



SMYRNA/RUTHERFORD COUNTY



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AIRPORT MASTER PLAN 2020 SMYRNA AIRPORT

EXECUTIVE SUMMARY



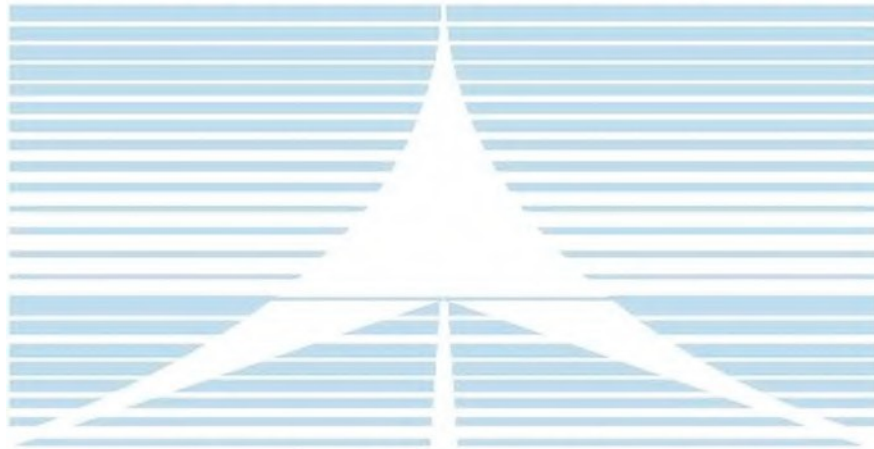
Smyrna/Rutherford County Airport Authority





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SMYRNA/RUTHERFORD COUNTY



AIRPORT AUTHORITY

Airport Master Plan October 2020



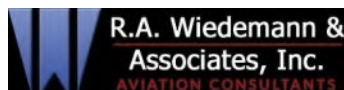
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Executive Summary





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1. Executive Summary

The purpose for updating the Smyrna Airport (MQY) Airport Master Plan (AMP) is to describe the airport's short-, medium-, and long-term plans to meet the future demand in safe, efficient, economical, and environmentally responsible manner. The AMP assists in ensuring the airport meets the development goals of MQY, the surrounding community, and the national aviation system (NAS) by providing a roadmap for its modernization and expansion.

This executive summary provides a condensed summary of findings of the comprehensive master planning process that was completed in mid-2020. Where appropriate, this summary references locations within the AMP where more detailed information can be found.

1.1. Inventory and Environmental

To develop a robust and responsible plan, an airport must first have a clear understanding of the existing conditions. The existing conditions of the airport infrastructure is the basis for identifying what is needed to meet current and future demands. Chapter 3, **Inventory of Existing Conditions**, and Chapter 4, **Environmental Overview**, provide details about the existing conditions of the Airport and an overview of environmental issues that may affect future development. A comprehensive inventory was conducted and catalogues information about the runways, taxiways, structures, roadways, land use, and airspace. This information is used to identify any deficiencies that may need to be addressed in the future. Identifying potential environmental impacts is a crucial part of the master planning process as it provides the ability to mitigate potential adverse impacts through avoidance and integrations of environmentally conscious means and methods.

Impacts to the Airport's runway safety surfaces have been identified as part of this master planning process. Incompatible land uses within the Runway Protection Zone (RPZ) have been identified off three of the four runway ends. On the Runway 32 end the RPZ contains both Sam Ridley Parkway and Fitzhugh Boulevard. In addition, a portion of the Smyrna Golf Course is contained within the Runway 32 RPZ. On the Runway 14 end the RPZ contains several residential properties. On the Runway 1 end the RPZ contains a portion of Sam Ridley Parkway and Threet Industrial Road. A portion of the Smyrna Golf Course is contained within the Runway 1 RPZ. Impacts to the Runway Object Free Area (ROFA) have been identified beyond the Runway 32 end. A portion of the existing ROFA is impacted by Fitzhugh Boulevard. These impacts were further analyzed and a plan for mitigation was proposed within the Alternatives Chapter of this report.

Several environmental features were identified and analyzed within the Environmental Overview Chapter of this report. These features include wetlands, floodplains, noise, cultural resources, etc. There is a forested wetland and an emergent wetland on the north side of the Airport property. There is also a wetland mitigation area on the southwest side of the airport. In regard to floodplains, there are four major areas that have been determined to be high-risk/100-year flood plain locations. These four areas include the north end of Taxiway A, the southeast of the southern portion of Taxiway J, the northwest of the northernmost extent of Taxiway K, and alongside Fitzhugh Boulevard in the vicinity of the southeast end of Taxiway F. For cultural resources, there are two possible Section 4(f) properties that are adjacent to the Airport property. These include the Smyrna Golf Course, and the Lee Victory Recreational Park.

1.2. Forecast of Aviation Demand

The forecasts of aviation activity is a key component of the AMP as it provides a basis and understanding of all future needs. Chapter 5, **Forecast of Aviation Demand**, provides a detailed analysis of multiple forecast methodologies that were analyzed for this AMP, as well as the resulting preferred forecast. Aviation activity forecasts are one of the items reviewed and approved by the Federal Aviation Administration (FAA). Initial FAA approval of the forecast was received on November 5th, 2019. After a subsequent revision to the forecast chapter, a secondary and final approval was received on August 4th, 2020. FAA approval is required to ensure the forecasts are realistic, based on thorough analyses, data driven, and supported by information provided in the AMP and overall industry trend. This AMP has a base year of 2018 and provides a 20-year forecast of activity from 2019 through 2038.

The Airport's based aircraft forecast was analyzed utilizing multiple forecast approaches. Specifically, the based aircraft forecast was analyzed utilizing trend analyses, regression analyses, and market share analyses. Through

the various forecast techniques, an average growth rate was found. Then utilizing airport records on existing based aircraft, the average growth rate was applied to the existing data to obtain the 20-year based aircraft projection. The based aircraft projections were then allocated to five categories, single-engine, multi-engine, jet, helicopter, and other. Existing allocation of based aircraft by type data was utilized to gather the base year breakdown of based aircraft by type. It was then assumed that the helicopter, jet, and other categories will remain constant throughout the planning period, as the majority of anticipated growth will be in the single-engine and multi-engine categories. Total based aircraft are forecast to increase from 177 in 2018 to 199 in 2038.

Airport operations are a key factor in understanding the major development needs at an airport. Significant increases in operations will drive significant development in airport infrastructure such as runways, taxiways, aprons, and support facilities. Similar forecast approaches were utilized for the operations analysis as was completed for the based aircraft analysis. The approved forecast of aviation activity defines an average annual growth rate for total operations of 1.3 percent with annual operations reaching 128,611 by 2038.

1.3. Facility Requirements

Following the documentation of existing conditions and the establishment of a realistic and detailed forecast, a determination of facility requirements which will be necessary to accommodate the anticipated demand throughout the 20-year planning period is made. Chapter 6, **Facility Requirements**, defines those facilities that are necessary to meet that anticipated demand. It is imperative to note that facility requirements are based on specific based aircraft and operational levels are met. While forecasts of aviation activity are thoroughly vetted and ultimately approved by the FAA, a forecast is still best guess and is subject to inaccuracies due to unknown and unforeseeable influences.

The following sections outline the design criteria and facility requirements that were established as part of the AMP process. Further analysis and details can be found in Chapter 6 of this report.

1.3.1. Critical Aircraft and Airport Reference Code

Determination of the critical aircraft and associated Airport Reference Code (ARC) is a critical step in the AMP process and has significant implications on the overall development depicted in the Airport Layout Plan. The critical aircraft will determine the design criteria for which the airport will be developed, including dimensional requirements such as runway and taxiway separations and the areas necessary for the protection of aircraft operations, passengers, and the neighboring community.

The FAA defines the critical aircraft as "...the most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport." Regular use is defined as having 500 annual operations or more, including local and itinerant operations, but excluding touch-and-go's. An operation is either a takeoff or landing. Further, an airport can have multiple critical aircraft depending on the number of runways and the overall layout of the airport facilities.

The critical aircraft at MQY was determined utilizing FAA's Traffic Flow Management System Counts (TFMSC) data, and cargo trends in Smyrna contributed primarily from the local Nissan Automobile manufacturing plant. The Aircraft Approach Category (AAC) and Airplane Design Group (ADG) for the critical aircraft is used to identify the applicable design standards that are used. The existing and future critical aircraft and their AAC and ADG are outlined in **Table** below.

Table 1-1 - Critical Aircraft

Runway	Existing Critical Aircraft		Future Critical Aircraft	
Runway 14/32	Gulfstream 280	C-II	Gulfstream V/G500	D-III
Runway 01/19	Gulfstream 280	C-II	Gulfstream 280	C-II

1.3.2. Taxiway Design Criteria

In 2012, the FAA introduced new design standards with respect to taxiways. A new Taxiway Design Group (TDG) was developed which identifies the taxiway design standards, specifically for fillets, that are required. Additionally, new standards were introduced which dictate overall taxiway geometry to decrease potential incursions, incidents, or confusing layouts. These changes have had a significant impact on the airport design and several taxiway system geometry updates have been identified at airports nationwide. These updates are not required immediately,

however, as airports conduct development projects which impact the taxiway systems, the updates and reconfigurations should be included as part of that development.

Based on the evaluation for critical aircraft, the existing and future critical design aircraft is a TDG 2. However, not all areas of the airport are utilized similarly, and consideration for the types of uses throughout the airport should be taken into account. Taxiways/taxilanes should be designed to facilitate separation for the most demanding ADG/TDG that utilizes each area of an airport. The Airport is frequented by various cargo and commercial/charter aircraft throughout the year. While these aircraft do not currently meet the definition of regular use, 393 operations occurred in 2018 by TDG 3, 4, and 5 aircraft. With the application of the 1.3 percent CAGR (Compound Annual Growth Rate) from the approved forecast, these types of operations will surpass 500 annual operations within the 20-year planning period.

Therefore, the TDG 3 standard should be maintained for all taxiways serving Runway 14/32. TDG 2 will be maintained for all existing and future taxiways that only serve Runway 01/19 exclusively.

1.3.3. Runway 01/19 Demand

In recent years, the consideration of maintaining Runway 01/19 has been questioned. The runway pavement has deteriorated and is beyond its useful life with concrete shoulders that is over 70 years old. Since the runway is not considered in the Airport's Part 139 certification, eligibility for the runways continued support with Federal funding is based on its need as a crosswind runway, or justification as a secondary runway. To justify the need for Runway 01/19, historical weather patterns and runway demand have been analyzed, along with discussions with airport management and the air traffic manager for the contract tower.

Runway 01/19 at MQY is vital to the continued operational efficiency and safety of the airport users. Consequently, the need to identify Runway 01/19 as a secondary runway and its continued support is strongly recommended as the runway is required for continued operation of the airfield. This is based on multiple factors including:

- Proximity to the terminal and FBO areas and safety of operations;
- Seasonal winds from the southwest; and,
- An operational Letter of Agreement (LOA) between MQY ATC and BNA (FAA ATC).

1.3.4. Inadvisable Airfield Geometry

Inadvisable airfield geometry includes pavement which is non-compliant with updated airfield standards, and pavement geometry prone to high-activity with multiple intersecting centerlines. This can include runway, taxiway, and apron pavement and intersections. Similar to the updates that are necessary to meet taxiway design standards, updates to alleviate inadvisable geometry should be made as development projects are completed that impact these specific pavement areas.

At MQY, the following areas have inadvisable geometry:

- Existing Taxiways A and G connect the East Ramp to Runway 14/32 providing direct access to said runway;
- Existing Taxiway A and Runway 01/19 intersection is a non-perpendicular angle;
- Existing Taxiways J and D entrance onto Runway 14/32 is a non-perpendicular angle; and
- Existing Taxiways C and D entrance onto the Runway 19 end is a non-perpendicular angle.

1.3.5. Annual Service Volume

There are three metrics that describe the capacity of the Airport in simple terms. Those metrics are Hourly VFR Capacity, Hourly IFR Capacity, and Annual Service Volume (ASV). ASV is a measure of the number of annual operations that can occur at the airport without incurring delay, also referred to as annual capacity. Calculating the capacity metrics is completed using the throughput method outlined in FAA AC 150-5060-5, *Airport Capacity and Delay*. Several parameters are considered when calculating the VFR and IFR Hourly Capacity, such as Instrument Approach Procedures (IAP), Visual Flight Rules (VFR), and Instrument Flight Rules (IFR). ASV is calculated based on the existing runway configuration, aircraft mix, and the parameters and assumptions identified herein, and incorporates the hourly VFR and IFR capacities calculated previously.

Based on the calculations, the VFR Hourly Capacity at MQY was calculated to be 98 operations per hour during peak conditions. The IFR Hourly Capacity calculations use many of the same assumptions as the VFR Hourly Capacity calculations but utilize a different set of formulas because of the lower visibility associated with IFR operations. The IFR Hourly Capacity at the Airport is 59 aircraft operations per hour. This lower number of

operations is primarily because of the greater aircraft separation requirements and the instrument approach capabilities of the Airport.

ASV is used as a guide in determining when airport development should occur in order to meet the growing demand. FAA Order 5090.5, Formulation of the NPIAS and ACIP, states that planning for a new or extended runway to increase hourly capacity should begin once the airports demand reaches 60 percent of the ASV. Development should begin once the airports demand reaches 80 percent of the ASV, or within 5-years of that point. Based on the FAA approved forecast, the ASV at MQY was calculated to be 230,000, with current operations totaling 100,079, or 44 percent of the ASV. **Table 1-2** presents the annual demand compared to the current ASV throughout the 20-year planning period.

Table 1-2 - Annual Service Volume

Year	ASV	Total Annual Operations	% of ASV
Base Year (2018)	230,000	100,079	44
+5 Years (2023)		112,992	49
+10 Years (2028)		117,952	51
+20 Years (2038)		128,611	56

Based on the comparison of the ASV to the forecast annual operations, MQY operations will not reach the 60 percent planning threshold by the end of the 20-year planning period. For this reason, there are no capacity enhancements included within this Master Plan.

1.3.6. Hangar Facility Requirements

Many of the hangar facility requirements are connected to the number, type, and frequency of aircraft operations and to the number of aircraft based at the airport. Available hangar and apron facilities are some of the most crucial facility requirements at the Airport and are an important part of the planning analysis. Chapter 6 of this report presents detailed analysis of the hangar available and the projected need for new hangars. Information presented in Section 6.3.1 shows a growing deficiency at the Airport in both Conventional hangars and T-Hangars.

1.3.7. General Aviation Aprons

General aviation aprons provide for the tie-down and storage of aircraft, as well as provide access to airside facilities and fueling locations. FAA AC 150/5300-13A provides guidelines for sizing aircraft aprons based on the number of aircraft expected to use the airport on a peak day. Operations can be classified in two categories, local and itinerant. Apron space at MQY was analyzed for each category in accordance with FAA guidance. FAA’s recommended 360 square yards per itinerant aircraft was utilized to calculate the amount of apron space required. Due to flight training operations at MQY, it was assumed that 30 percent of the based single-engine and 20 percent of the based multi-engine aircraft will be stored on the apron pavements. Per the aviation forecast for MQY, 44.2 percent of total airport operations are itinerant operations, which further drives the demand for itinerant apron space. The existing East Ramp at MQY is approximately 228,934 square yards. This vast expanse of pavement automatically creates a surplus of general aviation apron throughout the planning period at the Airport. Further analysis and breakdown of apron requirements at MQY is presented in Section 6.3.2. of the full Airport Master Plan document.

1.3.8. General Aviation Terminal

Chapter 5 of ACRP (Airport Cooperative Research Program) Report 113, *Guidebook on General Aviation Facility Planning*, provides general guidance on the sizing of GA terminals. The primary consideration is whether the facility can support the number of pilots, passengers, and visitors during peak hour operations. GA facility sizing can range from 100 to 150 square feet per person. For planning purposes, the ACRP Report suggests using a factor of 2.5 people per-peak hour operation (pilots and passengers). The total terminal space available at the Airport today was determined by combining the square-footage of the existing terminal building and the FBO facility passenger/pilot lounge. The terminal building, located between the FBO facilities, offers some public use facilities. However, the predominant portion of operators will utilize one of the FBO’s as they provide more full-service options. For this reason, the shared public space in the FBO’s add to the overall “terminal” space at the Airport, even though the space is in different physical locations.

While analyzing the forecasted demand against the total combined “terminal” space, it has been presented that there is currently no projected deficiency in “terminal” space at MQY throughout the planning period. Further analysis and breakdown of GA terminal requirements at MQY is presented in Section 6.3.4.

1.3.9. Aircraft Rescue and Firefighting (ARFF)

Due to the 14 CFR Part 139 requirements, an ARFF station at MQY is essential in providing emergency services as necessary at the Airport. However, the existing ARFF station was originally constructed in 1942, and has exceeded its useful life. In addition, as development occurs on the east side of the Airport, it is essential to ensure that the ARFF personnel can maintain their standards for response times to the center of the airfield. Therefore, it is recommended that the ARFF station is relocated and replaced to an optimal position on the airfield to ensure the required capabilities are maintained.

1.3.10. Air Traffic Control Tower (ATCT)

The existing ATCT at MQY was originally constructed in 1962 and has since exceeded its useful life. Due to the age of the facility, the equipment utilized by ATCT personnel needs to be upgraded to ensure the continued efficient and safe handling of operations at and around the Airport. Future development such as large span hangars, conventional hangars, t-hangars, and other aeronautical and non-aeronautical facilities may impede the ability of controllers to have a clear line-of-sight to the active aircraft surfaces. Therefore, it is recommended that the location of the replacement ATCT is analyzed against future development to ensure the clear line-of-sight is maintained.

1.4. Preferred Development Alternative

The airport development plan outlines the necessary development and facility requirements to meet the forecast demand, ensure competitiveness, financial viability, and to provide the Airport and surrounding community with the greatest overall benefit.

Alternatives have been developed independently for the airside and landside. Airside alternatives include development affecting runways, taxiways, and navigational aids. Landside alternatives include development such as general aviation aprons and hangars, terminal apron and terminal building, MRO (Maintenance Repair, Overhaul) and Cargo, and access roads. These proposed development alternatives are outlined in Chapter 7, **Airport Development Alternatives**.

1.4.1. Preferred Airside Improvements

The preferred airfield development alternatives incorporates a major taxiway redesign. The redesign is a result of multiple inadvisable taxiway designs and the initiative to maximize developable land at the Airport. **Table 1-3** provides a listing of all major airside development items included in the preferred development alternative.

Table 1-3 - Preferred Airside Development Major Changes

Development Item	Description	Milestones & Triggering Events
Runway 14/32 Declared Distances	To mitigate an existing impact to the Runway 14/32 ROFA off the Runway 32 end, it is proposed that declared distances are implemented to mitigate this impact of Fitzhugh Boulevard.	As soon as practical (Safety)
Realigned Taxiway A	Realigned Taxiway A will intersect Runway 01/19 at a standard 90-degree angle. Existing Taxiway A pavement will then be removed.	As soon as practical (Safety)
Partial Taxiway B Removal	To open opportunities for development, approximately 970-feet of Taxiway B will be removed starting from the Runway 19 end. This taxiway removal will allow for landside access between Taxiway B, Taxiway A, and both runways.	Commencement when Taxiway B pavement reaches a point of required rehabilitation and/or reconstruction (based on PCI or age of pavement). Removal will occur at the same time.

Development Item	Description	Milestones & Triggering Events
Realigned Taxiway C	Realignment to the standard 400-foot separation parallel to Runway 14/32 will open approximately 55.16 acres of developable land.	Commencement when existing Taxiway C pavement reaches a point of required rehabilitation and/or reconstruction (based on PCI or age of pavement). At this time then the realignment will occur.
Realigned Taxiway D	Realignment to the standard 300-foot separation parallel to Runway 01/19 will ensure a standard runway entrance onto the Runway 19 end.	Commencement when existing Taxiway D pavement reaches a point of required rehabilitation and/or reconstruction (based on PCI or age of pavement). At this time then the realignment will occur.
Realigned Taxiway F	Realignment to the standard 400-foot separation from Runway 14/32 centerline will allow for additional development opportunities.	Commencement when existing Taxiway F pavement reaches a point of required rehabilitation and/or reconstruction (based on PCI or age of pavement). At this time then the realignment will occur.
Partial Taxiway G Removal	Due to the existing direct access from the East Ramp onto Runway 14/32, it is proposed to remove the portion of Taxiway G from the realigned Taxiway F position up to the old Taxiway F position.	Commencement when Taxiway G pavement reaches a point of required rehabilitation and/or reconstruction (based on PCI or age of pavement). Removal will occur at the same time.
Partial Taxiway J Removal	Due to the existing non-standard angle that Taxiway J intersects Runway 14/32, it is proposed to remove the Runway 14/32 connector portion of Taxiway J and realign the connector to a standard 90-degree intersection on Taxiway K.	Commencement when Taxiway J pavement reaches a point of required rehabilitation and/or reconstruction (based on PCI or age of pavement). Removal will occur at the same time.
Extended Taxiway K2	Extension of this taxiway will allow for development in close proximity to the existing hangar on Taxiway K2.	Commencement when the Airport's demand necessitates further aeronautical development

1.4.2. Preferred Landside Improvements

The preferred landside development alternatives capitalizes on the now accessible areas opened from the proposed taxiway adjustments. The first primary area for landside development is parallel to Runway 14/32, southwest of existing Taxiway B, and northwest of existing Taxiway A. In this area multiple conventional hangars of varying size are proposed along with supporting apron connected to the extended Taxiway F. Landside access will be provided by the Airport's existing north access road, which is proposed to be turned into public use. The second primary area for landside development is on the East Ramp itself, with landside access being provided by an extension of 9th Avenue. On the East Ramp it is proposed to relocate the ARFF facility and the ATCT into one co-located facility. Also included in this area is a relocation of the existing T-hangars with a slight expansion to accommodate projected demand. An MRO style hangar with supporting apron infrastructure will be placed on the East Ramp. **Table 1-4** provides a listing of all major landside development items included in the preferred development alternative.

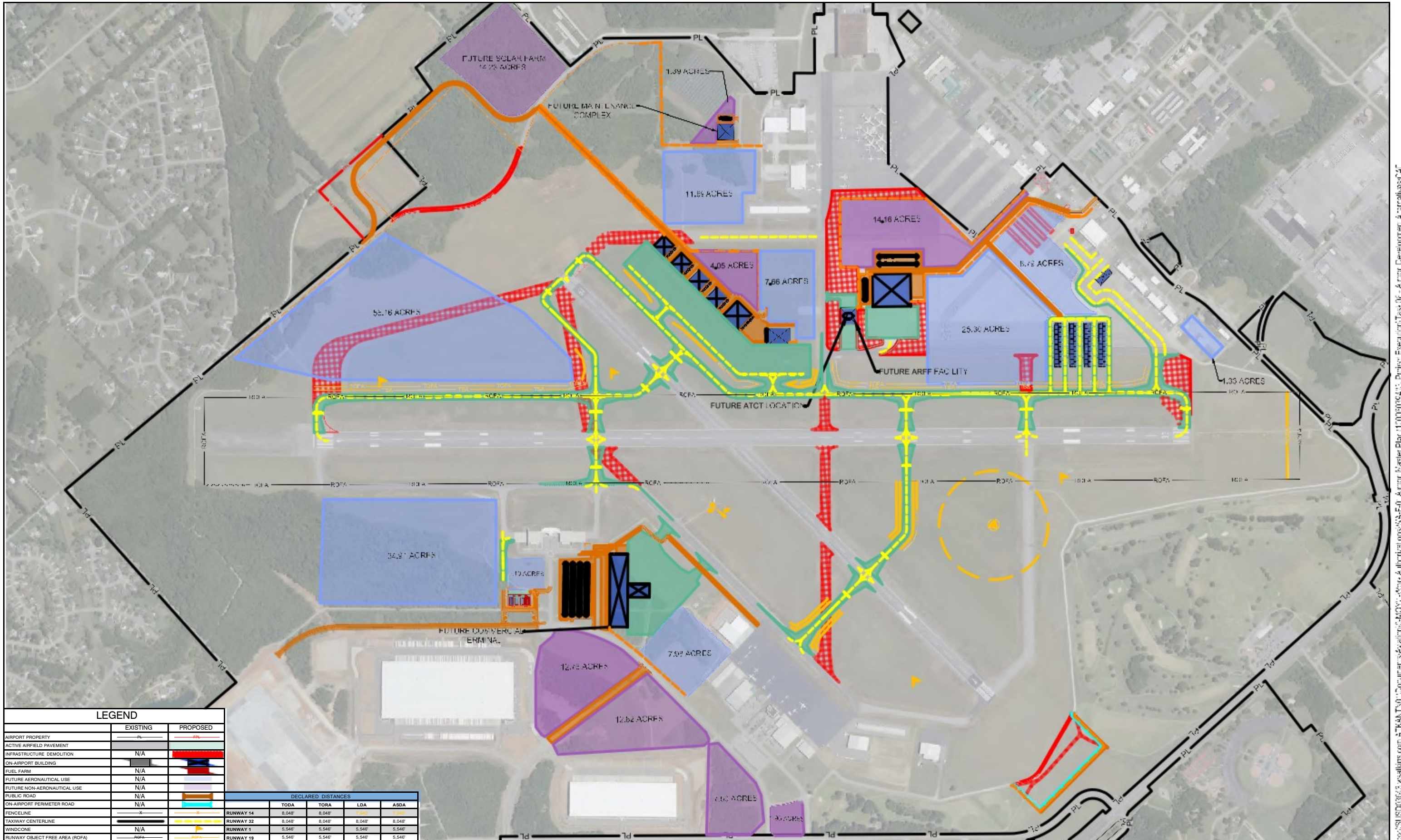
Table 1-4 - Preferred Landside Development Major Changes

Development Item	Description	Milestones & Triggering Events
Future Solar Farm Expansion	Approximately 14.23 acres of developable land has been identified for an additional solar farm. This developable land is located on the northern portion of the Airport property.	This expansion of the existing solar farm will commence once financially feasible.
Aircraft Storage Hangars	Additional conventional hangars and t-hangars have been identified to accommodate the projected aviation demand throughout the planning period.	When existing conventional hangars are full, expansion will then commence as feasible. When existing T-Hangar facilities have reached their useful life, relocation will then commence.
ARFF and ATCT Joint Facility	A replacement of both the ARFF and ATCT facilities into one joint-use facility on the East Ramp due to the aging infrastructure of both existing facilities.	This project requires the landside roadway improvements to extend 9 th avenue across the East Apron. Then, once either of the existing ARFF or ATCT facilities reach their useful life, then development will commence.
Fuel Farm	An expanded fuel farm facility will be placed off of the Thunderbird Drive extension to expand the Airport's overall fuel storage capabilities.	This fuel farm expansion will commence once adequate public funding is secured and it is financially feasible to do so. In addition, private funding associated with this expansion must be received prior to commencement.
Airport Maintenance Facility	Due to the deteriorating condition of the existing maintenance facility, a replacement facility has been proposed directly south of the existing solar farm.	Once the existing maintenance facility reaches its useful life, commencement on this proposed facility will commence.
Landside Roadway Adjustments	Three primary roadway adjustments are proposed. First to adjust the existing north airport access road into public use. Second to extend Thunderbird Drive. Third to extend 9 th Avenue across the existing East Ramp to open development in this area.	For Thunderbird Drive, this project will commence once financially feasible to do so. For the 9 th Avenue Extension and the North Access Road, these projects will commence prior to the associated development areas being necessary.
Future Aeronautical Development	Multiple areas have been identified for future aeronautical development. These areas are either previously un-developed or recaptured due to the airfield redesign. A total of 153 acres has been identified as future aeronautical development.	These identified aeronautical development areas will be developed as feasibility and demand dictates.
Future Non-Aeronautical Development	Similar to the future aeronautical development, multiple areas have been identified for future non-aeronautical development. Predominately along the existing Thunderbird Drive and in close proximity to the two primary development areas on the east side of the Airport, a total of 54.6 acres has been identified as future non-aeronautical development.	These identified non-aeronautical development areas will be developed as feasibility and demand dictates.

1.5. Capital Improvement Plan

The Capital Improvement Plan (CIP) is a tool for outlining planning and development needs over the 20-year planning period. The projects included in the CIP are vital to achieve the future goals and objectives of the airport and meet the growing demand. The projects included in the CIP are prioritized based on meeting the goals of the airport while addressing all capacity, safety, and security needs. The CIP is broken down into short-term (1-5 years), medium-term (6-10 years), and long-term (11-20 years) needs. Projects phasing also takes into account anticipated funding availability each year. The CIP is presented within Chapter 8 of this report and Appendix D, **Capital Improvement Plan Project Sheets**.

AIRPORT MASTER PLAN UPDATE

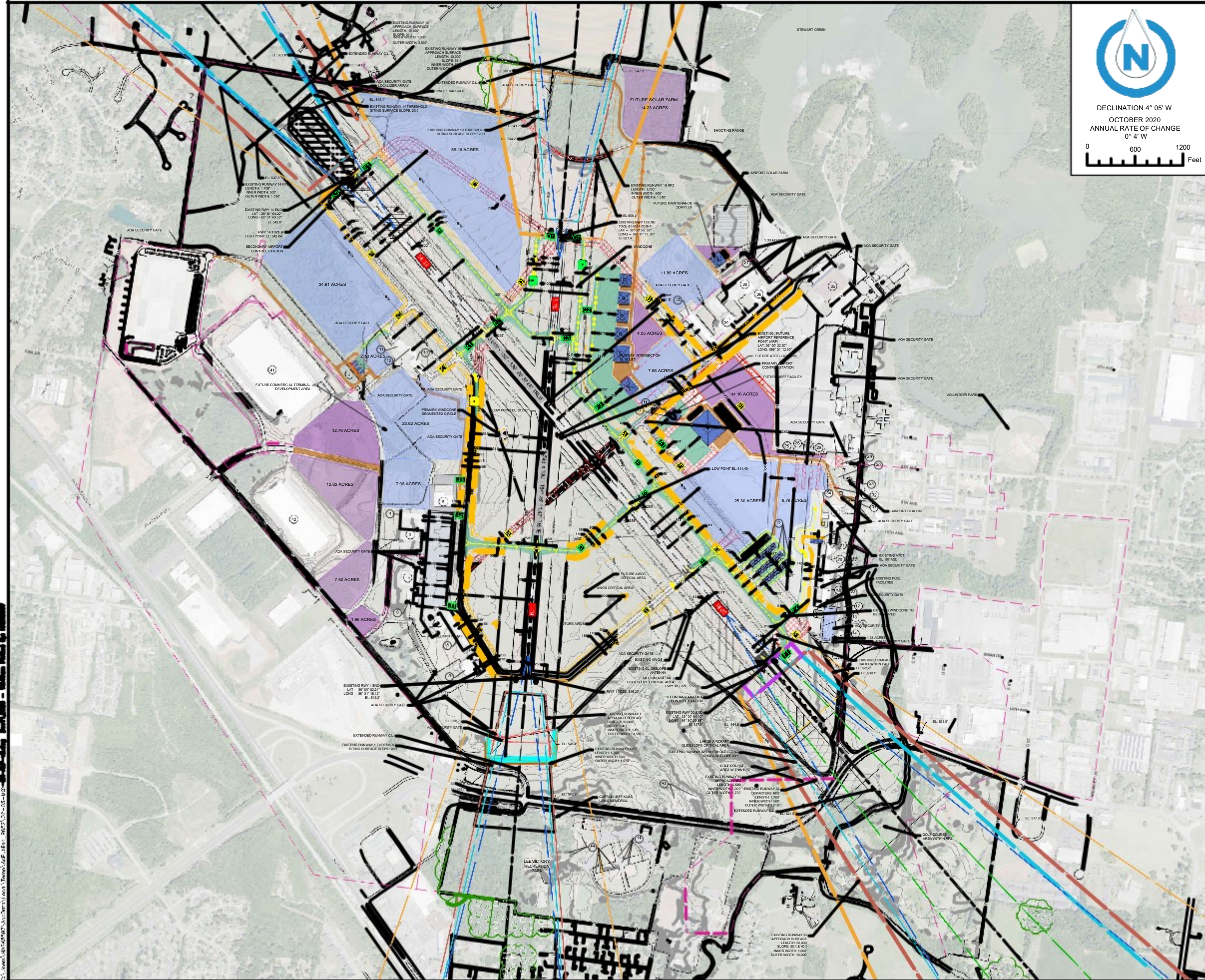


LEGEND		
	EXISTING	PROPOSED
AIRPORT PROPERTY	PL	PL
ACTIVE AIRFIELD PAVEMENT	PL	PL
INFRASTRUCTURE DEMOLITION	N/A	Red hatched
ON-AIRPORT BUILDING	Black outline	Blue outline
FUEL FARM	N/A	Red hatched
FUTURE AERONAUTICAL USE	N/A	Blue outline
FUTURE NON-AERONAUTICAL USE	N/A	Green outline
PUBLIC ROAD	N/A	Orange outline
ON-AIRPORT PERIMETER ROAD	N/A	Black outline
FENCELINE	Black line with 'x'	Black line with 'x'
TAXIWAY CENTERLINE	Black line	Black line
WINDCONE	N/A	Yellow arrow
RUNWAY OBJECT FREE AREA (ROFA)	Black line	Black line

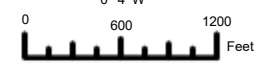
	DECLARED DISTANCES			
	TODA	TORA	LDA	ASDA
RUNWAY 14	8,048'	8,048'	7,200'	7,200'
RUNWAY 32	8,048'	8,048'	8,048'	8,048'
RUNWAY 1	5,546'	5,546'	5,546'	5,546'
RUNWAY 19	5,546'	5,546'	5,546'	5,546'



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DECLINATION 4° 05' W
 OCTOBER 2020
 ANNUAL RATE OF CHANGE
 0° 4' W



LEGEND		
DESCRIPTION	EXISTING	PROPOSED
AIRPORT REFERENCE POINT		N/A
PROPERTY LINE	PL	FPL
20' BUILDING RESTRICTION LINE	BRL	SAME
RUNWAY SAFETY AREA (RSA)	RSA	SAME
RUNWAY OBJECT FREE AREA (ROFA)	ROFA	SAME
RUNWAY OBSTACLE FREE ZONE (ROFZ)	ROFZ	SAME
RUNWAY PROTECTION ZONE (RPZ)	RPZ	SAME
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA	TOFA
TAXIWAY SAFETY AREA (TSA)	TSA	TSA
PART 77 APPROACH SURFACE (AS)	AS	SAME
THRESHOLD SITING SURFACE (TSS)	TSS	SAME
RUNWAY VISIBILITY ZONE (RVZ)	RVZ	SAME
PAPI OBSTACLE CLEARANCE SURFACE (OCS)	PAPI	SAME
DEPARTURE SURFACE (DS)	DS	SAME
GLIDESLOPE QUALIFICATION SURFACE (GQS)	GQS	SAME
PRECISION OBSTACLE FREE ZONE (POFZ)	POFZ	SAME
EXTENDED RUNWAY CENTERLINE		SAME
TOPOGRAPHIC CONTOUR LINES (Z)		N/A
EASEMENTS		
FENCE		
THRESHOLD LIGHTS		SAME
PRECISION APPROACH PATH INDICATORS (PAPI)		SAME
APPROACH LIGHTING SYSTEM (ALS)		SAME
RUNWAY END IDENTIFIER LIGHTS (REIL)		SAME
AWOS		
AIRPORT CONTROL STATION		SAME
WINDCONE		
SEGMENTED CIRCLE LANDING SURFACE INDICATOR		
GLIDESLOPE CRITICAL AREA		SAME
LOCALIZER CRITICAL AREA		SAME
AIRPORT BEACON		SAME
PROPOSED AIRFIELD PAVEMENT	N/A	
PROPOSED PAVEMENT TO BE REMOVED	N/A	
PROPOSED AIRFIELD MARKINGS	N/A	
PROPOSED TLOFA MARKINGS	N/A	
PROPOSED BUILDINGS/FACILITIES	N/A	
PROPOSED LANDSIDE INFRASTRUCTURE	N/A	
FUTURE AERONAUTICAL DEVELOPMENT AREA	N/A	
FUTURE NON-AERONAUTICAL DEVELOPMENT AREA	N/A	
TAXIWAY NOMENCLATURE		

1/ SEE EXHIBIT 10 PROPERTY INVENTORY MAP FOR MORE DETAILS.
 2/ FENCE HEIGHT VARIES BETWEEN 8-10 FEET AGL.
 3/ ROADWAY ELEVATIONS SHOWN INCLUDE FAA ADJUSTMENT OF 2317115/10 FEET FOR RAILWAYS/HIGHWAYS/PUBLIC ROADS/PRIVATE ROADS RESPECTIVELY.
 4/ NAD83/NAVD88 WAS UTILIZED.

FUTURE BUILDINGS/FACILITIES		
NO.	DESCRIPTION	NOTES
A	Conventional Hangar	~11,300 Sq. Ft.
B	Conventional Hangar (MRO)	~105,000 Sq. Ft.
FLC	ARFF Facility	~22,518 Sq. Ft.
D	T-Hangers	15 Units
E	Conventional Hangar	~30,000 Sq. Ft.
F	Conventional Hangar	~40,000 Sq. Ft.
G	Conventional Hangar	~22,500 Sq. Ft.
H	A/C/F Facility	N/A
I	Airport Maintenance/Boasting	22,500 Sq. Ft.
J	Fuel Farm	N/A

AIRPORT SPONSOR APPROVAL

THIS AIRPORT DRAWING IS APPROVED BY:

(SIGNATURE) _____ DATE _____

NAME: _____

TITLE: _____

TDOT APPROVAL STAMP

CONDITIONALLY APPROVED

Signature: _____ Date: _____

Printed Name: _____

SMITH CREEK LABORATORY
 Tennessee Dept. of Transportation
 PUBLIC IS SUPPORTER OF AIRPORTS

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 www.atkins.com

AIRPORT MASTER PLAN UPDATE

AIRPORT LAYOUT PLAN

SMYRNA AIRPORT S1

TENNESSEE

PROJECT: SMYRNA AIRPORT S1 MASTER PLAN UPDATE
 SHEET: 03 OF 26

DATE: _____
 DRAWN: _____
 CHECKED: _____
 DATE: _____

Table 1-5 - CIP Summary - Phase I

Project	Federal Fiscal Year	Project Description	Project Cost (\$)	Funding (\$)			
				Federal	State	Local	Private / Other
Phase I (Federal FY 2020-2025)							
L1	2020	ARFF Vehicle Replacement	750,000	675,000	37,500	37,500	
L2	2020/21	Extension of Thunderbird Drive (near Taxiway J/K)	2,223,765	-		1,873,765	350,000
A1.1	2021	Prelim Design - Taxiway J Shoulder Removal / TSA Grading	16,000	14,400	800	800	
A2.1	2021	Prelim Design - Runway Rehab, and RSA Improvements	235,000	211,500	11,750	11,750	-
A3.1	2021	Environmental Assessment for Obstruction Removal	138,000	124,200	6,900	6,900	-
L3	2021/22	Additional Fuel Farm Complex	2,741,785	-	-	1,057,550	1,684,235
A1.2	2022	Final Design - Taxiway J Shoulder Removal / TSA Grading	37,000	33,300	1,850	1,850	
A2.2	2022	Final Design - Runway Rehab, and RSA Improvements	562,000	505,800	28,100	28,100	-
A1.3	2022	Taxiway J Shoulder Removal / TSA Grading	714,475	643,028	35,724	35,724	
A3.2	2022	Obstruction Removal	1,499,000	1,349,100	74,950	74,950	-
A4	2022/23	Taxiway J Pavement Rehabilitation	955,090	859,581	47,755	47,755	-
A5	2022/23	Land Acquisition	330,650	297,585	16,533	16,533	-
A2.3	2024/25	Runway Rehab, RSA Grading, and Road Relocations	9,910,281	8,919,253	495,514	495,514	-
L4	2024/25	Construct 22,500 Sq Ft Maintenance Complex	3,544,995	-	-	3,544,995	-
A6	2024/25	East Apron Taxilane Improvements	5,588,060	5,029,254	279,403	279,403	-
A7	2024/25	Master Grading Plan	160,600	144,540	8,030	8,030	-
A8	2024/25	Taxiway A Realignment	8,921,650	8,029,485	446,083	446,083	-
A9	2024/25	Resurfacing and Strengthen of Taxiway K	791,545	712,391	39,577	39,577	-
L5	2024/25	Aviation Parkway Extension	1,550,295	-	775,148	775,148	-
A10	2024/25	Taxiway K Connector/Partial Taxiway J Removal	1,342,600	1,208,340	67,130	67,130	-
Total			41,262,791	28,081,756	2,335,245	8,811,555	2,034,235

Table 1-6 - CIP Summary - Phase II

Project	Federal Fiscal Year	Project Description	Project Cost (\$)	Funding (\$)			
				Federal	State	Local	Private / Other
Phase II (Federal FY 2026-2030)							
L6	2026/27	Construct East Ramp Access Road	3,737,905	-	1,868,953	1,868,953	-
A11	2026/27	Taxiway F Realignment	6,269,035	5,642,132	313,452	313,452	-
L7	2026/27	East Hangar Construction	1,777,250	-	-	-	1,777,250
L8	2027/28	Relocate Combined ARFF Station & Future ATCT (East Ramp)	20,369,190	-	10,184,595	10,184,595	-
A12	2027-30	East Ramp T-Hangar Taxilane Development	2,743,775	2,469,398	137,189	137,189	-
L9	2027-30	Replace East Ramp T-Hangars	4,938,550	-	-	4,938,550	-
A13	2029/30	Addition/Enhancement of Wind Cones	376,105	338,495	18,805	18,805	-
L10	2029/30	Construct 105,000 Sq Ft MRO Hangar	21,211,100	-	-	-	21,211,100
Total			57,685,005	8,450,024	10,654,041	15,592,591	22,988,350

Table 1-7 - CIP Summary - Phase III

Project	Federal Fiscal Year	Project Description	Project Cost (\$)	Funding (\$)			
				Federal	State	Local	Private
Phase III (Federal FY 2030-2040)							
A14	2031/32	Taxiway C and D Realignment	9,997,300	8,997,570	499,865	499,865	-
A15	2032/33	East Ramp Development Area Construction	2,150,395	-	1,075,198	1,075,198	-
A16	2033	Airport Master Plan	805,000	724,500	40,250	40,250	-
L11	2034/35	Construct Future Landside Access Road (Taxiway A/B development area)	3,334,465	-	1,667,233	1,667,233	-
A17	2034/35	Future Taxiway F Extension	4,462,645	4,016,381	223,132	223,132	-
A18	2035/36	Taxiway A/B Development Area	17,284,450	-	8,642,225	8,642,225	-
L12	2036-39	Construct Conventional Hangars (Taxiway A/B development area)	31,858,985	-	-	-	31,858,985
A19	2037/38	Construct Future Commercial Service Terminal Building	10,417,260	-	5,208,630	5,208,630	-
L13	2038/39	Construct Future Commercial Service Terminal Building	25,148,000	-	-	25,148,000	-
A20	2039/40	Taxiway K2 Extension	556,490	500,841	27,825	27,825	-
Total			106,014,990	14,239,292	17,384,357	42,532,357	31,858,985

Table 1-8 - CIP Summary - Full Program Overview

Full Program Overview	Project Cost	Funding (\$)			
		Federal	State	Local	Private
Phase I Total	41,262,791	28,081,756	2,335,245	8,811,555	2,034,235
Phase II Total	57,685,005	8,450,024	10,654,041	15,592,591	22,988,350
Phase III Total	106,014,990	14,239,292	17,384,357	42,532,357	31,858,985
Full Program Total	204,962,786	50,771,071	30,373,643	66,936,503	56,881,570

Covid-19 Master Plan Disclaimer

Airport master planning is intended to aid an airport in achieving its future goals and objectives by documenting existing conditions, observing past trends to project future growth expectations, and providing a development plan of future facilities needed to meet the airport's future demands. This Airport Master Plan Update (AMPU) commenced in April 2018, and the predicted growth in aviation activity was based upon official FAA historical records on aircraft operations and passenger enplanements reported from 2008 through 2018. The Federal Aviation Administration (FAA) finalized their review and initially approved the aviation activity forecasts associated with this AMPU on November 5th, 2019, with a revised and final approval received on August 4th, 2020.

On March 25th, 2020, the United States President approved disaster declarations for Tennessee and other states, resulting from what is currently a global pandemic (the Pandemic) of coronavirus disease 2019 (COVID-19) also commonly known as the 'coronavirus pandemic', caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

The global air transport impact from the Pandemic has been unprecedented. Since the birth of commercial passenger aviation in 1926, no other pandemic or event, including the September 11, 2001 Terrorist Attacks (9/11), has been as catastrophic to aviation demand. By comparison, overall revenues from the airline industry fell by \$23 billion in the wake of 9/11, whereas forecast implications of the Pandemic range from \$63 to \$113 billion lost revenues.

Airports Council International (ACI) released an updated model in May 2020 which forecast prolonged and more widespread impacts and effects of the Pandemic, resulting in worse predictions for traffic and revenue losses for airports across all regions. ACI's current prediction estimates a reduction of more than two billion passengers at the global level in the second quarter of 2020 and more than 4.6 billion passengers for all of 2020. That represents an estimated decline in total airport revenues on a global scale of \$39.2 billion in the second quarter and more than \$97 billion for 2020.

In effort to reduce those impacts to U.S. airports and airlines, among other industries, U.S. Congress passed the Coronavirus Aid, Relief, and Economic Security (CARES) Act (H.R. 748, Public Law 116-136), which was signed into law by the President on March 27, 2020. The CARES Act included \$10 billion in funds to be awarded as economic relief to eligible U.S. airports which were affected by the prevention of, preparation for, and response to the Pandemic.

As such, the projections and forecasts in this AMPU are unlikely to occur by their presented timelines. However, given the almost inevitable recovery of the aviation industry, the levels of aircraft operations and passenger enplanements predicted by this AMPU should increase the shelf life of the plans presented to facilitate that growth. Furthermore, the timelines presented in the forecast chapter should be viewed as Planning Activity Levels (PALs) to understand that future airport improvements are tied to such levels and not dates on a calendar. This AMPU focusses on four PAL periods; immediate, intermediate, mid-range and long-term, which would traditionally be associated with the first five years, then ten, fifteen, and finally 20 years from the baseline year of the forecasts, in this case 2018. Given the uncertainty caused by the Pandemic, development presented in this AMPU may require further justification prior to its implementation.



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SMYRNA/RUTHERFORD COUNTY



AIRPORT AUTHORITY

**Airport Master Plan 2020
Smyrna Airport**

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