

# AIM Modernization Program

Aeronautical Common  
Service (ACS) Prototype

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Administration



# AIM Modernization Mission

Modernized and improved AI flows through digital data ingestion, management, and distribution tools

SOA platform where services can be developed using web standards and hosted on a centralized infrastructure for delivery to customers as web services

System design leveraging SWIM to support a net-centric enterprise architecture

Delivery of digital NOTAMs, SAA info, and airport/reference data as mission support services through SWIM

through SWIM

# AIM Modernization Overview

- Legacy Description
  - Inputs into multiple systems, manual processes
  - lacks data quality control around the information being conveyed
- Goal - create a common infrastructure and service that will support the data ingestion, management, and provision of AI in the NAS
  - Improve the quality of information by modernizing their workflow and providing updated tools for users
  - Make available other data through adaptation
  - Provide improved system-to-system interfaces to AI utilizing web services using AIXM
  - Provide a single portal human-to-system interface



# WHAT IS AERONAUTICAL INFORMATION?

## Notices to Airmen (NOTAM): (Segment 1)

- Condition change in the NAS (e.g. Runway closed, ILS OTS)

## Central Altitude Reservation Function (CARF): (Segment 1)

- Pre-coordinated reserved routing and altitude for DoD and NASA.
- CARF deconflicts routing

## Special Activity Airspace (SAA): (Segment 2)

- Airspace Definitions and Schedules
- Delivered through Aeronautical Common Service
- Reserved airspace for other than normal flight (e.g. MOAs, ATCAAs)

## Airport layout information: (Segment 2)

- Airport surveys, runways, nav aids, terrain
- Delivered through Aeronautical Common Service

## Other: (Future Work Packages)

- Procedures, business rules and constraints defined in letters of agreement (LOA) and standard operating procedures (SOP),
- Business rules, definitions, and status of the NAS “infrastructure” (e.g. airports, airspace, procedures)
- Dynamic AI and status changes

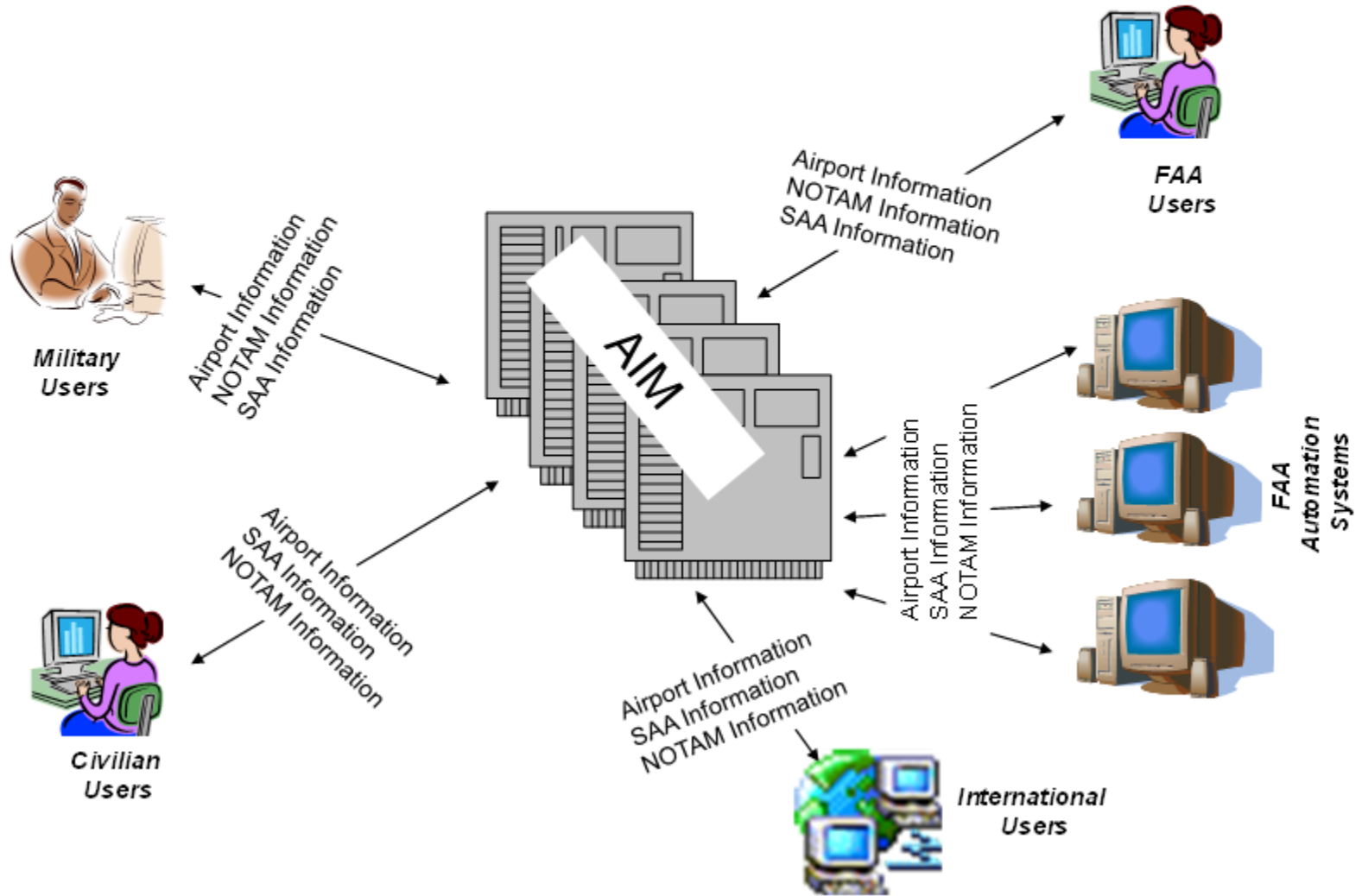


# Program Description

- **Digital Data Ingestion:** The development of digital data ingestion capability is essential to AIM Modernization. This includes the exchange of data with authoritative providers using automated tools and systems.
- **Aeronautical Common Services:** The ACS will manage AI data ingestion. It will transform, validate, verify, store, and distribute the resultant AI to users and systems through AIM enterprise web services.
  - The ACS has four main functional capabilities:
    - Business services
    - Data Ingestion
    - Data exchange
    - Data and information management
- **External and Legacy System Integration:** The new AIMM system will establish functional two-way data exchange with other systems using Service Oriented Architecture principles. AIMM Segment 2 will establish and develop a link provide data to NAS consumer systems and users through the SWIM infrastructure.
- **External Web Internet Portal:** The new AIMM system will establish an interface for users outside of FAA NAS systems to relay AI via the public Internet. This web portal will become a “One Stop Shop” for external aviation operations personnel to obtain needed AI.



# Program Description

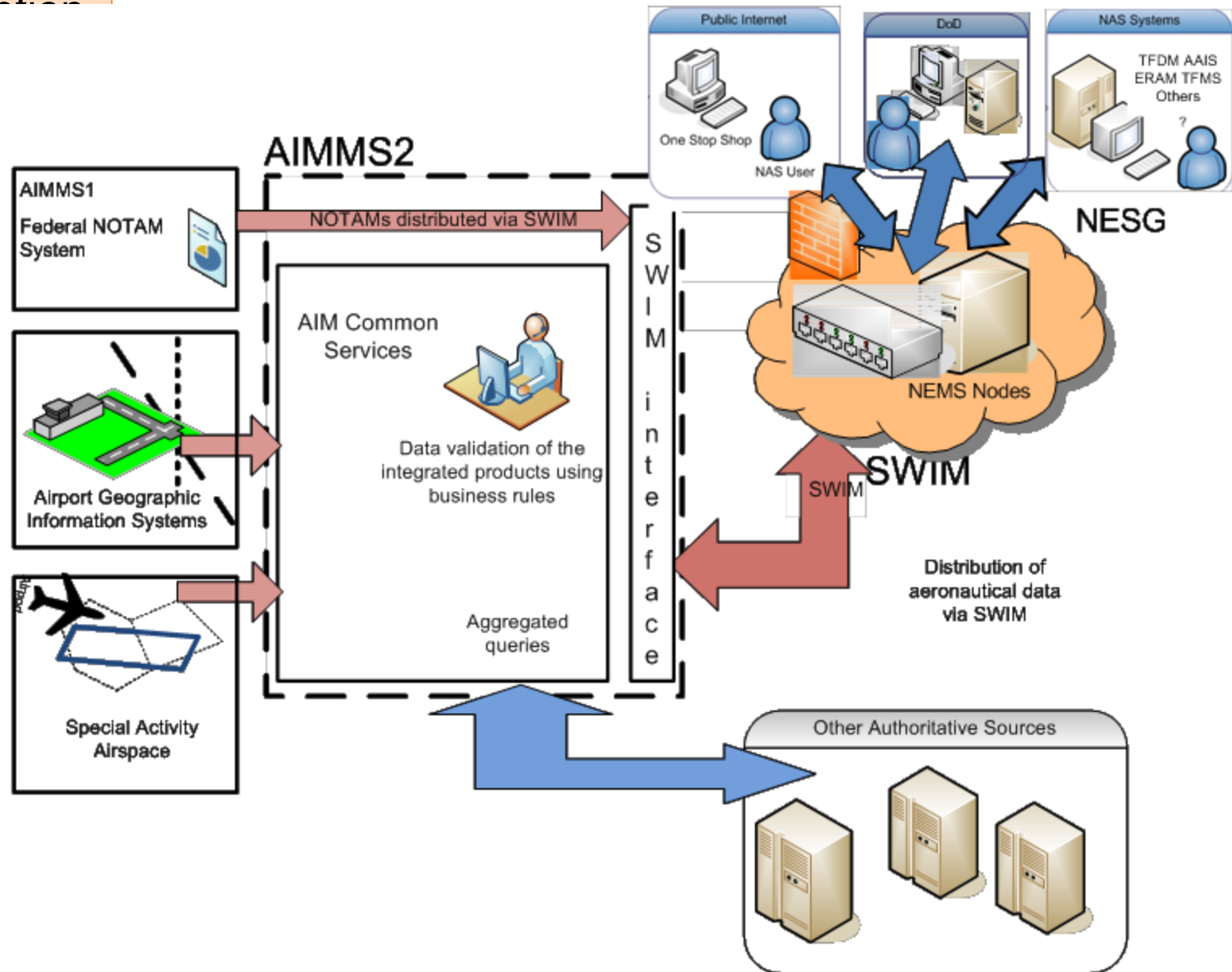


# Standards Based System Design

- Standards being used
  - OGC Standards and Formats
  - AIXM
  - SWIM
  - Others
- Allows ingestion and dissemination of vector and image information
- Allows COTS to ingest, manipulate, and view the information
- Lowers barrier for interoperability and integration.

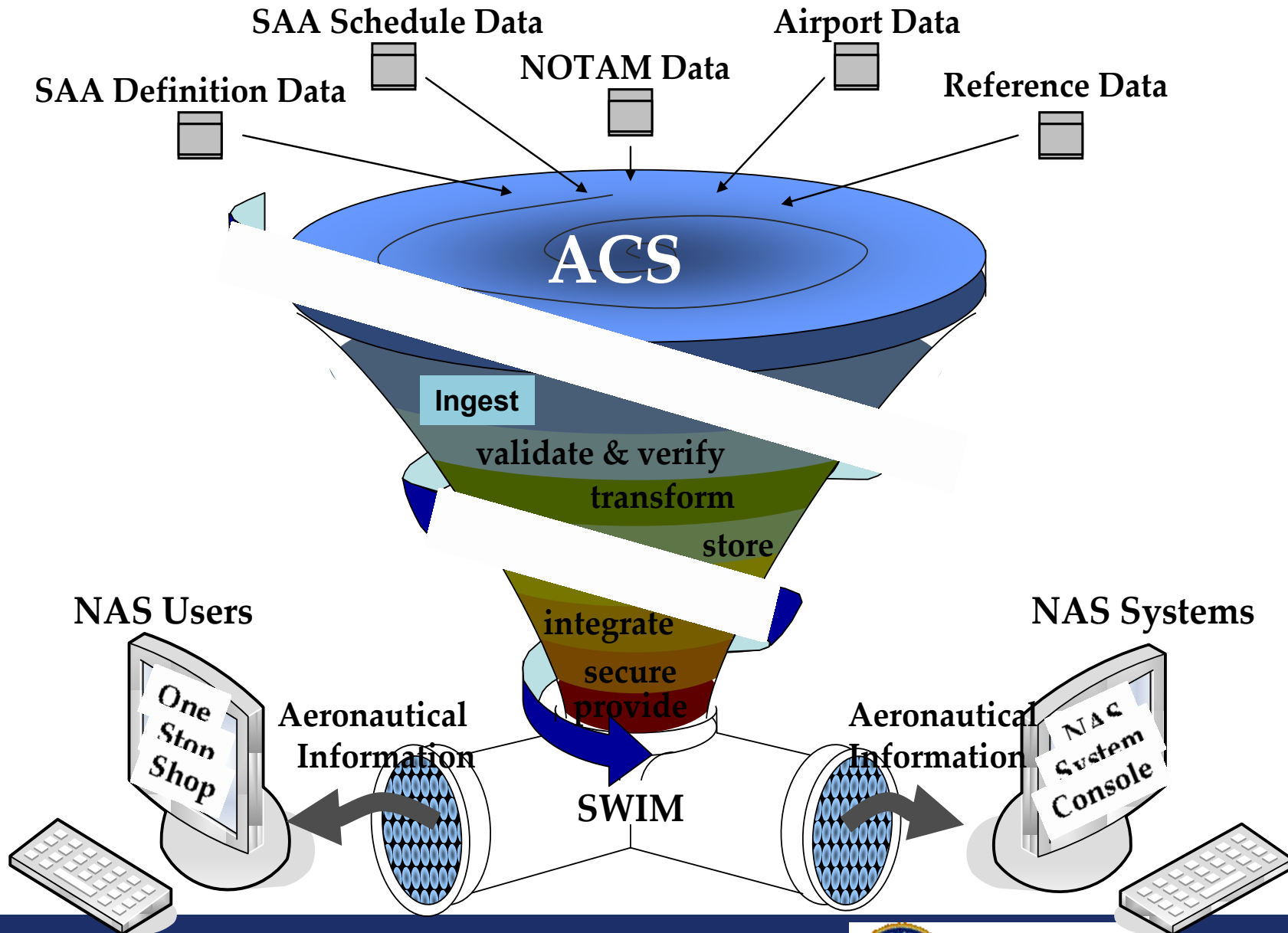


# High Level Description For AIMMS





# The Aeronautical Common Service



# ACS Prototype

- Prototype designed to demonstrate ability to:
  - Ingest information from multiple sources
  - Integrate (fuse) information together
  - Manage and manipulate information from a single platform
  - Disseminate the information in a way that is meaningful and coherent using a single platform
- Ensure correct requirements/capabilities are captured for supporting services
- Mature the standards for integrating information



# SAA Airspace Schedules

ACS One Stop Shop :: This site demonstrates the capabilities of Aeronautical Common Services (ACS).

Zoom to Airport:   20K Ft  300K Ft | Basemap Brightness:  Low  Medium  High | [Refresh Page](#) | [Logout](#)

**Feature Search**

**Common** **Custom** **Results** **Saved**

Features returned: 1008 | [Download Results](#) | [Save Query](#)

**Search Results**

Feature	Description
aixm:Airspace	A-381 GULF COAST, GULF O
aixm:Airspace	A-639A ACADEMY, CO (A639)
aixm:Airspace	A-680 OLF COUPEVILLE, WA
aixm:Airspace	BEAUFORT 3 MOA, SC (MBEA)
aixm:Airspace	BIRMINGHAM 2 MOA, AL (MBI)
aixm:Airspace	BISHOP MOA, CA (MBISHOP)
aixm:Airspace	BRADY LOW MOA, TX (MBRA)
aixm:Airspace	CHEYENNE LOW MOA, CO (MC)
aixm:Airspace	EGLIN A EAST MOA, FL (MEG)
aixm:Airspace	ISABELLA MOA, CA (MISABE)
aixm:Airspace	JACKAL LOW MOA, AZ (MJA)
aixm:Airspace	KINGSVILLE 2 MOA, TX (MKIN)
aixm:Airspace	MISTY 2 MOA, NY (MMISTY2)
aixm:Airspace	ONTONAGON MOA, MI (MONT)

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Slider start date:  
2011-08-22



Selected Date/Time:  
2011-08-22T17:00:00Z



# NOTAMS

ACS One Stop Shop :: This site demonstrates the capabilities of Aeronautical Common Services (ACS).

AWE | Digital Constraint Manager | SAA Creator/Editor

Zoom to Airport:  20K Ft 300K Ft | Basemap Brightness:  Low  Medium  High | [Subscriptions](#) | [Lat/Long Grid](#) | [Refresh Page](#) | [Logout](#)

### Search

**Common** Custom CIC Results Saved

Clear and reset map:

**Features associated with an airport**

*autocomplete field*

**Feature by gml:identifier**

Resolve:  Depth:

**Load AIXM or Feature Collection file**

**Load UDDF file**

**NOTAMS associated with an airport**

*autocomplete field* [advanced](#)

500 m / 2000 ft

-74.57528, 39.46368

### Tools and Data

**Properties** Geo Comp Map Layers **NOTAM**

NOTAMS returned: **19**

NOTAMS Found

**NOTAM Text**

- IACY 04/058 ACY TWY G CLSD WEF 1204291419-1207282359
- IACY 06/030 ACY TWY P SAFETY AREA OPEN EXCAVATION E AND N WEF 1206131220-1209072359
- IACY 06/060 ACY OBST CRANE 210 (160 AGL) 1.1 SE (392638N743343W) DALGT 0700-1700 WKDAYS WEF 1206260
- IACY 06/061 ACY COM RTR 298.875 VICE 290.4
- IACY 06/135 ACY OBST CRANE 210 (160 AGL) 1.1 SE (392638N743343W) DALGT WEF 1206271543
- IACY 07/001 ACY RWY 13/31 TESTING CLSD WEF 1207020220
- IACY 07/002 ACY SVC ATIS WEF 1207021530-1207311230
- IACY 07/003 ACY APRON ANG RAMP IRREGULAR SURFACE W
- IACY 07/005 ACY APRON FAA EXPERIMENTAL RAMP CONST A
- IACY 07/006 ACY APRON FAA EXPERIMENTAL RAMP CONST A
- IACY 07/013 ACY AD ABN GREEN OTS WEF 1207091414-1207
- IACY 07/014 ACY AD ALL SURFACES WORK IN PROGRESS CC
- IACY 07/015 ACY AD ABN OTS EXC 1 HR PPR 2022585385 WEF
- IACY 07/016 ACY RWY 4/22 CLSD WHATEVER YOU WANT/CIV
- IACY 07/020 ACY RWY 4/22 CLSD WEF 1207102147-12072712
- IACY 07/021 ACY SVC ATIS 110.125 CMSN EXC 1 HR 30 MIN PP
- IACY 07/055 ACY COM VOR VOICE UNMON
- IACY 09/012 ACY NAV RWY 4 ILS EXPERIMENTAL ONLY FOR F
- IACY 09/018 ACY NAV GBT OTS

0

Slider start date:  
2012-07-11

Selected Date/Time:  
2012-07-11T00:00:00Z



# Routing around an Airspace

ACS One Stop Shop :: This site demonstrates the capabilities of Aeronautical Common Services (ACS).

[AWE](#) | [Digital Constraint Manager](#) | [SAA Creator/Editor](#)

Zoom to Airport:   20K Ft  300K Ft | Basemap Brightness:  Low  Medium  High | [Subscriptions](#) | [Lat/Long Grid](#) | [Refresh Page](#) | [Logout](#)

**Search**

CommonCustomCICResultsSaved

Proposed SPI - PUB route 1:

This is my proposed flight route between SPI and PUB using low altitude airways.

Proposed SPI - PUB route 2:

This is my proposed flight route between SPI and PUB using a direct high altitude airway.

My SAA Airspaces:

Query of Airspaces of type R in vicinity of my flight.

All SAA Airspaces:

Query of all Airspaces of type R (1008 total).

-101.54912, 40.24047

Slider start date:  Selected Date/Time: 2012-07-11T00:00:00Z



# Airport Configuration

ACS One Stop Shop :: This site demonstrates the capabilities of Aeronautical Common Services (ACS).

[AWE](#) | [Digital Constraint Manager](#) | [SAA Creator/Editor](#)

Zoom to Airport:   20K Ft  300K Ft | Basemap Brightness:  Low  Medium  High | [Subscriptions](#) | [Lat/Long Grid](#) | [Refresh Page](#) | [Logout](#)

### Search

**Common** Custom CIC Results **Saved**

Proposed SPI - PUB route 1:   
This is my proposed flight route between SPI and PUB using low altitude airways.

Proposed SPI - PUB route 2:   
This is my proposed flight route between SPI and PUB using a direct high altitude airway.

My SAA Airspaces:   
Query of Airspaces of type R in vicinity of my flight.

All SAA Airspaces:   
Query of all Airspaces of type R (1008 total).

The map displays the Pueblo Memorial Airport and its surroundings. A green line with a downward arrow indicates a low altitude flight route. A red line with a rightward arrow indicates a direct high altitude flight route. The map includes labels for roads such as William White Blvd, E United Ave, and County Road 3. It also shows the Arkansas River and Wolf Arroyo. A scale bar at the bottom left indicates 1000 meters and 5000 feet. The coordinates -104.46204, 38.31040 are shown at the bottom right.

Slider start date:

Selected Date/Time:  
2012-07-11T00:00:00Z



# Common WMS Use Case

