



September 5, 2012

## **Making Connections: The Airport Master Plan at Newport News/Williamsburg International Airport**

YORK COUNTY PLANNING COMMISSION  
Yorktown, Virginia

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## → **Planning Context**

- **Historical Planning Efforts** – building on a legacy
- **Changing Industry Dynamics** – what does it mean to the master planning effort?



## → **Current Planning Effort**

- **Process** – what is an airport master plan? where do we stand?
- **Development items that impact York County planning**—major elements, triggers and community concerns



## → **Planning Elements York County Should Consider**



## → **Questions and Answers**

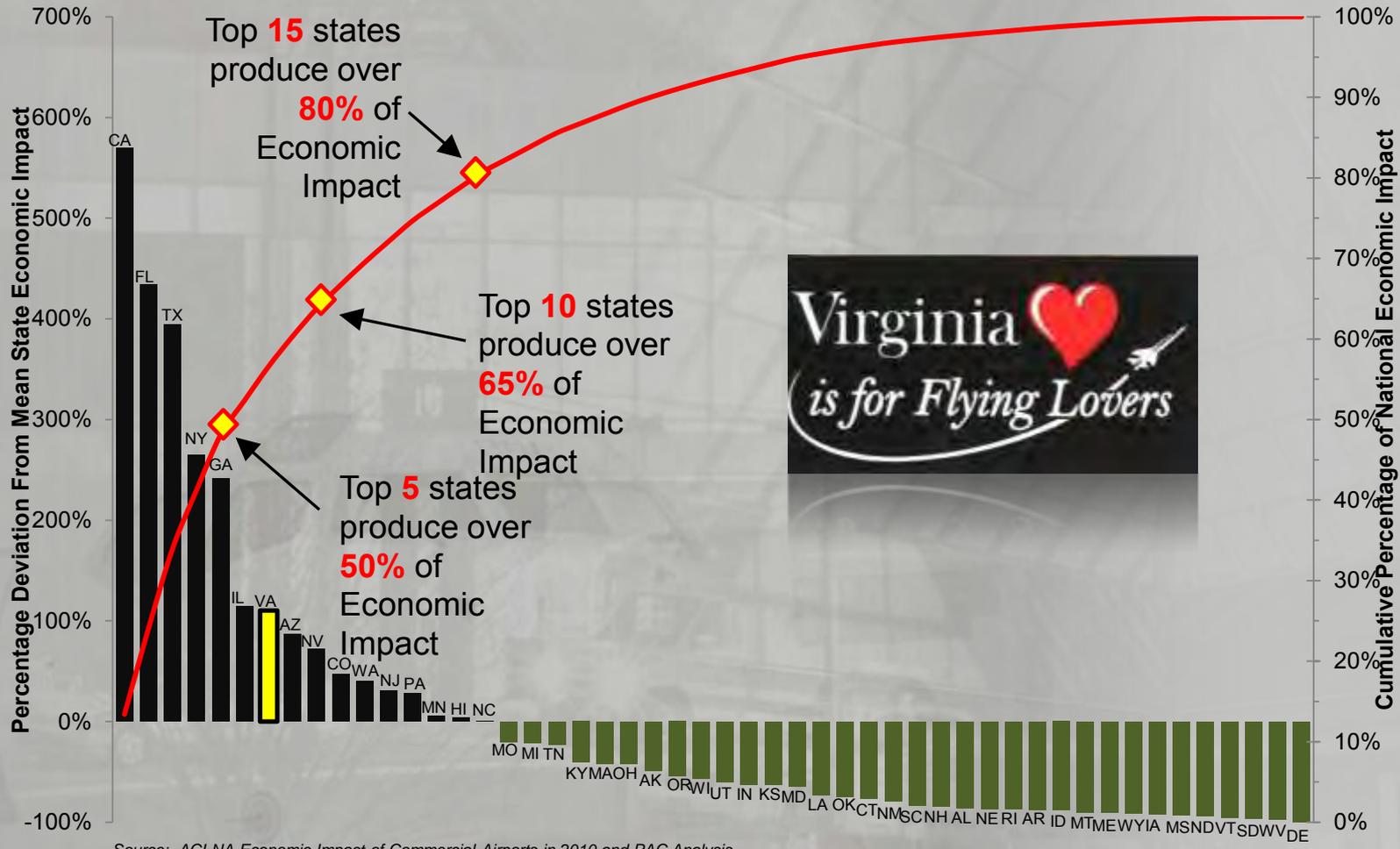


# We Are Building On a Long History of Planning at the Airport



- Pre-Airport Opening Planning Studies
- Milestone Date
- Strategic Planning Study
- Master Plan Studies Containing Development Items of Community Interest
- Master Plan Studies Validating Development Items

# Virginia Aviation Has the 7<sup>th</sup> Largest Economic Impact



Source: ACI-NA Economic Impact of Commercial Airports in 2010 and PAC Analysis



→ **Economic impact increased from \$148m in 2004 to \$369m in 2011**

- Average economic impact of **\$703** per enplanement
- Loss of AirTran/Delta reduction represents \$150m in reduced economic impact ANNUALLY
- We love to tout the multiplier effect, but there is a divisor effect as well.

→ **43% of our enplanements are visitors to the region**

- Average visitor spends **\$512** in transportation (other than airfare), entertainment, retail, food and lodging

→ **The airport connects the Peninsula to the global marketplace**

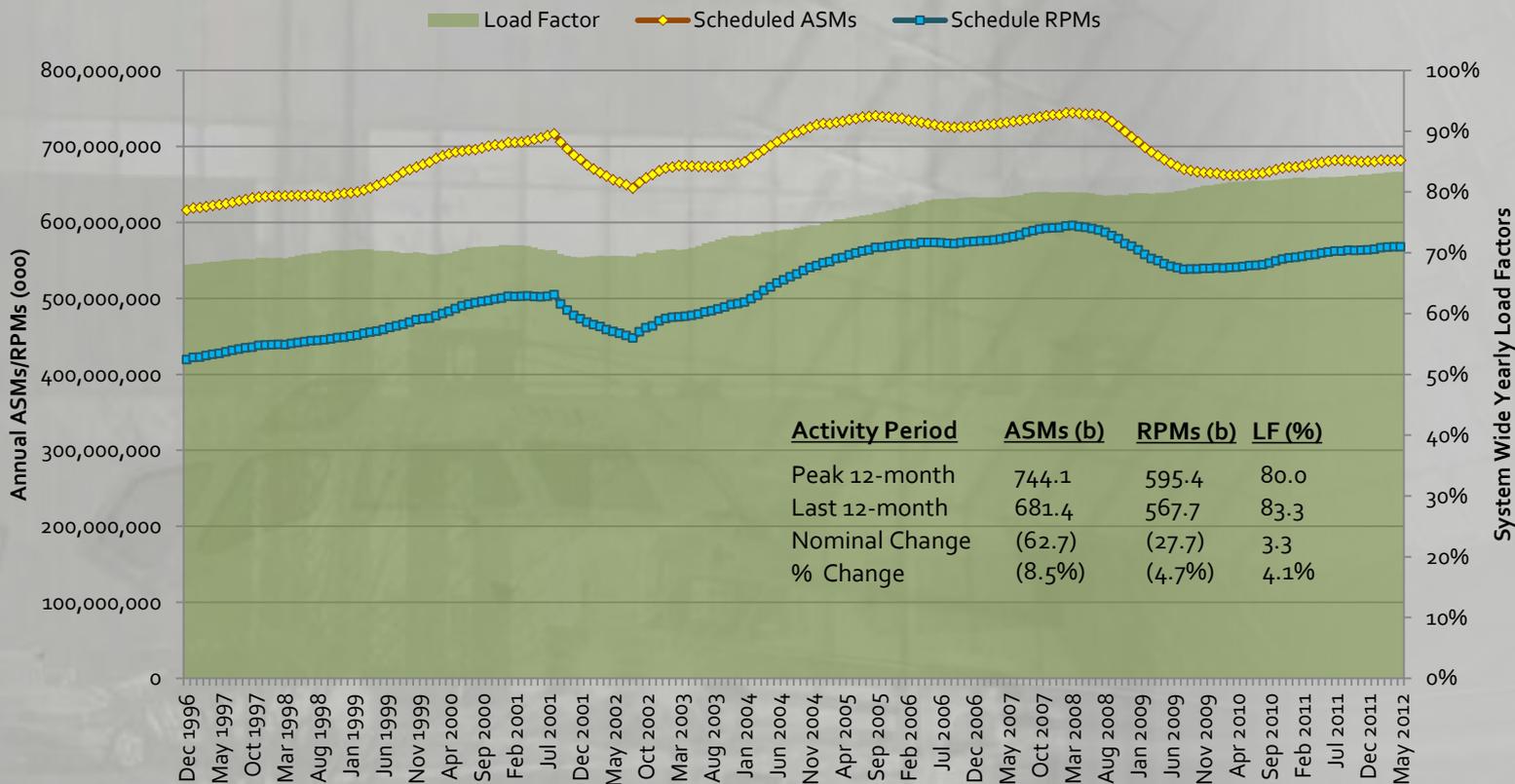


# The Tone of the Airline Industry Has Changed



# Consolidation In the Industry Has Changed the Dynamics of Air Service

## Rolling 12 Month Available Seat Miles (ASMs) and Revenue Passenger Miles (RPMs): December 1996-May 2012



Source: DOT BTS RITA Aviation Database.

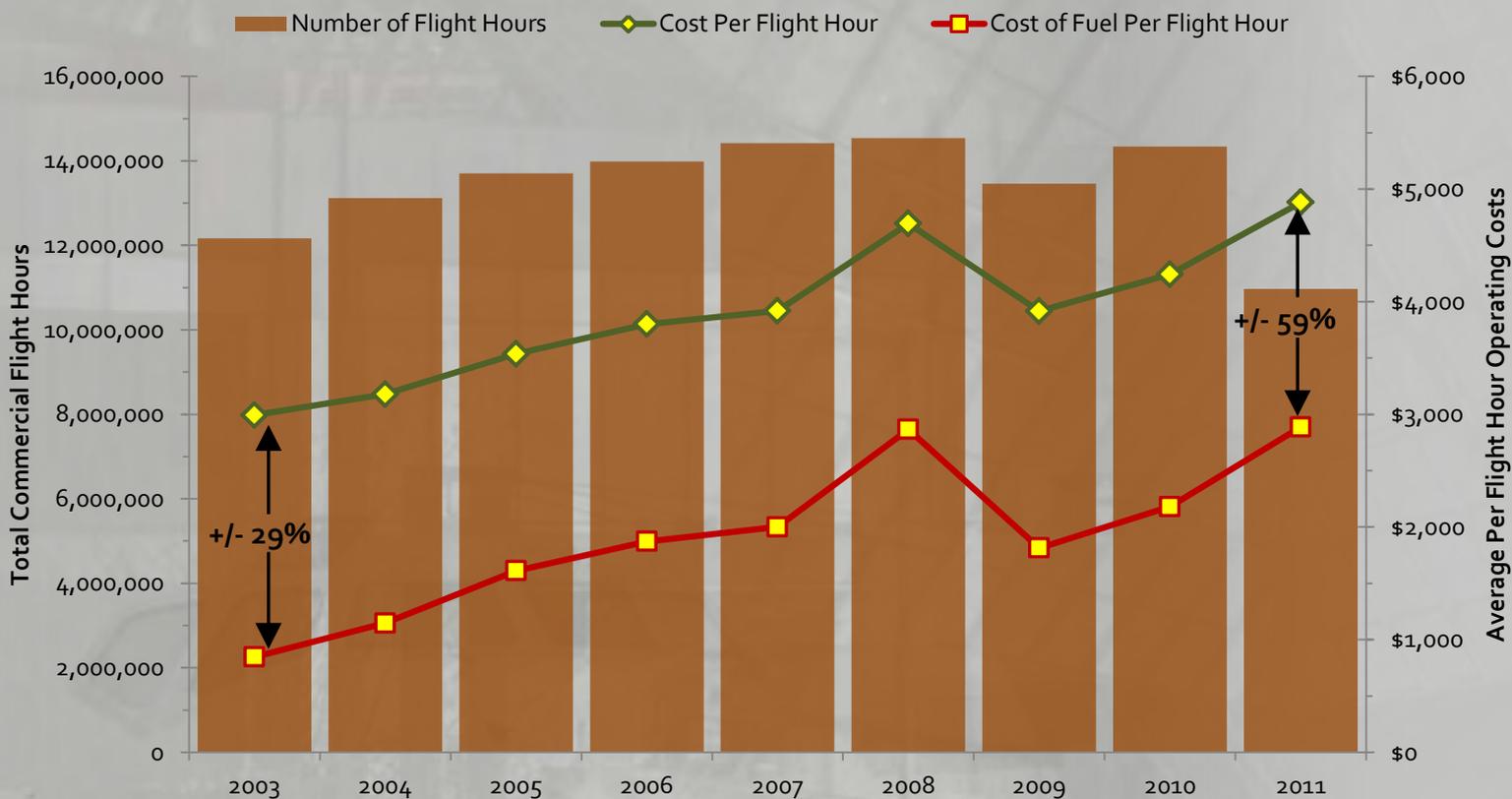
**NOTE:**

1. ASMs and RPMs are for scheduled domestic passenger operations only and does not take into consideration scheduled international or charter operations
2. Each data point represents a summation of the previous 12 months of data
3. The Peak 12 month occurred from April 2007 thru March 2008



System Wide Yearly Load Factors

# Airline Business Models Have Shifted and May Not Return to Normal Even If Fuel Prices Decline

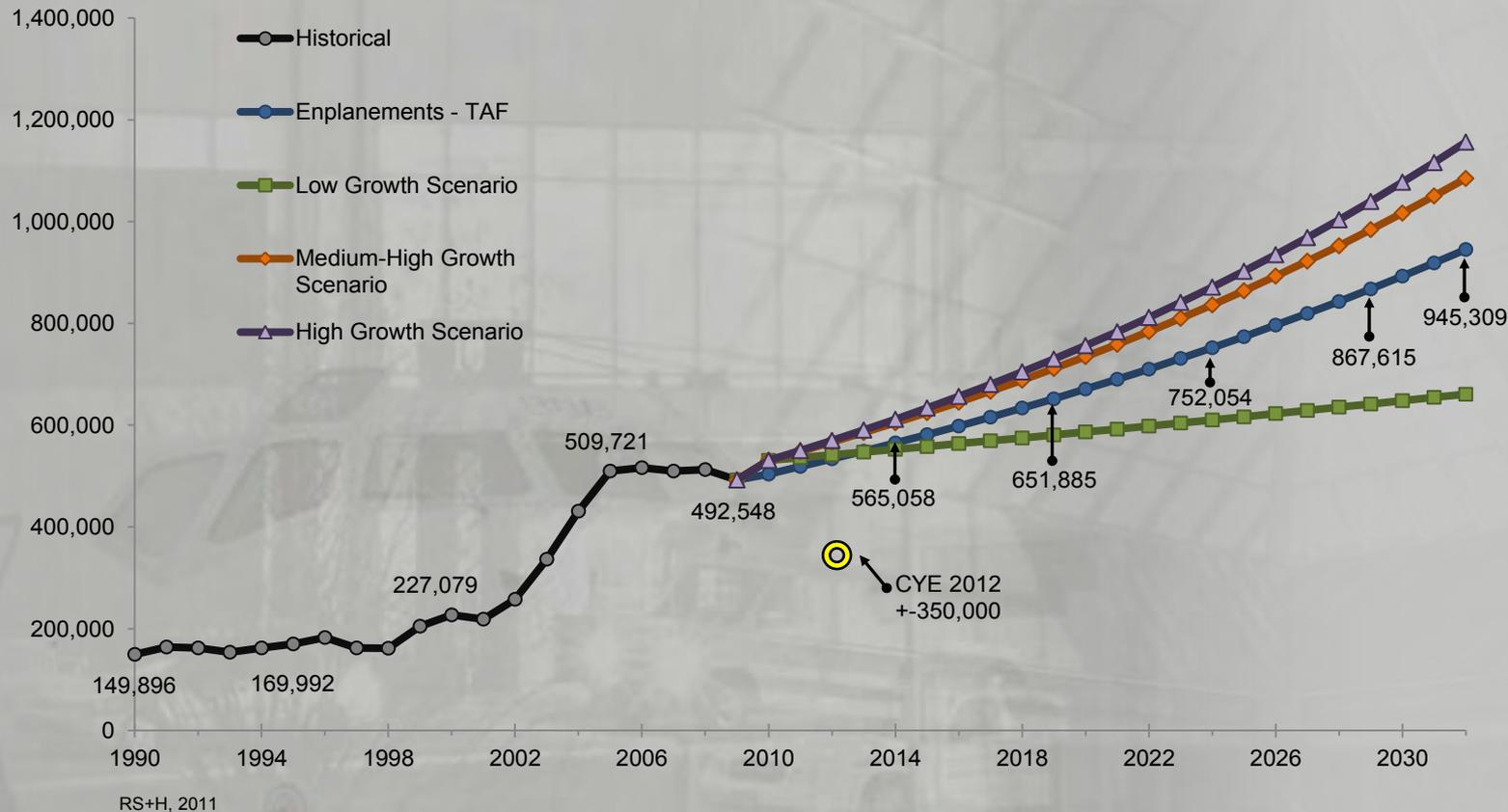


**Notes:**

1. Analysis only includes Group I, II and III commercial carriers reporting on Form 41 and excludes cargo carriers.
2. Costs included in hourly flight include: operating expenses, direct maintenance expenses and indirect maintenance expenses.
3. Operating expenses include: pilots and copilots, other flight personnel, trainees and instructors, personnel expenses, professional and technical fees and expenses, aircraft interchange charges, aircraft fuel, aircraft oil, rentals, other supplies, general insurance, employee benefits and pensions, injuries, loss and damage, payroll taxes, other taxes, other expenses.
4. Maintenance expenses include: airframe labor, engine labor, airframe repairs, engine repairs, aircraft interchange charges, airframe materials, engine materials, airworthiness allowance provisions for airframes, deferred (credit) airframe overhauls, airworthiness allowance provisions for engines, deferred (credit) engine overhauls.



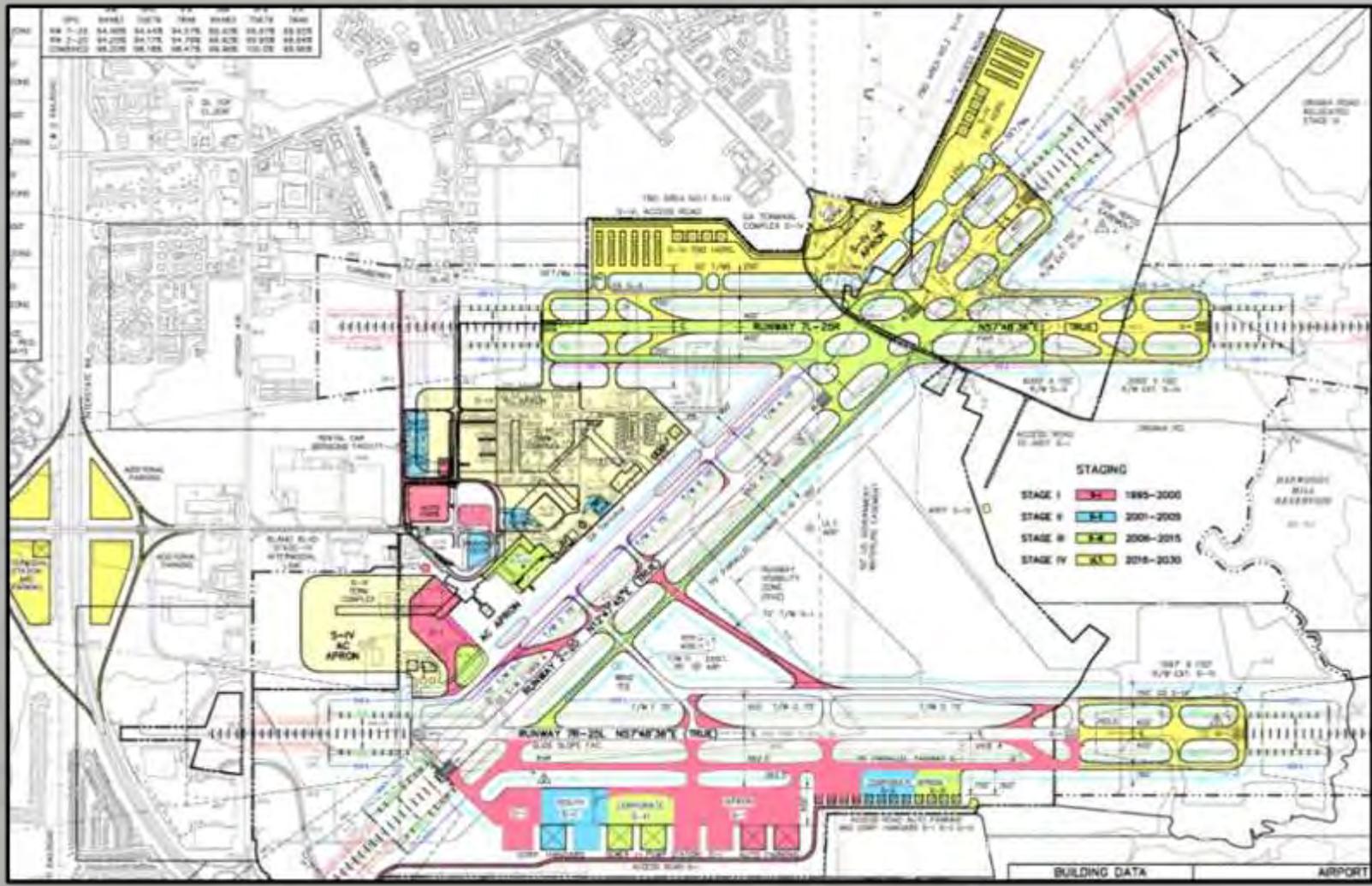
# Forecast of Passenger Enplanements Show a Doubling of Activity by 2030



- **Master Plan is a locally driven, federally funded comprehensive plan for an airport**
- **Currently finalizing financial element and preparing the draft document**
- **Have engaged community stakeholders throughout the process**
  - Have held 4 policy and technical advisory committee meetings and one Public Workshop
  - Second Public Workshop scheduled for October
  - Created a public website ([www.phfmasterplan.com](http://www.phfmasterplan.com)) to communicate plan status and working papers
- **York County has been a very valuable stakeholder in the planning effort**



# Current Approved Airport Layout Plan Shows Significant Airfield Development





## → Elements similar to previous Master Plan:

- 3<sup>rd</sup> Runway (Runway 7L-25R)
- Extension to Runway 7-25 (Ultimate 7R-25L)
- Extension to Runway 2-20
- Realignment of Oriana Road



## → Elements differing from previous Master Plan

- Length and placement of 3<sup>rd</sup> Runway
- Length of Runway 2-20 extension
- Oriana Road alignment
- Minor improvements to various taxiways



## → We will discuss each of these four items in detail over the next few slides



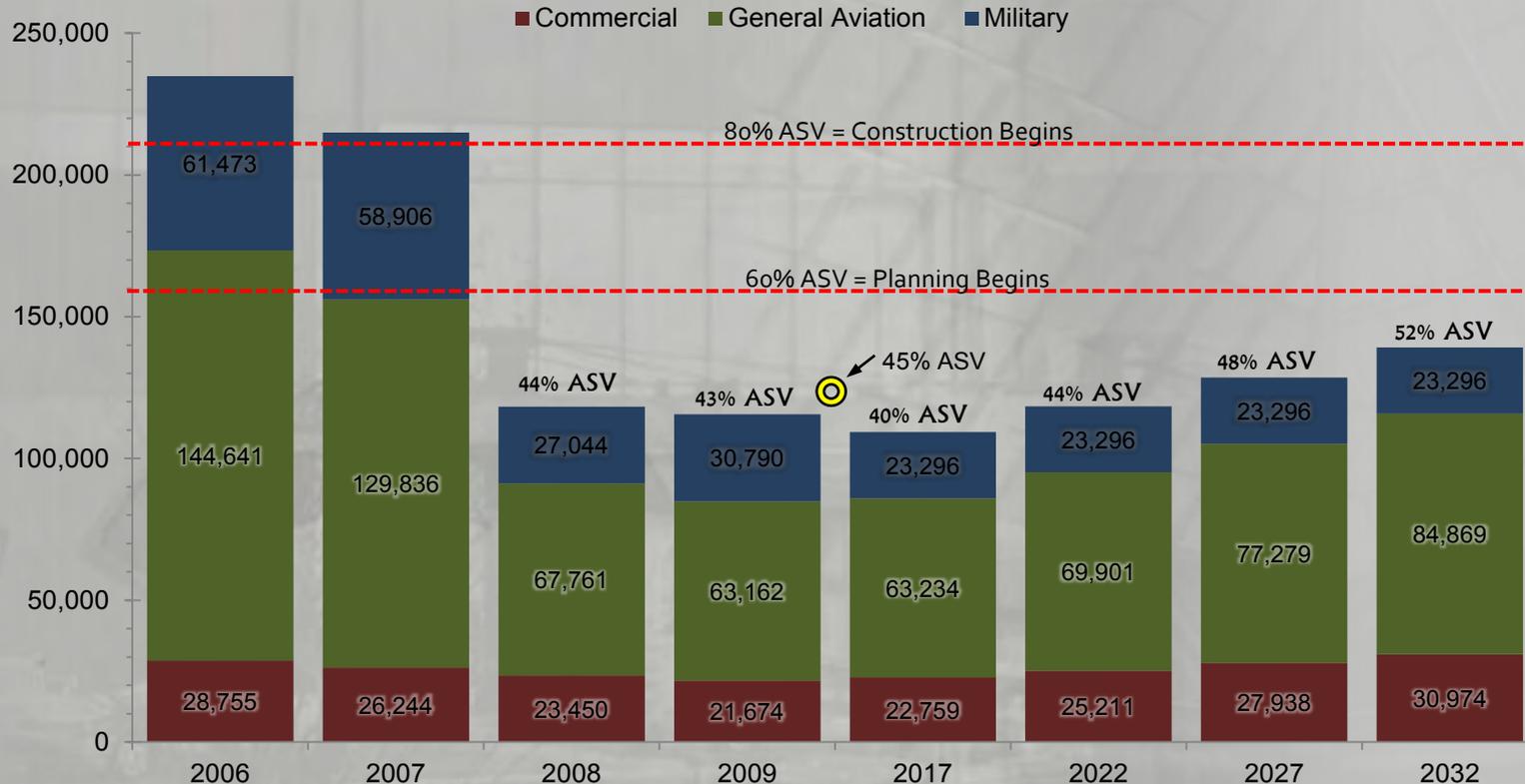
## → Need for the 3<sup>rd</sup> Runway driven by what is called the ASV – or Annual Service Volume

- Measurement of total operations at the airport before unacceptable delay is incurred
- An operation is a takeoff, landing, touch-n-go or simulated approach to the airport
- ASV is impacted by:
  - Number of runways
  - Orientation of runways
  - Spacing between runways
  - Runway instrumentation
  - Location of exit taxiways
- FAA Guidance
  - Planning for capacity improvements should begin at 60% ASV
  - Construction should start at 80% ASV
  - Provides enough lead time for planning, environmental and design



# Forecasted Operations Depict a Rise in Operations But Neglects Potential Changes in Operations

## Historical and Forecasted Aircraft Operations By Type: 2006-2032



Source: Reynolds, Smith and Hills Inc. 2012

**NOTE:**

1. Drop in aircraft operations from 2006 to 2008 was due to a combination of change in ATCT counting from manual counts to electronic counts and to the general downturn in the economy which effects GA operations more than any other operation type.
2. Any change in based general aviation aircraft would increase the number of GA operations and may trigger the need for additional runway planning in the outer years of the planning horizon. Potential hub operations by PEOPLExpress could have similar effect.



# Why Are We Still Planning For The Runway?

→ **Despite the need being in the long term, prudent planning suggests we protect for this investment for several reasons:**

- **Strategic:**

- We are the only airport in the region that can accommodate a parallel runway spaced at 4,300-feet
- Would allow for dual simultaneous instrument approaches and allow airfield to operate at a high level of efficiency

- **Practical:**

- Operations were trending higher than FAA Terminal Area Forecasts and were being driven by discretionary GA traffic
- Future of Williamsburg-Jamestown Airport and potential increase in based aircraft should that facility close
- Its just good planning. If we don't protect for the runway, then land-use decisions could cause the project cost to escalate.
- PEOPLExpress could increase commercial operations



# Extension to 7-25 is Planned for Medium Term, But At A Shorter Length

- **Previous Master Plan called for a 10,000-foot Runway 7-25 to occur in the 2016-2030 planning period**
  
- **Current Master Plan calls for a 9,250-foot Runway 7-25 to occur in the medium term**
  - Ultimate 10,000-foot to occur beyond the current planning horizon
  - Need for 10,000-foot length will be triggered by specific carrier needs
  
- **Off airport land-use planning and zoning should continue to reflect ultimate 10,000-foot Runway 7-25 length**



# Methodology to Determine the 9,250 foot Length Used Specific Aircraft Performance Criteria

## → Runway length used following inputs:

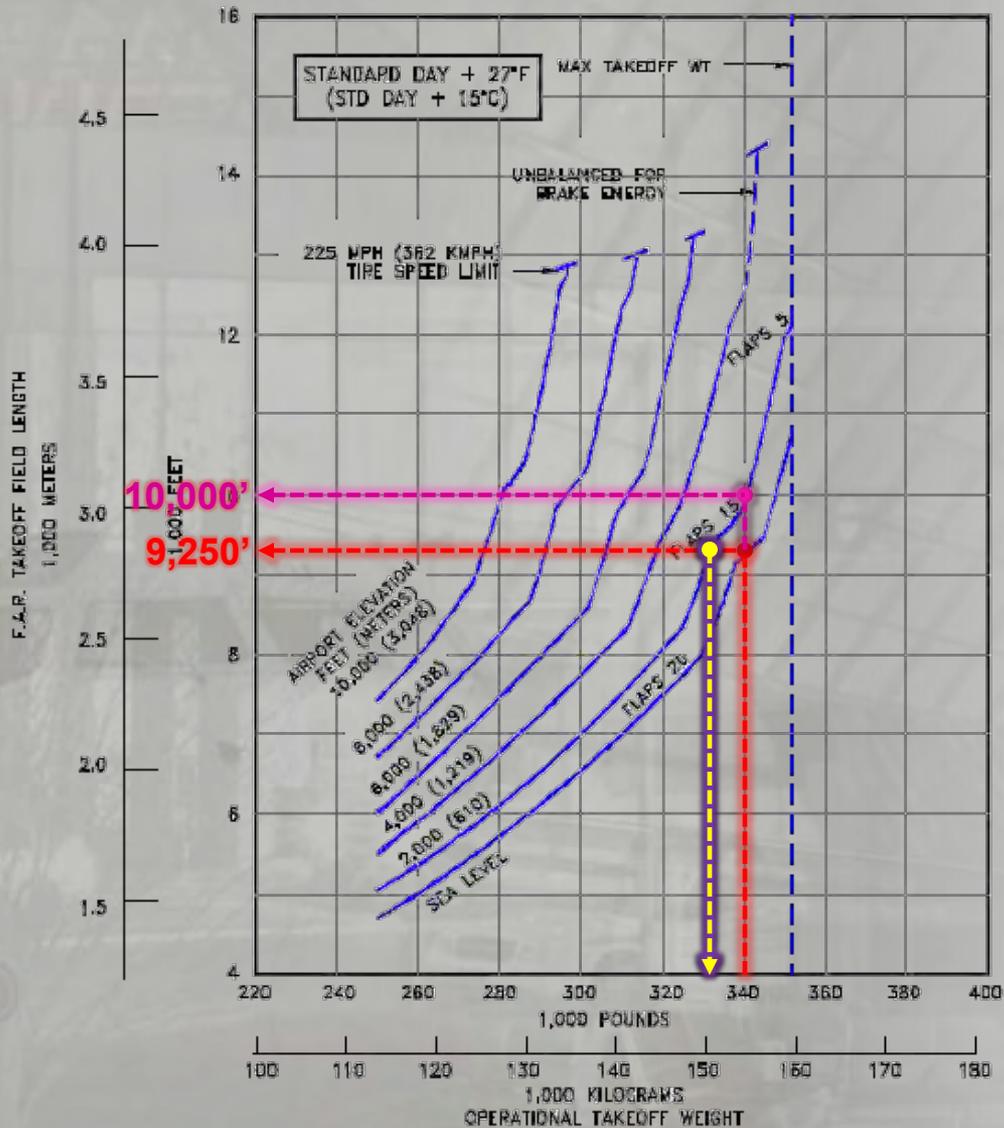
- Aircraft performance criteria for Boeing 767-300 aircraft
- Fuel to reach a stage length of 3,500 nautical miles with passenger, baggage and OEW equates to a TOW of 340,000 pounds
- Standard day + 27-degrees Fahrenheit (86-degrees F)
- Pressure altitude equal to sea level
- Zero runway gradient
- Zero wind
- Flaps setting at 20-degrees

## → Length is ultimately determined by carrier specific operating considerations and insurance requirements

## → Hot days can generate a density altitude above 1,500-feet



# Takeoff Weight of 340 klbs Requires a 9,250 foot Runway 7-25 Length



# Recent FAA Guidance on Runway Incursions Leads to a Change in Airfield Geometry

## → **Engineering Brief 75: Incorporation of Runway Incursion Prevention into Taxiway and Apron Design** went into effect 11/19/2007

- Based on data from Mitre Corporation and Runway Safety Action Teams
- Half of Category A or B incursions at the OEP 35 airports from 1997-2003 occur on Taxiway/Runway crossings by departing aircraft
- EB 75 compliance falls under the umbrella of the MPU as planning is the precursor to design.

## → **Will become a standard once industry coordination is complete and FAA rewrites Advisory Circulars**



# Closely Spaced Intersection of Runway 2 and 7 Conflicts with EB75 Planning Considerations

→ **Segment of Taxiway Alpha does not meet the following geometric criteria under EB75:**

- Taxiway geometry – right-angle versus acute-angle
- Entrance taxiway location and fillet design
- Limit short-connecting taxiway segments
- Taxiway assigned the same name after making several turns along its route



# Runway Alignment Options Considered Many Solutions

Option 1

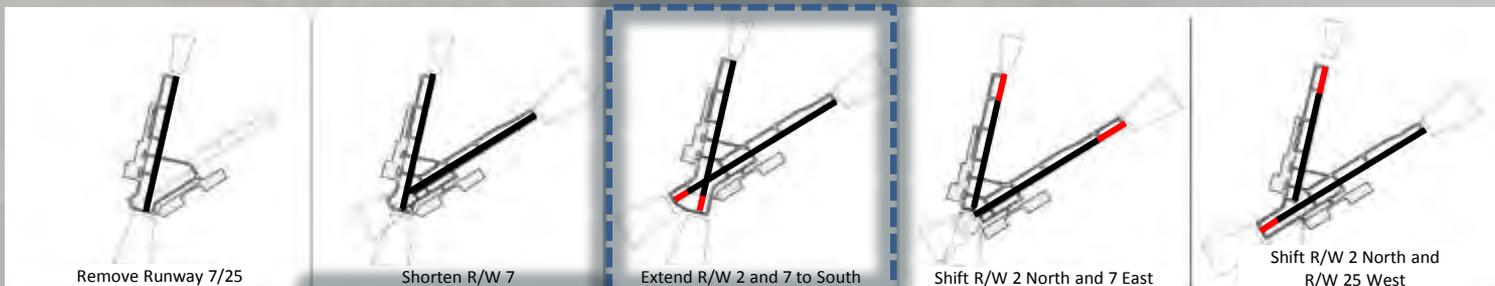
Option 2

Option 3

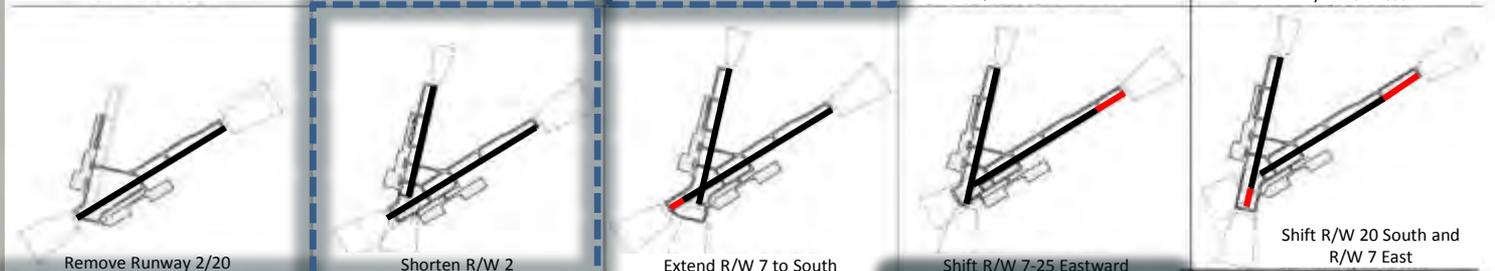
Option 4

Option 5

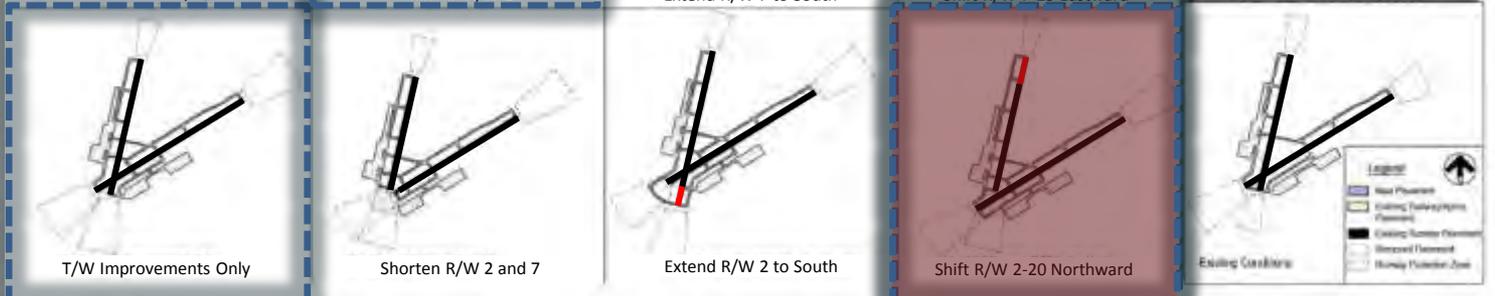
A



B



C



# Shift Was Chosen Due to Previous Master Plan Recommendation To Extend 2-20

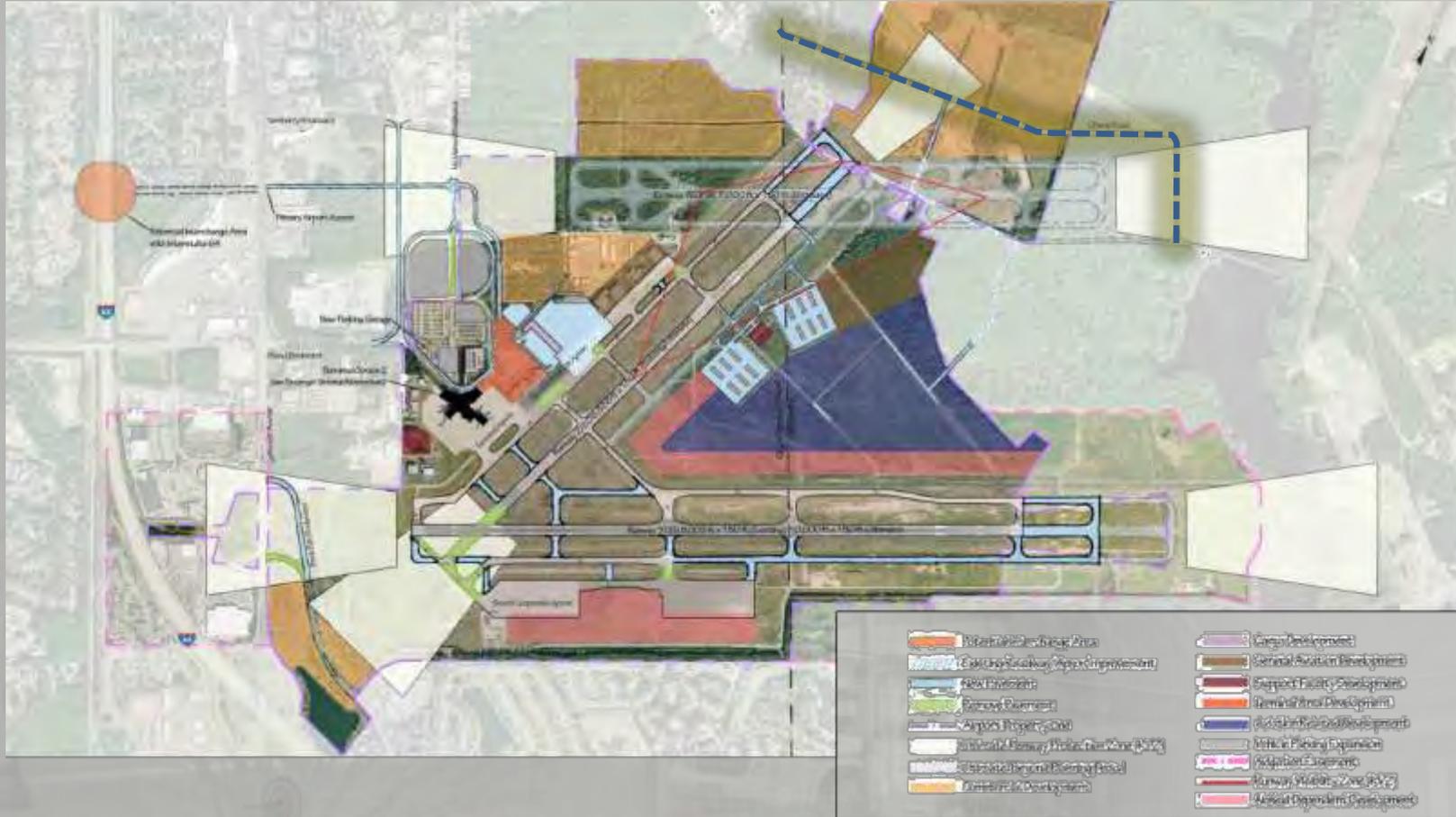
- **Previous Master Plan called for a 1,500-foot extension of Runway 2-20 to a total of 8,000-feet**
- **Current Master Plan includes a “shift” of Runway 2-20 to the northeast and **retains** Runway 2-20 at current length**
- **Current off airport land-use planning already recognized runway extension**
- **Keeping the extension versus impacting existing built environment was deemed safer and more effective use of limited funding dollars**



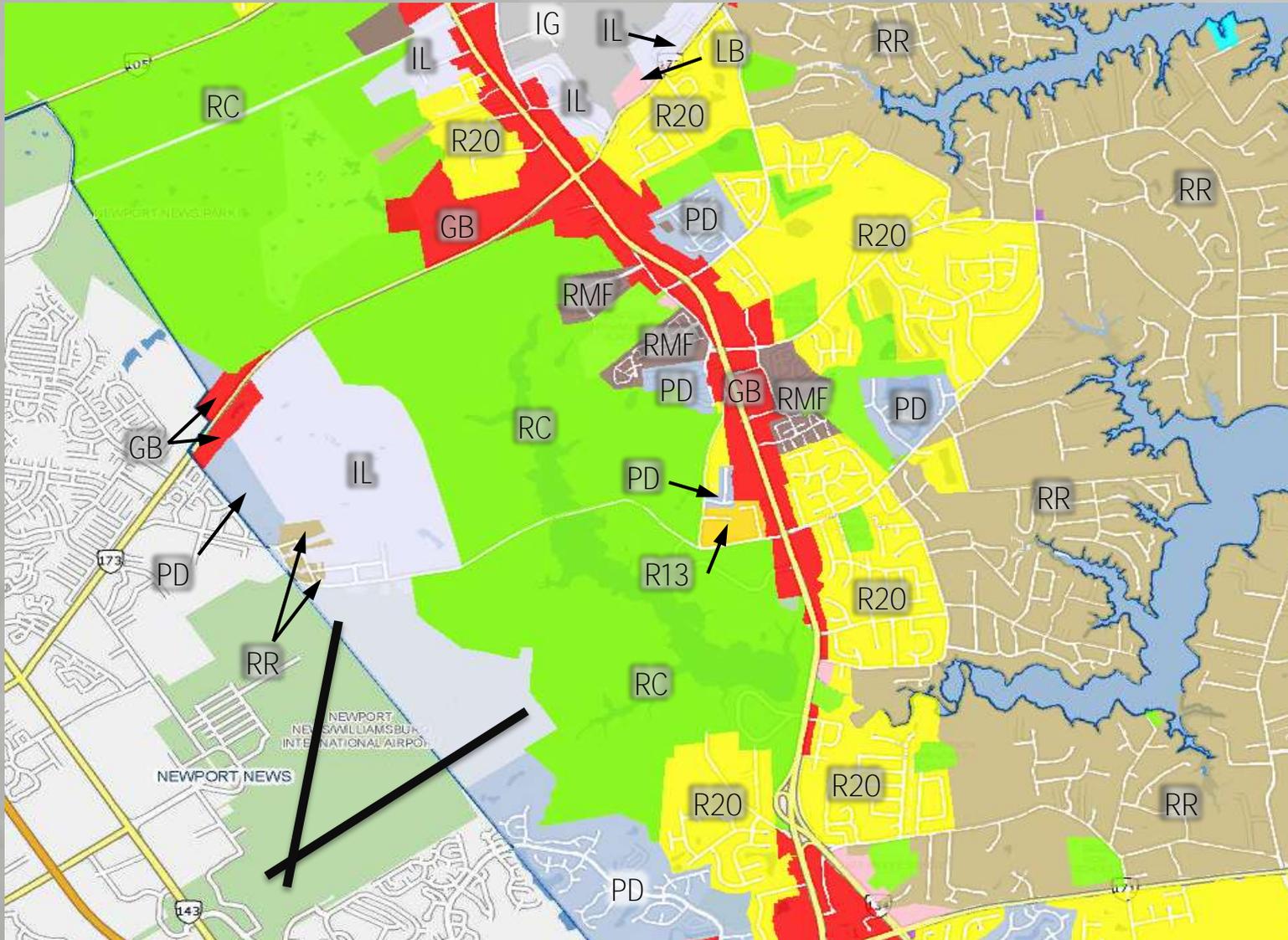
- **The Oriana Road alignment shown in 1996 Master Plan was not acceptable to York County**
- **Current Master Plan used following planning principles:**
  - Attempt to minimize amount of road construction
  - Maintain connectivity with Old Denbigh/Denbigh
  - Utilize existing Harwood Mills Reservoir crossing
  - Adhere to all FAA design standards
- **Proposed alignment meets these criteria, due in large part by shifting 3<sup>rd</sup> runway south and shorting length of runway**



# New Oriana Road Alignment Maintains Connectivity Between US17 and Denbigh



# Land Use Plans Established By York County Recognize Airport Operations



## → Airport Safety Management (ASM) Overlay District codified in §24.1-371

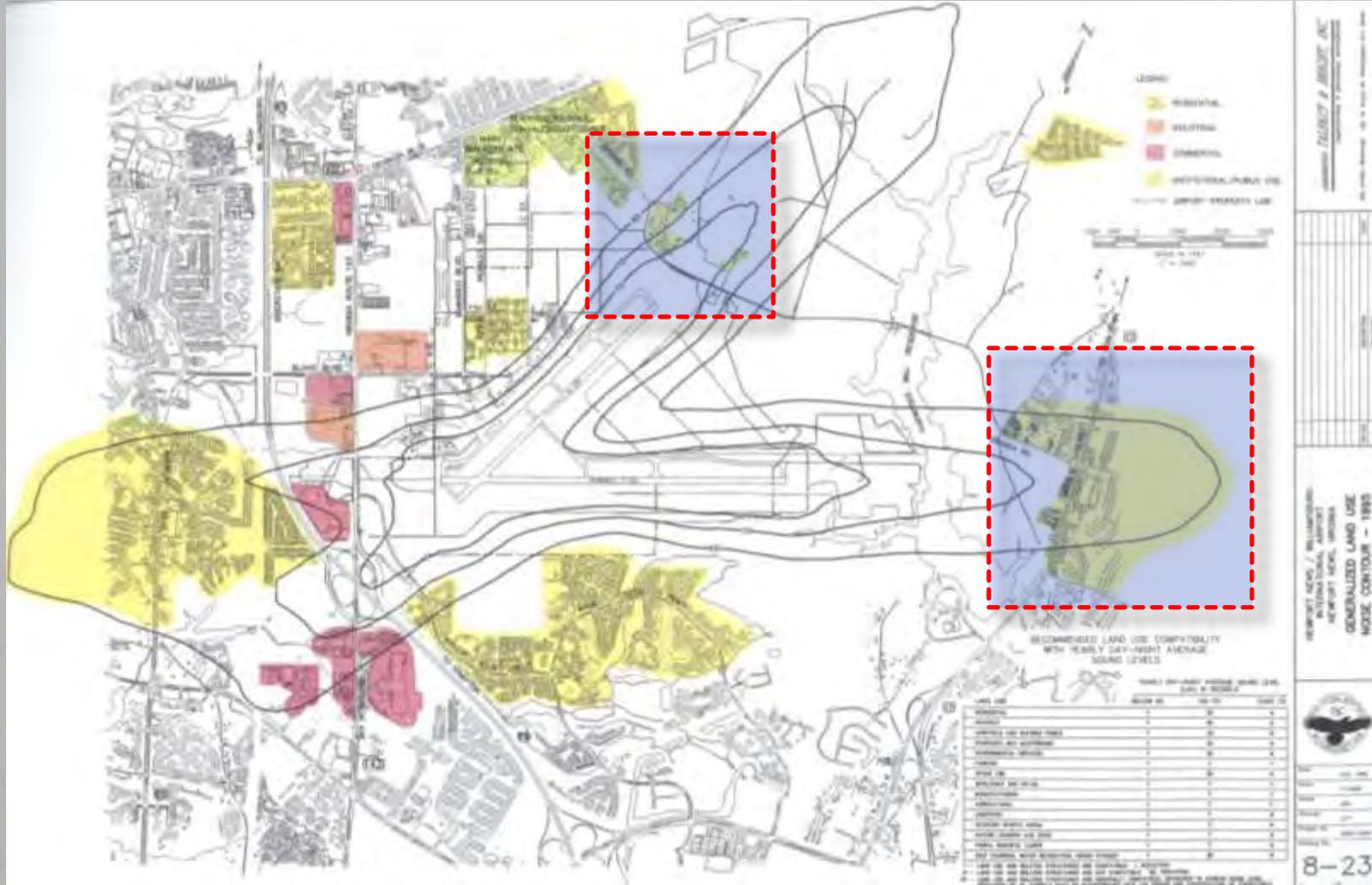
- Protects public health, safety and welfare by limiting the **intensity** (e.g. height) of development
- Does not protect public health, safety and welfare by limiting the **type** of development

## → Some of these districts could lead to incompatible land uses with airport operations

- Educational facilities are permitted uses within the GB district and special uses in the IL district
- Libraries are permitted uses in both the GB and IL district
- Senior housing, nursing homes, assisted living, congregate care, tourist homes etc. as special uses in GB district



# Base Year Noise Contours From 1996 MPU Show Impact to Residential Land Uses in York County



- **Aviation industry has undergone a significant change since last York County Comprehensive Plan and Airport Master Plan efforts**
- **Structural changes will continue for the next few years**
- **Significant airfield improvements continue to be included in plan**
- **Timeframe for these developments continue to be in the long-term development horizon**
- **Airport activity levels will be the trigger for projects, not a preconceived date**



- **Terminal and Landside roadway improvements are also included in the plan, but these do not necessarily impact York County Comprehensive planning**
- **Airport Safety Management Overlay Zone should be re-examined to include prohibition of land-uses that are noise sensitive**
- **York County and the Peninsula Airport Commission should continue to work together to ensure that development objectives for both organizations are achieved**



**THANK YOU**



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