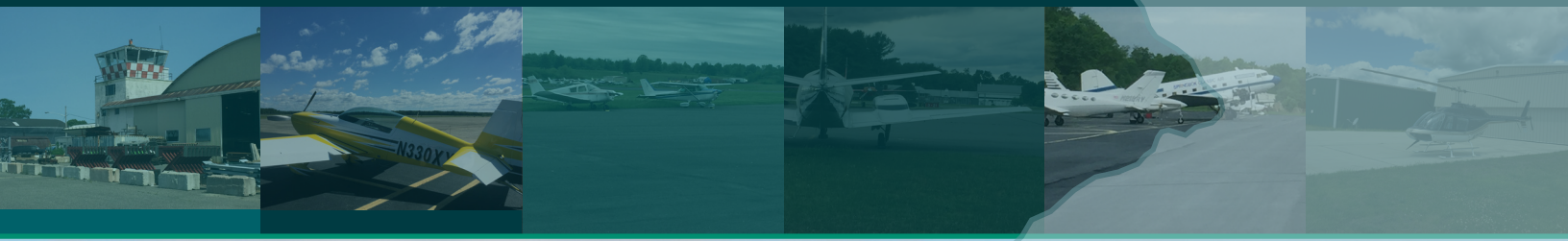
New Jersey State Airport System Plan

Executive Summary



Delivering a better world

June 2022

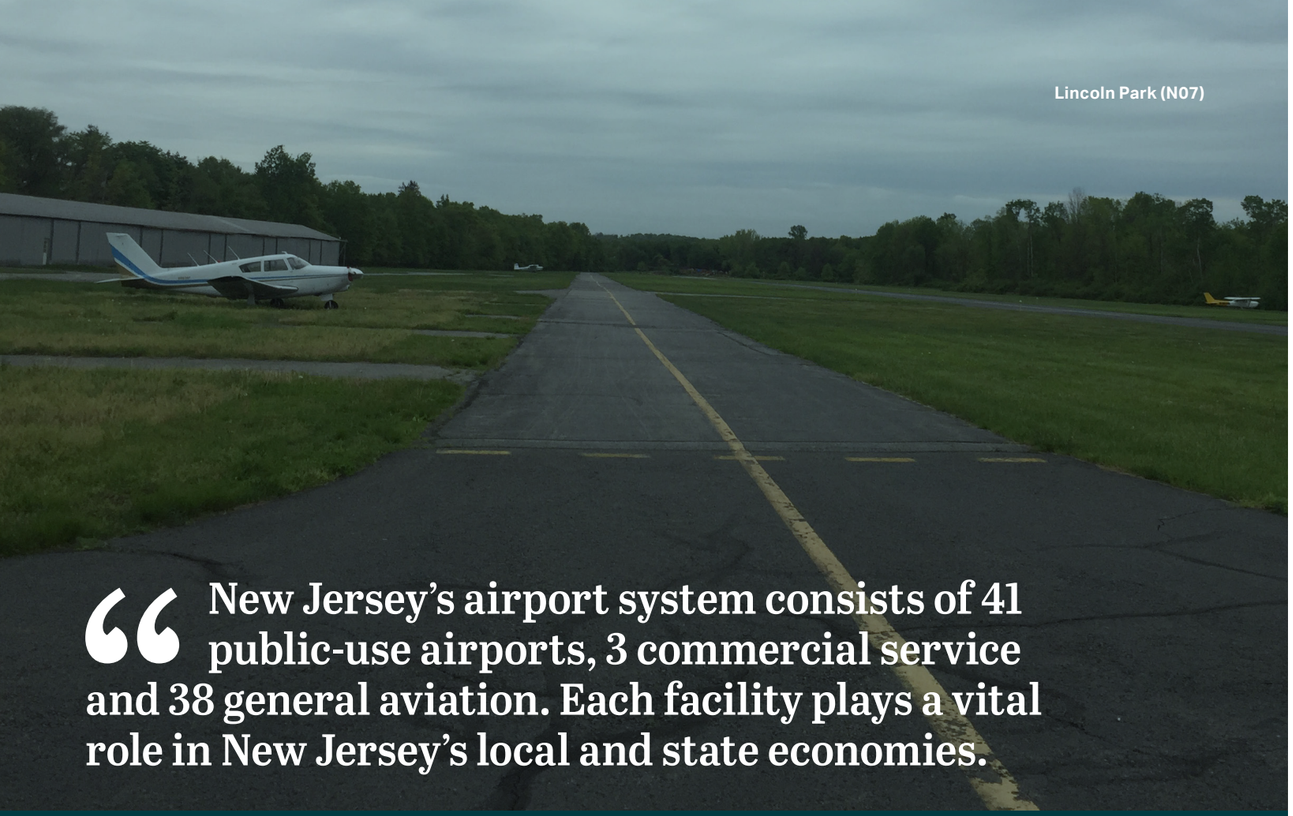
New Jersey State Airport System Plan Facts

- The system plan focuses on the State's public-use aeronautical facilities
- New Jersey's airport system includes 40 airports* and 1 seaplane base
- Of the 41 public use facilities, 24 are privately owned and 17 are publicly owned
- In 2019, over 1.1 million general aviation operations (landings and takeoffs) are accommodated by New Jersey's public use airports
- New Jersey's 3 commercial service airports accommodated over 530,000 commercial airline operations and served more than 23.3 million passengers in 2019
- In 2019, New Jersey airports had 4,309 registered based aircraft; across system airports, there are over 1,800 aircraft tie-down spaces, 1,100 T-Hangar spaces, and nearly 3 million square feet of conventional hangar space
- Sixteen airports have more than one runway
- Eleven airports have a runway length of 5,000 feet or greater
- Over 99 percent of New Jersey's population lives within a 30-minute drive time of any New Jersey airport
- Over 99 percent of New Jersey's businesses have access to any New Jersey airport within a 30-minute drive time

* At the initiation of the New Jersey State Airport System Plan (NJ SASP) in 2018, the New Jersey airport system consisted of 42 public-use facilities. Trinca Airport (13N) closed in September 2020 during the course of the Study. The analyses contained within the study are inclusive of Trinca Airport, unless otherwise noted.

"New Jersey's airport system is one of the most unique and complex in the U.S. The State's diverse airports range in size from small general aviation airports with turf runways to Newark Liberty International Airport, one of the nation's busiest commercial airports."

Princeton (39N)



Lincoln Park (N07)

> New Jersey's airport system consists of 41 public-use airports, 3 commercial service and 38 general aviation. Each facility plays a vital role in New Jersey's local and state economies.

Importance of New Jersey Airport System

New Jersey is one of the most densely populated states in the nation and home to a unique system of airports. From small general aviation airports with turf runways to Newark Liberty International Airport. Airports range in size and function – and each aviation facility plays a unique role in the State.

In 1931 the State Legislature had originally created the New Jersey Department of Aviation, the Aviation Commission and the Office of the State Director of Aviation due to the increasing popularity and use of airplanes in New Jersey. Some of the system airports have been open for almost 100 years and contribute to the State's rich history in aviation, including Newark Liberty International (EWR), which opened in 1925, Hackettstown (N05) in 1935, Lincoln Park (N07) in 1938, and Essex County (CDW) in 1941.

Airports play a vital role in New Jersey's local and state economies, not only providing transportation for residents, businesses and visitors, but also serving as key economic drivers. The New Jersey Statewide Airport Economic Impact Study was last published in September 2016. The study analyzed data from the U.S. Department of Commerce – Bureau of Economic Analysis and found that air transportation generated more than $3 billion in gross state product (direct output) across New Jersey. The study also found, between 2003 and 2016, total gross state product associated with air travel more than doubled, from roughly $1.5 billion to almost $3.5 billion.

In addition to generating economic impacts in the State, its airport system serves as a test bed for new aviation technologies, such as unmanned aircraft systems (UAS) and drones. New Jersey Department of Transportation (NJDOT) is at the forefront of UAS and drone technology and utilizes it where appropriate to increase safety, reduce congestion and save time.

The Public Use Airports Task Force (Task Force) was established through New Jersey Statute § 6:1-44.3 in January 2020 to study and develop findings for improving the New Jersey airport system. One of the key areas to be addressed is airport funding. The Task Force is charged with exploring policy changes to increase funding, identify specific initiatives to increase investment and public interest in aviation and the aerospace industry, and analyze current Federal Aviation Administration (FAA) assurance requirements to increase the amount of federal assistance received by public-use airports in the State, as mandated in Subparagraphs 3.a.(3), (9), and (11) of the above mentioned New Jersey Statute. It is recommended that the Task Force work with NJDOT and consult the analyses in the 2022 NJ SASP for its report of findings and final recommendations to the Governor of New Jersey.

2022 NJ SASP Goals and Objectives

This 2022 NJ SASP studies and evaluates the capability of New Jersey's airport system's facilities to accommodate anticipated future demand and presents a comprehensive development and funding plan to improve aging and/or inadequate airside, landside, terminal, and support facilities over a 20-year planning horizon.

The state airport system plan for New Jersey has been developed in accordance with the Federal Aviation Administration's Advisory Circular 150/5070-7 - The Airport System Planning Process. The 2022 NJ SASP serves as an update to the last system planning study, published in 2007.

This system plan includes the following components:

- Inventory of data on each of the system airports;
- Analysis of socioeconomic and aviation industry trends;
- Assessment of airport roles from the prior 2007 NJ SASP and an evaluation of needs for airport role changes in this system plan;
- Forecasts of aviation demand;
- Identification of improvements at each system airport to meet New Jersey's airport service role facility, service, and equipment objectives;
- Analysis of airport system coverage measured by population accessibility;
- Identification of development costs for projects that are eligible for public funding;
- Systemwide recommendations to meet NJDOT Goals and Objectives.

2022 NJ SASP Goals	2022 NJ SASP Objectives
Airport Preservation "Preserve the New Jersey Airport System"	– Maintain airport elements critical to operations – Support aviation education – Raise public awareness of airport benefits – Promote planning and development initiatives – Enhance airport zoning and land use compatibility to support preservation and development
Safety and Security "Provide a safe and secure airport system"	– Enhance the safety of approach and departure procedures – Ensure conformance with key FAA Safety Standards – Ensure a secure airport environment
Capacity and Efficiency "Support an efficient airport system that maintains the flexibility to respond to changes in future demand."	– Plan for sufficient airport development to meet forecasted demand and needs identified in the airport master plan – Ensure airfield capacity can accommodate user demands and needs – Ensure landside capacity can accommodate user demands and needs
Economic Growth "Support economic growth in the State of New Jersey through airport activity"	– Develop and maintain airport infrastructure to attract new business – Promote job creation in the aviation sector – Identify the economic contributions of the airport system and individual airports

New Jersey's Airport System Roles

An airport classification system allows for a state agency to define and assign functional roles to each of the state's system airports and set specific facility, service, and equipment objectives for each airport service role. In New Jersey, the 41 public-use aviation facilities are classified into seven airport service roles and and placed under two broader categories of Core and Core Candidate airports. The airport service roles and categories are described below. As part of this 2022 NJ SASP update, the 2007 NJ SASP definitions for the airport service roles and Core/Core Candidate classifications were reviewed and updated to align with NJDOT's strategic priorities today.

The 2007 NJ SASP recommendations included the creation of two new service roles that were adopted at the onset of this NJ SASP: Priority General Service and Duplicative Basic Service.

Core Airports : NJ SASP functional levels included in the Core Airports category are Scheduled Service, Advanced Service, Priority General Service, and General Service. At the discretion of NJDOT, airports in other service roles may be classified as Core Airports due to their importance in the airport system.

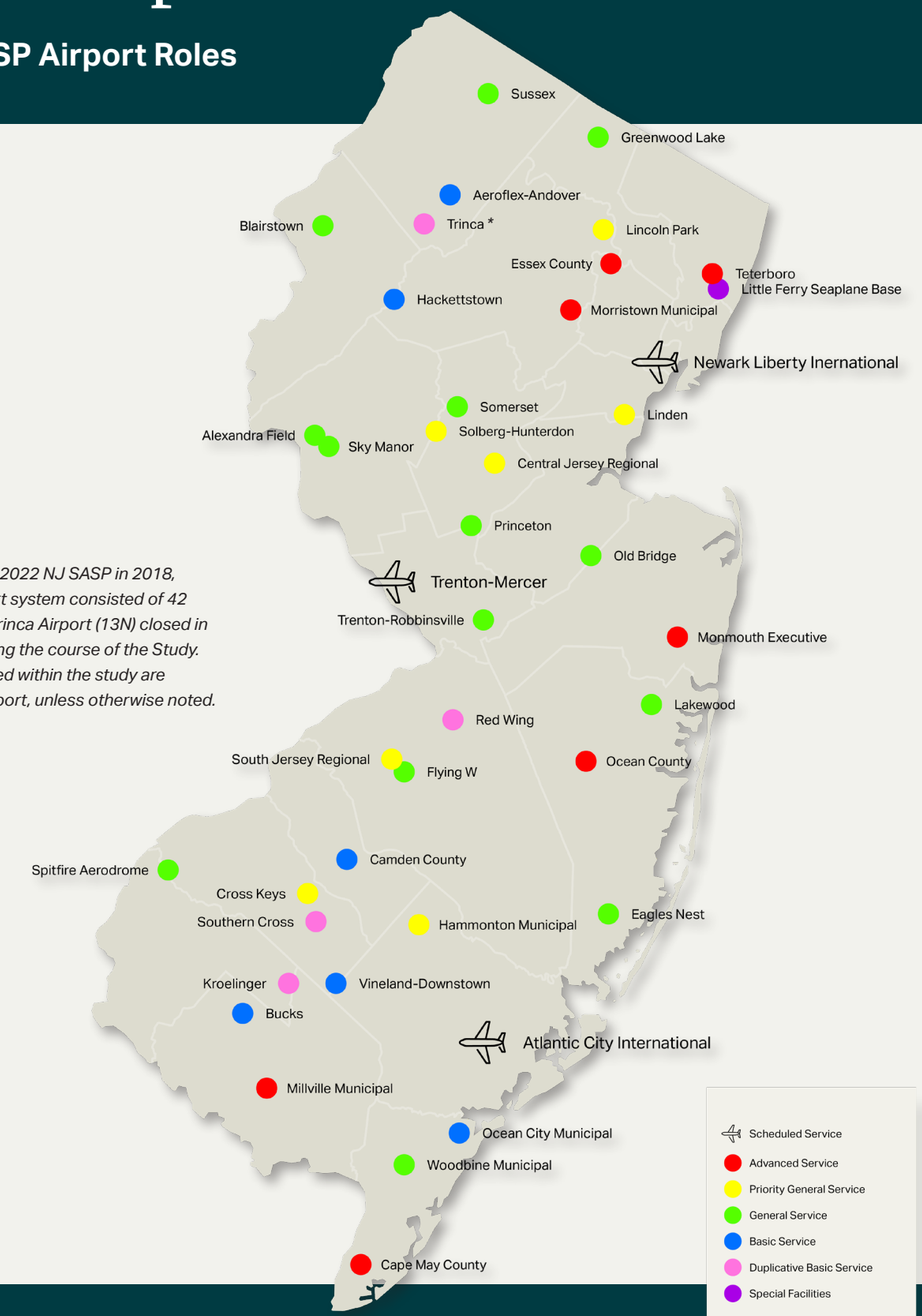
- **Scheduled Service :** Scheduled Service Airports include airports that are certified by the FAA as Part 139 operators with a Class I, II, or III designation. These airports meet the facility, service, safety, and standard requirements necessary to, and regularly, provide scheduled air service. Where capacity constraints do not limit, this functional level of airport can also support general aviation activities including corporate/executive operations, business, recreational activities and flight training. Should a nonscheduled service airport acquire commercial service, it would be considered a Scheduled Service airport upon reaching 10,000 annual enplanements.
- **Advanced Service :** Advanced Service airports are general aviation airports located near or in larger metropolitan areas that are intended to function as relievers to larger, more congested Scheduled Service airports, providing comparable general aviation facilities and services typically found at a scheduled service airport. These airports support corporate/executive operations, private pilot business and recreational activities, and flight training.
- **Priority General Service :** Priority General Service (PGS) airports are general aviation airports that contribute significantly to the airport system and should ideally be upgraded to Advanced Service, but have constraints that make expansion at these airports unlikely or unfeasible. For those airports included in the Priority General Service functional level, minimum facility and service objectives have been identified. The SASP recommends that any airport included in the Priority General Service functional level be developed to the fullest extent possible in efforts to comply with the Advanced Service functional level objectives. Where meeting the Advanced Service facility and service objectives is impossible or unfeasible, the minimum facility and service objectives of the Priority General Service airport functional level should be applied. The services at PGS airports may include fuel sales, aircraft rental, and pilot training.
- **General Service :** General Service airports provide general aviation facilities and services to a smaller market segment than Priority General Service and Advanced Service airports. These airports are intended to support smaller corporate aircraft and the operations of general aviation aircraft by private pilots for business or pleasure. The services at General Service airports may include fuel sales, aircraft rental, and pilot training. General Service airports also provide the majority of the system's operational and storage capacity for single and multi-engine piston aircraft.

Core Candidate Airports: The majority of Basic Service and Duplicative Basic Service airports identified in the NJ SASP are in the Core Candidate Airport category. There is one Specialty Service airport in the New Jersey Airport System, Little Ferry Seaplane Base, which is also included in the Core Candidate Airport category.

- **Basic Service :** Basic Service airports generally have a lower level of operational activity than other general aviation airports. These airports include facilities with paved or turf runways that support small GA aircraft (single and light twin aircraft), storage, and operation. Basic Service airports are intended to support private pilots that require minimal support facilities and services.
- **Duplicative Basic Service :** Duplicative Basic Service airports provide duplicative coverage to basic service airports and accommodate low levels of activity.
- **Specialty Service :** Special Service Facilities include those aviation facilities, such as heliports, glider ports, seaplane bases, balloon ports, and ultralight facilities, that primarily support components of aviation demand other than fixed-wing aircraft.

New Jersey Airport System Map

2022 NJ SASP Airport Roles



** At the initiation of the 2022 NJ SASP in 2018, the New Jersey airport system consisted of 42 public-use facilities. Trinca Airport (13N) closed in September 2020 during the course of the Study. The analyses contained within the study are inclusive of Trinca Airport, unless otherwise noted.*

Socioeconomic and Aviation Industry Trends

Socioeconomic Trends

- Almost half of the New Jersey counties have unemployment rates below the national average.
- Morris County and Somerset County are experiencing the lowest unemployment rates of 3.6 and 3.8 percent, respectively, as of 2017.
- Population growth is forecasted for 10 out of 21 New Jersey counties from 2018 to 2028.
- New Jersey has the 8th most productive state economy in the nation with income levels that outpace national averages.

Aviation Industry Trends

- Since 2010, general aviation airports in New Jersey have experienced a decrease in operations.
- In the same period, New Jersey airports experienced an increase in business jet operations.
- Business jets' total share increased between 2010 and 2017 from 15 to 17 percent.
- More than 75 percent of all business jet operations occurred at Morristown Municipal (MMU) and Teterboro (TEB) in 2017.

The aviation industry is extremely dynamic. Researchers and innovators are developing new strategies to make the industry more efficient, safer, and sustainable. This presents tremendous opportunities for the aviation sector. While national and state aviation trends demonstrate a decline in general aviation activity, technological advances such as UAS, LSA, and NextGen technology will provide opportunities for growth and development in new areas. These advances have the potential to reshape the way people and goods move, and can enable everyday citizens to enter the aviation world with fewer barriers.

The aviation landscape is changing rapidly, and the needs of new aviation systems are still uncertain. Future operation of UAS and other new technologies may require hangars and other infrastructure currently in place at New Jersey's general aviation airports. Given the difficulty in establishing new aviation facilities in a densely populated state like New Jersey, preservation of existing infrastructure, especially those that may be used with future aviation technology, is advised given the many uncertainties associated with the next wave of aviation technology.

Hammonton Municipal (N81)


Woodbine Municipal (OBI)

Projection of Aviation Demand

Over the entire forecast period, aviation demand is expected to increase for all metrics in the table below. Commercial aviation activity at Atlantic City International, Newark Liberty International, and Trenton-Mercer (TTN) is expected to increase more rapidly than general aviation activity at New Jersey airports, driven in part by increasing global GDP. Historical TAF data would suggest that the number of commercial enplanements that could be handled by each commercial operation has increased in recent years, which contributed to the slower growth of commercial operations than enplanements.

Between 2010 and 2017, general aviation activity has decreased across New Jersey. These recent trends contributed significantly to the lower growth rate for general aviation demand than commercial aviation demand. These forecasts can assist in gauging future airport needs across New Jersey.

Metric	2019	2024	2029	2034	2039	CAGR 2019-2039
Based Aircraft	2,289	2,319	2,362	2,420	2,489	0.4%
GA Operations	1,144,544	1,156,738	1,201,483	1,228,291	1,270,626	0.5%
Commerical Enplanements	23,330,357	26,715,840	30,596,733	35,045,833	40,146,655	2.8%
Commerical Operations	532,871	548,441	609,100	680,560	763,894	1.8%

Recommendations from Coverage Analysis

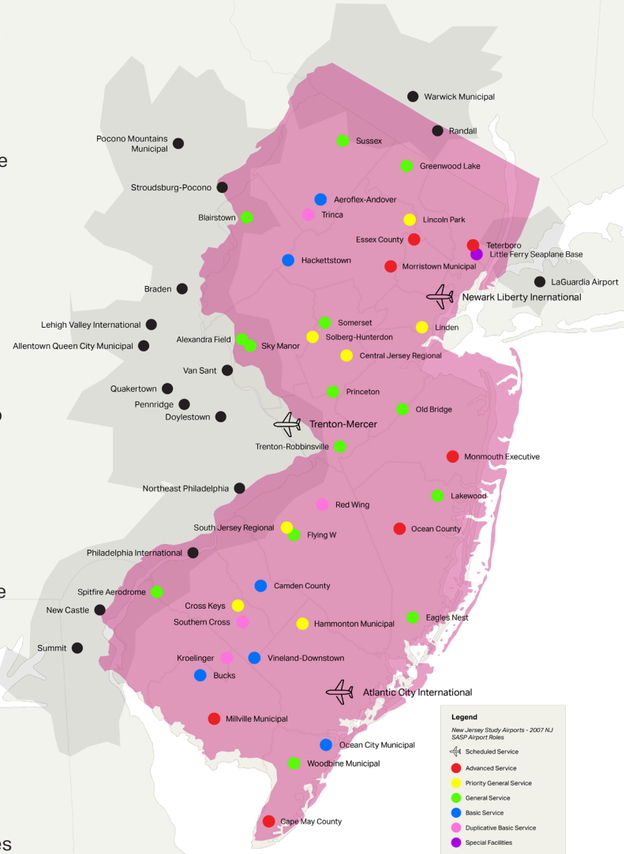
The system adequacy analysis evaluates system performance from a coverage perspective, based on population accessibility, and provides opportunities to improve coverage. Overall, New Jersey airports cover nearly 100% of the State's population.

Various metrics were reviewed and New Jersey population coverage to airports is sufficient, above 90%, for the following metrics:

- **Access to Any Public-Use Airport** – Accessibility to any public-use airport within a 30-minute drive time.
- **Access to Any Scheduled Service Airport** – Accessibility to any airport with scheduled commercial airline service within a 60-minute drive time.
- **Access to Any Advanced Service Airport** – Accessibility to any Advanced Service airport within a 45-minute drive time.
- **Access to Any New Jersey Core Airport** – Accessibility to any Core airport within a 30-minute drive time.
- **Access to Any Airport in the National Plan of Integrated Airport Systems (NPIAS)** – Accessibility to any airport in the NPIAS within a 30-mile radius.
- **Access to Airports with Published Terminal Procedures** – Accessibility to any airport with published terminal procedures within a 30-minute drive time.

The system may be improved for two metrics:

- **Access to Airports with Clear 20:1 Approach Surfaces** – Accessibility to any airport with clear 20:1 approach surfaces within a 30-minute drive time.
- **Access to Airports with a Primary Runway Length of 5,000 Feet or Greater** – Accessibility to any airport with a primary runway length of 5,000 feet or greater.



30-Minute Driving Time to Any Public-Use Airport

Compliance with Design Standards

An important characteristic of a good airport system is it's ability to meet applicable design and safety standards. Generally speaking, when airports in any system comply with such standards, this helps to promote a system of safe and efficient airports. NJDOT recognizes the importance of having an airport system that operates safely. The following SASP safety compliance objectives are:

Runway Safety Area (RSA)

Maintain appropriate dimensions for the primary runway to meet FAA standards as determined by current ARCs for each airport

Runway Protection Zone (RPZs)

Maintain a safe RPZ. The FAA expects airport sponsors to take all possible measures to protect against and remove or mitigate incompatible land uses. Full ownership or control of appropriate property interest through acquisition or easement is recommended, but not required.

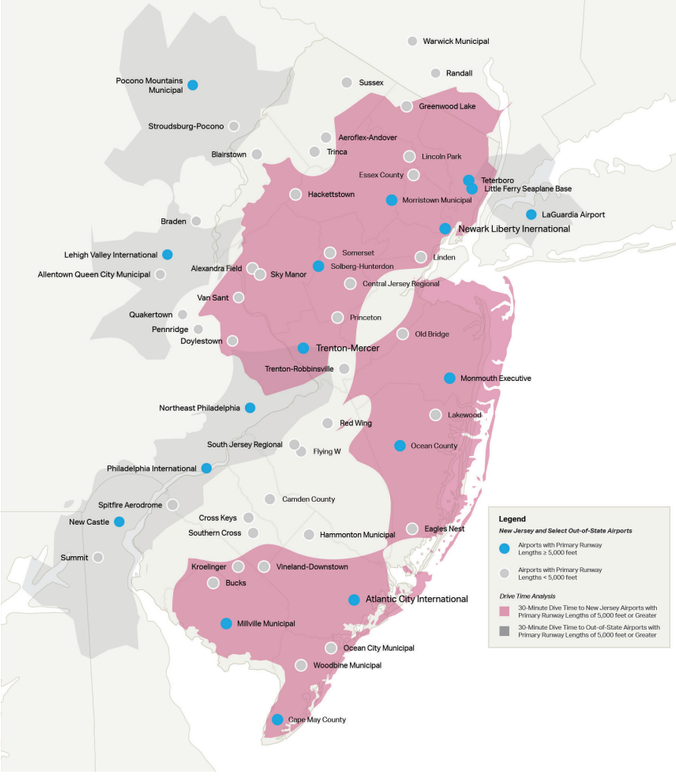
Approach Surface

Maintain clear approaches as per FAR Part 77 AND ensure minimum unobstructed approach surface of 20:1 horizontal to vertical slope at each end of the runway

30-Minute Driving Time to Airports with Primary Runway Lengths of 5,000 Feet or Greater

As of 2019, New Jersey airports and airports in neighboring states provide 83.5% of New Jersey's population within a 30-minute driving time of an airport with a 5,000-foot runway or longer.

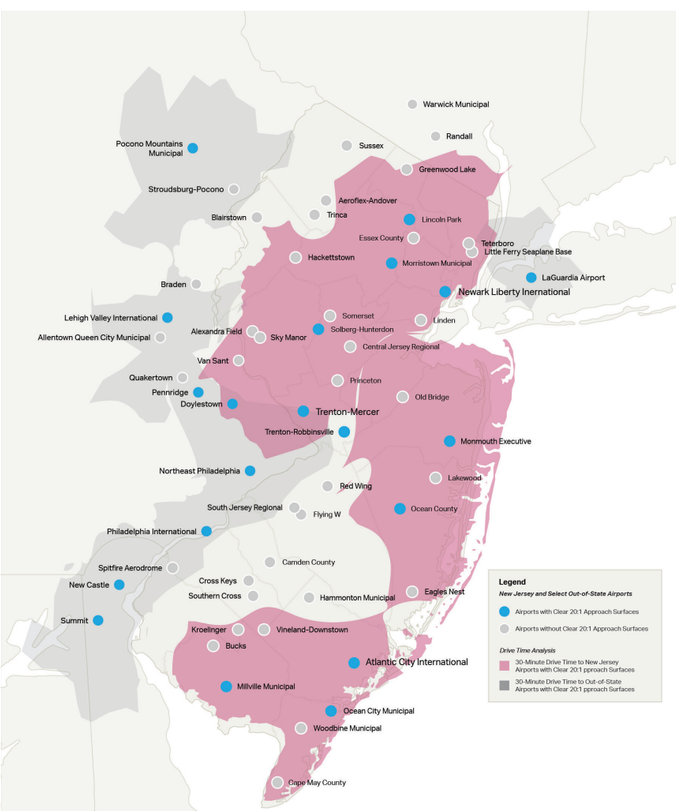
Airports with runway lengths of 5,000 feet or greater are more likely to accommodate needs of the business community and various types of general aviation aircraft. New Jersey's scheduled service and advanced service roles recommend at least a 5,000-foot runway. As New Jersey airports undertake master planning studies, any airports that may need a 5,000-foot runway shall be evaluated, which will improve accessibility for New Jersey's residents to airports with these capabilities in the future.



30-Minute Driving Time to Airports with Clear 20:1 Approach Surfaces

As of 2019, 82.4% of New Jersey's population is accessible within a 30-minute driving time to an airport with clear 20:1 approach surfaces – including New Jersey airports and airports in neighboring states.

To improve New Jersey's future population accessibility to airports that have clear 20:1 approach surfaces, allowing them to offer night-time approach capabilities, airports that have recently undertaken an obstruction study or an environmental analysis for obstruction removal should follow through the necessary regulatory processes to remove or mitigate obstructions.



Recommendations and Development Cost

At the onset of the study, objectives were developed for each of the four strategic goals identified by NJDOT: Airport Preservation, Safety and Security, Capacity and Efficiency, and Economic Growth. For each set of objectives, specific facility, service, and equipment recommendations are set. These recommendations are based on facility requirements findings that identify individual airport needs.

A total of **$466,030,531** is needed over the next 20 years to realize the recommendations in this 2022 NJ SASP. These costs are provided in 2020 US Dollars and are anticipated to increase as inflation rises.

This total development cost does not include other critical safety and security project costs, that require additional master planning-level analysis to capture the unique circumstances at each airport, such as runway safety area and runway protection zone improvements costs and the design and construction of obstruction removals, are not included in the costs estimated in the 2022 NJ SASP. Therefore, the true cost for airports to meet all facility, service, and equipment objectives exceeds the estimated cost of **$466,030,531**.

Considering these critical safety and security project costs, the total cost needed for improving the New Jersey airport system exceeds **$466,030,531.**

2022 NJ SASP Goals	2022 NJ SASP Objectives	Recommendations	Projected Cost for Improvements
Airport Preservation "Preserve the New Jersey Airport System"	– Maintain airport elements critical to operations – Support aviation education – Raise public awareness of airport benefits – Promote planning and development initiatives – Enhance airport zoning and land use compatibility to support preservation and development	– Identify Alternative Airport Funding Sources and Leverage the Public Use Airports Task Force – Conduct Airport Operations Monitoring – Promote Community Engagement – Meet Primary Runway Pavement Condition Objective – Meet Master Plan and Airport Layout Plan Objectives	**$35,813,147**
Safety and Security "Provide a safe and secure airport system"	– Enhance the safety of approach and departure procedures – Ensure conformance with key FAA Safety Standards – Ensure a secure airport environment	– Establish Obstruction Monitoring Process – Meet Airport Reference Code Objective – Meet Approach Type Objective – Meet Navigational/Visual Aid Equipment, Airfield Lighting, and Weather Equipment Objectives	**$59,981,521**
Capacity and Efficiency "Support an efficient airport system that maintains the flexibility to respond to changes in future demand."	– Plan for sufficient airport development to meet forecasted demand and needs identified in the airport master plan – Ensure airfield capacity can accommodate user demands and needs – Ensure landside capacity can accommodate user demands and needs	– Meet Runway Length, Runway Width, Runway Strength, and Taxiway Type Configuration Objectives – Meet Terminal Building Size Objective – Meet Auto Parking Objective – Meet Annual Service Volume Objective – Meet Hangar Space Objective – Meet Public Transit Accessibility Objective	**$366,178,363**
Economic Growth "Support economic growth in the State of New Jersey through airport activity"	– Develop and maintain airport infrastructure to attract new business – Promote job creation in the aviation sector – Identify the economic contributions of the airport system and individual airports	– Meet Public-use Restroom Objective – Meet Fuel Objective – Meet Public-use Wi-Fi Objective – Meet Food Service Objective – Meet Ground Transportation Objective – Meet Aircraft Rental Service Objective – Meet Charter Service Objective – Meet Fixed Base Operator Objective – Meet Aircraft Maintenance Objective	**$4,057,500**

**It is noted that Trinca Airport (13N) was not included in these recommendations and development costs.*

> **"The 2022 NJ SASP does not consider critical safety and security project costs, such as runway safety area and runway protection zone improvements costs and the design and construction of obstruction removals, due to the unique circumstances at each airport. This means that the true cost for airports to meet all facility, service, and equipment objectives exceeds the estimated cost of $466,030,531 over the next 20 years.**

The estimated total cost of **$466,030,531** needed to improve the system over the next 20 years is also presented below by airport role. As shown below, airports in the Priority General Service airport role have the highest cost to improve facilities to meet facility, service, and equipment objectives.

It is important to emphasize that federal and state funding of the costs presented in this story for the identified airport needs based on the minimum facilities, services and requirement objectives developed for this SASP update are not guaranteed and need to be justified through a more detailed master plan study and accompanied by an up to date airport layout plan.

Below is a summary of the estimated costs by New Jersey airport role.

Airport Functional Role	Projected Cost for Improvements
Scheduled Service	$39,325,230
Advanced Service	$124,281,803
Priority General Service	$164,117,784
General Serivce	$124,945,646
Basic Service	$10,199,576
Duplicative Basic Service	$2,625,292
Special Facilities	$535,200
Total Estimated Cost	**$466,030,531**

**It is noted that Trinca Airport (13N) was not included in these recommendations and development costs.*

Recommended Development Plan

The New Jersey State Airport System Plan provides strategic and actionable recommendations that NJDOT and New Jersey system airports should implement to ensure NJDOT's goals of Airport Preservation, Safety and Security, Capacity and Efficiency, and Economic Growth are achieved. The recommendations set forth in this study were developed through an extensive system planning process that consisted of setting goals, objectives, and performance measures for the New Jersey airport system, collecting inventory data, analyzing sociodemographic and aviation industry trends, reviewing and evaluating airport classification systems, projecting aviation forecasts, identifying facility requirements for each airport by NJDOT airport service role, and developing high-level project cost estimates.

The study estimated costs for projects at system airports to improve the overall performance of New Jersey's aviation system. The total estimated cost of the development plan is **$466,030,531** over the 20-year planning horizon. The total project cost estimate for this SASP update is based on rough order of magnitude cost estimating. This system plan provides high-level costs for projects identified in the Facility Requirements analysis as needs for the system airports, where sufficient data was available. Cost elements such as the obstruction removal and any environmental mitigation to clear 20:1 approach surfaces require master plan level analysis that is not part of this study. Therefore a significantly higher total cost can be anticipated for the 20 year planning level than this SASP is able to estimate. This amount represents the estimated cost associated with bringing all existing system airports into compliance with the facility and service objectives of their recommended functional service role.

It is strongly recommended that NJDOT advocate for additional funding to be able to better meet the programmatic and policy recommendations set forth in this SASP and to ensure systemwide preservation and safe and secure airport operations. These programmatic and policy recommendations are listed below.

- Identify Airport Funding Sources
- Establish Airport Operations Monitoring Process
- Promote Community Engagement
- Establish Obstruction Monitoring Process

In addition to the programmatic and policy recommendations above, it is recommended that system airports pursue projects to upgrade their facilities, services, and equipment in compliance with their NJDOT airport service role recommendations. The SASP emphasizes the importance of maintaining up-to-date airport master plans and airport layout plans, as these planning documents provide airport-specific analyses and serve as a basis for funding when airports apply for grants. When airports undertake such planning studies, they should utilize the facility, service, and equipment objectives recommended by their NJDOT airport service role to identify and align facility needs when proposing recommended development projects during the master planning process.

With advancements in technology and the introduction of new transportation modes in the industry, it is also necessary to consider the New Jersey airport system as part of a greater regional multi-modal transportation system. Thus, it is recommended that metropolitan and regional planning organizations consult the SASP when developing regional transportation plans. Such plans set forth development goals and should be coordinated with the SASP's findings and recommendations if possible. Coordination and collaboration between NJDOT, metropolitan and regional planning organizations, New Jersey system airports, and the Public Use Airports Task Force to adopt this study's recommendations is important to meet NJDOT's goals for the New Jersey airport system.

Somerset (SMQ)

"The total NJ SASP development costs are estimated at $466 million over the next 20 years; or $23 million is needed annually to maintain and improve New Jersey airports meaning additional funding is needed to ensure airports meet 2022 NJ SASP goals and objectives.

The preparation of this document was financed in part through a planning grant from the Federal Aviation Administration (FAA) as provided under Section 505 of the Airport and Airway Improvement Act as amended. The contents of this document do not necessarily reflect the official views of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein, nor does it indicate that the proposed development is environmentally acceptable in accordance with applicable public laws.

Monmouth Executive (BLM)

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