



Air Cargo From an Airport Planning Perspective

Presentation to the MWCOG Transportation Planning Board – Freight Subcommittee
Kevin Clarke

October 21, 2021

Topics

- About MAA & BWI Marshall
- Air cargo demand factors & trends
- Airport facility planning
- Community factors
- Q&A closing



About MDOT MAA & BWI Marshall

MDOT Maryland Aviation Administration

Mission

The Maryland Department of Transportation (MDOT) is a customer-driven leader that delivers safe, sustainable, intelligent, and exceptional transportation solutions in order to **connect our customers to life opportunities**.

Mean


The Maryland Aviation Administration (MAA) **fosters the vitality of aviation statewide** and promotes safe and efficient operations, economic viability and environmental stewardship. Responsible for the operation of Baltimore/Washington International Thurgood Marshall and Martin State airports, the MAA provides friendly, convenient facilities and customer services and develops enhanced domestic and international passenger and cargo opportunities through inter-modalism and state-of-the-art technology.

Vision

Simply stated, our vision is to **'be better'**.

Key Objective

The Maryland aviation system will be the **"Easy Come, Easy Go"** gateway to the world.



Important
planning mantra

The Beginning – Middle Child of the Region



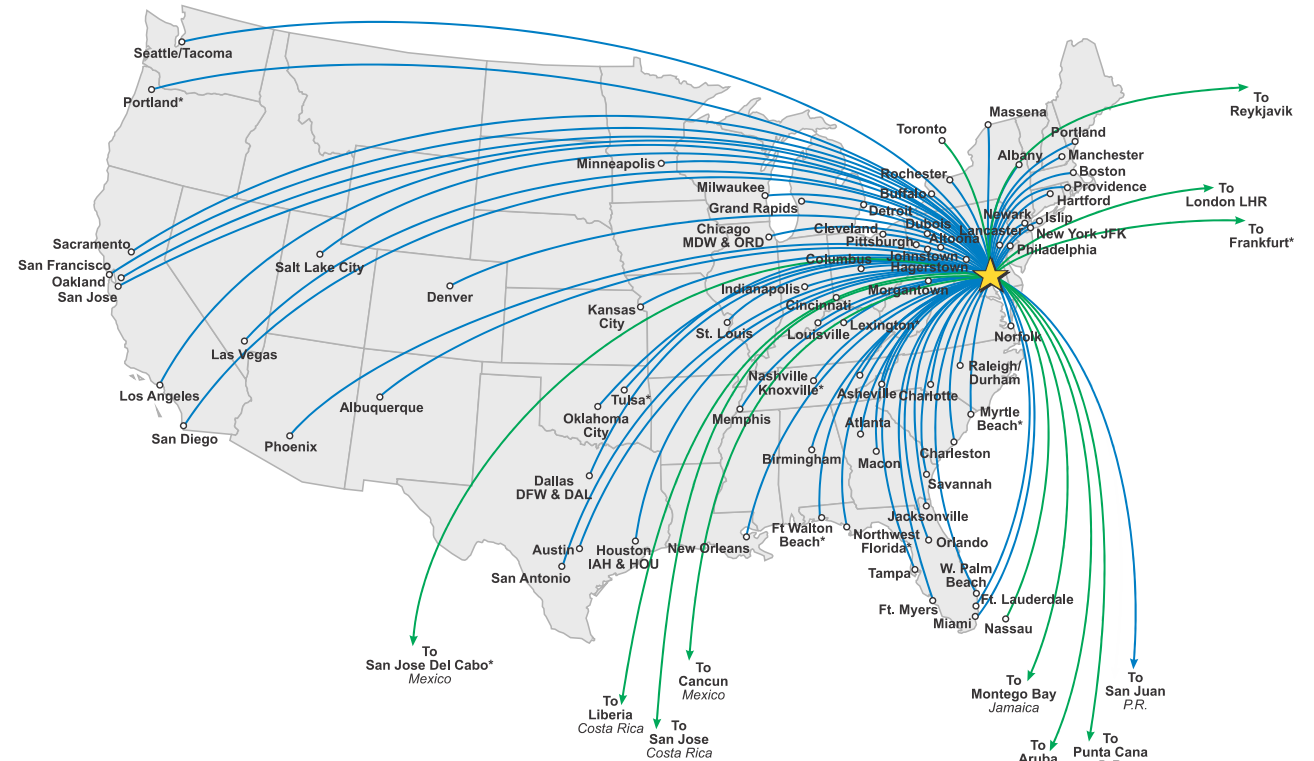
71 years ago, a dedication ceremony took place to commemorate the opening of what was then known as **Friendship International Airport.**

President Truman delivered a speech and 10,000 spectators were on hand for the **June 24, 1950** event.

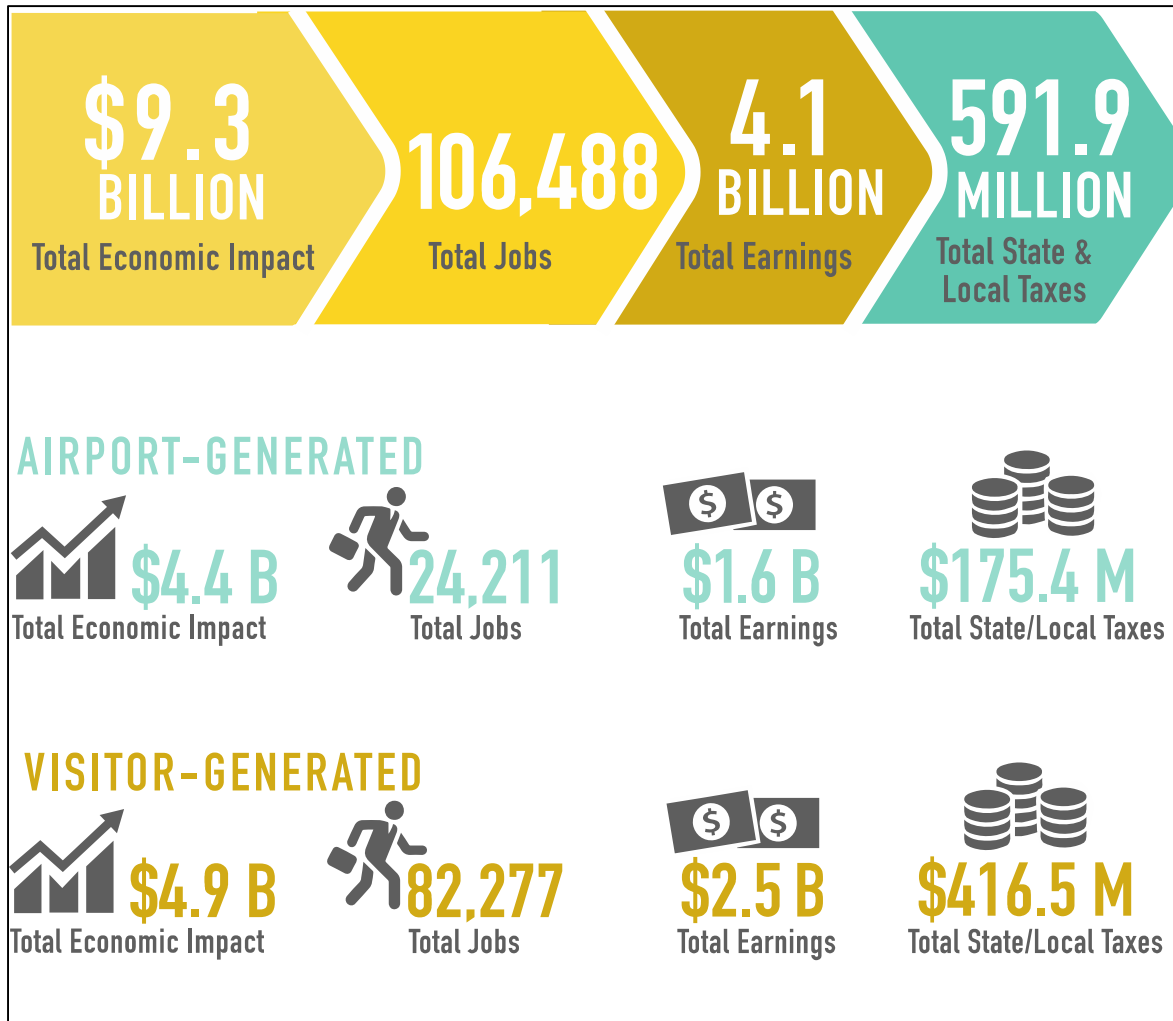
- Washington National opened – 1941
- Dulles International opened – 1962

Baltimore/Washington International Thurgood Marshall Airport

- Busiest airport in the Washington-Baltimore Metro region (enplanements): $\pm 35\%$ market share
- 27 million passengers in 2019
- 22nd busiest U.S. airport
- 262,600 aircraft operations in 2019
- ± 330 daily departures to 90+ domestic and international destinations
- 97 aircraft gates



BWI Marshall Airport – Economic Impact



Source: MDOT MAA, 2018, based on 2017 data

Air Cargo Factors & Trends

Types of Air Cargo



Air Cargo Demand

Logistics managers must justify additional cost for air freight:

- Transportation cost
- Level of service to customer
- Value of material
- Time sensitivity

Products benefiting from air freight:

- Low weight & high value
- Aerospace & automotive equipment & parts
- Documents & banking materials
- Pharmaceuticals
- Jewelry
- Medical equipment
- Textiles
- Electronics
- Perishables

So, what makes an airport attractive to cargo operators?

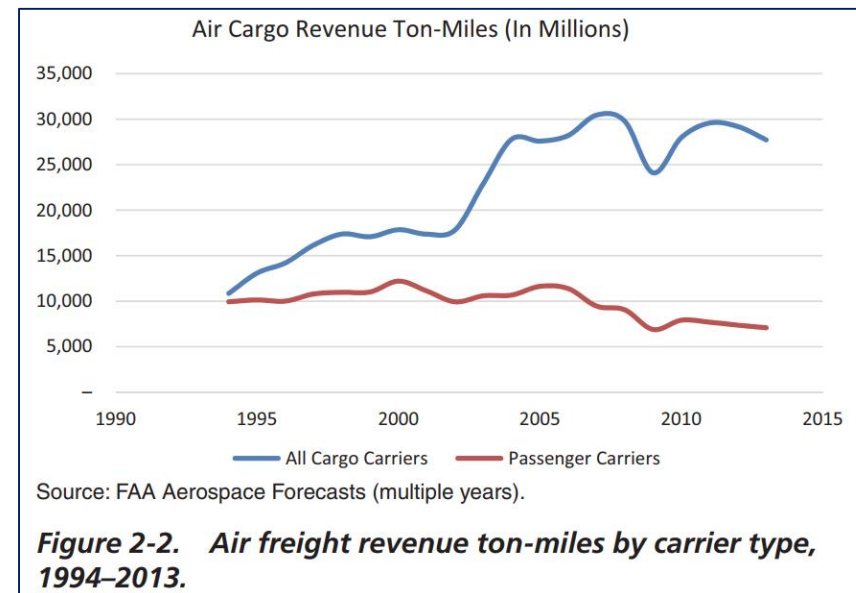
- Location, location, location
- Airfield access & reliability
- Intermodal access
- Airport facilities & capacity
- Local logistics network
- Low operating cost

Easy Come – Easy Go

Air Cargo Trends

What's changed?

- Globalization
- Emerging markets
- Lean supply chain – just in time production & final assembly at destination
- Lower product shelf life (electronics)
- Electronic media, documents & banking
- Integrators focusing on airport hubs and expanded trucking to secondary markets
- Carrier consolidation

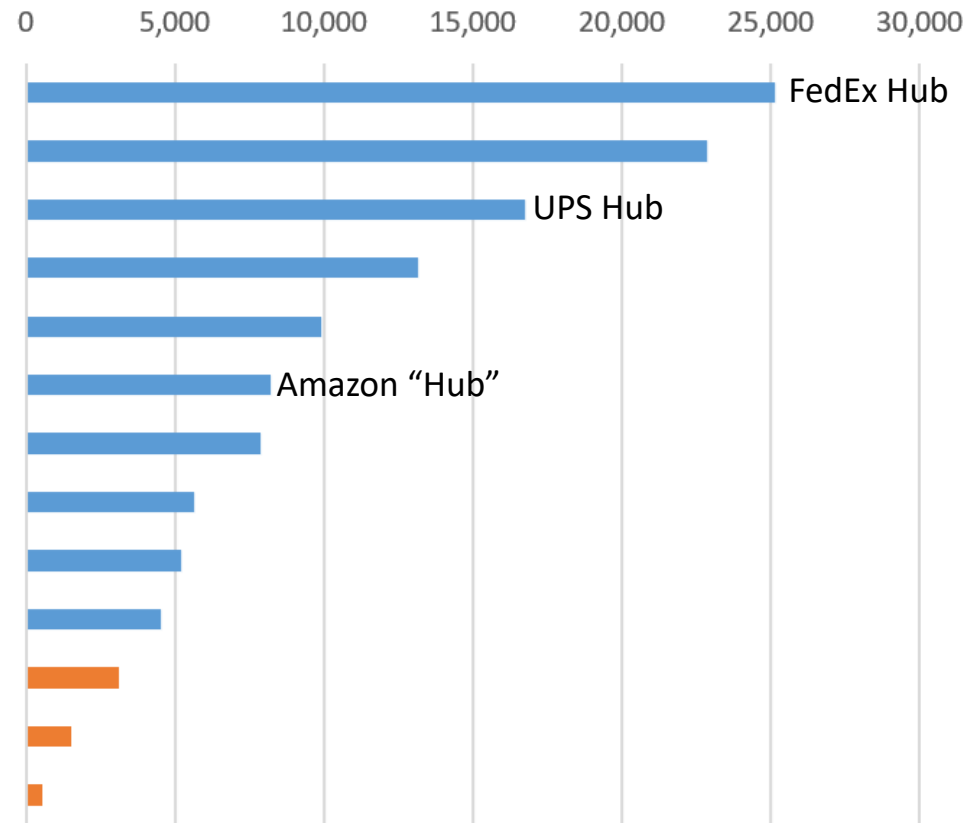


- 1994 passenger and all-cargo carriers handled approximately equal amounts of air freight.
- Since then, freight on all-cargo aircraft has grown 64%, while air freight on passenger carriers has declined.
- Due to increased passenger load factors and reduced domestic widebody aircraft which result in less capacity for freight.
- Freight and mail shifted to the integrated express carriers, and the U.S. Postal Service demand declined.

Source: Guidebook for Air Cargo Facility Planning and Development, ACRP, 2015

Top U.S. Cargo Airports (2020)

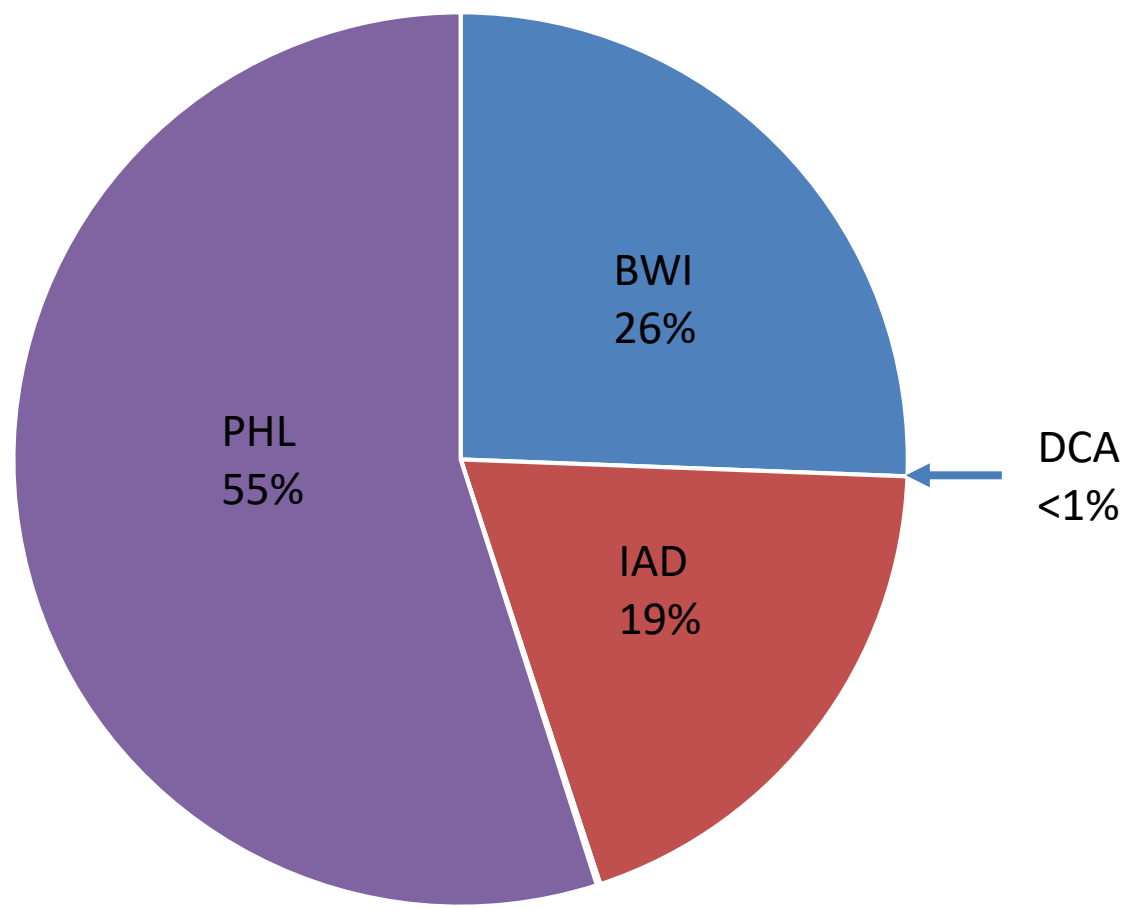
Total Landed Weight - Millions of Pounds



Top 10

Note: total landed weight increased 11% nationally from 2019

Air Cargo Market Share (2020)

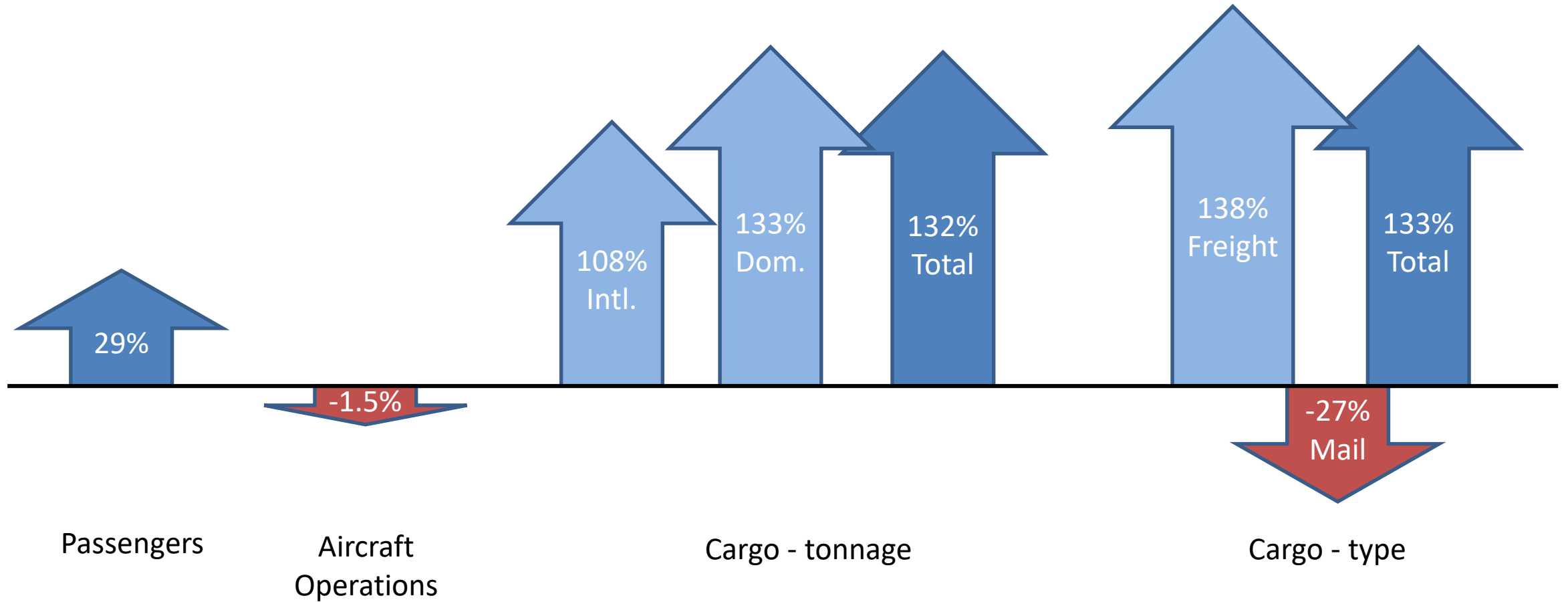


'be better'

Sources: BTS, T-100 Data & FAA TAF

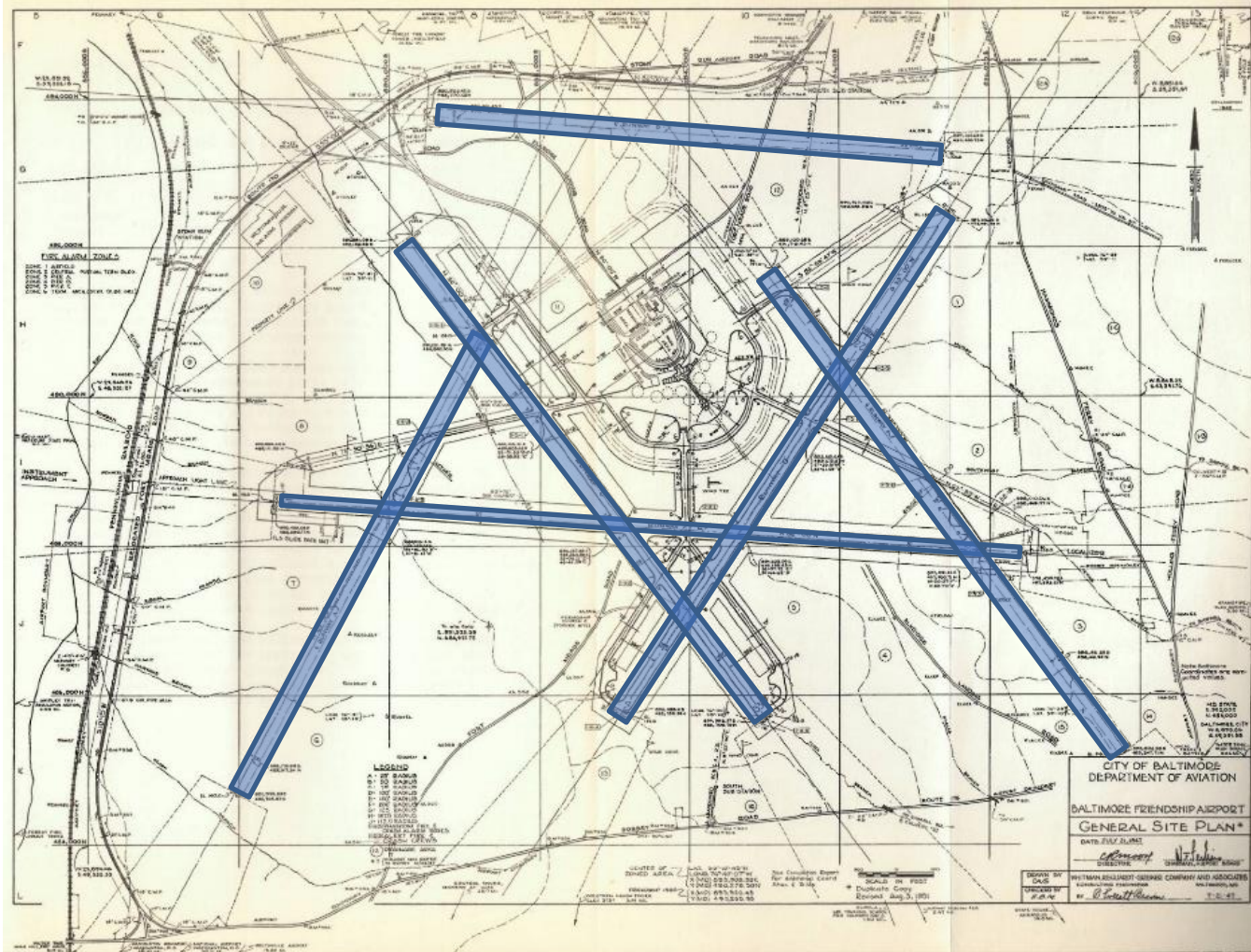


BWI Activity Levels (2009-2019)



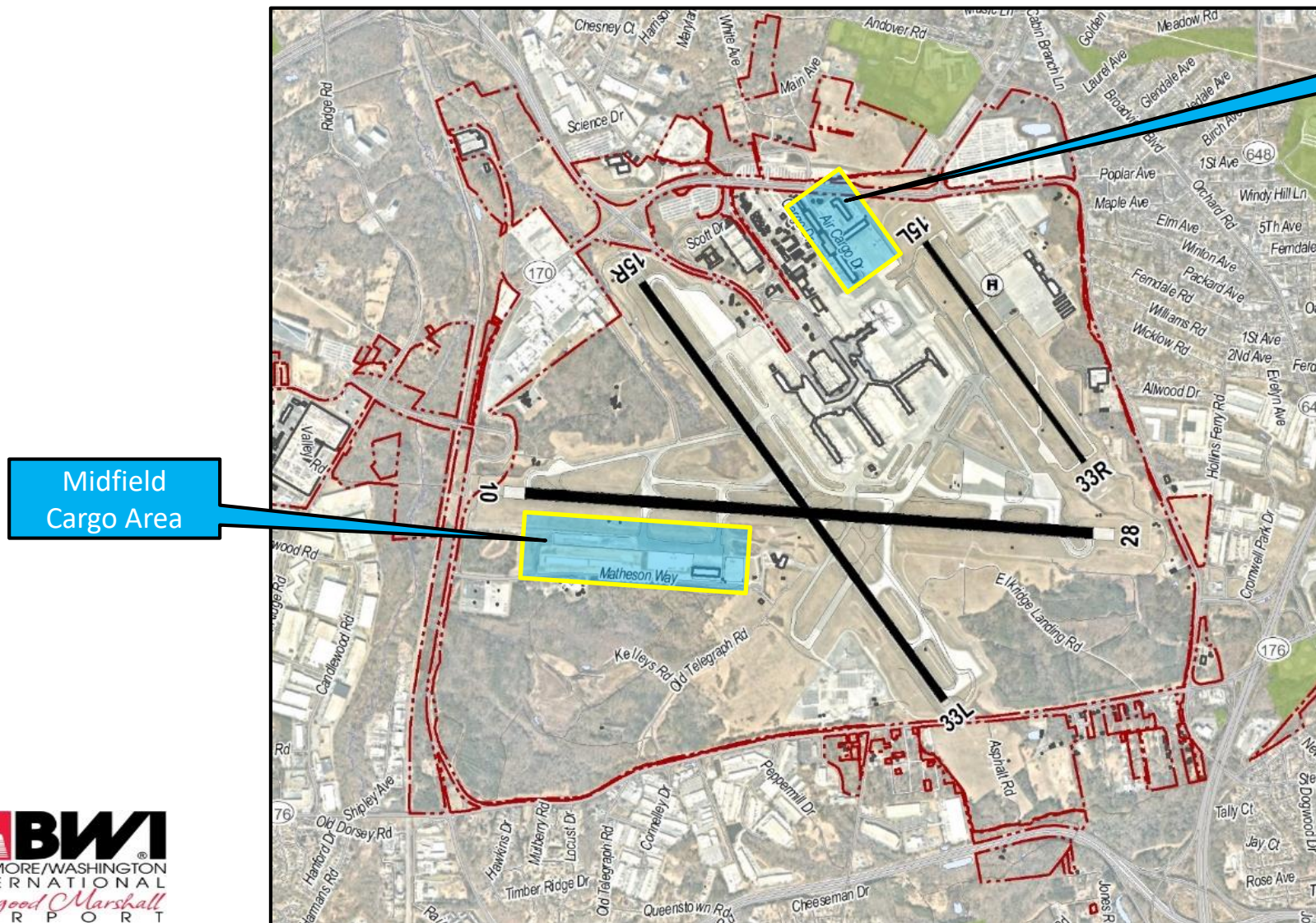
Airport Facility Planning

Original 1947 Airport Layout Plan



Friendship International
1950

BWI Marshall Today

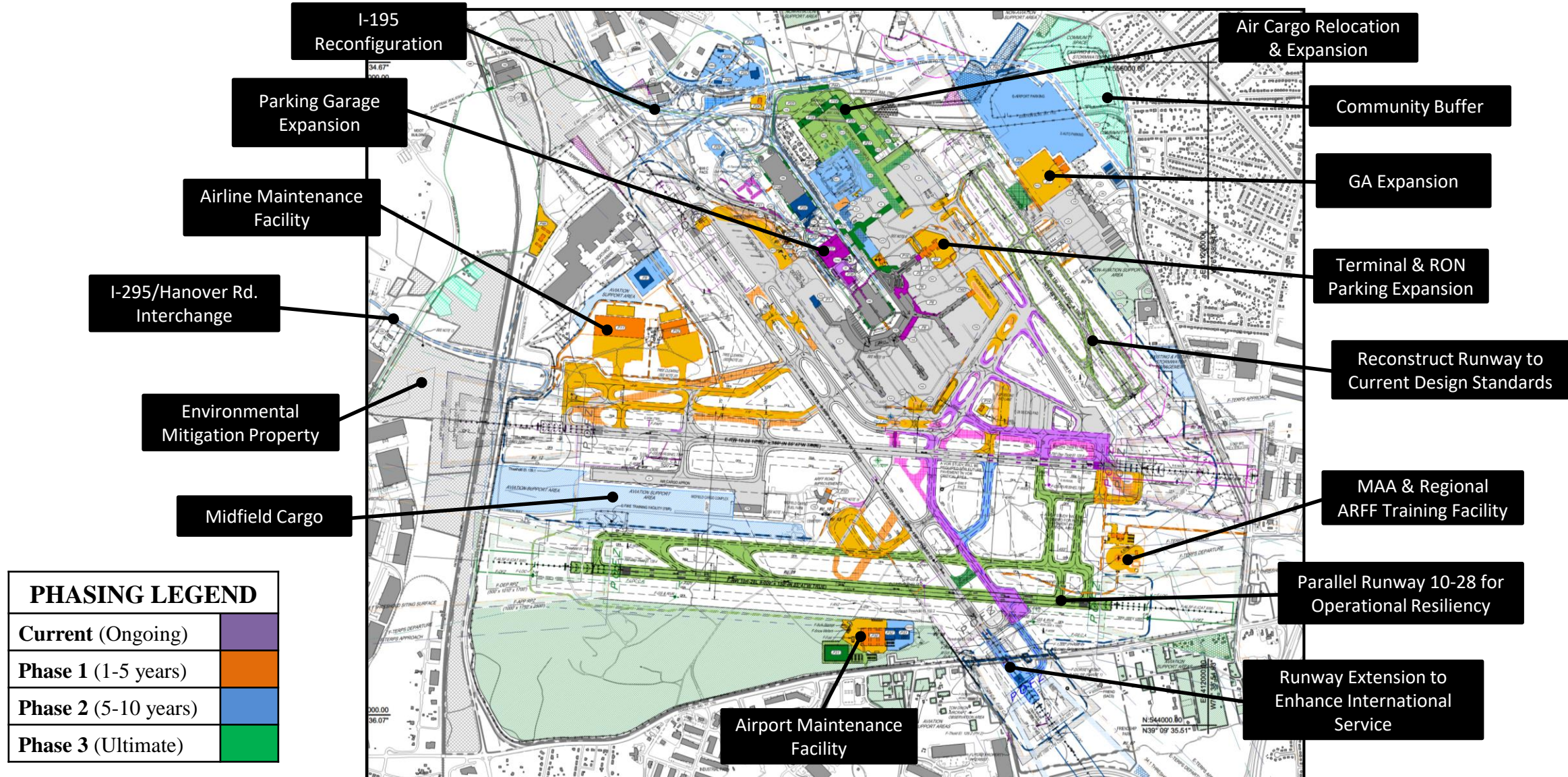


North Cargo
Area

Midfield
Cargo Area

- ±3,800 acres
- 2M+ sf Terminal
- 2 Commercial Service Runways
- 1 General Aviation Runway

Current Airport Layout Plan (ALP)



I-195 Reconfiguration

Parking Garage Expansion

Airline Maintenance Facility

I-295/Hanover Rd. Interchange

Environmental Mitigation Property

Midfield Cargo

Air Cargo Relocation & Expansion

Community Buffer

GA Expansion

Terminal & RON Parking Expansion

Reconstruct Runway to Current Design Standards

MAA & Regional ARFF Training Facility

Parallel Runway 10-28 for Operational Resiliency

Runway Extension to Enhance International Service

Airport Maintenance Facility

Midfield Cargo Expansion



- Opened October 2019
- New 200,000 square foot Cargo Building
- Rehabilitated taxiways and new runway connector
- Mathison Way improvements
- Expanded local bus service to site
- ±1,500 new jobs to the region



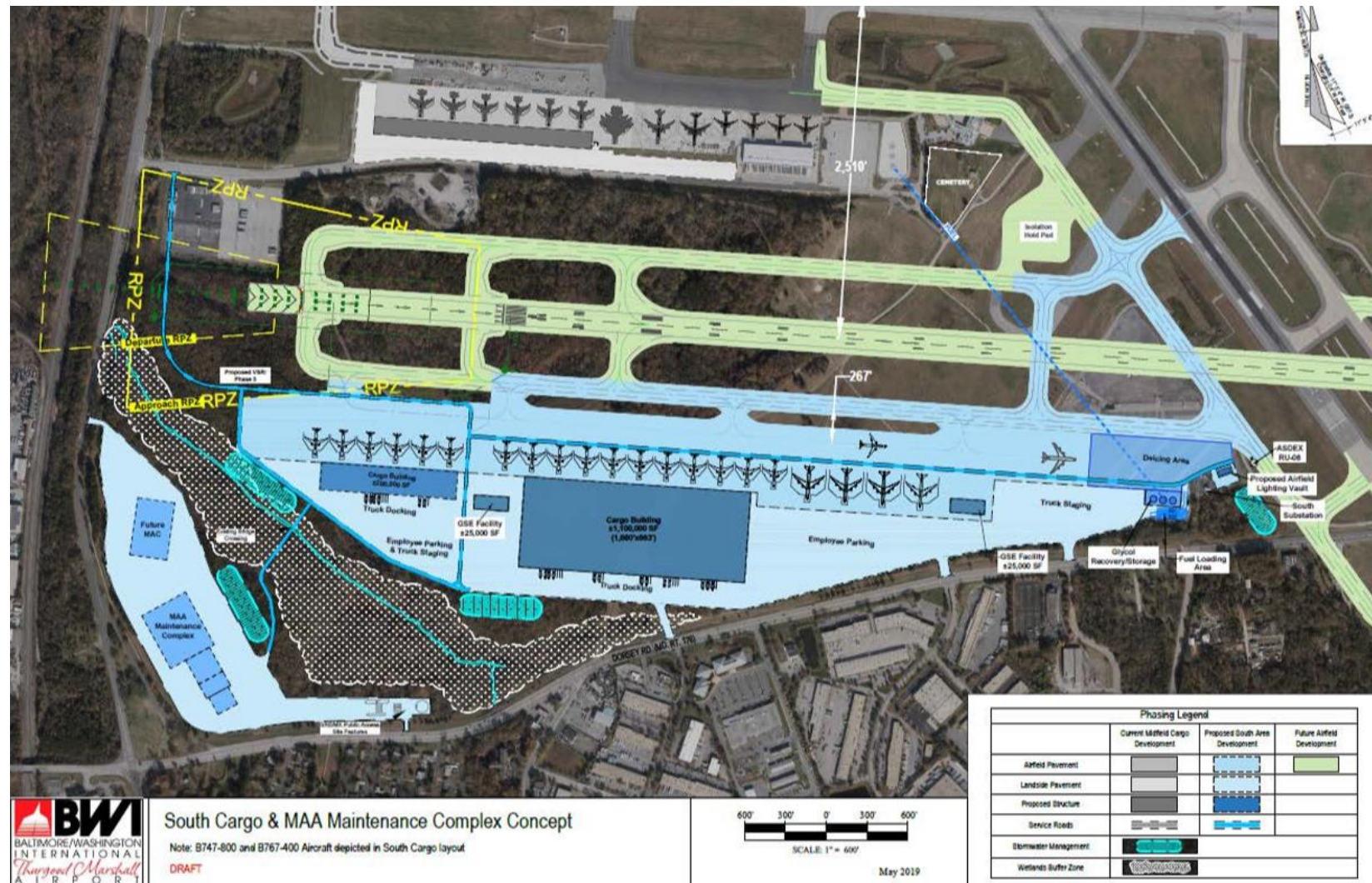
“Amazon’s Baltimore location is one of the top 5 busiest Amazon Air facilities in the world.”

(WJZ-13, 6/8/21)



Southwest Quadrant Development Concept

- 400-500 acre site
- Preserve capability for future parallel runway
- Utility spine for flexible pad site development
- Mixed commercial, aviation and support uses
- Environmental protection components
- Currently in planning phase



Breaking News

Bloomberg

Technology

Amazon Seeks Used Long-Range Cargo Jets Able to Fly From China

By [Matt Day](#) and [Julie Johnsson](#)

October 13, 2021, 12:49 PM EDT *Updated on October 13, 2021, 1:05 PM EDT*

- ▶ Company plans to acquire converted 777 and A330-300 aircraft
- ▶ Potential plane deal could ratchet up rivalry with UPS, FedEx

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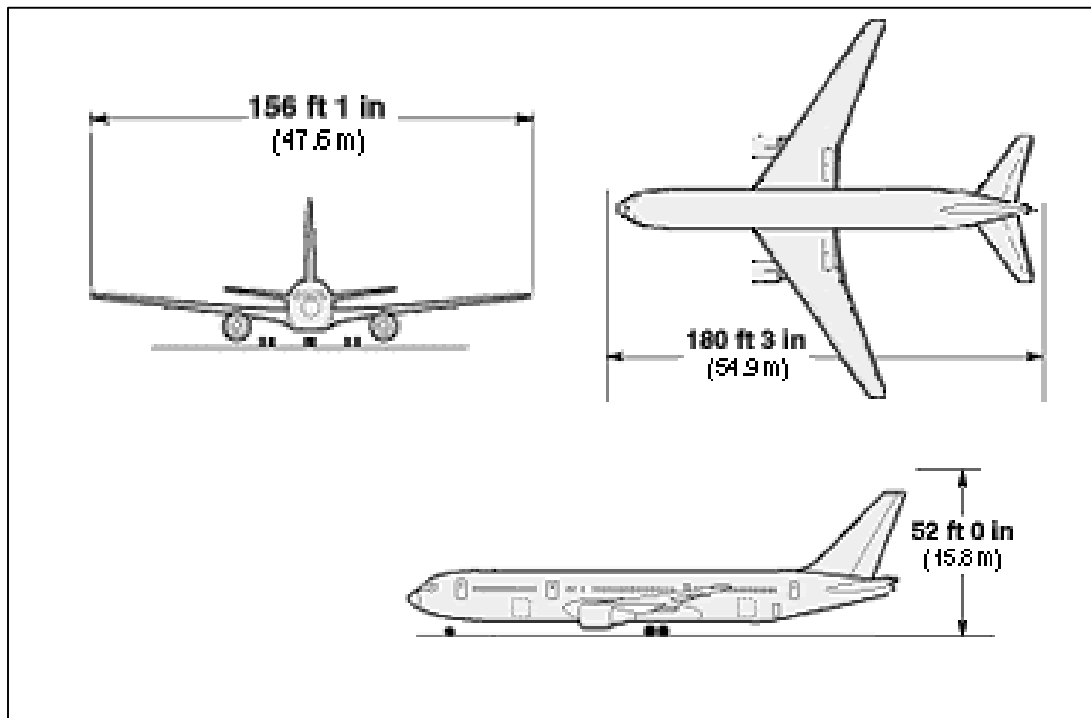


synchrony

**HELPING
SMALL STAY
STRONG**

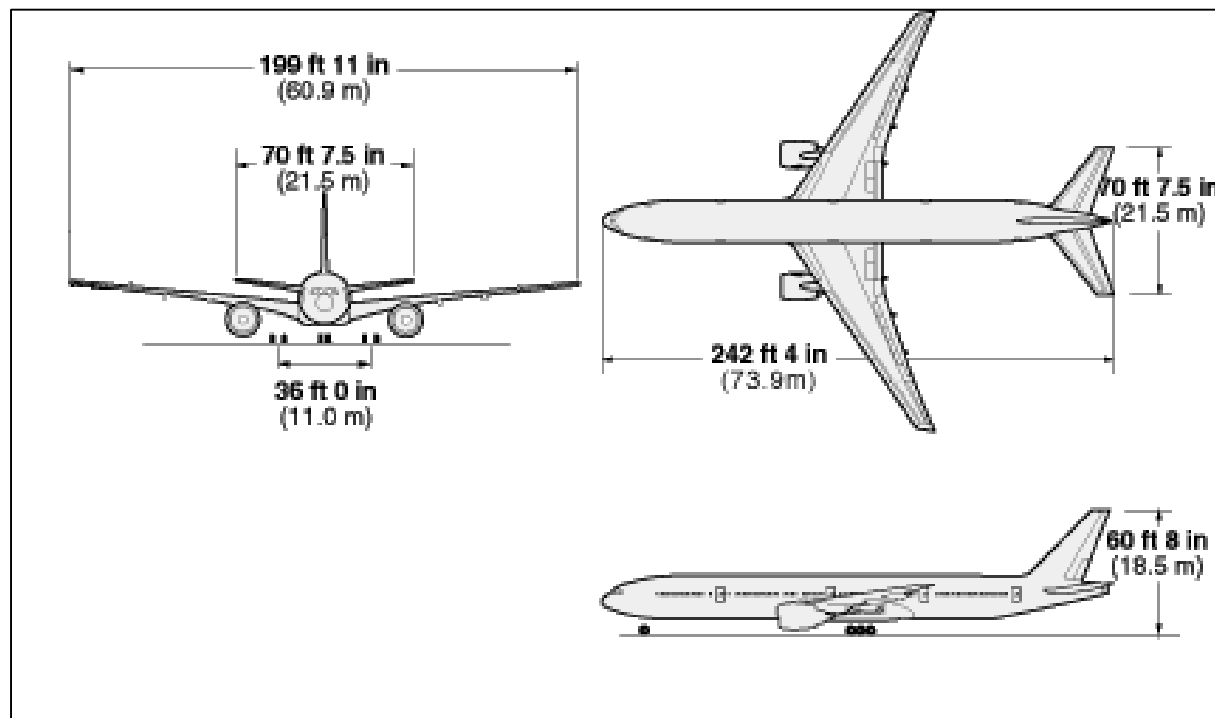
Aircraft Size

B767-300ER



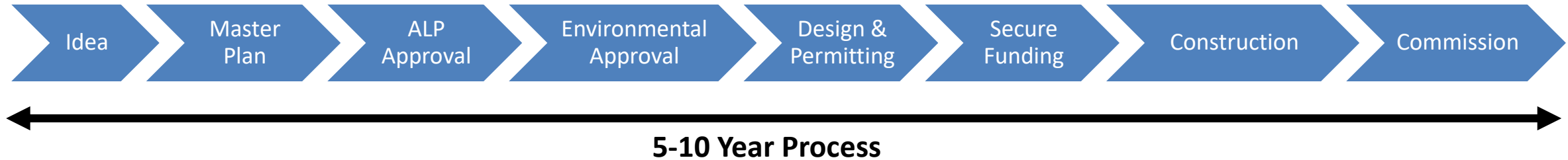
FAA Design Group: D-IV
Taxiway Design Group: 5

B777-300



FAA Design Group: D-V
Taxiway Design Group: 6

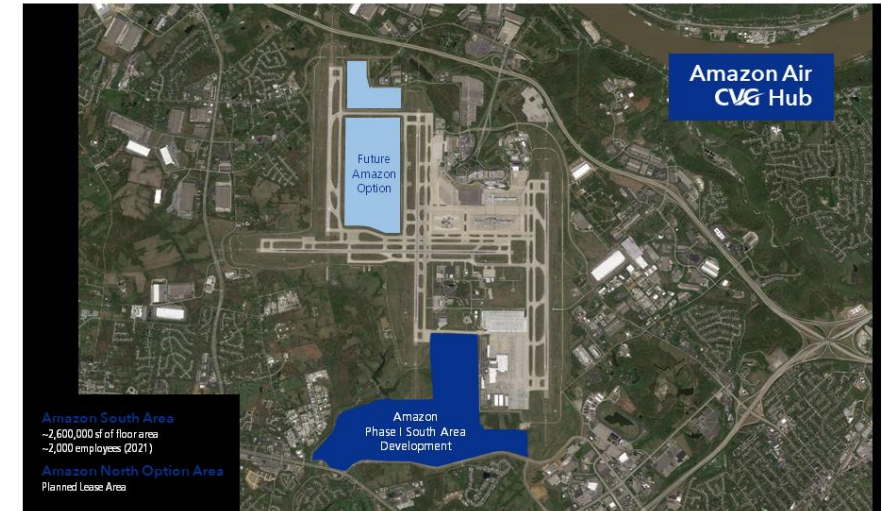
Airport Development Process



- Airports have FAA Obligations
- Political and community forces in play
- NEPA environmental approvals can be lengthy
- Environmental mitigation can be costly and hard to find
- Premium cost for construction in airport environment

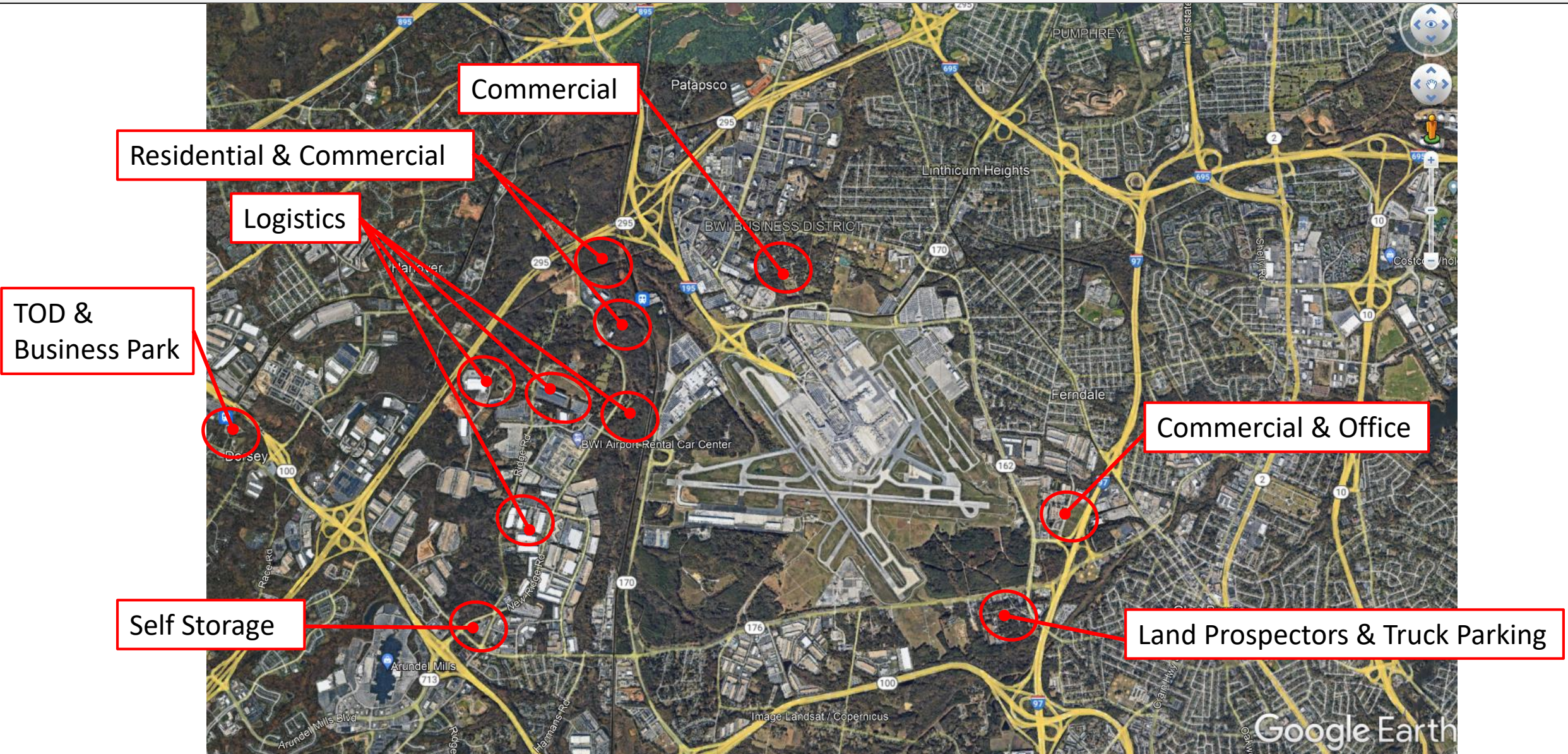
A Cautionary Success Story

- 2003 DHL buys Airborne Express and expands hub at Wilmington Air Park, OH
- 2008 DHL sells domestic service to rival UPS
 - ±8,000 jobs lost at Wilmington
- 2009 DHL moves international service to Cincinnati/Northern Kentucky
 - To date invested \$280M, employs 3,000+ people
- 2017 Amazon starts operating at Cincinnati/Northern Kentucky
 - 2019 Amazon starts construction on 650-acre Phs-1 facility
- 2019 Amazon opens 1,900-acre facility at Wilmington Air Park (in previous DHL facility)

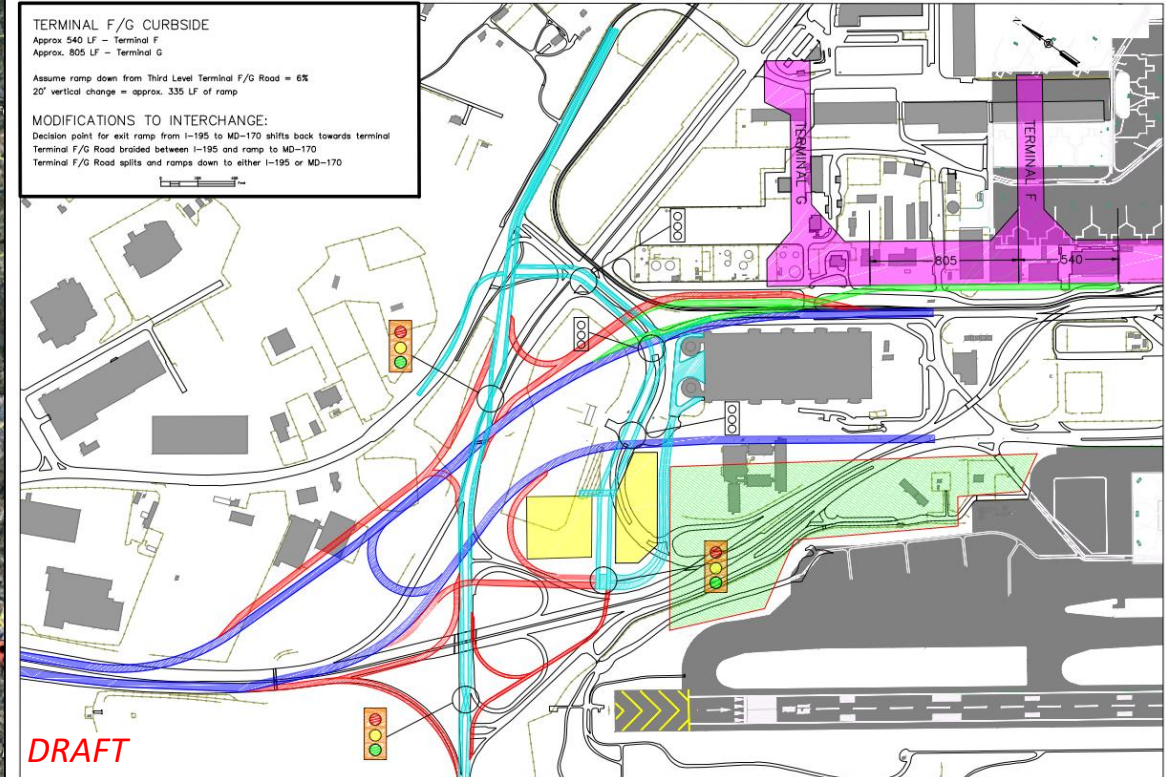


Community Factors

Local Development



Ground Transportation Center & Roadway Improvements



Concept Approach Road & Interchange Improvements

BWI ANZ Update

2020 ANZ

- 5,543 acres
- 2020 ANZ is 23% larger than 2014 ANZ
- 53% on MAA property
- Changes attributable to:
 - Increasing aircraft operations
 - Increasing % of nighttime operations
 - Changes in the aircraft fleet mix
 - Anticipated increases in maintenance runups
 - Updated flight track planning for future Runway 10R/28L
 - Noise model updates



Comparison of 2020 ANZ to 2014 ANZ

| | | | |
|--|------------------------------|--|----------------------------|
| | 2020 ANZ Contours | | 2014 ANZ Contours |
| | MDOT MAA Property Boundary | | Runup Locations |
| | Helicopter Operation Area | | Runway |
| | Airport Buildings | | Airport Pavement Edge |
| | County Boundary | | Roads |
| | Railroad | | Stream / Creek |
| | Residential Use | | Military Use |
| | Multi-Family Residential Use | | Commercial Use |
| | Mobile Home | | Manufacturing / Production |
| | Transient Lodging | | Vacant / Undeveloped |
| | Mixed Use | | Recreational / Open Space |
| | Public Use (Non-Compatible) | | Golf |
| | Public Use (Compatible) | | Transportation / Utility |
| | Water | | School |
| | School | | Library |
| | Place of Worship | | Hospital / Health Care |
| | Nursing / Assisted Living | | Historic Place (NRHP) |

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Maryland Aviation Administration
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About
Baltimore/Washington International Thurgood Marshall Airport is the 22nd busiest airport in the United States, and the busiest in the Washington-Baltimore region. BWI Marshall Airport was recognized as Best Airport in North America by Airports Council International World (ACI World) for 2020. In 2019, BWI Marshall Airport served approximately 27...
see more

Verizon 3:12 PM 92%

bwi_airport

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#BitesAtBWI Baltimore Orioles Southwest Airlines 2019 BWI Thurgood Marshall Summer Youth Initiative 2019

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Syracuse, NY

A brand new destination for BWI Marshall Airport travelers!

@SouthwestAir just announced daily nonstop service to @SyracuseAirport beginning November 14. More info at bit.ly/SouthwestBWito...
#SceneAtBWI #MDOTscenes #Open4BizMD #travel #airports

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Newly Updated Websites

www.marylandaviation.com

The screenshot shows the Maryland.gov website for the Maryland Aviation Administration. The header includes the Maryland.gov logo, a search bar, and navigation links for Home, About MAA, Doing Business With MAA, Environmental, Tenants, Permits & Forms, Fire & Rescue, COMAR Regulations, and Careers. The main content area features the MAA logo and the text "MARYLAND AVIATION ADMINISTRATION". Below this, there is a section titled "About MAA" with a sub-section "Maryland Aviation Administration's Mission" and "Maryland Aviation Administration's Vision". A sidebar on the right lists "About the MAA" with a list of leadership names and "MAA Commission".

www.bwiairport.com

The screenshot shows the BWI Airport website. The header includes the BWI logo and navigation links for To & From BWI, At BWI, and Flying With Us. A prominent banner for the "COVID-19 Medical Care/Treatment" is displayed, featuring the text "+FirstCall MEDICAL CENTER URGENT CARE - LABS - X-RAYS & DIAGNOSTIC at BWI Marshall Airport". A "MAKE AN APPOINTMENT" button is visible. Below the banner, there are navigation links for Flight Status, Parking, Transportation, COVID-19, Food & Drink, and Terminal Maps.



THANK YOU

QUESTIONS /
DISCUSSION