# IATA Level of Service (LoS) Best Practice

## Introduction

The IATA Airport Development Reference Manual 12th edition recommends the improved Level of Service (LoS) concept, providing airport planners with a best practice framework for sizing passenger terminal sub-systems (e.g., check-in, security, etc.). LoS considers space and queueing time requirements with the goal of achieving cost-effective airport infrastructure that satisfies the needs of airports, airlines and passengers.

## What is the LoS?

Unlike other elements of airport infrastructure, the capacity of a passenger terminal building is not governed by fixed, pre-defined rules but by a combination of different factors including the capacity and interaction of different subsystems. LoS is a basic airport planning tool that provides a useful framework to support the design and expansion of airport terminal facilities and to monitor the capacity of existing facilities.

The parameters that define a passenger terminal's capacity are directly related to passenger experience and comfort factors. Therefore, the LoS framework provides guidelines in terms of space, maximum queueing time and seating for:

- Public departures / arrivals halls
- Check-in area including self-service kiosks, bag drop desks/units and traditional check-in desks
- Security control
- Emigration / Immigration control
- Gate holdrooms / departure lounges
- Baggage reclaim
- Customs control

The IATA LoS methodology uses four categories to classify the service levels of passenger terminal facilities:

- Under-Provided
- Sub-Optimum
- Optimum
- Over-Design

The first two categories indicate facilities that do not meet criteria for space, queueing time or seating. The final category, over-design, signals that that there is excessive space, overprovision of resources and a facility that may be economically unfeasible to build and operate.

IATA recommends that planners should strive to achieve the 'Optimum' range for each facility. The aim is to ensure sufficient capacity within the terminal building and strike a reasonable balance between service quality and costs. An optimum facility will provide a very good passenger experience and acceptable queueing times without incurring excessive capital and operating costs.

## Important Considerations

Planning airport passenger terminal infrastructure is a complex matter – therefore the LoS framework needs to be carefully assessed and understood before it is applied. Several critical areas are especially important:

### Subject Matter Expertise

- The successful use of LoS requires knowledge and expertise. Therefore, qualified professionals should be hired/retained to assist in its implementation.

### Typical busy day

- The LoS framework should be applied within the context of typical busy periods. There are several definitions of typical busy; therefore, the most appropriate should be used.
- The selected method should be used to identify the relevant period of time to apply the LoS. This period must never equate to the absolute peak times of the year to avoid overprovision. The main outcome of the busy period analysis is the identification of the 'busy hour'.
- Passenger demand usually fluctuates according to season, day of week or time of day; consequently, the LoS will also vary. Planners should therefore target an Optimum LoS in the

knowledge that during peak traffic periods the optimum LoS may not be achieved. Likewise, planners should also understand that during other periods of time, with lower traffic than the typical busy periods, the LoS may fall in the Over-Design category.

### Design date

- Facility Design should be developed for a forecast 'busy hour' and should provide facilities that are phased in to operate at an optimum LoS for the required period.
- Until the airport reaches that forecast level of activity, the facilities will function at a higher LoS. Depending on the timeframe (usually between 5 and 10 years) and forecast milestones being considered in the planning stage, facilities are often planned to fall into the over-design category during the new facility's initial start-up period.
- However, over-design is an important planning consideration that needs to be discussed by both airport management and its stakeholders in order to ensure a clear understanding and support for the strategy.
- When an overdesigned sub-system will not reach its capacity until well into the future (10+ years), the result is likely to be empty space, overprovision of resources and unnecessary costs.

## Uses of the LoS

The LoS can be used for a number of different purposes. The most common uses for the framework are described in this section.

### Measure existing facilities

- LoS can be used when measuring the performance of existing facilities to establish the relationship between current and expected performance.
- Those measures could help identifying the bottlenecks of those facilities and potential operational improvements to overcome the reduced LoS.
- LoS should be measured at relevant periods, considering current demand compared with design dates and lead times. Failing to do so may generate misleading conclusions and misinterpretations of the results.

### Conducting a capacity analysis

- A capacity analysis is a theoretical exercise with the objective to identify (using rules of thumb, mathematical formulas, simulation modelling, etc) the capacity of any airport sub-system (existing or planned) and its relation with current or forecast demand.
- Capacity definition for any passenger terminal subsystem cannot be understood without a quantifiable measure of the passenger experience and comfort. Therefore, LoS is required to determine the appropriate parameters for any capacity analysis of a terminal subsystem or building.

### Designing new facilities

- The methodologies for designing new terminal facilities vary from simple rules of thumbs and capacity formulas to more sophisticated methods like dynamic spreadsheet modelling or specialized simulation modelling software.
- What these methods share in common is the use of LoS parameters as a basic input.

## LoS and airport concessions

- The LoS is often used by grantors of airport concessions as a set of minimum requirements for the concessionaire to fulfil as part of the agreement.
- It is important that the LoS be correctly interpreted and implemented in the concession agreement according to the LoS framework. This should include consideration for typical busy periods, lead times and design dates.
- It is strongly recommended that qualified professionals be hired when setting up these requirements in concession agreements. In addition, airlines and other relevant stakeholders should be consulted before any LoS requirements are set in a concession contract.
- IATA does not support any use of the LoS that is inconsistent with the principles and guidelines listed in this paper. This is especially important in the case of long-term agreements such as concession contracts.
- IATA specialists can also assist to ensure a successful implementation (contact: airportdevelopment@iata.org).

## What the LoS is not

The LoS framework has evolved over recent years, therefore it is important to understand its proper use and what it is **not** intended to do such as:

- LoS only provides guidance for the terminal facilities identified on page one. It does not cover areas for circulation, structural elements, or retail space and toilets.
- LoS does not apply to components such as airside infrastructure, surface access or support elements.
- The LoS does not provide guidance on other terminal building components that may have a significant impact on the overall costs. Architectural design, ceiling heights, fittings, finishes and materials used are some examples of elements that are not defined in the LoS framework but should still be carefully assessed to ensure cost-effectiveness of the design.

### Investment triggers

- LoS must not be used as an automatic investment trigger.
- Demonstrating the efficient use of existing infrastructure and processes is a pre-requisite to capital investment. Major investment decisions should subsequently be based on a detailed demand/capacity analysis and evaluation of the existing and forecasted LoS.
- Monitoring of the LoS can also be used to forecast and identify when to trigger the demand/capacity analysis.
- Failing to perform a full analysis and only using the LoS as an investment trigger will either result in investments that are not justified or that are provided too late.

### Service Quality Frameworks

While the LOS and Service Quality Frameworks are not mutually exclusive the goals, objectives, and application of both are very different.

- Airport service quality frameworks identify the service standards that airlines and their passengers can expect from airports in return for the airport charges they pay
- As highlighted previously the LoS is intended to provide planning guidelines that should be applied during typical busy periods for a given design date; while service quality framework parameters are defined for the purpose of continuous monitoring during the actual operation of the airport.
- The framework will often also contain measures that are outside of the LoS framework such as asset reliability and availability in addition to queuing times.

## User consultation

The appropriate LoS values should always be established in consultation with the airline community and other stakeholders as appropriate. Consultation from an early stage in the planning process is a fundamental requirement to capture Users requirements and work towards consensus and informed, joint decision making.

## Supporting Documentation

IATA Airport Development Reference Manual 12th Edition

IATA position paper "Airport Service Level Agreement (SLA) – Best Practice"

IATA Airport Infrastructure Investment – Best Practice Consultation