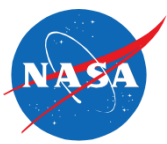


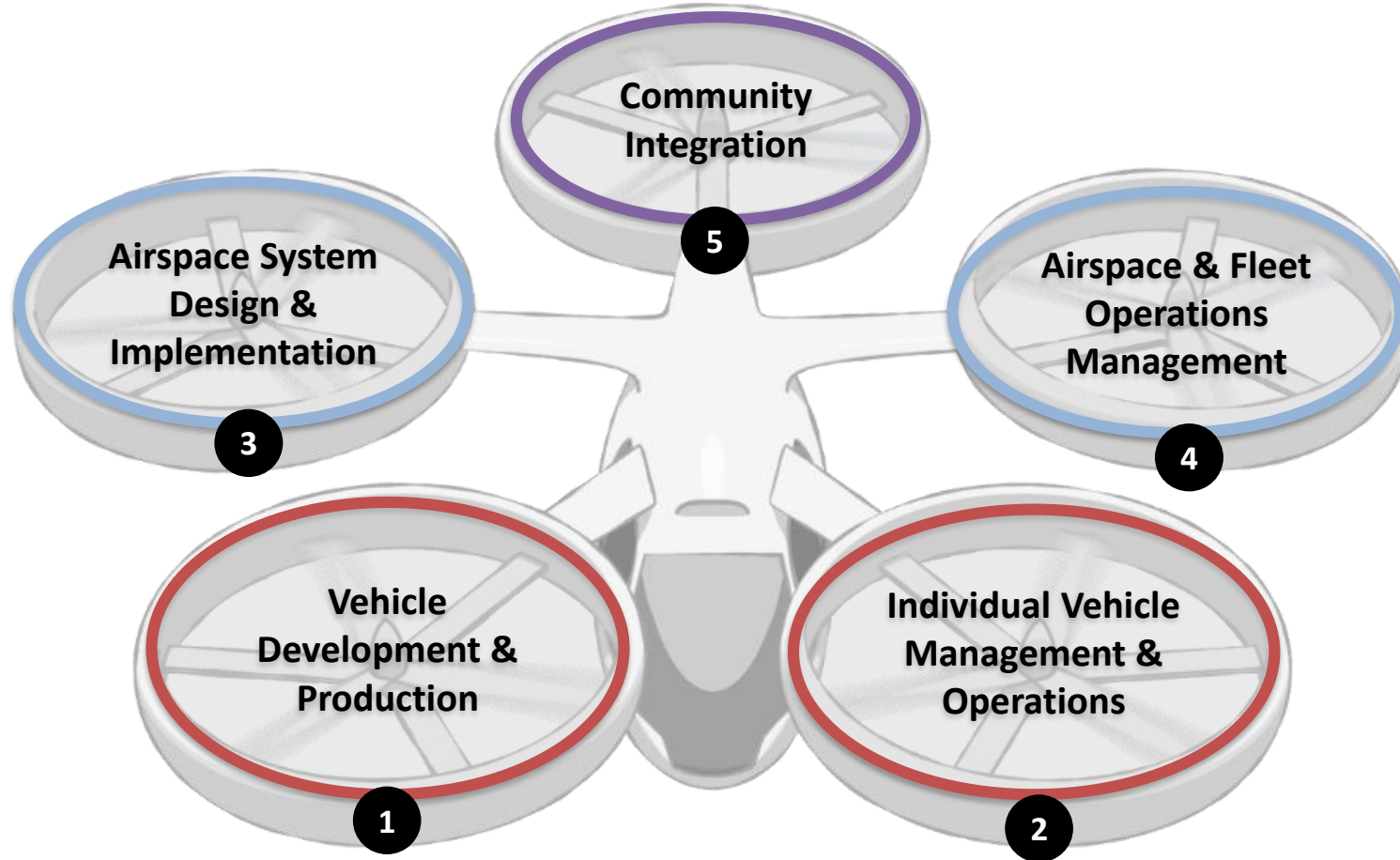


NASA Grand Challenge Update for VFS  
Davis Hackenberg, Project Manager, Advanced Air Mobility  
May 16, 2019








# UAM Vision and Framework



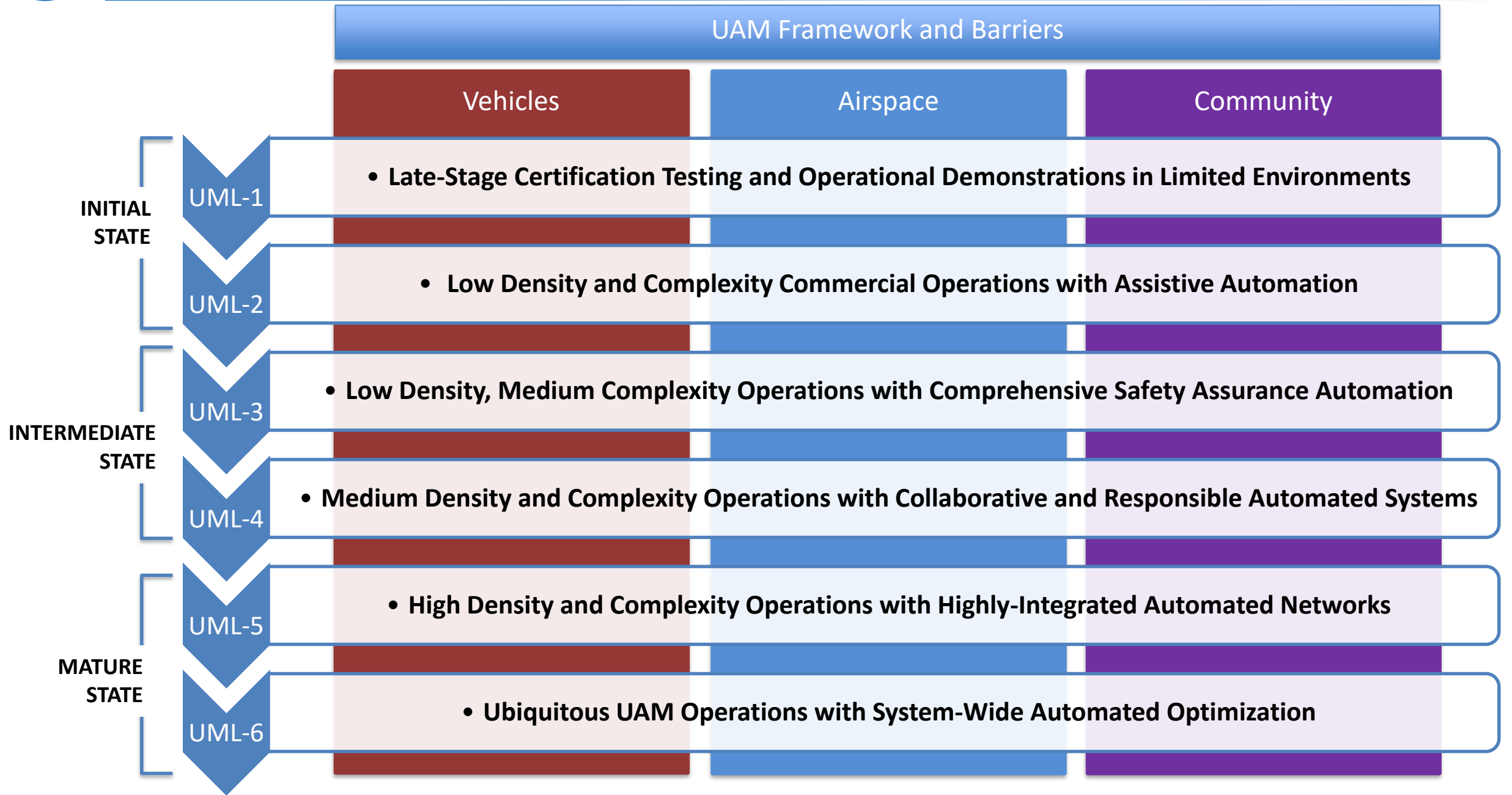
## Urban Air Mobility (UAM) Vision

Revolutionize mobility around metropolitan areas by enabling a safe, efficient, convenient, affordable, and accessible air transportation system for passengers and cargo

-  *Vehicle Barriers*
-  *Airspace Barriers*
-  *Community Integration Barriers*



# UAM Maturity Levels (UML)





# The UAM “Grand Challenge” Series

- Challenging the industry to execute ecosystem-wide systems level safety and integration scenarios
- Demonstrate practical & scalable system concepts (i.e. UML-4)
- Builds knowledge base for requirements and standards
- No purse or prize money





# Grand Challenge Series Flow

**Build Up: ~Late 2020**

Outcome: Community learning through flight and simulation of critical UAM scenarios in a relevant environment

**Grand Challenge Build-up: Essential activities to prepare for Initial Grand Challenge**

- Multiple critical activities that build towards Initial GC
- High Priority and focused Integrated/operational scenarios
- Incorporates trade-offs between vehicle and airspace systems
- Challenging to all; not all expected to participate

**Initial Grand Challenge: ~2022**

Outcome: Integrated Demonstrations of vehicle and operational scenarios critical to UAM commercialization

**Initial Grand Challenge: Learning through real integrated flights**

- Demonstrate integrated capabilities for urban operations
- Define path to commercial operations, solutions oriented

**GC Series: TBD**

Outcome: Validated requirement sets for scaled operations

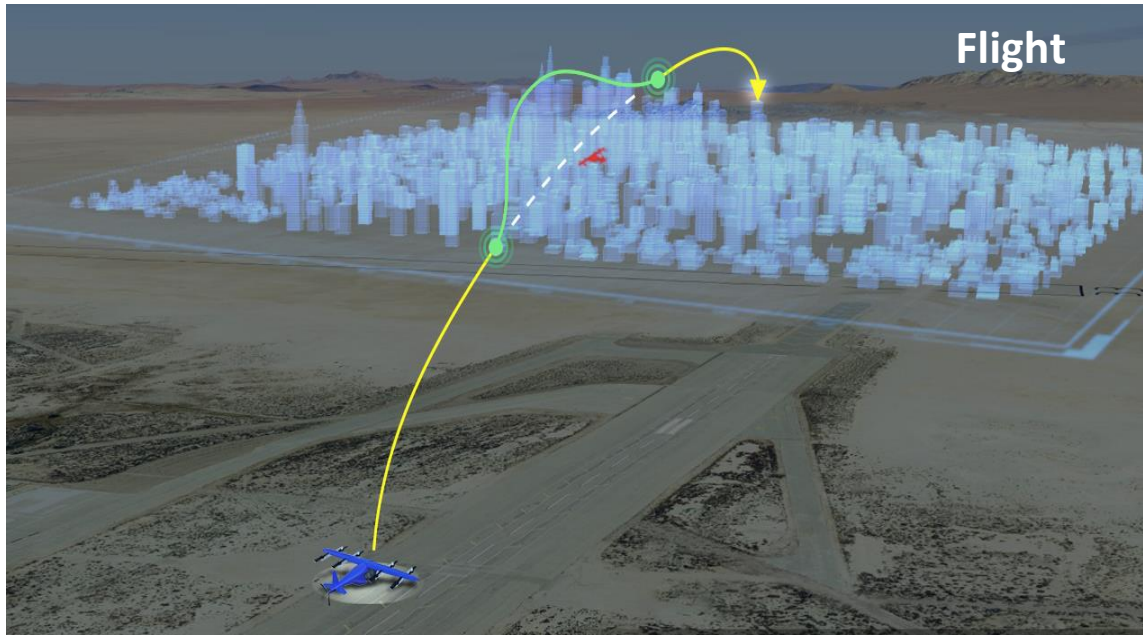
**n**

**Series Culmination**

*Demonstrate scaled operational capabilities in urban environments*



# GC Build-up



## Integrated Vehicle and Airspace Build-up

- Vehicle and airspace systems come together to fly high-priority integration scenarios
- Checkout Initial GC flight scenarios to verify mission and success criteria

## Interoperability Build-up with Airspace

- Define common interfaces
- Simulations to checkout integrated services before Initial GC
- Checkout of end-to-end services that will eventually demonstrate requirements for scalable UAM ops

**Activities necessary to ensure NASA builds a successful Initial Grand Challenge and provide Industry an opportunity to demonstrate airspace interoperability**