

# Weather Working Group Update Next Generation Air Transportation System (NextGen)

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| Report Documentation Page                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                    |                                     |                                                           | Form Approved<br>OMB No. 0704-0188                  |                                 |
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# Warning: Broken Glass Ahead

Our charge:  
(significantly) reduce weather impacts on the  
future National Airspace System

But first...

# The Assumptions

- Transformation, not evolution or transition
- A **highly-automated** Trajectory-Based Operations (TBO) end-state
  - Becomes the premise for the “Four-Dimensional (4D) Weather Cube”
  - Subsequently drives the requirement for weather information consistency
- New and updated processes would be required
  - Monumental changes to both the weather provider community as well as the system “user” of that data

# Introduction to Weather Concept of Operations (ConOps)

- Weather providers deliver a four-dimensional set of weather information
  - Operators/Mangers will have a common weather picture by using a subset of this information called the Single Authoritative Source (SAS)
- In the NextGen ConOps, weather information will be fully integrated into operations and decision-support tools
  - Data, rather than text and graphics becomes the “product”
- 4D weather will assist decision-makers by integrating with new tools that will describe the full range of available options to deal with weather issues
  - Identifies risk
  - Suggests strategies
  - Minimizes user disruptions

# The Elephants in the Room

- Roles of humans and automation
  - NextGen Command and Control Concept
  - NextGen Weather Provision Concept
- Who pays for what?
- What equipage is required/mandated?
- How does industry participate?
- Major concern: This is the same list as 2003

# Today/NextGen

## Weather Information Attributes

| <u>Today</u>                                                                                                        | <u>NextGen (new requirements)</u>                                               |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Not integrated into aviation decision support systems (DSS)</li> </ul>     | <ul style="list-style-type: none"> <li>• Totally integrated into DSS</li> </ul> |
| <ul style="list-style-type: none"> <li>• Inconsistent/conflicting on a national scale</li> </ul>                    | <ul style="list-style-type: none"> <li>• Nationally consistent</li> </ul>       |
| <ul style="list-style-type: none"> <li>• Low-temporal resolution (for aviation decision-making purposes)</li> </ul> | <ul style="list-style-type: none"> <li>• High-temporal resolution</li> </ul>    |
| <ul style="list-style-type: none"> <li>• Disseminated in minutes</li> </ul>                                         | <ul style="list-style-type: none"> <li>• Disseminated in seconds</li> </ul>     |
| <ul style="list-style-type: none"> <li>• Updated by schedule</li> </ul>                                             | <ul style="list-style-type: none"> <li>• Updated by events</li> </ul>           |
| <ul style="list-style-type: none"> <li>• Fixed product formats (graphic or text)</li> </ul>                         | <ul style="list-style-type: none"> <li>• Flexible formats</li> </ul>            |

# Our Challenges

- Changing paradigms in multiple agencies
  - Changes roles and requirements of weather providers
  - Changes the operational use of weather information
  - “Disturbs” pre-existing weather relationships
  - Requires a common lexicon and set of processes
  - Interagency budget synchronization (including support/direction from higher levels) a work in progress

# Sequence of Events

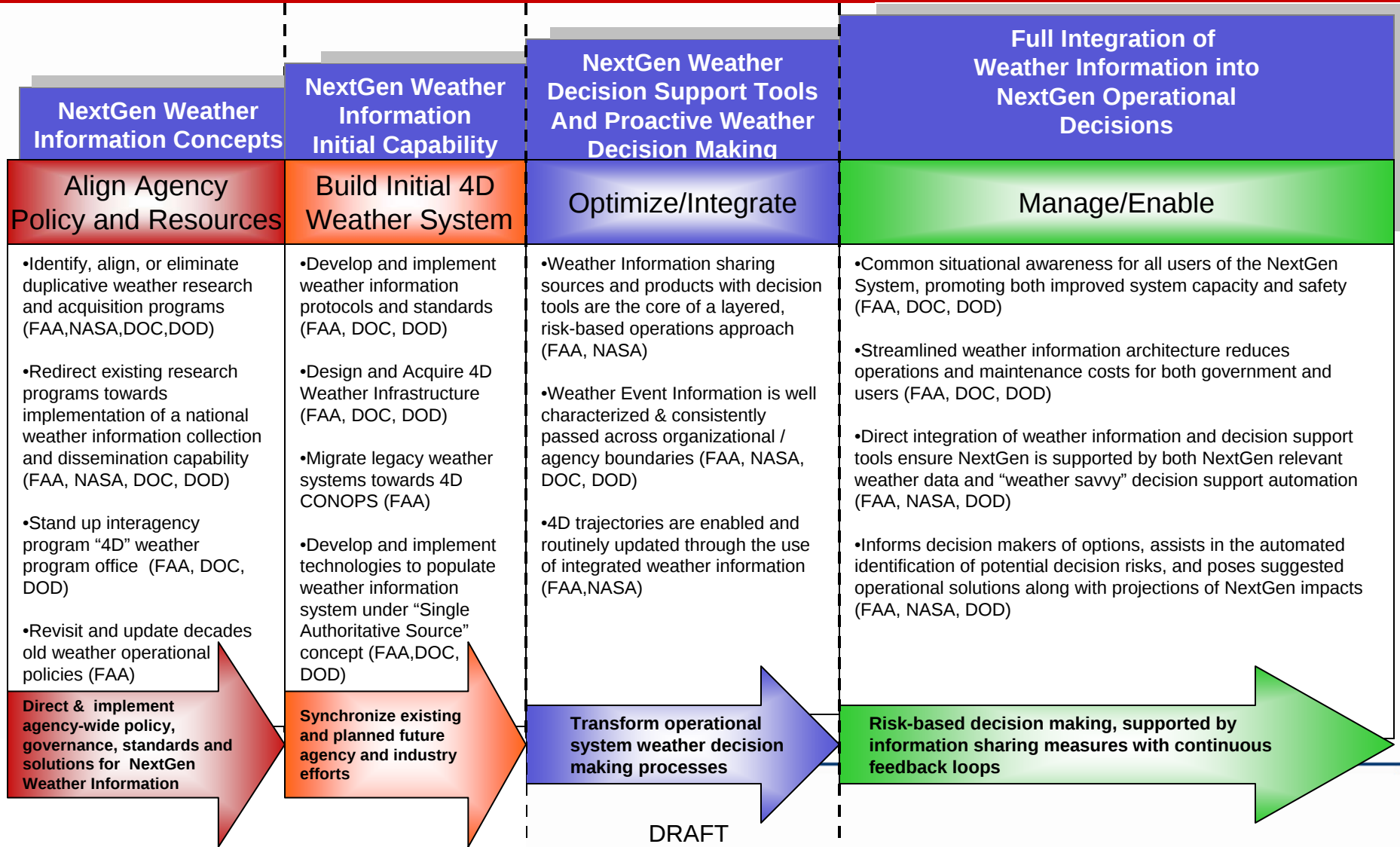
- Two competing philosophies
  - “Build it and they will come”
  - “I don’t plan against vaporware”
- Integrated Work Plan (Interagency)
  - Net-Centric Operations first (2012)
  - Weather (2013)
  - Demonstrate NextGen capabilities (2014-2015)

# Status

- Good News
  - NextGen Executive Weather Panel formed and routinely meeting to work these issues
  - 4D Weather Cube plan under development and agency coordination
  - Weather Integration plan out for comment
  - Formal agency coordination later this summer to meet fiscal year end commitment to Senior Policy Committee
- Join us for Friends/Partners of Aviation Weather Meeting
  - July 22 at National Transportation Safety Board (NTSB) Conference facility

# Weather

2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025



# Questions?

**Thank You!**