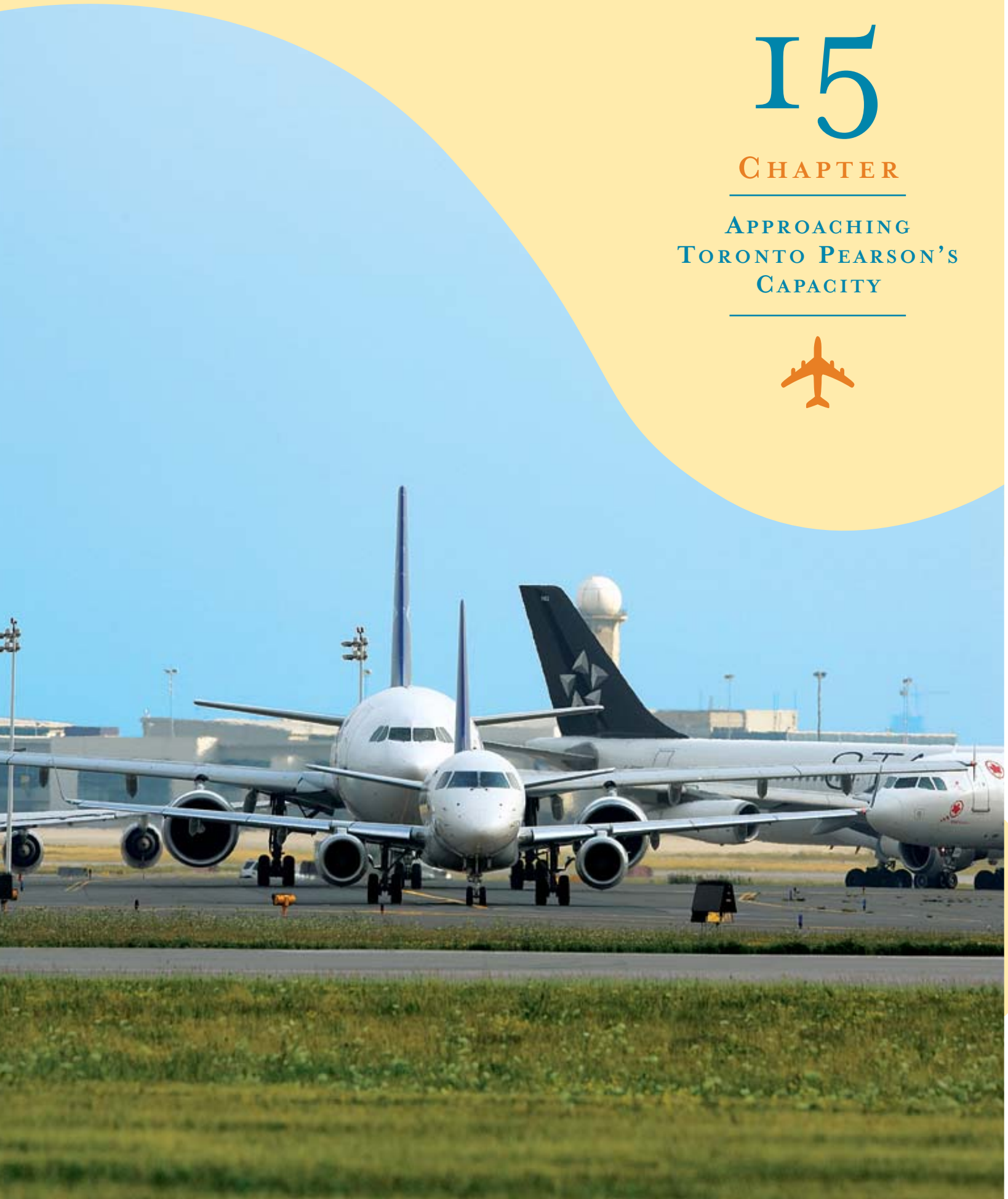
# 15

## Chapter

# Approaching Toronto Pearson's Capacity



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Chapter 15

## 15.1 SYNOPSIS

Toronto Pearson is the principal airport for commercial air service activity within the GTA and south-central Ontario, a role that the Airport is expected to retain throughout the planning horizon of this Master Plan. Previous chapters of this Master Plan have discussed the ability of Toronto Pearson to continue to fulfill this function. This chapter will discuss the potential consequences as Toronto Pearson nears its capacity. As stated in Chapter 5, due to the large land areas required for runways and associated facilities, the airside system defines the ultimate capacity of the Airport. The development of other major subsystems including passenger terminals and ground transportation facilities will be carried out so as to maintain a balanced system.

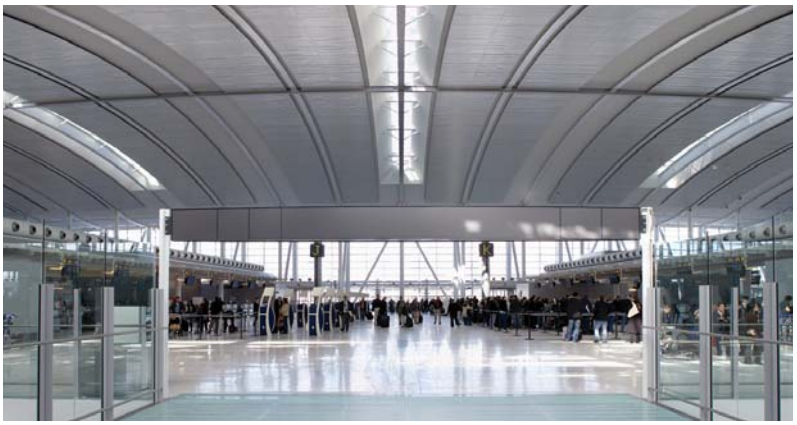
Chapter 5 of this Master Plan defined the capacity limits of Toronto Pearson's airside system under two scenarios, the current five-runway system and the six-runway system, which represents the maximum build out of airside capacity within the Toronto Pearson site.

Based on current traffic patterns, technologies, standards and operational protocols, the five-runway

system has a practical capacity of approximately 520,000 aircraft movements and a maximum capacity of 610,000 aircraft movements per annum. Air traffic demand forecasts for Toronto Pearson suggest that the practical capacity of the five-runway system will be reached by approximately 2013, while its maximum capacity with significant levels of airside congestion and delay will be reached by about 2019.

The practical capacity of the six-runway system has been calculated to be approximately 580,000 aircraft movements and the maximum capacity has been calculated to be 680,000 aircraft movements per annum. Current traffic forecasts suggest that the practical and maximum capacities of the six-runway system will be reached by 2017 and 2023 respectively. This six-runway airside capacity range translates into an equivalent passenger volume range of approximately 46 to 54 million passengers per annum.

Having a dependable and predictable airport operation which results in strong, on-time departure and arrival performance is an extremely important performance factor for airlines and the travelling public. Under either the five-runway or six-runway scenario, as Toronto Pearson surpasses its practical airside




capacity and approaches its maximum airside capacity, travellers and shippers will begin to experience severe degradations in service levels manifested by increased runway delays. Delay levels will increase in an exponential fashion resulting in the onset of unsustainable economic costs to airport users as traffic demand nears the Airport's maximum capacity. Users of Toronto Pearson in the late 1980s will recall the delays and congestion which occurred prior to the addition of the Airport's fourth and fifth runways. In marked contrast to the past, the construction of the sixth and final runway is the only significant remaining opportunity to add capacity in the future.

As with other airport facilities, for planning purposes the airside system is assessed against demand on a 'planning day', which represents the level of demand expected to occur on a busy summer day. With the five-runway system, cumulative delays on the planning day are anticipated to grow to approximately 190 hours by 2015, while each operation within the 24-hour period would experience an average delay of approximately seven minutes. The distribution of such delays would be related to the level of hourly demand versus capacity. Hence, while periods of the day with low demand such as the restricted hours of 00:30 to 06:29 would experience below average delays, busy periods would experience demands and delays far above this average. This is consistent with the conclusion in Chapter 5 that delays will begin to become unacceptable by around 2013.

With increased aircraft movement demand beyond 2017, congestion costs for the airlines and passengers grow rapidly. As Figure 15.1 illustrates, the exponential nature of delay costs does not afford significant postponement of the provision of additional capacity beyond the sixth runway.

Following the addition of the sixth and final runway, airside delays will initially decrease and again begin to rise exponentially with increasing demand. Cumulative delays for all aircraft operating on the planning day are anticipated to reach 205 hours by 2020. Average delays on the planning day would approach seven minutes with similar distribution to the five-runway scenario. This is again consistent with the conclusion in Chapter 5 that delays under the ultimate runway system will begin to become unacceptable by approximately 2017.

These airside delays at Toronto Pearson, in turn will cause delays throughout the airspace systems of Canada and the northeastern U.S. similar to those which were experienced in the late 1980s prior to the implementation of slot control measures at Toronto Pearson. They will also lead to congestion within the passenger terminals at Toronto Pearson and at airports across the country as passengers await delayed flights.

**FIGURE 15-1**

**Airline and Passenger Delay Costs**

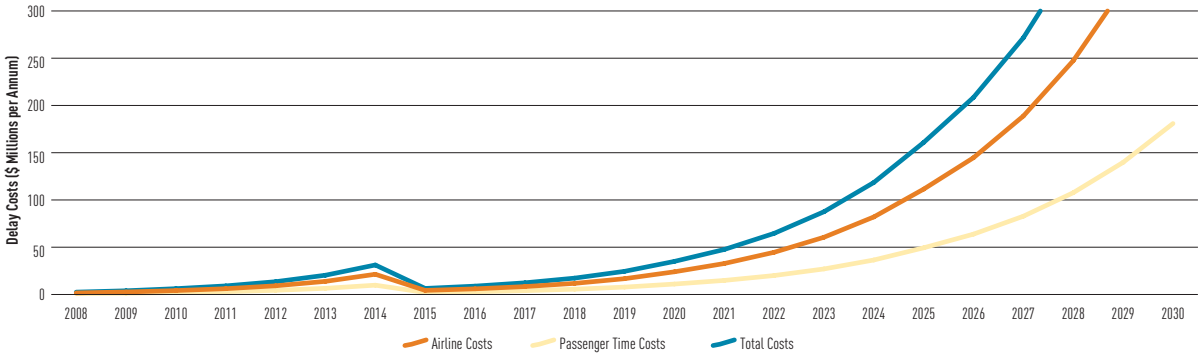



Chart is for illustrative purposes only, and assumes that the sixth runway becomes operational in 2015. Further assessment will be required to determine the required timing of the sixth runway.

## 15.2 OPPORTUNITIES TO MAXIMIZE TORONTO PEARSON'S CAPACITY

This Master Plan has outlined potential measures which may be implemented to enhance Toronto Pearson's airside capacity under either the five-runway or six-runway scenario or to manage demand within available capacity. Some of these measures have a theoretical potential to increase airside passenger capacity by 5 to 10 per cent, or more if considered in combination. Some actions, such as implementation of demand management measures, would divert some segments of traffic away from the Airport and would have to be met with capacity somewhere else in the area. Some measures would also require changes in the traditional travel time patterns of passengers, resulting in an increasing number of passengers being forced to fly at non-preferred times of the day or causing passengers to seek alternative airports or modes. In any event, Toronto Pearson will still ultimately reach its maximum capacity within the planning horizon of this Master Plan.

The negative impacts of congestion delays at Toronto Pearson will have significant consequences for the economies of the GTA, south-central Ontario and the nation. In Canada, aviation directly or indirectly accounts for over 300,000 jobs, and is a cornerstone of the country's $62.9-billion tourism industry. During the late 1980s when significant delay conditions developed at Toronto Pearson, passengers and shippers took conscious action to avoid the Airport and travel/ship through alternate airports or modes of transportation. These actions established new activity patterns which persist to this day.

The federal government is currently studying the need to provide for the required additional capacity in the Greater Golden Horseshoe region including the potential development of an airport on the Pickering Lands. As part of this study, the capacities of airports within the Greater Golden Horseshoe region are being quantified as well as their capabilities to accept expanded roles to accommodate various components of aviation demand. However, the capability and even the willingness of other airports and their

surrounding communities to accept increased aviation activity does not mean that such activity will actually relocate to these airports. The multi-airport experiment in Montreal clearly illustrates the market-driven nature of the aviation sector and the potential for significant, long-term economic harm if these realities are ignored.

Ultimately, Toronto Pearson has a finite capacity which will be reached irrespective of demand management and efficiency increase measures, well within the time frame of the current Master Plan period. Hence, within the foreseeable future, viable alternatives to supplement Toronto Pearson must be made available before the Airport exceeds its practical capacity, if all components of aviation demand are to continue to be served.