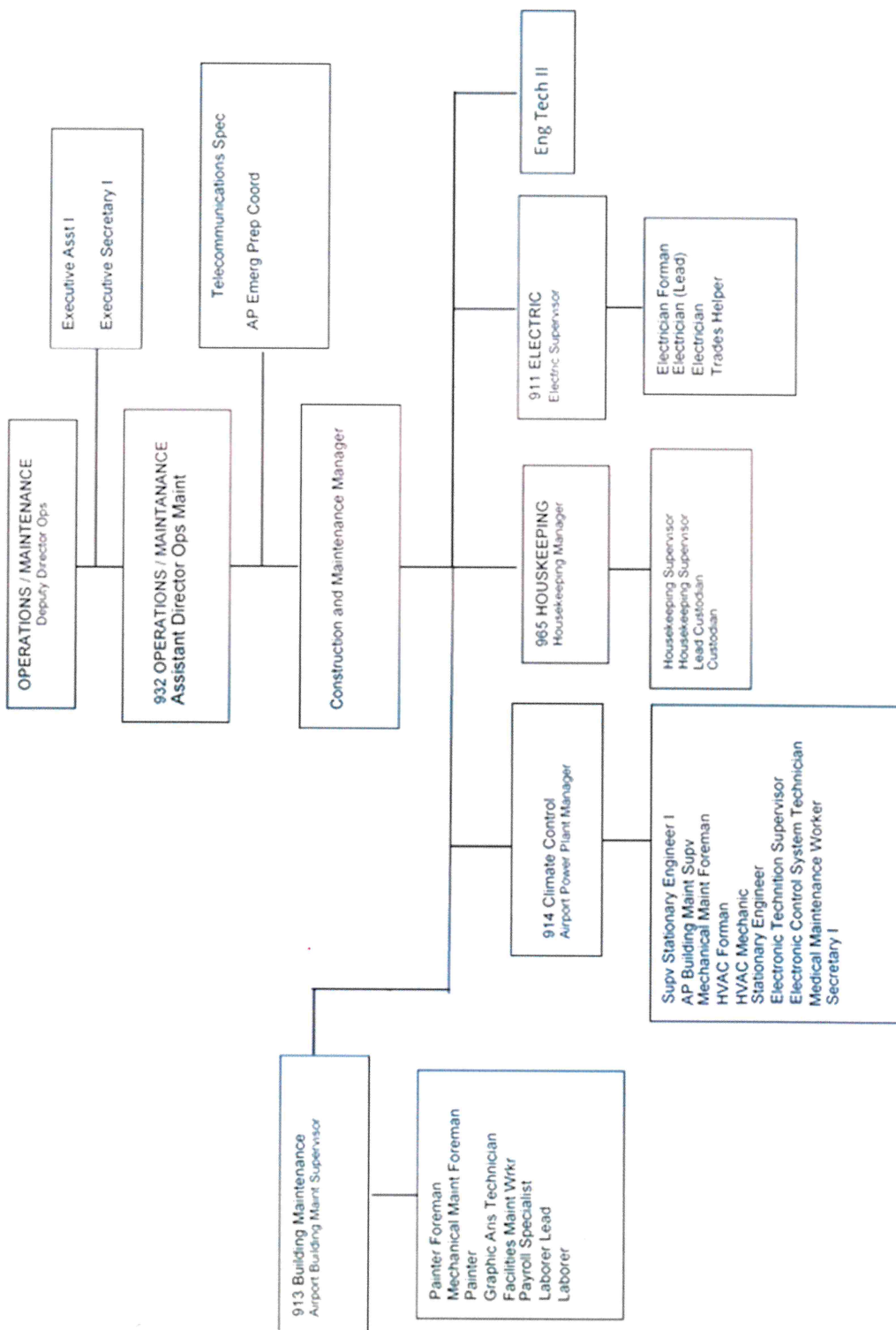


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**ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
ORGANIZATIONAL CHART
June 01, 2018**

**OPERATIONS AND MAINTENANCE
BUILDING OPERATIONS**

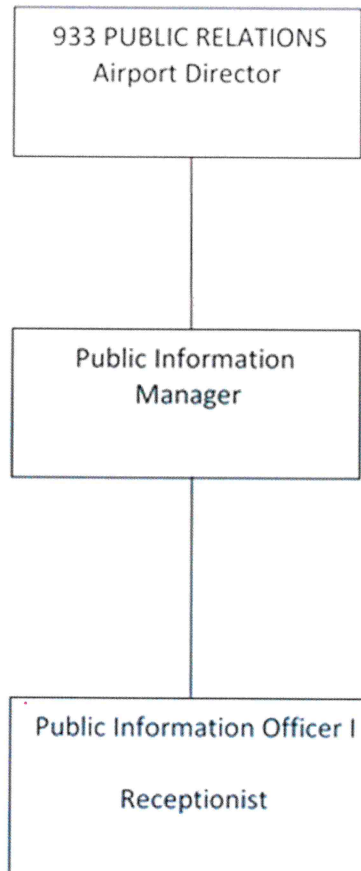


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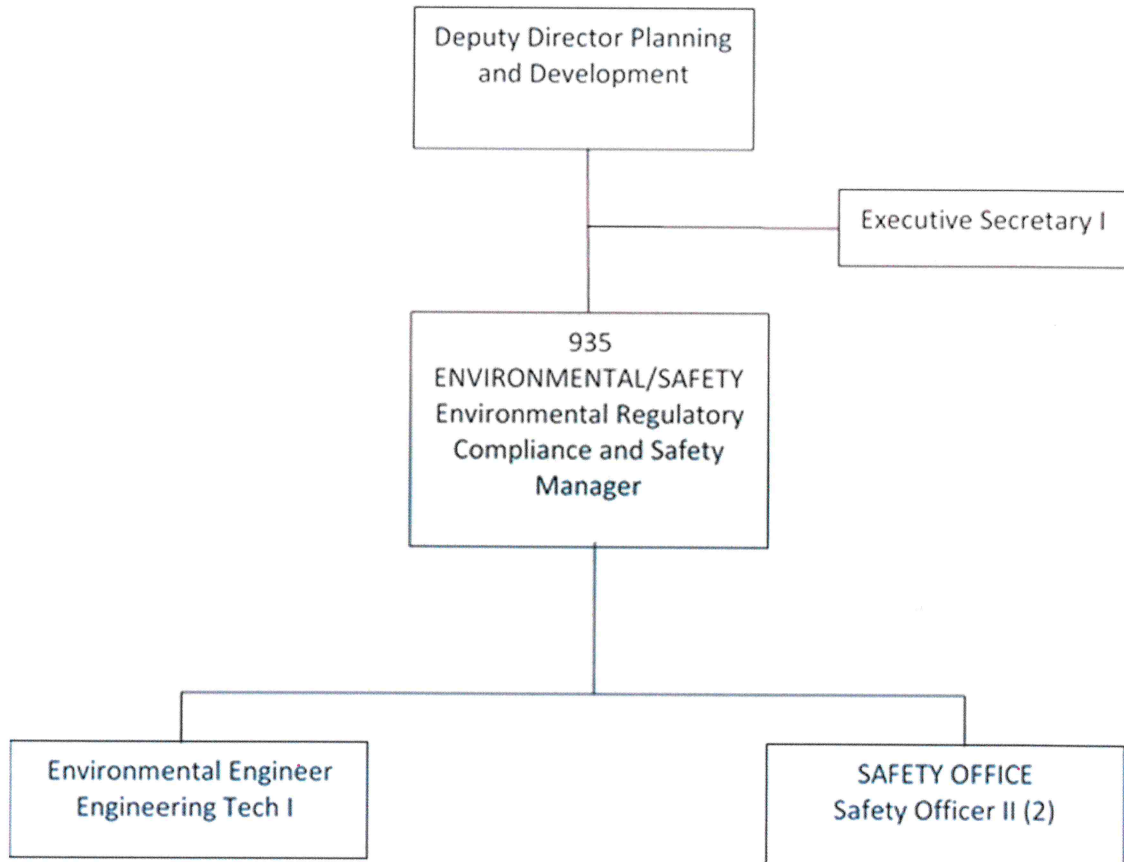
ST. LOUIS LAMBERT INTERNATIONAL
AIRPORT
ORGANIZATIONAL CHART
JUNE 1, 2018

PUBLIC RELATIONS



ST. LOUIS LAMBERT INTERNATIONAL
AIRPORT
ORGANIZATIONAL CHART
JUNE 1, 2018

ENVIRONMENTAL / SAFETY

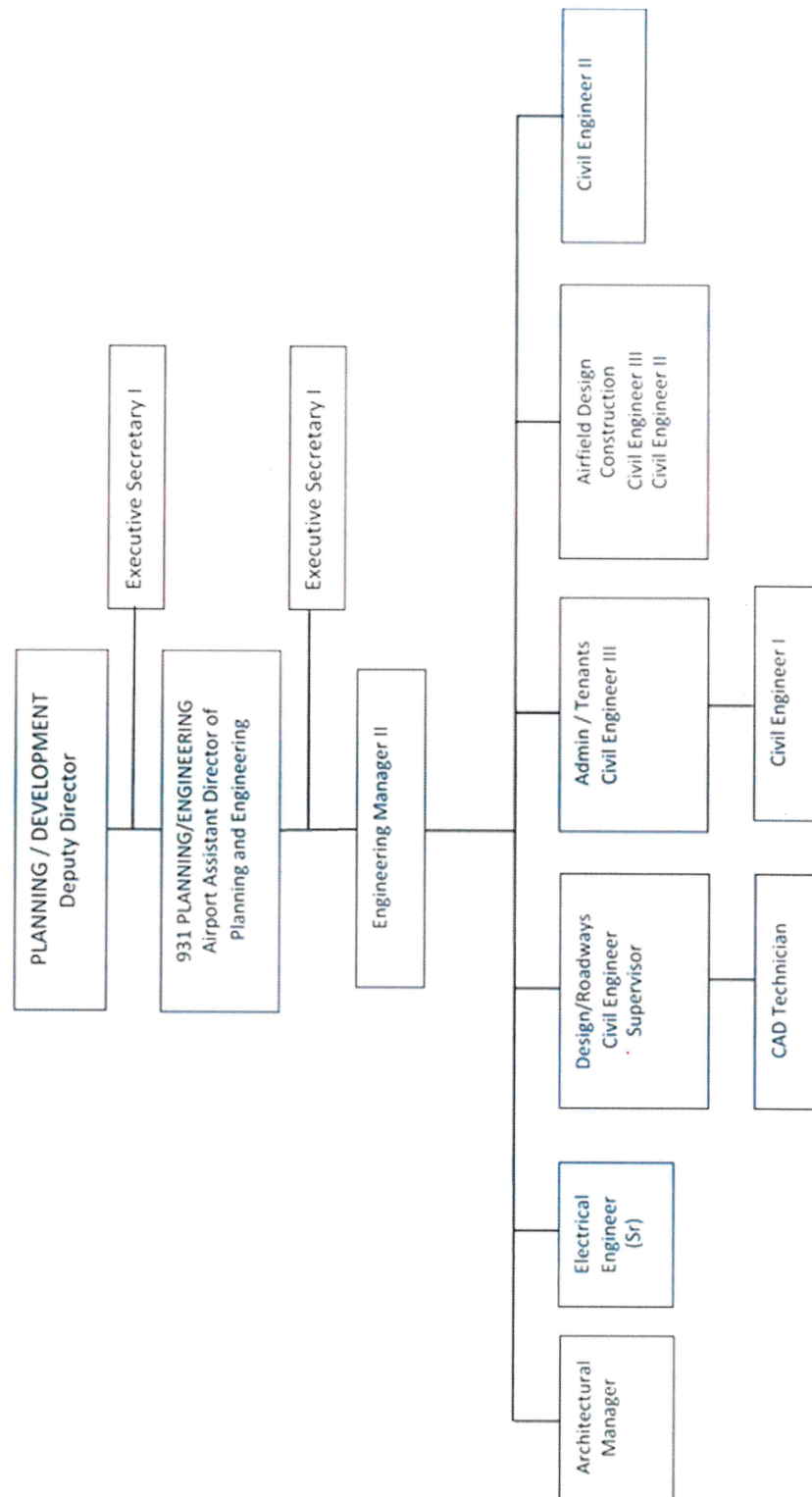


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FAA Approval J. F. Fuchs

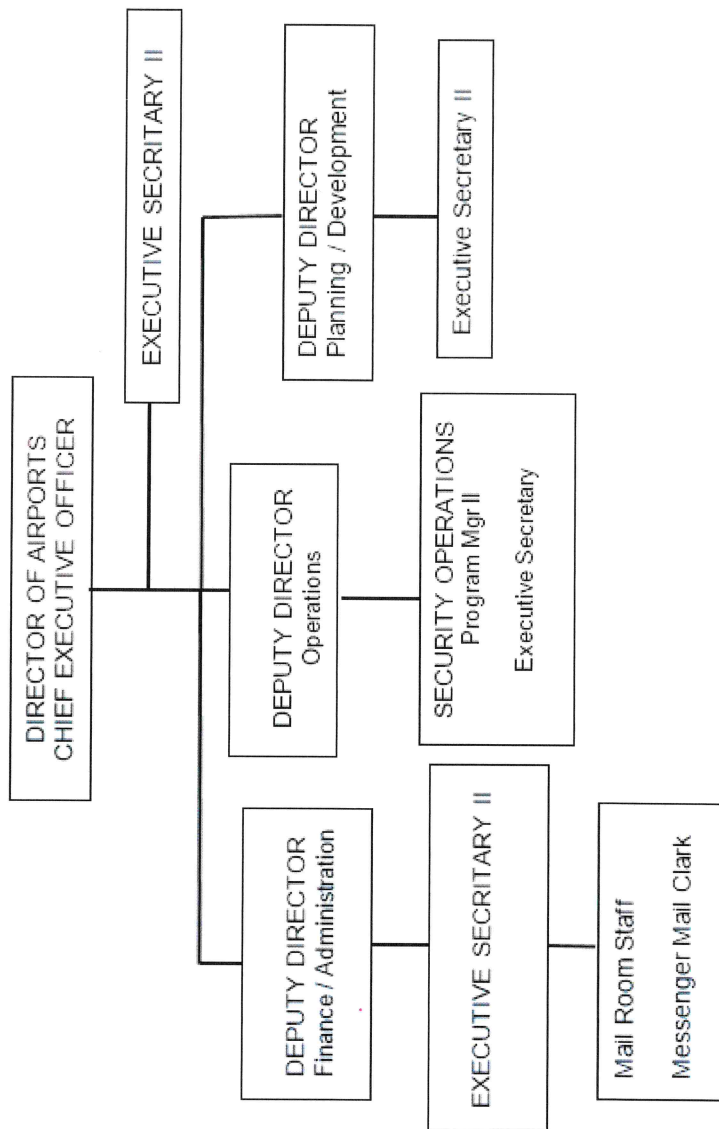
ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
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PLANNING / ENGINEERING



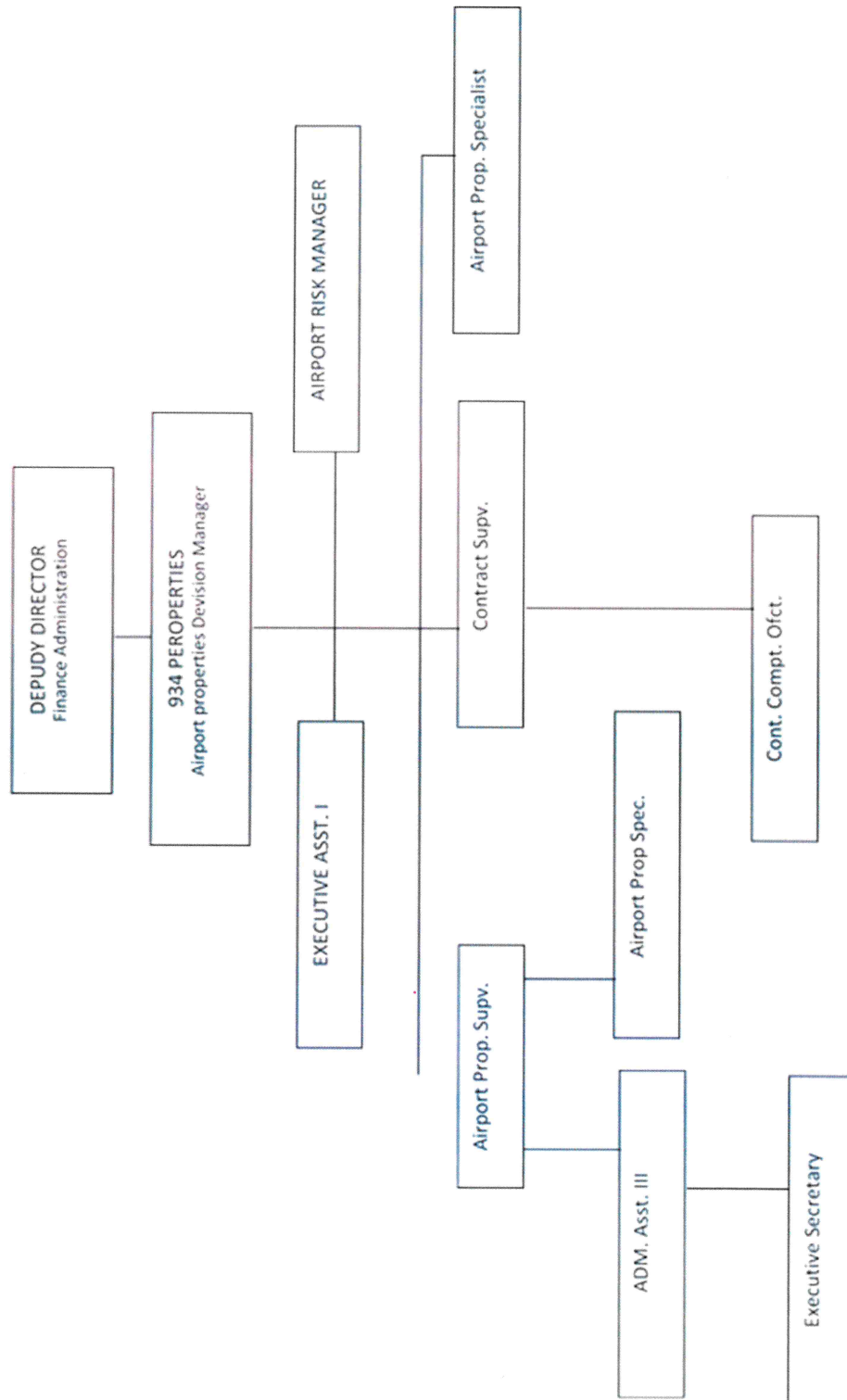
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ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
 ORGANIZATIONAL CHART
 June 01, 2018
 DIRECTORS OFFICE



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ST. LOUIS LAMBERT INTERNATIONAL
AIRPORT ORGANIZATIONAL CHART
June 01, 2018
PROPERTIES



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139.305 PAVED AREAS

1. Required Pavement Conditions

All airport paved areas are of either asphalt or concrete pavement. Areas include runways, taxiways, airline ramp areas, parking aprons, and vehicle roadways. St. Louis – Lambert International Airport Authority maintain and, as expeditiously as possible, repair any and all paved areas. Work will be performed in conjunction with the following guidelines:

- A. Pavement edges will not exceed 3 inches difference in elevation between abutting pavement sections and between full strength pavement and abutting shoulders.
- B. The pavement shall have no holes exceeding 3 inches in depth nor have a slope of which from any point in the hole to the lip is 45 degrees or greater as measured from the pavement surface plane, unless, in either case, the entire of the hole can be covered by a 5 – inch diameter circle.
- C. The pavement shall be free of cracks and surface variations which could impair directional control of air carrier aircraft. Any pavement crack or surface deterioration that produces loose aggregate or other contaminants shall be immediately repaired.
- D. Mud, dirt, sand, loose aggregate, debris, foreign objects, rubber deposits, and other contaminants shall be removed promptly and as completely as possible. This requirement does not apply to the associated use of materials such as sand and deicing solutions for snow removal and ice control.
- E. Any chemical solvent used to clean any pavement area shall be removed as soon as possible, consistent with the instructions of the manufacturer of the solvent.
- F. The pavement shall be sufficiently drained and free of depressions to prevent ponding that obscures markings or impairs safe aircraft operations.

2. Inspection and Maintenance of Paved Areas by Airport Operations Center Personnel

- A. Pavement areas are inspected in accordance with AC 150/5200 – 18, current edition, Airport Safety Self-Inspection.
- B. Paved areas are inspected daily during the morning field inspection performed by Operations Center Personnel under the direction of the Airport Operations Center Supervisor. In addition, Field Maintenance or Operations Center Personnel may make unscheduled, spontaneous inspections as part of their daily assignments or in response to conditions which may arise. On occasion, or as requested, airline personnel are

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allowed to accompany Field Maintenance or Airport Operations Center Personnel on field inspections.

- C. Pavement conditions requiring corrective actions will be noted on the airport Self-Inspection checklists; see Appendix A. These checklists will then be turned over to the Field Maintenance Supervisor who will initiate corrective actions or repairs as necessary through the Field Maintenance Department. Repairs beyond the capabilities or scope of the Field Maintenance Department will be noted to the Assistant Director of Planning and Engineering for review and repair by outside contractors.
- D. For pavement conditions requiring immediate attention, if possible, actions will be taken to correct these conditions by Field Maintenance personnel. If immediate corrective actions are not possible, Operations Center personnel will be notified and an amendment to the Airport Condition Report will be issued if appropriate. If the condition does not require an amendment, Operations Center personnel will contact FAA ATCT, airlines, or airport tenants who may be affected by the condition.
- E. Once a repair or corrective action has been taken, Field Maintenance personnel will notify the Field Maintenance Supervisor and the Airport Operations Center personnel. If an amendment to the Airport Condition Report was issued, the Operations Center will cancel the respective amendment and notify any affected tenants that the condition has been corrected.
- F. Airport self-inspection checklists are maintained electronically in the Airport Operations Center for no less than twelve consecutive calendar months.

139.309 SAFETY AREAS

See Appendix B for Runway and Taxiway Safety Area locations.

1. Safety Area Dimensions

Safety areas are maintained at the dimensions that existed on or before December 31, 1987. If a runway or taxiway is reconstructed, or a runway is extended, safety area dimensions shall conform to FAA standards in AC 150/5300 – 13, current edition, Airport Design, unless authorized by the Administrator. Safety area dimensions are as follows:

Runway 12R/30L – 250 feet from centerline and 1000 feet off each end

Runway 12L/30R – 250 feet from centerline, 1000 feet off the Runway 12L approach end, and 1000 feet off the Runway 30R approach end

Runway 11/29 – 250 feet from centerline and 1000 feet off each end

Runway 6/24 – 250 feet from centerline and 1000 feet off each end

Taxiways – 85.5 feet from the centerline

The precision approach runways at St. Louis Lambert, Runways, 12R/30L, 12L/30R, 11/29, 6/24, meet the safety area specifications for Airplane Design Group IV Aircraft. Aircraft with wingspans from 118 feet up to but not including 171 feet.

All taxiways at St. Louis Lambert meet the safety area specifications for Airplane Design Group IV Aircraft. Aircraft with wingspans from 118 feet up to but not including 171 feet.

With the exception of the taxiways listed below, all runways and taxiways consist of stabilized pavement shoulders then turf. Stabilized shoulders are 25 feet wide and are of either asphalt or concrete construction.

2. Safety Areas of Turf and Shoulders less than 25 feet

A. Taxiway Victor from Runway 12R/30L to Taxiway Foxtrot (15 feet wide, asphalt).

3. Required Conditions of Safety Areas

Safety areas are maintained as follows:

A. All runway and taxiway safety areas are kept clear of debris and foreign objects and are maintained free of potentially hazardous ruts, humps, depressions, or other surface irregularities.

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- B. All safety areas are drained by means of grading and storm sewers.
 - C. All safety areas, when dry, are capable of supporting the weight of snow removal equipment, ARFF equipment, Airport Authority and Airline vehicles, and he occasional aircraft which may stray off of a runway or taxiway onto a safety area. Manhole covers and storm sewer grates are made of steel and are sufficient thickness and strength to support vehicles and/or aircraft.
 - D. To the extent practicable, all items constructed within runway or taxiway safety areas will be constructed with frangible mounts with the frangible points being no more than 3 inches higher than the surrounding grade.
 - E. Safety areas shall conform to dimensions acceptable to the FAA if any runways or taxiways are constructed, reconstructed, or extended.
4. Inspection and Maintenance of Safety Areas
- A. Safety Areas are inspected daily during the morning field inspections performed by Operations Center personnel under the direction of the Operations Center Supervisor. In addition, Field Maintenance or Operations Center personnel may make unscheduled, spontaneous inspections as a part of their daily assignments or in response to conditions which may arise.
 - B. Safety area conditions requiring corrective actions will be noted on the Airport self-inspection checklists; See Appendix A. These checklists will then be turned over to the Field Maintenance Supervisor who will initiate corrective actions or repairs as necessary through the Field Maintenance Department. Repairs beyond the capabilities or scope of the Field Maintenance Department will be noted to the Assistant Director of Planning and Engineering for review and repair by outside contractors.
 - C. For safety area conditions requiring immediate remedy, if possible, actions will be taken to correct these conditions by Field Maintenance personnel. If immediate corrective actions are not possible, Operations Center personnel will be notified, and an amendment to the Airport Condition Report will be issued if appropriate. If the condition does not require an amendment, Operations Center personnel will contact the FAA Control Tower, airlines, or airport tenants who may be affected by the condition.
 - D. Any FAA-owned NAVAIDS inside safety areas are the maintenance responsibility of the FAA although the Operations Center personnel will inspect these items as a part of their daily field inspections. Any NAVAID which the Operations Center personnel may find in need of repair will be noted on the Airport self-inspection checklist and given to the Field Maintenance Supervisor who will in turn notify the Assistant Director of Operations & Maintenance. The Assistant Director of Operations &

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Maintenance will notify the FAA Control Tower and the FAA Sector Field Office so that FAA personnel may initiate repairs or corrective actions as needed.

- E. Once a repair or corrective action has been taken, Field Maintenance personnel will notify the Field Maintenance Supervisor and the Operations Center personnel. If an amendment to the Airport Condition Report has been issued, the Operations Center personnel will cancel the respective amendment and notify any affected Airport tenants and FAA Technical Operations personnel that the addressed condition has been corrected.
- F. Airport Self-Inspection checklists are maintained electronically in the Airport Operations Center for no less than twelve consecutive calendar months.

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139.311 MARKING, SIGNS AND LIGHTING

1. Marking

Runways and Taxiways at St. Louis Lambert International Airport are marked in compliance with Part 139.311 and will meet the requirements set forth in A/C 150/5340-1, current edition, Standards for Airport Markings and in A/C 150/5300-13, current edition, Airport Design.

A. Runways

Runway 12R/30L	Precision Instrument (Configuration B)
Runway 12L/30R	Precision Instrument (Configuration B)
Runway 11/29	Precision Instrument (Configuration B)
Runway 6/24	Precision Instrument (Configuration B)

B. Taxiways

Centerlines, edge markings, and transverse stripes where taxiways have stabilized shoulders.

C. Holding Position Markings

Runway	Category	Holding Distance
12R/30L	D – V	285'
12L/30R	D – V	285'
11/29	D – IV	285'
6/24	D – IV	255

In addition to the runway hold position markings, an ILS holding position marking is installed on Taxiway Delta and on Taxiway Golf at the boundary of the Precision Obstacle Free Zone (POFZ) for Runway 30L. Additionally, an intermediate hold position marking has been installed on Taxiway Charlie and on Taxiway Delta at the boundary of the POFZ for Runway 12R. All holding position markings are glass-beaded, highlighted in black and double sized in accordance with AC 150/5340-1, current edition.

D. Blast Pads

Blast Pads are marked with Chevrons.

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2. Signs

Signs at St. Louis Lambert are in compliance with Part 139.311 and will meet standards in AC 150/5340-18, current edition, Standards for Airport Sign Systems, and sign specifications in AC 150/5345-44, current edition, Specifications for Taxiway and Runway Signs. A modification to the standards has been approved for adding arrows to the holding position signs at the Runway 6 and Runway 29 intersections. The holding position sign for Runway 6 on the right side of the taxiway is canted toward the taxiway.

A. Signs Identifying Taxi Routes

The airport will provide and maintain a sign system for air carrier operations in accordance with FAR Part 139.311 and the Marking and Sign Plan included in Appendix C.

B. Holding Position Signs

Holding position signs are installed at all holding positions in accordance with the Marking and Sign Plan included as Appendix C.

C. ILS Critical Area Signs

ILS Critical Area signs are installed at all ILS holding positions in accordance with the Marking and Sign Plan included as Appendix C.

3. Lighting

Runway and Taxiway lighting at St. Louis – Lambert is in compliance with Part 139.311 and AC 150/5340-30, current edition, Design and Installation Details for Airport Visual Aids. See Appendix B for runway and taxiway lighting locations.

A. Runways

1. *Edge Lighting*. All runway lighting consists of high intensity elevated and in-pavement runway edge lights (HIRL) with 5-step intensity control. Runway lights are split white/yellow to mark the caution zone on the last 2000 feet of each end of all runways.
2. *Centerline Lighting*. 11/29, 12L/30R, and 12R/30L have installed runway centerline lights. To warn pilots, alternating red and white lights are in place from 3000 feet to 1000 feet from the runway end, and red lights are installed on the last 1000 foot portion.
3. *Touchdown Zone Lighting*. Touchdown zone lighting are in place for Runways 11, 12L, 12R, 29, and 30R in accordance with AC 150/5340-30, current edition, Design and Installation Details for Airport Visual Aids.

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B. Taxiways

1. *Taxiway Edge Lighting.* Medium intensity elevated and in-pavement taxiway lights (MITL) with 3-step intensity control are in place on all taxiways.
2. *Centerline Lighting.* Taxiways Alpha – 2, 3, 4, & 5 and Echo – 1 & 2 have in-pavement centerline lights. These taxiways are acute-angled exits for 11-29 and 12L-30R, respectively, and have alternating green and yellow in-pavement “lead off” lights between the runway centerline and the runway holding position for each taxiway.
3. *Runway Guard Lights.* Elevated RGL fixtures consist of two alternately illuminated, unidirectional yellow lights and are collocated with the runway hold position markings on both sides of all taxiways. In-pavement RGLs consist of a row of alternately illuminated, unidirectional yellow lights and are installed at all runway hold position markings.

C. Additional Lighting

1. Medium intensity elevated and in-pavement airline ramp edge lights
2. Size 4, Class II, internally lighted runway distance remaining signs
3. Size 3, Class II, internally lighted taxiway guidance signs
4. Size 2, Class II, internally lighted taxiway guidance signs located in the island bordered by Taxiway Alpha, Bravo, Tango, and Uniform

D. Approach Lighting and NAVAIDS

Runway approach lighting is in compliance with the requirements set forth in FAR Part 139.311 (c) Approach Lighting Meeting the Specifications for the Approach with the Lowest Minimums Authorized for Each Runway.

Approach lighting and NAVAIDS for each runway are as follows:

Runway 11	ALSF – 2	TDZL	REIL	PAPI
Runway 12L	ALSF – 2	TDZL	REIL	PAPI
Runway 12R	MALSR	TDZL		PAPI
Runway 29	ALSF – 2	TDZL	REIL	PAPI
Runway 30L	MALSR		REIL	PAPI
Runway 30R	ALSF – 2	TDZL		PAPI
Runway 6	MALSR			PAPI
Runway 24	MALS			PAPI

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E. Airport Beacon

St. Louis Lambert International Airport is equipped with a 36 inch rotating green and white beacon located in the northeast corner of the Airport, just East of Signature Aviation. The FAA Air Traffic Control Tower controls the operations of this beacon. The St. Louis Airport Authority is responsible for the maintenance and upkeep of the beacon.

F. Obstruction Lighting and Marking

Obstructions as determined by the FAA which fall under the responsibility of the St. Louis Airport Authority and which may require lighting are as follows:

1. Airport Terminal Buildings
2. FBO Hangars
3. Airline Hangars
4. Runway Approach Lighting / Instrument System Components
5. Perimeter Fence

Obstructions as determined by the FAA which are outside of the Airport Perimeter are exhibited in Appendix B.

G. Airfield Emergency Generators

To ensure constant source of power for airfield lighting, the North Substation is powered by two electrical feeds from Ameren UE. The North Substation powers two Electrical Vaults: Vault 2 (North Field Lighting) and Vault 3 (West Field Lighting). Each Vault is powered by two electrical feeds. If one feed fails, it switches to the other feeder. Each Vault has an Emergency Generator that will start once both electrical feeds fail. The Airport Authority has hired a contractor to inspect and maintain the Emergency Generators. The Emergency Generators are maintained in accordance with NFPA 110, current edition, standards and manufacturers recommended tolerances. The Emergency Generators are tested and inspected weekly by the contractor.

H. Other Airport Lighting

Airport lighting at St. Louis Lambert, which is not directly related to aircraft operations, such as Terminal Building lighting, mast lights, ramp and apron floodlights, etc., is either directed downward or shielded to prevent inadvertent blinding of airline personnel or Air Traffic Control Tower personnel and subsequent interruptions of aircraft operations.

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4. Maintenance

For conditions which may require immediate remedy, if possible, actions will be taken to correct the discrepancy. If immediate corrective actions are not possible, Operations Center personnel will be notified and, if appropriate, an amendment to the Airport Condition Report will be issued until the discrepancy is corrected or repaired. If the addressed condition does not require an amendment, Operations Center personnel will contact the FAA Control Tower, or any airline or airport tenants who may be affected by the discrepancy.

Once a repair or corrective action has been completed, the Field or Electric Maintenance Departments will notify their respective Supervisors who will in turn notify the Operations Center Personnel of the completion of repairs. If an amendment to the

Airport Condition Report was issued, Operations Center personnel will cancel the amendment and notify any affected tenants that the discrepancy has been corrected.

The FAA will retain responsibility for maintenance and upkeep of all FAA-owned NAVAIDS, approach lighting, and equipment located at St. Louis – Lambert. Any FAA equipment which airport personnel find inoperable or in need of repair will be reported to the Assistant Director of Operations & Maintenance who will then notify the local FAA sector office so that they may initiate repairs or corrective actions as needed.

- A. *Markings and Signs.* Each marking, sign, and lighting system installed by the Airport and owned by the Airport will be properly maintained by cleaning, replacing or repairing any faded, missing, or non-functional item. These systems will also be maintained in a manner that prevents them from being obscured, clearly visible, and each item will provide an accurate reference to Airport users.
- B. *Lighting.* Small repairs are made, when possible, by the Electrical Department during their maintenance inspections. Repairs requiring more time are scheduled to take place when their impact will have the least effect on air traffic operations. If necessary, an amendment to the Airport Condition Report will be issued to notify Airmen of the discrepancy and to ensure repairs can be made with a minimum of air traffic interference.

Lighting problems which require an immediate solution will be undertaken by Airport Electricians. The Airport Operations Center and the Air Traffic Control Tower will coordinate efforts to expedite needed repairs.

Each lighting system will be maintained at least to the minimum operational criteria listed in Appendix A, of AC 150/5340-26, current edition, Maintenance of Airport Visual Aid Facilities. The operating limits for lighting systems before a system is considered inoperable are as follows:

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Runway Edge Lights	<ul style="list-style-type: none"> • 85% operable for Visual, Non-Precision or Cat I runways • 95% operable for Cat II & III
Runway Centerline Lights	<ul style="list-style-type: none"> • 95% operable
Runway TDZ Lights	<ul style="list-style-type: none"> • 90% operable
Runway End/Threshold Lights	<ul style="list-style-type: none"> • 75% operable (2 inoperable max at any runway end)
Taxiway Edge Lights	<ul style="list-style-type: none"> • 85% operable
Taxiway Centerline Lights	<ul style="list-style-type: none"> • 90% operable
Runway Guard Lights	<ul style="list-style-type: none"> • Elevated – no more than one light in a fixture inoperable • In – Pavement – no more than three lights per location inoperable nor two adjacent lights inoperable

The allowable percentage of inoperable lights shall not be in such a way as to alter the basic pattern of the lighting system. In addition, an inoperable light shall not be adjacent to another inoperable light. Lights are considered adjacent if located either laterally or longitudinally in a lighting system.

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139.313 SNOW AND ICE CONTROL

St. Louis Lambert International Airport is located where snow and icing conditions seasonally occur. The airport complies with Section 313 by referencing AC 150/5200 – 30, *Airport Field Condition Assessments and Winter Operations Safety*, current edition, which contains information and standards that are acceptable to the FAA. St. Louis Lambert International Airport has prepared and complies with its Snow and Ice Control Plan. The Deputy Director of Operations & Maintenance has the primary responsibility for implementing the airport's snow removal program.

The Snow and Ice Control Plan is as follows:

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FAA Approval J. Rotzel

139.315 AIRCRAFT RESCUE & FIREFIGHTING: INDEX DETERMINATION

St. Louis Lambert International Airport maintains vehicles and personnel meeting the requirements of an Index "D" Airport, air carrier aircraft at least 159 feet but less than 200 feet in length. Should Air Carrier departures increase to an average of 5 or more aircraft per day that are at least 200 feet in length, the Lambert ARFF District will increase its index to meet the new index requirements. Air Carriers will not be allowed to begin operations of larger aircraft until the Lambert ARFF District meets the requirements of the next higher index.

At the present time, Lambert's ARFF vehicles and personnel meet and/or exceed the requirements of an Index "D" Airport.

Original Date _____
Revision Date MAY 23 2019

FAA Approval J. Estrada

139.317 ARFF VEHICLES AND CAPABILITIES

The vehicles which make up the Aircraft Rescue and Fire Fighting District at St. Louis Lambert International Airport are listed, along with their descriptions and capabilities, on Page 317 – 2, and the number and type of portable fire extinguishers on Page 317 – 3. In addition, ARFF vehicles are available for use from Boeing Corporation listed on page 317 – 4. These vehicles range from 1,000 gallon to 3,000 gallon trucks. These vehicles may on occasion be stationed at any of the Lambert ARFF District Houses and manned by Lambert ARFF District personnel in meeting requirements of an Index “D” Airport.

Along with the vehicles listed on Page 317 – 2, the ARFF Stations also maintain several pieces of “Front Line” structural fire equipment and several “Reserve” fire apparatus.

Original Date _____
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FAA Approval J. Fothergill

LAMBERT-ST LOUIS INTERNATIONAL AIRPORT ARFF EQUIPMENT

VEHICLE NUMBER	VEHICLE TYPE	MANUFACTURER	GENERAL CONDITION	AGENT	WATER	3% FOAM	(PURPLE-K) CHEMICAL	HALOTRON	TYPE OF ASSIGNMENT
40	LADDER TRUCK	1989 - SIMON/LTI 110'	POOR	A/B	200/1500	20			AERIAL REACH
41	CHIEF VEHICLE	2017 - CHEVROLET TAHOE	New						COMMAND VEHICLE
42	QUICK RESPONSE	2006 MARK I QUAD AGENT	Poor	A/B	100/60	10	500/5 PSI	120/PSI	RAPID RESPONSE
43	ARFF	2013 - OSHKOSH STRIKER-3000 SNOZZLE	New	A/B	3000/1500	420	700/5PSI	500/5 PSI	PENETRATE NOZZLE
44	PUMPER	1996 - SALISBURY 65' TELESQUIRT	POOR	A/B	500/2000	20			STRUCTURE PUMPER
45	ARFF	2003 - OSHKOSH STRIKER-3000	Good	A/B	3000/1500	420	700/5PSI	500/5 PSI	ARFF
46	ARFF	2007 - OSHKOSH STRIKER-3000 SNOZZLE	Good	A/B	3000/1500	420	700/5PSI	500/5PSI	PENETRATE NOZZLE
47	HAZ-MAT	2002 - GRUMMAN - M155	Good						HAZARDOUS MATERIAL
48	ARFF RIV	2012 - OSHKOSH STRIKER-1500	New	A/B	1500/700	210	500/5PSI	500/5PSI	ARFF
49	QUICK RESPONSE	2005 MARK III QUAD AGENT	Poor	A/B	300/60	10	500/5PSI	120/PSI	RAPID RESPONSE
50	ARFF RESCUE	2008 F-550 Rosenbauer	Good						MINI RESCUE
51	TRAINING OFFICER	2013 - CHEVROLET TAHOE	Good						TRAINING OFFICER
52	ARFF	2006 OSHKOSH STRIKER-1500	Good	A/B	1500/700	210	500/5 PSI		ARFF
53	QUICK RESPONSE	2006 CRASH RESCUE/ACCESS AIR	Good	A/B	90/80	10	500/5 PSI		STAIR TRUCK

* Reduce Manpower on vehicle when required

A = CAPACITY B = GALLONS PER MINUTE or POUNDS PER SECOND

1st Crash Truck must arrive at the Mid-Point on the farthest runway within 3 minutes discharging agent; 2nd Crash Truck 1 minute later discharging.

Revised: 1/1/18

Original Date
Revision Date MAY 23 2019

FAA Approval J. Fehack

NUMBER AND TYPE OF PORTABLE FIRE EXTINGUISHERS

Truck	Dry Chem	Helotron	Class D	Water Gun	C02	A/B/C
40						
41						
42	18lbs	25lbs		2.5 Gals		
43	18lbs	25lbs				
44	18lbs			2.5 Gals	15lbs	37lbs
45	18lbs	25lbs				
46	18lbs	25lbs				
47						
48	18lbs		30lbs			
49	18lbs	25lbs				
50	18lbs	25lbs				
52	18lbs		30lbs			
51						
53						

Original Date _____
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FAA Approval J. Retzke

RESERVE ARFF EQUIPMENT AVAILABLE AT BOEING

* A= CAPACITY * B= GALLONS PER MINUTE OR POUNDS PER SECOND

VEHICLE NUMBER	VEHICLE TYPE	MANUFACTURER	GENERAL CONDITION	MANING STATION	AGENT	WATER	3 % FORM	CHEMICAL	HALON	TYPE OF ASSIGNMENT
7980	ARFF	OSHKOSH T1500 2005	NEW			1500			60	RESERVE
7988	ARFF	OSHKOSH T1500 1978	GOOD			1500				RESERVE

The First Vehicle must arrive at the Mid-Point on the Farthest Runway within 3 minutes; all other 1 Minute later.

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FAA Approval J. Fothergill

139.319 AIRCRAFT RESCUE AND FIREFIGHTING OPERATIONS

1. ARFF HOURS OF OPERATION

The Lambert ARFF District maintains airport Index "D" personnel and vehicles in a continuous ready-state 24 hours a day, 365 days a year. ARFF personnel and equipment are capable of responding to any incident, aircraft or non-aircraft related, any time.

2. ARFF OPERATIONS/ORGANIZATION

The ARFF District of St. Louis Lambert is the Eighth District of the St. Louis Fire Department. It consists of Firefighters, Company Commanders, a Training Officer and a Chief Officer. Currently, this District has 7 units of ARFF apparatus, 2 units of Rescue apparatus, 2 units of Structural firefighting apparatus and 2 Staff vehicles. Personnel and equipment are based in two ARFF Stations on the Airport. The North Station is located near the intersections of Taxiway F6 and Taxiway F7. The West Station is located at 4640 Fee Fee Rd., on the north side of 11/29. The goal of this District is fire prevention and the protection of life and property. This is accomplished by the ongoing training of ARFF personnel in the subjects listed on Page 319-3. This also includes training with Mutual Aid Departments that respond to Lambert for an emergency. Off Airport response is approved by the Director of Airports, only if the Airport's index is not lowered as required in FAR Part 139.319.

3. ARFF VEHICLE COMMUNICATIONS

All ARFF vehicles at St. Louis Lambert are equipped with the following two-way radios:

- A. Air Traffic Control ground radios
- B. Vehicle-to-vehicle / vehicle-to-ARFF Station radios
- C. ARFF Chief vehicle equipped with 800 MHz Airport Management radio frequency

In addition, handheld portable 800 MHz radios are carried by ARFF personnel. Some pieces of ARFF equipment are also equipped with external public – address speakers.

4. ARFF VEHICLE MARKING AND LIGHTING

All ARFF vehicles attached to the Lambert ARFF District are marked and lighted in compliance with A/C 150/5210-5, current edition, Painting, Marking, and Lighting of Vehicles Used on an Airport.

Currently all vehicles except the Chief's and the Training Officer's vehicle of the Lambert ARFF District are painted lime-yellow with black markings and are equipped with emergency and non-emergency lighting.

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FAA Approval J. F. Fiedler

5. ARFF VEHICLE MAINTENANCE AND COVER

- A. Maintenance: All City-owned ARFF vehicles stationed at St. Louis Lambert are inspected and maintained on the following basis:
- a. Daily by drivers (Inspection forms at the end of this section)
 - b. Weekly by a mechanic
 - c. As scheduled by a mechanic (12-24 hour preventive maintenance program)
- B. Cover: All ARFF vehicles, personnel, and equipment are provided with temperature-controlled, completely encompassing shelter in both ARFF Stations.

6. INOPERABLE ARFF VEHICLE PROCEDURES

In the event of a piece, or pieces, of ARFF equipment becoming inoperable and thus losing its full operational ready-status, the Airport Fire Chief will notify the Operations Center. During this time, the approximate amount of time the vehicle is expected to be out of service will be noted and mutual aid agreements will be invoked so that a temporary replacement vehicle may be obtained from Boeing Corporation.

Procedures outline in FAR Part 139.319(g) and FAR Part 139.339(8) will be followed in the event of required Index D ARFF equipment becoming inoperable.

7. ARFF VEHICLE RESPONSE CAPABILITIES DURING AIR CARRIER OPERATIONS

ARFF quick-response vehicles, when assisted by Air Traffic Control Tower, are capable of reaching the midpoint of the farthest runway on the Airport from their respective ARFF Stations and begin rescue/ firefighting operations within 3 minutes of notification. Remaining required vehicles will respond within 4 minutes of notification and begin rescue/ firefighting operations. ARFF vehicles responses are in compliance with FAR Part 139.319(h).

8. ARFF PERSONNEL

The Lambert ARFF District consists of three shifts of Firefighters with 15 Firefighters (minimum) and 2 Company Commanders assigned to each shift. The Lambert Fire Chief is present during the day shift and on an as-needed and emergency basis. Firefighters and Commanders are quartered in the ARFF Stations 24 hours a day, year round. All ARFF personnel are equipped with the latest in aircraft fire protection clothing and equipment in accordance with FAR Part 139.319(i).

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FAA Approval J. Folsom

9. ARFF PERSONNEL TRAINING

The current training of ARFF personnel is maintained and delivered by the Training and Safety Officer of District 8. Personnel must be trained prior to initial performance of aircraft rescue and firefighting duties and receive recurrent instruction every twelve consecutive calendar months. Training includes, but, is not limited to:

- Airport Familiarization
- Aircraft Familiarization
- Personal Safety
- Everyday Communications / Fire Alarms
- Use of Firefighting Equipment / Turrets / Appliances
- Types / Applications of Extinguishing Agents
- Aircraft Evacuation Assistance
- Firefighting Operations
- Adapting / Using Structural Rescue and Firefighting Equipment for Aircraft Rescue and Fire Fighting
- Aircraft cargo hazards, including hazardous materials/dangerous goods incidents
- Airport Emergency Plan

All rescue and firefighting personnel must participate in at least one live-fire drill prior to initial performance of aircraft rescue and firefighting duties and every 12 consecutive calendar months thereafter. A record is maintained by the Training Officer of all training given to each individual under this section for twenty-four consecutive calendar months after completion of training. Such records must include, at a minimum, a description and date of training received.

10. ARFF EMERGENCY MEDICAL PERSONNEL

The ARFF District has at least one firefighter on duty daily (24 hours a day), trained and accredited in basic emergency medical care. This is a minimum of 40 hours of training in the following areas:

- Bleeding
- CPR
- Shock
- Primary Patient Surveys
- Injuries to Skulls, Spine, Chest, Extremities
- Internal Injuries
- Movement of Patients
- Burns
- Patient Triage

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FAA Approval J. F. Feltz

In addition to the members of the ARFF who are medically trained, Lambert Airport maintains a contractual agreement for an ambulance service with at least one Paramedic and one EMT on duty and on call 24 hours a day, year round.

11. ARFF ALERTING SYSTEM/TESTING

The ARFF District is notified by the following in case of a fire alarm, building incident, airfield or aircraft incident:

- 426-8133 Emergency Telephone Number
- Via the Airport Police Dispatcher
- Via the Airport Operations Center
- Via the Air Traffic Control Tower
- By way of heat/smoke/sprinkler systems and alarms throughout the Airport Terminal Buildings and Airport Buildings
- By way of CRT and computer printouts in each ARFF Station
- By way of a horn and siren system located in each ARFF Station
- Tests of these systems are completed daily

In addition to the ARFF alarm system, a public address system with voice paging, fire warning klaxons, and emergency evacuation messages is housed in the Airport Operations Center for use in Airport Terminal 1 and 2. This system is activated by the Operations Center personnel when necessary and is tested once per month.

12. HAZARDOUS MATERIALS GUIDANCE

Each ARFF vehicle is equipped with the *North American Emergency Response Guidebook*.

13. ARFF EMERGENCY ACCESS ROADS

At the present time, St. Louis Lambert International Airport has no designated ARFF emergency access roads; however all service roads, access roads, and Airport roadways are available for use by emergency vehicles. In addition, a gravel road exists which surrounds the inner perimeter of the airport. All paved roads and the gravel roads are maintained so as to be usable by ARFF vehicles or other Airport vehicles as practicable.

Additionally, all Airport surfaces, paved or turf, are designed and maintained for use by ARFF or other Airport vehicles as practicable, weather permitting.

See Appendix B for Airport Roadways.

**St. Louis Fire Department
Lambert St. Louis International Airport
Daily Apparatus Check Sheet - T 1500 & T 3000**

Truck: _____		Road Miles: _____	
Month: _____ Year: 20____		Starting: _____	
		Engine Hours: _____	

** ITEMS TO BE CHECKED **	OPERATOR SIGNATURE	DAY		
1. LUBRICATING OIL LEVELS (engine, trans, differential, power steer.)		1		
2. COOLANT; FUEL (fuel above 3/4)		2		
3. LEAKS (oil, fuel, coolant, air, exhaust, etc.)		3		
4. DRIVE BELTS (tension, condition)		4		
5. TIRES, WHEELS AND LUG BOLTS FOR TIGHTNESS, PRESSURE OR DAMAGE.		5		
6. BATTERIES FOR FLUID LEVEL, DAMAGE, CLEAN AND BATTERY CHARGE.		6		
7. CLEANLINESS, DAMAGE, MISSING ITEMS AND CORROSION (interior/exterior)		7		
8. GENERATOR OIL/FUEL (start and test halogen lights)		8		
9. PUMP CLUTCHES (operate foam and water clutches with engine off)		9		
** ENGINE/DRIVING CHECKS **		10		
		11		
10. PARKING BRAKE AND STOPPING BRAKES.		12		
11. STEERING/SPRINGS AND SHACKLES FOR OPERATION AND DAMAGE.		13		
12. SAFETY DEVICES (lights, buzzers, extinguishers, seat belts)		14		
13. OPERATION OF ALL LIGHTS, SIRENS, HORNS AND MIRRORS.		15		
14. SPECIAL TOOLS AND EQUIPMENT, (inventory)		16		
15. AGENTS (Foam, Water, Halon, Dry Chem.)		17		
16. HEATER/DEFROSTER/AIR CONDITIONER		18		
17. WINDSHIELD/WIPERS/WASHERS		19		
18. INSTRUMENTS AND GAUGES (during operation)		20		
19. UNUSUAL NOISES (during operation)		21		
20. SWITCHES SET FOR PROPER OPERATION (dash and panel)		22		
21. HANDLINES/UNDERTRUCK NOZZLES (operation)		23		
22. TURRETS (hydraulic and manual operation)		24		
23. PUMPS/PIPING AND VALVES FOR LEAKS OR CORROSION (operation)		25		
24. FIRE RADIO (trans/recieve) GROUND (receive test)		26		
		27		
ITEM	DATE	W.O.	CAPT.	
				28
				29
				30
				31

420-118 (ML92)

TURN IN WITH MONTHLY REPORTS

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FAA Approval J. Foltz

NOTES

(1) ENGINE OIL CHECK

The engine oil level is checked with a dipstick mounted on the right rear of the oil pan. The oil filter cap is on the front of the RH valve cover. Check with engine shut-off and COLD. Add oil to bring the level to "full" mark on dipstick.

(2) DRIVE BELTS

Belts should be checked for frayed areas, cracks and general wear.

(3) COOLANT LEVEL

Check coolant level at sight glass, mounted on radiator to tank, add coolant as required. 60% anti-freeze. Make notation if rusty looking.

(4) TRANSMISSION

Check transmission oil level with dipstick which is located above the frame rail, in the LH center body compartment, ahead of the water pump. Check with truck on level ground, transmission warm, with engine running and parking brake applied. Shift the transmission through all drive ranges to fill the clutch cavities and oil passages, then shift to neutral.

(5) POWER DIVIDER

Check power divider oil level with dipstick located in lower forward area of engine RH compartment. Check level warm, engine off.

(6) PARKING BRAKE

The parking brake shall hold at a 50% incline or decline.

(7) POWER STEERING/TURRET HYDRAULIC RESERVOIR

The steering/turret reservoir is mounted on the RH side of the engine. Check oil level with the engine shut off. Fill cap on reservoir has dipstick.

(8) BATTERIES

The batteries are mounted on a slid-out tray in a compartment on the LH side. Check and maintain the electrolyte level in batteries $\frac{1}{4}$ to $\frac{1}{2}$ inch above the top of the separators. Check specific gravity should read 1.265 at 80° F full charge, and 1.120 at 80° F discharged.

(9) LOW AIR WARNING SYSTEM

With parking brake on, pump foot brake while watching air pressure. Buzzer should activate when pressure drops below 65psi.

Original Date _____
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FAA Approval J. Potreb

**St. Louis Fire Department
Lambert St. Louis International Airport
Daily Apparatus Check Sheet - Structural Trucks**

Truck: _____		Road Miles: _____	
Month: _____ Year: 19__		Starting: _____	
		Engine Hours: _____	

** ITEMS TO BE CHECKED **	OPERATOR SIGNATURE	DAY		
1. LUBRICATING OIL LEVELS (engine, trans, differential, power steer.)		1		
2. COOLANT; FUEL (fuel above 3/4)		2		
3. LEAKS (oil, fuel, coolant, air, exhaust, etc.)		3		
4. DRIVE BELTS (tension, condition)		4		
5. TIRES, WHEELS AND LUG BOLTS FOR TIGHTNESS, PRESSURE OR DAMAGE.		5		
6. BATTERIES FOR FLUID LEVEL, DAMAGE, CLEAN AND BATTERY CHARGE.		6		
7. CLEANLINESS, DAMAGE, MISSING ITEMS AND CORROSION (interior/exterior)		7		
** ENGINE/DRIVING CHECKS **		8		
		9		
8. PUMPS OPERATE (engage/disengage manually and electrically)		10		
9. AERIAL LADDER (engage PTO, outriggers, extend/retract)		11		
10. PARKING BRAKE AND STOPPING BRAKES.		12		
11. STEERING/SPRINGS AND SHACKLES FOR OPERATION AND DAMAGE.		13		
12. SAFETY DEVICES (lights, buzzers, extinguishers, seat belts)		14		
13. OPERATION OF ALL LIGHTS, SIRENS, HORNS AND MIRRORS.		15		
14. SPECIAL TOOLS AND EQUIPMENT, (inventory)		16		
15. AGENTS (water, foam)		17		
16. HEATER/DEFROSTER/AIR CONDITIONER		18		
17. WINDSHIELD/WIPERS/WASHERS		19		
18. INSTRUMENTS AND GAUGES (during operation)		20		
19. UNUSUAL NOISES (during operation)		21		
20. SWITCHES SET FOR PROPER OPERATION (dash and panel)		22		
21. HOSE (booster, cotton, supply, uncovered in good weather)		23		
22. PUMPS/PIPING AND VALVES FOR LEAKS OR CORROSION (operating)		24		
23. FIRE RADIO (trans/receive) GROUND RADIO (receive only)		25		
** DISCREPANCIES ** DEFINE PROBLEM		26		
		27		
ITEM	DATE	W.O.	CAPT.	
				28
				29
				30
				31

420-119 (M192)

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FAA Approval S. Fothach

139.321 HANDLING & STORING OF HAZARDOUS SUBSTANCES & MATERIALS

The scope of this plan includes all spills and release events at the Airport including, but not limited to, fuels, oils, sanitary waste, dangerous goods, hazardous materials, hazardous substances, hazardous waste, and special waste. The scope of this plan includes notification of the Airport Operations Center and the Airport Fire Department, as well as, if necessary, the notification of outside agencies as determined by federal, state, and local environmental statutes.

Reportable Quantity: The quantity, as set forth in 40 CFR 302, the release of which requires notification to the National Response Center (NRC) at (800) 424-8802 as soon as the responsible party has knowledge of the release. In addition, the responsible party must contact the Missouri Emergency Response Hotline at (573) 634-2436, and the United States Coast Guard at (800) 325-7376, if a hazardous material or fuel spill reaches the receiving stream in any quantity.

Due to the length and amount of data contained in this section, this section will be broken down into two parts. Part 1 will deal with hazardous cargo/material handling and storage, and part 2 will cover the fueling standards and safety.

In the event a person or persons is exposed to, or inadvertently ingests a chemical or product, a hazardous material data file and two hazardous chemical/toxic material data books are kept in the North Fire House, and the Safety Office for referencing.

This file and the accompanying books are used to determine the personal health hazards, potential fire hazards, fire-aid treatments, and fire containment measures to be taken in the event of exposure or contact with chemicals or products of potentially hazardous natures.

The purpose of this plan is to provide direction to Airport personnel and Airport tenant personnel about spills and releases of fuels, oils, sanitary waste, or any other hazard or hazardous material, hazardous substance, hazardous waste or special waste that is spilled or released to the environment at the St. Louis Lambert International Airport.

A. Hazardous Cargo/Material

The Airport Authority reserves the right to establish such procedures for the handling and storing of hazardous articles, cargo, radioactive materials, and/or nuclear materials as may become necessary or as the Airport Authority deems necessary to insure the safety of the traveling public and/or Airport employees.

1. All scheduled air carriers, cargo carriers, and non-scheduled carriers shall be responsible for the storage and handling of articles, cargo and/or materials of a hazardous nature within their respective air cargo areas, and shall comply with all applicable local, state, and federal regulations.

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FAA Approval J. Fotech

2. The Air Carriers shall be responsible for receiving assurances that hazardous articles, cargo, or materials received for storage or shipment are safe to handle, signed by the shipper, and contain any special handling instructions required to assure safe shipment or storage.
3. All hazardous materials will be marked in accordance with the recommended practices in NFPA 704 (2017), Standard System for the Identification of the Hazards of Materials for Emergency Response.
4. In addition to the data given by the Carriers, they shall adhere to the following five regulations:
 - a. No person shall store, keep, handle, use, dispense or transport at, in or upon the Airport any Class A or B explosives, Class A poison, poisonous substances, liquid gasses, compressed gasses, radioactive articles, substances, or materials (as defined in the Interstate Commerce Commission Regulations for Transportation of Explosives, and Other Dangers Articles) at such time or place, or in such matter or condition as to endanger unreasonably, or as to be likely to endanger persons or property here at St. Louis Lambert International Airport.
 - b. All carriers shall abide with the provisions set forth in regulations #1 above, and shall park all aircraft carrying, loading or unloading hazardous material or cargo in areas which the carrier can secure in order to ensure minimal exposure to personnel and equipment to the hazardous material or cargo. The area, while remaining secure, shall still be accessible by ARFF personnel and vehicles.
 - c. It shall be the responsibility of the Air Carriers to request an ARFF escort of all aircraft carrying, loading or unloading hazardous materials or cargo to parking areas, and subsequently from parking areas once loading or unloading of hazardous materials or cargo has been completed. ARFF crews will also be requested to standby while loading or unloading operations take place.
 - d. Any spill or release of material meeting the following designations must be reported to the Airport Fire Department immediately at 314-426-8133.

Environmentally Hazardous Substance: Any substance or mixture of substances that presents a danger to the public health, safety, or the environment and includes;

1. Any hazardous waste identified or listed in 40 CFR 261.3 or RSMO 260.350 – 430.
2. Any element, compound, mixture, solution, or substance designated pursuant to Sections 101(14) and 102 of CERCLA, or designated pursuant to Section 304 of EPCRA, and

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FAA Approval J. Fotache

3. Any hazardous material designated by the Secretary of the United States Department of Transportation under the Hazardous Materials Transportation Act.

Hazardous Material: A substance or material which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated. The term includes hazardous substances, hazardous wastes, marine pollutants and elevated temperature materials as defined in this section, materials designated as hazardous under the provisions of 49 CFR 172.101.

1. All persons having come into contact, in any manner, with the material as defined above shall immediately make said contact known to the responding Fire Department.
2. The Airport Fire Department upon arrival at the site shall make an assessment and take the action as appropriate, or direct action to be taken to secure the area in order to minimize the risk of further contamination of personnel and/or property.
3. Once the spill has been contained, the party responsible for the spill/release event will be obligated to initiate cleanup operations as appropriate to the material.

B. Fueling Agents

The following fueling agents operate at the airport:

1. Airport Terminal Services
2. Allied Aviation
3. Signature Flight Support
4. Servisair STL

C. Airport Fire Safety Fuel Handling Standards

NFPA 407, current edition, and NFPA 30, current edition, is the local fire code governing airport fueling operations at St. Louis Lambert International Airport. To establish and maintain fire safety fueling standards at the airport, as required by FAR Part 139.321(b), the Airport provides each fueling agent with a copy of the current NFPA 407 and NFPA 30 standards.

Original Date _____
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FAA Approval J. Fethers

NFPA 407

Standard for

Aircraft Fuel Servicing

2017 Edition

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

A reference in brackets [] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex C. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced publications can be found in Chapter 2 and Annex C.

Chapter 1 Administration

1.1 Scope. This standard applies to the fuel servicing of all types of aircraft using liquid petroleum fuel.

1.1.1 This standard does not apply to any of the following:

- (1) In-flight fueling
- (2) Fuel servicing of flying boats or amphibious aircraft on water
- (3) Draining or filling of aircraft fuel tanks incidental to aircraft fuel system maintenance operations or manufacturing

1.1.2* This document is not intended to be used as the sole standard for design, construction, operation, and maintenance of fuel storage and transfer facilities, as it does not address requirements for environmental protection, fuel quality, or other issues not directly related to fire safety.

1.2* Purpose.

1.2.1 The purpose of this standard is to establish reasonable minimum fire safety requirements for procedures, equipment, and installations for the protection of persons, aircraft, and other property during ground fuel servicing of aircraft using liquid petroleum fuels. These requirements are based upon sound engineering principles, test data, and field experience.

1.2.2 The fire hazard properties of aviation fuels vary; however, for the purpose of this standard, the same fire safety precautions are specified for all types.

1.3 Retroactivity. The provisions of this standard reflect a consensus of what is necessary to provide an acceptable degree of protection from the hazards addressed in this standard at the time the standard was issued.

1.3.1 Unless otherwise specified, the design and installation provisions of this standard shall not apply to facilities, equipment, structures, or installations that existed or were approved for construction or installation prior to the effective date of the standard.

1.3.2 Unless otherwise specified, operations and maintenance activities shall meet the current standard.

1.3.3 In those cases where the authority having jurisdiction determines that the existing situation presents an unacceptable degree of risk, the authority having jurisdiction shall be permitted to apply retroactively any portions of this standard deemed appropriate.

1.3.4 The retroactive requirements of this standard shall be permitted to be modified if their application clearly would be impractical in the judgment of the authority having jurisdiction, and only where it is clearly evident that a reasonable degree of safety is provided.

1.4 Equivalency. Nothing in this standard is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, rating, and safety over those prescribed by this standard.

1.4.1 Technical documentation shall be submitted to the authority having jurisdiction to demonstrate equivalency.

1.4.2 The system, method, or device shall be approved for the intended purpose by the authority having jurisdiction.

1.5 Units. Where the value for a measurement as specified in this standard is followed by an equivalent value in other units, the first value shall be regarded as the requirement. The equivalent value could be approximate.

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 10, *Standard for Portable Fire Extinguishers*, 2017 edition.
NFPA 30, *Flammable and Combustible Liquids Code*, 2015 edition.

NFPA 70®, *National Electrical Code®*, 2017 edition.

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NFPA 385, *Standard for Tank Vehicles for Flammable and Combustible Liquids*, 2017 edition.

NFPA 410, *Standard on Aircraft Maintenance*, 2015 edition.

NFPA 415, *Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways*, 2016 edition.

NFPA 418, *Standard for Heliports*, 2016 edition.

NFPA 704, *Standard System for the Identification of the Hazards of Materials for Emergency Response*, 2017 edition.

2.3 Other Publications.

2.3.1 ASME Publications. ASME Technical Publishing Office, Two Park Avenue, New York NY 10016-5990.

ASME B31.3, *Process Piping*, 2014.

2.3.2 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19380-2959.

ASTM D380, *Standard Test Methods for Rubber Hose*, 1994, reapproved 2012.

2.3.3 AWS Publications. American Welding Society, 8669 NW 36 Street, # 130, Miami, FL 33166-6672.

AWS A5.10, *Welding Consumables — Wire Electrodes, Wires, and Rods for Welding of Aluminum and Aluminum Alloys — Classification*, 2012.

2.3.4 EI Publications. Energy Institute, 61 New Cavendish Street, London W1G 7AR, United Kingdom.

EI 1529, *Aviation Fueling Hose and Hose Assemblies*, 7th edition, 2014.

EI 1540, *Design, Construction, Commissioning, Maintenance and Testing of Aviation Fuelling Facilities*, 5th Edition, 2014.

EI 1542, *Identification Markings for Dedicated Aviation Fuel Manufacturing and Distribution Facilities, Airport Storage, and Mobile Fueling Equipment*, 2012.

2.3.5 FAA Publications. Federal Aviation Administration, U.S. Department of Transportation, Distribution Unit, M-494.3, Washington, DC 20590.

FAA AC-150/5300, *Airport Design*, Rev. 13A, 2012.

2.3.6 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

ANSI/UL 913, *Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III Division 1, Hazardous (Classified) Locations*, 8th edition, 2013.

2.3.7 U.S. Government Publications. U.S. Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20402.

Title 49, Code of Federal Regulations, Part 172.504, “General Placarding Requirements.”

Title 49, Code of Federal Regulations, Part 178.345, “General Design and Construction Requirements Applicable to Specification DOT 406.”

2.3.8 Other Publications.

Merriam-Webster’s Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

2.4 References for Extracts in Mandatory Sections.

NFPA 30, *Flammable and Combustible Liquids Code*, 2015 edition.

NFPA 385, *Standard for Tank Vehicles for Flammable and Combustible Liquids*, 2017 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster’s Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3 Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

3.2.4* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.5 Shall. Indicates a mandatory requirement.

3.2.6 Should. Indicates a recommendation or that which is advised but not required.

3.2.7 Standard. An NFPA Standard, the main text of which contains only mandatory provisions using the word “shall” to indicate requirements and that is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions are not to be considered a part of the requirements of a standard and shall be located in an appendix, annex, footnote, informational note, or other means as permitted in the NFPA Manuals of Style. When used in a generic sense, such as in the phrase “standards development process” or “standards development activities,” the term “standards” includes all NFPA Standards, including Codes, Standards, Recommended Practices, and Guides.

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3.3 General Definitions.

3.3.1 Aircraft. A vehicle designed for flight that is powered by liquid petroleum fuel.

3.3.2 Aircraft Fuel Servicing. See 3.3.28.1.

3.3.3 Aircraft Fuel Servicing Hydrant Vehicle (Hydrant Vehicle). See 3.3.36.1.

3.3.4 Aircraft Fuel Servicing Ramp or Apron. An area or position at an airport used for the fuel servicing of aircraft.

3.3.5 Aircraft Fuel Servicing Tank Vehicle (Fueller). See 3.3.36.2.

3.3.6 Aircraft Fueling Vehicle. See 3.3.36.3.

3.3.7 Airport Fueling System. An arrangement of aviation fuel storage tanks, pumps, piping, and associated equipment, such as filters, water separators, hydrants and station, or aircraft fuel servicing vehicles, installed at an airport and designed to service aircraft at fixed positions.

3.3.8* Aviation Fuel. Any petroleum fuel for use in aircraft engines.

3.3.9 Bulkhead. A liquidtight transverse closure between compartments of a cargo tank.

3.3.10 Burst Pressure. See 3.3.25.1.

3.3.11* Cargo Tank. A container used for carrying fuels and mounted permanently or otherwise secured on a tank vehicle.

3.3.12 Cathodic Protection. A method of controlling or impressing an electrical current to prevent corrosion of metal components of airport fueling systems that are in contact with the ground.

3.3.13 Deadman Control. A device that requires a positive continuing action of a person to allow the flow of fuel.

3.3.14 Electric Hand Lamp. A portable lamp other than a flashlight.

3.3.15 Emergency Fuel Shutoff. A function performed to stop the flow of fuel in an emergency.

3.3.16* Fuel Servicing Station. A unit that includes all necessary equipment to enable the transfer of fuel into or from an aircraft or fueller.

3.3.17 Fueller. See 3.3.36.2.

3.3.18 Fueling Point. The location on an aircraft where fuel enters the aircraft from an external source.

3.3.19 Head. A liquidtight transverse closure at the end of a cargo tank.

3.3.20 Hydrant Cart. A non-driven vehicle used to deliver fuel from a hydrant to an aircraft.

3.3.21 Hydrant Valve. An outlet of an airport fueling system that includes a deadman-controlled valve and adapter assembly to which a coupler on a hose or other flexible conduit on an aircraft fuel servicing vehicle can be connected.

3.3.22 Hydrant Vehicle. See 3.3.36.4.

3.3.23 Misfueling. The accidental fueling of an aircraft or refueling vehicle tank with an incorrect grade of product.

3.3.24 Overshoot. The fuel that passes through a valve after the deadman control is released or another flow control device is activated.

3.3.25 Pressure.

3.3.25.1 Burst Pressure. The pressure at which a component fails due to stresses induced as a result of the pressure.

3.3.25.2 Test Pressure. The pressure to which a system or a component of a system is subjected to verify the integrity of the system or component.

3.3.25.3 Working Pressure. The maximum allowable pressure, including momentary surge pressure, to which a system, hose, or other component can be safely subjected while in service.

3.3.26 Pressure Fuel Servicing. See 3.3.28.3.

3.3.27 Self-Service Fueling. The dispensing of aviation fuels into aircraft fuel tanks by persons other than the facility owner/operator.

3.3.28 Servicing.

3.3.28.1 Aircraft Fuel Servicing. The transfer of fuel into or from an aircraft.

3.3.28.2 Overwing Fuel Servicing. A system used to fuel an aircraft through an opening in the aircraft fuel tank using a hose with a hand-held nozzle.

3.3.28.3 Pressure Fuel Servicing. A system used to fuel an aircraft by closed coupled connection under pressure.

3.3.29 Tank Baffle. A nonliquidtight transverse partition in a cargo tank.

3.3.30 Tank Compartment. A liquidtight division in a cargo tank.

3.3.31 Tank Full Trailer. A vehicle that is not self-propelled and that has a cargo tank for the transportation of aviation fuel mounted thereon or built as an integral part thereof. It is so constructed that its weight and load rest on its own wheels.

3.3.32 Tank Semitrailer. A vehicle that is not self-propelled and that has a cargo tank for the transportation of aviation fuel mounted thereon or built as an integral part thereof. It is so constructed that when drawn by a tractor by means of a fifth wheel connection, some of its load and weight rests upon the towing vehicle.

3.3.33 Tank Truck. Any single self-propelled motor vehicle equipped with a cargo tank mounted thereon and used for the transportation of flammable and combustible liquids or asphalt. [385, 2017]

3.3.34 Tank Vehicle. See 3.3.36.5.

3.3.35 Test Pressure. See 3.3.25.2.

3.3.36 Vehicle.

3.3.36.1 Aircraft Fuel Servicing Hydrant Vehicle (Hydrant Vehicle). A vehicle equipped with facilities to transfer fuel between a fuel hydrant and an aircraft.

3.3.36.2 Aircraft Fuel Servicing Tank Vehicle (Fueller). A vehicle having a cargo tank (tank truck, tank full trailer, tank semitrailer) designed for or used in the transportation and transfer of fuel into or from an aircraft.

3.3.36.3 Aircraft Fueling Vehicle. A fuel servicing hydrant vehicle, hydrant cart, or an aircraft fuel servicing tank vehicle.

3.3.36.4 Hydrant Vehicle. See 3.3.36.1.

3.3.36.5 Tank Vehicle. Any tank truck, tank full trailer, or tractor and tank semitrailer combination.

3.3.37 Vent Point. The location on the exterior of an aircraft where fuel vapors are released from the aircraft's fuel system.

3.3.38 Working Pressure. See 3.3.25.3.

Chapter 4 General Requirements

4.1 Design and Construction.

4.1.1 General Requirements.

4.1.1.1 The requirements of Chapter 4 shall apply to all aviation fueling facilities, aircraft fueling vehicles, rooftop heliport fueling facilities, and self-service aviation fueling facilities.

4.1.1.2 Aviation fueling facilities shall also comply with the requirements of Chapter 5.

4.1.1.3 Aircraft fueling vehicles and carts shall also comply with the requirements of Chapter 6.

4.1.1.4 Rooftop heliport fueling facilities shall also comply with the requirements of Chapter 5 and Chapter 7.

4.1.1.5 Self-service aviation fueling facilities shall also comply with the requirements of Chapter 5 and Chapter 8.

4.1.2 Fuel Storage Tanks. (Reserved)

4.1.3 Fuel Dispensing Systems.

4.1.3.1 Any valve that controls the flow of fuel into or from an aircraft fuel servicing vehicle or cart, or into or from an aircraft shall have a deadman control(s).

4.1.3.2 The deadman flow control in the nozzle shall be permitted for overwing fueling.

4.1.3.3 Notches or latches in the handle of an overwing nozzle that could allow the valve to be locked open shall be prohibited.

4.1.3.4 Nozzles for underwing fueling shall be designed to be attached securely to the aircraft adapter before the nozzle can be opened.

4.1.3.5 Disengaging the nozzle from the aircraft adapter shall not be possible until the nozzle is fully closed.

4.1.3.6 Fuel servicing pump mechanisms shall be designed and arranged so that failure or seizure does not cause rupture of the pump housing, of a tank, or of any component containing fuel.

4.1.3.7 Fuel pressure shall be controlled within the stress limits of the hose and plumbing by means of either an in-line pressure controller or, a system pressure relief valve, or other suitable means.

4.1.3.8 The working pressure of any system component shall equal or exceed any pressure to which it could be subjected.

4.1.4* Fueling Hose.

4.1.4.1 Performance Requirements. Hose and couplings shall comply with the requirements of EI 1529.

4.1.4.2 Fueling Hose Apparatus. Nozzle receptacles and hose storage shall be arranged to avoid kinks and maintain the hose bend radius within the requirements of EI 1529 and EI 1540.

4.1.4.3 Additional Requirements.

4.1.4.3.1 Each coupled length of hose shall be tested at the same minimum proof pressure rating for that grade of hose as defined in EI 1529.

4.1.4.3.2 A test certificate shall be provided for each coupled length of hose and shall state the following:

- (1) Manufacturer's name of hose
- (2) Manufacturer's name of couplings
- (3) Hose type
- (4) Hose grade
- (5) Size and length of hose
- (6) Serial number or reference number of hose
- (7) Quarter and year of manufacture of hose
- (8) Model number of couplings
- (9) Sizes of coupling ferrules
- (10) Hydrostatic test pressures
- (11) Coupled length serial number
- (12) Identification of individual responsible for coupling the hose
- (13) Name and address of company responsible for coupling the hose
- (14) Date of certification

4.1.4.3.3 The coupling tests as specified in EI 1529 shall be performed for each hose grade, type, and manufacturer.

4.1.4.3.4 Each coupling of a coupled length of hose shall be permanently marked with a serial number corresponding to its hydrostatic test certificate.

4.1.4.3.5 The hose at the end of each coupling ferrule shall be permanently marked prior to hydrostatic testing to serve as a reference to determine whether a coupling has slipped during testing or while in service.

4.1.4.3.6* Lengths of hose shall not be spliced together.

4.1.4.3.7 Hydrostatic Testing. Hydrostatic testing shall be in accordance with ASTM D380.

4.1.4.3.7.1 Following a hydrostatic test, all the water shall be drained and the hose shall be dried internally.

4.1.4.3.7.2 Following a hydrostatic test, the open ends of the hose, including the threads of the couplings, shall be suitably covered to protect the threads and to prevent contamination.

4.1.4.3.7.3 A hose that is recoupled for any reason shall be hydrostatically tested and recertified to the same criteria as a newly coupled hose.

4.1.4.3.8 Hose shall be connected to rigid piping or coupled to a hose reel in a manner that prevents kinks or undue bending action or mechanical stress on the hose or hose couplings.

4.1.5 Electrostatic Hazards and Bonding.

4.1.5.1 A provision for bonding shall be incorporated in the design of fuel servicing vehicles or carts and airport fueling systems to prevent differences in electrostatic potential.

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4.1.5.2 The maximum resistance between the bonding cable clip and the fueling system framework shall not exceed 25 ohms.

4.1.5.3 Bonding cables shall be constructed of conductive, durable, and flexible material.

4.1.5.4 Bonding connections shall be electrically and mechanically firm.

4.1.5.5 Jacks, plugs, clamps, and connecting points shall be clean, unpainted metal to provide a positive electrical connection.

4.1.5.6 EI 1529 Type C hose (semiconductive) shall be used to prevent electrostatic discharges but shall not be used to accomplish required bonding.

4.1.5.7 EI 1529 Type A hose that does not have a semiconductive cover shall not be used.

4.1.5.8 EI 1529 Type F hose (hard wall) and EI 1529 Type GT hose (cold temperature) shall be permitted because they have semiconductive covers.

4.1.5.9* The design of airport fueling systems shall incorporate the provision of a 30-second relaxation period following the filter separator, monitors, or other filtration devices discharging into tanks.

4.1.5.9.1 The relaxation period required by 4.1.5.9 shall not apply to the actual refueling of an aircraft.

4.1.5.9.2 The relaxation period required by 4.1.5.9 shall not apply to fuels with static dissipater additives.

4.1.6 Electrical Systems. (Reserved)

4.1.7 Control of Fuel Flow. (Reserved)

4.1.8 Filters and Ancillary Equipment.

4.1.8.1 Filter vessels used in aviation fuel service shall have a functional automatic air vent (AAV) or automatic air eliminator (AAE).

4.1.8.2 The AAV or AAE shall discharge to a closed system.

4.1.9 Emergency Fuel Shutoff Systems. (Reserved)

4.1.10 Fire Extinguishers.

4.1.10.1* During fueling operations, fire extinguishers shall be available on aircraft servicing ramps or aprons, in accordance with NFPA 410.

4.1.10.2 All fire extinguishers shall conform to the requirements of NFPA 10.

4.1.10.3* ABC multipurpose dry chemical fire extinguishers (ammonium phosphate) shall not be placed on aircraft fueling vehicles, airport fuel servicing ramps or aprons, or at airport fuel facilities that are located within 150 m (500 ft) of aircraft operating areas.

4.1.11 Marking and Labeling.

4.1.11.1 Each emergency fuel shutoff station location shall be placarded EMERGENCY FUEL SHUTOFF in letters at least 50 mm (2 in.) high.

4.1.11.2 The method of operation shall be indicated by an arrow or by the word PUSH or PULL, as appropriate.

4.1.11.3 Any action necessary to gain access to the shutoff device (e.g., BREAK GLASS) shall be shown clearly.

4.1.11.4 Lettering shall be of a color contrasting sharply with the placard background for visibility.

4.1.11.5 Placards shall be weather resistant.

4.1.12 Aircraft Fueling Ramps.

4.1.12.1 Aircraft Radar Equipment.

4.1.12.1.1 Surveillance radar equipment in aircraft shall not be operated within 90 m (300 ft) of any fueling, servicing, or other operation in which flammable liquids, vapors, or mist could be present.

4.1.12.1.2 Weather-mapping radar equipment in aircraft shall not be operated while the aircraft in which it is mounted is undergoing fuel servicing.

4.1.12.2* Ground Radar Equipment.

4.1.12.2.1 Antennas of airport flight traffic surveillance radar equipment shall be located so that the beam will not be directed toward any fuel storage or loading racks within 90 m (300 ft).

4.1.12.2.2 Aircraft fuel servicing shall not be conducted within the 90 m (300 ft) distance established by 4.1.12.2.1.

4.1.12.2.3 Antennas of airport ground traffic surveillance radar equipment shall be located so that the beam will not be directed toward any fuel storage or loading racks within 30 m (100 ft).

4.1.12.2.4 Aircraft fuel servicing or any other operations involving flammable liquids or vapors shall not be conducted within 30 m (100 ft) of antennas of airport ground traffic surveillance radar equipment.

4.1.12.3 Emergency Fire Equipment Accessibility. Accessibility to aircraft by emergency fire equipment shall be considered in establishing aircraft fuel servicing positions.

4.1.12.4 Ramp and Apron Drainage. Aircraft servicing ramps or aprons shall be sloped and drained in accordance with NFPA 115.

4.1.12.4.1 The ramp or apron shall slope away from the rim or edge of fueling hydrants or fueling pits to prevent flooding.

4.1.12.4.2 Fueling hydrant boxes or fueling pits that are connected to a ramp drainage system shall be fitted with vapor-sealing traps.

4.2 Operations.

4.2.1 Security. (Reserved)

4.2.2 Training.

4.2.2.1* Only personnel trained in the safe operation of the equipment and the fuels they use, the operation of emergency controls, and the procedures to be followed in an emergency shall be permitted to handle fuel.

4.2.2.2* Fuel servicing personnel shall be trained in the use of the available fire-extinguishing equipment they could be expected to use.

4.2.3* Prevention and Control of Spills.

4.2.3.1 Following fueling of an aircraft or fuel servicing vehicle, all hoses shall be removed, including those from hydrant systems if applicable.

4.2.3.2 All hoses shall also be properly stowed.

4.2.3.3 Fuel nozzles shall not be dragged along the ground.

4.2.3.4 Approved pumps, either hand operated or power operated, shall be used where aircraft are fueled from drums.

4.2.3.4.1 Pouring or gravity flow shall not be permitted from a container with a capacity of more than 19 L (5 gal).

4.2.3.5 Fuel Spill Procedures.

4.2.3.5.1 Where a spill is observed, the fuel servicing shall be stopped immediately by release of the deadman controls.

4.2.3.5.2 In the event that a spill continues, the equipment emergency fuel shutoff shall be actuated.

4.2.3.5.3 In the event that a spill continues from a hydrant system, the system emergency fuel shutoff shall be actuated.

4.2.3.5.4 The supervisor shall be notified immediately.

4.2.3.5.5 Cleaning operations shall be performed by personnel trained in accordance with 4.2.2.1.

4.2.3.5.6 Operation shall not be resumed until the spill has been cleared and conditions are determined to be safe.

4.2.3.5.7 The airport fire crew, if established, or the local fire department serving the airport shall be notified if a spill covers over 3 m (10 ft) in any direction or is over 5 m² (50 ft²) in area, continues to flow, or is otherwise a hazard to persons or property.

4.2.3.5.8 The spill shall be investigated to determine the cause, to determine whether emergency procedures were properly carried out, and to determine the necessary corrective measures.

4.2.3.5.9 Corrective measures identified by the spill investigation shall be implemented as required by the authority having jurisdiction.

4.2.3.6 Transferring fuel by pumping from one tank vehicle to another tank vehicle within 61 m (200 ft) of an aircraft shall not be permitted.

4.2.3.7 Not more than one tank vehicle shall be permitted to be connected to the same aircraft fueling manifold, unless means are provided to prevent fuel from flowing back into a tank vehicle due to a difference in pumping pressure.

4.2.4 Emergency Fuel Shutoff.

4.2.4.1 Emergency fuel shutoff control stations shall be accessible at all times.

4.2.4.2 A procedure shall be established to notify the fire department serving the airport in the event of a control station activation.

4.2.4.3 If the fuel flow stops for an unknown reason, the emergency fuel shutoff system shall be checked first.

4.2.4.4 The cause of the shutoff shall be identified and corrected before fuel flow is resumed.

4.2.4.5 Emergency fuel shutoff systems shall be operationally checked at intervals not exceeding 6 months.

4.2.4.6 Each individual device shall be checked at least once during every 12-month period.

4.2.4.7 Suitable records shall be kept of tests required by this section.

4.2.5* Bonding.

4.2.5.1 Prior to making any fueling connection to an aircraft or fuel servicing vehicle, the fueling equipment shall be bonded to the aircraft or fuel servicing vehicle by use of a cable, thus providing a conducive path to equalize the potential between the fueling equipment and the aircraft.

4.2.5.1.1 The electrical bond shall be maintained until fueling connections have been removed, thus allowing separated charges that could be generated during the fueling operation to reunite.

4.2.5.1.2 Grounding for the sole purpose of aircraft fueling shall not be permitted.

4.2.5.2 Bonding for Overwing Fueling. In addition to the requirements in 4.2.5.1, where fueling overwing, the nozzle shall be bonded to a metallic component of the aircraft that is metallically connected to the tank filler port.

4.2.5.2.1 The bond connection shall be made before the filler cap is removed.

4.2.5.2.2 If a nozzle bond cable and plug receptacle or means for attaching a clip is available, the operator shall attach the nozzle bond cable before removing the cap in order to equalize the potential between the nozzle and the filler port.

4.2.5.2.3 If no plug receptacle or means for attaching a clip is available, the operator shall touch the filler cap with the nozzle spout before removing the cap in order to equalize the potential between the nozzle and the filler port.

4.2.5.2.4 The nozzle spout shall be kept in contact with the filler neck until the fueling is completed.

4.2.5.3 Where a funnel is used in aircraft fueling, it shall be kept in contact with the filler neck as well as the fueling nozzle spout or the supply container to avoid the possibility of a spark at the fill opening.

4.2.5.3.1* Only metal funnels shall be used.

4.2.5.4 Where a hydrant servicer or cart is used for fueling, the hydrant coupler shall be connected to the hydrant system prior to bonding the fuel equipment to the aircraft.

4.2.5.5 Bonding and fueling connections shall be disconnected in the reverse order of connection.

4.2.5.6 Conductive hose shall be used to prevent electrostatic discharge but shall not be used to accomplish required bonding.

4.2.6 Control of Fuel Flow.

4.2.6.1 Fuel flow shall be controlled by use of a deadman control device.

4.2.6.2 The use of any means that defeats the deadman control shall be prohibited.

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4.2.7 Fire Protection.

4.2.7.1* During fueling operations, fire extinguishers shall be available on aircraft servicing ramps or aprons, in accordance with NFPA 410.

4.2.7.2* Extinguishers shall be kept clear of elements such as ice and snow.

4.2.7.3 Extinguishers located in enclosed compartments shall be readily accessible, and their location shall be marked clearly in letters at least 50 mm (2 in.) high.

4.2.7.4 Fuel servicing personnel shall be trained in the use of the available fire-extinguishing equipment they could be expected to use. (*See A.4.2.2.2.*)

4.2.8 Maintenance.

4.2.8.1 Fuel servicing equipment shall be maintained in safe operating condition.

4.2.8.2 Malfunctioning equipment shall be removed from service.

4.2.8.3 Where a valve or electrical device is used for isolation during maintenance or modification of a fuel system, it shall be tagged and locked out.

4.2.8.4 The tag/lock shall not be removed until the operation is completed.

4.2.8.5 All inspection and maintenance activities shall be recorded.

4.2.8.6 Inspection and maintenance records shall be retained for a minimum of 12 months.

4.2.9* Aircraft Fueling Hose. Any hose found to be defective, in accordance with 4.2.9.1 through 4.2.9.4, shall be removed from service.

4.2.9.1 Suitable records shall be kept of required inspections and hydrostatic tests.

4.2.9.2 Aircraft fueling hose shall be removed from service after 10 years from the date of manufacture.

4.2.9.3 Aircraft fueling hose not placed into service within 2 years of the date of manufacture shall not be used.

4.2.9.4 Daily Inspection. Aircraft fueling hose shall be inspected before use each day.

4.2.9.4.1 The hose shall be extended as it normally would be for fueling.

4.2.9.4.2 The hose shall be checked for evidence of any of the following defects:

- (1) Blistering
- (2) Carcass saturation or separation
- (3) Exposure of the reinforcement material
- (4) Slippage, misalignment, or leaks at couplings

4.2.9.5 Monthly Inspection. At least once each month the hose shall be completely extended and inspected as required in 4.2.9.4 and 4.2.9.5.

4.2.9.5.1* The hose couplings and the hose shall be examined for structural weakness or soft spots.

4.2.9.5.2 With the hose completely extended, it shall be pressurized to the working pressure of the fueling equipment to

which it is attached and checked for defects, such as abnormal twisting or blistering.

4.2.9.6 Quarterly Inspection.

4.2.9.6.1 The nozzle screens shall be examined for evidence of hose deterioration.

4.2.9.7 Kinks or short loops in fueling hose shall be avoided.

4.2.10* Lightning. A written procedure shall be established to set the criteria for when and where fueling operations are to be suspended at each airport as approved by the fueling agent and the airport authority.

4.2.11 Aircraft Fuel Servicing.

4.2.11.1 Location of Aircraft During Fuel Servicing.

4.2.11.1.1 Aircraft fuel servicing shall be performed outdoors.

4.2.11.1.2 Aircraft fuel servicing incidental to aircraft fuel system maintenance operations shall comply with the requirements of NFPA 410.

4.2.11.1.3* Aircraft being fueled shall be positioned so that aircraft fuel system vents or fuel tank openings are not closer than 7.6 m (25 ft) to any terminal building, hangar, service building, or enclosed passenger concourse other than a loading walkway.

4.2.11.1.4 Aircraft being fueled shall be positioned so that the vent or tank openings are not closer than 15 m (50 ft) of any combustion and ventilation air intake to any boiler, heater, or incinerator room.

4.2.11.1.5 Accessibility to aircraft by emergency fire equipment shall be maintained for aircraft fuel servicing positions.

4.2.11.2 Aircraft Occupancy During Fuel Servicing.

4.2.11.2.1 If passengers remain on board an aircraft during fuel servicing, at least one qualified person trained in emergency evacuation procedures shall be in the aircraft at or near a door at which there is a passenger loading walkway, integral stairs that lead downward, or a passenger loading stair or stand.

4.2.11.2.1.1 A clear area for emergency evacuation of the aircraft shall be maintained at not less than one additional exit.

4.2.11.2.1.2 Where fueling operations take place with passengers on board away from the terminal building, and stairways are not provided, such as during inclement weather (diversions), all slides shall be armed and the aircraft rescue and fire fighting (ARFF) services shall be notified to respond in standby position in the vicinity of the fueling activity with at least one vehicle.

4.2.11.2.1.3 Aircraft operators shall establish specific procedures covering emergency evacuation under such conditions for each type of aircraft they operate.

4.2.11.2.1.4 All “no smoking” signs shall be displayed in the cabin(s), and the no smoking rule shall be enforced.

4.2.11.2.2 For each aircraft type, aircraft operators shall determine the areas through which it could be hazardous for boarding or deplaning passengers to pass while the aircraft is being fueled.

4.2.11.2.2.1 Controls shall be established so that passengers avoid such areas.

4.2.12 Fire Hazards on Aircraft Fuel Servicing Ramps.

4.2.12.1* Electrical Equipment Operated on Aircraft Fuel Servicing Ramps or Aprons.

4.2.12.1.1 Battery chargers on any fueling equipment shall not be connected or disconnected while fuel servicing is performed on an aircraft.

4.2.12.1.2* Aircraft ground-power generators or other electrical ground-power supplies shall not be connected or disconnected while fuel servicing is performed on the aircraft.

4.2.12.1.3 Electric tools or similar tools likely to produce sparks or arcs shall not be used while fuel servicing is performed on an aircraft.

4.2.12.1.4 Other than aircraft fuel servicing vehicles, battery-powered vehicles that do not comply with the provisions of this standard shall not be operated within 3 m (10 ft) of fueling equipment or spills.

4.2.12.1.5* Communication equipment located outside of the cab of fuel servicing vehicles and used during aircraft fuel servicing operations within 3 m (10 ft) of the fill or vent points of aircraft fuel systems shall be listed as intrinsically safe for Class I, Division 1, Group D hazardous (classified) locations in accordance with ANSI/UL 913.

4.2.12.2 Open Flames on Aircraft Fuel Servicing Ramps.

4.2.12.2.1 Entrances to fueling areas shall be posted with "no smoking" signs.

4.2.12.2.2 Open flames on aircraft fuel servicing ramps or aprons within 15 m (50 ft) of any aircraft fuel servicing operation or fueling equipment shall be prohibited.

4.2.12.2.3 The category of open flames and lighted open-flame devices shall include, but shall not be limited to, the following:

- (1) Lighted cigarettes, cigars, or pipes
- (2) Electronic cigarettes (e.g., personal vaporizers or electronic nicotine delivery systems)
- (3) Exposed flame heaters, liquid, solid, or gaseous devices, including portable and wheeled gasoline or kerosene heaters
- (4) Heat-producing welding or cutting devices and blowtorches
- (5) Flame pots or other open-flame lights

4.2.12.2.4 The authority having jurisdiction can establish other locations where open flames and open-flame devices shall not be permitted.

4.2.12.2.5 Personnel shall not carry lighters, matches, or electronic cigarettes on their person while engaged in fuel servicing operations.

4.2.12.2.6 Lighters, matches, or electronic cigarettes shall not be permitted on or in fueling equipment.

4.2.12.2.7 Equipment performing aircraft servicing functions shall not be positioned within a 3 m (10 ft) radius of aircraft fuel system vent openings.

4.2.12.3 Operation of Aircraft Engines and Heaters.

4.2.12.3.1 Fuel servicing shall not be performed on a fixed wing aircraft while an onboard engine is operating, except as permitted by 4.2.12.3.2 or 4.2.14.

4.2.12.3.2 Aircraft auxiliary power units (APUs) that direct exhaust away from the fueling operation shall be permitted to operate during fuel servicing.

4.2.12.3.3 Combustion heaters on aircraft (e.g., wing and tail surface heaters, integral cabin heaters) shall not be operated during fueling operations.

4.2.13 Defueling of Aircraft.

4.2.13.1 All requirements of this standard shall apply to defueling operations.

4.2.13.2 Each operator shall establish procedures to prevent the overfilling of the tank vehicle, which is a special hazard when defueling.

4.2.14 Rapid Refueling.

4.2.14.1 Rapid refueling of aircraft shall be limited to the following aircraft types:

- (1) Helicopters
- (2) Agricultural aircraft actively engaged in aerial application duties
- (3) Medical aircraft actively engaged in the transport of medical patients
- (4) Fire-fighting and search-and-rescue aircraft actively engaged in emergency operations

4.2.14.2 Only turbine engine aircraft fueled with JET A or JET A-1 fuels shall be permitted to be fueled while an onboard engine is operating.

4.2.14.3 Aircraft permitted to be fueled while an onboard engine is operating shall have all sources of ignition of potential fuel spills located above the fuel inlet port(s) and above the vents or tank openings, including but not limited to the following:

- (1) Engines
- (2) Exhausts
- (3) Auxiliary power units (APUs)
- (4) Combustion-type cabin heater

4.2.14.4 Aircraft fueling while onboard engines are operating shall be permitted only under the following conditions:

- (1) A pilot licensed by the appropriate governmental body shall be at the aircraft controls during the entire fueling operation.
- (2) All passengers shall be deboarded to a safe location prior to rapid refueling operations, except as permitted in 4.2.14.4(3).
- (3) Patients on board medical transport aircraft shall be permitted to remain on board the aircraft with medical personnel during rapid refueling operations if, in the opinion of the medical provider, removal from the aircraft would be detrimental to the patient's condition.
- (4) Passengers shall not board or deboard during rapid refueling operations.
- (5) Only designated personnel, properly trained in rapid refueling operations, shall operate the equipment. Written procedures shall include the safe handling of the fuel and equipment.
- (6) All doors, windows, and access points allowing entry to the interior of the aircraft that are adjacent to, or in the immediate vicinity of, the fuel inlet ports shall be closed and shall remain closed during refueling operations.

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- (7) Fuel shall be permitted to be dispensed by one of the following methods:
 - (a) Into an open port from approved deadman-type nozzles with a flow rate not to exceed 227 L/min (60 gpm)
 - (b) Through close-coupled pressure fueling ports
- (8) Where fuel is dispensed from fixed piping systems, the hose cabinet shall not extend into the rotor space.
- (9) Clearance between aircraft fuel servicing vehicles and rotating components shall be maintained by one of the following methods:
 - (a) A curb or other approved barrier shall be provided to restrict the fuel servicing vehicle from coming within 3 m (10 ft) of any aircraft rotating components.
 - (b) Fuel servicing vehicles shall be kept 6 m (20 ft) away from any aircraft rotating components, and a trained person shall direct fuel servicing vehicle approach and departure.

Chapter 5 Aviation Fueling Facilities

5.1 Design and Construction.

5.1.1 General Requirements.

5.1.1.1 Each installation shall be designed and installed in conformity with the requirements of this standard and with any additional fire safety measures deemed necessary by the authority having jurisdiction.

5.1.1.2 The system and each of its components shall be designed for the working pressure of the system.

5.1.1.3 The emergency fuel shutoff system shall be designed and installed as an integral part of the airport fuel system.

5.1.1.4 Operating controls for emergency fuel shutoff of the system shall be located to be readily accessible in the event of an accident or spill.

5.1.1.5 In establishing each aircraft fuel dispensing location, consideration shall be given to the accessibility of the location in an emergency by fire-fighting personnel and equipment.

5.1.1.6 System Design and Approval.

5.1.1.6.1 Design Approval. Work shall not be started on the construction or alteration of an airport fuel system until the design, plans, and specifications have been approved by the authority having jurisdiction.

5.1.1.6.2 System Approval. The authority having jurisdiction shall inspect and approve the completed system before it is put into service.

5.1.1.6.3 Hydrostatic Test.

5.1.1.6.3.1 After completion of the installation (including fill and paving), new airport fuel piping systems shall be subjected to a temperature-compensated hydrostatic test pressure equal to 150 percent of the system working pressure for at least 4 hours and shall be proven tight before the system is placed into service.

5.1.1.6.3.2 For additions or modifications to existing airport fuel piping systems, hydrostatic testing of new piping prior to final tie-in to existing piping shall be permitted, with final

closure (tie-in) welds examined in-process in accordance with ASME B31.3.

5.1.2 Fuel Storage Tanks.

5.1.2.1* Fuel storage tanks shall conform to the applicable requirements of NFPA 30.

5.1.2.2 The authority having jurisdiction shall determine the clearances required from runways, taxiways, and other aircraft movement and servicing areas to any aboveground fuel storage structure or fuel transfer equipment, with due recognition given to national and international standards establishing clearances from obstructions.

5.1.3 Pumps and Piping Systems.

5.1.3.1 Underground piping or impact-protected above-ground piping shall be used in the vicinity of aircraft operating areas.

5.1.3.2 Piping shall be laid on firm supports using clean, noncorrosive backfill.

5.1.3.3 Transfer piping located within buildings not specifically designed for the purpose of fuel transfer shall be located within a steel casing of a pressure rating equal to that of the carrier pipe.

5.1.3.3.1 The casing shall extend beyond the building.

5.1.3.3.2 The casing shall terminate at a low point(s) with an automatic leak detection system.

5.1.3.3.3 The casing shall be capable of being drained to a safe location.

5.1.3.4 Piping, valves, and fittings shall be of steel or stainless steel, suitable for aviation fuel service and designed for the working pressure and mechanically and thermally produced structural stresses to which they could be subjected and shall comply with ASME B31.3.

5.1.3.5 Cast-iron, copper, copper alloy, and galvanized steel piping, valves, and fittings shall not be permitted.

5.1.3.6 Ductile iron valves shall be permitted.

5.1.3.7 Aluminum piping, valves, and fittings shall be used only where specifically approved by the authority having jurisdiction.

5.1.3.8 In the selection of pipe, valves, and fittings, the following shall be considered:

- (1) Working pressure
- (2) Bending and mechanical strength requirements (including settlement)
- (3) Internal and external corrosion
- (4) Impact stresses
- (5) Method of system fabrication and assembly
- (6) Location of piping and accessibility for repair or replacement
- (7) Exposure to mechanical, atmospheric, or fire damage
- (8) Expected period of service and effect of future operations

5.1.3.9 Gaskets in flanged connections shall resist fire temperatures for a duration comparable to the temperature resistance of the flange and bolts.

5.1.3.10 Flanges and their associated bolts shall be steel or stainless steel.

5.1.3.10.1 Flanges shall be rated to the ANSI pressure class suitable to the fuel system working pressures but in no cases shall be less than Class 150.

5.1.3.10.2* Joints [and flanges] shall be installed so that the mechanical strength of the joint will not be impaired if exposed to fire. [30:27.5.1.2]

5.1.3.11 Allowances shall be made for thermal expansion and contraction by the use of pipe bends, welded elbows, or other flexible design.

5.1.3.12 Pressure relief valves shall be provided in lines that can be isolated.

5.1.3.13 Welded joints shall be made by qualified welders in accordance with the standards of the American Welding Society and ANSI/ASME B31.3.

5.1.3.14* Isolation valves or devices shall be provided to facilitate dismantling portions of the fueling system.

5.1.3.15 Isolation valves shall be capable of being locked closed.

5.1.3.16 Buried flanges and valves shall not be permitted.

5.1.3.17* All fueling systems with underground piping shall have cathodic protection to mitigate corrosion.

5.1.3.18 A heat-actuated shutoff valve shall be provided in the piping immediately upstream of loading hoses or swing arm connections.

5.1.4 Hose and Nozzles. (Reserved)

5.1.5 Bonding. (Reserved)

5.1.6 Electrical Systems.

5.1.6.1 Electrical Equipment. All electrical equipment and wiring shall comply with the requirements of *NFPA 70*, Article 515, utilizing the Class I liquids requirements for all applications.

5.1.7 Control of Fuel Flow.

5.1.7.1* Deadman Controls.

5.1.7.1.1 The valve that controls the flow of fuel to an aircraft or fueling vehicle shall have a deadman control.

5.1.7.1.2 The fuel flow control means shall be one of the following:

- (1) The hydrant pit valve
- (2) At the feed-side of the fueling hose
- (3) A separate valve on the fuel piping system
- (4) On the hose nozzle for overwing servicing
- (5) An electronic control to stop the pump

5.1.7.1.3 Deadman controls shall be designed to preclude defeating their intended purpose.

5.1.7.2 Pressure Fuel Servicing System Controls.

5.1.7.2.1 The system shall be designed to minimize surge pressure.

5.1.7.2.2* The overshoot shall not exceed 5 percent of actual flow rate in L/min (gal/min) at the time the deadman is released.

5.1.7.2.3 The control valve shall be located and designed so that it will not be rendered inoperative by a surface accident, power failure, or spill.

5.1.7.2.4 The control valve shall be fail-safe by closing completely in the event of control power loss.

5.1.7.3* Hydrant Valves. Hydrant valves shall be designed so that the flow of fuel shall shut off when the hydrant coupler is closed.

5.1.7.3.1 Hydrant valves shall be of the self-closing, dry-break type.

5.1.7.4 Flow Control Valves. The flow control valve shall be an integral part of the hydrant valve or coupler.

5.1.7.4.1 The fuel control valve shall be arranged so that it is not rendered inoperative by a surface accident, spill, or malfunction and shall shut off the flow of fuel if the operating energy fails.

5.1.7.4.2 The fuel control system shall be designed to minimize overshoot.

5.1.7.4.3 The system shall be designed to shut off fuel flow quickly and effectively, even if there is a reduction of pressure downstream of the flow control valve such as could result from a major line or hose break.

5.1.7.4.4 A screen shall be provided ahead of the valve to trap foreign material that could interfere with complete closure of the valve.

5.1.7.4.5 The hydrant valve that allows the flow of fuel to the aircraft shall have a deadman control.

5.1.7.4.6 The use of any means that allows fuel to flow without the operator activating the deadman shall not be permitted.

5.1.7.4.7 The deadman control shall be arranged so that the fueling operator can observe the operation while activating the control.

5.1.7.4.8 Wireless deadman controls shall be permitted.

5.1.7.5* Fuel Pressure. The pressure of the fuel delivered to the aircraft shall be automatically controlled so that it is not higher than that specified by the manufacturer of the aircraft being serviced.

5.1.8 Filters and Ancillary Equipment.

5.1.8.1 All sections of the filtering system shall have electrical continuity with adjoining piping and equipment.

5.1.8.2 In freezing climates, filter separator sumps and associated piping that could contain water shall be protected to prevent freezing and bursting.

5.1.8.3 Heaters shall be constructed of noncorrosive materials.

5.1.8.4 Piping, valves, meters, filters, air eliminators, connections, outlets, fittings, and other components shall be designed to meet the working pressure requirements of the system.

5.1.9 Emergency Fuel Shutoff Systems.

5.1.9.1 Each tank vehicle loading station shall be provided with an emergency fuel shutoff system, in addition to the deadman control required by 5.1.7.4.

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5.1.9.2 The emergency fuel shutoff system shall shut down the flow of fuel in the entire system or in sections of the system.

5.1.9.3 The emergency fuel shutoff system shall be of a fail-safe design.

5.1.9.4* The method of fuel transfer (gravity, pumping, or use of hydraulic or inert gas pressure) shall be considered in the design of the emergency fuel shutoff system and the location of the emergency fuel shutoff valve.

5.1.9.5 The emergency fuel shutoff system shall include shutoff stations located outside of probable spill areas and near the route that normally is used to leave the spill area or to reach the fire extinguishers provided for the protection of the area.

5.1.9.6* At least one emergency shutoff control station shall be accessible to each fueling vehicle loading position or aircraft fueling position.

5.1.9.7 The emergency fuel shutoff system shall be designed so that operation of a station shuts off fuel flow to all hydrants that have a common exposure.

5.1.9.8 Emergency fuel shutoff systems shall be designed so that they shut off the flow of fuel if the operating power fails.

5.1.9.9 Emergency fuel shutoffs shall not be located beneath piping, pumps, vents, or other components containing fuel or fuel vapors.

5.1.10 Fire Protection. At least one fire extinguisher with a minimum rating of 40-B:C and a minimum capacity of 9.0 kg (20 lb) of dry chemical agent shall be provided at each fueling vehicle loading position or rack.

5.1.11 Marking and Labeling.

5.1.11.1 Emergency fuel shutoff signs shall be located at least 2.1 m (7 ft) above grade, measured to the bottom of the placard.

5.1.11.2 Emergency fuel shutoff signs shall be positioned so that they can be seen readily from a distance of at least 15.2 m (50 ft).

5.1.11.3 Systems provided with impressed current cathodic protection shall have appropriate signs, located at points of entry, warning against separation of units without prior de-energization or without proper jumpers across the sections to be disconnected.

5.1.11.4 Fuel storage tanks shall be labelled in accordance with the requirements of NFPA 704.

5.1.11.5 Fuel transfer piping shall be marked in accordance with EI 1542 as to the product type conveyed through the pipe and the proper direction of flow of the product.

5.1.12 Aircraft Fuel Servicing Vehicle Loading and Unloading Racks.

5.1.12.1 The loading rack shall be equipped with an automatic shutdown system that stops the tank loading operation when the fuel servicing vehicle tank is full.

5.1.12.2 All fuel servicing tank vehicle primary shutdown systems shall be compatible with the system utilized at the loading rack.

5.1.12.3 The automatic secondary shutoff control shall not be used for normal filling control.

5.1.12.4 New and existing loading systems shall comply with 5.1.12.1 through 5.1.12.3 within 5 years of the effective date of this edition.

5.1.13 Fuel Servicing Hydrants, Pits, and Cabinets.

5.1.13.1 Fueling hydrants and fueling pits that are recessed below a ramp or apron surface and are subject to vehicle or aircraft traffic shall be fitted with a cover designed to sustain the load of vehicles or aircraft that taxi over all or part of them.

5.1.13.2 Fueling hydrants, cabinets, and pits shall be located at least 15.2 m (50 ft) from any terminal building, hangar, service building, or enclosed passenger concourse (other than loading bridges).

5.2 Operations.

5.2.1* Security. Access to fuel storage and fuel vehicle loading areas shall be secured.

5.2.2 Personnel. (Reserved)

5.2.3 Prevention and Control of Spills. (Reserved)

5.2.4 Emergency Fuel Shutoff. (Reserved)

5.2.5 Bonding. (Reserved)

5.2.6 Control of Fuel Flow. If a wireless deadman control is used, the operator shall be located at the fueling point during the fueling operation.

5.2.7 Fire Protection. During fueling operations, fire extinguishers shall be available on aircraft servicing ramps or aprons, in accordance with NFPA 410.

5.2.8 Maintenance. (Reserved)

5.2.9 Aircraft Fueling Hose. (Reserved)

Chapter 6 Airport Fueling Vehicles

6.1 Design and Construction.

6.1.1 General Requirements.

6.1.1.1 Aircraft fuel servicing tank vehicles that are operated on public roadways shall comply with the requirements of NFPA 385.

6.1.1.2 In addition to any specific requirements in this chapter, only materials safe for use in the service intended and compatible with fuel applications shall be used in the construction of aircraft fuel servicing vehicles and hydrant fuel service carts.

6.1.1.3 Magnesium shall not be used in the construction of any portion of an aircraft fuel servicing vehicle or cart.

6.1.1.4 Trailer connections shall be designed to secure the trailer firmly and to prevent the towed vehicle from swerving from side to side at the speeds anticipated so that the trailer essentially remains in the path of the towing vehicle.

6.1.2 Tanks.

6.1.2.1 Every cargo tank shall be supported by and attached to, or shall be a part of, the tank vehicle upon which it is carried in accordance with NFPA 385.

6.1.2.2 Cargo tanks shall be constructed in accordance with 49 CFR 178.345, DOT 406, or other equivalent standard for international application.

6.1.2.3 Aluminum alloys for high-strength welded construction shall be joined by an inert gas arc welding process using filler metals R-GR40A, E-GR40A (5154 alloy), R-GM50A, and E-GM50A (5356 alloy) in accordance with AWS A5.10.

6.1.2.4 Tank outlets shall be of substantial construction.

6.1.2.5 Tank outlets shall be attached securely to the tank.

6.1.2.6 Baffles. Every cargo tank or compartment over 2.3 m (7.5 ft) long shall be provided with baffles, the total number of which shall be such that the distance between any two adjacent baffles, or between any tank head or bulkhead and the baffle closest to it, shall in no case exceed 1.5 m (5 ft).

6.1.2.6.1 The cross-sectional area of each baffle shall be not less than 80 percent of the cross-sectional area of the tank.

6.1.2.6.2 The thickness of a baffle shall be not less than that required for the heads and bulkheads of the cargo tank in which it is installed.

6.1.2.7 Venting shall be in accordance with 49 CFR, DOT 406.

6.1.2.8 Cargo draw-off valves or faucets projecting beyond the frame of a tank vehicle shall be protected against damage.

6.1.2.9 Fill Openings and Top Flashings.

6.1.2.9.1 Dome covers shall be provided with a forward mounted hinge and self-latching catches and shall be fitted with watertight fuel-resistant seals or gaskets designed to prevent spillage or leakage from overturn and to prevent water entry.

6.1.2.9.2 Dome covers shall automatically close and latch with the forward motion of the vehicle.

6.1.2.9.3 Drains from top flashing shall divert spilled fuel from possible sources of ignition, including the engine, the engine exhaust system, the electrical equipment, or an auxiliary equipment enclosure.

6.1.2.9.4 The tank fill openings shall be protected against overturn damage by a rigid member(s) fixed to the tank and extending a minimum of 25 mm (1 in.) above any dome cover, handle, vent opening, or projection of the unit.

6.1.2.9.5 Overturn protection shall be braced adequately to prevent collapse.

6.1.2.9.6 Overturn protection shall be designed to channel rainwater, snow, or fuel to the exterior of the cargo tank and away from vehicle exhaust components.

6.1.2.10 Tanks for Flammable Liquids Other than Fuel. Vehicle or cart fuel tanks and containers for other flammable liquids shall be made of metal and shall be designed, constructed, and located in a manner that precludes hazardous arrangements.

6.1.2.10.1 Tanks shall be substantially protected by their location.

6.1.2.10.2 Fill pipes shall not project beyond the vehicle profile.

6.1.2.10.3 Tanks and containers shall vent away from sources of ignition during filling.

6.1.2.10.4 Any arrangement not protected by location shall be listed for such use.

6.1.2.10.5 The fuel tank arrangement shall allow for drainage without the tank's removal from its mountings.

6.1.2.11 Tests. Cargo tanks, at the time of manufacture, shall be tested by a minimum air or hydrostatic pressure of 24.4 kg/m² (5 psi) applied to the whole tank (or each compartment thereof if the tanks are compartmented) for a period of at least 5 minutes.

6.1.2.11.1 If the test is by air pressure, the entire exterior surface of all joints shall be coated with a solution of soap and water, heavy oil, or other substance that causes foaming or bubbling that indicates the presence of leaks.

6.1.2.11.2 If the test is by hydrostatic pressure, it shall be gauged at the top of the tank, and the tank shall be inspected at the joints for the issuance of liquid to indicate leaks.

6.1.2.11.3 Any leakage discovered by either of the methods described in 6.1.2.11.1 and 6.1.2.11.2, or by any other method, shall be considered evidence of failure to meet these requirements.

6.1.3 Pumps and Piping System.

6.1.3.1 All portions of the flammable liquid feed system shall be constructed and located to minimize the fire hazard.

6.1.3.2 Piping and plumbing shall be made of materials not adversely affected by the fluid or by other materials likely to be encountered.

6.1.3.3 Piping and plumbing shall be of adequate strength for the purpose.

6.1.3.4 Piping and plumbing shall be secured to avoid chafing or undue vibration.

6.1.3.5 Piping and plumbing shall be supported adequately.

6.1.3.6 Product piping shall be metal and rated for the system working pressure or at least 1030 kPa (150 psi), whichever is greater.

6.1.3.7 Except as provided in 6.1.3.8, all joints shall be welded.

6.1.3.8 Flanged connections or approved couplings shall be provided to avoid the need for cutting and welding where components are serviced or replaced.

6.1.3.9 Gaskets in flanged connections shall be of a material and design that resist fire exposure for a time comparable to the flange and bolts.

6.1.3.10 Gravity feed systems shall not be used.

6.1.3.11 At the time of manufacture, the section of the fuel dispensing system that is under pressure during service shall be subjected to a hydrostatic test pressure equal to 150 percent of the working pressure of the system for at least 30 minutes and shall be proven tight before it is placed in service.

6.1.3.11.1 Hose connections shall be permitted to be plugged during this test.

6.1.3.12 Loading System.

6.1.3.12.1 Top Loading.

6.1.3.12.1.1 Drop tubes shall be used.

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6.1.3.12.1.2 Splash filling shall be prohibited.

6.1.3.12.1.3 Drop tubes used in top loading or overhead loading of tank vehicles shall be designed to minimize turbulence.

6.1.3.12.1.4 Drop tubes shall be metallic.

6.1.3.12.1.5 Drop tubes shall extend to the bottom of the tank or to the inside of the sump to maintain submerged loading and to avoid splashing of the fuel.

6.1.3.12.2 Bottom Loading.

6.1.3.12.2.1 The bottom-loading connection of a tank truck shall be a dry-break coupler that cannot be opened until it is engaged to the vehicle tank adapter.

6.1.3.12.2.2 It shall not be possible to disconnect the hose coupler from the tank vehicle until the coupler valve is fully closed.

6.1.3.12.2.3* The bottom loading fitting of the tank vehicle shall be a spring-loaded check valve that remains in a closed position until opened by connecting the coupler.

6.1.3.12.2.4 A float-actuated shutoff or other automatic sensing device shall be provided to close the bottom-loading valve when the tank is filled.

6.1.3.12.2.5 Any liquid bled from a sensing device during loading shall be piped to the bottom of the cargo tank.

6.1.3.12.2.6 The fill pipe and valving on bottom-loaded tank vehicles shall be arranged to prevent fuel spray and turbulence in the cargo tank.

6.1.3.12.2.7 The cargo tank vehicle shall be equipped with an automatic primary shutdown system that stops the tank loading operation when the tank is full, unless an automatic shutdown is provided on the loading rack in accordance with 5.1.12.

6.1.3.12.2.8 The cargo tank vehicle shall be equipped with an automatic secondary shutdown system that stops the tank loading operation when the tank is full.

6.1.3.12.2.9 The automatic secondary shutoff control shall not be used for normal filling control.

6.1.3.13 Each outlet valve shall be provided with a fusible device that causes the valve to close automatically in case of fire.

6.1.3.14 A shear section shall be provided between shutoff valve seats and discharge outlets that breaks under strain, unless the discharge piping is arranged to afford the same protection and leave the shutoff valve seat intact.

6.1.3.15 Openings in cargo tank compartments that are connected to pipe or tubing shall be fitted with a spring-loaded check valve, a self-closing valve, or a similar device to prevent the accidental discharge of fuel in case of equipment malfunction or line breakage.

6.1.3.15.1 Unless the valves required in 6.1.3.15 are located inside the tank, they shall be equipped with a shear section as described in 6.1.3.14.

6.1.3.16 The operating mechanism for each tank outlet valve shall be adjacent to the fuel delivery system operating controls.

6.1.3.16.1 The operating mechanism for each tank outlet valve shall be arranged so that the outlet valve(s) can be closed

simultaneously and instantly in the event of a fire or other emergency.

6.1.3.16.2 A means shall be provided to assure proper operation.

6.1.4 Hose and Nozzles. (Reserved)

6.1.5 Bonding.

6.1.5.1 All metallic components and vehicle or cart chassis shall be electrically bonded to prevent a difference in their electrostatic potential.

6.1.5.2 Such bonding shall be inherent to the installation or by physical application of a suitable bonding mechanism.

6.1.5.3 A provision shall be provided on the vehicle to bond the tank to a fill pipe or loading rack as specified in 6.2.11.10.1.

6.1.5.4 Cables shall be provided on the vehicle or cart to allow the bonding operations specified in 4.2.5.

6.1.6 Electrical System.

6.1.6.1 Battery Compartments. Batteries that are not in engine compartments shall be securely mounted in compartments to prevent accidental arcing.

6.1.6.1.1 The compartment shall be separate from fueling equipment.

6.1.6.1.2 Suitable shielding shall be provided to drain possible fuel spillage or leakage away from the compartment.

6.1.6.1.3 The compartment shall be provided with a vent at the top of the compartment.

6.1.6.2 Wiring. Wiring shall be of adequate size to provide the required current-carrying capacity and mechanical strength.

6.1.6.2.1 Wiring shall be installed to provide protection from physical damage and from contact with spilled fuel either by its location or by enclosing it in metal conduit or other oil-resistant protective covering.

6.1.6.2.2 All circuits shall have overcurrent protection.

6.1.6.2.3 Junction boxes shall be weatherproofed.

6.1.6.2.4 The vehicle shall be equipped with a battery disconnect switch.

6.1.6.3 Spark plugs and other exposed terminal connections shall be insulated to prevent sparking in the event of contact with conductive materials.

6.1.6.4* Motors, alternators, generators, and their associated control equipment located outside of the engine compartment or vehicle cab shall be of a type listed for use in accordance with *NFPA 70*, Class I, Division 1, Group D locations.

6.1.6.5 Electrical equipment and wiring located within a closed compartment shall be of a type listed for use in accordance with *NFPA 70*, Class I, Division 1, Group D locations.

6.1.6.6 Lamps, switching devices, and electronic controls, other than those covered in 6.1.6.4 and 6.1.6.5, shall be of the enclosed, gasketed, weatherproof type.

6.1.6.7 Other electrical components not covered in 6.1.6.4 through 6.1.6.6 shall be of a type listed for use in accordance with *NFPA 70*, Class I, Division 2, Group D locations.

6.1.6.8 Electronic equipment shall not be installed in compartments with other equipment that can produce flammable vapors, unless permitted by *NFPA 70*.

6.1.6.9 Tractor Trailer Wiring. Electrical service wiring between a tractor and trailer shall be designed for heavy-duty service.

6.1.6.9.1 The connector shall be of the positive-engaging type.

6.1.6.9.2 The trailer receptacle shall be mounted securely.

6.1.7 Control of Fuel Flow.

6.1.7.1* The valve that controls the flow of fuel to an aircraft shall have a deadman control.

6.1.7.2 The fuel flow control valve shall be one of the following:

- (1) The hydrant pit valve
- (2) At the tank outlet on a tank vehicle
- (3) A separate valve on the tank vehicle
- (4) On the hose nozzle for overwing servicing

6.1.7.3 Deadman controls shall be designed to preclude defeating their intended purpose.

6.1.7.4 Pressure Fuel Servicing System Controls.

6.1.7.4.1 The system shall be designed to minimize surge pressure.

6.1.7.4.2* The overshoot shall not exceed 5 percent of actual flow rate in L/min (gal/min) at the time the deadman is released.

6.1.7.4.3 The control valve shall be located and designed so that it will not be rendered inoperative by a surface accident, power failure, or spill.

6.1.7.4.4 The control valve shall be fail-safe by closing completely in the event of control power loss.

6.1.7.5 On tank full trailer or tank semitrailer vehicles, the use of a pump in the tractor unit with flexible connections to the trailer shall be prohibited unless one of the following conditions exists:

- (1) Flexible connections are arranged above the liquid level of the tank in order to prevent gravity or siphon discharge in case of a break in the connection or piping.
- (2) The cargo tank discharge valves required by 6.1.7.1 are arranged to be normally closed and to open only when the brakes are set and the pump is engaged.

6.1.7.6 Air Elimination. Aircraft fuel servicing tank vehicles having a positive displacement product pump shall be equipped with a product tank low-level shutdown system that prevents air from being ingested into the fueling system.

6.1.8 Filters and Ancillary Equipment.

6.1.8.1 Cabinets.

6.1.8.1.1 All cabinets, other than those housing electronic equipment, shall be vented to prevent the accumulation of fuel vapors. (See 6.1.6.)

6.1.8.1.2 All cabinets, other than those housing electronic equipment, shall be constructed of noncombustible materials. (See 6.1.6.)

6.1.8.2 Product Recovery Tanks. The refueling system product recovery tank shall be equipped with a control that shuts down the vehicle's fuel dispensing system when the refueling system product recovery tank is three-quarters full.

6.1.9 Emergency Fuel Shutoff Systems.

6.1.9.1 The vehicle shall have at least two emergency shutoff controls, one mounted on each side of the vehicle.

6.1.9.2 The emergency fuel shutoff controls shall be quick-acting to close the outlet valve in case of emergency.

6.1.9.3 The emergency fuel shutoff controls shall be remote from the fill openings and discharge outlets and shall be operable from a ground level standing position.

6.1.9.4 All vehicles or cars equipped with a top deck or elevating platform shall have an additional emergency shutoff control operable from the deck or platform.

6.1.10 Fire Protection.

6.1.10.1 Each aircraft fuel servicing tank vehicle shall have two listed fire extinguishers, each having a rating of at least 40-B:C and a minimum capacity of 9.0 kg (20 lb) of dry chemical agent, with one extinguisher mounted on each side of the vehicle.

6.1.10.2 One listed fire extinguisher having a rating of at least 40-B:C and a minimum capacity of 9.0 kg (20 lb) of dry chemical agent shall be installed on each hydrant fuel servicing vehicle or cart.

6.1.10.3 Extinguishers shall be readily accessible from the ground.

6.1.10.4 The area of the paneling or tank adjacent to or immediately behind the extinguisher(s) on fueling vehicles or carts shall be painted a color contrasting with that of the extinguisher.

6.1.10.5 Extinguishers shall be kept clear of elements such as ice and snow.

6.1.10.6 Extinguishers located in enclosed compartments shall be readily accessible.

6.1.10.7 The locations of extinguishers in enclosed compartments shall be marked clearly in letters of a contrasting color at least 50 mm (2 in.) high.

6.1.10.8 Smoking Equipment.

6.1.10.8.1* Smoking equipment, such as cigarette lighter elements and ashtrays, shall not be provided.

6.1.10.8.2 If a vehicle includes smoking equipment, it shall be removed or rendered inoperable.

6.1.10.8.3 Subsection 6.1.10.8.2 shall be retroactive to existing vehicles.

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6.1.11 Marking and Labeling.

6.1.11.1 Aircraft fueling vehicles shall be marked with the name of the operator or the responsible organization.

6.1.11.2 The marking shall be approved, legible signs on both sides of the exterior of the vehicle.

6.1.11.3 Signage. Each aircraft fuel servicing vehicle or cart shall have a signage viewable from all sides of the vehicle.

6.1.11.3.1 Signs shall have letters at least 75 mm (3 in.) high.

6.1.11.3.2 Signs shall be of a color contrasting sharply with the sign background for visibility.

6.1.11.3.3 The words "FLAMMABLE," "NO SMOKING," and the name of the product carried, such as JET A, JET B, GASOLINE, or AVGAS, shall appear on each sign.

6.1.11.4 Emergency Fuel Shutoff Signs.

6.1.11.4.1 Each emergency fuel shutoff station location shall be placarded EMERGENCY FUEL SHUTOFF in letters at least 50 mm (2 in.) high.

6.1.11.4.2 The method of operation shall be indicated by an arrow or by the word PUSH or PULL, as appropriate.

6.1.11.4.3 Any action necessary to gain access to the shutoff device (e.g., BREAK GLASS) shall be shown clearly.

6.1.11.4.4 Lettering shall be of a color contrasting sharply with the placard background for visibility.

6.1.11.4.5 Placards shall be weather resistant.

6.1.11.5 A "NO SMOKING" sign shall be posted prominently in the cab of every aircraft fuel servicing vehicle.

6.1.11.6 Hazardous material placards meeting the requirements of 49 CFR 172.504 or equivalent shall be displayed on all four sides of fuel servicing tank vehicles.

6.1.12 Drive Train.

6.1.12.1 Propulsion or power engine equipment shall be in a compartment housing that shall minimize the hazard of fire in the event of leakage or spillage of fuel during the servicing of an aircraft.

6.1.12.2 The engine air intake shall retain the manufacturer's configuration to prevent the emission of flame in case of back-firing.

6.1.12.3 Where provided, the sediment bowl in the fuel supply line shall be of steel or material of equivalent fire resistance.

6.1.12.4 Full trailers and semitrailers, except tow carts with a gross vehicle weight rating (GVWR) under 1360 kg (3000 lb), shall be equipped with service brakes on all wheels.

6.1.12.5 All full trailers and semitrailers, including tow carts with a GVWR under 1360 kg (3000 lb), shall be equipped with parking brakes.

6.1.12.6 Self-propelled aircraft fuel servicing vehicles shall have an integral system or device that prevents the vehicle from being moved unless all of the following conditions are met:

- (1) All fueling nozzles and hydrant couplers are properly stowed.
- (2) All mechanical lifts are lowered to their stowed position.

- (3) Bottom-loading couplers have been disconnected from the vehicle.

6.1.12.7 The vehicle shall have a means to override the system or device required by 6.1.12.6 so that the vehicle can be moved during an emergency.

6.1.12.7.1 The override control shall be clearly marked and accessible.

6.1.12.7.2 A light to indicate activation of the override shall be located in the cabin and visible outside.

6.1.12.7.3 The override control shall be secured in the normal position with a breakaway seal.

6.1.12.7.4 The override control shall deactivate the fueling system.

6.1.13 Exhaust System.

6.1.13.1* The engine exhaust system shall be designed, located, and installed to minimize the hazard of fire in the event of any of the following:

- (1) Leakage of fuel from the vehicle or cart (where applicable) fuel tank or fuel system
- (2) Leakage from the fuel dispensing system of the vehicle or cart
- (3) Spillage or overflow of fuel from the vehicle or cart (if applicable) fuel tank or the cargo tank
- (4) Spillage of fuel during the servicing of an aircraft

6.1.13.2 Exhaust system components shall be secured and located clear of components carrying flammable liquids and separated from any combustible materials used in the construction of the vehicle.

6.1.13.3 Suitable shielding shall be provided to drain possible fuel spillage or leakage away from exhaust system components safely.

6.1.13.3.1 Diesel particulate filter (DPF) regeneration system piping shall be shielded from the engine discharge manifold to the outlet at the tailpipe.

6.1.13.3.2 DPF regeneration-equipped vehicles shall have a listed diffuser installed at the outlet of the exhaust tailpipe.

6.1.13.4 Exhaust gases shall not be discharged where they could ignite fuel vapors that could be released during normal operations or by accidental spillage or by leakage of fuel.

6.1.13.4.1 DPF regeneration-equipped vehicles shall have a lockout mode that will prevent automatic regeneration when these vehicles are operated within 30 m (100 ft) of aircraft parking areas.

6.1.13.5 A muffler (or silencer) cutout shall not be provided.

6.1.13.6 Carbureted gasoline-powered engines on fuel servicing vehicles shall be provided with flame- and spark-arresting exhaust systems.

6.1.13.7* Non-turbo-charged diesel engines on fuel servicing vehicles shall be equipped with flame- and spark-arresting exhaust systems.

6.2 Operations.

6.2.1 Security.

6.2.1.1 Parking of Aircraft Fuel Servicing Tank Vehicles. Parking areas for unattended aircraft fuel servicing tank vehicles shall be arranged to provide the following:

- (1) Dispersal of the vehicles in the event of an emergency
- (2) A minimum of 3 m (10 ft) of clear space between parked vehicles for accessibility for fire control purposes
- (3) Prevention of any leakage from draining to an adjacent building or storm drain that is not suitably designed to handle fuel
- (4) A minimum of 15 m (50 ft) from any parked aircraft and buildings other than maintenance facilities and garages for fuel servicing tank vehicles

6.2.1.2 Parking of Aircraft Fuel Servicing Hydrant Vehicles and Carts. Parking areas for unattended aircraft fuel servicing hydrant vehicles or carts shall be arranged to provide the following:

- (1) Dispersal of the vehicles in the event of an emergency
- (2) Prevention of any leakage from draining to an adjacent building or storm drain that is not suitably designed to handle fuel

6.2.1.3* The authority having jurisdiction shall determine the suitability of tunnels, enclosed roadways, or other limited access areas for use by fuel servicing vehicles.

6.2.2 Training. (Reserved)

6.2.3 Prevention and Control of Spills. (Reserved)

6.2.4 Emergency Fuel Shutoff. (Reserved)

6.2.5 Bonding. (Reserved)

6.2.6 Control of Fuel Flow.

6.2.6.1 The fueling operator shall monitor the fueling operation.

6.2.6.2 During overwing fueling, the operator shall monitor the fill port.

6.2.7 Fire Protection. (Reserved)

6.2.8 Maintenance.

6.2.8.1 Aircraft fuel servicing vehicles or carts shall not be operated unless they are in proper repair and free of accumulations of grease, oil, or other combustibles.

6.2.8.2 Leaking vehicles or carts shall be removed from service, defueled, and parked in a safe area until repaired.

6.2.8.3 Maintenance and servicing of aircraft fuel servicing vehicles and carts shall be performed outdoors or in a building approved for the purpose.

6.2.8.4 At least monthly the operator shall perform a check to ensure complete closure of the bottom-loading valve on the tank vehicle.

6.2.9 Aircraft Fueling Hose. (Reserved)

6.2.10 Exhaust System.

6.2.10.1 All vehicles that have engines equipped with an exhaust after-treatment device, such as a DPF, that requires the filter to be cleaned at high temperature (regenerated) while

installed on the vehicle shall meet the requirements of 6.2.10.2 through 6.2.10.10.

6.2.10.2 DPF regeneration shall be performed only in area(s) designated by the authority having jurisdiction.

6.2.10.3 DPF regeneration shall not be performed within 30 m (100 ft) of any aircraft refueling operations.

6.2.10.4* Vehicle Regeneration Area.

6.2.10.4.1 The immediate area surrounding the DPF exhaust outlet shall be concrete or other high temperature-resistant material and shall be clear of any grass, soil, or flammable materials.

6.2.10.4.2 The area shall be in a remote location that is a minimum of 30 m (100 ft) from the nearest aircraft parking location, airport terminal, or flammable storage or a minimum of 15 m (50 ft) from any other building.

6.2.10.4.3 The area shall be clearly marked with a minimum 61 cm by 30 cm (2 ft by 1 ft) sign reading "Vehicle DPF Regeneration Area," which shall have letters at least 75 mm (3 in.) high and shall be of a color contrasting sharply with the sign background for visibility.

6.2.10.5 The regeneration cycle shall be performed only by trained personnel, who shall remain with the vehicle until the regeneration cycle is complete.

6.2.10.6 The vehicle shall be visually inspected for any signs of fluid leaks under or around the vehicle before regeneration is initiated.

6.2.10.7 DPF regeneration shall not be initiated if there are any signs of any fluid leaks on or beneath the vehicle.

6.2.10.8 Once a regeneration cycle is started, it shall be completed without interruption.

6.2.10.9 After the regeneration process is successfully completed, the vehicle shall be permitted to return to normal service.

6.2.10.10 Problems occurring during the regeneration cycle shall be corrected prior to the vehicle returning to normal service.

6.2.10.11 Aircraft refueling operations shall not be initiated if the regenerative system indicates regeneration is required.

6.2.11 Loading and Unloading.

6.2.11.1 Aircraft fuel servicing tank vehicles shall be loaded only at an approved loading rack.

6.2.11.2 Aircraft fuel servicing tank vehicles shall not be loaded from a hydrant pit, unless permitted by the authority having jurisdiction under emergency circumstances.

6.2.11.3 Filling of the vehicle cargo tank shall be under the observation and control of a qualified and authorized operator at all times.

6.2.11.4 The required deadman and automatic overfill controls shall be in normal operating condition during the filling operation.

6.2.11.5 The controls shall not be blocked open or otherwise bypassed.

6.2.11.6 The engine of the tank vehicle shall be shut off before starting to fill the tank.

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6.2.11.7 To prevent leakage or overflow from expansion of the contents due to a rise in atmospheric temperature or direct exposure to the sun, no cargo tank or compartment shall be loaded to the point where it is liquid full.

6.2.11.7.1 No cargo tank or compartment shall be loaded above the rated net capacity, as specified by the manufacturer's data plate.

6.2.11.7.2 Space for thermal expansion, in no case less than 3 percent of the tank volume, shall be provided to prevent leakage.

6.2.11.8 The driver, operator, or attendant of any tank vehicle shall not remain in the vehicle but shall not leave the vehicle unattended during the loading or unloading process.

6.2.11.8.1 Delivery hose, when attached to a tank vehicle, shall be considered to be a part of the tank vehicle.

6.2.11.9 No fuel shall be transferred to or from any tank vehicle until the parking brake and wheel chocks have been set to prevent motion of the vehicle.

6.2.11.10 Top Loading.

6.2.11.10.1 Where loading tank trucks through open domes, a bond shall be established between the loading piping and the cargo tank to equalize potentials.

6.2.11.10.2 The bond connection shall be made before the dome is opened and shall be removed only after the dome is closed.

6.2.11.10.3 Drop tubes attached to loading assemblies extending into the vehicle tank shall extend to the bottom of the tank and shall be maintained in that position until the tank is loaded to provide submerged loading and avoid splashing or free falling of fuel through the tank atmosphere.

6.2.11.10.4 Splash filling shall be prohibited.

6.2.11.10.5 The flow rate into the tanks shall not exceed 25 percent of the maximum flow until the outlet is fully covered.

6.2.11.10.6 Fixed drop tubes permanently mounted in the vehicle tank shall extend to the bottom of the tank or to the inside of the sump to maintain submerged loading and to avoid splashing of the fuel.

6.2.11.10.7 The level in the tank shall be visually monitored at all times during top loading.

6.2.11.11 Bottom Loading.

6.2.11.11.1 A bonding connection shall be made between the cargo tank and the loading rack before any fuel connections are made and shall remain in place throughout the loading operation.

6.2.11.11.2 The operator shall initiate fuel flow by means of a deadman control device.

6.2.11.11.3 The operator shall ensure that the automatic high-level shutoff system is functioning properly for each compartment shortly after flow has been initiated.

6.2.12 Positioning of Aircraft Fuel Servicing Vehicles and Carts During Fueling.

6.2.12.1 Aircraft fuel servicing vehicles and carts shall be positioned so that a clear path of egress from the aircraft for fuel servicing vehicles shall be maintained.

6.2.12.2 The propulsion or pumping engine of aircraft fuel servicing vehicles or carts shall not be positioned under the wing of the aircraft during overwing fueling or where aircraft fuel system vents are located on the upper wing surface.

6.2.12.3 Aircraft fuel servicing vehicles or carts shall not be positioned within a 3 m (10 ft) radius of aircraft fuel system vent openings.

6.2.12.4 Parking brakes and chocks shall be set on all fuel servicing vehicles or carts before operators begin the fueling operation.

6.2.12.5 During overwing aircraft fuel servicing where aircraft fuel system vents are located on the upper wing surface, equipment shall not be positioned under the trailing edge of the wing.

Chapter 7 Rooftop Heliports

7.1 Design and Construction.

7.1.1 General Requirements.

7.1.1.1 System Design and Approval.

7.1.1.1.1 Fueling on rooftop heliports shall be permitted only where approved by the authority having jurisdiction.

7.1.1.1.2 In addition to the special requirements in this chapter, the heliport shall comply with the requirements of NFPA 418.

7.1.1.1.3 Facilities for dispensing fuel with a flash point below 37.8°C (100°F) shall not be permitted at any rooftop heliport.

7.1.1.1.4 In addition to the special requirements of this chapter, the fuel storage, piping, and dispensing system shall comply with the requirements of NFPA 30 and with applicable portions of this standard.

7.1.1.1.5 The entire system shall be designed so that no part of the system is subjected to pressure above its working pressure.

7.1.2 Fuel Storage Tanks.

7.1.2.1 Fuel storage tanks and components shall comply with the requirements of NFPA 30.

7.1.2.2 The fuel storage system shall be located at or below ground level.

7.1.3 Pumps and Piping Systems.

7.1.3.1 Pumps and piping systems shall comply with the requirements of NFPA 30.

7.1.3.2 Pumps shall be located at or below ground level.

7.1.3.3 Relay pumping shall not be permitted.

7.1.3.4 Pumps installed outside of buildings shall be located not less than 1.5 m (5 ft) from any building opening.

7.1.3.5 Pumps shall be anchored and protected against physical damage from collision.

7.1.3.6 Pumps installed within a building shall be in a separate room with no opening into other portions of the building.

7.1.3.7 The pump room shall be adequately ventilated.

7.1.3.8 Electrical wiring and equipment in pump rooms shall conform to the requirements of *NFPA 70*, Article 515.

7.1.3.9 Piping above grade shall be steel and, unless otherwise approved by the authority having jurisdiction, shall be suitably cased or shall be installed in a duct or chase.

7.1.3.9.1 Such piping duct or chase shall be constructed so that a piping failure does not result in the entry of fuel liquid or vapor entering the building.

7.1.3.9.2 All pipe casings, ducts, and chases shall be drained.

7.1.3.10 Piping shall be anchored and shall be protected against physical damage for a height of at least 2.4 m (8 ft) above the ground.

7.1.3.11 An isolation valve shall be installed on the suction and discharge piping of each pump.

7.1.3.12 A check valve shall be installed at the base of each fuel piping riser to automatically prevent the reverse flow of the fuel into the pump room in the event of pump seal failure, pipe failure, or other malfunction.

7.1.3.13 Piping within buildings shall comply with 5.1.3.3.

7.1.4 **Hose and Nozzles. (Reserved)**

7.1.5 **Electrostatic Bonding. (Reserved)**

7.1.6 **Electrical Systems. (Reserved)**

7.1.7 **Control of Fuel Flow. (Reserved)**

7.1.8 **Filters and Ancillary Equipment. (Reserved)**

7.1.9 **Emergency Fuel Shutoff Systems.**

7.1.9.1 At least two emergency fuel shutoff stations located on opposite sides of the heliport at exitways or at similar locations shall be provided.

7.1.9.2 An additional emergency fuel shutoff station shall be located at ground level and shall be located at least 3 m (10 ft) from the pump but no further than 6 m (20 ft).

7.1.10 **Fire Protection.** Fire protection shall conform to the requirements of *NFPA 418*.

7.1.11 **Marking and Labeling. (Reserved)**

7.2 **Operations.**

7.2.1 **Security. (Reserved)**

7.2.2 **Personnel.** All heliport personnel shall be trained in the use of the available fire extinguishers and fixed extinguishing systems.

7.2.3 **Prevention and Control of Spills. (Reserved)**

7.2.4 **Emergency Fuel Shutoff.** All heliport personnel shall be trained in the operation of emergency fuel shutoff controls.

7.2.5 **Bonding. (Reserved)**

7.2.6 **Monitoring of Fuel Flow. (Reserved)**

7.2.7 **Fire Protection. (Reserved)**

7.2.8 **Maintenance. (Reserved)**

7.2.9 **Aircraft Fueling Hose. (Reserved)**

Chapter 8 Self-Service Aircraft Fueling

8.1 **Design and Construction.**

8.1.1 **General Requirements.**

8.1.1.1 **System Design and Approval.** Self-service fueling shall be permitted, subject to the approval of the authority having jurisdiction.

8.1.1.2 Dispensing devices shall be located on an island to protect against collision damage or shall be protected with pipe bollards or other approved protection.

8.1.2 **Fuel Storage Tanks.** In addition to the special requirements of this chapter, the fuel storage system shall comply with the requirements of *NFPA 30*.

8.1.3 **Pumps and Piping Systems.**

8.1.3.1 In addition to the special requirements of this chapter, the piping and dispensing system shall comply with the requirements of *NFPA 30*.

8.1.3.2 Listed or approved dispensing devices shall be used.

8.1.4 **Hose and Nozzles. (Reserved)**

8.1.5 **Electrostatic Bonding. (Reserved)**

8.1.6 **Electrical Systems. (Reserved)**

8.1.7 **Control of Fuel Flow. (Reserved)**

8.1.8 **Filters and Ancillary Equipment. (Reserved)**

8.1.9 **Emergency Fuel Shutoff Systems.**

8.1.9.1 The controls shall be designed to allow only authorized personnel to reset the system after an emergency fuel shutoff.

8.1.9.2 The emergency fuel shutoff controls shall be installed in a location acceptable to the authority having jurisdiction and shall be more than 6 m (20 ft) but less than 30 m (100 ft) from the dispensers.

8.1.9.3 A clearly identified means to notify the fire department shall be provided and shall be located in the immediate vicinity of each emergency fuel shutoff control.

8.1.9.4 Dispensing devices shall have a listed or approved emergency shutoff valve, incorporating a fusible link or other thermally actuated device designed to close automatically in case of fire.

8.1.9.5 The emergency shutoff valve also shall incorporate a shear section that automatically shuts off the flow of fuel due to severe impact.

8.1.9.6 The emergency shutoff valve shall be rigidly mounted at the base of the dispenser in accordance with the manufacturer's instructions.

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8.1.10 Fire Protection.

8.1.10.1 Each facility shall have a minimum of one fire extinguisher with a rating of at least 40-B:C and a minimum capacity of 9.0 kg (20 lb) of dry chemical agent located at the dispenser.

8.1.10.2 At least one fire extinguisher with a rating of at least 40-B:C and a minimum capacity of 9.0 kg (20 lb) of dry chemical agent shall be provided at each emergency fuel shutoff control.

8.1.11 Marking and Labeling.

8.1.11.1 Emergency instructions shall be conspicuously posted in the dispensing area and at the emergency fuel shutoff control.

8.1.11.2 Emergency instructions shall incorporate the following or equivalent wording:

EMERGENCY INSTRUCTIONS

IN CASE OF FIRE OR SPILL.

- (1) Use emergency fuel shutoff.
- (2) Report accident by calling (specify local fire emergency reporting number) on phone.
- (3) Report address of site (list address of site here).

8.1.11.3 Operating Instructions. Operating instructions shall be posted.

8.1.11.4 The operating instructions shall include the following:

- (1) Proper operation and use of all equipment
- (2) Correct bonding procedures
- (3) Procedures to be employed to dispense fuel safely
- (4) Location and use of the emergency fuel shutoff controls
- (5) Procedures to be used in the event of an emergency

8.2 Operations.

8.2.1 Security. Access to dispensing equipment shall be controlled by means of mechanical or electronic devices designed to resist tampering and to prevent access or use by unauthorized persons.

8.2.2 Training. (Reserved)

8.2.3 Prevention and Control of Spills. (Reserved)

8.2.4 Emergency Fuel Shutoff. (Reserved)

8.2.5 Bonding. (Reserved)

8.2.6 Monitoring of Fuel Flow. (Reserved)

8.2.7 Fire Protection. (Reserved)

8.2.8 Maintenance. (Reserved)

8.2.9 Occupancy. The aircraft shall not be occupied during self-service fueling.

Annex A Explanatory Material

Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.

A.1.1.2 Additional guidance can be obtained from other documents, including, but not limited to: AIA Spec 103, ASTM

MNL5, API 607, API RP 1595, API RP 2003, EI 1529, EI 1540, EI 1550, EI 1581, EI 1583, EI 1590, EI 1596, JIG 4, NATA *Refueling and Quality Control Procedures for Airport Service and Support Operations*, NIST Handbook 44, PEI RP-1300, PEI RP100, PEI RP200, PEI RP800, OSHA regulations in 29 CFR, FAA AC-150-5230, and/or EPA regulations in 112 (Oil Pollution Prevention) and 280 (Underground Tanks).

A.1.2 Aircraft fuel servicing involves the transfer of a flammable or combustible liquid fuel between a bulk storage system and the fuel tanks of an aircraft. It includes both fueling and defueling. The transfer is usually accomplished by using a tank vehicle, a hydrant vehicle, a hydrant cart, a fuel servicing cabinet, or a fueling pit. Drums and pumps sometimes are used. The movement of the fuel through the pumps, piping, and filters of the transfer system causes the fuel to be charged electrostatically. If the charge on the fuel is sufficiently high when it arrives at the fuel tank, a static spark could occur that can ignite the fuel vapor.

During overwing fueling, the fuel is discharged into an opening in the aircraft fuel tank using a hose with a hand-held nozzle. The flow and splashing of fuel causes the generation of static electricity and the production of flammable mists and vapors. Top loading of tank vehicles creates similar hazards.

Underwing servicing, hydrant servicing, and bottom loading of tank vehicles use hoses or flexible connections of metal tubing or piping, as well as devices to allow temporary connection of fuel transfer lines. These methods minimize the charge generation and misting hazards associated with overwing fueling and top loading.

Other potential sources of ignition that could present a hazard during aircraft fuel servicing include the following:

- (1) Operating aircraft engines, auxiliary power units, and heaters
- (2) Operating automotive or other internal combustion engine servicing equipment in the vicinity
- (3) Arcing of electrical circuits
- (4) Open flames
- (5) Energy from energized radar equipment
- (6) Lightning

The autoignition temperatures of turbine fuels (*see Annex B*) are such that the residual heat of aircraft turbine engines after shutdown or the residual heat of turbine aircraft brakes following hard use can ignite such fuels if they are spilled or sprayed on these surfaces before they have cooled below the autoignition temperatures of the fuels.

Aircraft fuel tank vents usually are located some distance above ground level. Under normal conditions, fuel vapors from the vents are quickly dissipated and diluted safely. Fuel spilling from the vents of an overfilled tank is a much more serious hazard. Spills resulting from leaks or equipment failure also are a hazard.

Fire prevention measures in aircraft fuel servicing are directed principally toward the following:

- (1) Prevention of fuel spillage
- (2) Elimination or control of potential ignition sources

A.3.2.1 Approved. The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installa-

tions, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A.3.2.2 Authority Having Jurisdiction (AHJ). The phrase “authority having jurisdiction,” or its acronym AHJ, is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

A.3.2.4 Listed. The means for identifying listed equipment may vary for each organization concerned with product evaluation; some organizations do not recognize equipment as listed unless it is also labeled. The authority having jurisdiction should utilize the system employed by the listing organization to identify a listed product.

A.3.3.8 Aviation Fuel. See Annex B.

A.3.3.11 Cargo Tank. The term *cargo tank* does not apply to any container used solely for the purpose of supplying fuel for the propulsion of the vehicle on which it is mounted.

A.3.3.16 Fuel Servicing Station. This unit can be installed in a cabinet above or below ground.

A.4.1.4 The section on aircraft refueling hose has been altered extensively by referencing EI 1529. NFPA 407 formerly contained many requirements for hose, but these were intended to address only those features that could be related to a fire or the results of a fire. It was not until 1982 that a comprehensive aircraft refueling hose specification was published by the American Petroleum Institute (API). Prior to that time, NFPA 407 was the only document in existence that addressed this subject. In 2010, the API transferred responsibility for aviation fuel-handling standards to the Energy Institute (EI).

EI 1529 deals with all aspects of hose safety, including the couplings that are acceptable.

NFPA 407 recognizes the need for an extensive document such as EI 1529 and requires hoses that meet that standard. However, it is important to recognize that EI does not perform testing and that it does not regulate those manufacturers who claim to sell hose that meets EI 1529. The hose user and the cognizant authority having jurisdiction could find it prudent to require hose manufacturers to produce copies of test reports or documents that certify that hoses of identical construction and compounds have been tested and have passed all requirements of EI 1529 satisfactorily.

A.4.1.4.3.6 Splicing of a hose with couplings alters the design bend radius of the hose, creating two kinks when the hose is wound on a drum.

A.4.1.5.9 The charge on the fuel can be reduced by the use of a static dissipater additive that increases the electrical conductivity of the fuel and thereby allows the charge to relax or dissipate more quickly, or by the use of a relaxation chamber that increases the residence time of the fuel downstream of the filter to at least 30 seconds, thereby allowing most of the charge to dissipate before the fuel arrives at the receiving tank.

API RP 2003 recommends a 30-second relaxation time for loading tank trucks and refuelers. However, it has not been a common practice to require a similar relaxation time for aircraft refueling, primarily because of the relatively few electrostatic incidents that have occurred during aircraft fueling. (For additional information on this topic, see CRC Report No. 583.)

In filling tank trucks or storage tanks, API RP 2003 recommends that at least 30 seconds of residence time be provided downstream of a filter in order to allow static charges generated in flowing fuel to relax before fuel enters the tank.

The reason it is possible to fuel aircraft safely with low conductivity fuel without providing 30 seconds of relaxation time is due primarily to the difference in the geometry of aircraft tanks as compared with tank truck compartments. Flow into the aircraft normally is subdivided into several tanks simultaneously and also distributed into adjoining compartments of each tank by a multihole inlet. Bachman and Dukek (1972) conducted full-scale research using a simulated large aircraft tank and concluded that none of the tanks or compartments hold sufficient fuel to allow enough charges to accumulate and create large surface voltages. Slower fill rates per compartment also allow more charge to relax.

Additionally, the inlet system of most aircraft tanks directs fuel toward the bottom of the tank to avoid splashing that generates more charge. Finally, while the hoses that connect the fueler to the aircraft provide only a few seconds of residence time for charge relaxation at high rates of flow, the actual relaxation volume in the system is significantly greater where a coated screen is used as a second stage water barrier. In this case, the vessel's volume after the first stage filter coalescer could represent an additional 15 seconds of residence time for charge relaxation. (The coated screen, unlike other water barriers, does not generate charge.)

A flammable vapor space in the tank due to the presence of JET B or JP-4 fuels still constitutes a potential hazard. Therefore, to minimize the chance for static ignition, FAA regulations require that fueling be conducted at half of the rated flow where civil aircraft have used such fuels.

A.4.1.10.1 Carbon dioxide extinguishers should not be selected due to their limited range and effectiveness in windy conditions.

A.4.1.10.3 Multipurpose dry chemical (ammonium phosphate) fire-extinguishing agent is known to cause corrosion to aircraft components. Although the agent is capable of extinguishing fires on or near aircraft, it is likely that the agent will spread to other, uninvolved aircraft, causing damage from corrosion.

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A.4.1.12.2 The beam of radar equipment has been known to cause ignition of flammable vapor–air mixtures from inductive electric heating of solid materials or from electrical arcs or sparks from chance resonant conditions. The ability of an arc to ignite flammable vapor–air mixtures depends on the total energy of the arc and the time lapse involved in the arc's duration, which is related to the dissipation characteristics of the energy involved. The intensity or peak power output of the radar unit, therefore, is a key factor in establishing safe distances between the radar antenna and fueling operations, fuel storage or fuel loading rack areas, fuel tank truck operations, or any operations where flammable liquids and vapors could be present or created.

Most commercially available weather-mapping airborne radar equipment operates at peak power outputs, varying from 25 kW to 90 kW. Normally this equipment should not be operated on the ground. Tests have shown that the beam of this equipment can induce energy capable of firing flash bulbs at considerable distances. If the equipment is operated on the ground for service checking or for any other reason, the beam should not be directed toward any of the hazards described in the previous paragraph that are located within 30 m (100 ft). Higher power radar equipment can require greater distances.

Airport surface detection radar operates under a peak power output of 50 kW. It is fixed rather than airborne equipment.

Airborne surveillance radar of the type currently carried on military aircraft has a high peak power output. Aircraft carrying this type of radar can be readily distinguished by radomes atop or below the fuselage, or both.

Aircraft warning radar installations are the most powerful. Most of these installations are, however, remotely located from the hazards specified in the first paragraph and therefore are not covered herein. Ground radar for approach control or traffic pattern surveillance is considered the most fire hazardous type of radar normally operating at an airport. The latter type of equipment has a peak power output of 5 MW. Where possible, new installations of this type of equipment should be located at least 150 m (500 ft) from any of the hazards described in the first paragraph.

A.4.2.2.1 Records should be kept of personnel training. These records should be made available to the authority having jurisdiction upon request.

A.4.2.2.2 Fuel servicing personnel should be given adequate training with extinguishers so that such equipment is used effectively in an emergency. Such training should be given on fires of the type that could be encountered on the job. To ensure prompt action in the event of a spill or other hazardous condition developing during fueling operations, aircraft servicing personnel also should be trained in the operation of emergency fuel shutoff controls. Each new fuel servicing employee should be given indoctrination training covering these and similar safety essentials that are related to the job. Follow-up and advanced training should be given as soon as the employee is sufficiently acquainted with the work to benefit from such training. Supervisors should be given training in the more technical aspects of fire safety so that they understand the reason for these and similar requirements and have an appreciation for the responsibility of a supervisor and the safety of an operation.

A.4.2.3 The following actions are appropriate in the event of a fuel spill, although each spill should be treated as an individual case due to such variables as the size of the spill, type of flammable or combustible liquid involved, wind and weather conditions, equipment arrangement, aircraft occupancy, emergency equipment, and personnel available:

- (1) The flow of fuel should be stopped, if possible. If the fuel is discovered leaking or spilling from fuel servicing equipment or hoses, the emergency fuel shutoff should be operated at once. If the fuel is discovered leaking or spilling from the aircraft at the filler opening, vent line, or tank seams during fueling operations, fueling should be stopped immediately. Evacuation of the aircraft should be ordered when necessary. The aircraft then should be thoroughly checked for damage or entrance of flammable liquid or vapors into any concealed wing or fuselage area, and corrective action should be taken as necessary before it is returned to normal operational service.
- (2) The airport fire crew should be notified if the spill presents a fire hazard. The only routine exceptions are for small spills. Supervisory personnel should be notified to ensure that operations in progress can be continued safely or halted until the emergency is past and that corrective measures can be taken to prevent recurrence of a similar accident.
- (3) It could be necessary to evacuate the aircraft if the spill poses a serious fire exposure to the aircraft or its occupants. Walking through the liquid area of the fuel spill should not be permitted. Persons who have been sprayed with fuel or had their clothing soaked with fuel should go to a place of refuge, remove their clothing, and wash. Individuals whose clothing has been ignited should be wrapped in blankets, coats, or other items or should be told to or forced to roll on the ground.
- (4) Mobile fueling equipment and all other mobile equipment should be withdrawn from the area or left as is until the spilled fuel is removed or made safe. No fixed rule can be made as fire safety varies with circumstances. Shutting down equipment or moving vehicles can provide a source of ignition if no fire immediately results from the spillage.
- (5) Aircraft, automotive, or spark-producing equipment in the area should not be started before the spilled fuel is removed or made safe. If a vehicle or cart engine is running at the time of the spill, it normally is good practice to drive the vehicle away from the hazard area unless the hazard to personnel is judged too severe. Fuel servicing vehicles or carts in operation at the time of the spill should not be moved until a check is made to verify that any fuel hose that could have been in use or connected between the vehicle and the aircraft is safely stowed.
- (6) If any aircraft engine is operating at the time of the spill, it normally is good practice to move the aircraft away from the hazard area unless air currents set up by operating power plants would aggravate the extent or the nature of the existing vapor hazard.
- (7) If circumstances dictate that operating internal combustion engine equipment within a spill area that has not ignited should be shut down, engine speeds should be reduced to idle prior to cutting ignition in order to prevent backfire.

- (8) The volatility of the fuel can be a major factor in the initial severity of the hazard created by a spill. Gasoline and other low flash point fuels at normal temperatures and pressures produce vapors that are capable of forming ignitable mixtures with the air near the surface of the liquid, whereas this condition does not normally exist with kerosene fuels (JET A or JET A-1) except where ambient temperatures are 38°C (100°F) or above or where the liquid has been heated to a similar temperature.
- (9) Spills of gasoline and low flash point turbine fuels (JET B) greater than 3 m (10 ft) in any dimension and covering an area of over 5 m² (50 ft²) or that are of an ongoing nature should be blanketed or covered with foam. The nature of the ground surface and the existing exposure conditions dictate the exact method to be followed. Such fuels should not be washed down sewers or drains. The decision to use a sewer or drain should be made only by the chief of the airport fire brigade or the fire department. If fuels do enter sewers, either intentionally or unintentionally, large volumes of water should be introduced to flush such sewers or drains as quickly as possible to dilute the flammable liquid content of the sewer or drain to the maximum possible extent. Normal operations involving ignition sources (including aircraft and vehicle operations) should be prohibited on surface areas adjacent to open drains or manholes from which flammable vapors could issue due to the introduction of liquids into the sewer system until it can be established that no flammable vapor-air mixture is present in the proximity. (NOTE: NFPA 415 provides further information on aircraft fueling ramp drainage designs to control the flow of fuel that could be spilled on a ramp and to minimize the resulting possible danger.)
- (10) Spills of kerosene grades of aviation fuels (JET A or JET A-1) greater than 3 m (10 ft) in any dimension and covering an area of over 5 m² (50 ft²) or that are of an ongoing nature and that have not ignited should be blanketed or covered with foam if there is danger of ignition. If there is no danger of ignition, an absorbent compound or an emulsion-type cleaner can be used to clean the area. Kerosene does not evaporate readily at normal temperatures and should be cleaned up. Smaller spills can be cleaned up using an approved, mineral-type, oil absorbent.
- (11) Aircraft on which fuel has been spilled should be inspected thoroughly to ensure that no fuel or fuel vapors have accumulated in flap well areas or internal wing sections not designed for fuel tankage. Any cargo, baggage, express, mail sacks, or similar items that have been wetted by fuel should be decontaminated before being placed aboard any aircraft.

A.4.2.5 Hydrocarbon fuels, such as aviation gasoline and JET A, generate electrostatic charge when passing through the pumps, filters, and piping of a fuel transfer system. (The primary electrostatic generator is the filter/separator that increases the level of charge on a fuel by a factor of 100 or more as compared with pipe flow.) Splashing, spraying, or free-falling of the fuel further enhances the charge. When charged fuel arrives at the receiving tank (cargo tank or aircraft fuel tank), one of two possible events will occur:

- (1) The charge will relax harmlessly to ground.
- (2) If the charge or the fuel is sufficiently high, a spark discharge can occur. Whether or not an ignition follows

depends on the energy (and duration) of the discharge and the composition of the fuel-air mixture in the vapor space (i.e., whether or not it is in the flammable range).

The amount of charge on a fuel when it arrives at the receiving tank, and hence its tendency to cause a spark discharge, depends on the nature and amount of impurities in the fuel, its electrical conductivity, the nature of the filter media (if present), and the relaxation time of the system [i.e., the residence time of the fuel in the system between the filter (separator) and the receiving tank]. The time needed for this charge to dissipate is dependent upon the conductivity of the fuels; it could be a fraction of a second or several minutes.

No amount of bonding or grounding prevents discharges from occurring inside a fuel tank. Bonding ensures that the fueling equipment and the receiving tank (aircraft or fueler) are at the same potential and provides a path for the charges separated in the fuel transfer system (primarily the filter/separator) to combine with and neutralize the charges in the fuel. Also, in overwing fueling and in top loading of cargo tanks, bonding ensures that the fuel nozzle or the fill pipe is at the same potential as the receiving tank, so that a spark does not occur when the nozzle or fill pipe is inserted into the tank opening. For this reason, the bonding wire has to be connected before the tank is opened.

Grounding during aircraft fueling or fuel servicing vehicle loading is no longer required because of the following:

- (1) Grounding does not prevent sparking at the fuel surface (see NFPA 77).
- (2) Grounding is not required by NFPA 77.
- (3) The static wire might not be able to conduct the current in the event of an electrical fault in the ground support equipment connected to the aircraft and could constitute an ignition source if the wire fuses. If ground support equipment is connected to the aircraft or if other operations are being conducted that necessitate electrical earthing, separate connections should be made for this purpose. Static electrical grounding points can have high resistance and, therefore, are unsuitable for grounding. For a more complete discussion of static electricity in fuels, see NFPA 77.

A.4.2.5.3.1 Ordinary plastic funnels or other nonconducting materials can increase static generation. The use of chamois as a filter is extremely hazardous.

A.4.2.7.1 Portable fire extinguishers for ramps where fueling operations are conducted are intended to provide an immediate means of fire protection in an area likely to contain a high concentration of personnel and valuable equipment. The prominent and strategic positioning of portable fire extinguishers is essential for them to be of maximum value in the event of an emergency. Extinguishers should not be located in probable spill areas. For normal single parking configurations, extinguishers specified for protection of fuel servicing operations should be located along the fence, at terminal building egress points, or at emergency remote control stations of airport fixed-fuel systems. To provide accessibility from adjoining gates, particularly where more than one unit is specified, extinguishers can be permitted to be located approximately midway between gate positions. Where this is done, the maximum distance between extinguishers should not be over 60 m (200 ft). Where the specified extinguishers are not located along the fence but are brought into the servicing area prior to

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the fueling operation, they should be located upwind not over 30 m (100 ft) from the aircraft being serviced. For protection of fuel servicing of aircraft that are double parked or triple parked, extinguishers should be located upwind not over 30 m (100 ft) from the aircraft being serviced.

A.4.2.7.2 During inclement weather, extinguishers not in enclosed compartments can be permitted to be protected by canvas or plastic covers.

A.4.2.9 Failure of an aircraft fueling hose in service is a potential source of fuel spillage and a potential fire hazard. The principal reasons for failure of aircraft fueling hoses include the following:

- (1) Using damaged hoses
- (2) Using aged hoses
- (3) Exceeding hose pressure limits
- (4) Installing hoses improperly

A.4.2.9.5.1 Particular attention should be paid to the 305 mm (12 in.) adjacent to the couplings. These areas are prone to premature failure.

A.4.2.10 Establishing precise rules for fueling is impossible when the electrical storms are in the vicinity of the airport. The distance of the storm from the airport, the direction in which it is traveling, and its intensity are all factors to be weighed in making the decision to suspend fueling operations temporarily. Experience and good judgment are the best guides. Sound travels approximately 322 m/sec (15 mi/sec). The approximate number of miles to the storm can be determined by counting the seconds between a flash of lightning and the sound of thunder and dividing by 5.

A.4.2.11.1.3 The precautions in 4.2.11.1.3 and 4.2.11.1.4 are intended to minimize the danger of the ignition of any flammable vapors discharged during fueling and of fuel spills by sources of ignition likely to be present in airport terminal buildings.

A.4.2.12.1 Electric hand lamps used in the immediate proximity of the fueling operation should be of the type approved for use in *NFPA 70*, Class I, Division 1, Group D hazardous locations. No supportable basis exists for requiring, in the petroleum industry, the use of approved, listed, or permitted two- or three-cell flashlights to avoid igniting Class I, Group D vapors.

A.4.2.12.1.2 Aircraft ground-power generators should be located as far as practical from aircraft fueling points and tank vents to reduce the danger of igniting flammable vapors that could be discharged during fueling operations at sparking contacts or on hot surfaces of the generators.

A.4.2.12.1.5 For further information on intrinsically safe apparatus, see ANSI/UL 913, FM Class 3610, or ANSI/UL 60079-11.

A.5.1.2.1 Where pressure tanks are used, details on construction, spacing, and location should be in accordance with industry good practice and approved by the authority having jurisdiction. When AVGAS, MOGAS, or JET B turbine fuels are stored in bulk quantities in aboveground tanks, they should be stored in floating roof-type tanks. Covered floating roof tanks minimize the hazardous flammable vapor-air space above the liquid level. The vapor spaces of underground tanks storing fuels should not be interconnected.

A.5.1.3.10.2 It is expected that some joints may leak under fire exposure; however, the joint itself should not come apart.

A.5.1.3.14 Flanged connections should be provided for ease of dismantling and to avoid cutting and welding after the system has been placed in service. The location of these isolation devices depends upon the size and character of each system, but the following locations generally apply (see *Figure A.5.1.3.14*):

- (1) At each storage tank
- (2) At each pump
- (3) At each filter separator
- (4) At each hydrant or on each hydrant lateral
- (5) At each flow regulator or pressure control valve

A.5.1.3.17 Cathodic protection is recommended for metal components of airport fueling systems and fuel storage facilities that are in contact with the ground. The two types of cathodic protection are as follows:

- (1) Galvanic anode method, which generates its own current
- (2) Impressed current method, which has an external current source

A.5.1.7.1 Deadman controls should be designed so that the operator can use them comfortably while wearing gloves and hold them for the time needed to complete the operation. A pistol grip deadman device that is squeezed to operate is preferable to a small button that needs to be held by a thumb or finger.

A.5.1.7.2.2 The overshoot of pressure control release, V_{max} , should be calculated by the following equation:

[A.5.1.7.2.2]

$$V_{max} = Q \times 1 \text{ min} \times 0.05$$

where:

Q = actual fuel flow rate, L/min (gal/min)

Example

If the actual fuel flow rate at the time of deadman control release is 1500 L/min (400 gpm), total overshoot must not exceed 75 L/min (20 gal/min).

A.5.1.7.3 Hydrant valves and couplers should be in accordance with EI 1584.

A.5.1.7.5 Where surge suppressors are necessary, they should be located so that exposure to vehicular traffic, weather conditions, and the result of accidental rupture is minimized.

A.5.1.9.4 Fuel transfer by pumping is the more common procedure and normally is preferred from a fire protection standpoint, since it allows rapid shutdown of fuel flow through pump shutdown. Gravity transfer is the simplest method but normally is limited to relatively low flow rates. Because the static head does exert some pressure in the system, a safety shutdown should include a valve or valves located as close to the tank as practicable.

A.5.1.9.6 The operation of the emergency shutoff control should sound an alarm at the airport fire crew station and at the fuel storage facility.

A.5.2.1 The airport perimeter fence can be sufficient to meet this requirement.

A.6.1.3.12.2.3 An optional precaution against misfueling of aircraft fuel servicing tank vehicles is to equip the coupler and truck fitting with coded lugs or a mechanical device to ensure

product selection and to prevent mixing of products. This might not be feasible on over-the-road-type tank vehicles.

A.6.1.6.4 Electrical equipment contained in aircraft fuel servicing vehicles or cart engine compartments and located 460 mm (18 in.) or more above ground can be permitted to be of the general-purpose type.

A.6.1.7.1 See A.5.1.7.1.

A.6.1.7.4.2 See A.5.1.7.2.2.

A.6.1.10.8.1 It is not the intent of 6.1.10.8.1 to prohibit 12 V power outlets. The intent is to prohibit glowing elements.

A.6.1.13.1 Wherever possible, flexible engine exhaust pipe should be avoided due to the potential of breaking. Where used, stainless steel is preferable, and the length should be limited to approximately 460 mm (18 in.).

A.6.1.13.7 The requirement for spark-arresting exhaust systems is not intended to extend to diesel engines equipped with turbochargers. The USDA Forest Service, the governmental body that regulates the spark arrester standard, clearly identifies that all diesel engines with a turbocharger and no waste gate (also clearly identified therein) are exempt from the requirements to have an additional spark-arresting device.

A.6.2.1.3 The use of tunnels or enclosed roadways is discouraged. Where there is no alternate route, and the fuel servicing vehicle requires the use of a tunnel or enclosed roadway, the authority having jurisdiction should examine the following considerations:

- (1) Length
- (2) Clearances

- (3) Fixed fire suppression or extinguishing systems
- (4) Frequency of use
- (5) Ventilation
- (6) Overlying structures and operations
- (7) Other traffic
- (8) Fire department access
- (9) Emergency egress
- (10) Drainage
- (11) Other conditions

A.6.2.10.4 The size of the DPF regeneration area depends on the equipment being used (fleet size). The authority having jurisdiction should designate the size and number of DPF regeneration pads and determine whether a centralized facility is advantageous.

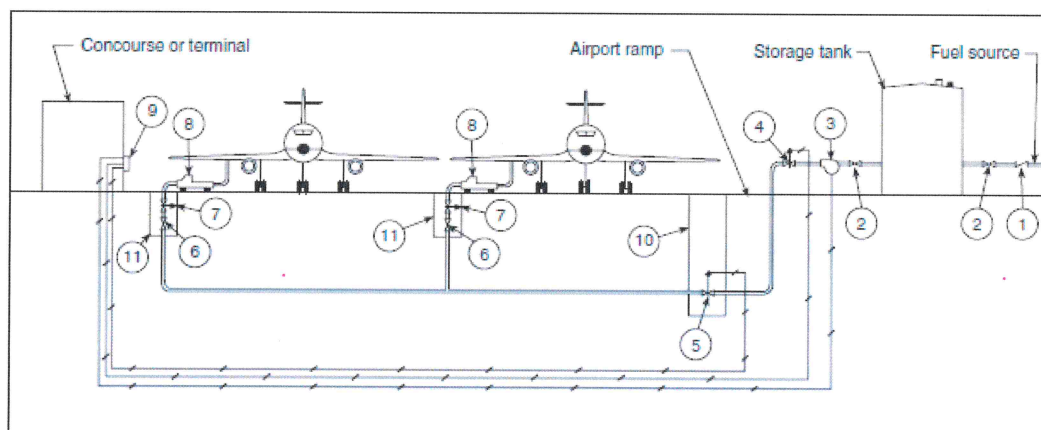
Annex B Aviation Fuel

This annex is not a part of the requirements of this NTPA document but is included for informational purposes only.

B.1 General. The fire hazard properties of aviation fuels are best described by analyzing the factors described in B.2 and B.3.

B.2 Susceptibility to or Ease of Ignition.

B.2.1 Flash Point. The flash point of standard grades of aviation gasoline has been established at approximately -46°C (-50°F) at sea level by the Tag closed-cup method. The flash point of JET B turbine fuel is not regulated by specification, but samples have been tested by the closed-cup method and have been found to be as low as -23°C (-10°F) at sea level. JET A- or kerosene-grade turbine fuels have a minimum flash point of 38°C (100°F).



Note: No dimensional relationship exists between elements in this figure. Refer to this standard; NFPA 30, *Flammable and Combustible Liquids Code*; NFPA 70, *National Electrical Code*; and FAA Regulations for separations and clearances.

Key:

- | | |
|--|--------------------------------------|
| 1. Check valve at tank inlet | 6. Hydrant shutoff valve |
| 2. Isolation valve at tank inlet/outlet | 7. Hydrant pit valve |
| 3. Pumping system | 8. Hydrant fueling servicing vehicle |
| 4. Pump discharge control valve or hydrant system shutoff valve (alternate location) | 9. Emergency fuel shutoff station |
| 5. Hydrant system shutoff valve (alternate location) | 10. Valve box |
| | 11. Hydrant pit |

FIGURE A.5.1.3.14 Typical Fixed Airport Fueling System Isolation Valving Operating and Emergency Controls.

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Aviation gasoline and JET B turbine fuels produce large volumes of vapor and are capable of forming ignitable mixtures with air even at very low temperatures. Kerosene grades of turbine fuel (JET A) do not produce ignitable mixtures with air at normal temperatures and pressures, but when a JET A turbine fuel is heated above its flash point (or exists in the form of a mist), the mixture can be ignited. This condition can develop where temperatures are 38°C (100°F) or higher.

B.2.2 Flammability Conditions. The lower limit represents the minimum concentration while the upper limit defines the maximum amount of fuel vapors in air that allows combustion. The generally accepted flammability range by volume for most gasolines is 1.4 percent to 7.6 percent. The average range for JET B turbine fuels is 1.16 percent to 7.63 percent. The average range for kerosene-grade (JET A) turbine fuels is 0.74 percent to 5.32 percent.

More significant than the strict flammability range is the temperature range in which it is possible for such flammable vapor-air mixtures to form. At sea level in a storage tank, such a temperature range for aviation gasoline is approximately -46°C to -1°C (-50°F to 30°F); for JET B turbine fuels, the range is approximately -23°C to 27°C (-10°F to 80°F); and, for kerosene-grade (JET A) turbine fuels, the range is approximately 38°C to 74°C (100°F to 165°F). It is evident that JET B turbine fuels represent the most serious practical hazard under normal temperature conditions.

Air enters as vented tanks are drained, and, during such periods, the flammable vapor conditions can change drastically. The same change occurs when the aircraft descends in altitude. These facts are important in assessing the degree of hazard that could exist in a tank containing any of these volatile products during or after such air mixing.

Under aircraft crash impact conditions where fuel mists are created following tank failures, all of the fuels are readily ignitable at essentially all ambient temperatures. Under these conditions, fuel in mist form presents a hazard equal to fuel in vapor form with respect to flammability limits.

B.2.3 Vapor Pressure. The vapor pressure of these fuels is the pressure of the vapor at any given temperature at which the vapor and liquid phases of the substance are in equilibrium in a closed container. Such pressures vary with the temperature, but, most commonly, information on hydrocarbon mixtures is obtained using the Reid method, in which the pressures are measured at 38°C (100°F) (see ASTM D323). The Reid vapor pressures of average grades of aviation gasoline have a range of 38 kPa to 48 kPa (5.5 psi to 7.0 psi). For JET B turbine fuels, the Reid vapor pressure range is 14 kPa to 21 kPa (2.0 psi to 3.0 psi). JET A (kerosene-grade) turbine fuels have a Reid vapor pressure range of approximately 0.7 kPa (0.1 psi).

The practical significance of this characteristic of the three grades of fuel is that the standard grades of aviation gasoline do produce flammable vapors in ignitable amounts at normal temperatures and pressures. However, where these vapors are confined, the vapor-air mixture over the liquid surface most often is too rich to be ignited by sparks, since it is above the upper flammability limit. With JET B turbine fuel, due to its relatively low vapor pressure, the vapor-air mixture above the liquid surface under normal temperature and pressure conditions frequently is within the flammability range. This means that ignition of JET B turbine fuel vapors either within or exterior to a tank can cause violent combustion within the confined

space if flame enters. The JET A (kerosene-grade) turbine fuels do not produce flammable vapors in ignitable amounts unless the fuel temperature is above 38°C (100°F).

B.2.4 Autoignition Temperature. The autoignition temperature is the minimum temperature of a substance that will initiate or cause self-sustained combustion independently of any sparks or other means of ignition.

Under one set of test conditions, standard grades of aviation gasoline have ignition temperatures of approximately 449°C (840°F). Turbine fuels have ignition temperatures among the lowest found for hydrocarbons and are considerably lower than those for aviation gasoline. For example, the autoignition temperature of a JET B turbine fuel was measured using the same test procedure at approximately 219°C (480°F). A JET A (kerosene-grade) turbine fuel tested under the same method was found to have an autoignition temperature of approximately 216°C (475°F). Temperatures in this range can exist for a considerable period in turbine engines after shutdown or on brake surfaces following hard use.

It should be noted that these temperatures are derived from reproducible laboratory test procedures, whereas, in actual field conditions, these ignition temperatures could be higher.

B.2.5 Distillation Range. The initial and the end boiling points of standard grades of aviation gasoline are approximately 43°C and 163°C (110°F and 325°F), respectively. The initial boiling point of JET B turbine fuels is approximately 57°C (135°F), and the end point is approximately 252°C (485°F). The only marked difference in the distillation ranges of the three fuels under consideration occurs in the JET A or kerosene-grades of turbine fuels that have initial boiling points of approximately 163°C (325°F) and end points of approximately 300°C (572°F). Note that initial and end boiling points should be determined by ASTM D86.

The boiling range, along with the flash points and vapor pressures of the fuels, indicates the relative volatility of the fuels; the initial and end boiling points indicate the overall volatility of a fuel through its entire distillation range; the flash point and vapor pressures measure the initial tendency of the fuel to vaporize.

B.3 Fire Severity After Ignition.

B.3.1 Heat of Combustion. The net heat of combustion of gasoline normally is quoted as approximately 44.19 kJ/kg (19,000 Btu/lb). For JET B turbine fuels, the average is approximately 43.50 kJ/kg (18,700 Btu/lb), while for JET A (kerosene-grade) turbine fuels it is approximately 43.26 kJ/kg (18,600 Btu/lb).

These figures for heat of combustion clearly indicate that there is little difference in the heats of combustion for these various hydrocarbons that are of significance with regard to fire safety.

B.3.2 Rate of Flame Spread. Where fuel is spilled, there is a marked difference in the rates of flame spread over pools of JET A- or kerosene-grade turbine fuels as compared with the other two types. Under these conditions, a direct relationship exists between the rate of flame spread and the vapor pressures of the materials. A report, entitled *An Evaluation of the Relative Fire Hazards of JET A and JET B for Commercial Flight* (N74-10709) [Hacker and Hibbard, 1973], states that the rate (of flame spread) for JP-4 (JET B) is about 30 times greater than for avia-

tion kerosene (JET A) at the temperatures most often encountered. This is an important factor in evaluating the severity of the fire hazard encountered under these conditions and also is a factor that affects the ease of fire control under similar conditions.

This slower rate of flame propagation for JET A- or kerosene-grade turbine fuels does not occur, however, where the fuel is released as a fuel mist, as frequently results in aircraft impact accidents or where the fuels are heated to or above their flash point. If a flammable or combustible liquid exists in mist form or is at a temperature above its flash point, the speed of flame spread in the mist or vapor is essentially the same, regardless of the liquid spilled.

B.4 Fire Control Factors.

B.4.1 Relative Density. The relative density of a material is commonly expressed as related to water at 16°C (60°F). All these fuels are lighter than water; the relative density of aviation gasolines is normally quoted at about 0.70, JET B turbine fuels at about 0.78, and the JET A (kerosene-grade) fuels at about 0.81.

This means that, with respect to fire control, all of the fuels float on water. This can be a handicap during fire-fighting operations under certain conditions where sizable quantities of spilled fuel are involved.

B.4.2 Solubility in Water. All three of the fuels are essentially nonsoluble in water. Fires involving all three fuels can be handled with regular foam concentrates (as opposed to alcohol types).

The amount of water that is entrained in the fuel due to water contamination is not particularly significant from a fire hazard viewpoint, except for the fact that the amount of water increases the static generation hazard of the fuel.

B.4.3 Standard Grades of Aviation Fuels. Standard grades of aviation fuels include the following:

- (1) Aviation gasoline (AVGAS) includes all gasoline grades of fuel for reciprocating engine-powered aircraft of any octane rating. It has the general fire hazard characteristics of ordinary automotive gasoline (MOGAS).
- (2) JET A and JET A-1 are kerosene grades of fuel for turbine engine-powered aircraft, whatever the trade name or designation. JET A has a -40°C (-40°F) freezing point (maximum); JET A-1 incorporates special low-temperature characteristics for certain operations having a -47°C (-53°F) freezing point (maximum). JP-8 (identical to JET A except for the additive package) and JP-5 (slightly less volatile than either JET A or JET A-1) are used by certain U.S. military forces. JET A and JP-8 are known in the United Kingdom and in many former U.K. areas of influence as AVTUR, whereas JP-5 is similar to the U.K.-designated AVCAT.
- (3) JET B is a blend of gasoline and kerosene grades of fuel for turbine engine-powered aircraft, whatever the trade name or designation. JET B is a relatively wide boiling range volatile distillate having a -51°C (-60°F) freezing point (maximum). JP-4 is one grade of JET B fuel used by U.S. military forces; JP-4 has identical specifications to JET B as they relate to fire hazards. This fuel is known in the United Kingdom as AVTAG.

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D. Compliance

All fueling agents are required by the Airport to comply with NFPA 407 and NFPA 30 fire code standards, and surveillance of all fueling activities on the airport is conducted by the Airport Authority.

E. Inspections of Fueling Facilities

Airport Fire Department personnel conduct inspections of the fueling agent fuel facilities and aircraft fuel servicing vehicle for compliance to the above Airport Fire Safety Fuel Handling Standards every three months. These inspections are conducted on or near January 1st, April 1st, July 1st, and October 1st, of each year. Follow-up inspections will be conducted when unsatisfactory items are found. A copy of the checklists used by Airport Safety personnel when conducting the inspections and follow-up inspections are included at the end of this section. Inspection records are maintained in the Assistant Director of Operations & Maintenance office for at least twelve consecutive calendar months.

All fueling agents engaged in handling and dispensing aviation fuel are required to take immediate corrective action be taken whenever notified of noncompliance with any of the Airport Safety Fuel Handling Standards. If corrective action cannot be accomplished within a reasonable period of time, The Assistant Director of Operations & Maintenance will notify the FAA by phone, email or mail at:

Federal Aviation Administration (Central Region Only)
Airports Division, Safety & Standards Branch
901 Locust Street, Rm 364
Kansas City, MO 64106-2325
816-329-2621/2618/2633

F. Standards Concerning Diesel Particulate Filters (DPF)

When any fueling trucks are equipped with diesel particulate filters the airport will provide a DPF regeneration area as required by NFPA 407, current edition.

G. Training

1. A supervisor with the fuelers, as listed above, will complete an aviation fuel training course in fire safety. The supervisor will receive recurrent training at least once every twenty-four months. If a new supervisor is hired, he/she will be enrolled in an authorized aviation fuel training course that will be completed within 90 days.
2. All other employees who fuel aircraft, accept fuel shipment, or handle fuel, receive at least initial on-the-job training in fire safety and recurrent training every twenty-four months from the supervisor mentioned in the previous paragraph.

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3. All fueling agents, engaged in handling and dispensing fuel at the airport, shall submit confirmation to airport management every twelve months that the above training standards have been accomplished. The training confirmation records shall be maintained by the Airport Fire Department for twelve months.
4. Fueling agent personnel training records will be maintained for twenty-four months at the fueling agents' office.

H. Fuel Spill Reporting and Response

For the purpose of this section, fuel is defined as any petroleum based product in liquid form used to power aircraft, ground service vehicles, and/or stationary power plants.

1. Notification

Immediate notification by the fueling operator or aircraft operator shall be made to the Airport Fire Department at 314-426-8133 should any fuel spill occur or fuel leak be detected. The Airport Fire Department will then notify other Airport Authority departments as necessary.

The reporting party shall provide the Airport Fire Department with the following info:

- a. If the spill is minimal or requires an emergency response
- b. The location of the spill
- c. The nature of the spilled product (gasoline, diesel fuel, jet fuel, AVGAS, hydraulic, or engine oils)
- d. The quantity if known

To determine the appropriate response by the Airport Fire Department, the reporting party shall use the following guidelines:

Minimum Spill

- Product has a flash point at or above 100F
- Product spill covers less than 50 square feet or less than 10 feet in any direction
- Product has not entered a storm or sanitary drain and is in no immediate danger of doing so
- Product is not in proximity to an ignition source

Emergency Spill

- Product has a flash point below 100F
- Product spill covers over 50 sq. ft. or more than 10 feet in any direction
- Product has entered a storm or sanitary drain
- Product is in proximity to an ignition source
- Product spill is an immediate hazard to the safety of personnel or public

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2. Roles and Responsibilities

- a. **Airport Fire Department (AFD):** The AFD has the responsibility for protecting life and property at the St. Louis Lambert International Airport. Any fuel spill must be reported immediately to AFD at 314-426-8133.
- b. **Airport Operations Center:** The Airport Operations Center has the responsibility for the coordination of activities on the airfield including the airline ramp and gate locations. Any spill/release event reported to the AFD will be relayed to the Operations Center for the coordination of operational activities and the documentation of spill/release events in the Operations Center Logbook.
- c. **Airport Environmental / Safety Department:** The Airport Environmental Regulatory Compliance & Safety Manager of the Airport Environmental / Safety Department has the responsibility for managing the regulatory compliance of affected media (air, soil, and water) pursuant to spills and release of fuels within the constraints of environmental statutes and permit obligations and for managing file storage of the *Spill/Release Notification and Corrective Action* reports submitted pursuant to spills and releases at the Airport.
- d. **Airport Tenant Airlines:** Airport tenant airline management has the responsibility for identifying a point of contact for all spills and releases associated with their operations. The tenant airline has the responsibility for managing spills and releases of potential pollutants from their operations that could potentially enter surface water or infiltrate the subsurface and contaminate ground water. Tenant Airlines have the responsibility to notify the AFD of the spill or release of any hazardous material, hazardous substance, or hazardous waste. Airport tenant airlines have the responsibility for completing and submitting form *Spill/Release Notification and Corrective Action* to the Environmental Regulatory Compliance & Safety Manager within (5) business days of the spill/release event.
- e. **Airport Tenant Fueling Operator:** Airport tenant fueling operational contractor has the responsibility for designating a point of contact for any spill or release of fuel from fueling operation. The fueling contractor has the responsibility for managing fuel spills and releases from all fueling operations at the Airport in accordance with this procedure and the tenant fueling operator's SPCC Plan for the St. Louis Lambert International Airport.

3. Spill/Release Cleanup

- a. All fuel spills and releases must be cleaned up in a safe and efficient manner as soon as possible following a release in order to protect human health and environmental integrity. Fuel spills and flammable liquid clean ups must address the cleanup of fuel from pavement surfaces and if spills enter storm drains, retrievable spills must be removed from the surface of the Cold Water Creek and Cowmire Creek receiving stream.

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Cleanup shall consist of the following:

- Securing an area adjacent to and encompassing the spill/release to protect personnel.
 - Identifying (if unknown) the spilled material(s)
 - Notification of the AFD and subsequent notification of local, state, and federal agencies with jurisdiction as required pursuant to statutory environmental regulations.
 - Implement removal and cleanup of affected media (pavement surfaces, grass areas, interior spaces, and if affected, storm water sewers and the storm water receiving stream.
 - Disposal of received product/waste and affected media restoration (if applicable).
- b. Spill cleanup and restoration shall be accomplished without unnecessary delay. All tenant operations shall designate a point of contact for spill response emergencies who will act as a liaison with the Airport Fire Department in the process of spill notification and subsequent clean up.
- c. The company responsible for a spill/release of reportable quantity of fuel, hazardous material, substance, or waste shall complete and submit the *Spill/Release Notification and Corrective Action* form.

All completed forms must be returned to the Environmental Regulatory Compliance & Safety Manager within 5 business days of a reportable spill/release event. Any changes to operations or logistics as a result of corrective action(s) instituted as a result of spills or releases should be implemented immediately, and those actions should be documented on the aforementioned corrective action document submittal to the Environmental Regulatory Compliance & Safety Manager.

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AIRCRAFT FUEL SERVICING VEHICLES

QUARTERLY INSPECTION

Inspector: _____ Fueling Agent: _____ Date: _____

S - Satisfactory	T - Tanker	Truck Number									
U - Unsatisfactory	H - Hydrant	Type Fuel									
R- Remark Below			S	U	R	S	U	R	S	U	R
Fuel trucks parked 50' from bldgs. and 10' apart											
Fuel trucks marked with operator name on both sides											
No Fuel Leaks											
Vehicles Exhaust System - Shielded/Leak free/spark arrestor if required											
No Smoking sign-cab/all 4 sides/No evidence of smoking/No ashtray											
Flammability/Product signs sides-back/Haz Mat placards all sides											
Bonding cables provided and clips/plugs functional											
Fuel Trucks - 2 80-B:C extinguishers min. 20lbs. 1 on each side (No ABC)											
Hydrant vehicles and carts - One 80-B:C extinguisher											
Deadman Control for all nozzles/Not bypassed											
Integral system for nozzles to be stowed before moving fuel vehicles											
Brake interlock system for bottom loading coupler/Overwing nozzles											
Emergency fuel shutoffs operable and properly placard/1 each side											
Acft fueling hose/No blistering, cracking, saturation, separation											
Dry break couplers and adaptors are installed											
Aviation fueling hose used/No Kinks											
Explosion proof electrical/Lights lens intact											
Dome cover seals intact with forward mounted hinge (Tanker Only)											
Truck cabinets have grating type flooring or open flooring											
Vehicle DPF Regeneration Area meets standards, if Applicable											
Proper Fueling Procedures Observed											
Remarks:			FOLLOW UP REQUIRED								

Checklist Based on the 2017 NFPA Fire Code for Airport Fueling Operations

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AIRPORT FUEL SYSTEMS

QUARTERLY INSPECTION

Inspector: _____ Fueling Agent: _____ Date: _____

S - Satisfactory U - Unsatisfactory R- Remark Below	Jet A Section			100LL Section		
	S	U	R	S	U	R
Entrances to fueling areas posted with No Smoking signs						
Clear display of Hazard Diamond Placard						
No evidence of smoking						
All tanks, machinery, piping is bonded or grounded						
Areas around tanks are free of weeds, trash or combustible materials						
Emergency fuel shutoffs provided for each fueling system/Outside spill area						
Emergency fuel shutoffs provided for each tank vehicle loading station						
Proper EMERGENCY FUEL SHUTOFF placards /7 ft. above grade						
Emergency fuel shutoffs kept clear and tested every 6 months						
Fuel servicing equipment properly maintained free of leaks						
Procedures for prevention & control of spills and notification to fire dept.						
Bonding connections available for loading stations						
Deadman controls available for loading stations/Not bypassing Deadman						
Dry break couplers and adaptors installed						
Aircraft fuel hose/blistering, cracking, carcass saturation, separation, kinks						
Fueling hydrants, pits, cabinets located 50' from bldg. except loading bridges						
80-B:C extinguishers at fuel storage area usually at Emerg Fuel Shutoff						
80-B:C rated extinguisher at each fuel vehicle loading station						
No A:B:C rated DC extinguishers within 500ft of aircraft operating areas						
Wheeled extinguishers on aircraft servicing aprons at gates or 200ft apart						
Explosion proof electrical equipment						
Above ground fuel piping of acft movement area protected by barrier guard						
FOLLOW UP REQUIRED						
Remarks:						

Checklist Based on the 2017 NFPA 407 Fire Code for Airport Fueling Operations

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AIRCRAFT FUEL SERVICING CART

QUARTERLY INSPECTION

Inspector: _____ Fueling Agent: _____ Date: _____

S - Satisfactory U - Unsatisfactory R- Remark Below	Cart Number	Type Fuel									
			S	U	R	S	U	R	S	U	R
Fuel cart marked with operator name on both sides											
No Fuel Leaks											
Flammability/Product signs sides-back/Haz Mat placards all sides											
Bonding cables provided and clips/plugs functional											
1 80-B:C extinguisher(No ABC) Hydrant veh & carts											
Deadman Control for all nozzles/Not bypassed											
Emergency fuel shutoffs operable and properly placard/1 each side											
Acft fueling hose/No blistering, cracking, saturation, separation											
Dry break couplers and adaptors are installed											
Aviation fueling hose used/No Kinks											
Proper Fueling Procedures Observed											
Remarks:	FOLLOW UP REQUIRED										

Checklist Based on the 2017 NFPA Fire Code for Airport Fueling Operations

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FAA Approval S. Totter

139.323 TRAFFIC AND WIND INDICATORS

1. Wind Indicators/Socks

The primary wind cone is lighted and located 1,000 feet inward and to the left of Runway 12R approach end. Supplemental windsocks are lighted and are located at points 1,000 feet inward and to the left of the following runway ends:

- Runway 6
- Runway 11
- Runway 12L
- Runway 24
- Runway 29
- Runway 30R
- Runway 30L

Another windsock is located atop the Signature FBO. A final wind indicator/sock is located atop Field Maintenance Building “A.”

St. Louis Lambert International Airport has a continuously manned Air Traffic Control Tower, there is no need for a segmented circle and thus Lambert does not have, nor is one planned to be installed here in the future.

2. Procedures for Inspection and Maintenance

The Primary wind indicators/socks and Supplemental wind indicators/socks will be inspected as a part of the daily field inspection. Discrepancies will be noted on the Airport Self – Inspection Checklists located in Appendix A and work orders will be created. The work orders will be sent directly to the Field Maintenance Supervisor and Electric Shop Supervisor for initiation of repairs or corrective actions.

As a rule, wind indicators/socks at Lambert are changed twice a year or when conditions dictate replacement.

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139.325 AIRPORT EMERGENCY PLAN

1. Airport Emergency Plan

The St. Louis Lambert International Airport's "Airport Emergency Plan" is found under a separate cover. The Plan was developed and coordinated with law enforcement agencies, rescue and firefighting agencies, medical personnel and organizations, the principal tenants at the airport, and all other agencies/persons who have responsibilities under this plan.

2. Training of Airport Personnel

All airport personnel that have duties and responsibilities under the AEP are properly trained and familiar with their assignments.

3. Annual Review of the AEP

A review of the AEP is conducted at least once every twelve consecutive calendar months to ensure that the AEP is current and all parties with whom the plan is coordinated are familiar with their responsibilities. All of the agencies involved in the AEP shall participate in the annual review meeting.

4. Triennial Full – Scale Exercise of the AEP

A full – scale exercise of the AEP is conducted at least once every 36 consecutive calendar months. The full – scale exercise involves, to the extent practicable, all mutual aid participants and a reasonable amount of emergency equipment. The purpose of this exercise is to test the effectiveness of the AEP through a combined response of the Airport and mutual aid agencies to an air carrier accident at the Airport, and to familiarize emergency personnel with their responsibilities in the plan.

5. Consistency with Security Regulations

The AEP contains instructions for the response to bomb incidents, including designation of parking areas for the aircraft involved; and sabotage, hijack incidents, and other unlawful interference with operations that are consistent with the approved airport security program.

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139.327 SELF – INSPECTION PROGRAM

1. Airport Inspection Procedures

Field and Electrical Inspections are made daily at scheduled times by personnel of the Operations Center. Maintenance inspections of the above areas are also made by Field Maintenance as a part of their daily work routine.

Inspections are the responsibility of the Operations Center. Daily inspections are generally made at night and are performed by the Operations Center Personnel. Inspections are made by personnel in vehicles driving on runways, taxiways, and other Airport areas in such a way as to observe any and all conditions which may require corrective actions or repairs.

Discrepancies will be noted on the Airport Self-Inspection Checklists located in Appendix A on pages AA – 1 and 1A. Corrective actions or repairs will be made in accordance with the specifications of this Airport Certification Manual.

In addition to the daily inspections, special inspections of Airport areas may be made for the following reasons:

- A. During and after construction activities
- B. In response to weather – induced conditions (extreme heat, snow, ice, etc.)
- C. Immediately after any incident or accident, aircraft or non – aircraft related, which has taken place on Airport grounds
- D. When possible, in response to airline requests for FOD/debris inspections
- E. In response to any other condition which may occur on Airport grounds and which may necessitate an inspection by Airport personnel

2. Inspection Reporting System

If Operations Center Personnel determine that a field or electrical item requires rectification, a work order shall be issued for the discrepancy through Cityworks and it will be disseminated automatically to Maintenance Department Heads for initiation of corrective actions or repairs. Additionally, these discrepancies will be noted to the Assistant Director of Operations & Maintenance and the Operations Center. If the Assistant Director of Operations & Maintenance or Operations Center determines a condition exists which may be, or is, hazardous to Aircraft Operations or if any such condition is in violation of FAA Rules and Regulations, such area(s) where the condition exists will be closed or restricted to aircraft operations.

Closures/restrictions will be disseminated by means of the Airport Condition Report issued via the AC dissemination process through the Airport Operations Center.

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Personnel in this department are responsible for issuing, verifying and cancelling all amendments to the Airport Condition Report regardless of the nature or condition the amendment addresses.

Once a discrepancy has been corrected, Maintenance personnel will complete the work order via Cityworks and it will automatically send it to the Operations Center for re-inspection. Upon re-inspection of a work order, the Airport Operations Center Personnel shall determine if it satisfies FAA Rules and Regulations and will close out the work order. The Operations Center will notify the Air Traffic Control Tower and/or the affected Airport tenants that the discrepancy or condition has been corrected or repaired. If an amendment to the Airport Condition Report was issued, that amendment will be canceled by the Operations Center personnel. If the Airport Operations Center Personnel determine that the work order does not satisfy FAA Rules and Regulations, it shall be sent back to the respective Maintenance Department Heads for corrective action to be taken and the Airport Condition Report shall be updated accordingly.

In the event of a Cityworks network failure, the Operations Center shall revert back to the Airport Self – Inspection Checklists located in Appendix A on pages AA – 1B and 1C.

3. Training

The Airport Operations Supervisor is responsible for training the Operations Center personnel to ensure that qualified personnel perform the inspections. In addition to on-the-job training, instruction includes initial and/or recurrent training in the following subjects:

- A. Airport Familiarization and Radio Procedures Class
- B. USDA Wildlife Training
- C. AMO notification procedures
- D. AAAE Airport Safety and Security Specialist School (ASOS), subject to budgetary constraints
- E. Discrepancy reporting procedures
- F. Inspection Procedures and Recordkeeping

4. Recordkeeping

A. Inspection

All Airport Self – Inspection Checklists will be kept on file electronically no less than twelve calendar months. Upon the request by the FAA Administrator, or his designee, Airport Operations Personnel shall furnish (compact disc, flash drive, email, or etc.) all said inspections for the previous twelve calendar months.

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B. Training

Training records for each individual include a description and date of training received. Training records are kept for no less than twenty – four consecutive calendar months as specified in FAR Part 139.301.

5. Field and Lighting Inspection Conditions

Conditions which are inspected daily include but are not limited to the following:

A. Pavement Areas

1. Pavement lips exceeding three inches
2. Holes exceeding three inches deep and five inches across
3. Cracks or surface variations which could impair directional control of aircraft
4. Presence of snow, ice, slush, standing water or ponding

B. Safety Areas

1. Potentially hazardous ruts, depressions, humps, erosion, or other surface variations
2. Objects in safety areas, other than those required by function
3. Mounting bases on authorized objects in safety areas in which the frangible point exceeds three inches above grade, including FAA NAVAIDS
4. Ponding of water or plugged drains
5. Removed or missing manhole covers
6. Snowbanks in such a height that all Air Carrier propellers, engine pods, and wingtips shall not clear the snowbanks when the aircraft's landing gear located at any point along the full strength edge of the pavement.

C. Pavement Markings

1. Markings which are not clearly visible and in good condition
2. Glass beads not clearly visible at night
3. Markings which are not in accordance with standards in AC 150/5340 – 1, current editions, Standards for Airport Markings and the Marking and Sign Plan

D. Guidance Signs

1. Signs not in accordance with the Marking and Sign Plan
2. Signs not in accordance with standards in AC 150/5340 – 18, current edition, Standards for Airport Sign Systems
3. Signs not in accordance with specifications in AC 150/5345 – 44, current edition, Specification for Taxiway and Runway Signs

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4. Inoperable lighting
5. Damaged, missing, peeling, flaking or obscured signs
6. Concrete base or frangible point more than three inches above grade

E. Holding Position Markings/Signs

1. Signs not in accordance with standards in AC 150/5340 – 18, current edition, Standards for Airport Sign Systems and AC 150/5345 – 44, current edition, Specification for Taxiway and Runway Signs
2. Marking not in accordance with standards in AC 150/5340 – 1, current editions, Standards for Airport Markings
3. Hold markings not clearly visible
4. Glass beads not clearly visible at night
5. Damaged, missing, peeling, flaking, inoperable or obscured hold signs

F. Lighting

1. Lights not in accordance with standards in AC 150/5340 – 30, current edition, Design and Installation Details for Airport Visual Aids
2. Lighting systems not maintained in accordance with Section 311 of this ACM or Appendix A, of AC 150/5340 – 26, current edition, Maintenance of Airport Visual Aid Facilities
3. Lights obscured, dirty, missing, or out of adjustment
4. Inoperable lighting system
5. More than 15% of lights out on runway edge light system for CAT I, NPI or visual runway
6. More than 5% of lights out on runway edge light system for CAT II or III runway
7. Two or more runway edge lights out in a row (Any missing fixtures at intersections are counted as an inoperable light)
8. More than 5% runway centerline lights out
9. More than 10% TDZ lights out
10. Two or more threshold/runway end lights out on any runway end
11. More than two adjacent taxiway lights out/more than 15% out in a taxiway system
12. More than 10% taxiway centerline lights out in a taxiway system
13. Inadequate shielding of apron, parking, and roadway lighting

G. NAVAIDS

1. Inoperable rotating beacon
2. Inoperable lighting on wind direction indicators
3. Deteriorated, faded, or malfunctioning windsock
4. Objects, vegetation, or snow that may affect NAVAID signals

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H. Obstructions

1. Inoperable obstruction lights
2. New construction nearby which may affect aircraft operations or NAVAIDS

I. Airfield Construction Areas

1. Barricades not in place or too high to provide adequate clearance for aircraft
2. Construction warning lights inoperable
3. Construction warning lights on movement areas are not red
4. Marking of construction vehicle routes inadequate
5. NOTAMs not current
6. Construction equipment parked or operating in unauthorized areas
7. Marking, lighting, or sign systems being installed contrary to FAA standards
8. Potentially confusing marking/lighting/signs around construction areas
9. Construction activity contrary to AC 150/5370 – 2, current edition, Operational Safety on Airports during Construction
10. Construction activity contrary to the Construction Safety Plan

J. Fencing

1. Perimeter fencing down, gates open, or signs missing
2. Apron fencing down, gates open, or signs missing

K. Wildlife Hazards

1. Presence of birds, deer, coyotes, or other wildlife that could affect safe operations of Air Carrier aircraft

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139.329 PEDESTRIANS AND GROUND VEHICLES

1. Authorized Ground Vehicles

Only those ground vehicles authorized by the Airport Authority or those operating in support of Aircraft/Airline operations will be allowed in the aircraft movement area and safety areas at St. Louis Lambert International Airport.

Operators of the above vehicles will be required to have both a valid state operator's and a Lambert Airport Identification Badge. Operators of vehicles who do not possess an Airport ID Badge will be escorted at all times by personnel possessing appropriate Airport Identification.

2. Access to Airport Movement Areas and Safety Areas

Access to aircraft movement areas and safety areas is restricted by means of 2 (two) continuously manned, guard controlled electric gates, a remote-controlled overhead electric gate and a series of perimeter fence gates, each of which is chained and padlocked.

Keys to padlocks and controls for remote – controlled gates are distributed to Airport Personnel on an as needed basis. Access through any of the four manned electric gates is only possible by displaying Airport Identification and by driving an approved vehicle.

3. Vehicle Communications

All ground vehicles desiring to enter, cross or drive on any runway, taxiway or other aircraft movement area and/or associated safety area must be equipped with a two-way radio capable of communications with STL ATCT on the operative Ground Control frequency.

All ground vehicles that are not being escorted will establish two-way radio communications with STL ATCT Ground Control and receive clearance prior to entering any runway, taxiway or other aircraft movement area. Vehicles that are cleared will maintain two-way radio communications with, constantly monitor and be subject to control by STL ATCT Ground Control at all times while operating in aircraft movement areas and must request and receive clearance before entering any other movement area. Before proceeding onto an aircraft movement area that has been closed by an amendment to the Airfield Condition Report, vehicles must still request and receive an initial clearance from STL ATCT Ground Control. Vehicles will always advise STL ATCT Ground Control when they are clear of the respective aircraft movement area following each clearance by STL ATCT.

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In the event a vehicle loses radio contact with STL ATCT Ground Control while on an active runway, taxiway or other Airport Movement Area, the vehicle will flash its headlights in the direction of the Control Tower in an effort to get the attention of Air Traffic Control personnel. Once so alerted, STL ATCT personnel will signal the vehicle with a light gun from the Control Tower Cab until such times the vehicle is clear of the aircraft movement area.

A ground vehicle not equipped with a two-way radio capable of communications with STL ATCT on operative Ground Control frequencies that desires access to any runway, taxiway or other aircraft movement area and/or associated safety area, must be escorted on and off the runway, taxiway, or other aircraft movement area and/or associated safety area and accompanied at all times by a vehicle so equipped.

4. Lead Vehicle Escorting Procedures

The lead vehicle shall establish communications with the Air Traffic Control Tower, stating their location, intentions and the number of vehicles being escorted. All vehicles being escorted must follow the lead vehicle at all times while under escort. The lead escort vehicle will inform all subsequent vehicle operators of this standard operating procedure. An escorted vehicle may break off from an established group only if they have established communications with the Air Traffic Control Tower on their radio and receive clearance to break off from the group.

5. Ground Vehicle Operations Procedures

The following procedures establish the rules and regulations governing vehicle movements on aircraft movement areas at St. Louis Lambert International Airport under the authority of St. Louis, Missouri County Ordinance #8778, dated August 8, 1978.

A. Rules and Regulations

1. Only persons possessing a valid state operator's license and a valid airport identification badge will be authorized to operate any motorized vehicle, other than aircraft, on aircraft movement areas at Lambert.
2. Riding on baggage carts, trailer hitches, fenders, or on any portion of a vehicle not equipped with proper seats is prohibited.
3. All vehicle lights will be lighted from sundown to sunup or during the time of reduced visibility when said vehicle is being operated.
4. All baggage tugs and motorized ramp vehicles must have at least two working headlights. When headlights cannot be dimmed by a dimmer switch, they must be focused so as to strike the ground not more than 50 feet ahead of the vehicle. All baggage tugs and motorized ramp vehicles must have at least one operating tail light.

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5. All non-motorized equipment will have reflectorized material on the rear of said equipment.
6. All vehicles with a type chassis that normally would be licensed to operate on highways will have two headlights, two operating tail lights and stop lights.

B. Traffic Rules and Regulations on Ramp/Aprons

1. No person will operate a motor vehicle of any kind in a reckless manner or in excess of the speed limits prescribed by the Airport Authority (15 miles per hour on the apron or ramp). Motor vehicles will be so operated as to be under proper control at all times.
2. A moving aircraft, an aircraft with engines running, or an aircraft under tow has the right of way over all vehicles.
3. Transit vehicles crossing the ramp and/or apron area around the gate positions will travel on the outer side of the parked aircraft.
4. Vehicles operating on the ramp and/or apron will pass to the right of approaching vehicles at all times. To pass a vehicle traveling in the same direction, the overtaking vehicle will pass on the left side of the vehicle being overtaken.
5. No vehicle will be left unattended with motor running on the ramp or apron without first setting the parking brake, and only when necessary to perform the primary vehicle function.
6. No equipment or vehicle will be parked in the middle of the ramp or apron, or in such a manner as to obstruct or block driveways or doors.
7. No vehicle will have more than four carts, six pod dollies, or four wide body trailers in tow at any one time.
8. Private vehicles will not be permitted on aircraft movement areas unless escorted by Airport Police, airline personnel, or Airport Authority personnel.
9. All vehicles will use traffic lanes where they are marked or as so designated.
10. In the event a vehicle becomes disabled, the operator is to immediately turn on the vehicle emergency flashers and/or rotating beacon(s), and notify their company of the situation and request assistance. A representative of the company is to then notify the Airport Operations Center with type of vehicle, location and an estimate of the time required to remove the vehicle from the area.

C. Enforcement

Enforcement of the ground vehicle operations procedures and traffic rules and regulations as contained in this section will be the same as regards to the consequences of noncompliance by any employee, tenant or contractor as follows;

1. Violators of the above rules and regulations maybe issued a traffic citation requiring appearance in St. Louis County Traffic Court.

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2. Movement Area Violations - Upon notification of a violation, such as a runway incursion, the Director of Airports or designated representative will take under advisement the individual and the violations involved and may, at his/her discretion, immediately revoke the airport movement area driving privileges of the concerned individual. A debrief and recurrent Movement Area training by Airport Operations shall be conducted before any person involved in a runway incursion will be authorized to drive on the Movement Area.
3. Non-Movement Area Violations – Violations, such as speeding on the ramp, follow a progressive penalty type of system. 1st violation is a written warning, 2nd violation is mandatory recurrent training with Airport Operations, 3rd violation is a loss of driving privileges for 7 days and mandatory recurrent training with Airport Operations and the 4th violation is loss of driving privileges for one year and mandatory recurrent training with Airport Operations.
4. The uniformed Police Officers or Airport Operations, as designated by the Director of Airports are empowered to require compliance with these rules and regulations. No authority is hereby either expressed or implied, however, that would permit any individual other than the Director of Airports to change, alter, or amend these rules and regulations, in accordance with St. Louis County Ordinance No. 8778 (7-24-78).

6. Training of Employees

A. Movement Area and Safety Area Access

The Airport Operations Center shall train all personnel who access movement areas and safety areas and perform duties in compliance with the requirements of the ACM and Part 139. Training must be completed before the initial performance of such duties and, for all personnel authorized to access the movement areas and safety areas. All personnel shall undergo recurrent training at least once every twelve consecutive calendar months on the AAEE Interactive Employee Training (IET) computers. The Airport has prepared a Movement Area Driver's Training Class Manual that is provided to all personnel authorized to operate on the movement areas and safety areas. The curriculum for initial and recurrent training must include at least the following areas:

1. Review of the Movement Area Driver's Training Class Manual
2. Airport Familiarization, including airport marking, lighting and signs system
3. Procedures for access to, and operations in, movement areas and safety areas, as specified under Part 139.329
4. Airport communications, including radio communication between ATCT and personnel
5. Any additional subject areas as required under Part 139, Sections 319, 321, 325, 327, 337, and 339, as appropriate.
6. Viewing a PowerPoint presentation and a training video

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Additional department specific Part 139 training for Airport Authority employees is conducted by the Safety Office.

B. Apron and Ramp Area Access Only

The Airport Operations Center has prepared a Non-Movement Area Driver's Training Class that new employees, who access apron and ramp areas, are required to attend prior to the initial performance of their duties. These employees primarily consist of airline and FBO employees, contractors, and Airport Authority personnel. The curriculum includes at least the following areas:

1. Review of the Non-Movement Area Driver's Training Class Manual
2. Airport Familiarization, including airport marking, lighting, and signs
3. Regulations governing vehicular traffic
4. Foreign Object Debris (FOD)
5. Any additional subject areas required under Part 139, Sections 321, 329, and 339, as appropriate.
6. Viewing a PowerPoint presentation and a training video

On-the-job training for Airport Authority employees is conducted by the employee's supervisor.

C. Tenant Training

The Airport Administrator may, on a case by case basis, allow an individual tenant to train their employees. These employee trainers are required to complete the appropriate Airport Authority class described above and are strongly encouraged to complete recurrent training with the Airport Authority at least once every twelve consecutive calendar months.

Tenants that conduct their own training are responsible for keeping records of all training completed by each individual in compliance with this section.

To ensure proper training and oversight, tenant training records and classes may be audited at any time by the Airport Operations Supervisor.

D. Personnel Training Program

A training curriculum has been prepared for the following topics related to the airport certification program required by FAR Part 139.303(c). The training consists of an outline of the subject matter for each airport certification related topic and a list of training materials available for use. Content of training is primarily based on airport related Advisory Circulars, (Series 150), the ACM and FAR Part 139. The Airport

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Operations Supervisor and the Airport Safety Manager are responsible for administering the training program and maintaining records of training.

The following personnel are required to receive initial and annual recurrent training in airport certification related areas as required by Part 139.303(c).

1. Airport Operations Center personnel are trained in accordance with a training curriculum addressing the following topics:
 - a. Airfield Familiarization and Radio Procedures
 - b. Airport Certification Manual (ACM)
 - c. FAA Standards for Airfield Markings, Signs and Lighting, instructed by the Airport Safety Office
 - d. Airport Self-Inspection Program; FAR Part 139 Maintenance Criteria for Maintaining Paved Areas, Safety Areas, Airfield Markings, Signs, Lighting, Obstruction Lighting, ILS Critical Areas, Traffic and Wind Direction Indicators
 - e. Maintenance of Airport Visual Aid Facilities, current edition
 - f. Operational Safety on Airport During Construction, current edition
 - g. Ground Vehicle/Pedestrian Operations on the Movement Area
 - h. Wildlife Hazard Management (trained by USDA Wildlife Biologists)
 - i. Snow and Ice Control Plan
 - j. Airport Condition Reporting (NOTAMS)
 - k. Airport Emergency Plan (responsibilities related to their position)
 - l. Surface Movement Guidance and Control Systems (SMGCS)
2. Airport Airfield Maintenance personnel are trained in accordance with a training curriculum addressing the following topics:
 - a. Airfield Familiarization and Radio Procedures
 - b. FAA Standards for Airfield Markings, Signs and Lighting, instructed by the Airport Safety Office.
 - c. Snow and Ice Control Plan
3. Airport Electric Shop personnel are trained in accordance with a training curriculum addressing the following topics:
 - a. Airfield Familiarization and Radio Procedures
 - b. FAA Standards for Airfield Markings, Signs and Lighting, instructed by the Airport Safety Office.

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4. FAA Technical Operations personnel are trained in accordance with a training curriculum addressing the following topics:
 - a. Airfield Familiarization and Radio Procedures
5. FBO/Airline personnel are trained in accordance by their own safety instructors with a training curriculum addressing the following topics:
 - a. Non-Movement Area Driver's Training Class
6. Boeing personnel are trained in accordance by their own safety instructors with a training curriculum addressing the following topics:
 - a. Airfield Familiarization and Radio Procedures
7. Authorized Construction personnel are trained in accordance with a training curriculum addressing the following topics:
 - a. Airfield Familiarization and Radio Procedures

7. Distribution to Airport Tenants, Employees, and Contractors

A copy of ground vehicle operations procedures, traffic rules and regulations and enforcement provisions as contained in this section will be made available to each employee, tenant or contractor with access to any aircraft movement area as follows:

- A. A copy will be provided to all affected Airport tenants via the Airports' website. It will be the responsibility of the Airport Authority to ensure distribution of these procedures, rules and regulations and enforcement provisions to the tenants; however, it will be the responsibility of the tenant to ensure further distribution to their own personnel.
- B. A copy will be made available to all affected employees through their respective Airport Authority Department heads.
- C. A copy will be provided to all affected Airport contractors as part of the Security Access Procedures. It will be the responsibility of the Airport Authority to ensure distribution of these procedures, rules and regulations and enforcement provisions to the contractors; however, it will be the responsibility of the contractor to ensure further distribution to their own personnel.

8. Vehicle Accident Reports

All persons involved in any personal or automotive accident occurring on the premises of St. Louis Lambert International Airport will make a report to the Airport Police as soon as possible giving all pertinent information as requested by the responding officer. Each operator of a ground vehicle involved in any accident or incident with an aircraft or involved in any accident or incident in a movement or safety area will immediately report the accident or incident both to the Airport Police and the Airport Authority Operations Center, giving all pertinent information as requested by the responding officer and Operations Supervisor in charge.

9. Records

- A. Records of training completed by each individual will include, at a minimum, a description and date of training received. These records are maintained for twenty-four consecutive calendar months after completion of training.
- B. Accident and incident reports in the Movement Areas and Safety Areas will be kept on file in the Airport Operations Center for no less than twelve months.

139.331 OBSTRUCTIONS

1. General

All contractors shall send an FAA Form 7460 – 1, Notice of Proposed Construction or Alteration to the FAA Regional Office when / where applicable.

2. Obstructions

Obstructions as determined by the FAA which are lighted and listed in Section 139.311 of this Airport Certification Manual. Obstruction lighting is inspected daily as part of the Electrical Inspections, see Section 139.327 of this Airport Certification Manual.

Obstructions as determined by the FAA which are outside the Airport perimeter fence are listed in Appendix B.

3. Zoning Ordinance

It will be the responsibility of any contractor, individual or organization who wishes to build upon, alter existing premises or construct new premises upon property at St. Louis Lambert International Airport to be in compliance with all Local, City, County, State and Federal Ordinances, to include FAR Part 77.13, Construction or Alteration Requiring Notice, and must submit a Tenant Construction or Alteration Application to the Airport Properties Division Manager.

139.333 PROTECTION OF NAVAIDS

1. Construction Review

It shall be the responsibility of the Assistant Director of Engineering and the Assistant Director of Operations & Maintenance to review all proposed construction plans and equipment needed for such construction, which may take place on, around or near Airport Grounds. When such plans require it, they will be submitted to the FAA Regional Office along with FAA Form 7460-1, Notice of Proposed Construction or Alteration. This form and plans will be submitted no less than 30 days prior to the starting date of the construction or alteration.

Necessary requirements for submission of FAA Form 7460 – 1 are as follows:

- A. Construction or alteration on Airport Property
- B. Construction, alteration or necessary equipment in Instrument Approach Areas
- C. Construction, alteration or necessary equipment above 200 feet AGL
- D. Penetration of FAR Part 77 Imaginary Surfaces by construction, alteration or necessary equipment.

2. Construction Coordination

Prior to the start-up of any construction, the Assistant Director of Planning & Engineering, the Assistant Director of Operations & Maintenance, affected Airport Tenants, and personnel of the local FAA Air Traffic Control Tower will meet to ensure construction will create the absolute minimum interference to airport and/or aircraft operations and airport NAVAIDS.

Blueprints are available in the Airport Engineering Offices for use by construction personnel to prevent the inadvertent disruption of Airport utilities (Utilities such as underground electrical lines, sewage lines, fuel pipelines, water lines, etc.). Additionally, during construction, personnel of the Airport Authority will periodically inspect construction areas to ensure minimization of airport/aircraft operations interruptions.

3. NAVAID Protection

NAVAIDS located inside the airport perimeter are protected by the airport's perimeter fence and are thus not easily accessible for theft, vandalism or acts of malicious mischief. NAVAIDS located outside the airport perimeter are individually protected by chain link fences.

NAVAIDS inside Airport property are inspected daily by Operations personnel on their scheduled inspections. NAVAIDS outside Airport property are inspected for integrity by members of the Airport Police on their perimeter inspections.

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4. Protection of NAVAID Visual and Electronic Signals

Inadvertent interruption of NAVAID visual and electronic signals is to be kept to a minimum by the use of the following:

- A. Use of ILS Hold Signs, where needed, in, around or near ILS Critical Areas
- B. Use of ILS Hold Signs, where needed, on service/access roads passing through or near ILS Critical Areas
- C. Inspections of ILS Critical Areas for excess build-ups of snow, vegetation or other foreign debris
- D. Training of airport vehicle operators in locations, weather conditions and restrictions of ILS Critical Areas

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139.335 PUBLIC PROTECTION

1. Fencing

The airport perimeter at St. Louis Lambert International Airport is surrounded entirely by a series of 8-10 foot chain link fencing. Atop the chain link fencing is three strands of barbed wire to prevent individuals from scaling these fences.

Signs indicating the following are posted at 200' intervals along the perimeter fencing:

**RESTRICTED AREA
DO NOT ENTER
TRESPASSERS WILL BE PROSECUTED**

Fencing at Lambert is constructed in such a way as to prevent inadvertent or accidental entries onto Airport Property and is designed to seriously hamper any attempts to breach Airport Perimeters.

In addition to the perimeter fencing, internal chain link fencing has also been erected at certain areas of the Airport. These areas are:

- a. ATS Jet Center
- b. At the Boeing Complex at the northeast corner of the Airport
- c. At the Signature FBO at the northeast corner of the Airport
- d. At the Airline Cargo area at the southeast corner of the Airport
- e. At the Fuel Farm vehicle storage and staging area
- f. Contractor staging and snow dump areas

All perimeter fencing will have gates incorporated for field access. These gates are kept chained, padlocked and are inspected daily by the Airport Police on their perimeter checks.

2. Field Access

Access to the Aircraft Movement Area is restricted to those individuals with an operational need for access. These individuals must attend the Airport Security Identification Display Class and an Airfield Familiarization Class to obtain a valid Airport Identification Badge which must be shown/worn. Access through perimeter fence gates is only authorized when personnel are complying with 49 CFR Part 1542. Access through perimeter fence gates will be controlled by the Airport Authority and the Director of Airports will have the final approval authority for all personnel desiring entrance into the Aircraft Movement Area.

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All perimeter fence gates will be chained and locked each time an entry or exit is made through a gate. Perimeter fence gates will not be allowed to stand open unless an individual is stationed at the gate to monitor vehicle and personnel using the gate.

3. Inspection and Maintenance

Perimeter gates and fences are inspected on a daily basis by the Airport Police with at least one inspection per shift (A minimum of 3 perimeter fence and gate inspections daily). Airfield Maintenance and Airport Operations personnel also make periodic inspections of the perimeter fencing and gates. Fences will be checked for integrity and gates will be checked to ensure they are chained and locked.

Should a gate be found unlocked, it will be locked immediately and a report given to the Airport Police so they may follow-up and determine who left the gate unlocked and then take the appropriate disciplinary measures.

Should a section of fencing be found damaged, Airfield Maintenance personnel will be notified so that they can make immediate repairs as needed to reinstate the integrity of that section. If necessary, further required and permanent repairs will be scheduled at the soonest possible time should immediate repairs not be adequate to ensure final integrity of the fence in question.

4. Blast Fencing

At this time, there are four areas at Lambert that have Blast Fences. These areas are:

1. At the southwest corner of the Airline Ramp between the Charlie Pad and the Missouri Air National Guard Ramp
2. At the south side of the “A” Concourse at the connecting point with Terminal 1
3. At the south edge of the American Airlines Maintenance/Cargo Ramp located at the southeast corner of the airport
4. Near the southeast retention basin

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139.337 WILDLIFE HAZARD MANAGEMENT

Due to potential wildlife hazards to aircraft operations, a Wildlife Hazard Assessment (WHA) was completed for the St. Louis Airport Authority by the USDA-APHIS-Wildlife Services (WS). This comprehensive assessment identifies potential wildlife hazards at Lambert Airport. The WHA is based on data collected for the years 2003 through 2009, and was received by the Airport in 2011. This Wildlife Hazard Management Plan (WHMP) has been developed in compliance with FAA Advisory Circular 150/5200-38. The recommendations are now reflective of the WHA, but continually modified using the Continual Monitoring Annual Report in an effort to protect the traveling public from wildlife hazards.

1. Requirements

The St. Louis Lambert International Airport Authority will conduct review of the plan in accordance with FAA requirements when any of the following events occur:

- A. Multiple birdstrikes or engine ingestion experienced by an Air Carrier aircraft
- B. Collision of an Air Carrier aircraft with wildlife, other than birds, resulting in aircraft damage
- C. Observation of wildlife having access to aircraft operation areas or in flight patterns containing numbers or sizes capable of causing either of the above events

In case any of the above events occur, the Assistant Director Operations & Maintenance will make a report to the FAA Regional Office and the U.S. Department of Agriculture, Wildlife Services Office.

2. Contents

The content of the assessment and annual continual monitoring reports conducted include, but are not limited to the following:

- A. Review and analysis of an event
- B. Identification of the species and number of birds or animals involved in the event
- C. Identification of the local movement areas of the involved species
- D. Daily and seasonal occurrences of wildlife
- E. Identification and location of features on and near the Airport that may attract wildlife
- F. Description of the wildlife hazard to Air Carrier Operations

3. Responsibilities

- A. Airport Operations Supervisor
 - Responsible for all wildlife management activities that occur at Lambert.

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- Provides resources and supplies required to support the provision of the WHMP.
- Responsible for the annual cooperative service agreement between the STLAA and the USDA – APHIS – Wildlife Services

B. Operations Center

- The on-duty Operations Supervisor or his/her designee has overall authority in the coordination of immediate wildlife issues at Lambert.
- Inspect and monitor the airfield for significant wildlife activity.
- Disperse activity when necessary to protect life and property.
- Respond to wildlife strike notifications made by ATC, pilots, and other personnel. Take appropriate action as needed.
- Advise ATCT of significant wildlife activity that is observed on the airfield that may be present and imminent danger to aircraft arriving at or depart from Lambert.
- Document wildlife strikes involving known or unknown aircraft and any significant wildlife activity observed on, above, or in the vicinity of Lambert Airport in the Operations Center logbook.
- Complete Bird/Wildlife strike reports and observation reports as needed.
- Advise USDA Wildlife Service's personnel at Lambert of changes in wildlife activity.

C. Field Maintenance Department

- Provide the Operations Center with assistance as needed.
- Contact the Operations Center when large flocks of birds, dogs, or other wildlife are observed on or above the airport.

D. Airport Police Department

- Provide the Operations Center with assistance as needed.
- Contact the Operations Center when large flocks of birds, dogs, or other wildlife are observed on or above the airport.

E. Environment / Safety Department

- Provide the Operations Center with assistance as needed.
- Contact the Operations Center when large flocks of birds, dogs, or other wildlife are observed on or above the airport.
- Conducts specific FAR Part 139 training classes.

F. Air Traffic Control Tower (FAA)

- Advise the Operations Center of significant wildlife activity that is observed on the airfield that may present an imminent danger to aircraft arriving at or departing from Lambert.

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- Complete the STL ATCT Form 7210 – 27 Wildlife Strike Form when applicable.
- ATCT will advise the Airport Operations Center when a Wildlife Strike Form is completed.
- A copy of each completed form will be provided to the Operations Center.
- Place wildlife advisory statements on the ATIS recording as needed.

G. USDA – APHIS – Wildlife Services

- Two full time USDA Wildlife Service employees work at Lambert under a cooperative service agreement with the St. Louis Airport Authority. Wildlife Services will assist the Operations Center with wildlife issues as needed. See the end of this section for their 10-year certificates.

H. Other Airport Authority Departments

- Assist the Operations Center with wildlife issues as needed.

4. Habitat Management Plans

Actions taken on a regular basis by Airport Authority personnel will include but not be limited to the following:

- A. Removal of food sources attractive to birds or wildlife, when possible
- B. Removal of brush, woodlands and undergrowth, when possible
- C. Systematic cutting of all grass areas on airport property before they go to seed
- D. Agricultural areas adjacent to airport properties shall be restricted to the farming generally unattractive to birds or wildlife where the airport has jurisdiction
- E. Fencing and maintenance of all Aircraft Movement Areas to prevent and discourage the entry and passage of animals
- F. Utilization of appropriate government agencies for those areas outside airport control
- G. Removal of pigeons and starlings from the airfield and terminal areas
- H. Removal of waterfowl from the airfield and surrounding properties

5. Federal Wildlife Control Permits

The USDA – APHIS – Wildlife Services coordinates all wildlife management activities with the Department of the Interior – US Fish and Wildlife Service. All necessary permits are maintained. Control of mammals and other wildlife covered by the Missouri Code of State Regulations is coordinated through the Missouri Department of Conservation. If requested, the USDA – APHIS – Wildlife Services will assist the St. Louis Airport Authority in obtaining the necessary permits required to carry out the Wildlife Hazard Management Plan.

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The St. Louis Airport Authority currently has all permits that complies with 50 CFR Parts 13 and 21.41: see copies at the end of this section.

6. Supplies and Resources

Supplies maintained by the Operations Center:

- Beeman .177 Cal Model R9 Air Rifle
- 2, 7 – Shot pyrotechnic launchers that shoot both bird bangers and screamers
- 3, 10 – Shot pyrotechnic launchers that shoot both bird bangers and screamers
- Bird Identification Resources
- Strike collection kits

If necessary, assistance from one or more of the following agencies will be solicited:

- A. U.S. Department of Agriculture
- B. Missouri Department of Conservation
- C. St. Louis County Department of Community Health/Rabies Control
- D. Cities of Berkeley, Bridgeton, and Hazelwood Animal Control
- E. World Bird Sanctuaries
- F. Humane Society of Missouri
- G. Animal Protective Association of Missouri

7. Procedures to be Followed during Air Carrier Operations

- A. It shall be the responsibility of the carrier involved to maintain control at all times over animals being shipped. The carriers will be responsible for all shipped animals in their leasehold areas and will be responsible for the capture and retrieval of any animals which may escape and enter the Airline Ramp Area.

In the event an animal, wild or domestic, enters onto a runway or taxiways, Field Maintenance, the Operations Center and/or Airport Police personnel will attempt to either capture the animal or force it from Airport Property.

If necessary, Ops Center or Field Maintenance personnel will also collect and dispose of any bird or animal carcasses which may be found on Airport Property.

- B. The Operations Center will inspect the airport for wildlife activity as needed. Priority will be given to those wildlife hazards which may pose an immediate danger to Air Carrier Operations.

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- C. Wildlife management activities will be conducted on the airport as needed. Each situation will be evaluated and handled in an appropriate manner. The use of pyrotechnics will resolve most situations; however, lethal control is sometimes necessary. When pyrotechnics, a pellet gun, and/or the use of a shotgun are used on the airfield, the Ops Center will notify Airport Police, and wildlife activities must be coordinated with ATCT. Ops Center personnel should remain in radio contact with ATCT to ensure that the dispersal activities do not create a hazard for Aircraft Operations.

8. Periodic Review

The Wildlife Hazard Management Plan will be reviewed annually to determine its effectiveness in dealing with wildlife issues. Topics to be reviewed will include, but not be limited to the previous year's recorded wildlife observations and strikes, future airport planning, and wildlife management procedures. The review of the plan should include representatives from the St. Louis Airport Authority, the USDA – APHIS – Wildlife Services, ATCT, and interested airport tenants.

9. Training

The USDA – APHIS – Wildlife Services has made an initial and recurrent training course available, every twelve months, to St. Louis Airport Authority personnel who will be involved in wildlife hazard management activities. The course consists of wildlife hazard recognition, laws and regulations, wildlife identification, wildlife deterrent techniques, and pyrotechnic safety and use.

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DEPREDEATION AT AIRPORTS

Permit Number: MB841099-0
Effective: 04/01/2019 Expires: 03/31/2020

Issuing Office:

Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Migratory Bird Permit Office
5600 American Blvd West, Suite 990
Bloomington, MN 55437-1458
Tel: 612-713-5436 Fax: 612-713-5393


CHIEF, MIGRATORY BIRD PERMIT OFFICE - REGION 3

Permittee:

CITY OF ST LOUIS AIRPORT AUTHORITY
C/O ALEC SONNEK
4780 ST ANDREW LANE
BRIDGETON, MO 63044
U.S.A.

Name and Title of Principal Officer:

ALEC C SONNEK - WILDLIFE BIOLOGIST

Authority: Statutes and Regulations: 16 USC 703-712; 50 CFR Part 13, 50 CFR 21.41.

Location where authorized activity may be conducted:

Lambert-St.Louis International Airport, St. Louis, MO, to include all properties leased, owned or managed by the City of St. Louis Airport Authority and properties where the airport has a right of entry agreement, with authorization of the land owner.

Reporting requirements:

ANNUAL REPORT DUE: 1/31

You must submit an annual report to your Regional Migratory Bird Permit Office each year, even if you had no activity. Form:
www.fws.gov/forms/3-202-9.pdf

Authorizations and Conditions:

- A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED ABOVE ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.
- B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL OR OTHER FEDERAL LAW.
- C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

D. You are authorized to take, temporarily possess, and transport the migratory birds specified below to relieve or prevent injurious situations impacting public safety. All take must be done as part of an integrated wildlife damage management program that emphasizes nonlethal management techniques. You may not use this authority for situations in which migratory birds are merely causing a nuisance.

Carcasses may be hung as effigies and displayed as an added deterrent.

(1) The following may be lethally taken:

50 American Robins	50 Barn Swallows	150 Canada Geese	10 Chimney Swifts
30 Eastern Meadowlarks	5 Great Blue Herons	10 Great Egrets	10 Green Herons
50 Horned Larks	350 Killdeer	100 Mallards	750 Mourning Doves
40 Turkey Vultures	10 House Finches	200 Red-Tailed Hawks	30 American Kestrels
30 Snow Geese	20 Cooper's Hawks	10 Cattle Egrets	5 Northern Harriers
30 Herring Gulls and/or Ring-Billed Gulls in the aggregate		30 Blue and Green-Winged Teals in the aggregate	

(2) The following may be live-trapped and relocated:

100 Cooper's Hawks	150 American Kestrels	50 Great Horned Owls	300 Red-Tailed Hawks
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Original Date

Revision Date MAY 23 2019

FAA Approval J. Fother

Airport Certification Manual – St. Louis Lambert International Airport



Page 2 of 2
DEPREDTION AT AIRPORTS

Permit Number: MB84109-0
Effective: 04/01/2019 Expires: 03/31/2020

(3) The following active nests (including eggs) may be destroyed:

10 Canada Geese nests with eggs	5 American Robin nests with eggs	10 Mourning Dove nests with eggs
10 Killdeer nests with eggs	20 Barn Swallow nests with eggs	5 House Finch nests with eggs

E. You are authorized in emergency situations only to take, trap, or relocate any migratory birds, nests and eggs, including species that are not listed in Condition D (except bald eagles, golden eagles, or endangered or threatened species) when the migratory birds, nests, or eggs are posing a direct threat to human safety. A direct threat to human safety is one which involves a threat of serious bodily injury or a risk to human life.

You must report any emergency take activity to your migratory bird permit issuing office email to permitsR3MB@fws.gov within 72 hours after the emergency take action. Your report must include the species and number of birds taken, method, and a complete description of the circumstances warranting the emergency action.

F. You are authorized to salvage and temporarily possess migratory birds found dead or taken under this permit for (1) disposal, (2) transfer to the U.S. Department of Agriculture, (3) diagnostic purposes, (4) purposes of training airport personnel, (5) donation to a public scientific or educational institution as defined in 50 CFR 10.12, (6) donation to persons authorized by permit or regulation to possess them, or (7) donation of migratory game birds only to a public charity (those suitable for human consumption). Any dead bald eagles or golden eagles salvaged must be reported within 48 hours to the National Eagle Repository at (303) 287-2110 and to the migratory bird permit issuing office email to permitsR3MB@fws.gov. The Repository will provide directions for shipment of these specimens.

G. You may not salvage and must immediately report to U.S. Fish and Wildlife Service Office of Law Enforcement any dead or injured migratory birds that you encounter that appear to have been poisoned, shot, electrocuted, have collided with industrial power generation equipment, or were otherwise killed or injured as the result of potential criminal activity. See USFWS OLE contact information below.

H. You may use the following methods of take: (1) firearms; (2) nets; (3) registered animal drugs (excluding nicarbazin), pesticides and repellents; (4) falconry abatement; and (5) legal lethal and live traps (excluding pole traps). Birds caught live may be euthanized or transported and relocated to another site approved by the appropriate State wildlife agency, if required. When using firearms, you may use rifles or air rifles to shoot any bird when you determine that the use of a shotgun is inadequate to resolve the injurious situation. You may use paint ball guns to haze birds or deter birds only when other methods of hazing are ineffective.

Anyone who takes migratory birds under the authority of this permit must follow the American Veterinary Medical Association Guidelines on Euthanasia when euthanization of a bird is necessary (http://www.avma.org/issues/animal_welfare/euthanasia.pdf).

Pole traps may be used to capture raptors only when all other reasonable and appropriate methods of deterrence and management prove ineffective. Pole traps employed between sunrise and sunset must be checked at least every 2 hours. Pole traps employed between sunset and sunrise must be checked at least once during the night. Pole traps must be closed down during inclement weather (e.g., precipitation or extreme temperatures) unless they are monitored continuously. Birds captured using pole traps must be relocated a distance sufficient to minimize potential for return to the capture site (preferably at least 100 miles away), except as otherwise authorized by your migratory bird permit issuing office. If injured, the bird must be transferred immediately to a federally permitted migratory bird rehabilitator or licensed veterinarian for care at the permittee's expense.

I. You may temporarily possess and stabilize sick and injured migratory birds and immediately transport them to a federally licensed rehabilitator for care.

J. The following subpermittees are authorized: Designated agents of the permittee

In addition, any other person who is

- (1) employed by or under contract to you for the activities specified in this permit, or
- (2) otherwise designated a subpermittee by you in writing, may exercise the authority of this permit.

K. You and any subpermittee(s) must comply with the attached Standard Conditions for Migratory Bird Depredation Permits. These standard conditions are a continuation of your permit conditions *and must remain with your permit*.

For suspected illegal activity, immediately contact USFWS Law Enforcement at: Springfield, IL at 217-793-9554

Original Date
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FAA Approval J. J. J. J.

Airport Certification Manual – St. Louis Lambert International Airport




Page 1 of 2
EAGLE DEPREDAATION

Permit Number: MB205601-0
Effective: 04/01/2019 Expires: 04/01/2024

Issuing Office:

Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Migratory Bird Permit Office
5600 American Blvd West, Suite 990
Bloomington, MN 55437-1458
Tel: 612-713-5436 Fax: 612-713-5393


CHIEF, MIGRATORY BIRD PERMIT OFFICE - REGION 3

Permittee:

CITY OF ST LOUIS AIRPORT AUTHORITY
dba LAMBERT-ST LOUIS INTERNATIONAL AIRPORT
C/O ALEC SONNEK
4780 ST. ANDREW LANE
BRIDGETON, MO 63044
U.S.A.

Name and Title of Principal Officer:
ALEC C SONNEK - WILDLIFE BIOLOGIST

Authority: Statutes and Regulations: 16 USC 668a; 50 CFR Part 13, 50 CFR 22.23.

Location where authorized activity may be conducted:

Lambert-St Louis International Airport and adjacent properties owned, leased, or managed by the City of St Louis Airport Authority or right of entry

Reporting requirements:

ANNUAL REPORT DUE: 01/31

You must submit an annual report to your Regional Migratory Bird Permit Office each year, even if you had no activity. Form:
<<http://www.fws.gov/forms/3-202-11.pdf>>

Authorizations and Conditions:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED ABOVE ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

D. You are authorized to use non-lethal scare devices, scare tactics or frightening devices to move or disperse bald eagles endangering human safety due to a high risk of a serious bird strike to landing and departing aircraft. You are authorized to use airhorns, pyrotechnics, and drive vehicles with horns as necessary to scare eagles.

Pyrotechnics must not be shot directly at the eagles.

E. You must make a continuous effort to eliminate attractants and other physical properties that may draw eagles to airport property.

F. This permit does not authorize the killing, injury or capture of any eagle or the destruction of any young or nests.

G. This permit does not authorize the disturbance of eagles at active nest sites that contain eggs or young or nests.

H. You must notify the permit issuing office at permitsR3MB@fws.gov within 48 hours of any injury or death of any eagle during project activities.

I. The following subpermittees are authorized:

Original Date
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FAA Approval J. Fatah

Airport Certification Manual – St. Louis Lambert International Airport



Page 2 of 2
EAGLE DEPREDAATION

Permit Number: MB205601-0
Effective: 04/01/2019 Expires: 04/01/2024

Alec Sonnek, Wildlife Services

USDA/APHIS/WVS personnel in conjunction with designated City of St Louis Airport Authority airport operations personnel

In addition, any other person who is

- (1) employed by or under contract to you for the activities specified in this permit, or
- (2) otherwise designated a subpermittee by you in writing, may exercise the authority of this permit.


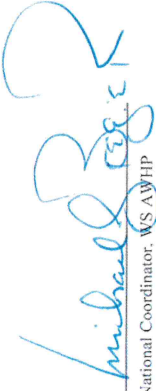
J. You must submit a report of activities conducted under this permit to the USFWS, Migratory Bird Permit Office, by the Jan 31 date specified on the face of the permit. The report form, 3-202-11, is available at: <http://www.fws.gov/forms/3-202-11.pdf>.

K. You must comply with the attached Standard Conditions for Eagle Depredation Permits. **These standard conditions are a continuation of your permit conditions and must remain with your permit.**

For suspected illegal activity, immediately contact USFWS Law Enforcement at: Springfield, IL office 217-793-9554.

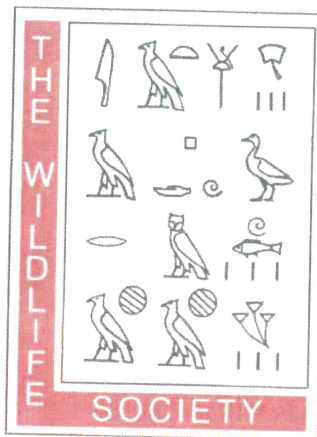
Original Date
Revision Date MAY 23 2019

FAA Approval *J. [Signature]*

WILDLIFE SERVICES CERTIFICATE QUALIFIED AIRPORT WILDLIFE BIOLOGIST	
	This is to certify that: Alec C. Sonnek
United States Department of Agriculture	has the requisite qualifications, training and accomplishments to fulfill the requirements of Federal Aviation Administration Advisory Circular 150/5200-36A "Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports" and is hereby certified to conduct the activities of a Qualified Airport Wildlife Biologist in accordance with approved directives and guidelines.
Animal and Plant Health Inspection Service	 National Coordinator, WS AWHP
Wildlife Services	Expiration Date: December 31, 2022

WS FORM 83B (2013)

Original Date _____
Revision Date MAY 23 2019



The Wildlife Society

INCORPORATED IN WASHINGTON D.C.

grants the designation

Certified Wildlife Biologist

to

Alec C. Sonnek

in recognition of fulfillment of all the professional requirements approved by The Wildlife Society and verified by the Society's Certification Review Board. This designation is valid for 5 years, beginning the first day of January 2018, provided membership in the Society remains in good standing.



John E. McDonald Jr.
President, The Wildlife Society


deVan
Chairman, Certification Review Board

Ed R.
Executive Director, The Wildlife Society

Original Date

Revision Date MAY 23 2019

**WILDLIFE SERVICES CERTIFICATE
QUALIFIED AIRPORT WILDLIFE BIOLOGIST**

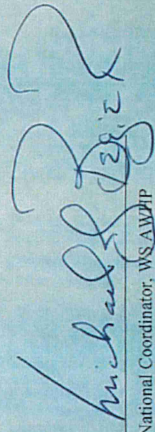
 This is to certify that: **Paul H. Flicek**

has the requisite qualifications, training and accomplishments to fulfill the requirements of Federal Aviation Administration Advisory Circular 150/5200-36A "Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports" and is hereby certified to conduct the activities of a Qualified Airport Wildlife Biologist in accordance with approved directives and guidelines.

United States
Department of
Agriculture

Animal and Plant
Health Inspection
Service

Wildlife Services

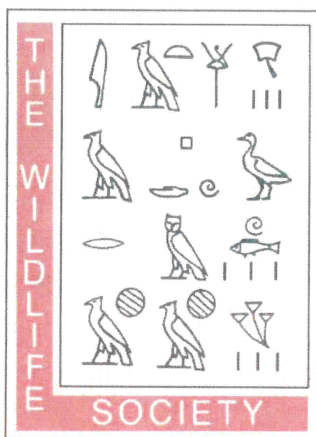

National Coordinator, WS AWHP

Expiration Date: December 31, 2023

WS FORM 83B (2013)

Original Date _____
Revision Date MAY 23 2019

FAA Approval J. Rotholz



The Wildlife Society

INCORPORATED IN WASHINGTON, D.C.

grants the designation

Associate Wildlife Biologist

to

Paul Harvey Flicek

*for fulfilling the educational requirements approved by The Wildlife Society
and verified by the Society's Certification Review Board. This designation
is valid for 10 years, beginning the first day of June 2017,
provided membership in the Society remains in good standing.*



Dwight C. Thompson
President, The Wildlife Society

Scott P. Lerich
Chairman, Certification Review Board

Byron K. Williams
Executive Director, The Wildlife Society

Original Date

Revision Date MAY 23 2019

FAA Approval J. Roth

139.339 AIRPORT CONDITION REPORTING

Conditions that may affect the safe operations of air carriers at St. Louis Lambert International Airport will be reported to the Assistant Director of Operations & Maintenance and/or the Operations Center. These personnel will then issue an amendment to the Airport Condition Report (ACR) by updating the report on the airports' public website. STL ATCT has access to the airports' public website to see the Airport Condition Report from the Cab. All Air Carriers are encouraged to check the web link at any time to receive the most current field conditions at the airport. Additionally, the St. Louis Lambert International Airport utilizes the FAA direct entry Digital NOTAM System (DNS). Operations Center personnel will make the required entry into the DNS for any condition that may affect the safe operations of Air Carriers at the airport.

In the event of an internet network outage or failure of the DNS system, Operations Center will fax the ACR & DNS to all air carrier tenants and shall revert to the legacy system for NOTAM issuance. The Operations Center will convey required information to the ATCT and Air Carriers using the most expeditious means available during outages.

1. Collection of Airport Conditions

Conditions requiring amendments to the Airport Condition Report are compiled through a variety of means. Regardless of how they are received, all conditions requiring amendments are directed to the Deputy Director of Operations & Maintenance, Assistant Director of Operations & Maintenance and/or the Operations Center.

Methods used to collect airport conditions include but are not limited to the following:

- A. Reports from airline pilots
- B. Daily inspection results from Operations Center Personnel
- C. Halliday RT3 and/or Bowmonk Decelerometer

2. Personnel Authorized to Amend the Airport Condition Report

The following personnel are authorized to amend the Airport Condition Report:

- A. Deputy Director of Operations & Maintenance
- B. Assistant Director of Operations & Maintenance
- C. All personnel of the Airport Operations Center
- D. Authorized Designee

Original Date

Revision Date MAY 23 2019

FAA Approval J. Foltz

3. Record of Amendments to the Airport Condition Report

Current year amendments are kept on file electronically in the Operations Center until year – end at which time these amendments are filed and a new year amendment file is begun. Electronically filed amendments are kept in the Airport Operations Center for no less than twelve consecutive calendar months.

4. Conditions Requiring Amendments

Amendments will be issued by the personnel in paragraph two of this section when any of the following conditions occur on Lambert's property which may cause unsafe operations of Air Carriers or Airport Operations:

- A. Construction or maintenance on movement areas, safety areas or ramp apron areas
- B. Surface irregularities on movement areas, safety areas, or apron areas
- C. Snow, ice, slush or water on movement areas or apron areas
- D. Piled or drifting snow on or near movement areas at such heights that all Air Carrier aircraft propellers, engine pods, rotors and/or wingtips will not clear the snowdrift or snowbank as the aircraft's landing gear traverses any full strength portion of the movement area
- E. Objects in safety areas, other than those required by function
- F. Malfunction of any required lighting system, holding position signs, or ILS Critical Areas signs
- G. The following light outage conditions as described in AC 150/5340 – 26, current edition, Maintenance of Airport Visual Aid Facilities:
 - 1. Less than 85% runway edge lights operable for CAT I runways
 - 2. Less than 95% runway edge lights operable for CAT II & III
 - 3. Runway light outages that alter the basic pattern of the lighting system
 - 4. Less than 95% runway centerline lights operable
 - 5. Less than 90% runway TDZ lights operable
 - 6. Less than 75% runway threshold lights operable (2 inoperable max at nay runway end)
 - 7. Less than 85% taxiway edge lights operable
 - 8. Less than 90% taxiway centerline lights operable
 - 9. Runway guard lights:
 - a. Elevated: No more than one light in a fixture inoperable
 - b. In – Pavement: No more than three lights per location inoperable nor two adjacent lights inoperable
- H. Unresolved Wildlife Hazards
- I. Non – availability of any required aircraft rescue and firefighting vehicle or capability
- J. Any other condition which may otherwise adversely affect the safe operations of Air Carriers or Airport Operations at Lambert.

Original Date _____
Revision Date MAY 23 2019

FAA Approval J. Jotuel

139.341 IDENTIFICATION, MARKING, AND LIGHTING CONSTRUCTION AND OTHER UNSERVICEABLE AREAS

1. Construction Coordination

Any and all construction projects done at St. Louis Lambert International Airport must be coordinated through a number of personnel and agencies to ensure minimum amount of interference or obstruction to both Air Carrier and Airport Operations.

Personnel and agencies involved in construction coordination will include but are not necessarily limited to the following:

- A. Director of Airports, or his/her designee
- B. Deputy Director of Operations & Maintenance
- C. Deputy Director of Planning & Development
- D. Assistant Director of Engineering, or his/her designee
- E. Airport Properties Division Manager
- F. Assistant Director of Operations & Maintenance
- G. FAA ATCT Supervisor, if construction will affect Air Carrier Operations
- H. Airlines Managers, if construction will affect the airline and its operations
- I. Airport Authority Operations and Maintenance Departments and/or Construction Contractor, and/or any agency involved in the actual construction

The Assistant Director of Engineering will have the primary responsibility for coordinating construction on the aircraft movement area while the Airport Properties Manager has the primary responsibility for construction with Airport Buildings.

2. Marking and Lighting of Construction Areas

Each construction area on the aircraft movement area will be prominently lighted and marked so as to provide clearly defined construction area perimeters, to prevent inadvertent or accidental entry into the construction area by vehicles or aircraft. Lighting and marking of construction areas will commence prior to the actual start of construction and will remain in place and effective until the construction is completed and the area in question is ready for use again.

Lighting and marking of construction areas will be in accordance with requirements of FAA Advisory Circular 150/5370-2, current edition, Operations Safety on Airports during Construction.

Original Date

Revision Date MAY 23 2019

FAA Approval J. Fothergill

3. Marking and Lighting of Construction Equipment/Roadways

- A. Construction vehicles and related equipment used during construction projects at Lambert will be marked, and drivers of the vehicles will be instructed on proper airfield driving procedures. Vehicles/Equipment, if used after daylight hours, will be equipped with operational headlights, hazard flashers and, if so equipped, with an operational rotating beacon. Drivers of equipment will be instructed to use all lights when working after sunset.

Vehicle marking and lighting will be in accordance with FAA Advisory Circular 150/5370 – 2, current edition, Operations Safety on Airport during Construction.

- B. Construction roadways will be marked and lighted in such a way as to define the roadway adequately and in such a way as to not interfere with aircraft or airport operations.

4. Marking of Unserviceable Areas

Marking of unserviceable areas will be much the same as the methods used for marking and lighting construction areas, Paragraph two of this section. Unserviceable areas will be marked and lighted to prominently define the unserviceable area boundaries and will be set up to prevent inadvertent or accidental entry of vehicles or aircraft into unserviceable areas.

Taxiways or runway which will be closed for an extended period of time will be marked and lighted in accordance with FAA Advisory Circular 150/5370 – 2, current edition, Operations Safety on Airport during Construction.

5. Marking/Lighting of Areas Adjacent to NAVAIDS

Construction areas in, near, or adjacent to NAVAIDS will be marked and lighted, in order to prevent vehicles or equipment from crossing NAVAID signal paths and thus causing interruptions or failures of NAVAID systems. Marking and lighting of such areas will be submitted to the Regional FAA office prior to construction start for approval by the FAA and to ensure compliance with any and all FAA requirements regarding marking and lighting of such areas.

The Assistant Director of Planning & Engineering and the Assistant Director of Operations & Maintenance will ensure contractors have in place all marking and lighting necessary prior to construction start and will ensure these markings and lightings remain operational and readily observable during construction. These individuals, or their designees, will ensure markings or lightings are not dismantled or obliterated until all construction completed.

Original Date

Revision Date **MAY 23 2019**

FAA Approval J. F. Feltz

6. Utilities Damage Avoidance Procedures

Prior to the start of construction, contractors will be apprised of all utilities in or near construction areas which may be affected by their operations. Blueprints with utility locations are maintained in the Airport Authority Engineering Office and are available to all contractors for use prior to construction start. Personnel of the FAA Regional office will assist contractors with locations of NAVAID utility lines.

The Assistant Director of Planning & Engineering, the Assistant Director of Operations & Maintenance, and personnel of the Operations Center will monitor construction activities to ensure utility lines are maintained intact. In the event of utility lines becoming damaged or broken, all efforts will be made to return the utility to operation as expeditiously as possible. Should it be necessary to sever a utility line during construction, all efforts will be made to make temporary connections enabling the utility line to remain operational. The aforementioned personnel will monitor these temporary connections to ensure their continuing operation until permanent reconnections of utility lines can be made.

Original Date
Revision Date MAY 23 2019

FAA Approval J. [Signature]

139.341 IDENTIFICATION, MARKING, AND LIGHTING CONSTRUCTION AND OTHER UNSERVICEABLE AREAS

1. Construction Coordination

Any and all construction projects done at St. Louis Lambert International Airport must be coordinated through a number of personnel and agencies to ensure minimum amount of interference or obstruction to both Air Carrier and Airport Operations.

Personnel and agencies involved in construction coordination will include but are not necessarily limited to the following:

- A. Director of Airports, or his/her designee
- B. Deputy Director of Operations & Maintenance
- C. Deputy Director of Planning & Development
- D. Assistant Director of Engineering, or his/her designee
- E. Airport Properties Division Manager
- F. Assistant Director of Operations & Maintenance
- G. FAA ATCT Supervisor, if construction will affect Air Carrier Operations
- H. Airlines Managers, if construction will affect the airline and its operations
- I. Airport Authority Operations and Maintenance Departments and/or Construction Contractor, and/or any agency involved in the actual construction

The Assistant Director of Engineering will have the primary responsibility for coordinating construction on the aircraft movement area while the Airport Properties Manager has the primary responsibility for construction with Airport Buildings.

2. Marking and Lighting of Construction Areas

Each construction area on the aircraft movement area will be prominently lighted and marked so as to provide clearly defined construction area perimeters, to prevent inadvertent or accidental entry into the construction area by vehicles or aircraft. Lighting and marking of construction areas will commence prior to the actual start of construction and will remain in place and effective until the construction is completed and the area in question is ready for use again.

Lighting and marking of construction areas will be in accordance with requirements of FAA Advisory Circular 150/5370-2, current edition, Operational Safety on Airports during Construction.

Original Date
Revision Date OCT 24 2019

FAA Approval J. Fotedar

3. Marking and Lighting of Construction Equipment/Roadways

- A. Construction vehicles and related equipment used during construction projects at Lambert will be marked, and drivers of the vehicles will be instructed on proper airfield driving procedures. Vehicles/Equipment, if used after daylight hours, will be equipped with operational headlights, hazard flashers and, if so equipped, with an operational rotating beacon. Drivers of equipment will be instructed to use all lights when working after sunset.

Vehicle marking and lighting will be in accordance with FAA Advisory Circular 150/5370 – 2, current edition, Operational Safety on Airports during Construction.

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The Assistant Director of Planning & Engineering and the Assistant Director of Operations & Maintenance will ensure contractors have in place all marking and lighting necessary prior to construction start and will ensure these markings and lightings remain operational and readily observable during construction. These individuals, or their designees, will ensure markings or lightings are not dismantled or obliterated until all construction completed.

Original Date _____
Revision Date OCT 24 2019

FAA Approval J. Fotedu

6. Utilities Damage Avoidance Procedures

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The Assistant Director of Planning & Engineering, the Assistant Director of Operations & Maintenance, and personnel of the Operations Center will monitor construction activities to ensure utility lines are maintained intact. In the event of utility lines becoming damaged or broken, all efforts will be made to return the utility to operation as expeditiously as possible. Should it be necessary to sever a utility line during construction, all efforts will be made to make temporary connections enabling the utility line to remain operational. The aforementioned personnel will monitor these temporary connections to ensure their continuing operation until permanent reconnections of utility lines can be made.

Original Date
Revision Date MAY 23 2019

FAA Approval J. [Signature]

139.343 NONCOMPLYING CONDITIONS

Unless otherwise authorized by the FAA Administrator, whenever the requirements of Part 139 cannot be met to the extent that uncorrected, unsafe conditions exist on the Airport, St. Louis Lambert International Airport will limit Air Carrier Operations to those portions of the Airport that are determined to be unsafe.

1. Personnel Responsible for Closing Unsafe Airport Areas

The Director of Airports or, his/her designee(s), will have the authority and responsibility to close any area, section, or part of the aircraft movement area in the event an unsafe condition develops which may interfere, disrupt or halt Air Carrier Operations.

Closures will be collected and disseminated in accordance with procedures outline in Section 139.339, Airport Condition Reporting, of this certification manual.

In the event a closure of an area becomes necessary, all efforts will be made to return the affected area to full operational capacity as soon as possible.


2. Limitation of Air Carrier Operations in Unsafe Areas

Air carrier operations in areas deemed unsafe will be limited to those operations the area is capable of handling or operations in the affected area will be halted completely. Unsafe areas will be marked and lighted in accordance with Section 139.341 of this certification manual.

Original Date

Revision Date MAY 23 2019

FAA Approval J. P. [Signature]

	St. Louis Lambert International Airport Part 139 Airfield Inspection Report Daily Inspection	Inspection Duration: Inspectors: Inspection ID:																																																															
INSPECTION COMMENTS																																																																	
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Original Date _____
 Revision Date OCT 24 2019

FAA Approval J. Totter

Appendix A



PART 139 INSPECTION

Date

Original Date
Revision Date OCT 24 2019

AA - 1A

FAA Approval J. Poter

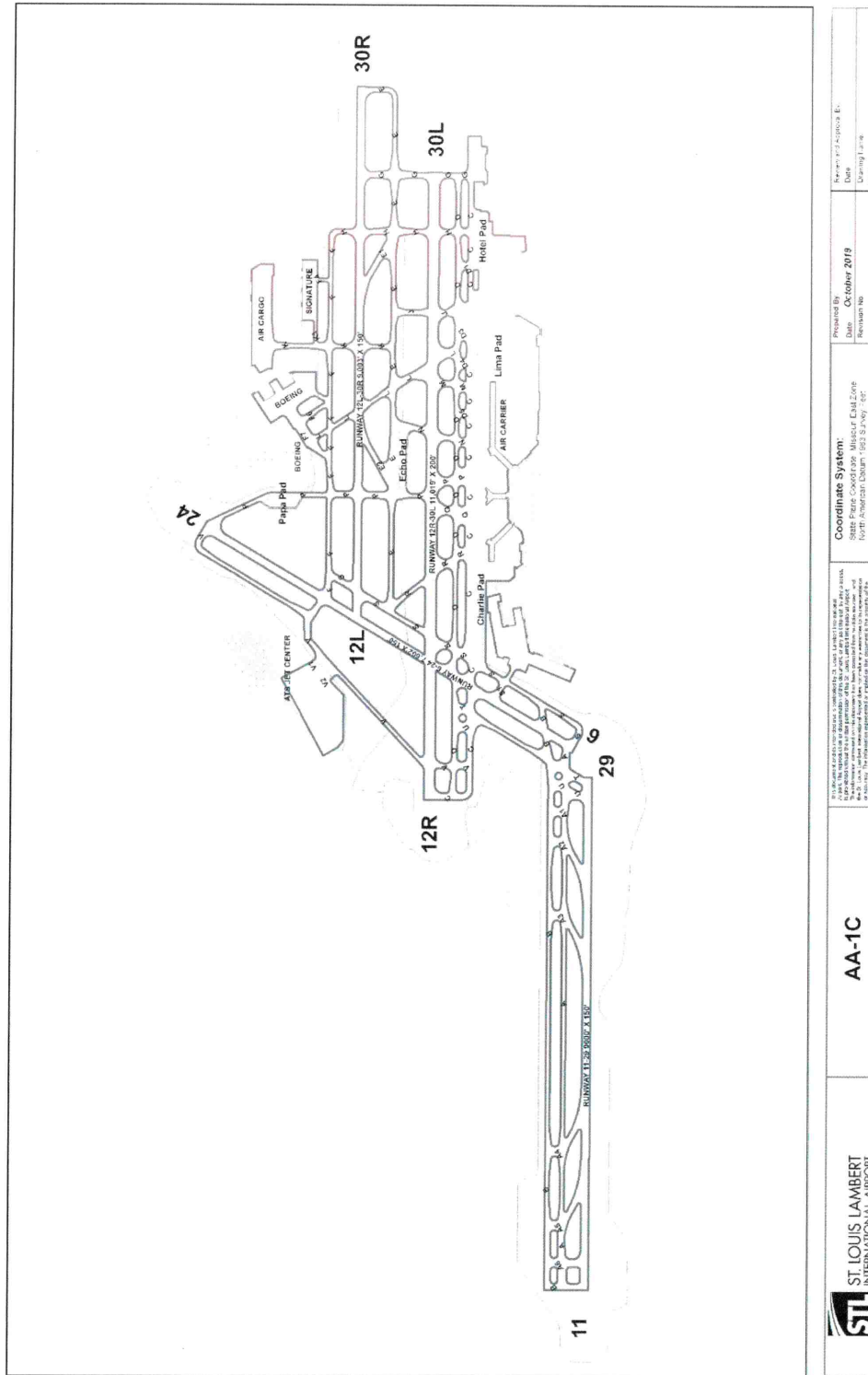
Airport Certification Manual – St. Louis Lambert International Airport

REGULARLY SCHEDULED INSPECTION CHECKLIST			
DATE: _____ DAY: _____ TIME: _____		INSPECTOR(S): _____ / -Satisfactory M-Marginal X-Unsatisfactory	
FACILITIES	CONDITION	/ M X	REMARKS
PAVEMENT AREAS: RUNWAYS & TAXIWAYS	Hole 5" Diam. 3" Deep		
	Crack Affecting Directional Control		
	Scaling/Spalling/Bumps/Low Spots		
	Pavement Lip over 3"		
	Vegetation Growth: In Cracks & Along Pavement Edges		
	Rubber Deposits		
	FOD: Gravel/Debris/Sand/Etc.		
SAFETY AREAS	Erosion/Ruts/Humps		
	Bases/Manholes Above Grade Level		
	Drainage: Sewer Drains Open/Standing Water		
	Obstructions		
MARKINGS	Visible & Standard		
	Runway Markings		
	Hold Position Markings		
	Taxiway Markings		
	SMOCS Markings		
SIGNS	Visible & Standard		
	Inoperable/Obscured		
	Damaged/Missing/Peeling/Flaking		
LIGHTING	Runway Lighting		
	Runway Guard Lights		
	Taxiway Lighting		
NAVIGATIONAL AIDS	Rotating Beacon		
	Wind Indicators		
RAMP AREA	Pavement/Marking/Lighting Condition		
PUBLIC PROTECTION	Fencing/Gates/Locks/Signs		
CONSTRUCTION	Barricades/Lights/Equipment Parking/Material Stockpiles		
	NOTAM's Issued		
MISCELLANEOUS	Wildlife/Obstruction Lighting/Other		
COMMENTS:			

SIC: _____

Airfield Map on Reverse Side


Airport Certification Manual – St. Louis Lambert International Airport



Original Date
Revision Date **OCT 24 2019**

AA - 1C


FAA Approval *J. Fotad's*

	St. Louis Lambert International Airport Part 139 Airfield Inspection Report Continuous Surveillance Inspection	Inspection Duration: Inspectors: Inspection ID:								
INSPECTION COMMENTS										
OPEN WORK ORDERS										
ACTIVE NOTAMS										
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> Runway and Zone Inspection Times RWY 12R/30L INSPECTION BEGIN: RWY 12R/30L INSPECTION END: RWY 12L/30R INSPECTION BEGIN: RWY 12L/30R INSPECTION END: RWY 6/24 INSPECTION BEGIN: RWY 6/24 INSPECTION END: RWY 11/29 INSPECTION BEGIN: RWY 11/29 INSPECTION END: </div> <div style="width: 30%;"> ZONE 1 INSPECTION BEGIN: ZONE 1 INSPECTION END: ZONE 2 INSPECTION BEGIN: ZONE 2 INSPECTION END: ZONE 3 INSPECTION BEGIN: ZONE 3 INSPECTION END: </div> <div style="width: 30%;"> ZONE 4 INSPECTION BEGIN: ZONE 4 INSPECTION END: ZONE 5 INSPECTION BEGIN: ZONE 5 INSPECTION END: ZONE 6 INSPECTION BEGIN: ZONE 6 INSPECTION END: </div> </div>										
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Pavement Areas: Runways & Taxiways	Safety Areas Markings	Signs Lighting	Navigation Aids	Ramp Area	Public Protection	Construction	Obstruction	Wildlife Hazards	Snow & Ice	Misc
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Original Date
Revision Date OCT 24 2019

AA - 1D


FAA Approval J. F. F. F.

	St. Louis Lambert International Airport Part 139 Airfield Inspection Report Periodic Condition Inspection	Inspection Duration: Inspectors: Inspection ID:				
INSPECTION COMMENTS						
COMPLETED WORK ORDERS						
ACTIVE NOTAMS						
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><u>Runway and Zone Inspection Times</u></p> <p>RWY 12R/30L INSPECTION BEGIN:</p> <p>RWY 12R/30L INSPECTION END:</p> <p>RWY 12L/30R INSPECTION BEGIN:</p> <p>RWY 12L/30R INSPECTION END:</p> </div> <div style="width: 45%;"> <p>RWY 6/24 INSPECTION BEGIN:</p> <p>RWY 6/24 INSPECTION END:</p> <p>RWY 11/29 INSPECTION BEGIN:</p> <p>RWY 11/29 INSPECTION END:</p> </div> </div>						
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Pavement Areas Runways & Taxiways	Safety Areas	Markings Signs Lighting Aids Navigation Area	Public Protection	Construction Obstructions Wildlife Hazards	Snow & Ice Misc	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
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Original Date
 Revision Date OCT 24 2019

AA - 1E

FAA Approval J. Fotedu

	St. Louis Lambert International Airport Part 139 Airfield Inspection Report Special Inspection	Inspection Duration: Inspectors: Inspection ID:
INSPECTION COMMENTS		
COMPLETED WORK ORDERS		
ACTIVE NOTAMS		
Runway and Zone Inspection Times		
RWY 12R/30L INSPECTION BEGIN: RWY 12R/30L INSPECTION END: RWY 12L/30R INSPECTION BEGIN: RWY 12L/30R INSPECTION END:		
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Pavement Areas: Runways & Taxiways	Safety Areas Markings Signs	Lighting Navigation Aids Ramp Area Public Protection
Obstruction Wildlife Hazards	Construction Snow & Ice	SMGCS Misc
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Original Date
Revision Date OCT 24 2019

FAA Approval J. Fotsch

**ST. LOUIS AIRPORT TRAFFIC CONTROL TOWER, ST. LOUIS
LAMBERT INTERNATIONAL AIRPORT AUTHORITY**

LETTER OF AGREEMENT

EFFECTIVE: 08/01/2019

**SUBJECT: AIRPORT OPERATIONS ON MOVEMENT AND NON-MOVEMENT
AREAS**

1. **PURPOSE.** Prescribes responsibilities and procedures for the operation of aircraft and/or vehicles on airport movement/non-movement areas.
2. **CANCELLATION:** St. Louis Airport Traffic Control Tower, St. Louis Lambert International Airport Authority Letter of Agreement, subject: Airport Operations on Movement and Non-Movement Areas, dated December 23, 2008.
3. **SCOPE.**
 - a. St. Louis Lambert International Airport Authority (AA).
 - b. St. Louis Airport Traffic Control Tower (STL ATCT).
4. **PROCEDURES**
 - a. The AA must:
 - (1) Establish airport movement and non-movement areas.
 - (2) Keep current the Movement/Non-movement Area Chart as depicted in Attachment A.
 - (3) Provide and maintain standardized signs and markings that will indicate to all aircraft and vehicle operators the limits of the movement areas.
 - (4) Ensure that all vehicles:
 - (a) Operating on any movement area are equipped with a two-way radio capable of communications with STL ATCT on ground control frequency (121.9, or 118.925).
 - (b) Operating on any active runway or within its runway safety area (RSA), except for crossing, must be equipped with tower frequencies (120.05, 118.5 and 132.47).
 - (c) Not equipped with the appropriate frequencies must be escorted unless operating on a closed portion of the movement area.
 - (d) Contact STL ATCT on ground control frequency prior to operating on any movement area, identifying the vehicle's location, destination on the airfield, and the specific route requested.

08/01/2019

STL ATCT/AA LOA

NOTE: In the absence of a requested route on the movement area, Ground Control will formulate and issue the specific route to the vehicle.

(e) Receive initial approval from STL ATCT on the ground control frequency prior to operating on any movement area that has been closed by a NOTAM. Subsequent crossings on a closed runway will not require any additional clearances.

(f) The following Frequency Usage Guide must be used by all vehicles:

Runway Status	Frequency	Examples
Runway Active/Inactive	Local Control	Runway Inspections
Runway Closed	Ground Control	Snow removal, maintenance work, construction
Runway Crossing of an Active/Inactive Runway	Ground Control	ARFF responding to Terminals from the West or North House

(5) Manage/disseminate NOTAMs as follows:

(a) Issue a NOTAM concerning the closure of any movement/non-movement area. The duration of closure must be specified if possible. If the duration of closure cannot be determined, the duration will be shown as “until further notice” (UFN). If a runway closure is involved, coordination with STL ATCT must be accomplished at least 12 to 24 hours in advance of the closure. Unplanned runway closures for unsafe conditions are exempt from the 12 to 24 hour notification requirement.

(b) Unless otherwise specified in the NOTAM, any closure of a runway that includes an intersection with another runway must result in the intersection being closed for both runways. The NOTAM must specify what, if any, operations are authorized in the intersection, e.g., taxi only, all operations, etc.

(c) Ensure that any NOTAM issued by any means includes telephone notification to STL ATCT or in accordance with STL ATCT/AA LOA, Procedures and Responsibilities for Coordinating and Reporting Runway Surface Conditions.

b. STL ATCT must:

(1) Provide airport traffic control services to all aircraft and vehicles within the airport movement areas. Emergency response and airport authority vehicles responding to reported hazardous conditions must be expedited to the extent feasible.

(2) Consider a movement area closed at the time stated on the NOTAM and discontinue use of the closed area at that time.

(3) Consider a movement area previously closed by NOTAM to be open only when notified by the AA regardless of the NOTAM expiration time.

08/01/2019

STL ATCT/AA LOA

(4) When requested by the pilot or vehicle operator, provide advisory service, to the extent possible, for operations in non-movement areas.

(5) Ensure that non-air carrier type aircraft have prior permission from the AA to park at a terminal gate. If not, issue taxi instructions to a fixed base operator.

c. The AA (owner/operator) covenants and agrees to indemnify and save harmless the UNITED STATES OF AMERICA, to the extent that it may be acting by and through its agents, employees, or designee against any and all loss, damage, costs and expense which it may hereafter incur, suffer, or pay by any reason of negligence, or the negligence of its agents, employees or designee arising out of the operation of vehicles owned and operated by the AA (excluding those operated by the ARFF), on all taxiways and airfield service roads pursuant to whenever the STL SMGCS Plan is initiated that vehicle access to the movement areas is limited to only those vehicles that are equipped with ground control radios.



Kase McDonald
Air Traffic Manager
St. Louis ATCT

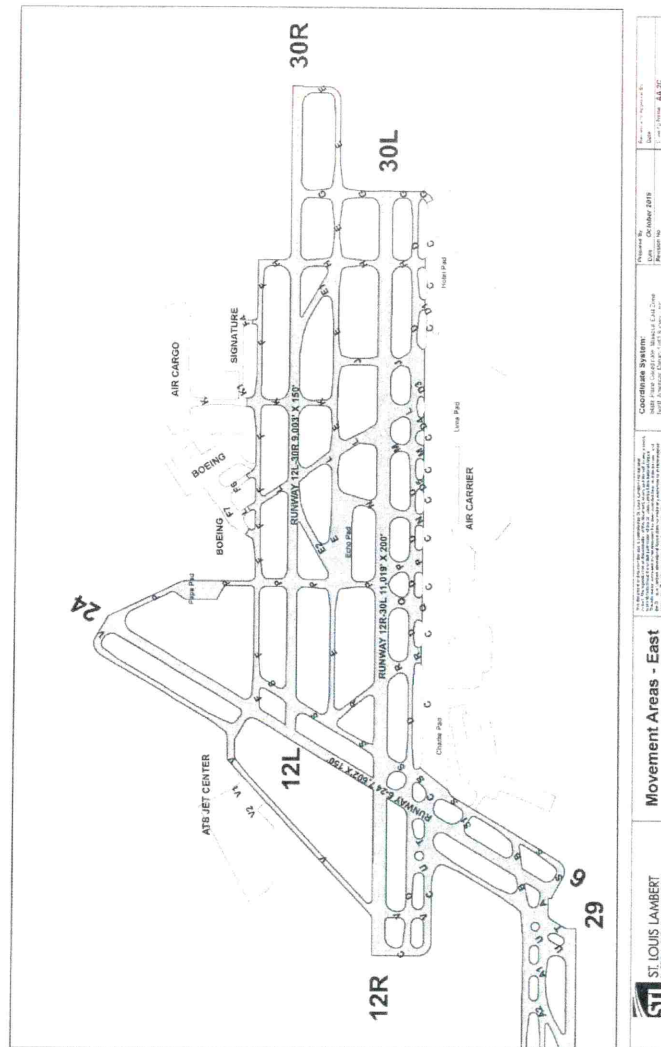


Rhonda Hamm-Niebruegge
Director, Airport Authority
St. Louis Lambert International Airport

Airport Certification Manual – St. Louis Lambert International Airport

10/23/2019

STL ATCT/AA LOA
Attachment A



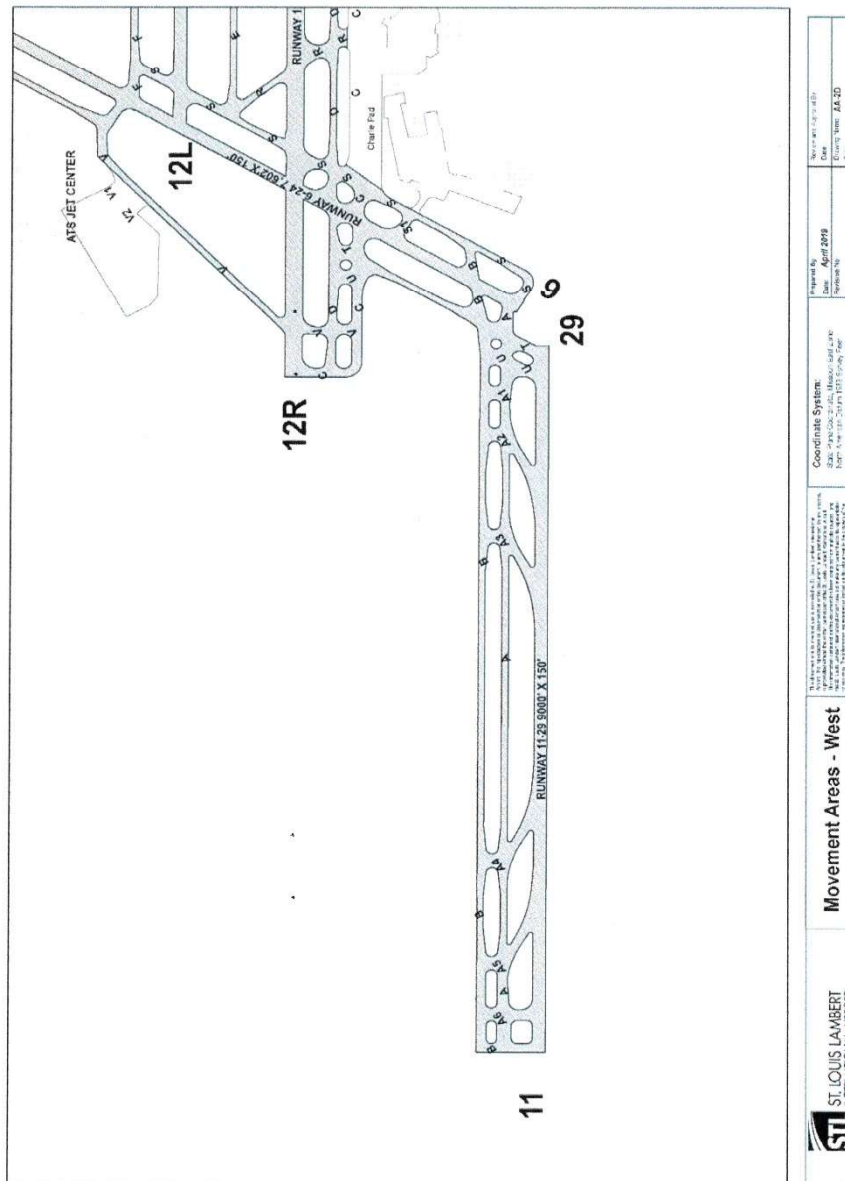
Original Date
Revision Date OCT 24 2019

AA - 2D

FAA Approval J. Fotedo

08/01/2019

STL ATCT/AA LOA
Attachment A



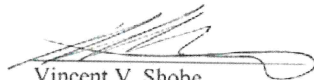
**ST. LOUIS AIRPORT TRAFFIC CONTROL TOWER,
LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT AUTHORITY**

LETTER OF AGREEMENT

EFFECTIVE: April 13, 2006

SUBJECT: AIRPORT OPERATIONS ON SPECIFIC AREAS

- 1. PURPOSE.** Prescribes responsibilities and procedures for the operation of aircraft on specific areas of Lambert-St. Louis International Airport.
- 2. CANCELLATION:** St. Louis Airport Traffic Control Tower, Lambert-St. Louis International Airport Authority Letter of Agreement, subject: Airport Operations on Specific Areas, dated 03/17/05.
- 3. SCOPE.**
 - a. Lambert-St. Louis International Airport Authority.
 - b. St. Louis Air Traffic Control Tower.
- 4. DEFINITIONS.**
 - a. AA -St. Louis Airport Authority.
 - b. STL ATCT - St. Louis Airport Traffic Control Tower.
- 5. AIRCRAFT OPERATING RESTRICTIONS:**
 - a. The AA shall:
 - (1) Establish and publish aircraft operating restrictions concerning utilization of specific runways, taxiways, and apron areas.
 - (2) Provide methods of notification to appropriate agencies of applicable restrictions defined within this agreement.
 - (3) Update and keep current the permanent restrictions listed in Attachments A & B to runways, taxiways, and apron/pad areas.
 - b. STL ATCT shall:
 - (1) Provide advisory service to pilots concerning operating restrictions to the extent possible.
 - (2) Provide notification to the AA of known violations in a timely manner.


Vincent V. Shobe
St. Louis ATCT
Air Traffic Manager


Kevin C. Dolliole
Director, Airport Authority
Lambert-St. Louis International Airport

Original Date

Revision Date MAY 23 2019

AA - 3A

FAA Approval J. Fothergill



EFFECTIVE: October 23, 2019

SUBJECT: Revision to the Letter of Agreement, Airport Operations on Specific Areas

1. **PURPOSE.** Amend the Letter of Agreement, Airport Operations on Specific Areas, dated 4/13/2006 to include updated taxiway and apron area restrictions.
2. **EXPLANATION OF CHANGES.** This revision revises Taxiway and Apron Restrictions in Attachments A to include: clearer verbiage in restriction 2 and 3, changing restriction 8 from Taxiway Lima to Taxiway Delta Four, and changing the aircraft type on restriction 10.
3. **PROCEDURES.** Replace pages labeled Attachments A with the new attached pages from this revision.

A handwritten signature in black ink, appearing to read "Kase McDonald".

Kase McDonald
Air Traffic Manager
St. Louis ATCT

A handwritten signature in black ink, appearing to read "Rhonda Hamm-Niebruegge".

Rhonda Hamm-Niebruegge
Director of Airports, Airport Authority
St. Louis Lambert International Airport

PO BOX 10212/10701 LAMBERT INTERNATIONAL BLVD, MTN-2276 • ST. LOUIS, MO 63145-0212 • USA • MAIN PHONE 314.426.8000 • FLYSTL.COM

Original Date
Revision Date OCT 24 2019

FAA Approval J. Roten

Taxiway, and Apron Area Restrictions:

1. Taxiway Delta or Taxilane Charlie from Taxiway Sierra to Taxiway Golf, B-747s are not authorized to pass or be passed by B-767 or other larger aircraft operating on the parallel taxiway/taxilane.
2. Taxiway Papa, east of the Papa Pad to Taxiway Foxtrot, restricted to aircraft with a wingspan of less than 79 feet (CRJ-900 or smaller), when aircraft are parked on the Papa Pad. This area is restricted to all operations when aircraft are performing engine run-ups in the Papa Pad.
3. Taxiway Victor, underlying the Runway 12L final approach course is restricted to aircraft with a tail height of 25' or less (CRJ-700 or smaller), when aircraft are landing on Runway 12L.
4. Taxiway Echo, between Taxiway Papa and Taxiway November, restricted to B-767 or smaller aircraft (wingspan less than 171 feet), when aircraft are parked on the Echo Pad.
5. Taxilane/Taxiway Charlie, east of Taxiway Delta One to the approach end of Runway 30L, restricted to B-737 or smaller aircraft (wingspan less than 118 feet), when aircraft are parked on the Hotel Pad.
6. Taxilane Charlie, from Taxiway Sierra to Taxiway Romeo, restricted to B-767 or smaller aircraft (156 feet available) when aircraft are parked in the Charlie Pad. Restriction is for taxiing aircraft, larger aircraft may be towed through the area.
7. Taxilane Charlie, from Taxiway Papa to Taxiway Quebec, restricted to a B757-300 Series or smaller.
8. Taxilane Charlie, from Taxiway Papa to Taxiway Delta Four, restricted to a B757-300 Series or smaller when passing behind aircraft that have made the initial 10-foot pushback.
9. Taxiway Alpha East of Taxiway Tango, Taxiway Sierra and Runway 6/24 South of Taxiway Bravo, no aircraft or vehicle operations when arriving or departing Runway 11 or arriving Runway 29.
10. Taxiway Lima, north of Runway 12L/30R, aircraft larger than a Gulfstream VI taxiing northbound are prohibited from making a right turn eastbound on Taxiway Foxtrot.
11. Taxiway Victor 2 is unavailable to B-767 or larger aircraft (wingspan 118 feet or greater).
12. Taxiway Victor 2, B-737 (wingspan greater than 79 feet but less than 118 feet) must perform judgmental oversteering instead of cockpit over centerline steering when taxiing.
13. Taxiway Kilo 1 is unavailable to B-767 or larger aircraft (wingspan 118 feet or greater).

Original Date
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AA - 3C

FAA Approval J. Rotundo

Airport Certification Manual – St. Louis Lambert International Airport

Attachment B

The ADG is based on the most restrictive of either the aircraft wingspan or the aircraft tail height.
The ADG categories are as follows:

Group	Wingspan in feet (m)	Tail Height in feet (m)	Typical Aircraft
I	< 49' (15m)	< 20' (6.1m)	CESSNA 421 Golden Eagle/PIPER PA-31
II	49' (15m) - < 79' (24m)	20' (6.1m) - < 30' (9.1m)	CRJ/SAA8 340
III	79' (24m) - < 118' (36m)	30' (9.1m) - < 45' (13.7m)	BOEING 737-700/AIRBUS A-320/EMBRAER ERJ 190-100
IV	118' (36m) - < 171' (52m)	45' (13.7m) - < 60' (18.3m)	B767 Series/AIRBUS A-310
V	171' (52m) - < 214' (65m)	60' (18.3m) - < 66' (20.1m)	B777 Series/B787/A330 Family
VI	214' (65m) - < 262' (80m)	66' (20.1m) - < 80' (24.4m)	BOEING 747-8/AIRBUS A-380-800

The ADG is part of the FAA's Runway Design Code (RDC) described in AC 150/5300-13 which three aircraft type-related classifications are combined to form the RDC for a particular runway for design purposes

Aircraft	FAA Airplane Design Group					
	I	II	III	IV	V	VI
T07 (all)				X		
T17-200			X			
T20				X		
T22 (All)			X			
T37-100			X			
T37-200			X			
T37-300, -300W			X			
T37-400			X			
T37-600, -600W			X			
T37-900			X			
T37-700, -700W, MAX 7*			X			
T37-800, -800W, MAX 8*			X			
T37-900ER, -900ERW, MAX 9*			X			
BBJ			X			
BBJ2			X			
BBJ3			X			
747SP					X	
747-100, 200, 300					X	
747-400, 400ER					X	
747-8F/-8						X
747-LCF					X	
767-200, -200W				X		
767-300				X		
767-200				X		
767-300/-300W				X		
767-400ER				X		
777-200, 200ER, 200LR, 777F					X	
777-300, 300ER					X	
787-8, -9, -10*					X	
B0-17/C-17A				X		
DC-8-43, 55				X		
DC-8-61, 71				X		
DC-8-62, 72				X		
DC-8-63, 73				X		
DC-9-15			X			
DC-9-21			X			
DC-9-32			X			
DC-9-41			X			
DC-9-61			X			
DC/MD-10-10				X		
DC/MD-10-30, 40				X		
MD-11				X		
MD-81, 82, 83, 88			X			
MD-87			X			
MD-90-30			X			

* Preliminary Data

	FAA Airplane Design Group (ADG) ²
A318	III
A319	III
A319neo	III
A320	III
A320neo	III
A321	III
A321neo	III
A300	IV
A300-600	IV
A310	IV
A330-200	V
A330-200F	V
A330-300	V
A330-800	V
A330-900	V
A340-200	V
A340-300	V
A340-500	V
A340-600	V
A350-900	V
A350-1000	V
A380-800	VI

Original Date

Revision Date **MAY 23 2019**

AA - 3D

FAA Approval *J. Foltz*

**ST. LOUIS AIRPORT TRAFFIC CONTROL TOWER,
LAMBERT – ST. LOUIS INTERNATIONAL AIRPORT**

LETTER OF AGREEMENT

EFFECTIVE: 10/01/2016

**SUBJECT: Procedures and Responsibilities for Coordinating and Reporting Runway
Surface Conditions**

1. **PURPOSE:** Prescribes responsibilities and procedures for the coordination of pilot braking action reports, runway condition assessments, field condition reports and cessation of operations for reports of "Nil" conditions.
2. **CANCELLATION:** St. Louis Airport Traffic Control Tower, Lambert-St. Louis International Airport Authority Letter of Agreement, Airport Braking Action Reports, dated February 27, 2009.
3. **SCOPE:**
 - a. The City of St. Louis, Owner & Operator of Lambert-St. Louis International Airport.
 - b. St. Louis Air Traffic Control Tower.
4. **DEFINITIONS:**
 - a. AA – The City of St. Louis Airport Authority.
 - b. FICON (Field Condition Report) – Is a Notice to Airmen (NOTAM) generated to reflect pavement surface conditions on runways, taxiways, and aprons Runway Condition Codes if greater than 25% of the overall runway length and width or cleared width of the runway is contaminated.
 - c. Ops Center - Lambert Airport Operations/Communications Center.
 - d. STL ATCT - St. Louis Airport Traffic Control Tower.
 - e. RwyCC - Runway Condition Code
 - f. Pilot Reported Braking Action – This is a report on the runway, by a pilot, providing other pilots with a degree/quality of expected braking. The braking action experienced is dependent on the type of aircraft, aircraft weight, touchdown point, and other factors.
 - g. Good – Braking deceleration is normal for the wheel braking effort applied, and directional control is normal.
 - h. Good-to-Medium – Braking deceleration or directional control is between Good and Medium braking action.
 - i. Medium – Braking deceleration is noticeably reduced for the wheel braking effort applied, or directional control is noticeably reduced.
 - j. Medium-to-Poor – Braking deceleration or directional control is between Medium and Poor.

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STL ATCT/STL AA LOA

k. Poor Braking deceleration is significantly reduced for the wheel braking effort applied, or directional control is significantly reduced.

l. Nil Braking deceleration is minimal to non-existent for the wheel braking effort applied, or directional control is uncertain.

5. RESPONSIBILITIES:

a. STL ATCT must be responsible for forwarding braking action reports received from pilots to the AA through the Ops Center during periods of deteriorating pavement conditions.

b. The AA must be responsible for forwarding Runway Condition Codes, Runway Condition Assessments to the STL ATCT, and will only report vehicle braking action reports on surfaces other than runways.

6. PROCEDURES: Communication of Runway Condition Codes, Runway Condition Assessments and Braking Action Reports.

a. STL ATCT must:

(1) Solicit pilot reports of braking during adverse weather conditions.

(2) Immediately inform the Ops Center on Ground Control frequency (or telephone if unavailable on Ground) of braking action reported as or containing any remarks of "NIL" or "POOR" and include the following information:

(a) Runway number, specifying the section of runway if appropriate;

(b) Braking action report per the Definitions;

(c) Type of aircraft reporting the braking action.

(3) If a pilot elects to report braking action on a surface other than a runway, the STL ATCT will also inform the Ops Center of braking action reported as "NIL" or "POOR."

(4) Immediately cease operations on surfaces reported as "Nil" braking action until the runway has been assessed and/or treated by STL AA.

EXAMPLE-

"OPS CENTER, ST. LOUIS GROUND CONTROL, RUNWAY 12R BRAKING ACTION POOR FIRST HALF OF RUNWAY, REPORTED BY A 737-700."

(5) Inform the Ops Center on ground control frequency when the braking action reports improve from "NIL" or "POOR."

(6) Notify Ops Center when runway braking action reports indicate runway braking conditions have deteriorated to "good to medium", "medium", "medium to poor", "poor", or "nil" or have improved to "good."

b. The AA/Ops Center must:

(1) Notify STL ATCT whenever a Runway Condition Code for any runway segment is measured as less than 6.

(2) Monitor the Ground Control frequency as much as feasible during periods of deteriorating pavement conditions.

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STL ATCT/STL AA LOA

(3) Conduct runway assessments as detailed in the STL Airport Snow and Ice Control Plan (SICP).

(4) Inform STL ATCT of Runway Condition Codes, and runway openings & closings, primarily over ground control frequency, or as a backup, over the ATCT recorded phone, as follows:

(a) Upon satisfactory completion of snow/ice removal and/or treatment.

(b) Prior to opening the runway for aircraft operations.


(5) Call the STL ATCT recorded line to inform them of runway FICON information details.

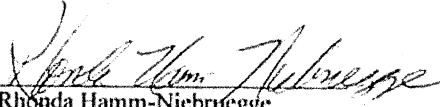
(6) Inform the STL ATCT of further FICON information, primarily by fax, or as a backup by phone or internet, by an updated Airfield Condition Report (ACR).

(7) Conduct a runway assessment immediately upon receipt of a single pilot report action of NIL.

(8) Coordinate a runway assessment when two (2) consecutive pilot braking action is reported as POOR for the same runway, or at the AA's discretion. See section 5.9 Continuous Monitoring and Deteriorating Conditions STL SICP.

(9) Notify STL ATCT when runway conditions codes are no longer reportable.


Duane D. Fant
St. Louis ATCT
Air Traffic Manager


Rhonda Hamm-Niebrugge
Director of Airports
Lambert - St. Louis International
Airport

LETTER OF AGREEMENT (REVISED)

OPERATIONAL AGREEMENT FOR ARRESTING GEAR, LAMBERT - ST. LOUIS
INTERNATIONAL AIRPORT, ST. LOUIS, MISSOURI

1 The following operational agreement is entered into by or on behalf
2 of the Federal Aviation Administration, McDonnell-Douglas Corporation
3 (herein after known as McDonnell), the 131st Tactical Fighter Wing of
4 the Missouri Air National Guard, U. S. Air Force Plant Representative,
5 McDonnell-Douglas Corporation, St. Louis, Missouri and the City of
6 St. Louis for the operation and use of arresting gear equipment
7 installed on runways 12R/30L and 6/24 at Lambert-St. Louis International
8 Airport.

9 1. General:

10 a. McDonnell has installed aircraft arresting gear upon runways
11 12R/30L and 6/24 at the Lambert-St. Louis International
12 Airport with remote control equipment in the Airport Traffic
13 Control Tower. Detailed descriptions and operational functions
14 of the arresting gear installed on runways 30L and 24 are
15 contained in McDonnell Report Number 4103 dated 9 May 1955,
16 the gear on runway 12R and 06 are contained in MDC drawings
17 P.E. 9866 (C-1-2-3) dated 12 January 1972.

18 b. Other than for testing purposes, this equipment will be used
19 only for emergencies being experienced by pilots of military
20 aircraft and aircraft under the jurisdiction of McDonnell.

21 c. The Federal Aviation Administration agrees to operate the
22 aforesaid remote control equipment in the Airport Traffic
23 Control Tower, in accordance with the procedures set forth
24 in this Letter of Agreement.

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FAA Approval J. Fothergill

- 25 d. McDonnell covenants and agrees to indemnify and save harmless
26 the UNITED STATES OF AMERICA to the extent that it may be acting
27 by and through the Federal Aviation Administration, and the
28 agents, employees, or designees of said agency, against any and
29 all loss, damage, costs and expenses which it or they may here-
30 after incur, suffer, or pay by reason of its or their negligence
31 in the operation of the said aircraft arresting gear; provided, however,
32 however, that the foregoing shall not be applicable to any incident
33 arising in connection with the operation of the equipment
34 by the Federal Aviation Administration personnel for aircraft
35 other than aircraft operated by McDonnell, its agents, and
36 employees.
- 37 e. McDonnell covenants and agrees that it shall undertake the
38 proper functioning of the said arresting gear and remote control
39 equipment and shall promptly perform all maintenance and repairs
40 required thereto.
- 41 f. It is mutually agreed by McDonnell and the Federal Aviation
42 Administration for and on behalf of the ~~UNITED STATES OF AMERICA~~;
43 that this Agreement shall not serve to grant or confer upon
44 McDonnell any control of supervision over any employee, agent,
45 or designee of the agency or over the operation and management
46 of the St. Louis Airport Traffic Control Tower.
- 47 g. It is further mutually agreed that this agreement and the said
48 Letter of Agreement may be terminated by either McDonnell or the
49 Federal Aviation Administration by notice thereof in writing or
50 otherwise by mutual agreement.

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51 2. Procedures:

- 52 a. No aircraft shall be cleared for takeoff when the arresting
53 gear is in the raised position on the runway to be used.
- 54 b. Upon specific radio request from the pilot of the aircraft
55 concerned (or from McDonnell Flight Operations or Missouri
56 Air National Guard Mobile Control Officer when McDonnell or
57 National Guard aircraft are concerned), the arresting gear
58 will be activated for the appropriate runway by Control Tower
59 personnel through use of the control panels located in the
60 Tower. In case of conflicting desires or instructions between
61 the pilot and his respective operations agency, the final authority
62 or decision shall rest with the pilot.
- 63 c. Pilot phraseologies shall be as follows for raising the arresting
64 gear:
- 65 (1) "REQUEST - CABLE - CABLE - CABLE
- 66 (2) "RAISE CABLE, RUNWAY (number)." NOTE: Normally,
67 only the cable at the far end of the runway will
68 be raised unless otherwise requested by the pilot through
69 use of the following phraseologies:
- 70 (3) "RAISE CABLE (APPROACH END, BOTH ENDS, or ALL
71 RUNWAYS)."
- 72 d. After the control panels in the Tower indicate that the appro-
73 priate arresting gear has been activated, control tower personnel
74 shall confirm to the pilot and the emergency equipment personnel
75 which cable/cables have been raised by using the following

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FAA Approval J. Poter

- 76 phraseology: "CABLE INDICATES RAISED, (FAR END,
77 APPROACH END, BOTH ENDS, ON ALL RUNWAYS) RUNWAY (number)."
- 78 e. Control Tower personnel will alert the appropriate emergency
79 equipment when arresting gear use is requested. The airport
80 emergency equipment attends all emergencies. The McDonnell
81 emergency equipment will normally attend only those emergencies
82 concerning McDonnell-built or owned aircraft. In addition,
83 McDonnell Flight Operations shall be immediately advised for
84 other than McDonnell aircraft.
- 85 f. Control Tower personnel shall notify McDonnell Flight Operations
86 immediately of any improper operation of the control lights,
87 proper light indications are as shown below:
- 88 (1) The green (cable down), white (air pressure),
89 yellow (lower) and blue (raise) light should be on at all
90 times when the cable is down.
- 91 (2) The red light should be on when the cable is completely
92 raised.
- 93 g. Under no circumstances will the arresting gear be raised for
94 civil and/or commercial aircraft.
- 95 3. Each agency participating in this agreement shall ensure that the
96 pilots and appropriate personnel under its jurisdiction are properly
97 indoctrinated in the characteristics, operation and use of the
98 arresting gear.
- 99 4. Recissions:
- 100 a. This Operations Agreement cancels and supersedes the following
101 agreements:


Airport Certification Manual – St. Louis Lambert International Airport

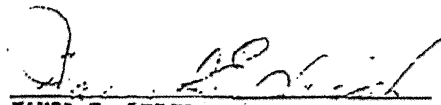
102 (1) Operational Agreement for Arresting Gear, Lambert-
103 St. Louis International Airport, St. Louis, Missouri
104 dated 22 November 1971.

105 5. Dated this 1st day of April 1973.


106 For McDonnell-Douglas Corporation:


For the City of St. Louis:

107 
108 R. D. SINGLETON
109 Director, Plant Engineering
110 McDonnell-Douglas Corporation


DAVID E. LEIGH
Acting Director
St. Louis Airport Authority


111 For the 131st Tactical Fighter
112 Group, Mo. Air National Guard:


HENRY J. BROMSCHWIG
Airport Manager, Lambert-
St. Louis International Airport

114 
115 COLONEL WILLIAM W. CANNON
116 Missouri Air National Guard

117 For the United States Air Force:

For the Federal Aviation
Administration:

118 
119 DANIEL ANDRE
120 Colonel, USAF
121 AFPRO, McDonnell-Douglas Corp.


WILLARD H. REAZIN
Chief, St. Louis Airport Traffic
Control Tower

Original Date
Revision Date **DEC 09 2019**

AA - 5E

FAA Approval 

FEDERAL AVIATION ADMINISTRATION
ST. LOUIS AIRPORT TRAFFIC CONTROL TOWER,
LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT AUTHORITY

LETTER OF AGREEMENT

EFFECTIVE: 12/15/05

SUBJECT: Operation of Airport Lighting System

1. **PURPOSE.** This Agreement between the Federal Aviation Administration, St. Louis Airport Traffic Control Tower (STL ATCT) and the Lambert-St. Louis International Airport Authority (STLAA) prescribes procedures and responsibilities for utilizing the airport lighting system at Lambert-St. Louis International Airport.
2. **SCOPE.** This agreement applies to the operation of all airport lighting, including the computerized touch-screen airport lighting control system.
3. **RESPONSIBILITIES OF STLAA:** The STLAA shall maintain, in proper working order, all airport lighting system components. In addition, the STLAA shall:
 - a. Notify STL ATCT immediately of any active airport lighting system components that fail.
 - b. Conduct an initial airfield lighting inspection as soon as possible after notification that RVR values below 1200 feet exist, or are imminent. Advise STL ATCT when the inspection is completed.
 - c. Conduct periodic visual inspections of lighting systems as required by AC 120-57 while the SMGCS plan is in effect.
 - d. Contact the STL ATCT and coordinate the transfer of airport lighting control from the tower cab to the Airport Electric Shop.
 - e. When the Airport Electric Shop is in control of airport lighting, make changes to airport lighting system component settings when requested by STL ATCT.
 - f. Contact the STL ATCT and coordinate the transfer of airport lighting control from the Airport Electric Shop back to the tower cab.
4. **RESPONSIBILITIES OF STL ATCT:** The STL ATCT shall:

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STL ATCT/STLAA LOA

b. Notify the STLAA Operations Center (OPS Center) when RVR values below 1200 feet exist or are imminent and prior to implementing the SMGCS plan. Notify the OPS Center when the SMGCS plan is terminated.

c. Notify the OPS Center, whenever a problem exists with a component of the airport lighting system, or whenever the computerized touch-screen airport lighting control system in the tower fails.

d. When the airport lighting control system in the tower is disabled, coordinate changes to the lighting system components with the Airport Electric Shop.




Vincent V. Shobe
Air Traffic Manager
St. Louis ATCT



Kevin C. Dolliole
Director, Airport Authority
Lambert-St. Louis International Airport

Original Date

Revision Date DEC 09 2019

FAA Approval 

**ST. LOUIS AIRPORT TRAFFIC CONTROL TOWER,
LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT AUTHORITY,
LAMBERT-ST. LOUIS AIRPORT AIRCRAFT RESCUE AND FIRE FIGHTING UNIT
LETTER OF AGREEMENT**

EFFECTIVE: 04/20/00

SUBJ: Discrete Emergency Coordination Frequency (DECF) – Operating Procedures

1. PURPOSE: To establish operating procedures for direct radio communication between St. Louis ARFF emergency personnel, the aircraft flight crew, and the St. Louis Airport Traffic Control Tower.

2. SCOPE: The procedures outlined herein describe the authorization, use, and limitations of a Discrete Emergency Coordination Frequency (DECF). This Letter of Agreement (LOA) is used in conjunction with, and subordinate to, existing agreements between the St. Louis ATCT, the Lambert-St. Louis International Airport Authority, and the Lambert-St. Louis Airport Aircraft Rescue And Fire Fighting Unit to provide emergency services. This LOA may be terminated by any signatory, successor, or their designated representative by written notice to the other parties.

3. RESPONSIBILITIES: Each party to this agreement is responsible for compliance with the provisions contained herein by personnel under their authority. Training, both initial and recurrent, of involved personnel is also the responsibility of the signatories.

4. ST. LOUIS ATCT PROCEDURES:

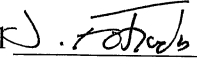
- a. Upon initiating a call for emergency response, St. Louis ATCT shall utilize the Discrete Emergency Coordination Frequency (DECF) to the extent feasible. In cases where assignment of the DECF to the emergency aircraft is not possible, notify the ARFF that the aircraft is not on the DECF.

***NOTE:** Frequency 134.375 is the primary DECF frequency, and shall be utilized consistent with the availability of the frequency, as this also serves as a backup ATC frequency for the control tower.*

- b. The St. Louis ATCT Supervisor may elect to have a separate controller coordinate the emergency/incident.
- c. The controller assigned to coordinate the emergency shall coordinate (with all appropriate operating positions), for the arrival of the aircraft and the intent/request of responding vehicles to follow the emergency aircraft onto the active runway.
- d. In the event that the emergency/incident involves an arriving aircraft, St. Louis ATCT may direct the St. Louis Terminal RADAR Approach Control facility (T75 TRACON) to assign the aircraft the DECF when switching the inbound emergency to tower frequency. In this case, the DECF will serve as the 'tower frequency' for this aircraft.
- e. When it is known that the ARFF emergency personnel are utilizing, and standing by on, the same frequency as the emergency aircraft, St. Louis ATCT shall make this known to the emergency aircraft. Phraseology: "St. Louis ARFF UNIT is also on this frequency."

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- f. The controller assigned to coordinate the emergency may allow the ARFF Incident Commander (call sign: “Truck 42 or Truck 50”) and/or the St. Louis Airport Authority representative to communicate directly with the flight crew of the emergency aircraft. Phraseology: “Truck 42 (or Truck 50), you have the frequency”.

5. AIRCRAFT RESCUE AND FIRE FIGHTING UNIT PROCEDURES:

a. During ATC initiated airfield responses:

- (1) All emergency “**command vehicles**” responding to the emergency shall utilize the designated Discrete Emergency Coordination Frequency (DECF) to establish and maintain contact with the emergency aircraft. (Normal communications with the control tower shall remain on Ground Control frequency 121.9).

NOTE: *The Discrete Emergency Coordination Frequency (DECF) will be assigned by St. Louis ATCT. Frequency 134.375 is the preferred frequency, and will be the frequency that will most often be utilized.*

- (2) If necessary, the ARFF Incident Commander, (in Truck 42 or Truck 50), and/or the St. Louis Airport Authority representative may request permission from St. Louis ATCT to convey emergency information to, or request vital information from, the flight crew of the aircraft involved in the emergency.

NOTE: *To preclude blocking critical ATC instructions, the ARFF Incident Commander and the Airport Authority representative must request permission from the control tower prior to communicating with the emergency aircraft on the DECF.*

- (3) At no time during direct communication with an aircraft shall emergency personnel say anything that may be implied or misinterpreted as an ATC instruction or clearance.

b. During other than ATC initiated responses:

- (1) The Remote Fire House shall notify St. Louis ATCT on Ground Control frequency 121.9 as soon as possible, of all responses to the ‘airfield’ side of the Airline Terminals.
- (2) All emergency vehicles responding to an emergency from the Main Fire House shall establish contact with St. Louis ATCT utilizing Ground Control frequency 121.9, and ensure that an ATC clearance is received prior to proceeding onto, or crossing, any runway.

NOTE: *Paragraph b. above primarily pertains to situations where fire-rescue vehicles are responding prior to the notification being made to the St. Louis ATCT Supervisor. In situations where notification to St. Louis ATCT can be made early enough to allow implementation of the DECF (i.e., notification is made before the vehicles have started to respond), the St. Louis Tower Supervisor has the option to utilize/implement the DECF procedures as outlined in this agreement.*

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FAA Approval J. F. Feltz

6. AIRPORT AUTHORITY REPRESENTATIVE PROCEDURES:

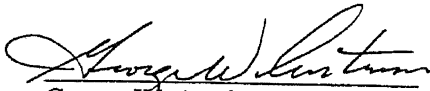
a. During ATC initiated airfield responses:

All Airport Authority command vehicles responding to the emergency shall utilize the designated Discrete Emergency Coordination Frequency (DECF) to monitor and establish necessary contact with the emergency aircraft. (Normal communications with the control tower shall remain on Ground Control frequency 121.9).

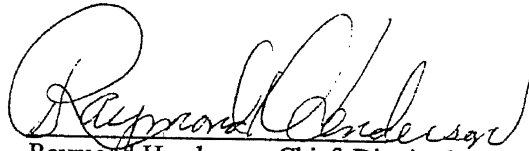
NOTE: *The Discrete Emergency Coordination Frequency (DECF) will be assigned by St. Louis ATCT. Frequency 134.375 is the preferred frequency, and will be the frequency that will most often be utilized.*

b. During other than ATC initiated responses:

When responding to an emergency at one of the Airline Terminals, the St. Louis Airport Authority representative shall establish contact with St. Louis ATCT utilizing Ground Control frequency 121.9, and ensure that an ATC clearance is received prior to proceeding onto, or crossing, any runway.



George W. Antrim, Manager
St. Louis Airport Traffic Control Tower



Raymond Henderson, Chief, District 8
City of St. Louis Fire Department



Leonard L. Griggs, Director Airport Authority
Lambert-St. Louis International Airport

Original Date

Revision Date **DEC 09 2019**

AA - 7C

FAA Approval J. Fotrach

**LAMBERT - ST. LOUIS AIRPORT AUTHORITY AND
DISTRICT 8 OF THE CITY OF ST. LOUIS FIRE
DEPARTMENT**

LETTER OF AGREEMENT

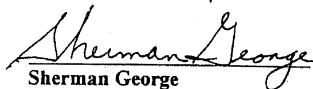
SUBJECT: Arson Investigation

PURPOSE: To establish responsibilities and procedures for determining cause and origin of any incident requiring a fire suppression response by District 8 of the City of St. Louis Fire Department and subsequent investigation of suspected arson by the appropriate law enforcement agency.

SCOPE: The procedures outlined herein describe the Standard Operating Procedures for District 8, the Airport Authority and the Airport Authority Police to ensure an orderly notification of appropriate authorities, proper emergency response, security of the site and handling of evidence. The signatories, successors, or their designated representatives may terminate this Letter of Agreement by written notice to the other parties. Said notice, if initiated by any party, shall not in any way reduce the level of public safety at any time.

RESPONSIBILITIES: Each party to this agreement is responsible for compliance with the provisions contained herein as well as the training, both initial and recurrent, of personnel under their authority.

- a. The St. Louis Fire Department shall respond to requests for services and shall be responsible to determine cause and origin of any incident requiring a fire suppression response on property owned and/or maintained by the City of St. Louis at Lambert – St. Louis International Airport. Upon the determination that arson is suspected, the Incident Commander, (IC) shall notify the Airport Authority Police Department. The Incident Commander shall preserve all evidence and ensure site security until relieved by the responding Airport Authority Police Officer/ Watch Commander.
- b. The Airport Authority Police Department shall notify the appropriate Federal, State and/or local Law Enforcement Investigative Unit responsible for arson investigation at the site. The Airport Authority Police Watch Commander shall continue to preserve all evidence and take responsibility for site security until relieved by the appropriate Law Enforcement Investigative Unit.
- c. The St. Louis Airport Authority will provide any assistance and/or resources available to it, in support of the St. Louis Fire Department, the Airport Authority Police Department and the Law Enforcement Investigative Unit.



Sherman George
Chief, Fire Department
City of St. Louis
Department of Public Safety



Leonard L. Griggs, Jr., PE
Director of Airports
City of St. Louis
Airport Authority

Effective this 26th day of October, 2000.

Original Date _____
Revision Date **DEC 09 2019**


FAA Approval 




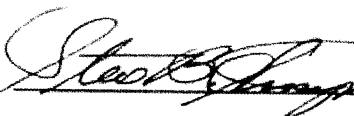
EFFECTIVE November 08, 2018

SUBJECT: Revision to the Letter of Agreement, Airport Emergency Service

1. **PURPOSE.** Amend the Letter of Agreement, Airport Emergency Service, dated 07/28/2018 to include updated ARFF set-up positions for airfield emergencies.
2. **EXPLANATION OF CHANGES.** This revision updates Attachment A depicting the set-up position for ARFF vehicles due to various taxiway designation changes.
3. **PRECEDURES.** Replace Attachment A with the attached page.



Rhonda Hamm-Niebruegge
Director, Airport Authority
St. Louis Lambert International Airport


Ed Deuser
Air Traffic Manager
St. Louis ATCT


Steve Simpson
Chief, District 8
City of St. Louis Fire Department

PO BOX 10212/10701 LAMBERT INTERNATIONAL BLVD. MTN-2276 • ST. LOUIS, MO 63145-0212 • USA • MAIN PHONE 314.426.8000 • FLYSTL.COM

Original Date
Revision Date **DEC 09 2019**

FAA Approval 

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT,
ST. LOUIS FAA AIRPORT TRAFFIC CONTROL TOWER,
ST. LOUIS LAMBERT INTERNATIONAL AIRPORT AIRCRAFT RESCUE AND FIRE
FIGHTING UNIT

LETTER OF AGREEMENT

EFFECTIVE: 07/28/2018

SUBJECT: Airport Emergency Service

1. PURPOSE. Prescribes responsibilities and procedures for handling of aircraft emergency Operations and associated emergency notification.

2. SCOPE: This agreement outlines responsibilities and procedures between St. Louis Lambert Airport, St. Louis Air Traffic Control Tower and St. Louis Lambert International Airport Aircraft Rescue and Fire Fighting Unit for emergency services.

3. CANCELLATION. St. Louis Airport Traffic Control Tower, St. Louis Lambert International Airport and St. Louis Lambert International Airport Aircraft Rescue and Fire Fighting Unit, Letter of Agreement dated August 29, 2011, subject: Airport Emergency Service.

4. DEFINITIONS.

- a. ADOM -Assistant Director of Operations and Maintenance.
- b. STL AA -St. Louis Lambert Airport Authority.
- c. ARFF - District 8 of the City of St. Louis Fire Department, St. Louis Lambert International Airport, Aircraft Rescue Fire Fighting Unit.
- d. STL ATCT -St. Louis Airport Traffic Control Tower.
- e. Ops Center - Airport Operations/Communications Center.
- f. Set-Up – A code used to denote a warning of a situation that could result in an accident. This code requires that the emergency equipment standby adjacent to the STL ATCT designated Runway.
- g. Alert 3 – A code used to denote an actual accident or fire that requires immediate action by emergency rescue and firefighting personnel.

5. RESPONSIBILITIES.

- a. Emergencies must be classified using one of the following codes:
 - (1) Set-Up.

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FAA Approval *J. P. Hach*

Airport Certification Manual – St. Louis Lambert International Airport

07/28/2018

STL AA/STL ATCT/ARFF LOA

- (2) ALERT 3.
- b. The authority to declare an emergency rests with the following agencies:
 - (1) The STL ATCT.
 - (2) The Pilot.
 - (3) The owner/ operator of the aircraft or designee.
 - (4) ARFF Commander.
 - (5) The ADOM or designee.
- c. STL ATCT must:
 - (1) Initiate a daily check of the Crash Phone at 0800 local time.
 - (2) Contact the ARFF via the Red Crash Phone for all known, reported, actual or potential emergencies and state the appropriate emergency code (Set-Up or Alert 3). When the Red Crash Phone is not operational, utilize the commercial line at 314-426-8133.
 - (3) In all cases involving aircraft, notification must contain the following information when known:
 - (a) Alert Status: Set-Up/Alert 3.
 - (b) Runway to be used or location of incident/accident.
 - (c) Aircraft call sign.
 - (d) Type of aircraft.
 - (e) Nature of emergency.
 - (f) Number of people on board.
 - (g) Fuel remaining in time.
 - (h) Estimated time of arrival.
 - (i) Presence of hazardous cargo or explosives aboard.
 - (j) Any other information that will aid the ARFF units.
 - (4) In the event of an actual crash (Alert 3) on the airport:
 - (a) Broadcast the following announcement on the ground control frequency as well as over the Red Crash Phone as stated in paragraph c2:

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STL AA/STL ATCT/ARFF LOA

"CRASH (LOCATION), CRASH (LOCATION)."

EXAMPLE: "CRASH, APPROACH END OF RUNWAY THREE ZERO LEFT;
CRASH, APPROACH END OF RUNWAY THREE ZERO LEFT."

- (b) Activate the Emergency Crash Box located in the tower cab.
 - (5) Provide priority handling to all ARFF equipment responding to an emergency and route ARFF equipment to the scene of an emergency.
 - (6) Inform ARFF if the emergency aircraft requests to be followed down the runway.
 - (7) Inform ARFF when the emergency aircraft is next to land.
 - (8) In the event of an aircraft accident on or near the airport, STL ATCT must stop all operations at the airport until the ADOM, Ops Center or a designee advises which movement areas may be utilized for aircraft operations.
 - (9) Consider any movement/non-movement area (runway, taxiway, pad or ramp area) directly impacted by the emergency aircraft as closed. STL ATCT must not resume operations on a closed area until the ADOM, Ops Center or designee reopens the area.
 - (10) Route other aircraft/vehicles away from the emergency site.
 - (11) Comply with the provisions of the Discrete Emergency Communication Frequency Letter of Agreement (LOA).
 - (12) Direct all bomb threats or aircraft with suspicious/hazardous materials to the designated search area located on Taxiway Bravo between Taxiway A2 and Taxiway A3. If this area is not available, STL AA will designate another location.
- d. ARFF must:
- (1) Ensure that a person is on duty in the north fire house 24 hours daily to receive calls on the emergency telephone system, and to forward required information to the west house as well as the ADOM or designee.
 - (2) Monitor and maintain two-way radio communications with STL ATCT at all times while operating vehicles/equipment on the movement areas, and request clearance before crossing any runways.
 - (3) Not enter or cross an active runway without obtaining authorization from STL ATCT.
 - (4) Respond to emergencies on the airport as follows:
 - (a) Set-up – Emergency equipment must take up standby positions for the runway to be used as prescribed by ARFF (see Attachment A)
 - (b) Alert 3 – Emergency equipment will proceed directly to the scene via the most direct route authorized by STL ATCT. ARFF must receive STL ATCT clearance

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prior to entering or crossing a runway.

- (5) Determine the manner in which an emergency fire response is conducted.
- (6) The Field Commander will determine if the aircraft will be followed down the runway based on the nature of the emergency or if the pilot in command requests.
- (7) "Follow Me" Procedures.
 - (a) If the Pilot in Command (PIC) requests to be followed, STL ATCT must advise the Field Commander. This constitutes approval by STL ATCT for all ARFF units to access the runway and follow behind the aircraft after the aircraft passes their set up position.
 - (b) If the Field Commander makes a decision to follow the emergency aircraft, the Field Commander must advise STL ATCT of their intentions ahead of the aircraft arrival and request clearance to follow the emergency aircraft. This approval by STL ATCT allows all ARFF units to access the runway and follow behind the aircraft after the aircraft passes their set up position.
 - (c) The Field Commander must notify all ARFF trucks on the request to follow or decision to follow over ARFF frequency. Authorization to follow the emergency aircraft is only to follow behind the aircraft, which is typically the approach end set up positions (Truck 42 and company or Truck 49 and company) and the midpoint setup position ARFF vehicles (see Attachment A). ARFF vehicles must only access the runway after the aircraft passes their position.
 - (d) Depending on the nature of the emergency, the Field Commander may direct ARFF vehicles on the rollout end (opposite end) of the runway to access the runway, but in front of the aircraft. In this case, the ARFF Commander will provide direction and approval over ARFF frequencies for the rollout end ARFF vehicle (vehicle in front of the aircraft) to access the runway.
 - (e) The rollout end ARFF vehicle must only access the runway after receiving direction from the ARFF Field Commander (Truck 42 or Truck 49) over ARFF frequencies and when the emergency aircraft has come to a stop.
- (8) Be responsible for requesting assistance from additional fire department units when needed.
- (9) Comply with the provisions of the Discrete Emergency Communication Frequency LOA.

e. The ADOM must:

- (1) Ensure that personnel are on duty 24 hours daily to receive and monitor calls on the emergency phone system and to disseminate the information to appropriate officials and response agencies.
- (2) Determine the overall emergency response and coordinate with all STL AA Departments, supporting agencies and tenants.

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- (3) Ensure that all ARFF emergency vehicles comply with all applicable portions of FAR Part 139.
- (4) Ensure that the post incident/accident response and recovery is accomplished to expedite a return to service of affected runways or taxiways.
- (5) Authorize STL ATCT during a Set-Up to continue airport operations on movement areas which do not conflict with the emergency.
- (6) Release the movement area affected by a Set-Up or Alert 3 as soon as possible after the emergency has been resolved. The ADOM or the Ops Center are the only authorized personnel to open an affected area.
- (7) Comply with the provisions of the Discrete Emergency Communication Frequency LOA.


Ed. Deuser
Air Traffic Manager
STL ATCT


Rhonda Hamm-Niebruegge
Airport Director
St. Louis Lambert International Airport


Steve Simpson
Chief, District 8
City of St. Louis Fire Department

Original Date
Revision Date **DEC 09 2019**

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FAA Approval J. Fotiadis

11/08/2018

STL AA/STL ATCT/ARFF

Attachment A

Revision 1

ARFF SET UP POSITIONS FOR ALL RUNWAYS

NORTH FIRE STATION

RWY/TRUCK	12L	30R	12R	30L	6	24	11	29
42	S/F	H/F	S/E	H/E	P/24	P/24	C-PAD	C-PAD
48	S/F	H/F	S/E	H/E	P/24	P/24	C-PAD	C-PAD
44	F/F6	F/F6	F/F6	F/F6	F/F6	F/F6	F/F6	F/F6
46	H/F	S/F	H/E	R/E	S/F	S/F	C-PAD	C-PAD
53*	F/F6	F/F6	F/F6	F/F6	F/F6	F/F6	F/F6	F/F6

WEST FIRE STATION

RWY/TRUCK	12L	30R	12R	30L	6	24	11	29
49	E/K	E/K	Q/C	Q/C	T/B	T/B	B/A4	B/A3
43	C/U	C/U	C/U	C/U	T/B	T/B	B/A2	B/A5
50	E/K	E/K	Q/C	Q/C	T/B	T/B	B/A4	B/A3
52	C/U	C/U	C/U	C/U	T/B	T/B	B/A5	B/A2

*ARFF Vehicles are in service when available manpower permits.

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**FEDERAL AVIATION ADMINISTRATION
ST. LOUIS AIRPORT TRAFFIC CONTROL TOWER
LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT AUTHORITY
LETTER OF AGREEMENT**

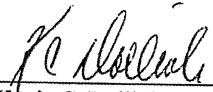
EFFECTIVE 12/15/05

SUBJECT: Use of the Lambert-St. Louis International Airport Operations Center as a
Temporary ATCT.

1. **Purpose:** Prescribe operating procedures for the utilization of the Lambert-St. Louis International Airport Operations Center (OPS Center) as a temporary ATCT in the event that the St. Louis Airport Traffic Control Tower (STL ATCT) is evacuated.
2. **Scope:** The procedures outlined herein are for use in the event that the STL ATCT is evacuated and a temporary ATCT is required to provide continuity of air traffic services.
3. **Procedures:**
 - a. The STL ATCT shall, if possible, notify the OPS Center of the tower evacuation and need for use of the OPS Center for a temporary ATCT via phone or radio.
 - b. If circumstances or time do not allow for notification, ATCT personnel will proceed to the OPS Center utilizing Door MTN-2174 in the terminal bypassing the security checkpoint and gaining immediate access to the OPS Center.
 - c. ATCT personnel will utilize the intercom at the OPS Center Door B-2090 for admission. In the event the OPS Center is unmanned or unable to answer the intercom, ATCT personnel will gain access using the key which the St. Louis Airport Authority (STLAA) has provided.
 - d. OPS Center equipment including the ACE-IDS shall be made available to ATCT personnel to the extent possible.
4. **Responsibilities:**
 - a. The STL ATCT shall annually conduct a practice evacuation exercise to familiarize ATCT personnel with these procedures.
 - b. ATCT personnel shall not utilize Door MTN-2174 or the OPS Center key for any other purpose than ATCT evacuation or the annual evacuation drill.
 - c. STL ATCT agrees to install and maintain two roof-mounted antennae for use with tower portable transceivers.
 - d. OPS Center personnel will notify the Airport Director when the STL ATCT has set up a temporary ATCT at the OPS Center.



Vincent V. Shobe
Air Traffic Manager
St. Louis Air Traffic Control Tower



Kevin C. Dolliole
Director, Airport Authority
Lambert-St. Louis International Airport

Original Date _____
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FAA Approval J. Fethach

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT AUTHORITY,
ST. LOUIS AIRPORT TRAFFIC CONTROL TOWER,
GATEWAY TERMINAL RADAR APPROACH CONTROL

LETTER OF AGREEMENT

EFFECTIVE: _____

SUBJECT: Notification Process by the Airport for Surface Area NOTAMs

1. **PURPOSE.** This agreement identifies responsibility for notification of St. Louis Air Traffic Control Tower and Gateway TRACON of Surface Area Notices to Airmen (NOTAMs) created by the Lambert-St. Louis International Airport Authority.
2. **CANCELLATION:** This agreement does not cancel any agreements between the Lambert-St. Louis International Airport Authority and the St. Louis Air Traffic Control Tower related to NOTAMs.
3. **SCOPE.** The procedures outlined herein are to be used to standardize procedures between the St. Louis Airport Traffic Control Tower, Gateway Terminal Radar Approach Control, and Lambert-St. Louis International Airport Authority regarding the notification of Surface Area NOTAMs created and directly entered by the Airport Authority into the FAA Direct-Entry Digital NOTAM System.
4. **DEFINITIONS:** The Airport, for the purpose of the Agreement, will include the Airport Director, the Assistant Director of Operations and Maintenance, and the staff of the Airport Operations Center.
 - a. Lambert-St. Louis International Airport Authority (AA).
 - b. Airport Operations Center (AOC).
 - c. St. Louis Airport Traffic Control Tower (STL ATCT).
5. **RESPONSIBILITIES:** According to the NOTAM Manual (JO 7930.2) the AA is responsible for observing and reporting the condition of movement areas and other surface area NOTAMs associated with the Airport. The Surface Area NOTAMs include: Aerodrome, Runway, Taxiway, Apron, Ramp, Services and Obstruction.
6. **PROCEDURES:**
 - a. **NOTAMs:** Under the current legacy NOTAM system, the AOC contacts Flight Service (FSS) to initiate a Surface Area NOTAMs. FSS is responsible for the classification, accuracy, format, dissemination and cancellation of the NOTAM information from the AOC and also notifying STL ATCT.
 - b. **DIRECT-ENTRY DIGITAL NOTAMs:** The AOC will use FAA web-based software to directly enter Surface Area NOTAMs to the United States NOTAM System (USNS) and bypass FSS.
 - c. **NOTIFICATION:** Because the AOC is directly entering NOTAMs into the USNS and bypassing FSS, the AOC shall notify STL ATCT and Gateway TRACON of all issued and cancelled NOTAMs.

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STLA/STL/T75 LOA

(1) The AOC will notify STL ATCT and Gateway TRACON via phone, facsimile or radio and relay the following information:

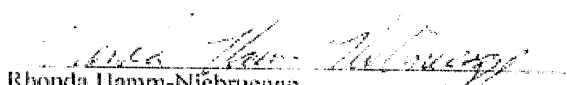
- a) NOTAM keywords: Aerodrome, Runway, Taxiway, Apron, Ramp, Services or Obstruction.
- b) Designator (ex: RWY30L/12R or airline ramp).
- c) Reason/condition for the keyword NOTAMs.
- d) Start time and end time or the expected time period of the NOTAM.

Examples: "Taxiway Charlie closed until one six three zero UTC."

"Aerodrome closed fro two one zero zero to two two zero zero UTC."


"Runway one one/two nine thin loose snow swept full width at one eight one zero UTC."

- (2) STL ATCT personnel receiving the NOTAM will respond with their operating initials.
- (3) In the event the AOC is unable to deliver a facsimile to Gateway TRACON, AOC will advise STL ATCT. STL ATCT will then notify Gateway TRACON via phone of pertinent NOTAMs.
- d. **FAILURE OF THE DIRECT-ENTRY NOTAM SYSTEM:** In the event there is a failure of the Direct-Entry NOTAM System, the AOC shall utilize the legacy NOTAM system. AOC shall advise STL ATCT and Gateway TRACON when the Direct-Entry NOTAM System is out of service and when it returns to service.


Rhonda Hamm-Niebruegge
Director, Airport Authority
Lambert-St. Louis International Airport

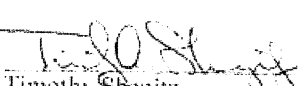
Date

2/9/2011


Duane D. Fant
Air Traffic Manager
St. Louis ATCT

Date

2/12/11

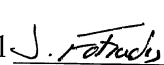

Timothy Shegitz
Air Traffic District Manager
Gateway TRACON

Date

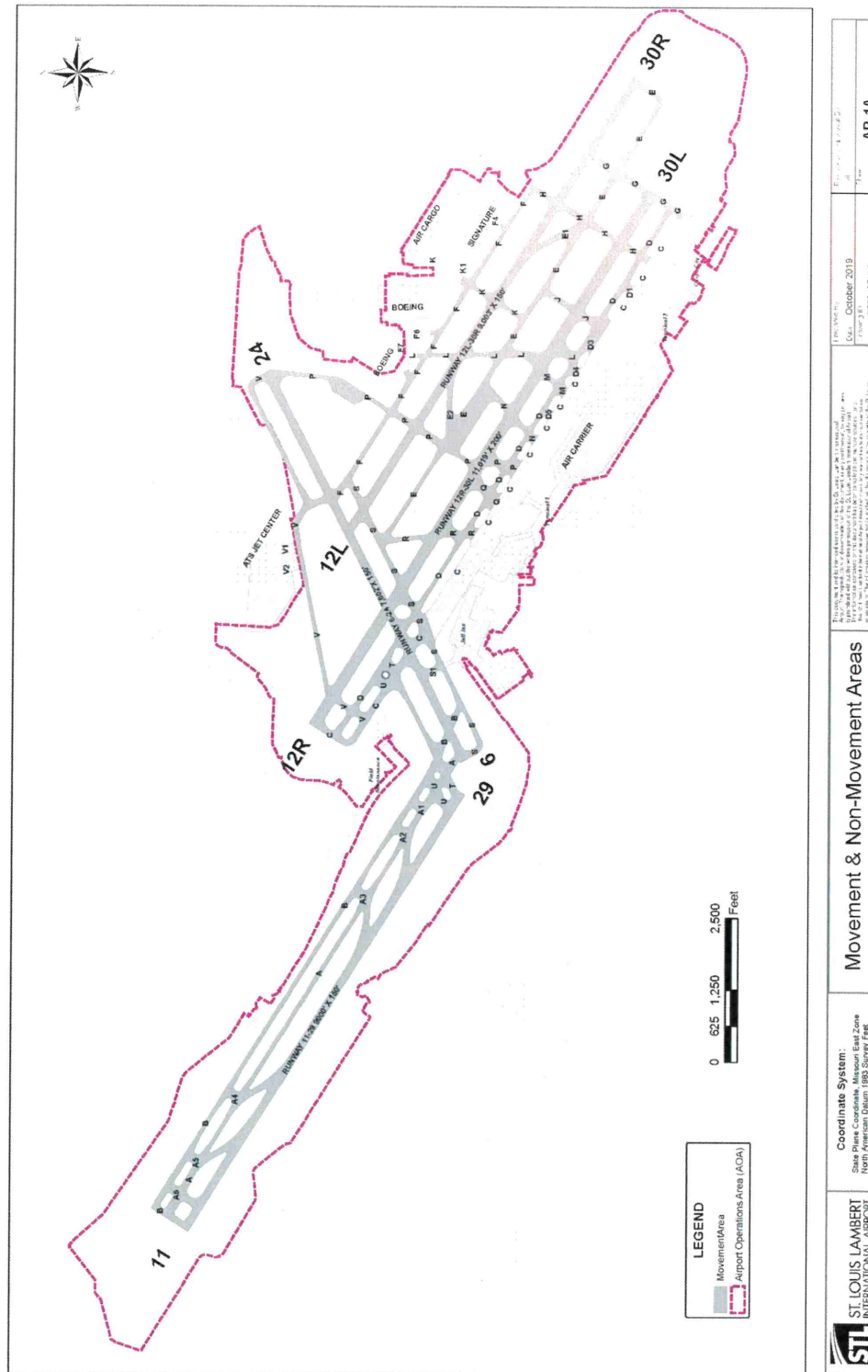
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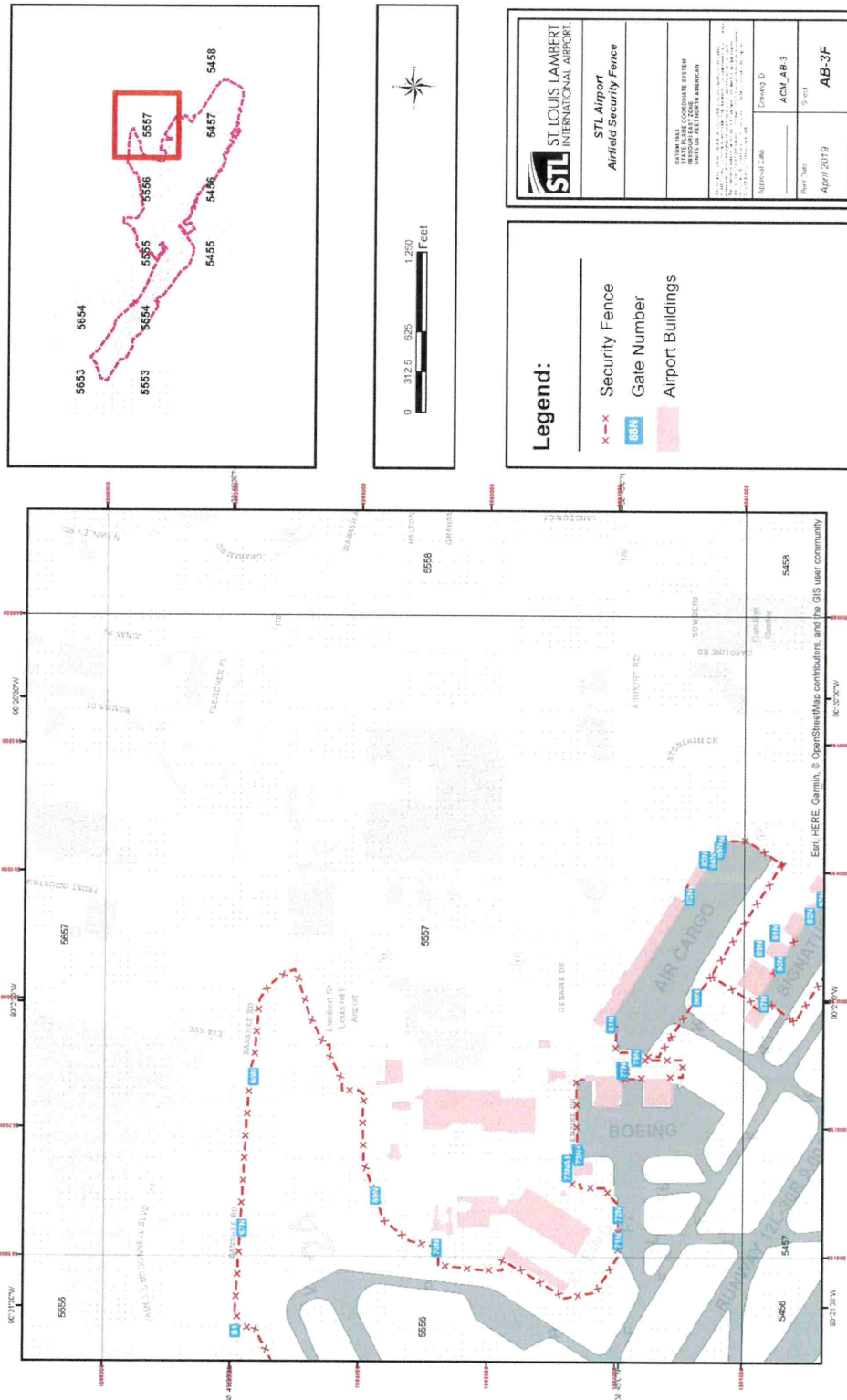
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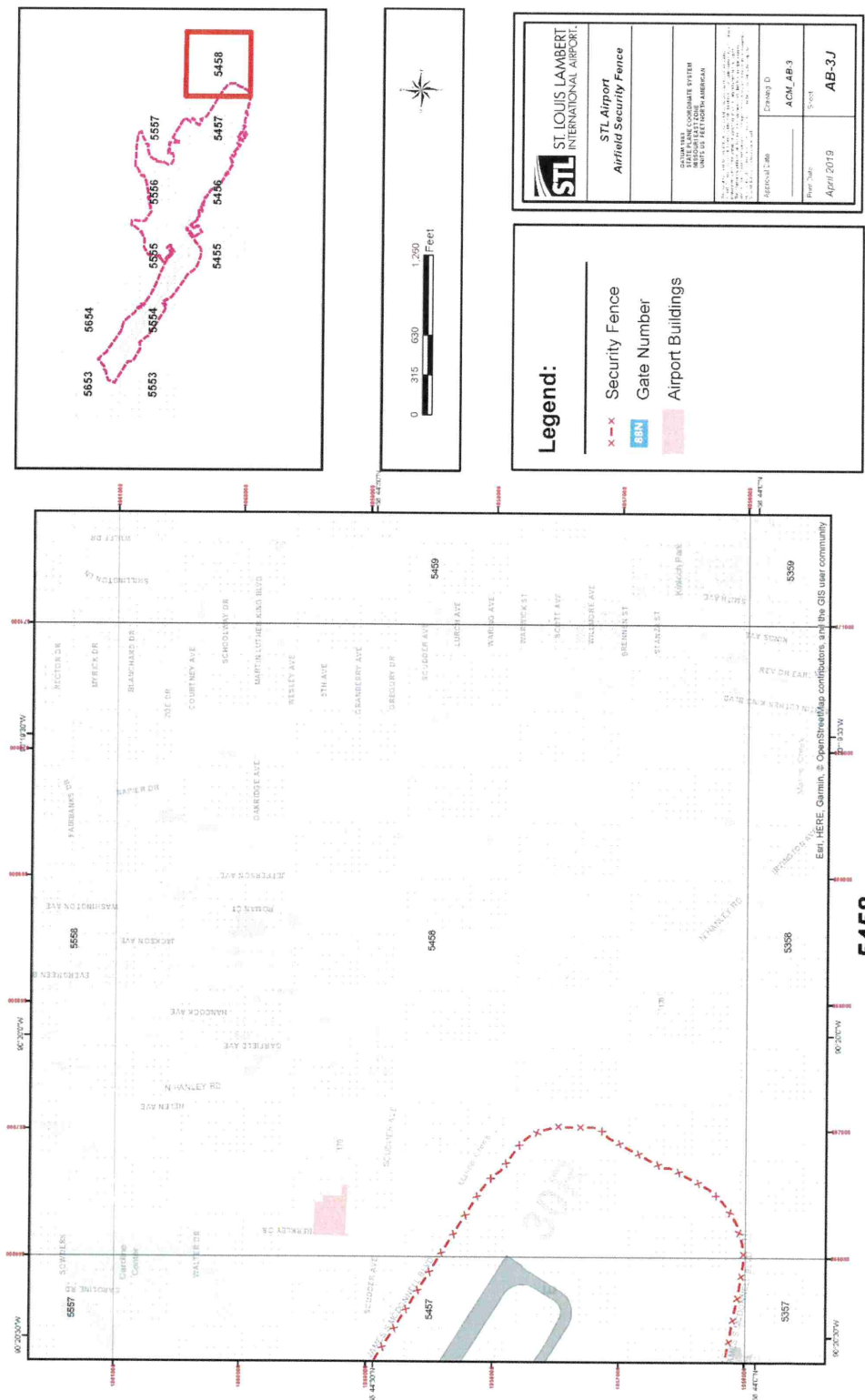
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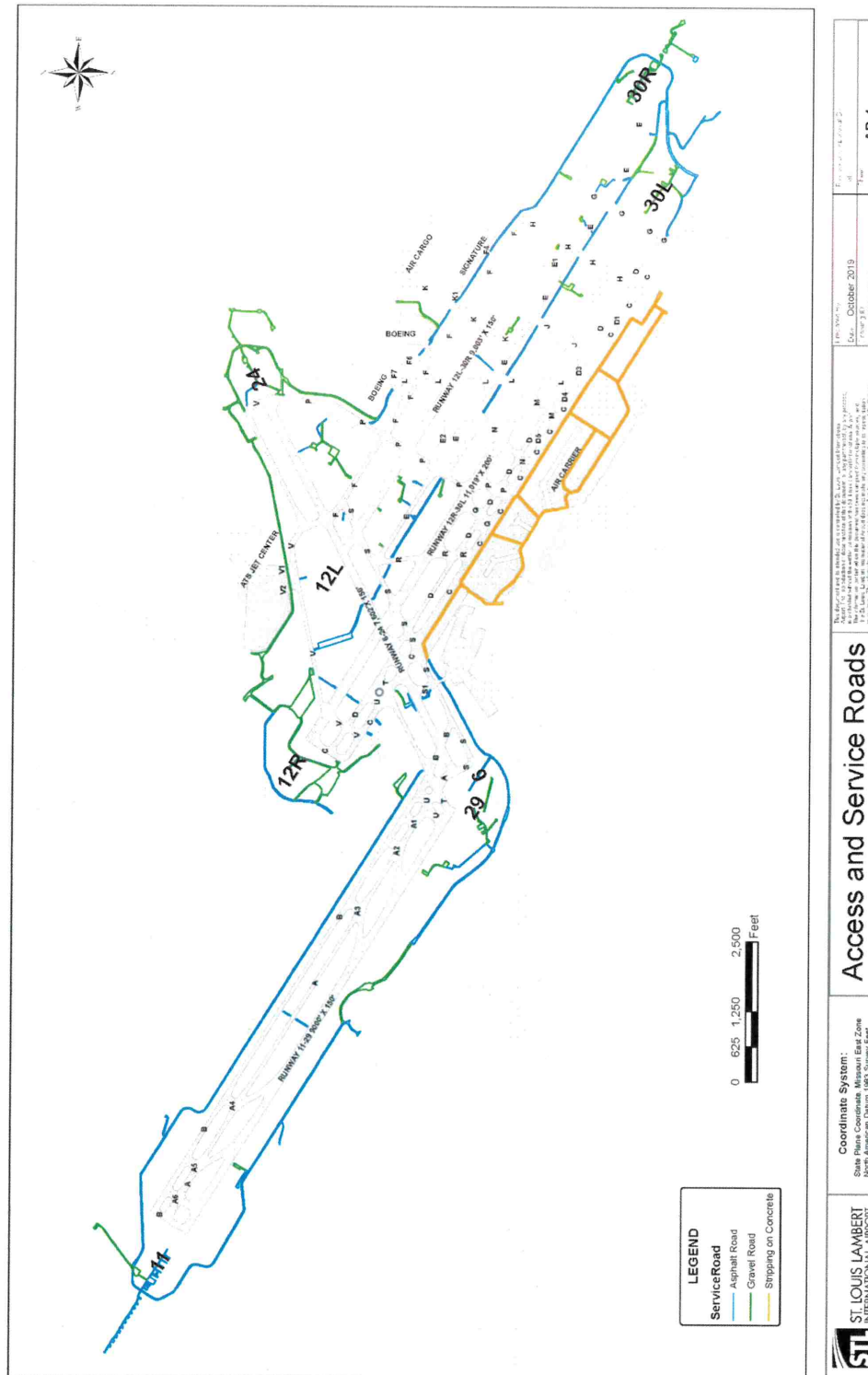
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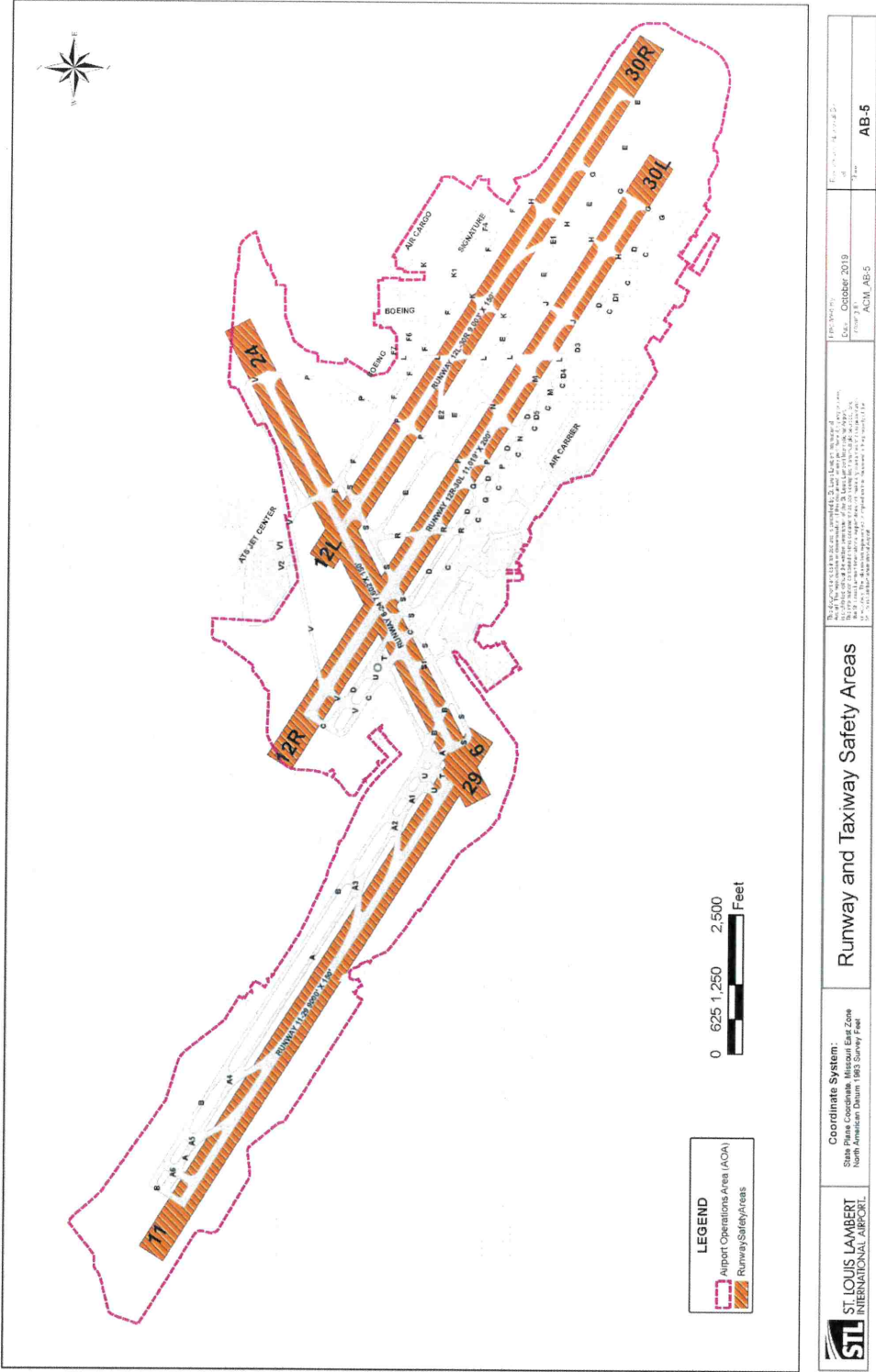
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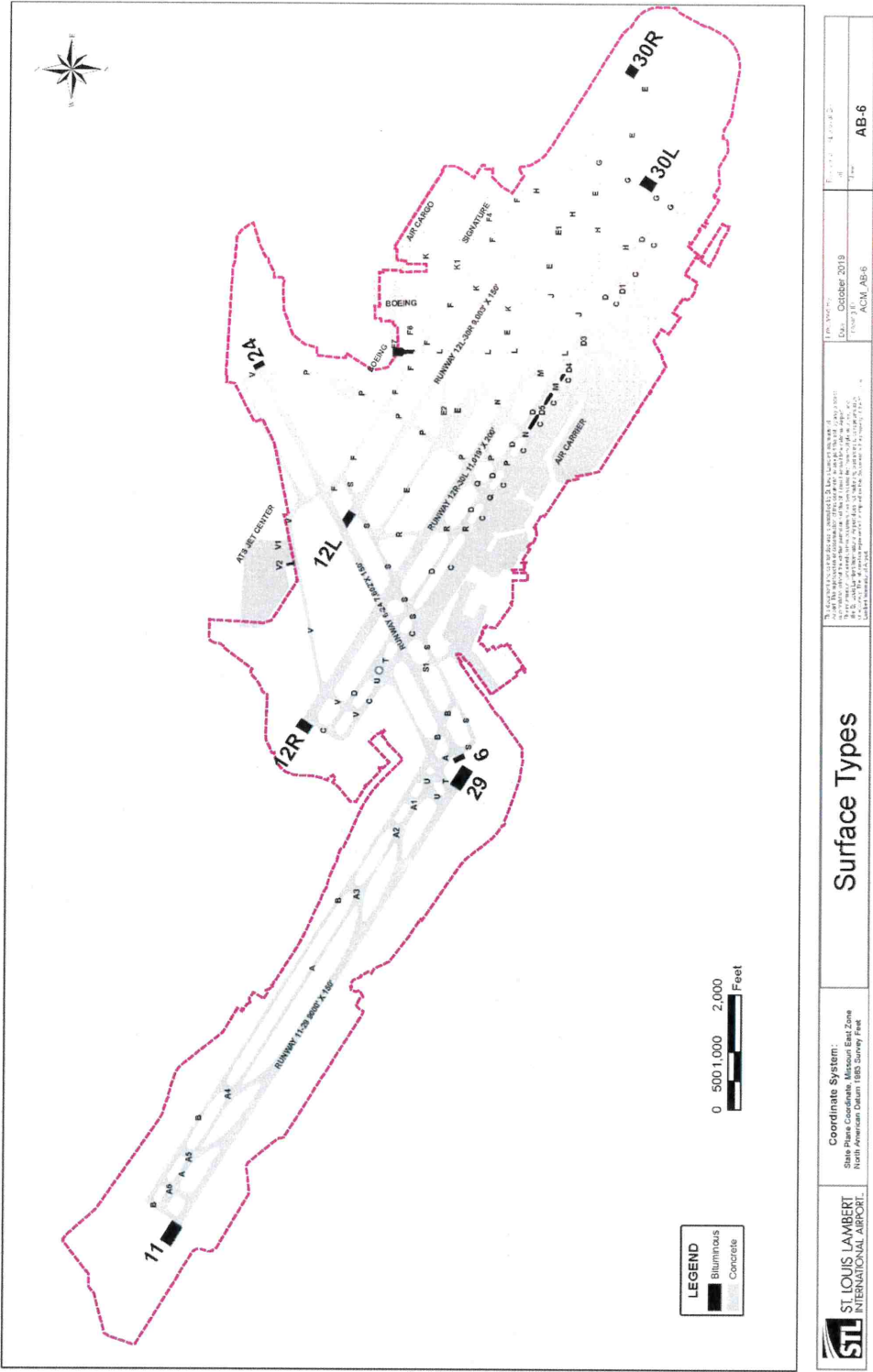
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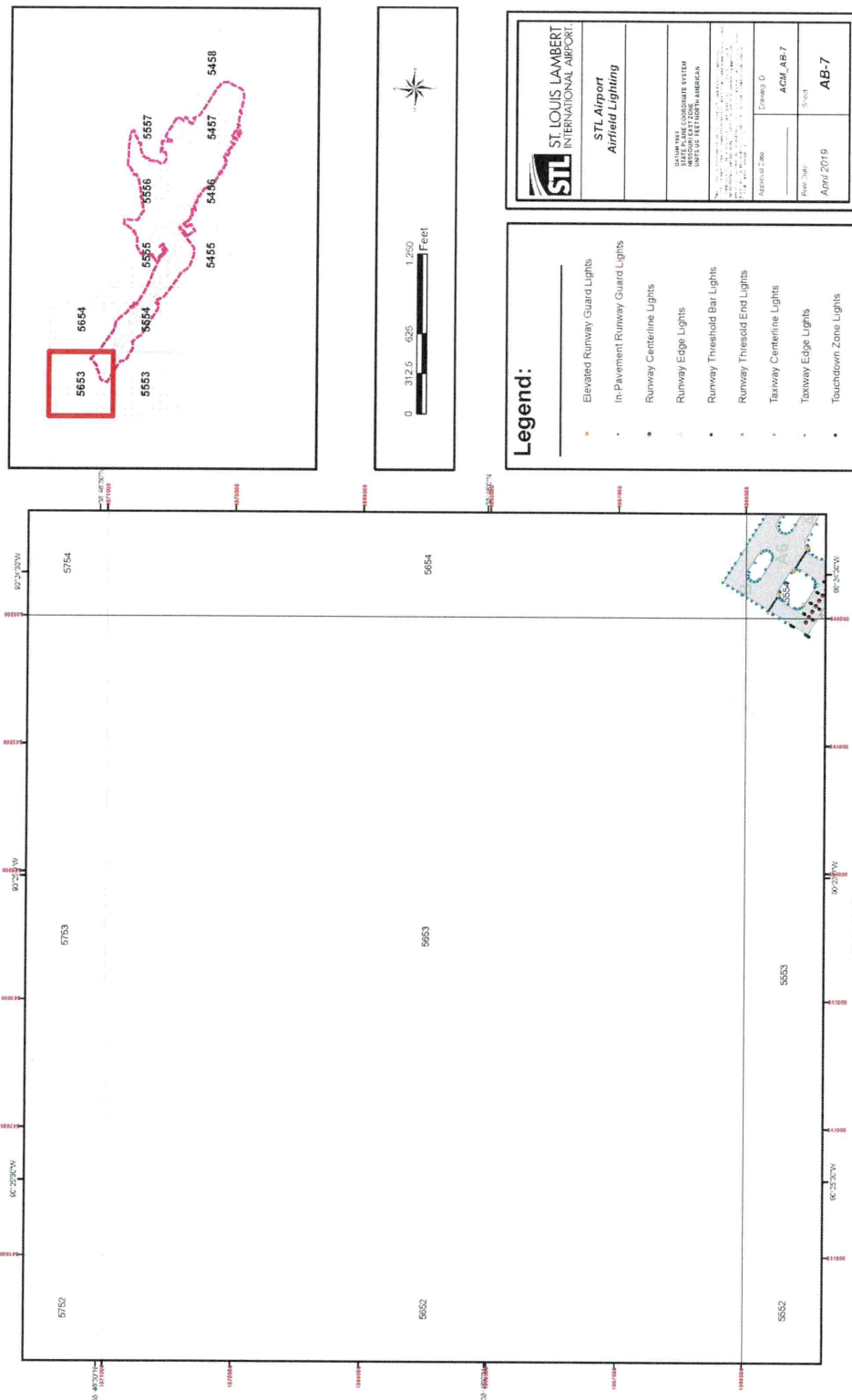


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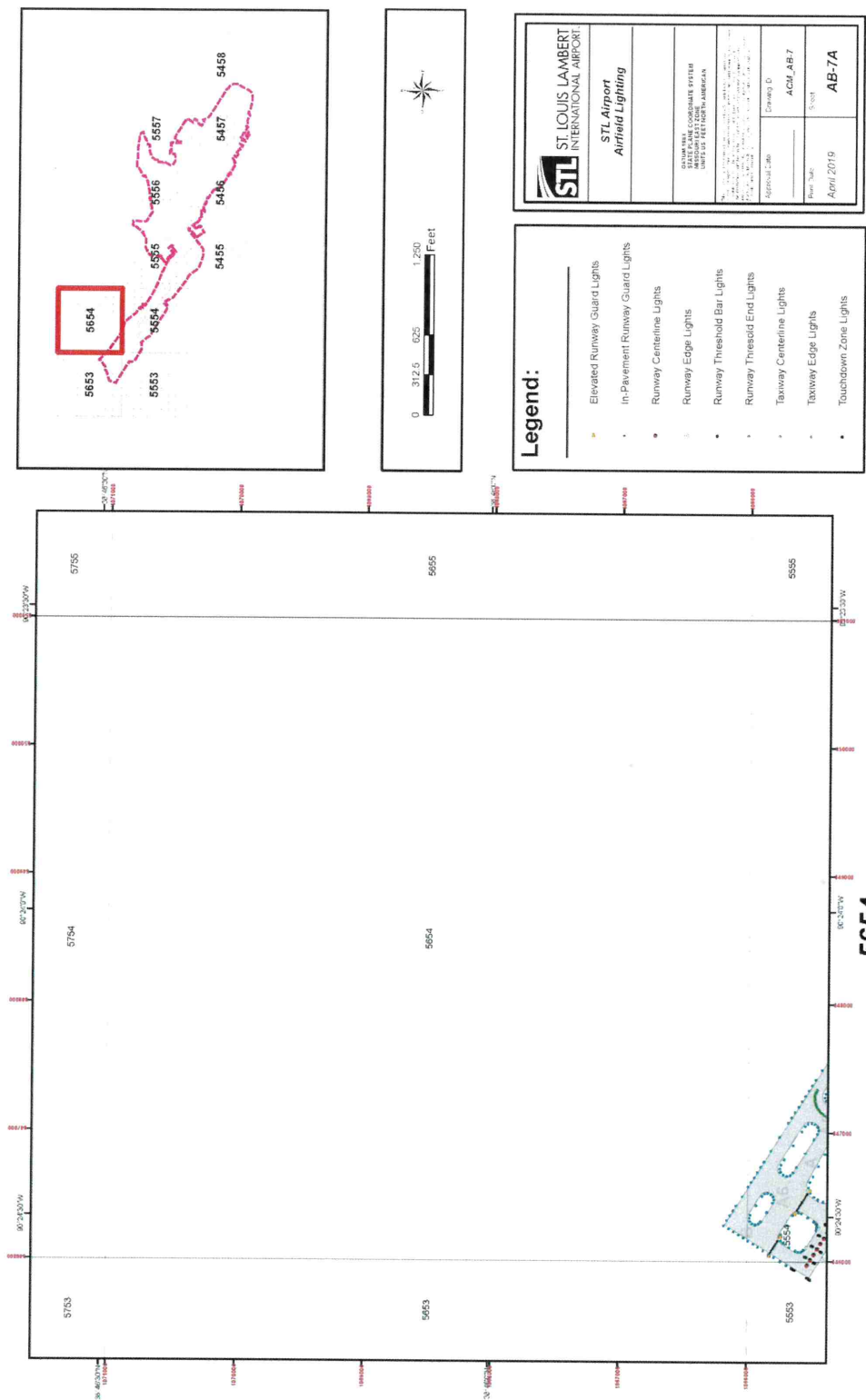
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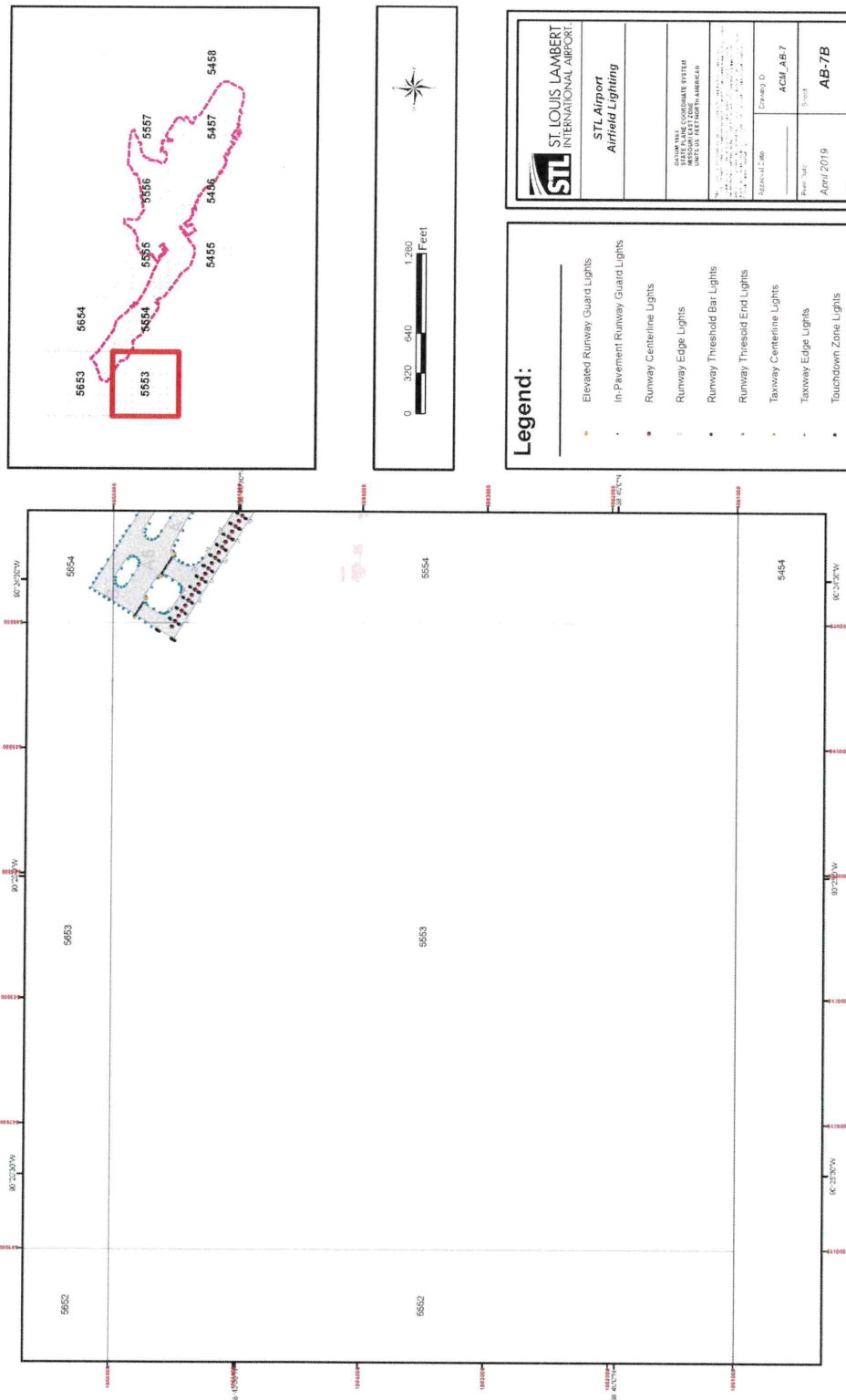


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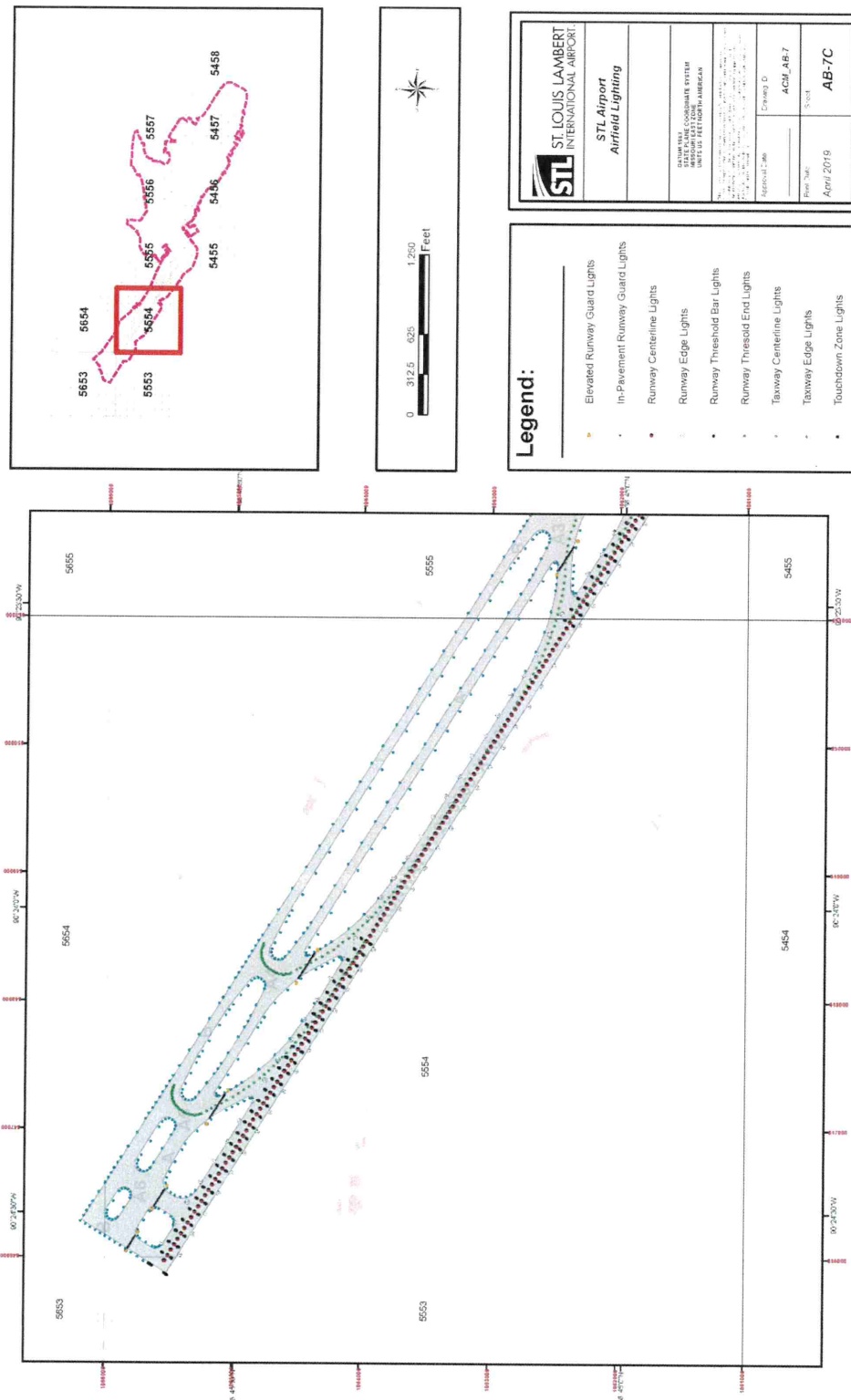


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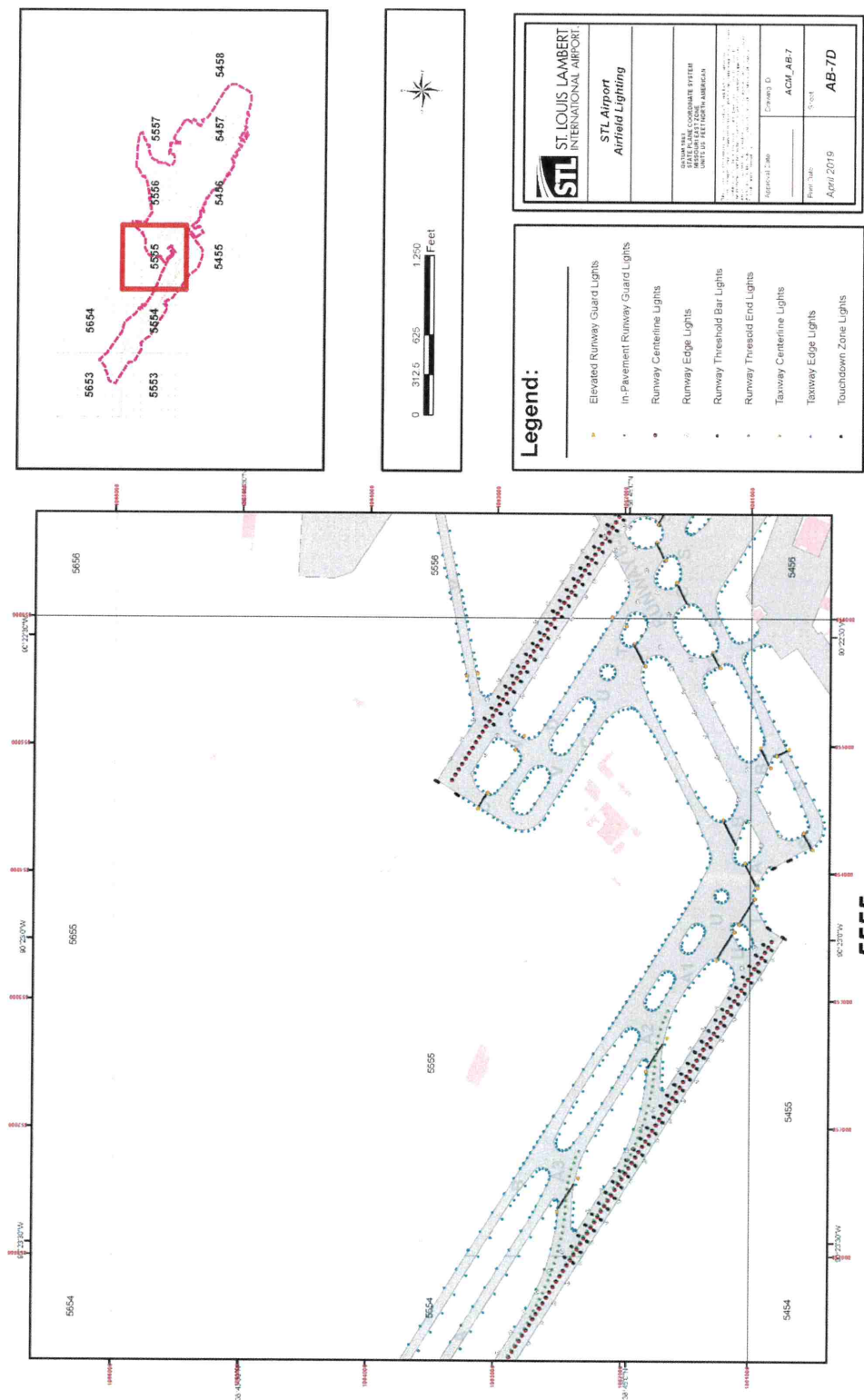
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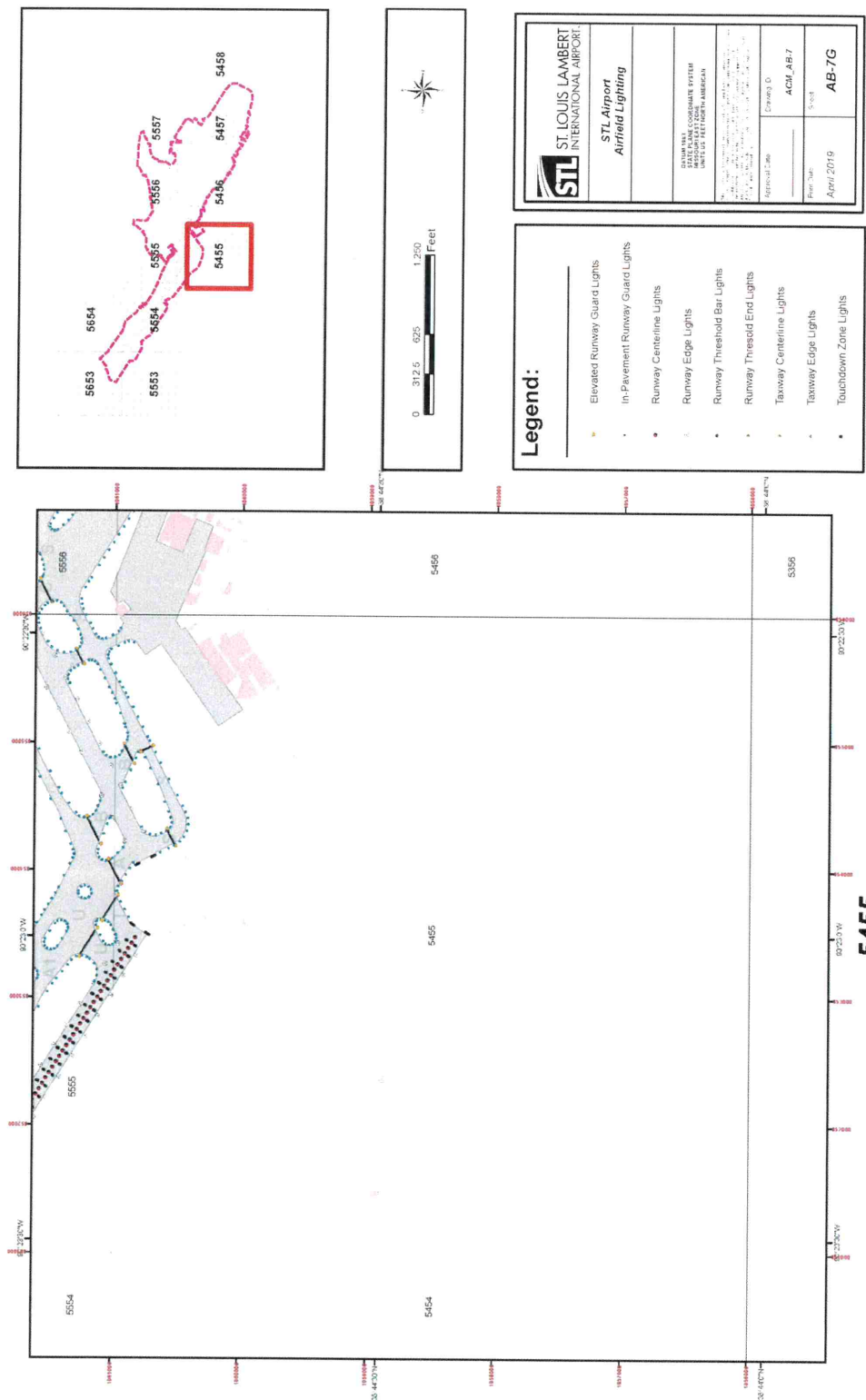
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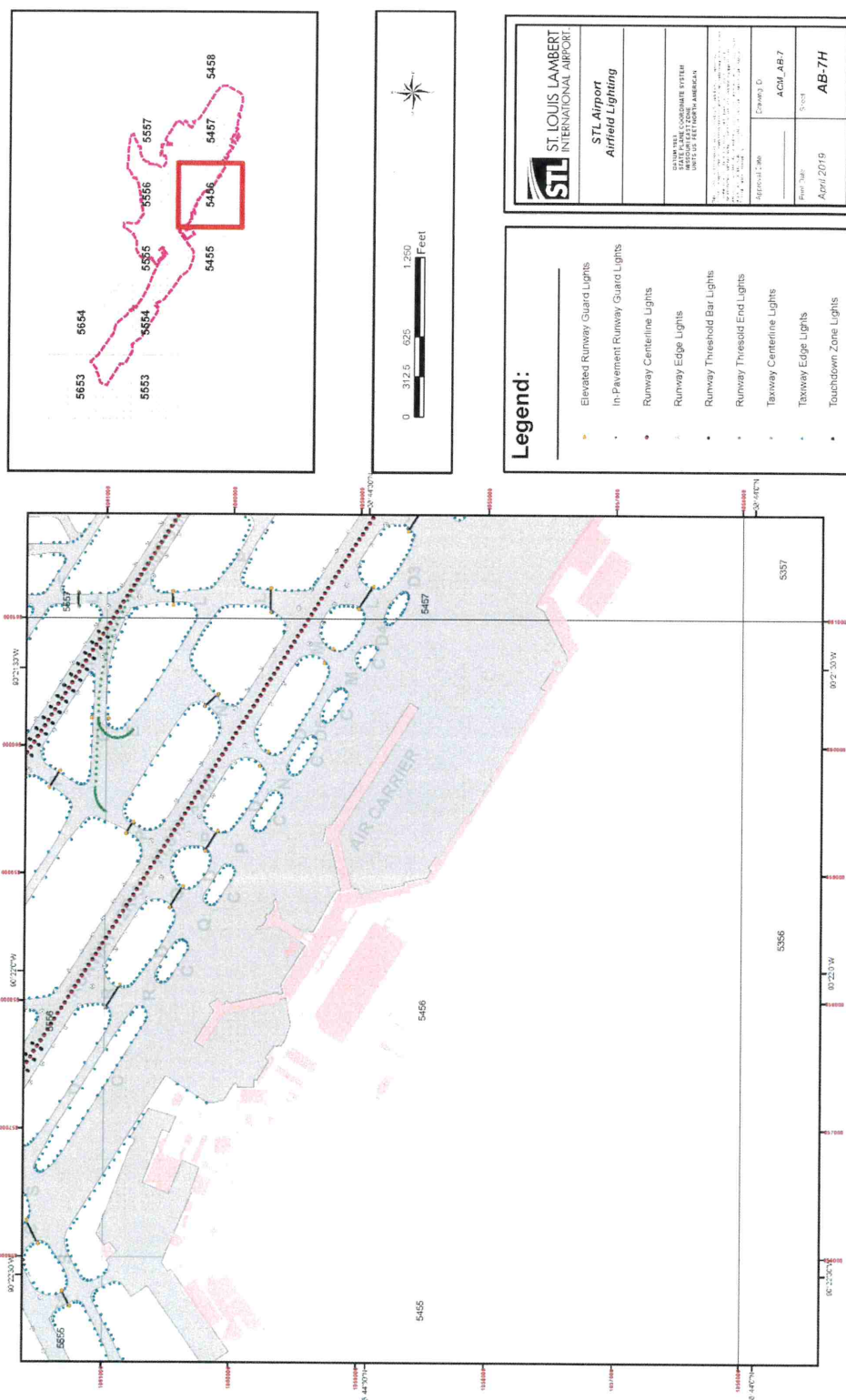
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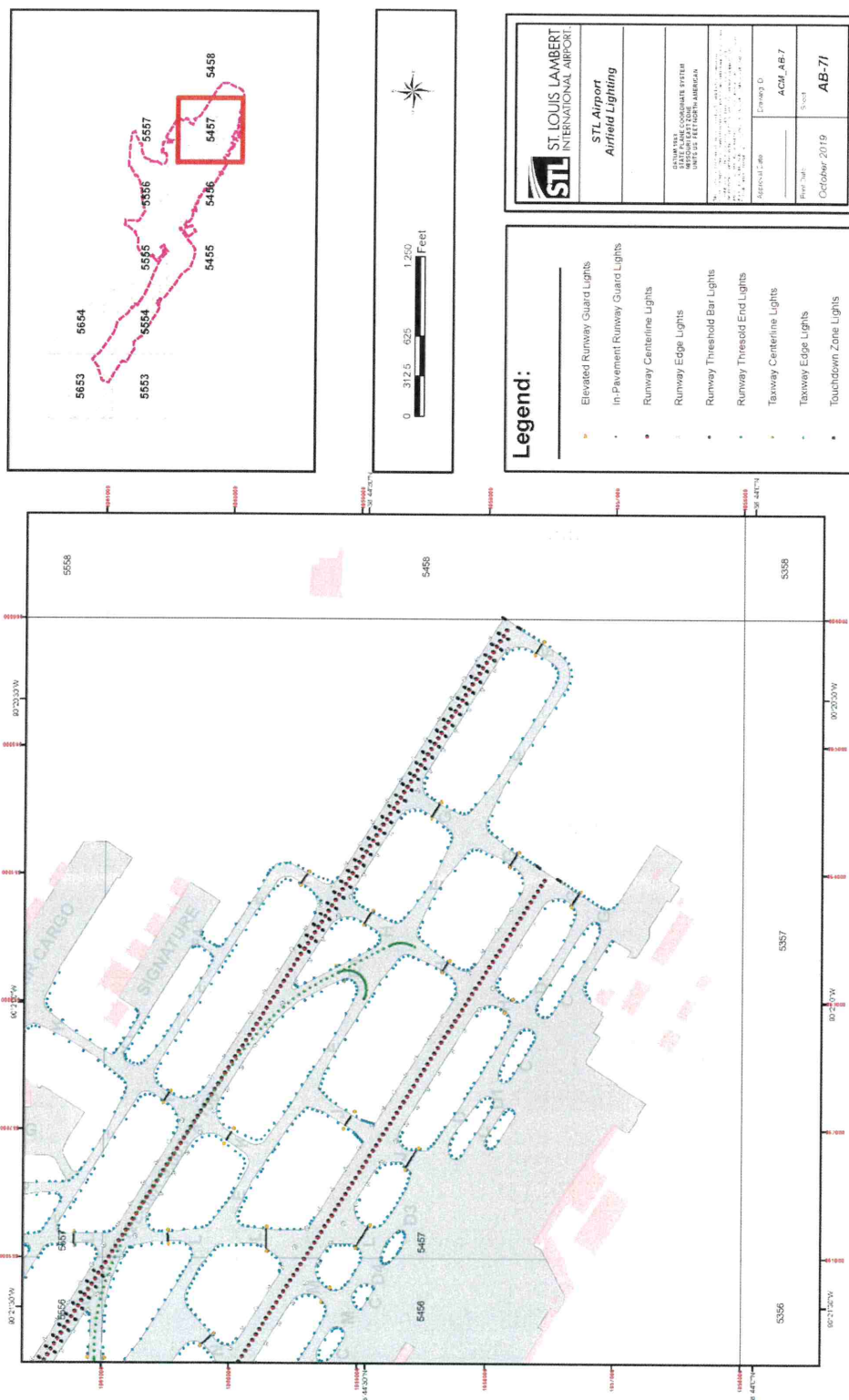
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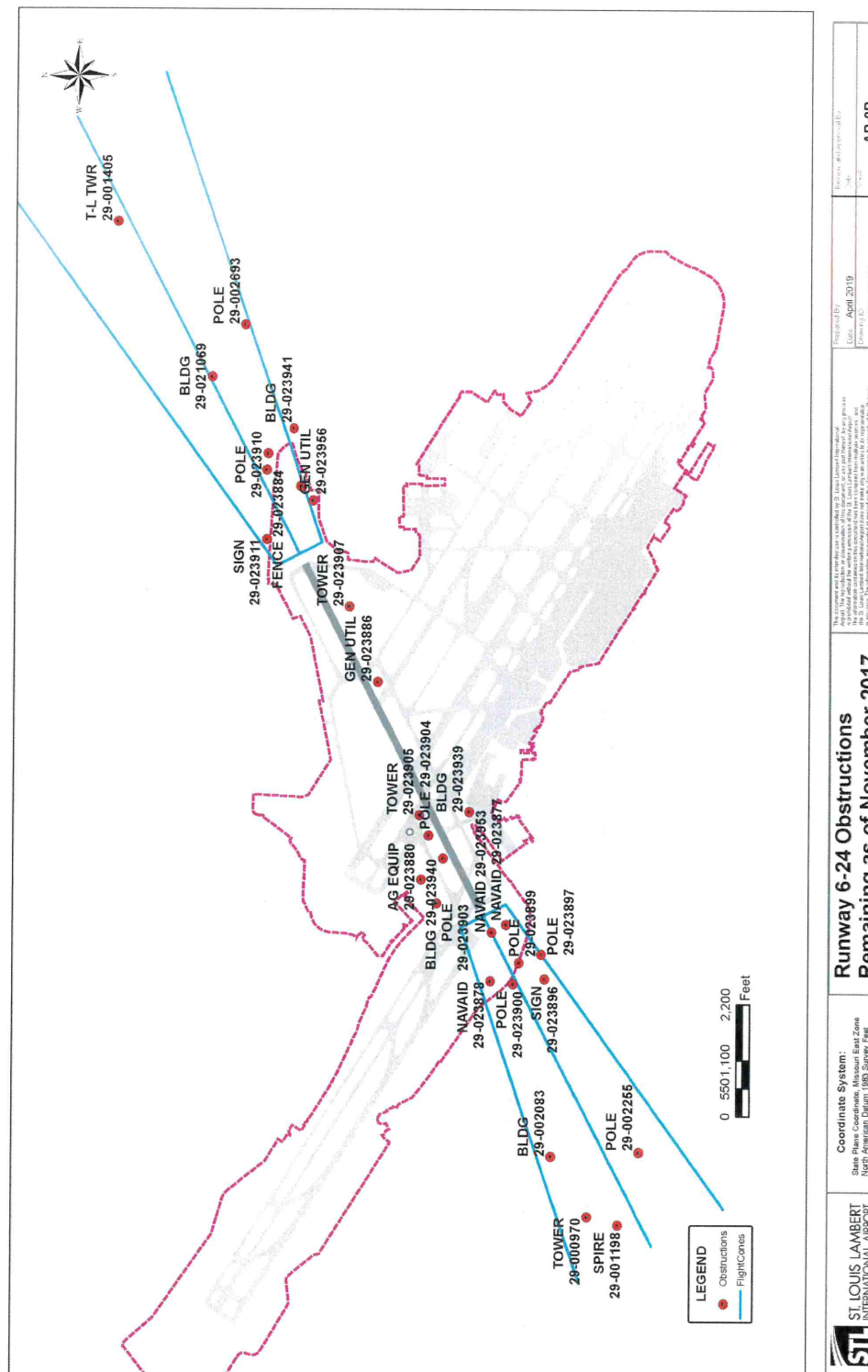
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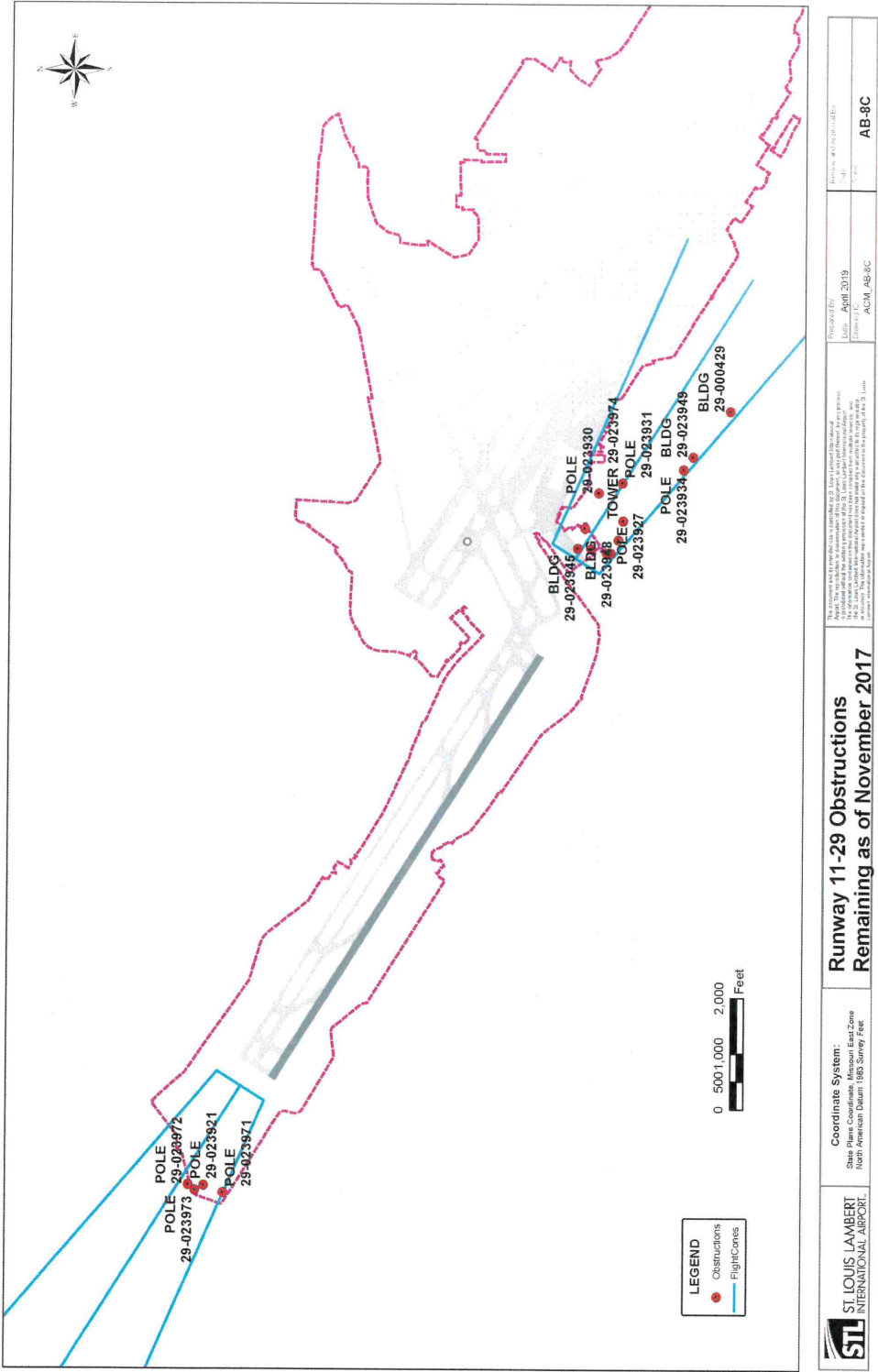


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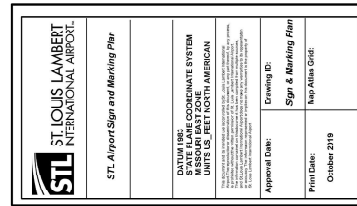
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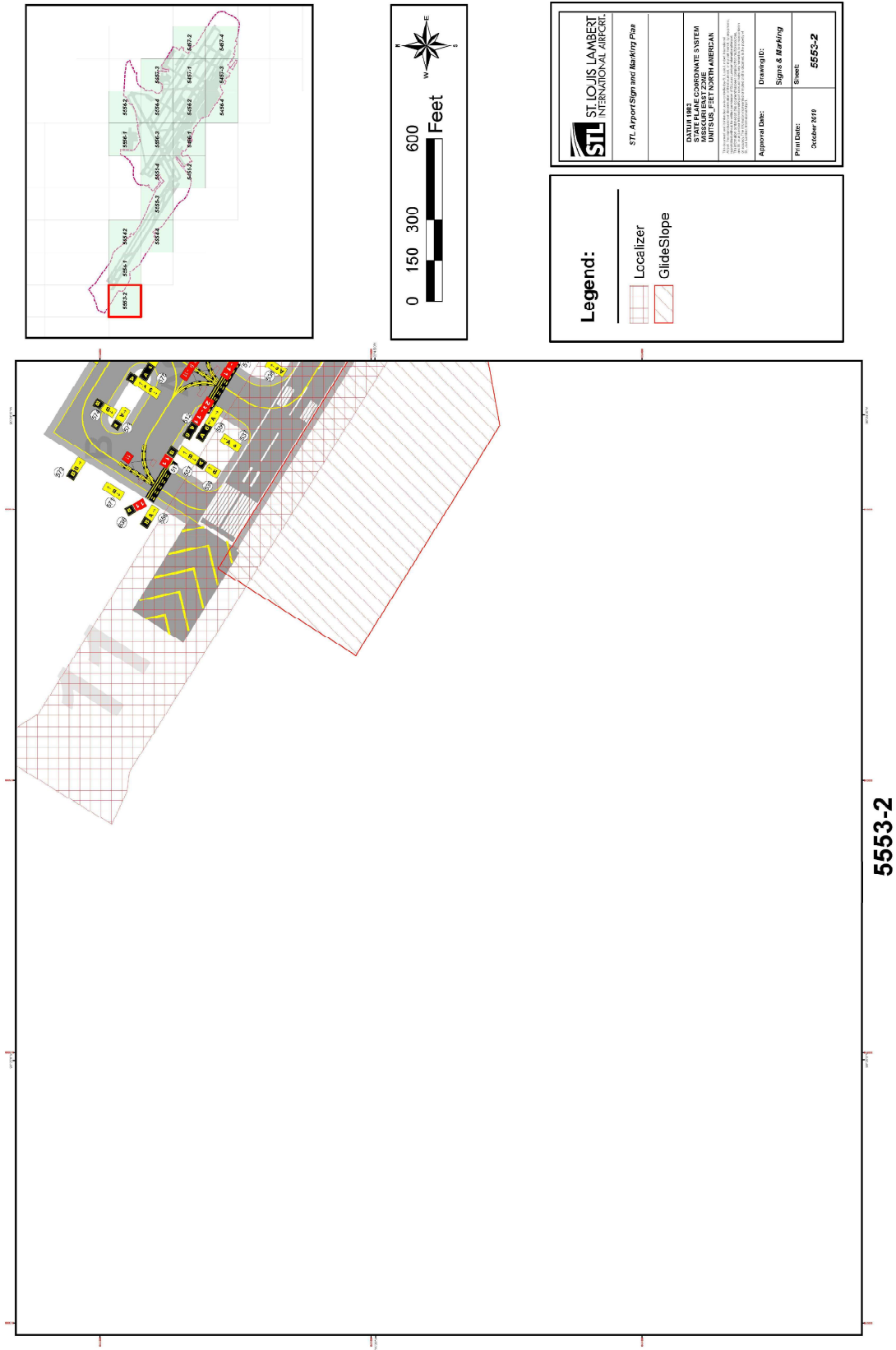


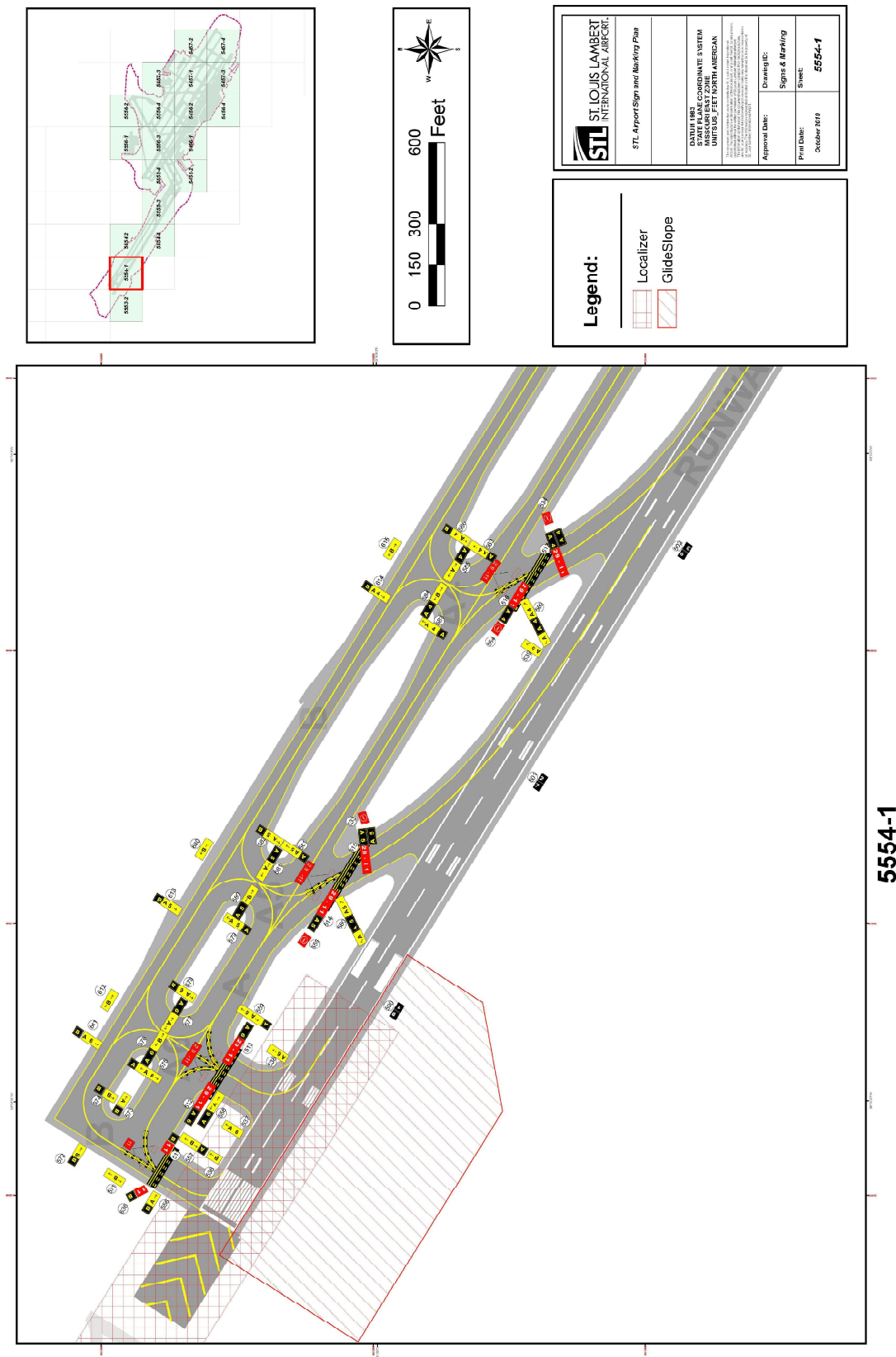
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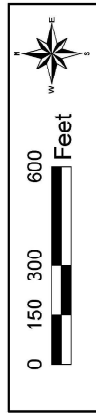
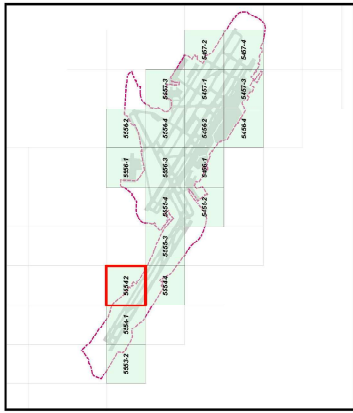
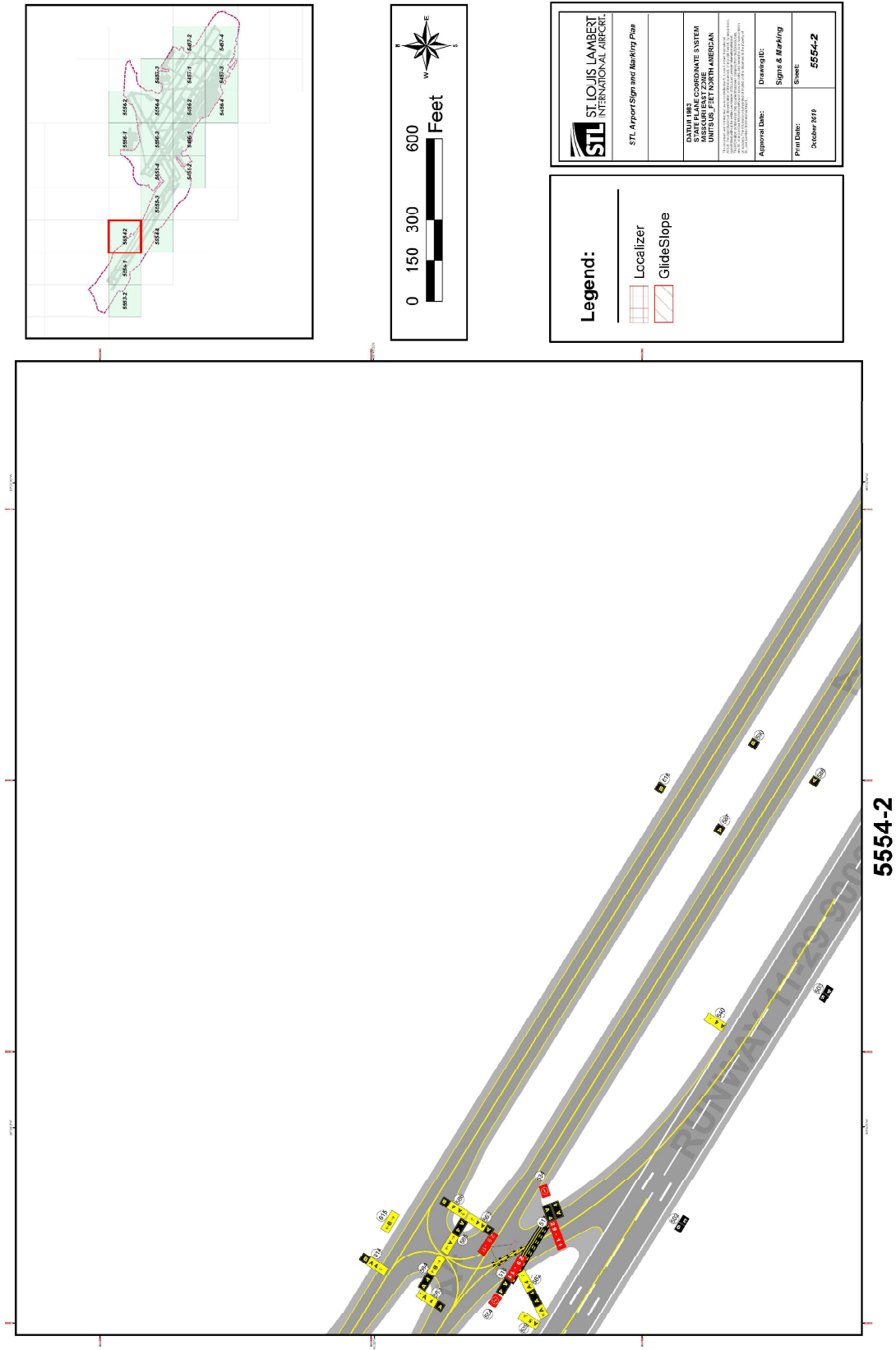
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FAA Approval *J. Fotad*









Legend:

- Localizer
- Glide Slope

ST LOUIS LAMBERT INTERNATIONAL AIRPORT STL Airport Sign and Marking Plan	
DRAWING UNIT: STATE PLANE COORDINATE SYSTEM DATUM: NAD 83 HORIZONTAL DATUM: NORTH AMERICAN VERTICAL DATUM: MEAN SEA LEVEL PROJECTION: UTM ZONE: 18N SCALE: 1" = 1000'	
Approval Date:	Drawing ILC:
Print Date: October 2018	Signs & Marking Sheet: 5554-2

