

**Figure 1: Descriptions of NextGen Transformational Programs**

#### **Automatic Dependent Surveillance – Broadcast (ADS-B)**

- Moves air traffic control from a system based on radar to one that uses satellite-derived aircraft location data
- Aircraft transponders receive GPS signals and use them to determine the aircraft's precise position in the sky, which is combined with other data and broadcast out to other aircraft and air traffic controllers
- Offers more precision and additional services than radar, such as weather and traffic information.
- When properly equipped with ADS-B, both pilots and controllers will, for the very first time, see the same real-time displays of air traffic, thereby substantially improving safety.

#### **Data Communications (Data Comm)**

- Current use of voice communication is labor intensive, time consuming, and limits the ability of the NAS to effectively meet future traffic demand
- Transitions from the current decades old analog voice system to a predominantly digital mode of communication
- Provides data transmissions directly to pilots and their flight management systems, enabling more efficient operations, including trajectory-based routing, that evolve air traffic from short-term tactical control to managing flights gate-to-gate strategically
- Supports safety-of-flight command, control and information services by providing comprehensive data connectivity, including ground automation message generation, transmission and routing
- Automates repetitive tasks, supplements voice communications with less workload-intensive data communications and enable ground systems to use real-time aircraft data to improve traffic management

#### **NextGen Network Enabled Weather (NNEW)**

- Aids in reducing weathers impact in the NAS
- Defines, develops, and provides the FAA's portion of the inter-agency infrastructure known as the 4-Dimensional Weather Data Cube
- Will provide universal access to global aviation weather information in a SWIM-compatible network

#### **NAS Voice Switch Activities (NVS)**

- Replaces the current switch infrastructure of 13 different types of switches, with a single switch architecture that will meet NextGen operations, which require a more agile and flexible voice communication architecture
- Single switch will be able to be re-configured faster than today's switches allow
- Will be network-capable to allow for the better access to voice communication assets that will be needed for future NAS operations
- Allows for NextGen operations such as load-sharing and load balancing across facilities, airspace sharing, collocations and consolidations, business continuity planning, and virtual tower operations

#### **System Wide Information Management (SWIM)**

- Promotes the use of web services to share data between FAA systems, other agencies, and NAS users
- Leverages existing systems and networks, and will be based on technologies that have been proven to reduce cost and risk