November 2006:
Car park building opens
Back in 2006, the first phase of Christchurch Airport’s redevelopment was completed with the opening of a multi-level car parking complex, with 600 spaces providing 40% additional parking capacity.

May 2009:
Roading preparation
At the start of the terminal construction project, the airport roading and fencing was reworked in preparation for closing of the development site. Bus, taxi, shuttle and rental car parking were moved, and public car parking areas were reconfigured.

June 2009:
Site preparation
The development site in front of the old domestic terminal was cleared and in-ground services were relocated.

September 2009:
Air traffic control tower opens
A new control tower was required as part of the terminal development to replace the one in the old terminal building. Built and operated by Airways New Zealand, this is the tallest air traffic control tower in New Zealand and provides Airways New Zealand with dramatically extended views of the runways, along with leading-edge technologies.

June 2009 - February 2011:
Check-in hall construction
The terminal construction began in earnest in June 2009. This first stage is still a work in progress and includes the new check-in hall, food court and retail areas, the baggage handling system, offices, plant and equipment rooms.

First Quarter 2011:
Check-in hall and first-floor retail precinct opens
The ground floor check-in hall and first-floor food outlets and retail shops will open early in 2011 for passengers and their friends and family to enjoy.

April 2011 onwards:
Ongoing demolition and construction
Once Stage 1 of the new terminal is open, dismantling of the old domestic terminal begins. The second half of the construction project includes the passenger and retail areas beyond the security screening point, aircraft gate lounges and apron works for aircraft parking.

Mid 2012:
Remainder of the new terminal building opens
Stage 2 of the terminal project will be completed in 2012.

Early 2013:
Completion of airfield works
Some ongoing work will be required to reconfigure the aircraft parking on the tarmac. This staged work will be completed early in 2013.

A bigger and better airport is on its way
Following a year of intensive construction, the terminal development project has made significant progress. The first stage of Christchurch Airport’s new terminal opens early next year.
This addition to the Annual Report details the progress of the construction and outlines some of its interesting elements.
Christchurch’s existing domestic terminal was opened in 1960 and has catered for a steadily increasing number of passengers every year. When it was opened, 200,000 passengers passed through the airport each year. In 2010, that number reached 6 million and forecasts anticipate that by 2020, Christchurch Airport will be welcoming approximately 7.5 million passengers per year.

The original domestic airport has been bursting at the seams to accommodate this growth. Efficiency and flexibility are fundamental aspects of the new terminal’s design, ensuring that Christchurch will enjoy an ultra-modern, fit-for-purpose airport with the adaptability to accommodate growth and changing passenger processes in the coming decades.

In particular, the major change that visitors to the airport will notice is that there will no longer be separate domestic and international check-in areas. Instead an ‘integrated’ terminal is being built in which domestic and international check-in areas and passenger services will be combined.

The task – build the new over the old

Every day approximately 30,000 people pass through Christchurch Airport. This has presented some interesting challenges for the development team as they work to maintain the day-to-day operations of the airport while constructing a new terminal.

The answer has been to divide the entire project into manageable stages which balance the desire to open the new terminal as soon as possible with the need to maintain full passenger services throughout the building project. This means that the airport will be in the process of construction for nearly three years. The patience of the travelling public and the airport community over this time is greatly appreciated.
Involving a community of workers

In 2009, New Zealand firm Hawkins Construction Ltd was appointed as the main building contractor. It has brought substantial airport experience to the project, having successfully completed several development projects at Auckland International Airport. Working alongside Hawkins on a daily basis are hundreds of local subcontractors, ensuring that the project contributes substantially to the Canterbury economy.

What will we see on opening day?

Early 2011 will see the achievement of a major project milestone – the opening of the first stage of the new terminal. The new terminal footprint closely resembles a diamond, and the first half of this diamond to open is the integrated check-in hall.

To enter the airport, passengers and visitors will cross a pedestrian plaza between the carpark and the terminal. This area replaces the original road in front of the terminal, as security recommendations following overseas incidents advise new airports not to have drive-up access to the terminal. The plaza will be landscaped so passengers and visitors can enjoy some sunshine before entering the airport. One corner of this plaza will remain fenced off throughout 2011 to provide entrance for construction traffic to the ongoing terminal works.

On entering the terminal, travellers will be welcomed into a long, deep check-in hall with retail shops on the periphery. The first floor of this complex will contain a large lounge area, which will be fully operational at this stage. Passengers will pass from this area through security screening to their aircraft.

The area past security screening, however, will remain a work in progress for a further 18 months. After screening, passengers will travel along wide, well-lit corridors to their aircraft gate. These corridors carry passengers through the old domestic terminal which will be in various stages of demolition over this period.

The rest of the terminal development – the second half of the “diamond” – will open in late 2012.
We call the new terminal development “ITP”, or the Integrated Terminal Project. This section highlights some of the interesting aspects and efficiencies which ITP will include.

Construction progress

Many significant aspects of this development have been completed over the past year, as the site has rapidly progressed from an empty lot to an array of structural columns rising out of the ground, to the well-formed and near-complete terminal we see today.

Some of these aspects have presented their own special challenges, such as the installation of 750 metres of the baggage handling system at mezzanine level, or the laying of 23,364 flooring tiles across the entire check-in hall – enough to stretch from the airport to the city.

The constraints of the site, caused by building directly next to an operating airport, mean there is no room for storing any of the large materials or machinery, all of which need to be stored in a lay-down area over a kilometre away until they are required.

Construction materials

Some special local materials will be featured in the finished terminal, ensuring that Christchurch’s airport truly represents Canterbury and the South Island.

A wall of Bluestone basalt from Timaru, 125 metres long, has been installed behind the full length of the check-in counters. This dark, textured basalt has been subtly etched to represent the braided river system which Canterbury is famous for.

Locally-sourced products also include much of the terminal’s pre-cast concrete, concrete flooring slabs, structural steel and glass panes.

The new Christchurch Airport terminal will be a source of pride for Cantabrians and to guarantee this, a surprise feature will be revealed on opening night.
Energy-efficient aspects of construction

Demolishing a building the size of an airport terminal, and building a new one, can have significant ramifications for the environment. As a leader in New Zealand tourism, CIAL is very aware of its environmental responsibilities and so the deconstruction of the old terminal and the building of the new terminal have been designed to be as energy-efficient as possible.

CIAL is committed to the Resource Efficiency in Building and Related Industries (REBRI) waste management system, which promotes the re-use and recycling of construction materials. Currently it diverts 84% of waste material from the landfill. A case study on the REBRI programme is included in the Sustainability Section of the Annual Report.

In the new building, there will be no fossil-fuel boilers. Instead, three chiller units will be used similarly to heat pump units, whereby artesian water is used for cooling and heating the building and then recycled back into the ground. Significant energy efficiencies are achieved through this process, as diesel boilers and cooling towers are no longer required and energy consumption is decreased.

The terminal will also have low energy requirements through use of several building management systems, such as:

- automatic turn-off of lighting in unused areas
- daylight control
- power factor correction
- high-efficiency lighting throughout the building
- wind lobbies
- thick window glass for heat retention in winter and to provide solar shading in the summer
- air-to-water heat pumps for generation of hot water in public areas.
**Integrated check-in hall**

The ubiquitous question from taxi drivers of “which terminal?” will be a thing of the past with the opening of Christchurch Airport’s new integrated check-in hall. With both domestic and international check-in and passenger service facilities in the same hall, our travellers will reap the benefits of this simple design. Passengers transferring between flights can stay in the same building and walking distances are greatly reduced.

The new check-in hall is larger than a rugby field and will accommodate 58 check-in desks. Efficiencies have been built into this area by creating multi-user counters, which means that different airlines may use the counters at different times.

With technology developing rapidly, the new check-in hall is flexible enough to handle advances as they occur. Already during the design of this terminal, some airlines have introduced self-service kiosks, and the ability to incorporate further developments of this technology has been built into the ITP design.

**Baggage handling system**

The biggest piece of plant to be installed in the new terminal is a state-of-the-art baggage handling system, commissioned from New Zealand company Glidepath. Glidepath is an international leader in this market, having installed similar equipment at hundreds of airports globally.

Key to the system is automation. Three long baggage belts run the full length of the hall behind the 58 check-in desks. The sorting system then sends each bag from this belt to one of five baggage loops, where it is picked up by the tow tractors and taken to the correct aircraft. Along the way, bags are X-rayed, and anything suspect is viewed by Aviation Security, then diverted for manual inspection if required.

This fully automated system operates from a barcode label placed on the bag at check-in and uses a surprisingly small space in a mezzanine level above the ground floor, making the best use of space in the terminal design. Sections of the system have already been tested, and when the installation is complete, comprehensive testing will occur to ensure its seamless operation.
Regional departures lounge

Although the aircraft gate lounges in the terminal itself will not be opening until 2012, the opening of the check-in hall in February 2011 will also see the opening of a regional departures lounge dedicated to turbo-prop aircraft, which fly to many centres in New Zealand.

This lounge, at the southern end of the new terminal, has been developed as a joint venture with Air New Zealand to provide a simple boarding process for passengers using these aircraft. Rather than having to walk from the check-in area up to the passenger lounges on the first floor and then back down to the tarmac to board their flight, passengers for these turbo-prop flights will have the choice of remaining on the ground floor and going directly to this lounge to await their flight.

The dismantling of an old World War II aircraft hangar on the site was required in order to build this new lounge. This deconstruction was undertaken very carefully, given its location right next to the passenger walkways, and was successfully completed in late 2009. The new lounge is being built by Mainzeal Construction and will connect to the new terminal.

New food and retail experiences

In the new terminal, the first-floor ‘landsie’ precinct (before security and Customs) will contain a large food and beverage area, public seating for 500, and retail stores offering books, gifts and pharmaceuticals, all of which will be operating by March 2011. Passengers will pass from this area through security screening to their aircraft.

All airport food and beverage services will be provided by global operator HMS Host, following a tender process which involved specialist airport food and beverage providers from around the world. The food stores in this area will include Sakura Sushi, Noodle, Healthy Habits, Burger King, Underground Coffee and The Coffee Club, ensuring an increased variety and high quality of food on offer.

Aircraft parking on the apron

The terminal redevelopment has required remarking and reallocating aircraft parking positions so that they match up with the new locations of the aircraft gates. To do this, the asphalt must be resurfaced, which is a challenging task on an operating airfield. In order to complete this project as smoothly and with as little disruption as possible, the work is being done in incremental stages. It will be the last aspect of the project to be fully complete, in 2013.
The total cost of the terminal development will be $237 million. That figure includes the multi-storey parking building, the terminal itself, the ground boarding lounge and the airfield works to reconfigure the aircraft parking. This is one of the largest building projects in the South Island at the moment.

Between 200 and 400 workers are active on the construction site each work day for three years.

More than 300 chicken burgers and 250 chicken rolls are consumed on the site each week.

The amount of steel in the building is equivalent to the weight of seven Boeing 747’s.

The amount of concrete used would fill 3.5 Olympic-sized swimming pools.

The quantity of tiles inside the terminal would cover two rugby fields and the carpet would cover one rugby field.

Enough paint has been used to draw a line from Christchurch to Invercargill.

The largest crane on the construction site was built for this project and is capable of lifting 170 tonnes.

The new building has two generators which keep the terminal fully functional in a network outage. They can also be used to provide load control to save electricity usage.
“When the terminal is complete, it will, without doubt, be the best airport of its size in Australasia.”
- CIAL Chief Executive Jim Boult
Opening

Stage 1 of Christchurch Airport's new terminal, including the new check-in hall, will be opening in early 2011.

You can check out the construction progress live on our webcam at christchurchairport.co.nz

christchurchairport.co.nz