

# Baggage Reclaim Hall Assessment

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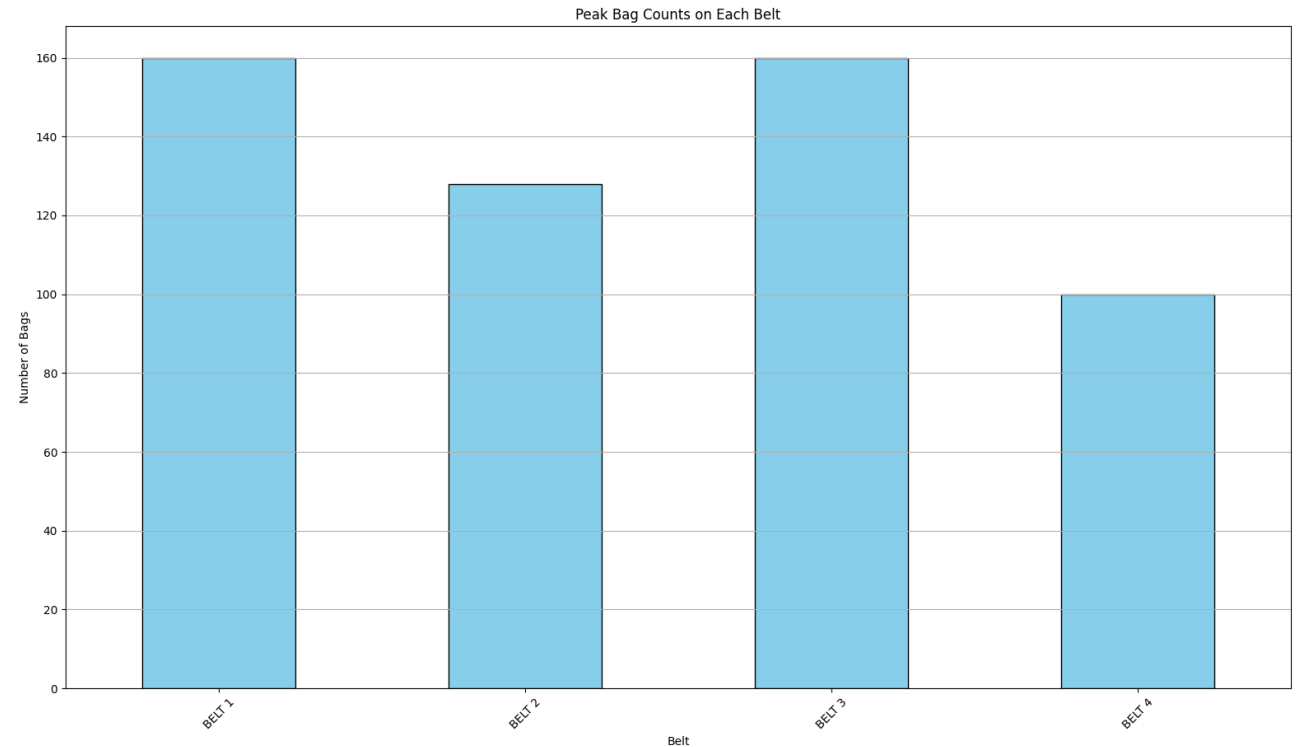
# Introduction

- Baggage reclaim performance is a critical component of passenger satisfaction at airports.
- In order to better understand baggage reclaim performance, we have considered critical elements underpinning this performance, including (i) belt capacities, (ii) key crunch points (including the time of day at which baggage reclaim halls have the most passengers), and (iii) passenger waiting times.
- Whilst it is clear that the baggage reclaim hall is currently operating in a satisfactory way, there are certain inefficiencies which could be addressed and processes which could be optimised.
- Based on our analysis and the inefficiencies the data has flagged, we have proposed some ways of improving baggage reclaim performance, focusing on (i) belt utilisation, (ii) flow management, (iii) infrastructure improvements, and (iv) process modifications.

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# Belt Capacities

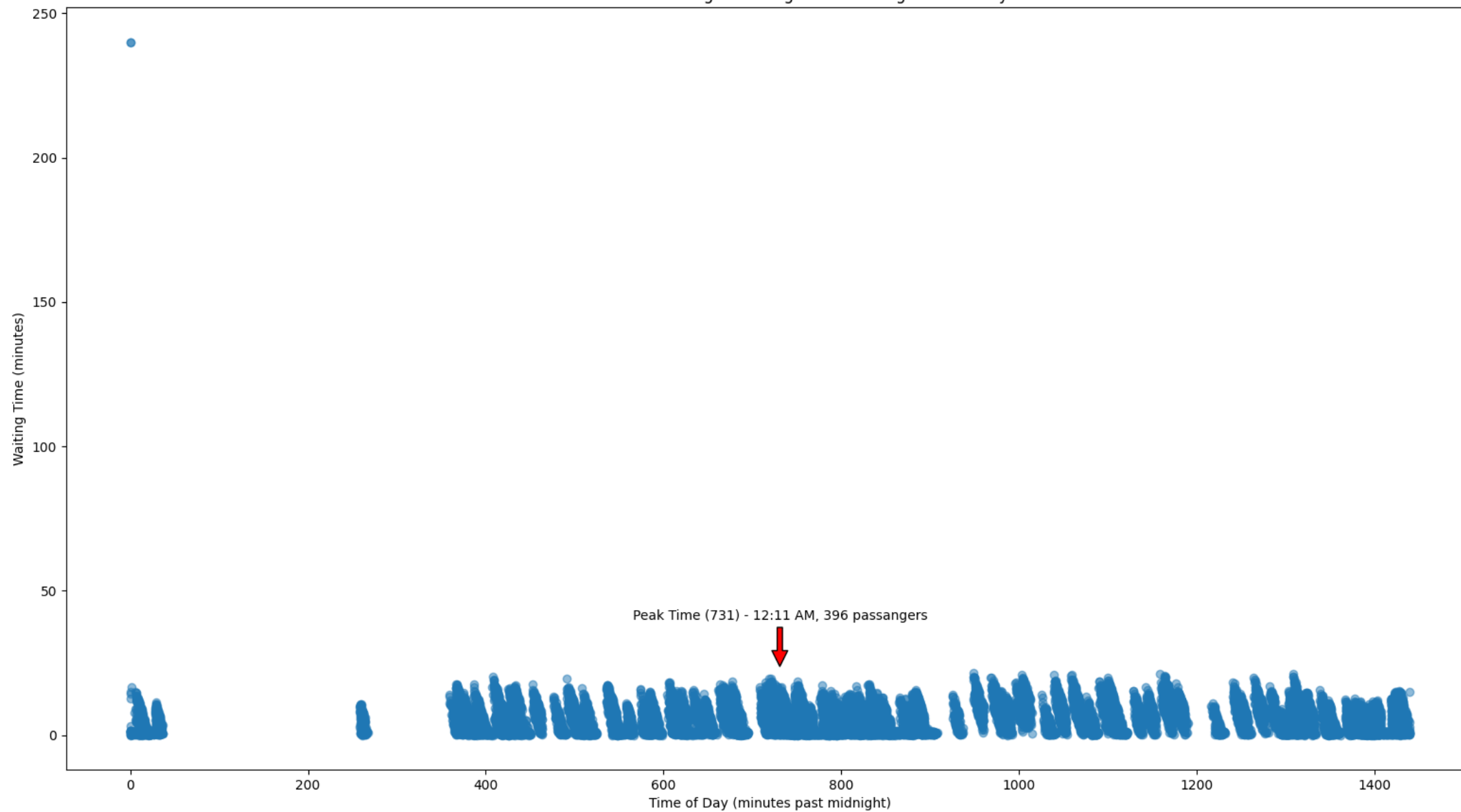
1. **Overview.** The bag capacity for each of the reclaim belts was assessed to identify any shortcomings/inefficiencies.
2. **Assumptions.** In assessing bag capacity, we have assumed that:
  - a. *Limits* - there are limits as to how many bags any given belt can accommodate at any given time, and these limits are fixed; and
  - b. *Distribution* - there is even distribution of bags on all flights being simulated.
3. **Findings.** Based on the bar chart to the right, it is clear that:
  - a. *Belts 1 and 3* - consistently reach their baggage limit and therefore have no further capacity;
  - b. *Belt 2* - is not used to the same extent as Belts 1 and 3; and
  - c. *Belt 4* - consistently reaches its baggage limit, having a lower capacity in general.
4. **Areas for Improvement.** Belt distribution could be improved by redirecting some baggage to Belt 2 which is currently under-utilised. Belt 4's capacity could also be improved.

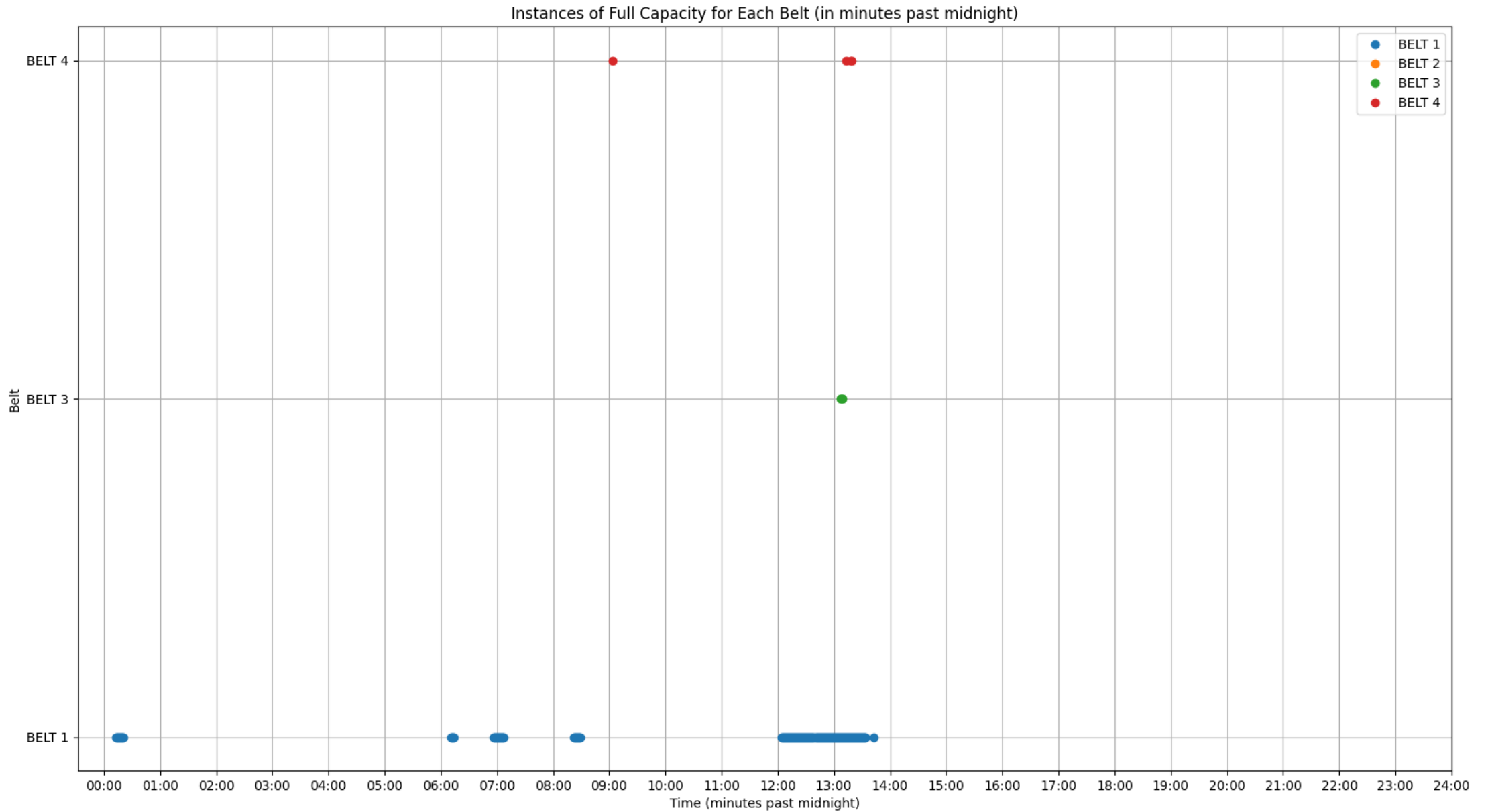


# Key Crunch Points

- **Overview.** Waiting times for baggage reclaim were analysed to identify any times at which demand on baggage reclaim belts may be heightened. Similarly, we identified the times at which belts reach full capacity and when the baggage reclaim hall is the busiest in terms of foot traffic to understand what the crunch points are throughout the day.
- **Assumptions.** In assessing waiting times and peak times for belt capacity, we have assumed that there is a direct correlation between waiting times and passenger satisfaction (i.e. shorter waiting times are correlated with passenger satisfaction) and that high activity is likely to exacerbate delays.
- **Findings.**
  - *Waiting times* – The scatter plot to the right indicates that waiting times tend to be greatest early in the morning and late in the evening. The maximum number of passengers at any one time is 396, which occurs at 12.11am. ([page. 5](#))
  - *Belt capacity peak times* - The timeline to the right also shows that certain belts tend to be at peak capacity at the denoted times. ([Page. 6](#))
- **Areas for Improvement.** Finding the key crunch points throughout the day is helpful in identifying opportunities for process optimisation and flow management measures (e.g. deploying additional staff) to mitigate delays.

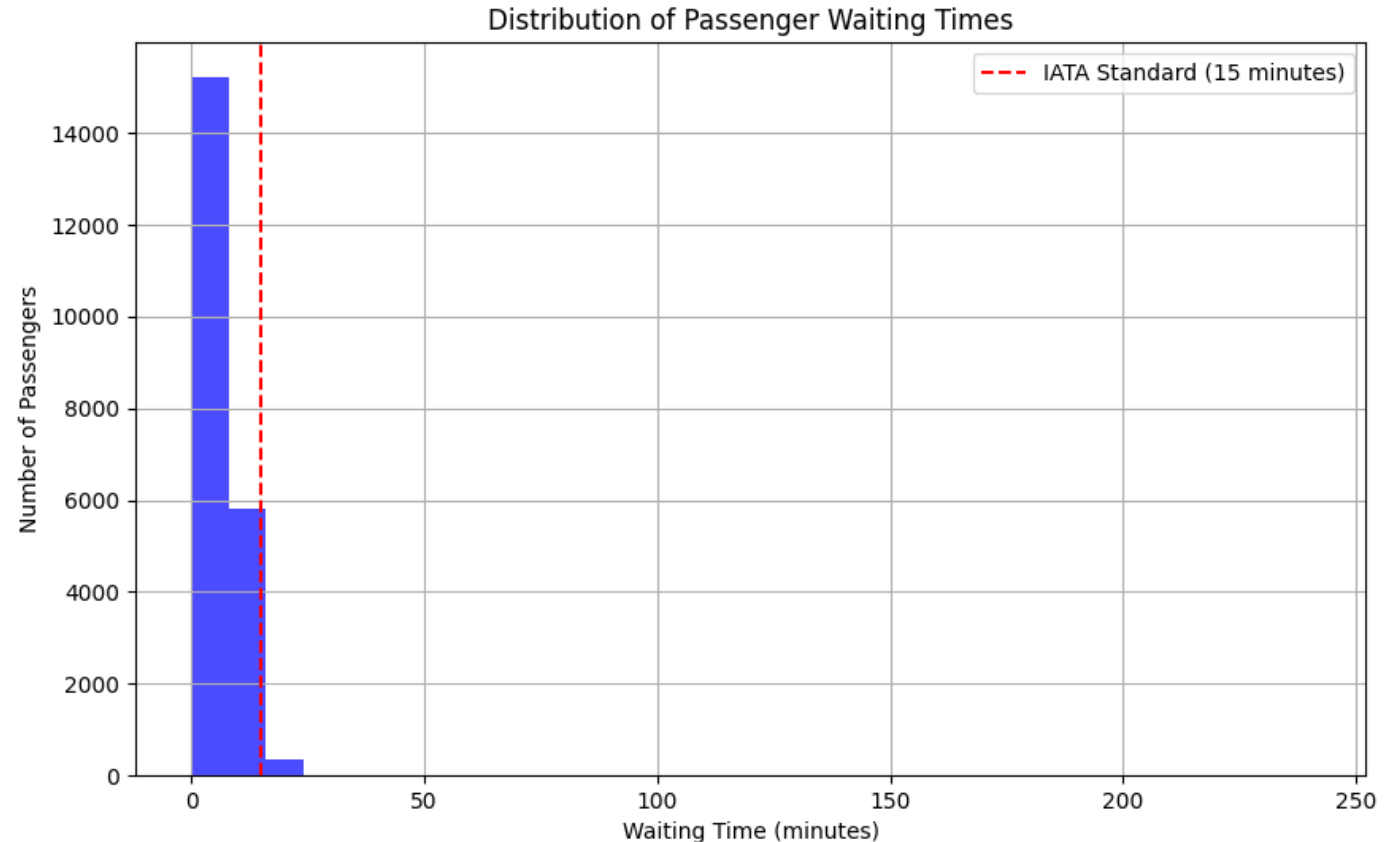
Scatter Plot of Passenger Waiting Times Throughout the Day





# Passenger Waiting Times

1. **Overview.** Waiting times for baggage reclaim were also analysed to identify how long passengers wait for baggage, bearing in mind that the IATA standard is 15 minutes.
2. **Assumptions.** In assessing the distribution of waiting times, we have assumed that:
  - a. *Prompt arrival* - passengers land and proceed promptly to baggage reclaim with no other delays (e.g. long transfers to the baggage reclaim hall, unexpected delays); and
  - b. *Single bag* - passengers only have one bag, not multiple bags (as this could mean the bags arrive at different times).
3. **Findings.** The histogram to the right indicates that most passengers are not exposed to long wait times/wait times which are not IATA-acceptable (over 97% of passengers). Few passengers experience wait times exceeding 15 minutes. This suggests that most passengers have a good experience with respect to waiting times.
4. **Areas for Improvement.** There are instances where passengers are waiting beyond what is acceptable - we would recommend focusing on these instances to assess ways of improving waiting times.



# Recommendations

Whilst it is clear that the baggage reclaim hall is currently operating in a satisfactory way, there are certain inefficiencies which could be addressed and processes which could be optimised. We have outlined some key recommendations in this respect below.

## A. Belt Utilisation

1. **Distribution.** Ensure that baggage is distributed across all four belts, taking into account that Belt 2 has unused capacity.
2. **New Belts.** Consider adding new belts or increasing existing belts' capacity by optimising them/using new technology.

## B. Flow Management

1. **Monitor.** Monitor belt usage in real time (for instance by using *in situ* cameras paired with an AI solution) to identify issues as they arise so that they can be addressed expeditiously.
2. **Phased Release.** Implement new technology to ensure that bags are released on a phased basis to avoid jams.

## C. Infrastructure Improvements

1. **Consider Expansion.** Depending on future flight paths and demand forecasts, there may be a need to have several baggage reclaim halls to address issues of congestion both in terms of baggage and in terms of passenger use.
2. **Integrate AI.** As an expansion to recommendation B1 above, integrate AI solutions more widely in the baggage reclaim infrastructure, for instance to redirect baggage to belts with capacity when certain belts reach their capacity.

## D. Process Modifications

1. **Build Process Efficiency.** Additional staff could be deployed at peak times to assist with any bottlenecks experienced or other technical issues.
2. **Keep Passengers Informed.** Passengers may have better experiences even with delays if they are adequately informed of (i) the location of their baggage reclaim, (ii) likely wait times, and (iii) location of key areas, including trolley storage, bathrooms, and information desks. This could be achieved via straightforward apps monitored and updated in real time.