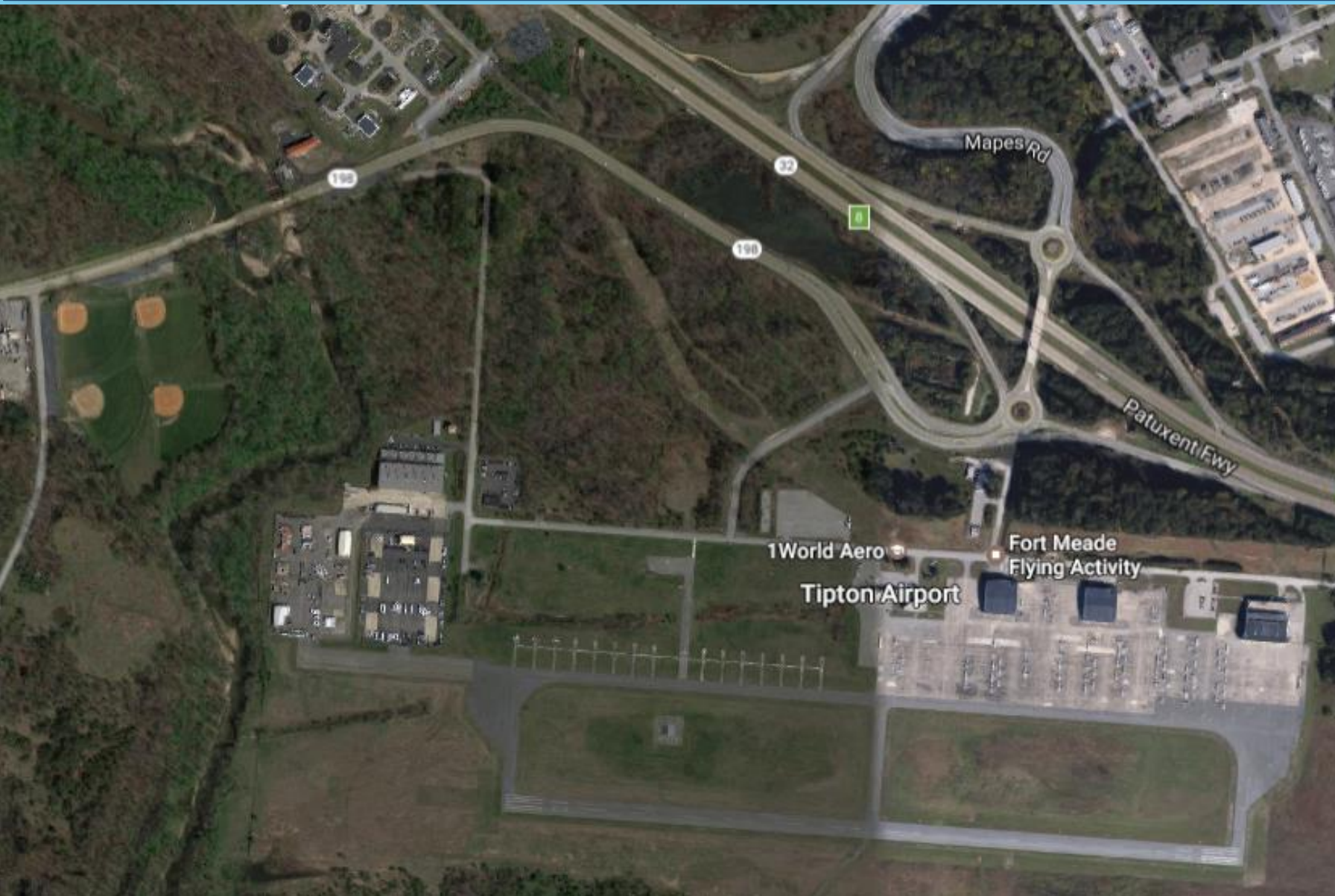




The Future of Tipton Airport in Anne Arundel County



Analysis for Tipton Airport Authority

Anne Arundel County, Maryland

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Agenda

- Questions addressed
- Master Plan Projections vs Reality
- What changed?
- General Aviation Outlook
- Revised Projections
- Tipton & Competing Airports
- Implications for the Future



Questions addressed





Questions addressed

- With expansion of runway, what is the feasibility of expanding services at the airport?
- What are the factors that will help increase air traffic?



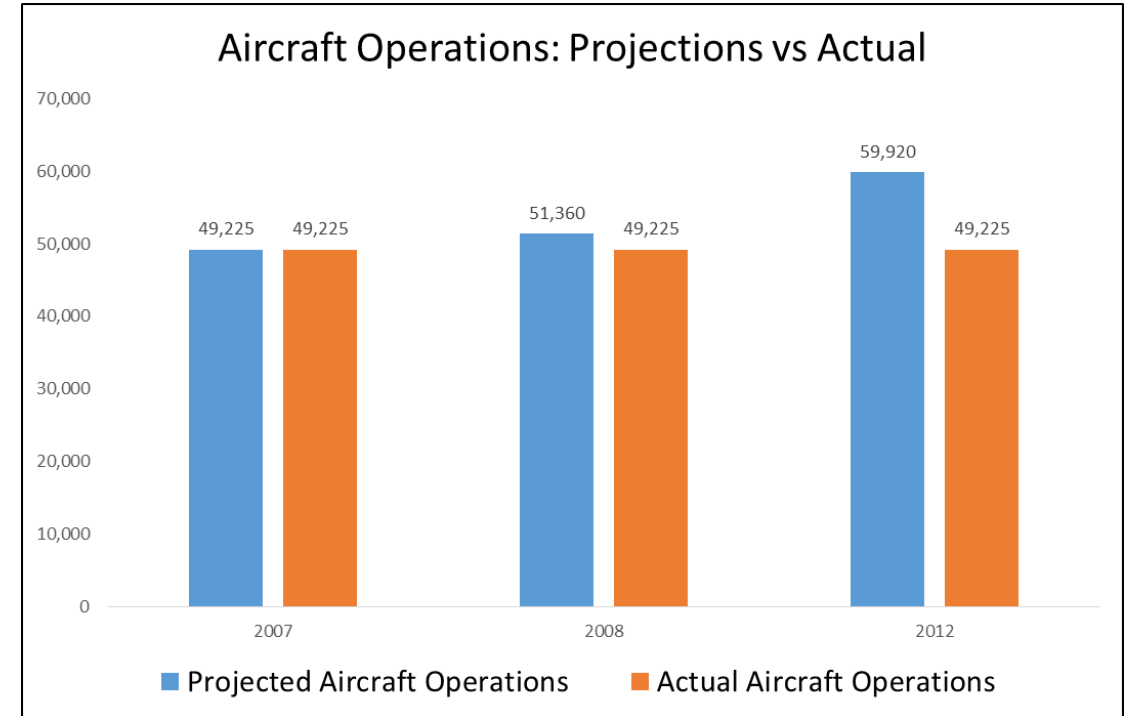
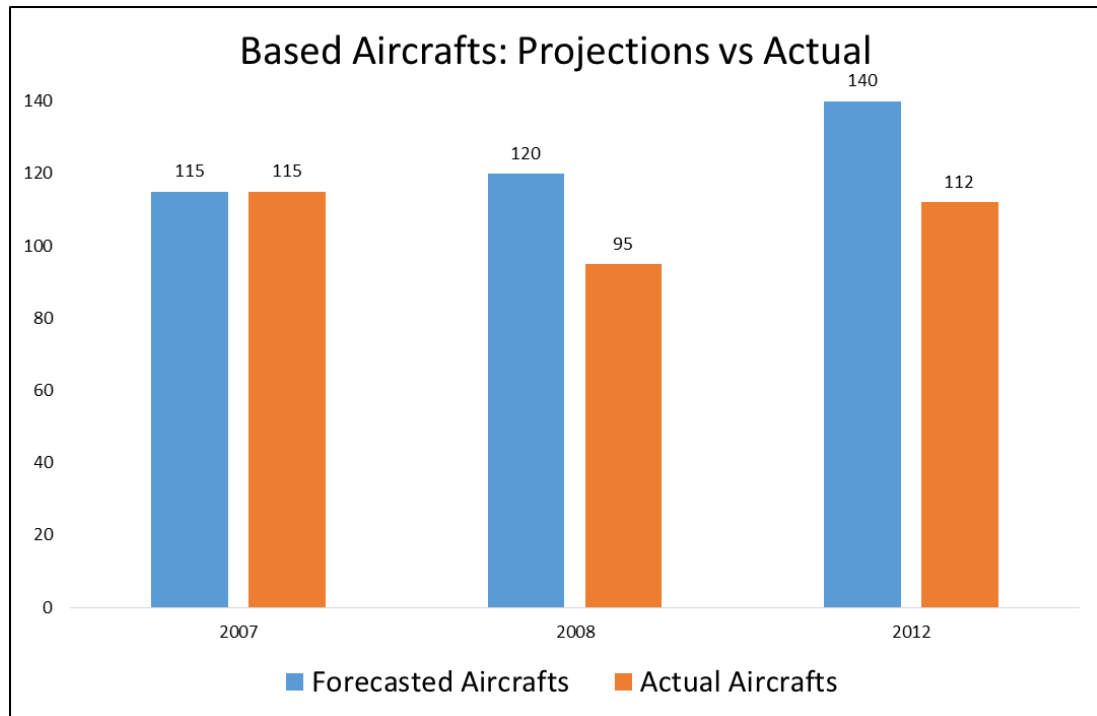
Projections vs Reality





Projection VS Reality

- The Master Plan projected based aircraft to grow from 115 in 2007 to 215 (2007) and aircraft operations to increase from 49,225 in 2007 to 92,020 (2027), an increase of 87%. In reality, aircraft decreased by 17% in 2008 and aircraft operations remained around 49,225 from 2007 to 2012.





What Changed?

- Forecasting done in 2008 prior to the national economic recession
- General aviation activity was affected by increase fuel prices, public anxiety, increased security procedures at airports, and tighter regulation of air space



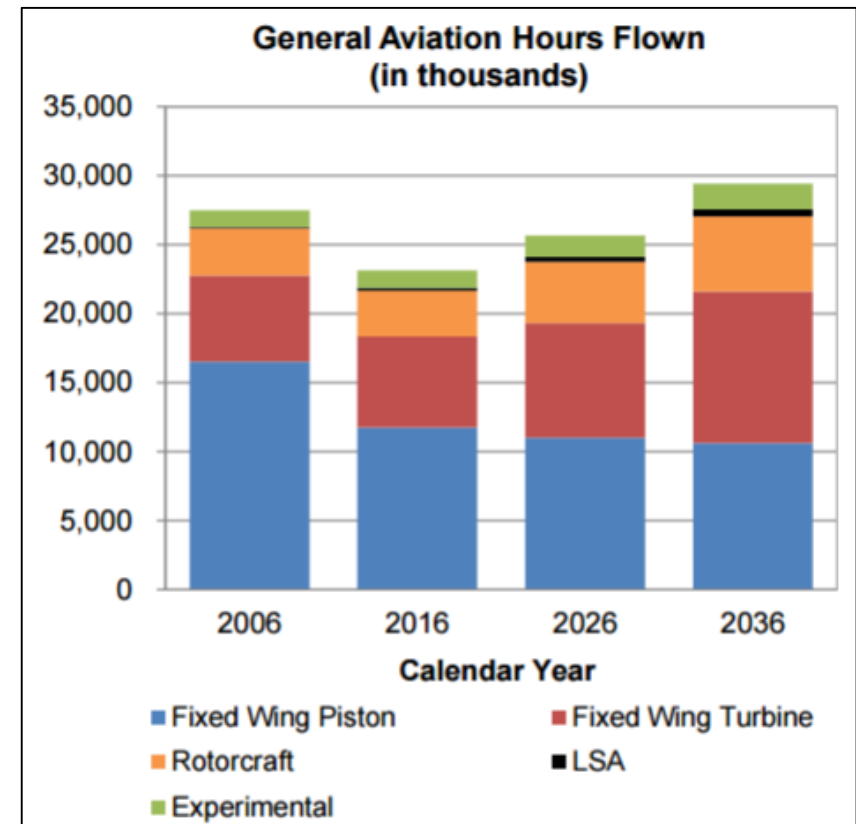
Future Trends in General Aviation





Where is General Aviation headed?

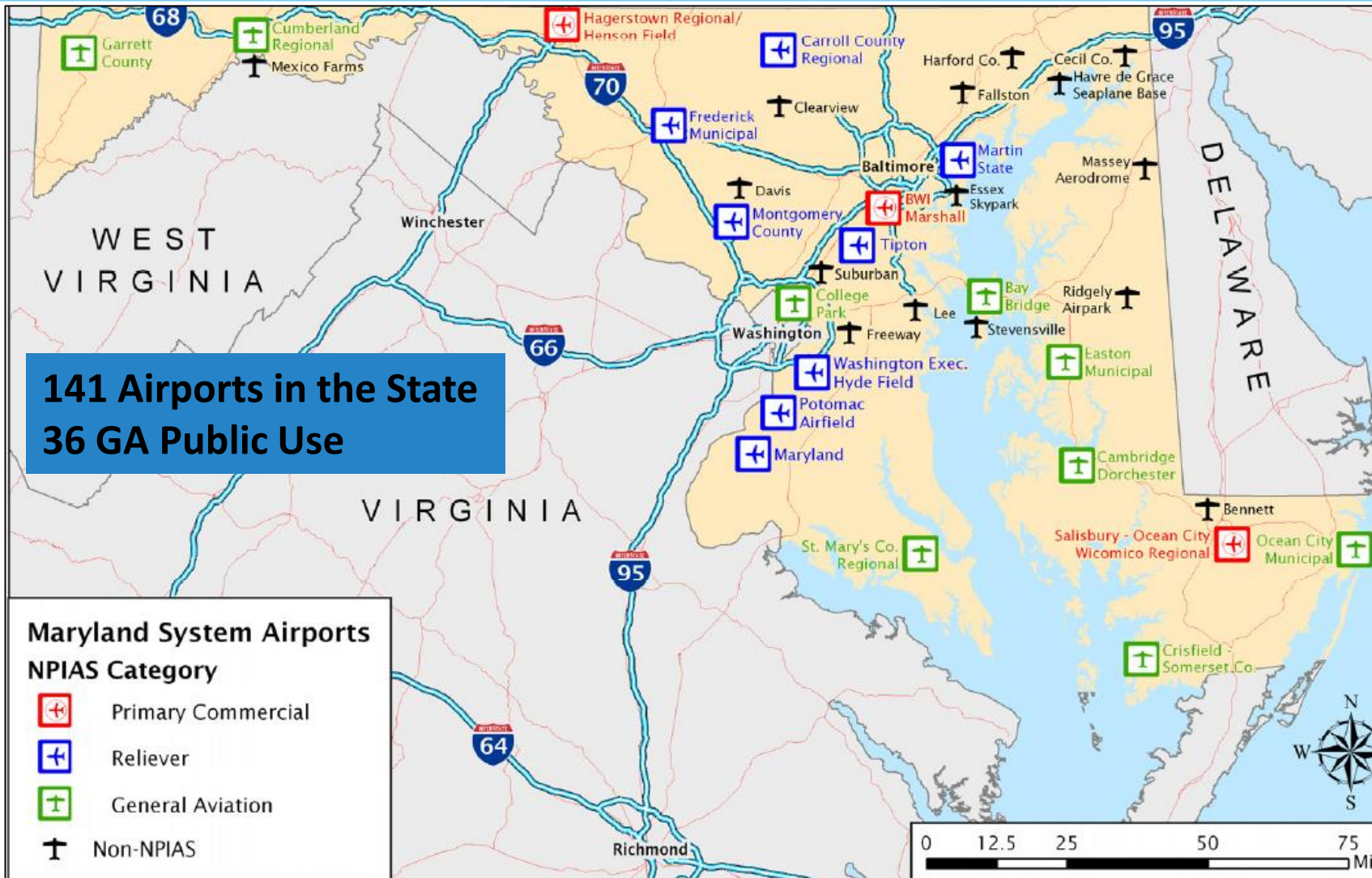
- 37% Decrease in gasoline prices since 2012
- Increase of 65% in student pilots 2009 - 2010 because of federal reg. changes
- Active GA fleet and operations projected to increase at an average annual rate of 0.2% through 2036
- GA hours flown projected to increase by an average of 1.2% per year through 2036 with changes in aircraft mix



Source: Federal Aviation Administration, "Aviation Forecast", 2016



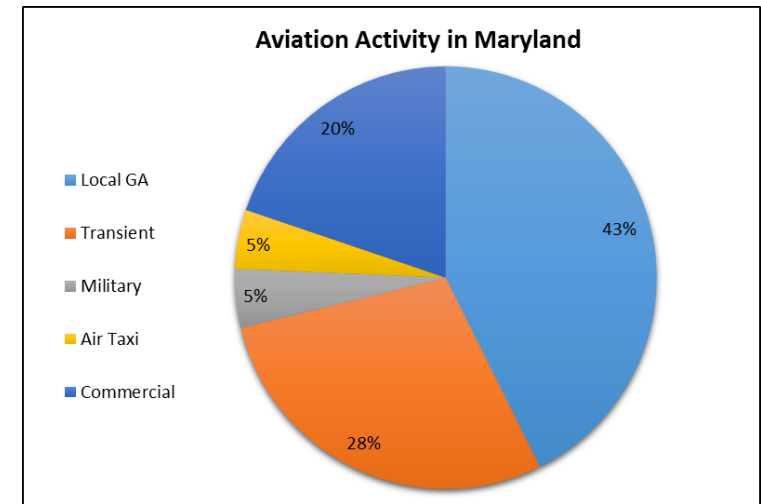
Maryland System Airports



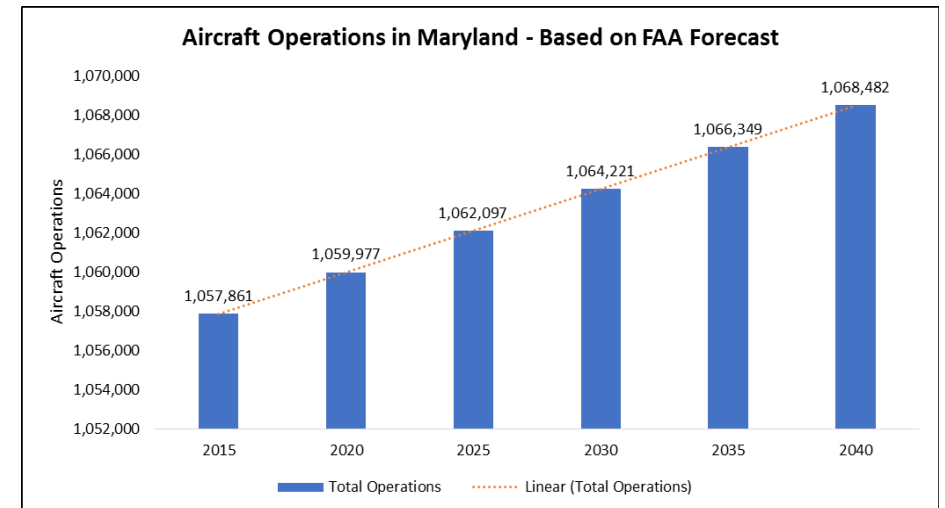


General Aviation Trends in Maryland

- Airports categorized into Air Carrier, Reliever, GA, Local, Special Facility
- As of 2015, the total aircraft operations was 1,058,861, of which Tipton's share was 5%
- With 0.2% average annual growth rate the total operations in Maryland will increase to 1,068,482 by 2040



Source: Federal Aviation Administration



Source: Federal Aviation Administration



Forecast for Aviation Activity at Tipton Airport





Revised Projections

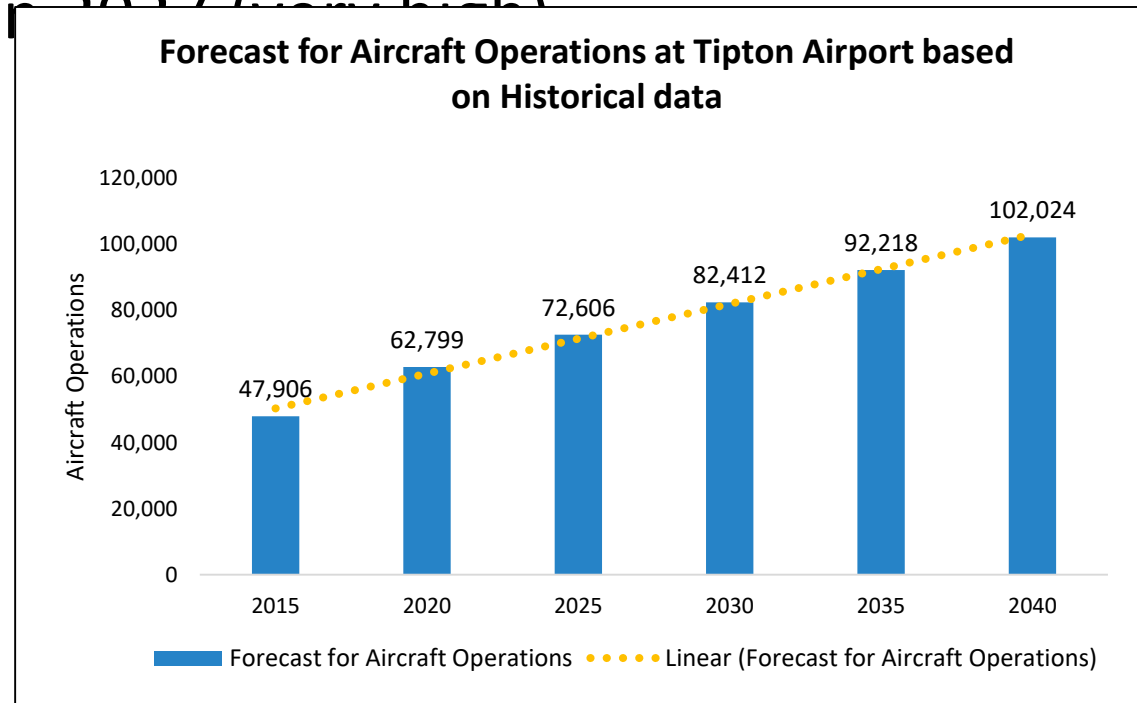
Projections based on:

- 1) Straight-line projection
- 2) 0.2% Avg. growth rate as forecasted by FAA
- 3) 25% Additional growth over 0.2% based on improvements
- 4) Population and employment-based projections



1) Straight - Line Projection

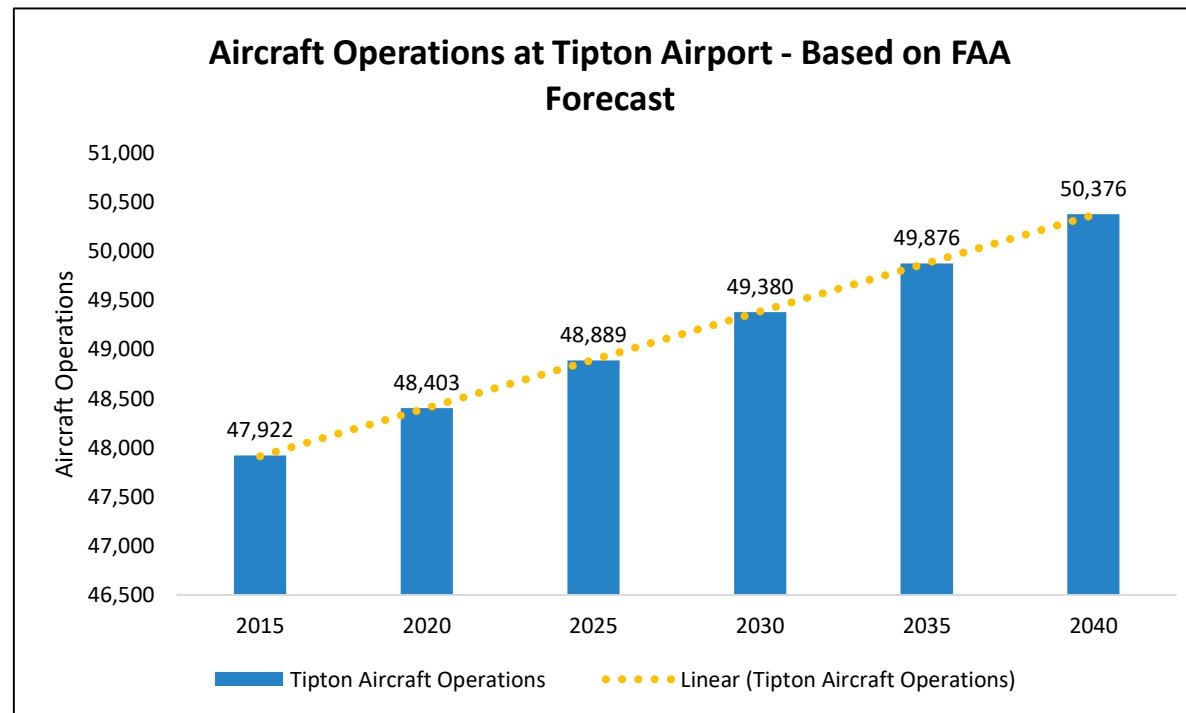
- Aircraft Operations are forecast to increase to 102,024 by 2040 (based on 2001 – 2015 trends)
- Tipton Master Plan projected aircraft operations to grow from 49,225 in 2007 to 92,020 in 2027 (year high)





2) Projection based on FAA Forecast

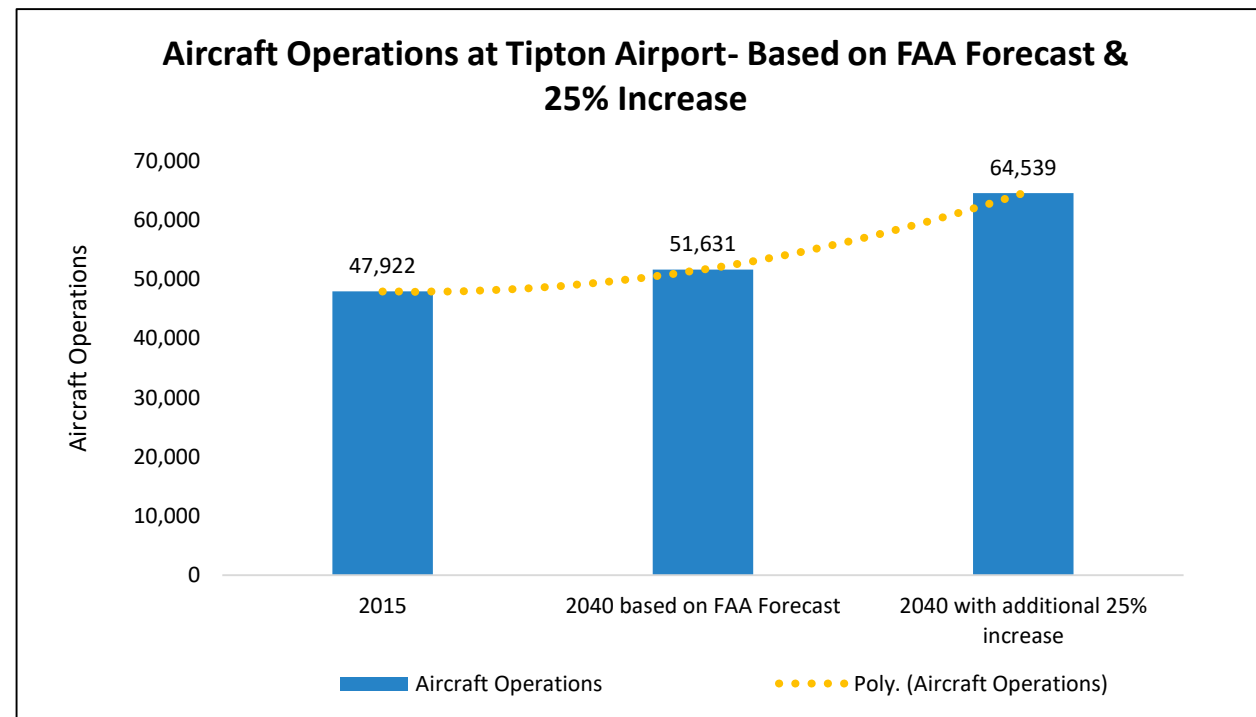
- Aircraft Operations are forecast to increase by an annual average growth of 0.2%
- Operations projected to grow from 47,922 in 2015 to 50,376





3) Projections of +25% Increase over 0.2% p.a.

- Aircraft Operations to increase with an additional of 25% average growth over 0.2% with expansion of runway and improvements in airport services





4) Projections based on Population and Employment

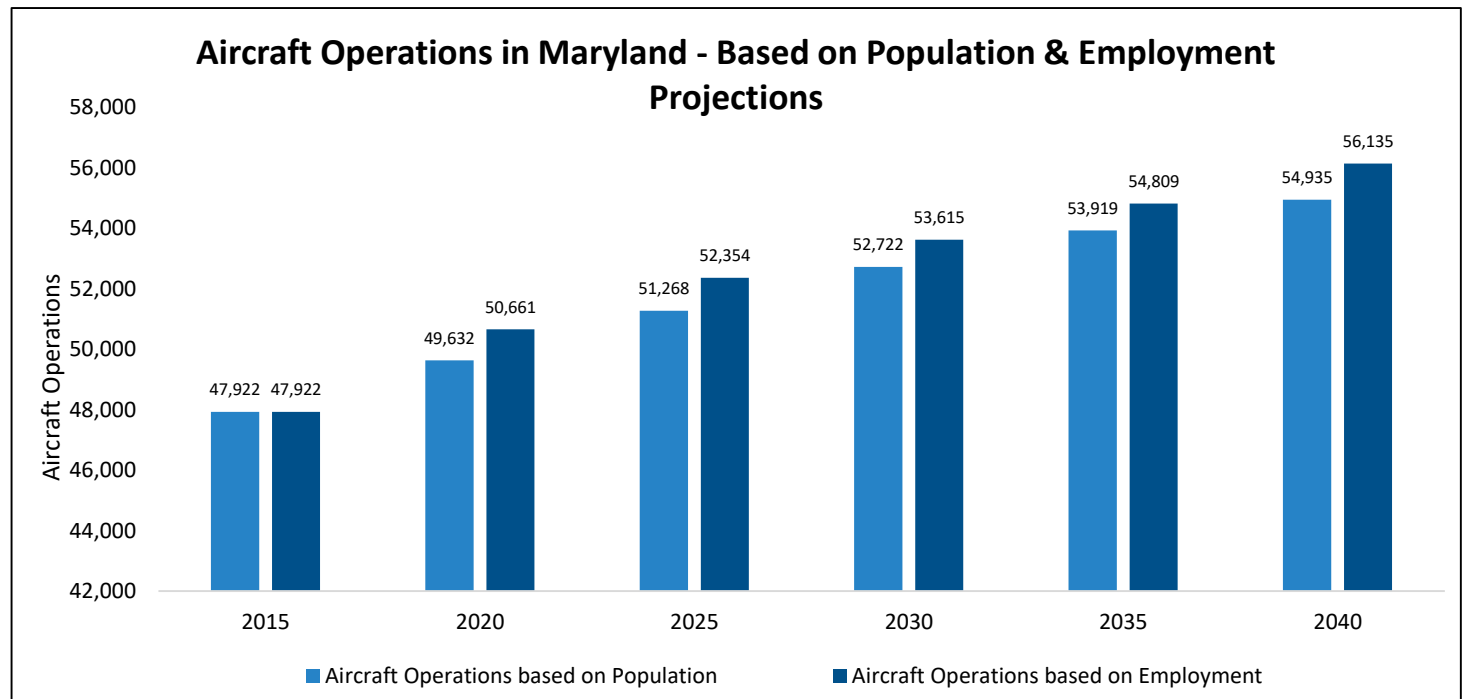
- Forecast for population and employment from 2015 to 2040 prepared by the Maryland Department of Planning
- Aircraft Operations projected to increase by 14-17% from 2015 to 2040

Year	Population	Growth	Operations based on Population
2015	6,010,150	NA	47,922
2020	6,224,550	4%	49,632
2030	6,612,200	3%	52,722
2040	6,889,700	2%	54,935

Source: Maryland Department of Planning

Year	Employment	Growth	Operations based on Employment
2015	3,552,200	NA	47,922
2020	3,755,200	6%	50,661
2030	3,974,200	2%	53,615
2040	4,161,000	2%	56,135

Source: Maryland Department of Planning





Competitive Airports in Maryland

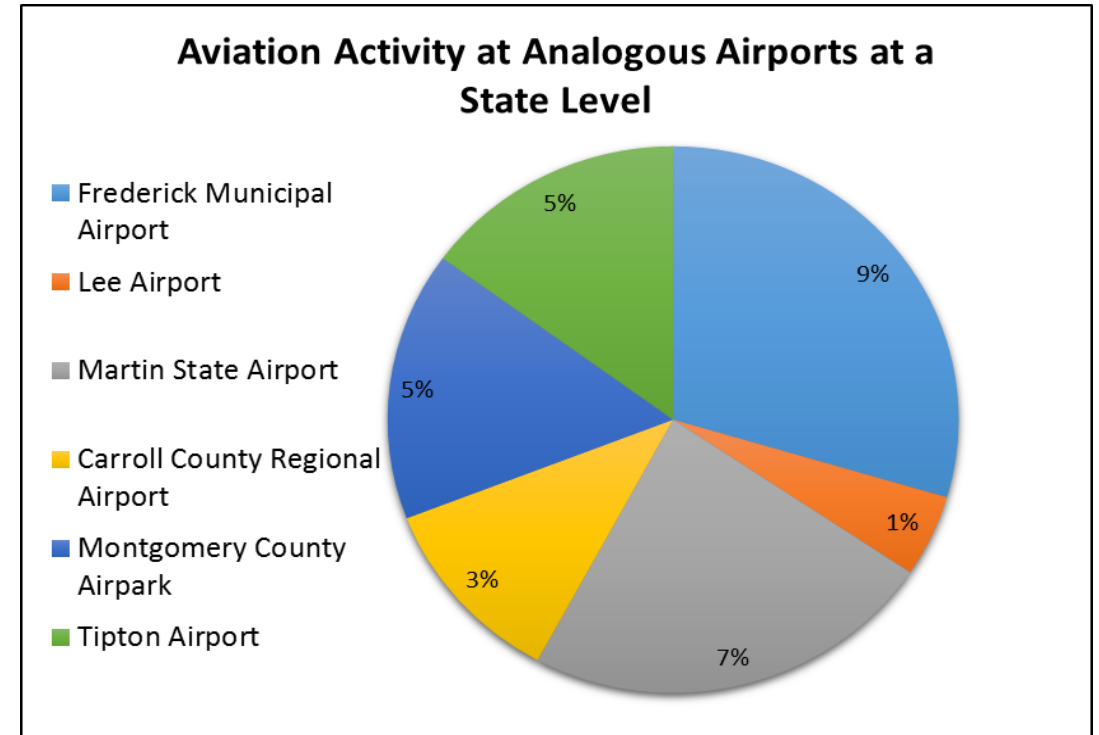




Competing Airports in Maryland

Five airports were identified as analogous to Tipton airport

- Frederick Municipal Airport
- Lee Airport
- Martin State Airport
- Carroll County Regional Airport
- Montgomery County Airpark

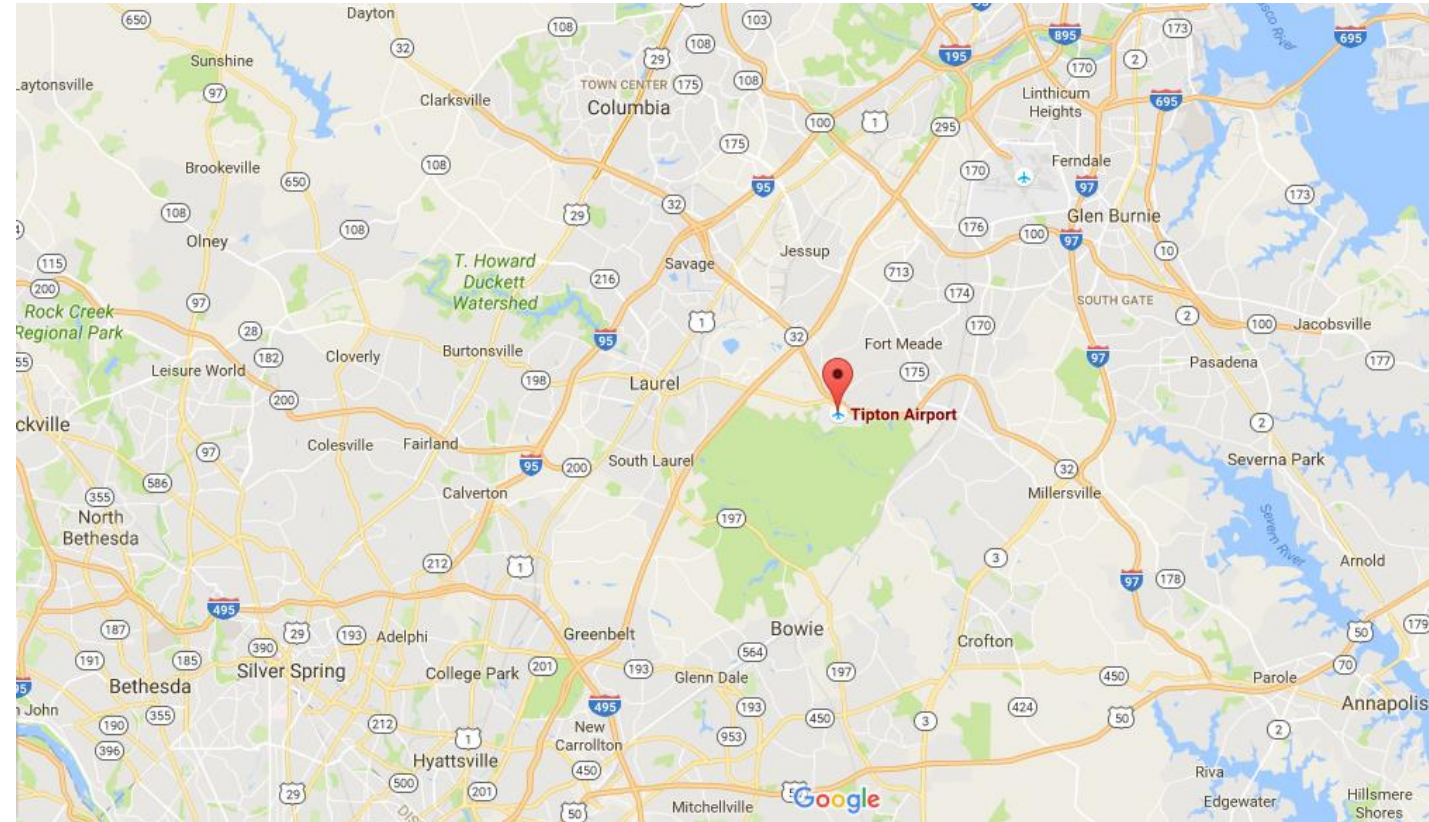


Source: Federal Aviation Administration



Tipton Airport Location

- Adjacent to major interstate and state routes
- Benefitted from its location after the terrorist attacks in 2001
- Serves the eastern-central Maryland area including North Anne Arundel County



Source: <http://tiptonairport.org/airport-diagram/>



Tipton Airport Services

- Fuel sales, tiedowns, minor airframe and power plant services, maintenance and storage, pilot supplies, air taxi/charter and FBO, flight training
- Pilot lounge, flight planning conference



Aircraft based on the field	106
Single engine airplanes	89
Multi engine airplanes	6
Helicopters	11
Aircraft operations	Avg 130/day *
Local general aviation	98%
Transient general aviation	2%
Air Taxi	< 1%
Military	< 1%



Comparative Analysis of Competing Airports

Airport	Operational characteristics (2016)				Hangars (2015)	
	Ops/day	Based aircraft	Runway (feet)	Total ops 2016 (As reported by AOPA)	T-hangars	Conventional hangars
Frederick Municipal Airport	260	189	5,219	94,901	125	3
Martin State Airport	229	240	6,997	73,766	190	14
Montgomery County Airpark	131	146	4,202	51,097	80	5
Tipton Airport	130	106	3,000	47,906	0	4
Carroll County Regional Airport	99	102	5,100	36,090	14	7
Lee Airport	43	82	2,500	15,528	44	0



Comparative Analysis of Competing Airports

Airport	Current attributes (1=best; 3 = worst)			
	Location score	Services score	Perform. score	Site capacity
Frederick Municipal Airport	3	1	1	No
Martin State Airport	2	1	1	No
Montgomery County Airpark	2	2	2	No
Tipton Airport	1	3	3	Yes
Carroll County Regional Airport	3	3	2	No
Lee Airport	3	2	3	No

Note: Services and Performance scores derived from Maryland Aviation Administration, "Maryland Aviation System Plan - Technical Report", 2008

Frederick Municipal



Lee Airport



Martin State Airport



Carroll County Regional

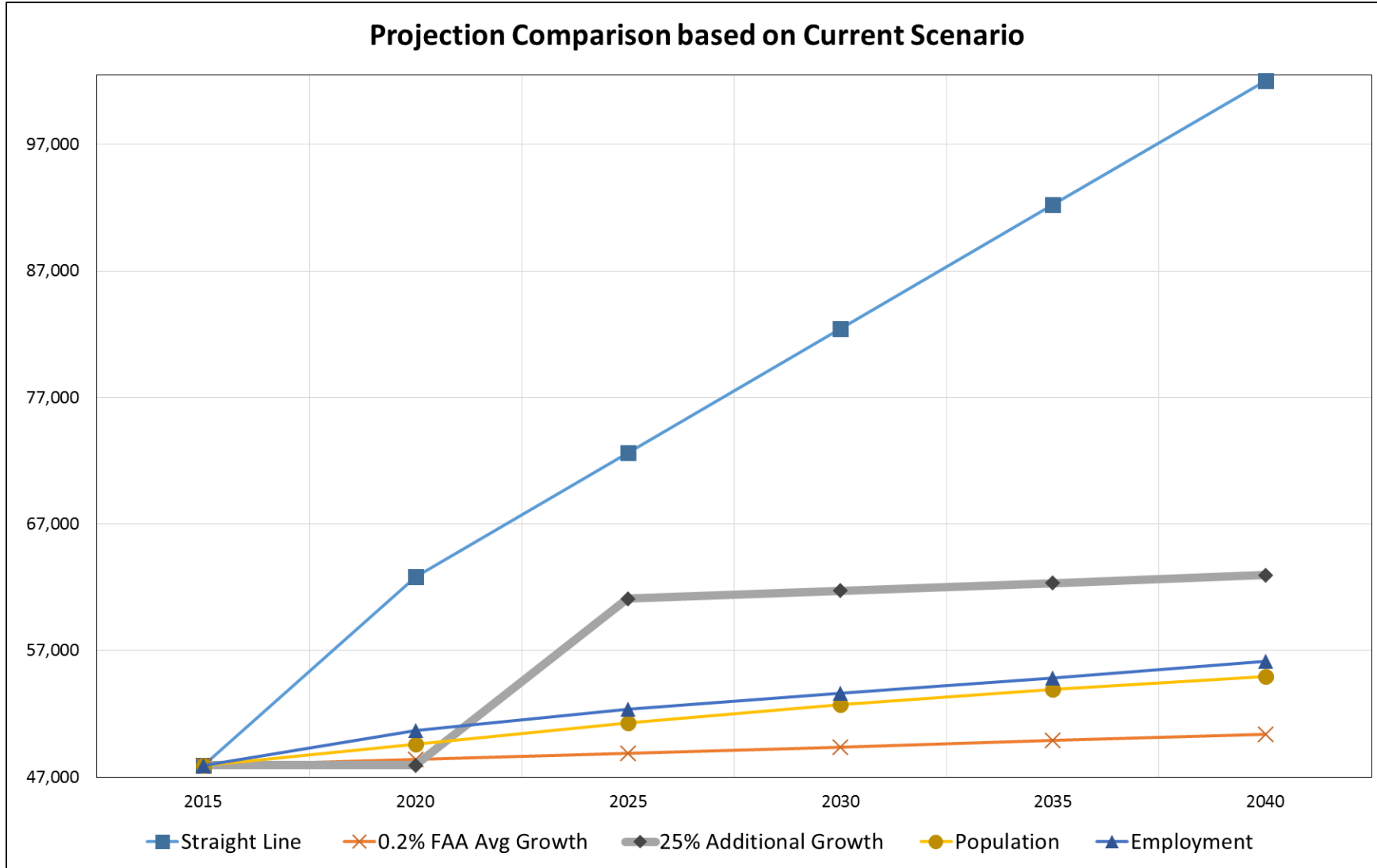


Montgomery County





Comparative Summary of Forecasts





Implications for Facility Planning





Implications for Facility Planning

- Tipton Master Plan 2010

projections:

215 aircrafts → 56 T-Hangars and 121,473 Sq. Ft. of conventional hangar storage

- Current Projections (proportional):

139 aircrafts → 36 T-Hangars and 78,957 Sq. Ft. of conventional hangar storage

Year	0.2% Increase in Aircrafts Operations	25% Increase in Operations	Number of Based Aircrafts
2020	48403	60504	134
2025	48889	61111	135
2030	49380	61725	137
2035	49876	62345	138
2040	50376	62971	139

Year	Number of aircrafts	Number of Hangars	Conventional Hangar Space (Sq. Ft)
2010 Master Plan	215 in 2027	56	121473
Revised Projection	139 in 2040	36	78957



Implications for the Future

1) Management

- Customer Feedback Database
- Database of clients and flights

2) Operational Services:

- Repairs, sales & maintenance
- Flying school
- De-icing, covered storage, snow removal

3) Customer Services

- Restaurants
- Shuttle service

4) Construction:

- New Terminal building
- Fencing
- Additional Hangars

5) Long-term Opportunities:

- On-site commercial offices (Around 0.5m Sq. Ft.)
- 5000 Ft. Runway



References and Sources

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- Federal Aviation Administration, “Terminal Area Forecast Summary - Fiscal Year 2015-2040”, 2015
- Federal Aviation Administration, “Aviation Forecast”, https://www.faa.gov/data_research/aviation/
- Maryland Aviation Administration, “Maryland Aviation System Plan - Technical Report”, 2008
- Maryland Aviation Administration, “Maryland Economic Impact of Airports - Final Report”, 2015
- Interviews with Jeff Wellman of Talbert and Bright, Airport Consultants to Tipton
- Interviews with Ashish Solanki, Planner, Maryland Aviation Authority
- Interviews with Michael Wassel, Manager, Tipton Airport; Eric Flemino, Board Chair, Airport Authority
- Interview with Prof. Paul Schoenfeld, UMD School of Engineering