

## Executive Summary: Atlanta Airport

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### Purpose

In our analysis, we examined the operational efficiency of the Atlanta airport from both the perspective of an origin and a destination. We aimed to identify critical areas where improvements could be made to enhance overall efficiency and effectiveness. Our investigation focused on four primary areas: diverted flights, cancellations, taxi in and out times, and delays. We aimed to optimize airport operations and improve passenger travel experience by understanding and addressing challenges in these areas.

### Scope

Our analysis included data on every flight departing from and arriving at the Atlanta airport between September 2021 and October 2023, totaling 1,359,461 flights. This comprehensive dataset provided a robust foundation for our examination of operational efficiency. We analyzed a large sample spanning two years to gain insights into the overarching trends and patterns impacting airport operations during this timeframe.

### Key Findings

Overall:

- The southeastern region has the highest volume of flights, with Delta dominating.
- Taxi times and delayed flights all show upward trends.
- The two biggest reasons for the cancellation are carrier and weather.
- Delta has the most canceled and diverted flights, and Frontier Airlines has the highest cancellation rate & high diversion distance when flights don't reach their destination.
- Taxi times need to maximize efficiencies for low-volume flight days.

Origins:

- Most flights are in the evening and the least in the afternoon
- 8,200 flights were canceled, and the overall cancellation rate is 1.22%
- The average nighttime delay is 13.08 minutes
- Controllable delays from Atlanta: NAS and security
- The average monthly taxi-out is 15.66 minutes, with morning time being the highest average
- 1482 diverted flights with more flights reaching their destination & low delay time than average

Destination:

- Most flights are in the morning and the least in the afternoon
- 8600 flights that are canceled, and the overall cancellation rate is 1.27%
- The average nighttime delay is 51.65 minutes
- NAS delays are a primary improvement area
- The monthly average taxi-in is 8.47 minutes, with evening time being the highest average
- 1122 diverted flights with more flights not reaching destination but lower delay time than average

### Recommendations

- **Maximize Efficiency for Low Volume Flight Days:** Implementing strategies tailored to these periods can help minimize delays and enhance operational efficiency.
- **Optimize Taxi Operations for Morning and Evening Flights:** Streamline processes and reduce wait times on the tarmac for morning departures while implementing measures to expedite the arrival process, such as optimizing gate assignments and ground handling procedures for evening arrivals.
- **Improve NAS Coordination Efficiency as Destination:** Enhancing communication and coordination with air traffic control and other relevant stakeholders can help reduce delays and improve the overall reliability of flight operations.
- **Enhance Preparedness for Flights Connecting States and Cities with Higher Cancellation Rates:** Operation managers should proactively monitor and anticipate potential challenges associated with these routes, implementing contingency plans to minimize disruptions and ensure smoother operations.
- **Diverted Flights out of Atlanta Need Preparedness:** Diverted flights flying out being more in volume need operational assistance for scheduled operations to function smoothly.
- **Coordination & Training of staff for Reducing Delays of Diverted flights flying in:** Need coordinated effort of airline attendants and on-ground staff for diverted flights coming in and reduce delayed time. If required training and development program for staff members.