EXECUTIVE SUMMARY

Background

Westchester County Airport (HPN) is one of the most active business aviation facilities in the United States and provides commercial and general aviation (GA) service to air passengers and users in the greater New York metropolitan area. The last Master Plan Update for HPN was prepared in December 1986. Since then, the Airport has undergone various improvements to serve commercial, corporate, and GA operations, and to enhance the attractiveness of the County of Westchester (the County) as a place to live and do business. Over this period, changes in the aviation industry and technology have occurred which, together with the changes in conditions at HPN, warrant the preparation of an Airport Master Plan Update.

With participation from several County departments involved in land use and operations planning at the Airport, the Westchester County Department of Public Works and Transportation initiated the process of conducting an Airport Master Plan Update in 2012. The goal of the Master Plan Update is to establish a general framework for guiding future Airport development that meets facility requirements and is in line with the County’s vision. The planning period for the Master Plan Update is the years 2012 to 2032. The purpose of the recommendations made in the Master Plan Update is to provide an overview of potential projects that could be implemented to improve the existing facilities and operations at the Airport, within the constraints of the existing Airport footprint and Terminal Use Agreement (TUA), also known as the Terminal Use Regulation (TUR).

A public involvement program was developed as part of the Master Plan Update in order to facilitate the exchange of information between the project team, individuals with technical and operational knowledge of the Airport, stakeholder groups, and the general public. These efforts included a public meeting, stakeholder interviews and workshops, and the distribution of questionnaires to solicit input from stakeholders and the general public. The following vision statement was established by the County and was used to guide the Master Plan Update process:

Westchester County Airport (HPN) shall continue to remain an asset to the region, being a comfortable and convenient air transportation facility. Through the direction of the Westchester County Executive, the Airport staff shall operate, maintain and preserve a high-quality and eco-friendly commercial and general aviation facility with a holistic management approach to enhance:

1. Safety, operational efficiency and economic viability of the airport;
2. Regional economic growth, integrating sustainability principles and practices into the airport's long-term business strategy and day-to-day operations;
3. Development of airport infrastructure with conservative and responsible use of our natural resources to meet the needs of business and leisure air transportation needs of the region; and
4. Our social responsibilities to our local and regional communities while balancing the needs of our community and our operators.
Aviation Demand Forecast

A forecast of aviation activity at HPN was conducted for the Airport for the years 2012 through 2032, for near-term (2017), mid-term (2022), and long-term (2032) increments. Aviation activity can be affected by a multitude of factors and events that occur at the local, regional, and national level. Consequently, forecasts cannot predict year-to-year activity but are intended to be used for planning purposes. The forecasts were developed to provide guidance for long-term capacity needs and used the best available information at the time. The results of the aviation demand forecast are not indicative of the Airport sponsor’s goal for future activity levels at HPN, rather they are reflective of projected aviation activity based upon market driven demand. The process utilized to develop the forecasts followed Federal Aviation Administration (FAA) guidelines outlined in Advisory Circular (AC) 150/5070-6B.

Furthermore, the purpose of the forecast is to describe passenger demand and the socio-economic conditions that create that demand. Aviation demand forecasts can be developed to describe either a constrained or unconstrained growth scenario. An unconstrained scenario assumes that there are no impediments, such as physical, operational, financial, or legislative, to accommodate operations and passenger growth at the airport. Alternatively, in a constrained scenario, it is assumed that a certain proportion of future airport activity will not be accommodated due to specific conditions. Examples of conditions that could constrain the ability of an airport to accommodate future demand include physical constraints that prevent the expansion of the airport facilities, financial limitations where the airport does not have the financing capacity to fund facility expansion, and decisions by the airport sponsor to not accommodate future growth. At HPN, among the constraints that exist in practice is the Terminal Use Regulation (TUR). These limitations and the Airport sponsor’s decision to not accommodate the full extent of market driven demand determine the facility requirements and the development and evaluation of alternatives for future facilities. The TUR takes precedence in determining the facility requirements in the case that there is a conflict between the results of the demand capacity analysis and the constraints associated with the TUR.

Forecasts for passenger enplanements at HPN were developed for high, medium, and low cases for an unconstrained scenario, in which demand is driven by the market and is not constrained by existing facility or policy limitations. Enplanements are defined as the activity of passengers boarding commercial service aircraft that depart an airport, and as such, only includes the air carrier and commuter categories for HPN. It was determined based upon socio-economic variables that the medium case is the most appropriate forecast for the Airport. The FAA’s New York Airports District Office (NYADO) approved the medium unconstrained scenario in a letter dated September 15, 2015. Upon review of the forecast, the FAA NYADO determined that the medium unconstrained scenario for HPN is consistent with the TAF and meets the FAA criteria that forecasts differ by less than 10 percent in the 5-year forecast period, and 15 percent in the 10-year forecast period.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Enplanements</th>
<th>Total Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012 (Base Year)</td>
<td>939,341</td>
<td>191,454</td>
</tr>
<tr>
<td>2017</td>
<td>794,591</td>
<td>187,489</td>
</tr>
<tr>
<td>2022</td>
<td>952,878</td>
<td>188,006</td>
</tr>
<tr>
<td>2032</td>
<td>1,370,330</td>
<td>190,461</td>
</tr>
</tbody>
</table>
A forecast of aircraft operations was developed for the major activity types at HPN. Aircraft operations, defined as arrivals plus departures, were forecasted separately for the following user categories: air carrier, air taxi/commuter, GA, and military.

Air carrier operations are forecasted to increase from 17,189 in 2012 to 25,441 operations in 2032, representing an average annual growth rate of 2.0 percent. This growth rate anticipates that operations would bottom-out in 2014 with growth resuming after that time.

Air taxi/commuter operations are forecasted to decrease over the planning period. This is related to a national trend indicating that airlines are gradually reducing service by regional jets and shifting to larger air carrier aircraft.

GA operations at the Airport are divided into two categories, Light GA and Corporate GA. While overall, GA operations are forecasted to decrease over the planning period, it is likely that the reduction in operations of piston-powered aircraft would be tempered by increases in corporate activity by jet and turbo-prop aircraft. GA operations are forecasted to decrease from 126,583 operations in 2012 to 119,201 operations in 2032.

Military operations at the Airport have historically been negligible and the level of operations is not expected to change over the forecast period.

Although air carrier operations are forecast to increase between 2012 and 2032, the fleet mix is expected to be replaced with newer aircraft over the forecast period. The older aircraft that would be phased out are generally noisier than the newer aircraft.

<table>
<thead>
<tr>
<th>Year</th>
<th>Air Carrier</th>
<th>Air Taxi</th>
<th>GA</th>
<th>Military</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012 (Base Year)</td>
<td>17,189</td>
<td>47,504</td>
<td>126,583</td>
<td>178</td>
<td>191,454</td>
</tr>
<tr>
<td>2017</td>
<td>15,583</td>
<td>47,031</td>
<td>124,696</td>
<td>180</td>
<td>187,489</td>
</tr>
<tr>
<td>2022</td>
<td>18,428</td>
<td>46,562</td>
<td>122,836</td>
<td>180</td>
<td>188,006</td>
</tr>
<tr>
<td>2032</td>
<td>25,441</td>
<td>45,640</td>
<td>119,201</td>
<td>180</td>
<td>190,461</td>
</tr>
</tbody>
</table>

Facility Requirements

The aviation forecast was utilized to identify facility requirements through comparing future demand for facilities with the existing capacity of the Airport. An inventory of existing conditions was conducted early in the master planning process utilizing data collected for the year 2012, and in some cases the year 2013. A demand capacity analysis was used to determine the ability of the existing facilities to accommodate the forecasted level of demand at HPN. The facility requirements were established to address capacity shortfalls and outdated conditions, as well as to meet security requirements, updated standards from the FAA and other agencies, and the Airport sponsor’s strategic vision.

In addition to the demand capacity analysis, various stakeholder engagement efforts were utilized to collect information regarding facility deficiencies and input for potential improvements at the Airport. The information collected through these processes served as the foundation for identifying the facility requirements that should be addressed in the Master Plan Update recommendations. Through stakeholder engagement and input from the Airport sponsor, it was determined that the facility requirements must
comply with the TUR, preserve the existing Airport footprint, and maintain the existing number of runways. The major facility deficiencies that were identified through this process are depicted graphically in the figure below:

Figure 1: Major Facility Deficiencies at HPN

Preferred Alternative and Recommendations

The alternatives development and evaluation process was guided by the goals of addressing facility deficiencies and achieving the Airport sponsor’s strategic vision for HPN. This process involved the identification of a range of alternatives, evaluation of the strengths and weakness of these alternatives, and the selection and refinement of the Preferred Alternative. The process began with the development of conceptual alternatives based upon the demand capacity analysis findings, as well as input gathered from a charette session held with Airport stakeholders. The conceptual alternatives were ranked by a Technical Steering Committee (TSC) based upon five established criteria, which led to the selection of four conceptual alternatives for further evaluation and refinement. These four conceptual alternatives were then refined based upon input from the TSC, and were consolidated into three composite alternatives.

Next, the best features were selected from among the three composite alternatives through the consideration of technical factors as well as best planning practices. A preliminary environmental evaluation was also conducted for the three composite alternatives in order to identify potential environmental impact areas for selected resource categories. Stakeholder input was solicited through a series of meetings that were held with representatives from the Office of the County Executive, FAA Airport Traffic Control Tower (ATCT), Airport tenants and operations/management, and the Westchester County Board of Legislators. Stakeholders provided feedback regarding potential advantages and disadvantages of the three composite alternatives. Lastly, the concepts that were identified as most optimal from a technical and functional perspective were combined and refined to reach a Preferred Alternative that is recommended for the long-term development of HPN.
The key elements of the recommended Preferred Alternative include the following:

- **Runway System**: Existing runway length and alignment remain unchanged for both Runway 16/34 and Runway 11/29, without the addition of new runways. The width of Runway 11/29 is to be reduced to 100 feet, which would involve an adjustment to the runway markings, and the unutilized pavement will be repurposed as runway shoulders.

- **Taxiway System**: Reorganization to streamline the taxiway network and improve the efficiency of ground flows. This includes the relocation of Taxiway A, Taxiway K, and south portion of Taxiway L closer to Runway 16/34 and Runway 11/29. The relocation of the major taxiways to standard separations provides the Airport with increased apron depth.

- **Runway High Speed Exits Implementation**: Modifications to the taxiway system include the construction of high speed exit taxiways, which are taxiways that are designed to allow aircraft to exit runways faster than otherwise possible, thus reducing runway occupancy time.

- **Departure Staging Areas**: To reduce congestion associated with aircraft queuing for departure, the construction of bypass taxiways and holding bays are proposed for Runway 16/34 and Runway 11/29 departures.

- **NAVAIDs Relocation**: The existing Runway 34 PAPI, automated airport weather system (ASOS), and airport beacon are to be relocated. The Runway 16 Glide Slope (GS) and Runway 34 GS may or may not need to be relocated, due to plans to shift to satellite based navigation. Runway 29 PAPI and Runway End Identification Lights (REIL) are to be constructed.

- **Deepen Apron on East and West Sides of Airport**: To address the shortage of space for aircraft maneuvering along the apron on the eastern and western sides of the Airport, the apron depth will be extended following the relocation of Taxiway A (east side) and Taxiway K (west side).

- **Repurpose Ex-ANG Site**: The former Air National Guard (ANG) site is to be repurposed for Heavy GA facilities (including aircraft apron parking and hangar storage), and long term/car rental and GA auto parking areas.

- **Consolidation of Light GA Facilities**: On the west side of the Airport, Light GA facilities, with t-hangar and tie-down aircraft parking options, are to be consolidated.

- **Area Reserved for Commercial Aviation Activity**: An area next to the existing commercial terminal is set aside for future improvements to enhance the passenger experience and would preclude any other type of development in the vicinity. Any potential future improvements would be required to meet the rules and regulations regarding terminal capacity and utilization. The existing gate count at the terminal remains unchanged, with four bridged and two unbridged.

- **Rehabilitation of Hangar A and Hangar D**: Existing Hangar A would be replaced with a facility that would host ARFF equipment as well as some Airport administrative offices. Hangar D is currently in poor condition and would be rebuilt to serve the same corporate and FBO tenants.

- **Centralization of Remain Over Night (RON) Parking**: Hangar G, Hangar C-1 and Hangar C-2 are to be demolished and the area would be repurposed for centralized RON parking in the vicinity south of the commercial terminal building. The centralized RON parking would provide 13 commercial aircraft parking positions, replacing the existing capacity but enhancing the security and efficiency of the Airport through consolidation into one area.

- **Construction of a Triangular Pad for Departure Queue Management and RON**: A paved triangular pad is proposed at the intersection of Taxiway A and Taxiway K to be utilized for bypassing capabilities for departures from Runway 34 or Runway 29. The multi-use pad could also serve as overflow RON parking for three aircraft.

- **Construction of Auto Parking Areas**: Auto parking areas are to be expanded or constructed at five possible different locations on the Airport property including the creation of multi-level
garage structures. Further analysis is recommended prior to the potential pursuit of auto parking improvement projects.

- **Consolidation of Incident Command Post (ICP), US Customs, and ´Police on a Centralized Pad** - Construction of a building accommodating US Customs, Police and emergency control functionalities is proposed for a consolidated location between the Runway 16 and Runway 11 ends. An aircraft pad and employee auto parking is also recommended to be constructed at this location.

The recommendations made in the Preferred Alternative are intended to serve as a planning tool for Westchester County Airport to address long-term facility needs to accommodate forecasted aviation activity for 2032. The Preferred Alternative was developed to improve the efficiency of operations and provide a better level of service for tenants and passengers at HPN while maintaining the existing Airport boundary and minimizing impacts on the surrounding environment. As the Airport sponsor, the County has also determined that the Master Plan Update recommendations must uphold the existing TUR, including the cap of 240 passengers per half hour, keep the gate count at four bridged and two unbridged, and maintain the voluntary curfew on flying between the hours of midnight and 6:30 a.m through the Airport’s noise abatement program. A series of preliminarily impact analyses were conducted to identify potential surveying, permitting, and mitigation that may be required to implement the Preferred Alternative.

A phasing plan was developed to provide a strategy for the implementation of the various proposed improvements recommended in the Preferred Alternative for the short-term (2017-2022), medium-term (2022-2027), and long-term (2027-2032). The first step in the implementation plan would be the redevelopment of underutilized areas at the Airport, such as the former ANG site. The next step would be to begin the taxiway realignment efforts which would enable the expansion of the apron depth on the east and west sides of the Airport. As new areas of the Airport become available through implementation of these improvements, they can be utilized for the expansion of GA hangar and apron capacity, as well as to improve the overall efficiency of the Airport. The Airport Layout Plan (ALP) was updated to include the proposed facility improvement projects associated with the Preferred Alternative for HPN. The Master Plan Update is intended to establish a general framework for a continual planning process and to provide a list of possible projects that may potentially be considered for future Airport improvements. The recommendations made in the Master Plan Update are conceptual, and should they be pursued, would require advanced planning, design, and environmental review and permitting prior to implementation.