

# Standard Operating Procedures and Letters of Agreement

## Operational Perspectives on Data Management

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Federal Aviation  
Administration



# Acknowledgements



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# Overview

- **Goal**
  - Manage the collection, storage, and dissemination of constraints on National Airspace System operations
    - In particular, operational constraints contained in Standard Operating Procedures and Letters of Agreement



# SOP/LOA Basics

- **Standard Operating Procedures**
  - Specific to an ATC facility
  - Specify the procedures necessary for safe and efficient operation at each position or sector
- **Letters of Agreement**
  - Agreements between two or more parties establishing procedures, responsibilities, etc.
- **Supplemental to other FAA policy**
  - Order 7110.65, etc.

# SOP Content—IAD

- Largely focused on the responsibilities and procedures associated with each position

Chapter	Contents
1	Introduction
2	Airspace Delegation
3	Tower/TRACON Procedures
4	General Control
5	Equipment
6	Position Information
7	Watch Supervision
8	Cab Coordinator
9	Local Control
10	Assistant Local Control
11	Reserved
12	Ground Control
13	Clearance Delivery
14	Flight Data
15	Ground Metering
16	Stripmarking
17	Traffic Management Coordinator
Appx. 1	Airspace
Appx. 2	Airfield Layout
Appx. 3	Landlines/Frequencies/Misc
Appx. 4	MVA Chart
Appx. 5	Simultaneous Parallel ILS Procedures
Appx. 6	Simultaneous Converging Instrument Approaches
Appx. 7	Aircraft Ground Deicing Program
Appx. 8	Ground Metering/SWAP
Appx. 9	Withdrawn
Appx. 10	Low Visibility/SMGCS
Appx. 11	Terms of Reference
Appx. 12	Facility Administration

# LOA Examples—ZDC

## Browse Records At A Facility

118 records are listed below for **Washington (ARTCC)**:

FONT SIZE: 

Record Title	Effective	Updated
<b>104 LOAs:</b>		
ATCSCC ZDC ZNY ZBW ZJX FACSFAC VACAPES LOA	01NOV09	08DEC09
ATLANTA ARTC CENTER, WASHINGTON ARTC CENTER, AND 20TH FIGHTER WING JACKSONVILLE CENTER, WASHINGTON CENTER, 437TH AIRLIFT WING	10NOV94	28MAY08
JOINT USE LETTER OF PROCEDURE FOR USE OF RESTRICTED AREA R-6602 A/B/C	04JAN96	26DEC06
JOINT USE LETTER OF PROCEDURE FOR USE OF RESTRICTED AREA R-6611, R-6612, AND R-6613	08OCT01	27DEC06
JOINT USE LETTER OF PROCEDURE FOR USE OF RESTRICTED AREA R5306	06MAR78	27DEC06
JOINT USE LETTER OF PROCEDURE FOR USE OF RESTRICTED AREA R5313 A/B/C/D AND R6606	01JUN93	27DEC06
JOINT USE LETTER OF PROCEDURE FOR USE OF RESTRICTED AREA R5314 A-J.	26OCT96	27DEC06
JOINT USE OF LETTER OF PROCEDURE OF USE OF RESTRICTED AREA R5301 AND R5302A/B/C	30OCT00	27DEC06
JOINT USE OF RESTRICTED AREA R-6604	23SEP97	27DEC06
MEMORANDUM OF AGREEMENT BETWEEN THE 175TH WING AND PHILLIPS TOWER, BALTIMORE TOWER, MARTIN TOWER, WASHINGTON AIR TRAFFIC CONTROL CENTER	23JAN00	27DEC06
NAS PATUXENT RIVER TRACON, GLOBAL HAWK CONTROL, FLEET AREA CONTROL, VIRGINIA CAPES, NASA WOLLOPS ISLAND, WASHINGTON CENTER	15FEB01	27DEC06
NEW YORK ARTCC, ATCSCC, WASHINGTON ARTCC, FACSFAC VACAPES, EADS, 1ST FIGHTER WING **F-22A RAPTOR** Rev. 1	31MAR09	01JUL09
NEW YORK ARTCC/NAVAL AIR TEST CENTER (NATC)/ AND GRUMMAN AIRCRAFT SYSTEMS DIVISION (GASD) MEMORANDUM OF UNDERSTANDING	15MAY06	02JUL09
NEW YORK CENTER, ATLANTIC CITY TOWER, BOSTON CENTER, MCGUIRE APPROACH CONTROL, PHILADELPHIA TOWER, NEW YORK TRACON, WASHINGTON CENTER, AND	01MAY88	27DEC06
	17MAY01	27DEC06

## Common LOAs:

- Crossing Restrictions (altitude, speed)
- Noise Abatement
- ATCAA/MOA
- Holding Patterns
- Emergency Procedure Coordination

# LOA Examples—IAD

## Browse Records At A Facility

FONT SIZE: [

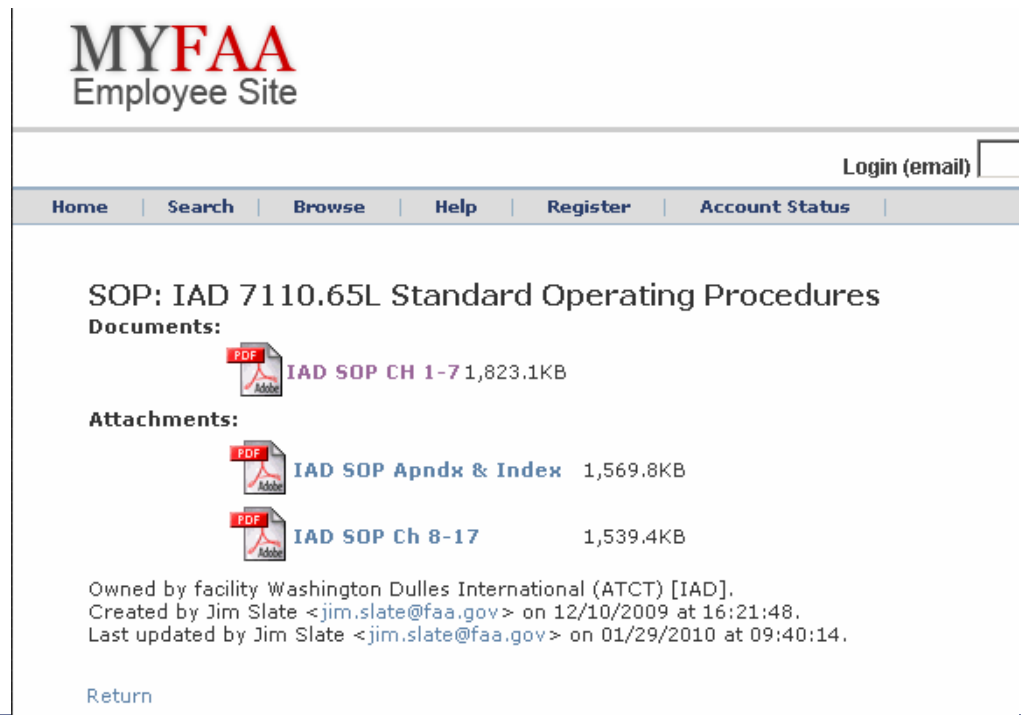
39 records are listed below for **Washington Dulles International (ATCT)**:

Record Title	Effective	Updated
<b>31 LOAs:</b>		
Alternate Runway Closures During Snow Removal	15MAY09	27MAY09
Dulles Tower & Analar Corp. Inc.	01JAN10	19JAN10
Dulles Tower & Associated Aircraft Group LOA	01JAN10	11JAN10
Dulles Tower & Bloomberg LP	01JAN10	19JAN10
Dulles Tower & CSC Transport	01JAN10	19JAN10
Dulles Tower & EJM Aetna	01JAN10	11JAN10
Dulles Tower & HeliFlite Shares LLC	21JAN10	21JAN10
Dulles Tower & Honeywell Flight Operations	01JAN10	29JAN10
Dulles Tower & JK Moving + Storage	01JAN10	21JAN10
Dulles Tower & Johnson and Johnson	01JAN10	11JAN10
Dulles Tower & Pfizer	01JAN10	21JAN10
Dulles Tower & Sanofi-Aventis	01JAN10	11JAN10
Dulles Tower & Unisys	01JAN10	19JAN10
Dulles Tower & Waldorf Flight Services LLC	21JAN10	29JAN10
Dulles Tower-Fairfax County Police	21JAN10	11JAN10
Glascocock LOA	01JAN10	18DEC09
IAD/DAAMC Aircraft Ground Deicing and Taxi Slot Time Allocation	06NOV06	09NOV06
IAD/Dulles SSC - Interfacility Coordination Procedures	01AUG08	04AUG08
IAD/INOVA Medical Air Care - Exemption to Communications Requirement	02JAN94	27NOV06
IAD/MWAA - Airport Emergency Service	09MAR09	06MAR09
IAD/MWAA - Braking Action	30APR09	27MAY09



# Current Information Management Situation

- **LOAs/SOPs published internally through the Facility Directives Repository**
  - loa.faa.gov
  - Scanned PDFs
  - Facility manager responsible for maintenance




**MYFAA**  
Employee Site



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SOP: IAD 7110.65L Standard Operating Procedures  
Documents:

-  [IAD SOP CH 1-7](#) 1,823.1KB

Attachments:

-  [IAD SOP Apndx & Index](#) 1,569.8KB
-  [IAD SOP Ch 8-17](#) 1,539.4KB

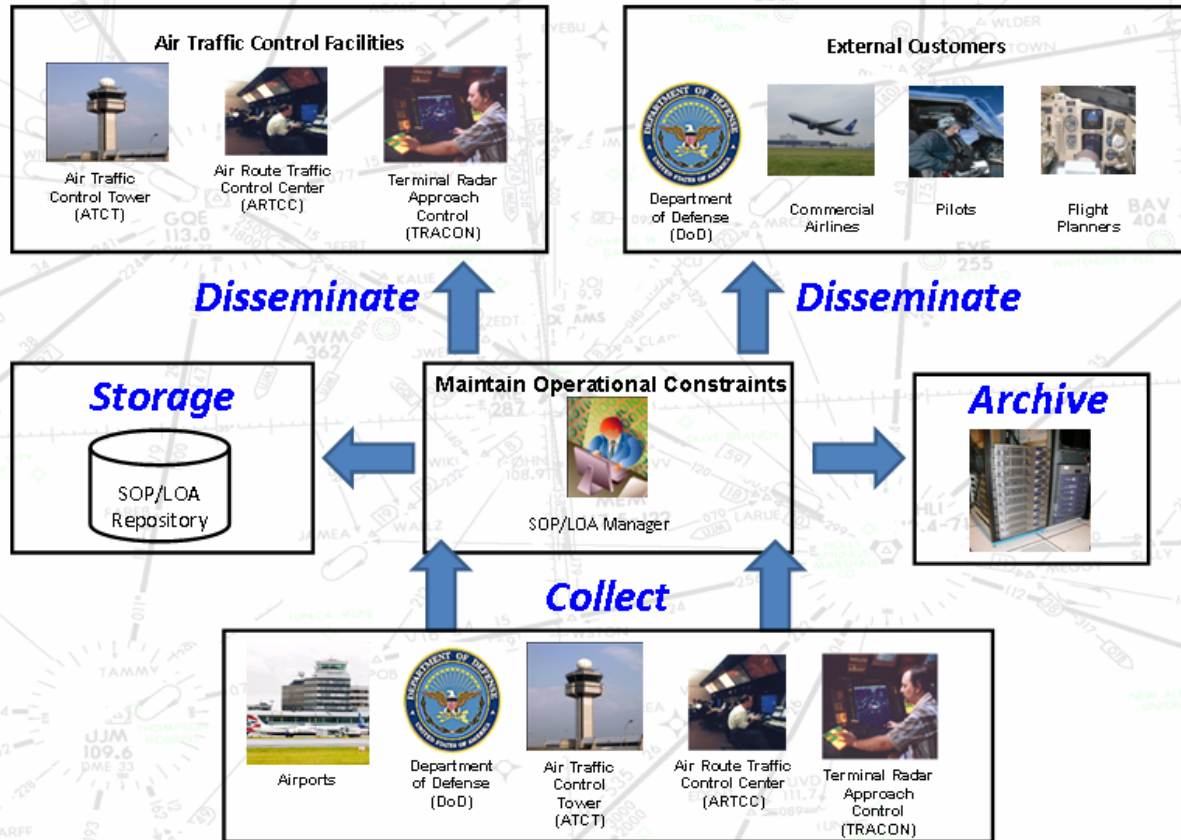
Owned by facility Washington Dulles International (ATCT) [IAD].  
Created by Jim Slate <jim.slate@faa.gov> on 12/10/2009 at 16:21:48.  
Last updated by Jim Slate <jim.slate@faa.gov> on 01/29/2010 at 09:40:14.

[Return](#)



# Future Concept?

**Common Status and Structure Data (CSSD)**  
**Standard Operating Procedures/Letters of Agreement (SOP/LOA)**  
"To Be" High-Level Operational Concept Graphic (OV-1)



## Vision: Digital SOP/LOA

- Digitally captures, maintains, stores, and distributes key operational constraint data to systems and decision support tools
- Supports NextGen operational capabilities

# Approach

- **Prove concept and show benefits of digitization and dissemination**
  - Standardize data model
    - AIXM and extensions
  - Develop prototype constraint management system
    - Data collection
    - Data storage
    - Data analysis
    - Data dissemination

# Operational Categories

*Procedures, Restrictions, Usage Rules in SOP/LOA's, for example:*

## **Airport Constraints**

Taxi Routes and Restrictions

Runway Configuration and Restrictions

Movement Areas

Conditional Runway Closure

## **Airspace Constraints**

ATCAA/MOA

## **Holding Constraints**

Holding Patterns

## **Environmental Constraints**

Runway Use Program Procedures

Noise Abatement Procedures

## **Flight Constraints**

Altitude Restrictions

Preferred Routes



\* Ordered by AIXM Classification; red denotes **Highest Priority Categories** on which we are currently working

# Taxi Routes and Restrictions— Potential Benefits

- **Reduced runway incursions**
- **Gate-to-gate flight planning**
- **Improved taxi modeling**
- **Reduced controller workload**



# Example—Taxi Route Definition

- **ATL LOA with an air carrier**

To Runway 10		
Route ID	Starting Point	Routing Via
White 6	Ramps 1S/2S	<ul style="list-style-type: none"> <li>- LT Mike</li> <li>- RT Mike-6</li> <li>- When advised, Monitor Tower 123.85</li> <li>- <b>HOLD SHORT RWY 9L</b> at Mike-6</li> <li>- November-5</li> <li>- RT November</li> <li>- Monitor Tower 119.3</li> <li>- LT November-2</li> <li>- <b>HOLD SHORT RWY 9R</b> at November-2</li> <li>- Romeo-3</li> <li>- LT Romeo</li> <li>- Monitor Ground 121.65</li> <li>- RT Sierra Charlie</li> <li>- RT Sierra Golf</li> <li>- Monitor Tower 119.5</li> </ul>

# Example—Taxi Route Restriction

- **ATL SOP**

**NOTE** - Taxiway Bravo (between Taxiway B-2 and Taxiway Charlie) and Taxiway Victor are not authorized for less than 1200' RVR conditions.

- **ABQ (Airport/Facility Directory)**

**AIRPORT REMARKS:** Attended continuously. Bird hazard Oct–Dec, and Mar–May. Heavy student copter traffic, control firing area S of arpt. Fighter acft depart S only, no military depart on Rwy 35. 200' AGL unlgtd water tower 1.5 miles S of Rwy 35. Rwy 03 and Rwy 08 touchdown runway visual range avbl. Rwy 08–26 and Rwy 17–35 Rwy 03–21 and Rwy 12–30 grooved 130' wide. Use extreme care taxiing north on Twy E–1 to Rwy 08, holding position for Rwy 08–26 collocated with Rwy 12–30 holding position prior to Rwy 12 thld. Rwy 03–21 centerline lgts are not bi-directional, centerline lgts on Rwy 03 only. Rwy 08–26 centerline lgts are not bi-directional, centerline lgts on Rwy 08 only. Class I, ARFF Index C. ARFF protection provided by USAF exceeds Index E capability. Noise abatement procedures in effect for jet and turbo-prop t/c, depart on Rwy 08 expect left turn at 13.5 DME. Between the hrs 0400–1400Z† weekdays and Sat and Sun 0400–1600Z† expect right turn on departure from Rwy 08. Departures on Rwy 03 or Rwy 35 and arrivals on Rwy 17 are restricted and rqr prior coordination with twr. ~~Recessed arresting cables on Rwy 03 1062' NE of thld and Rwy 08 1000' east of thld, Air carrier ground handling not avbl btn the hrs of 0800–1130Z†.~~ Twy D north of Twy B clsd indef. Twy H military use only. Flight Notification Service (ADCUS) available. NOTE: See Special Notices—Continuous Power Facilities.

**WEATHER DATA SOURCES:** ASOS (505) 242-4044 II WAS HIWAS 113 2 ARO WSP

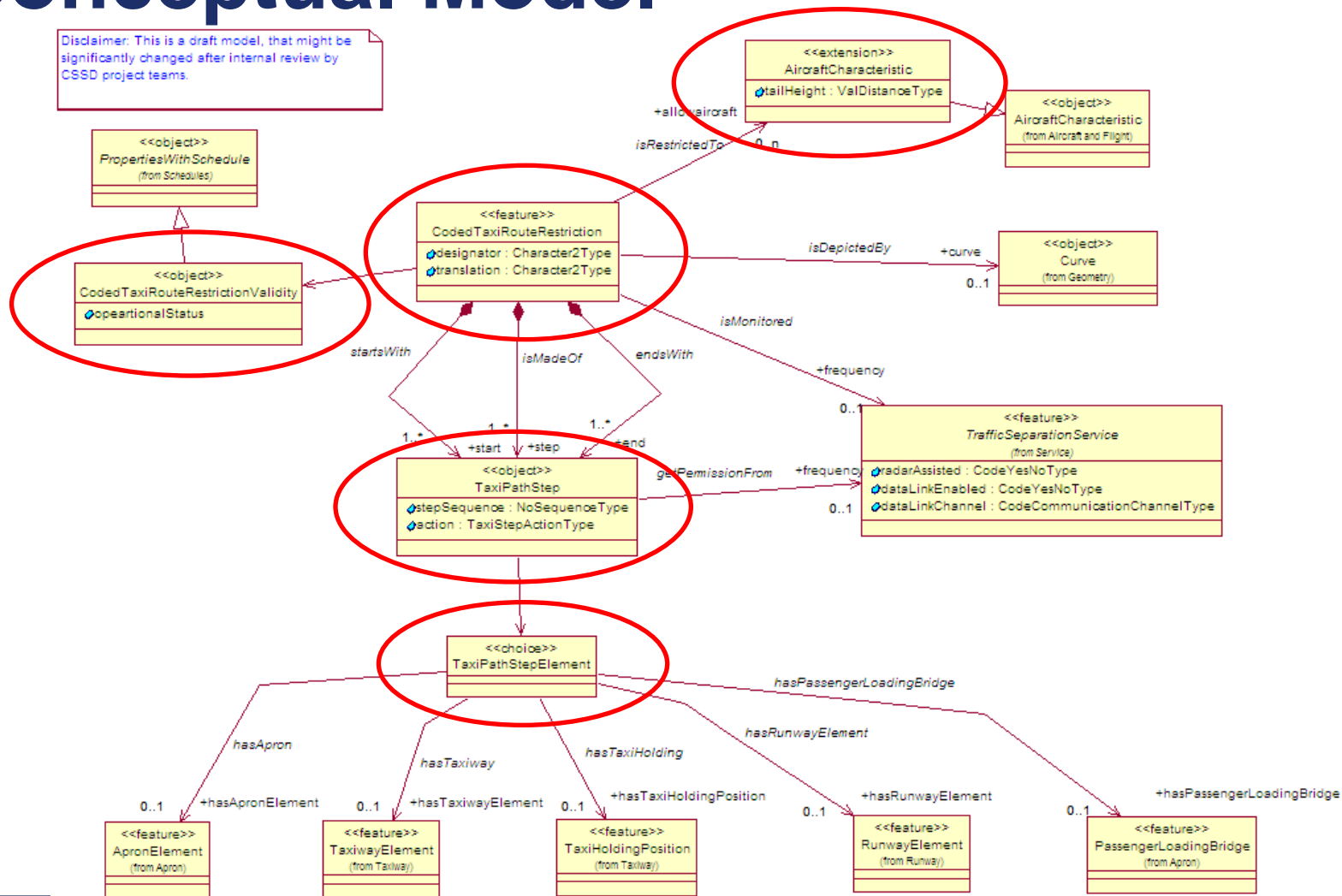
# Example—Taxi Route Restriction

- **Sample of others from AFD**

ARPT_ID	REMARK
ABE	TWY B SOUTH OF TWY B3 RSTRD TO ACFT WITH WINGSPAN 118 FT OR LESS.
ABE	TWY C RESTRD TO MAXIMUM ACFT WEIGHT 12500 LBS.
ABQ	TWY H MILITARY USE ONLY.
ACK	TWY F PROHIBITED TO ACR ACFT WITH MORE THAN 9 PSGR SEATS WHEN ATCT CLSD.
ACY	TWY L CLSD INDEFLY.
ADW	TWY E-4 LTD TO C130 AND C20/G5 AND SMALLER ACFT.
ADW	TWY E, N OF E3 CLSD TO ACFT WITH WG SPAN GREATER THAN 165' (C5 , B747, C17, KC10, ETC).
LAX	SIMUL ACFT OPNS PROHIBITED ON TWYS T AND H9 BTWN RY 07L/25R AND 07R/25L.
MKE	ACFT WITH WINGSPAN GREATER THAN 158 FT CANNOT PASS SIMULTANEOUSLY ON TWY A AND TWY B BTW TWY R AND TWY A3
ORD	B747-400'S, B777-300'S OR A340-600'S CANNOT PASS ON TWYS 'A' & 'B' INSUFFICIENT WINGTIP CLNC.

# Data Modeling—Taxi Route Conceptual Model

Disclaimer: This is a draft model, that might be significantly changed after internal review by CSSD project teams.





# Data Model Validation—Taxi Route Definitions

From the LOA between MEM and a regional airline:

To Runway 18L

Route ID	Start Point	Routing Via
18L Route 1	Spot 1, Gates B18 clockwise To B25 or C Concourse	Via Lima, cross Charlie, Hold short of Runway 18C on Lima, left on Sierra, right on Delta.
18L Route 2 East	Spot 2 East	Via Papa 1, left on Tango, left on Charlie, right on Lima, Hold short of Runway 18C, left on Sierra, right on Delta.

To a format that can be read into a database:

Taxiroute ID	Sequence	Type ID	Feature ID	Feature Description
18L Route 1	1	START		Spot 1
	2	JOIN		L
	3	CROSS		C
	4	HS		of RWY 18C on L
	5	LT		S
	6	RT		D
	7	RT		RWY 18L
18L Route 2 East	1	START		Spot 2 East
	2	JOIN		P1
	3	LT		T
	4	LT		C
	5	RT		L
	6	HS		of RWY 18C on L
	7	RT		RWY 18L

**Taxiroute ID:** Name of taxipath given in LOA/SOP

**Sequence:** step number

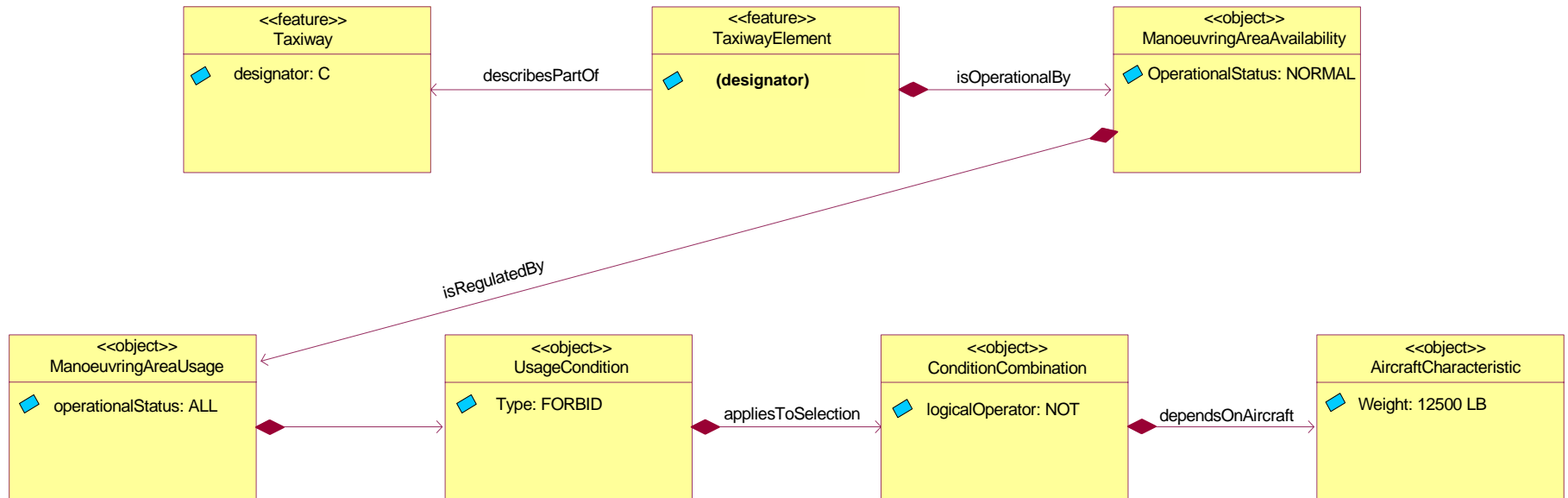
**TYPE ID:** what the pilot actually does

**Feature ID:** geographical reference

**Feature Description:** textual description of the geographical reference

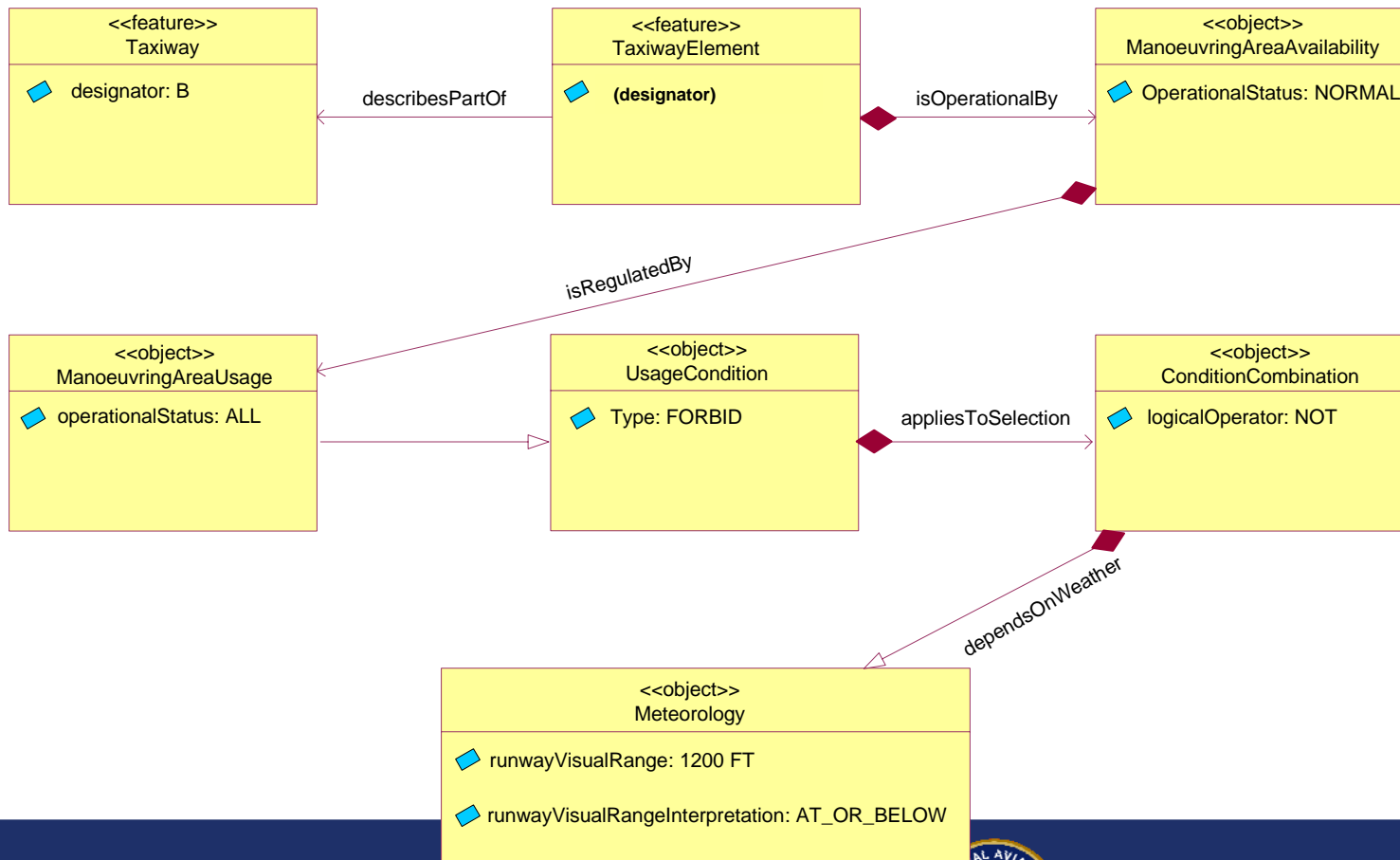
# Data Model Validation—Taxi Route Restrictions

ABE: “TWY C RESTRD TO MAXIMUM ACFT WEIGHT 12500 LBS.”



# Data Model Validation—Taxi Route Restrictions

ATL: “Taxiway Bravo (between Taxiway B-2 and Taxiway Charlie) and Taxiway Victor are not authorized for less than 1200' RVR conditions.”



# Prototype Development

FAA Facility Constraint Manager - Beta - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://127.0.0.1:8000/login/#item2.2

Most Visited AIXM.aero SWIM.gov World Wind JAVA SDK DNOTAM

FAA Facility Constraint Manager - Beta

Federal Aviation Administration

« Facility Constraint Manager - Beta

Base Map Overlays View

Fri, 30 Apr 2010 14:49:36 GMT mheggade | Sign Out

**Constraint List**

Coded TaxiRoute

Name	Description
WHITE 6	White 6

Seq	Action	Feature
1	Start	Ramp 2s
2	Continue	TWY L4
3	Left Turn	TWY M
4	Right Turn	TWY M-6
5	Monitor	123.85
6	Hold Short	RWY 9L
7	Continue	TWY M5
8	Right Turn	TWY N
9	Monitor	119.3
10	Left Turn	TWY M2
11	Hold Short	RWY 9R
12	Continue	TWY R3
13	Left Turn	TWY R
14	Monitor	121.65
15	Right Turn	TWY SC
16	Right Turn	TWY SG
17	Monitor	119.5
18	Depart	RWY 10

+KATL  
-84.43 33.62

http://127.0.0.1:8000/login/#



# Future Work

- **Taxi routes**
  - Show automated interpretation of taxi route instructions
  - Demonstrate data capture
  - Incorporate restrictions
  - Data dissemination
  - Demonstrate analysis capabilities
- **Generalize to include other types of constraints**
  - Runway configurations and restrictions
  - Crossing point restrictions
  - Airspace constraints