TAB D

Next Generation Air Transportation System
Joint Planning and Development Office

Developing a Baseline for NGATS Cost Estimates

August 24, 2006

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Overview

- Objectives for NGATS Cost Estimates
- Scope of NGATS Impacts
  - Benefits
  - Costs
- Factors Affecting Future NGATS Costs
  - Fleet retirement/replacement
  - Equipage costs
  - Agency capital programs
    - Funding requirements and availability
    - Timing
- Improving current estimates of NGATS costs
  - User costs
  - Agency costs

Costing Objectives

- Provide better cost estimates, especially for industry and user costs
  - R&D
  - Investment (F&E)
  - Operations and maintenance (O&M)
- Move toward agreement on consistent methodology/ measurement for estimates
  - Fleet forecasts
  - Treatment of equipage—retrofit vs. forward fit
  - Time sequencing and net present values
  - Alignment of NGATS capabilities and avionics equipage
- Focus initially on near-term NGATS costs (2008-2012) and on farther term costs in the afternoon

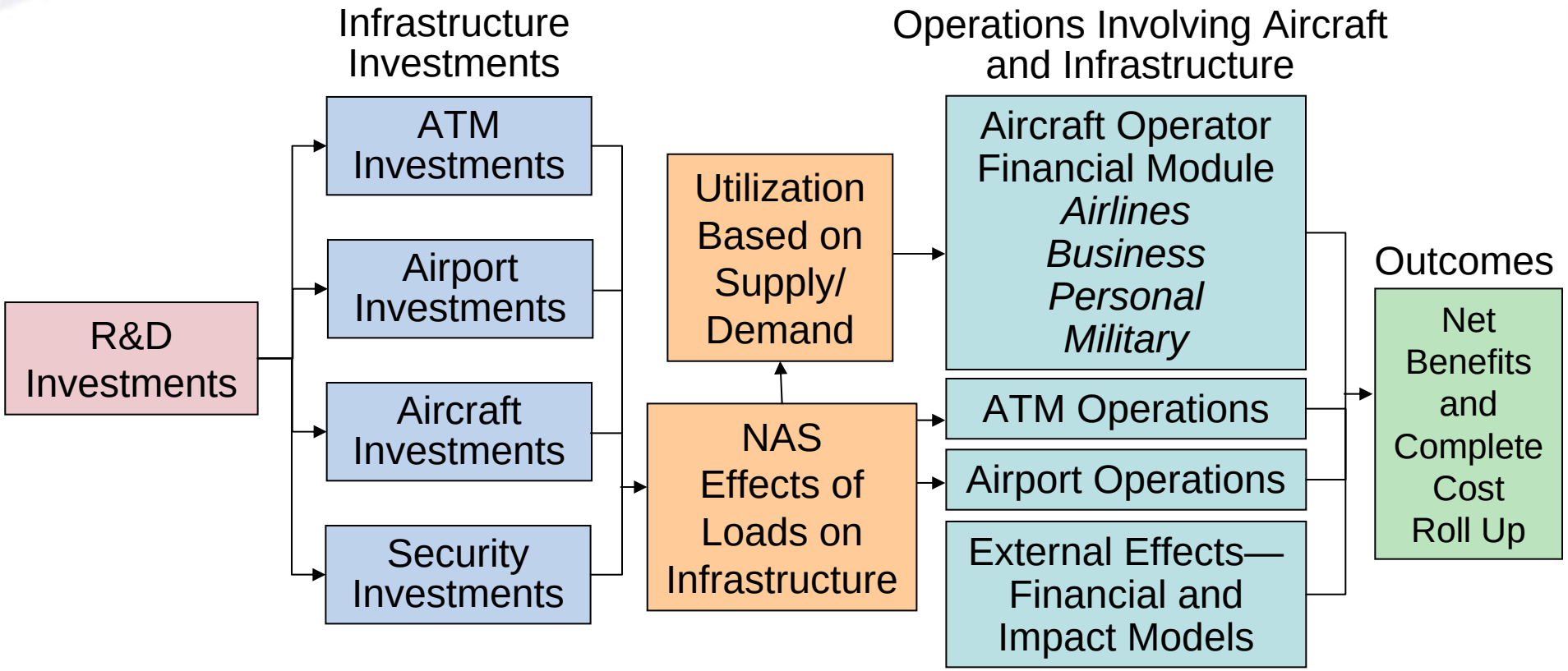
Defining NGATS Benefits

- NGATS benefits are treated as benefits to users of national airspace system
  - Improved system capacity and efficiency while meeting safety, security and environmental expectations
  - Reduced user O&M unit costs (for NGATS capable equipment)
  - Reduced unit costs for Federal service providers (FAA, TSA)

- EAD includes suite of models and simulations to identify shortcomings in current system and impacts of proposed system improvements
  - NGATS effectiveness assessed for a range of future business models for air transportation services

- We will not review benefits in this workshop

Linkages of NGATS Investments

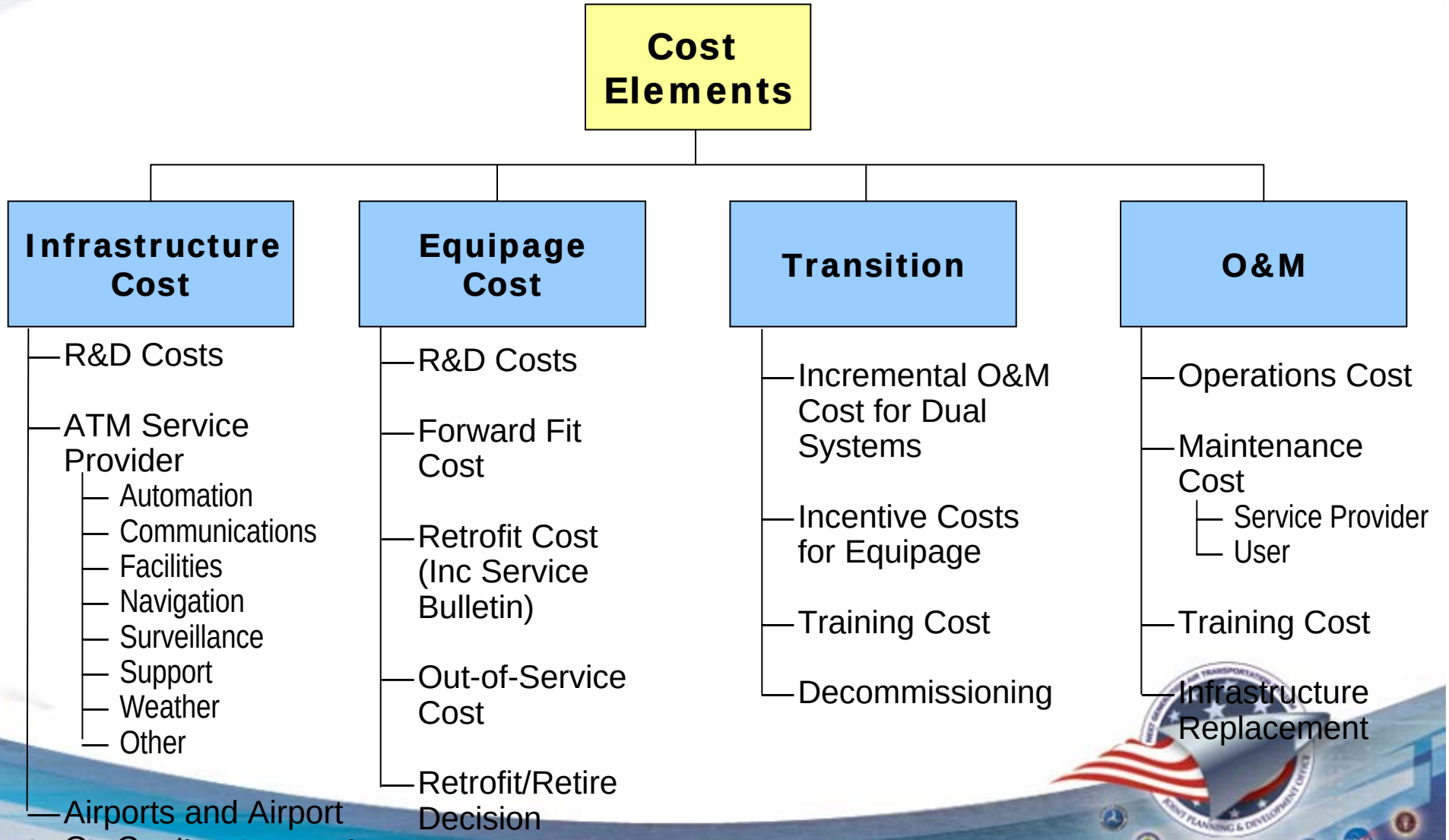


Consider Both Discounted Cash Flows and External Effects

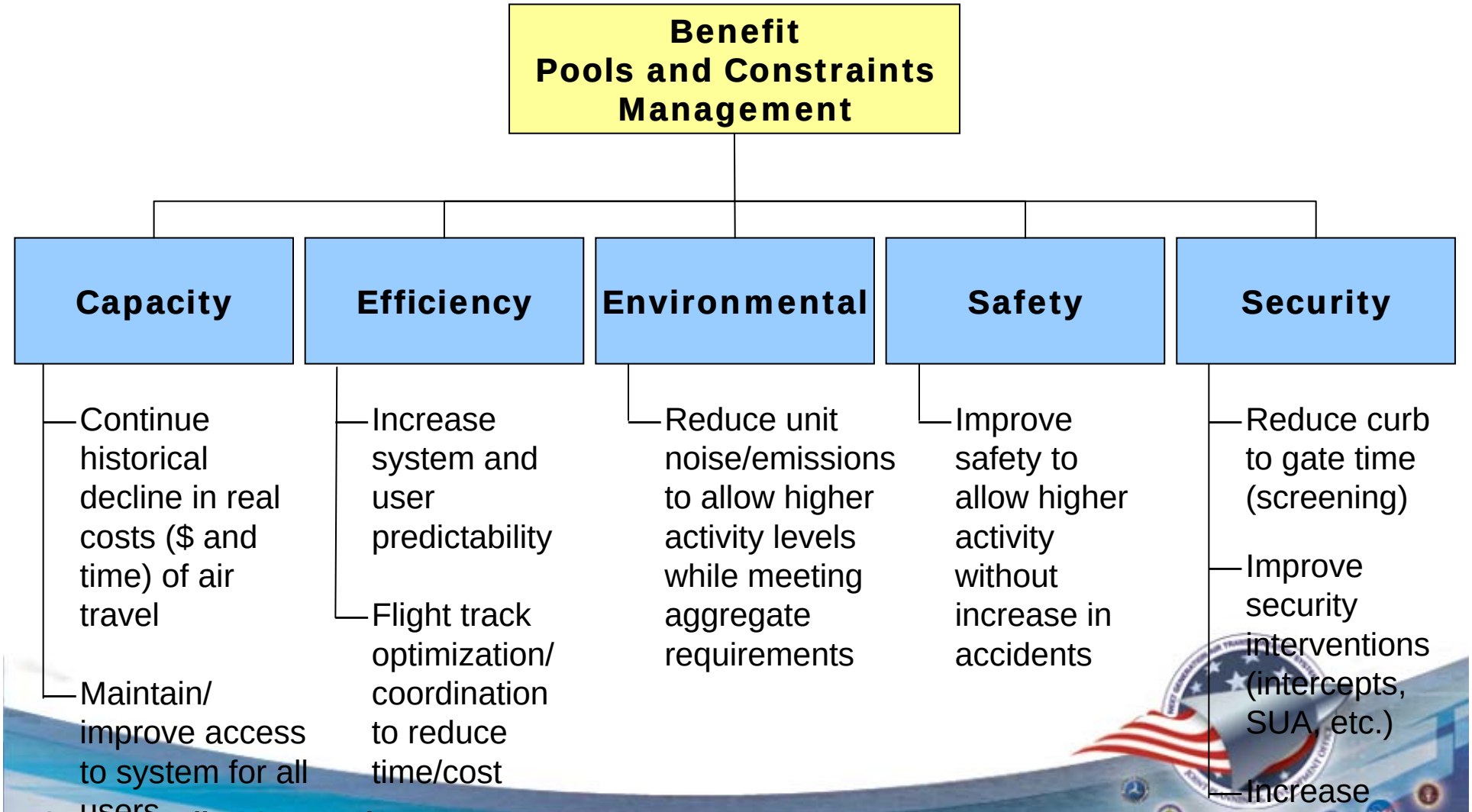
Key Cost Drivers

- Fleet Forecasts
- Equipage Costs for NGATS
  - Avionics development and deployment
  - Retrofit
  - O&M
- NGATS Capability Sequence
  - Impact on user costs and user choices
  - Financing
    - Requirements
    - Availability
  - Equipage requirements in other countries
  - Recommendations for change
- Government Costs for NGATS
  - R&D
  - Investment
  - O&M
  - Impact of sequencing and timetable

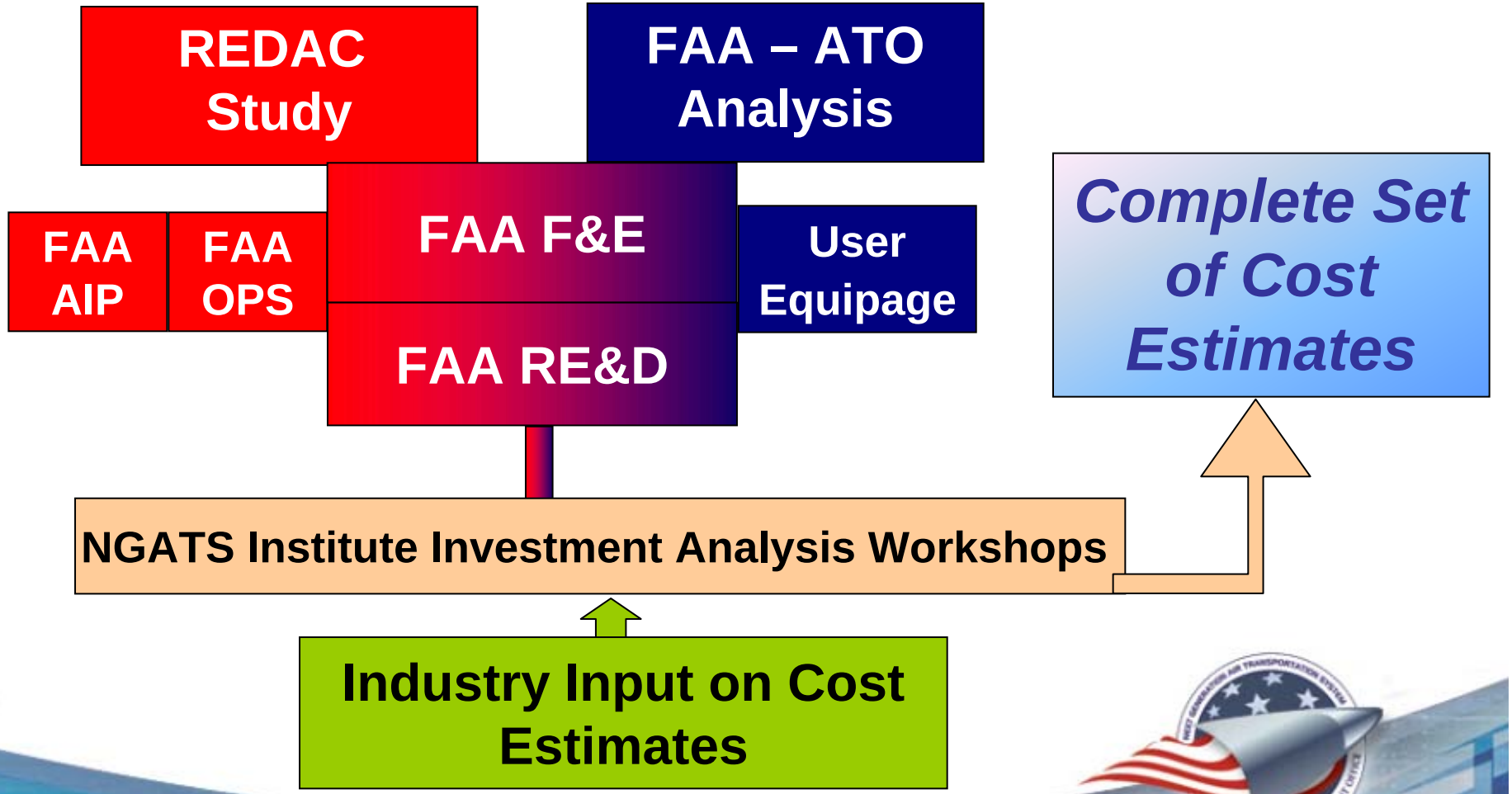
Overall Cost Analysis Framework



Overall Benefits Analysis Framework



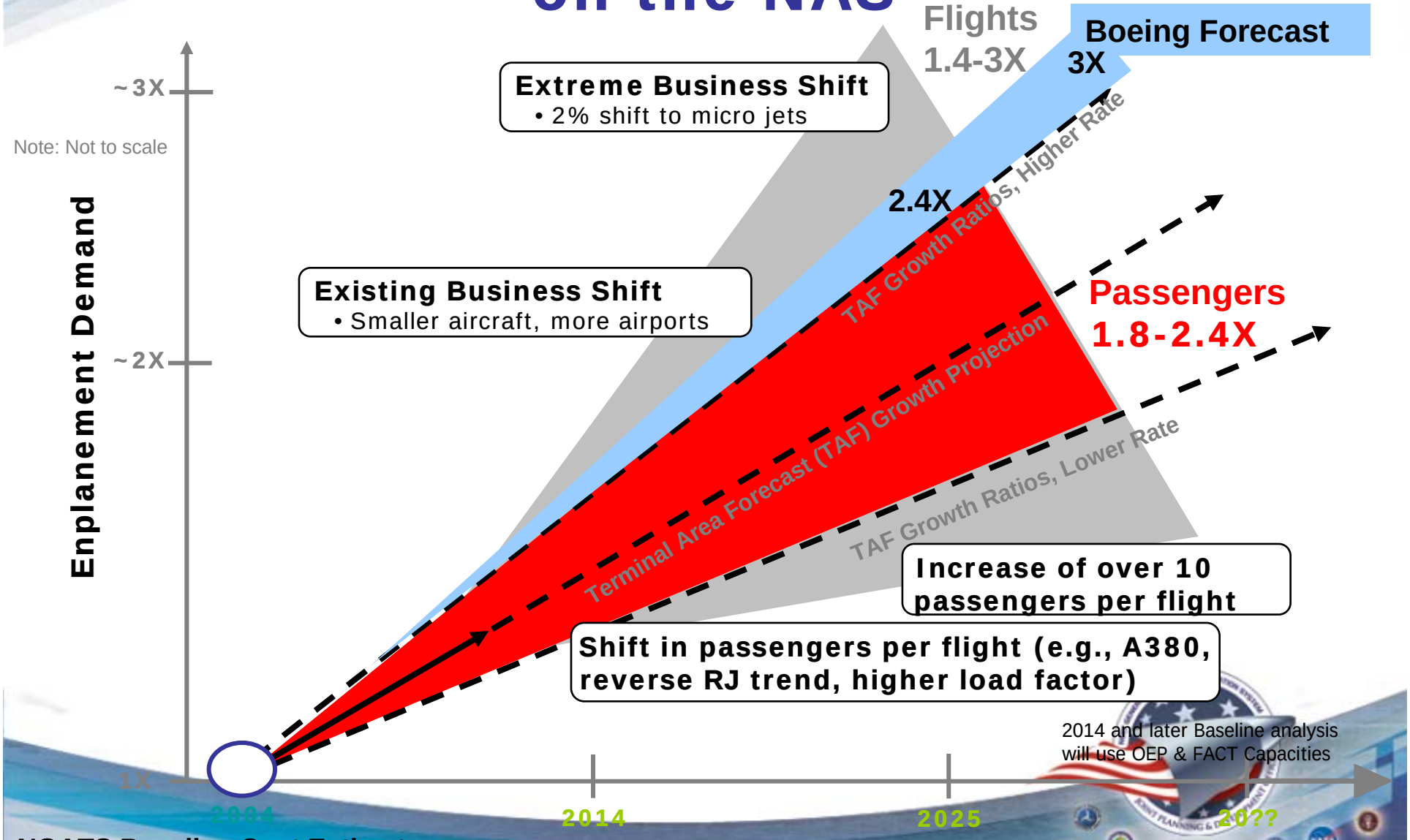
Integration of NGATS Cost Estimates



Roll Up of Costs by Type

Sector	Research and Development	Infrastructure / Equipment Investment	System Operations and Maintenance
Government			
Aircraft Manufacturers			
Avionics Manufacturers			
ATM System Manufacturers/Integrators			
Aircraft Operators			
Passengers/Shippers			
Other TBD			

Potential Future Demand on the NAS



NGATS Baseline Cost Estimates
April 27, 2006

Scenario Assumptions

- Scenario 1: HUB AND SPOKE GROWTH to 3X
  - Hub and Spoke Carriers
  - Existing Fleet Mix
  - Current OEP Airport Group
- Scenario 2: Business Shift to More Regional Ops
  - More Point-to-Point Carriers
  - Fleet Mix Changes to more Regional Jets, etc.
  - Larger Airport Group (OEP Airports Plus Regional Airports)
- Scenario 3: Shift to Higher Use of Air Taxi
  - Extensive Point-to-Point Operations
  - Fleet Mix Includes Substantial Number of VLJs
  - Airports Used might be 3000 or more

Future Scenarios Operations Growth

Scenarios	Percent Growth by User Class			
	Air Carrier	Commuter/ Air Taxi	General Aviation	Overall NAS Growth
2004 – 2014 TAF	26%	22%	4%	19%
2004 – 2025 TAF	59%	45%	17%	43%
2004 – 2014 Shift	49%	24%	4%	29%
2004 – 2025 Shift	99%	48%	17%	61%

2004 Baseline seed day has a total of ~55K IFR flights

General Aviation (GA) operations only includes IFR itinerant operations

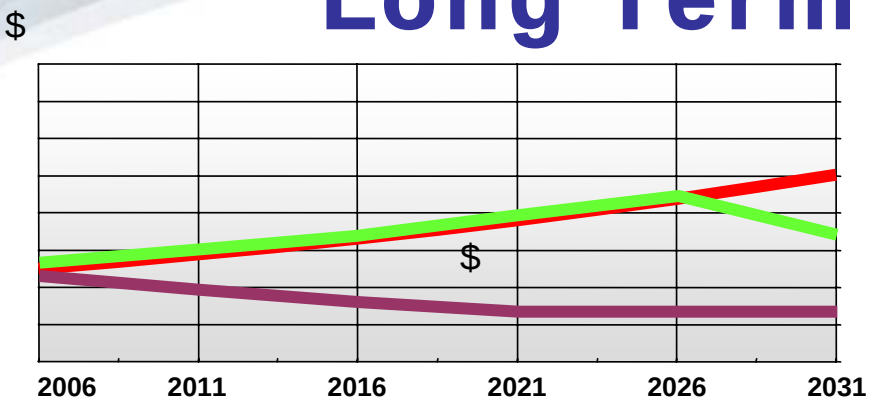
Future Scenarios Operations Growth

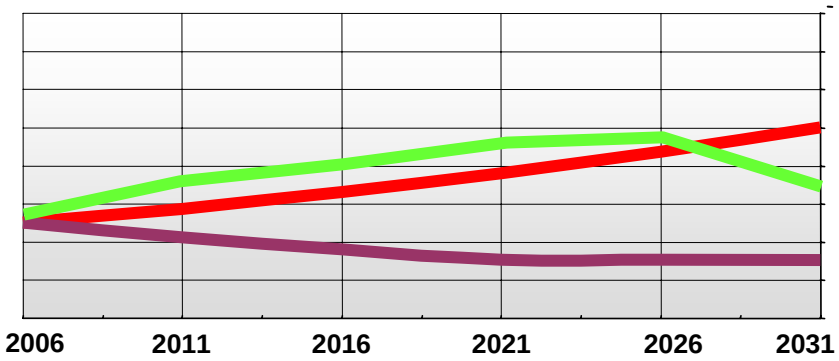
Scenarios	Percent Growth by User Class			
	Air Carrier	Commuter/ Air Taxi	General Aviation	Overall NAS Growth
2X Ops TAF	142%	100%	38%	100%
3X Ops TAF	294%	195%	65%	200%

2004 Baseline seed day has a total of ~55K IFR flights

General Aviation (GA) operations only includes IFR itinerant operations

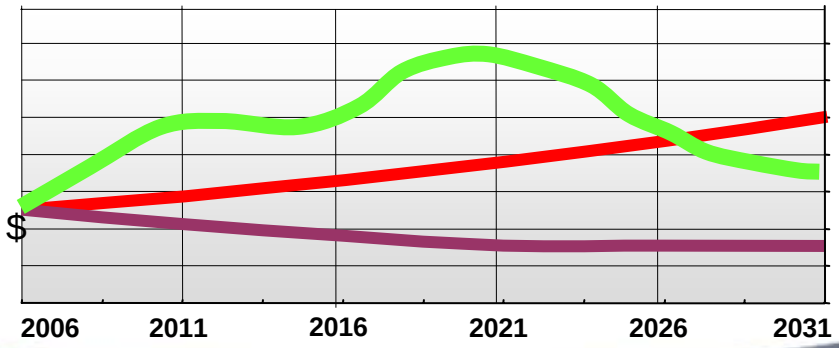
Long Term Cost Profile





- Long Term Cost Estimates
  - Scenario – Based Analyses
  - Fleet Mix Assumptions
  - FAA Policy Assumptions
  - Implications for Industry

- Long – term benefit profiles will have to be included for complete estimate



Workshop Breakout Sessions

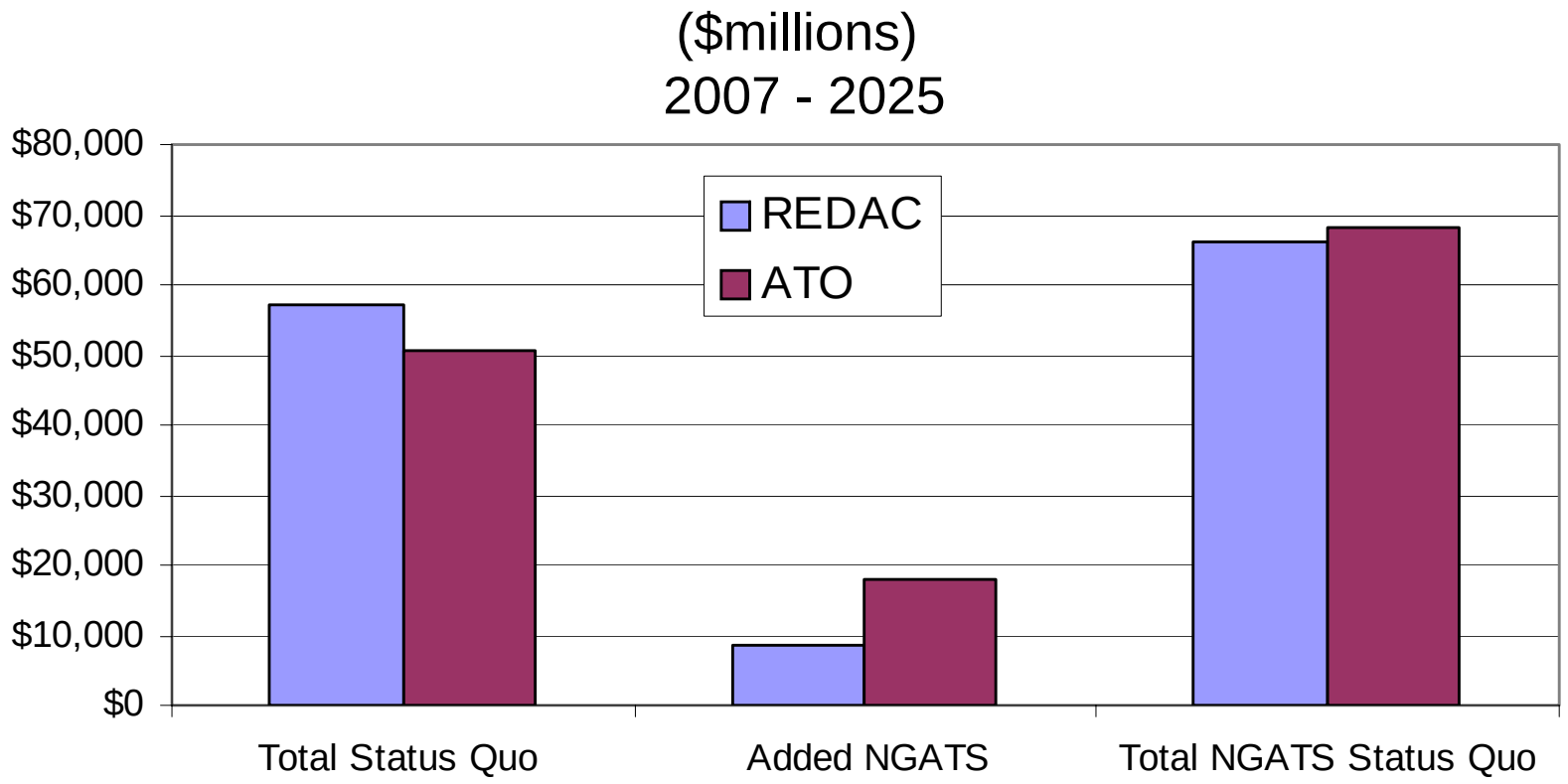
- Working Group 1: Fleets, Forecasts and Agency and User Investment
- Working Group 2: R&D Needs and Transition of Technology from R&D to Use
- Working Group 3: Impact on Agency and User O&M Costs
- Each group has to cover each industry and government sector
- Each group will be supported by technical experts and EAD staff to assist in developing and compiling estimates

Baseline Information

- Build from what we know
  - JPDO operational improvement roadmaps
  - FAA-ATO analysis of F&E needs under status quo and NGATS
  - REDAC study of FAA costs, including O&M, from NGATS

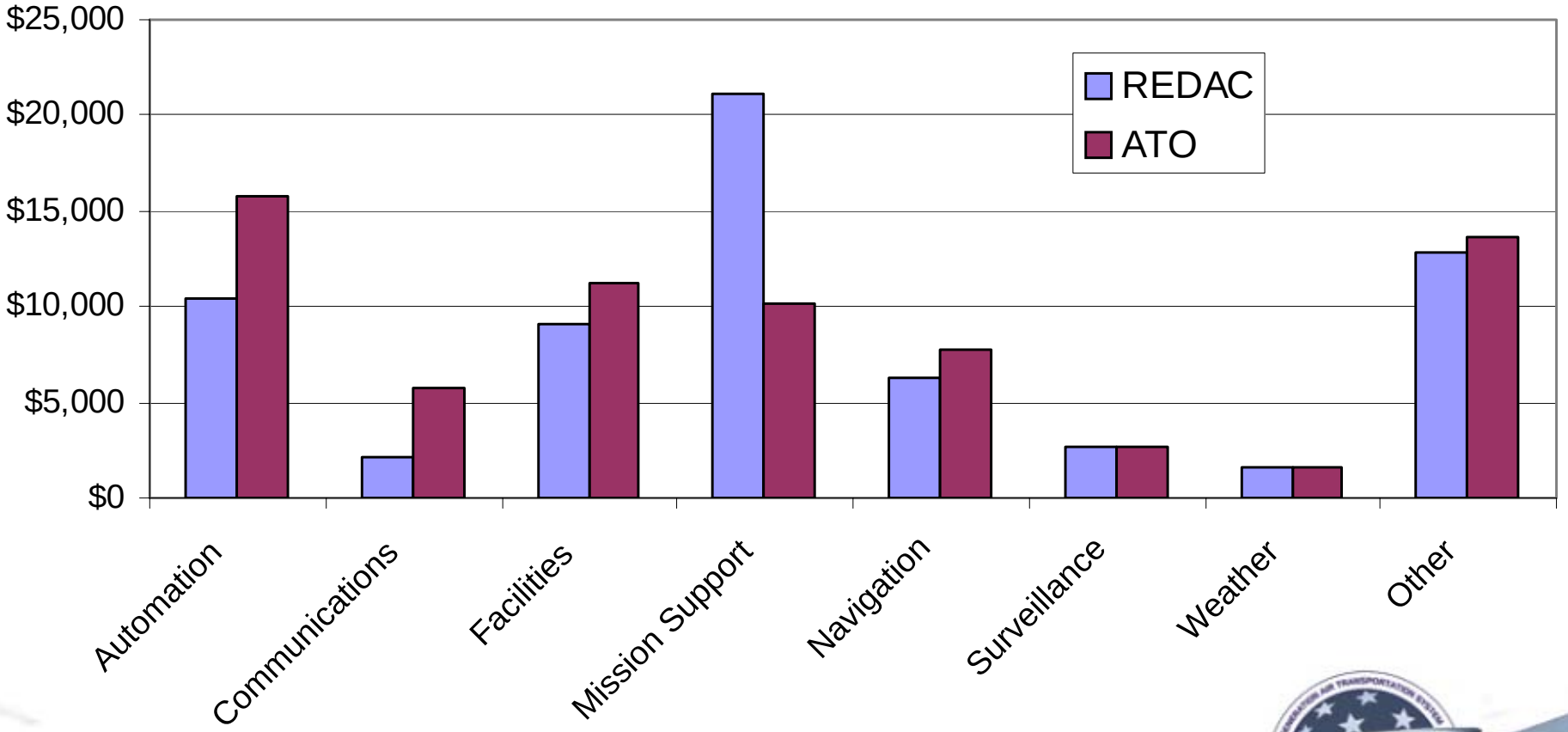
- This information has been incorporated into working group materials
  - R&D needs
  - Timing of NGATS investments
    - Agency costs
    - User costs
  - O&M impacts of NGATS on agencies and users

Comparison of REDAC and ATO Total Cost Estimates



Source: FAA-ATO analysis and REDAC Study

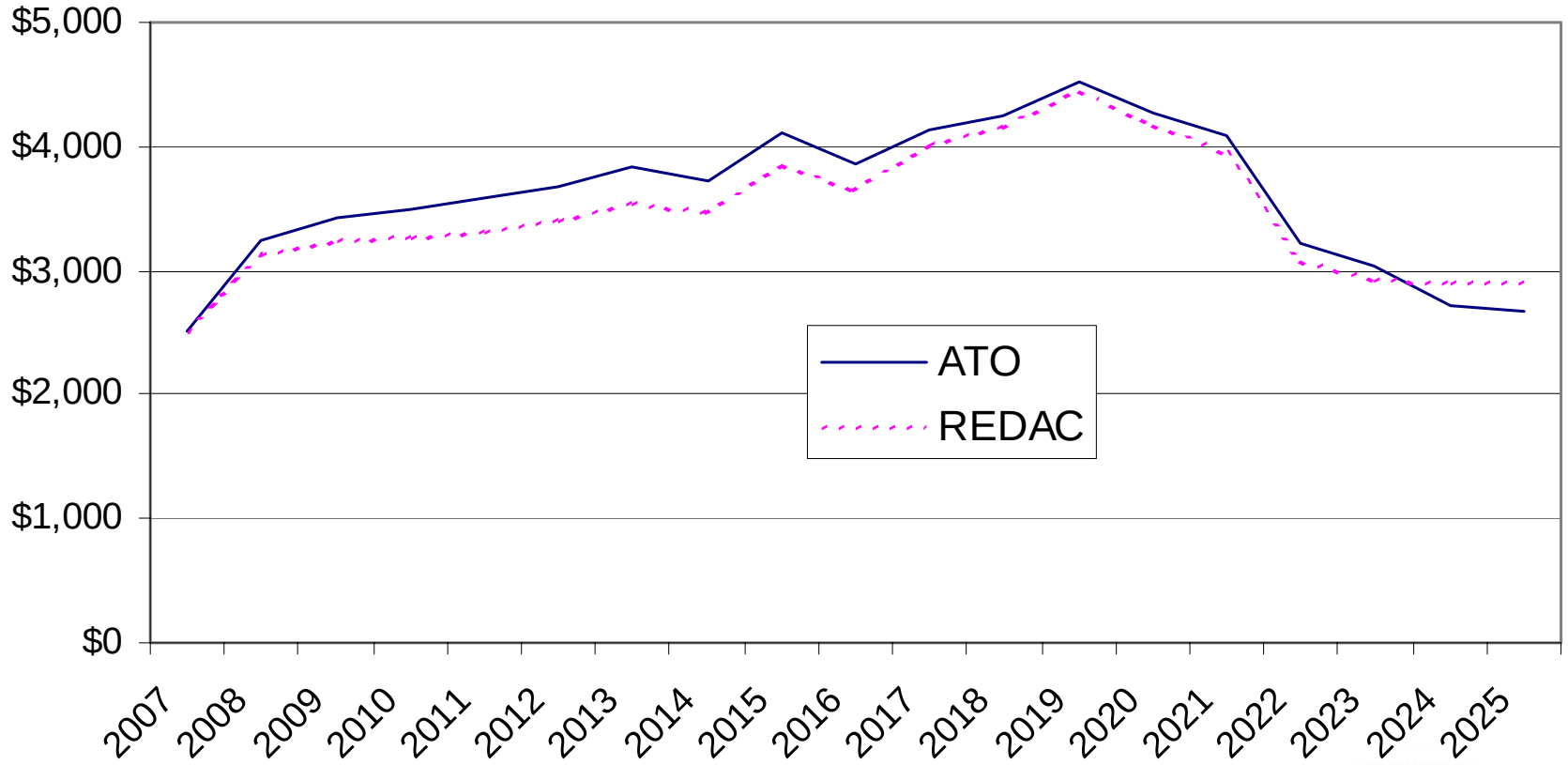
NGATS Status Quo Cost Detail 2007 - 2025



Source: FAA-ATO analysis and REDAC Study

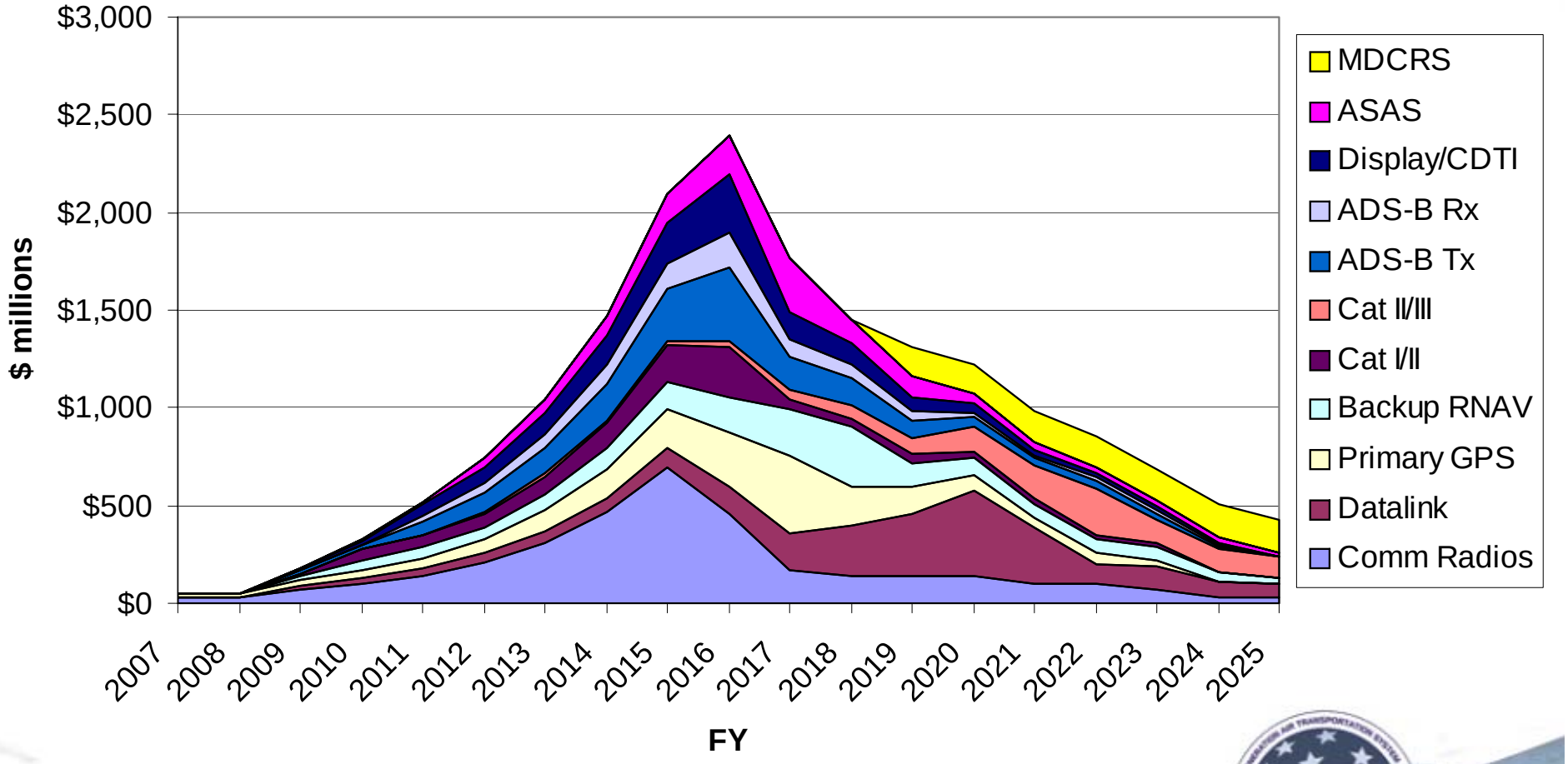
NGATS Total Annual Costs

($millions)
2007 - 2025



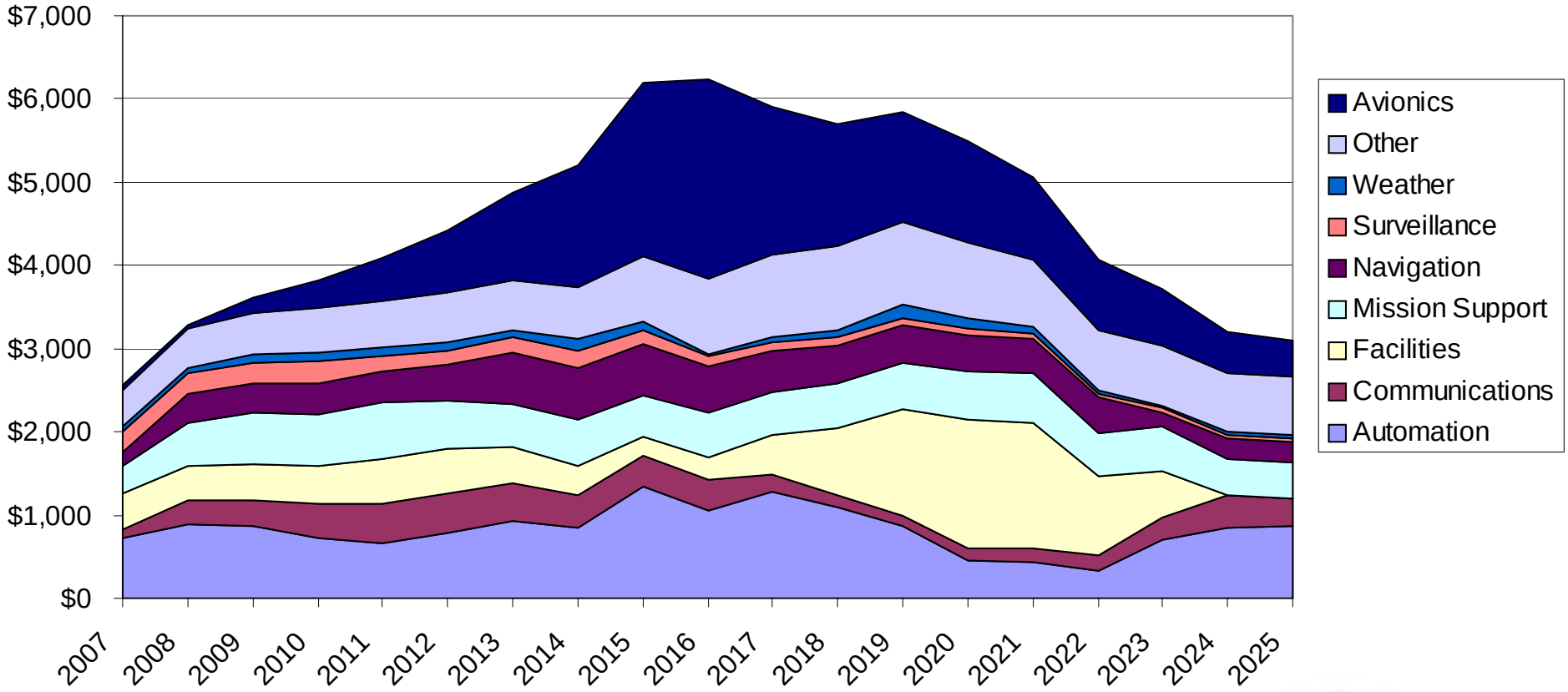
Source: FAA-ATO analysis and REDAC Study

Avionics Annual Costs by Application



Source: FAA-ATO analysis (rough order of magnitude)

Annual Total Costs by Category



Source: FAA-ATO estimates

Wrap Up

- Presentations that follow present a broad overview of NGATS, in terms of program content, timing and costs
  - Portfolio Management Division, JPDO
  - FAA-ATO cost estimates
  - REDAC study
- Starting with this background, the working groups will provide input to that we can improve estimates
- Workshop objective is to deliver better cost estimates that JPDO will use to better formulate components of the NGATS plan, such as investments in R&D, system acquisition, equipment deployment costs, and operations and maintenance costs

Cost Methodology