

# Briefing to the Public Inquiry into the Earthquake Commission

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## Earthquake Commission Data

### Purpose

- 1 This briefing outlines the ways in which the Earthquake Commission (EQC) gathers, analyses and reports on data relating to claims. It also provides an overview of the range of data we can report on that relates to the Canterbury earthquake sequence.

### Executive Summary

- 2 As a result of the 2010-2011 Canterbury earthquakes, EQC has been faced with an unprecedented 460,000 claims. In the past eight years EQC has settled nearly all those 460,000 claims and repaired just over 67,000 homes through the Canterbury Home Repair Programme. The tables and graphs in **Appendix 1** and **2** provide high-level information and data about the Canterbury earthquake sequence and its context in relation to other major earthquakes in New Zealand's history.
- 3 EQC currently has around 3,100 claims from Canterbury<sup>1</sup> that are currently open, with the majority of these being re-opened in the past year.
- 4 In order to settle insurance claims, EQC gathers a range of data and information about each claim, and each insurance exposure.<sup>2</sup> The system that EQC uses for managing claims, ClaimCenter, was designed to cash settle insurance claims, and was first installed in 2007. It was most recently updated in 2018.
- 5 The Canterbury earthquake sequence led to EQC taking on a range of roles that ClaimCenter was not designed to support, such as paying invoices to Canterbury Home Repair Programme contractors, and managing the apportionment of claims across a number of individual events. EQC introduced a number of other data and information systems to support those extra tasks, or in some cases, designed manual processes to undertake those tasks.
- 6 The range of data that EQC can report on from the Canterbury earthquakes is therefore of variable quality, sometimes inconsistent, and not always complete.

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<sup>1</sup> As at 28 February 2019 (the total of Settlement Team Managed Claims, claims managed under the Southern Response Earthquake Services Memorandum of Understanding, and other outstanding claims, including those in litigation).

<sup>2</sup> An EQC claim can include damage to a residential building, residential land, and/or contents. Each one of these components is referred to as an "exposure". A single claim can contain all three exposures.

- 7 Care also needs to be taken regarding the precise description of the data extracted from EQC's systems. For example, over 156,000 claims were made as the result of the 4 September 2010 earthquake, but only approximately 144,900 after duplicates were taken into account.<sup>3</sup>
- 8 After the Canterbury and Kaikōura events, EQC also needed to share data with a large number of other agencies, including private insurers. A recent review of the Kaikōura event noted that there is still a need to clarify data requirements and transfer formats across the insurance industry and that this is a priority for preparing for future events.
- 9 EQC is now undertaking a range of work to improve its data quality, and the technical systems that underpin that data.

### **Claims data – what we gather and why**

- 10 In order to manage claims for New Zealanders, EQC gathers data and information. Claims data is vitally important for EQC's actuaries, who use it to estimate the ultimate cost of EQC's liabilities.<sup>4</sup> Comprehensive and up-to-date information on the nature and number of claims helps in the calculation of payment patterns for the current event and also for the potential impact from future events.
- 11 Accurate, auditable claims data is also required to support any claims EQC may make on its reinsurance policies after large events, such as the September 2010 and February 2011 Canterbury earthquakes. Claims data should also reconcile to the claims payments reported in EQC's financial statements. The claims data is also needed to audit private insurer performance.
- 12 Key types of data the actuaries and reinsurers require include:
  - a claims cause and event;
  - b details of types of damage;
  - c assessment of total cost of damage/case estimates;
  - d claims payments, dates, and whether the payments count towards cap;
  - e if properties are over cap; and

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<sup>3</sup> See paragraphs 55–60 below.

<sup>4</sup> See paragraphs 12–15 below

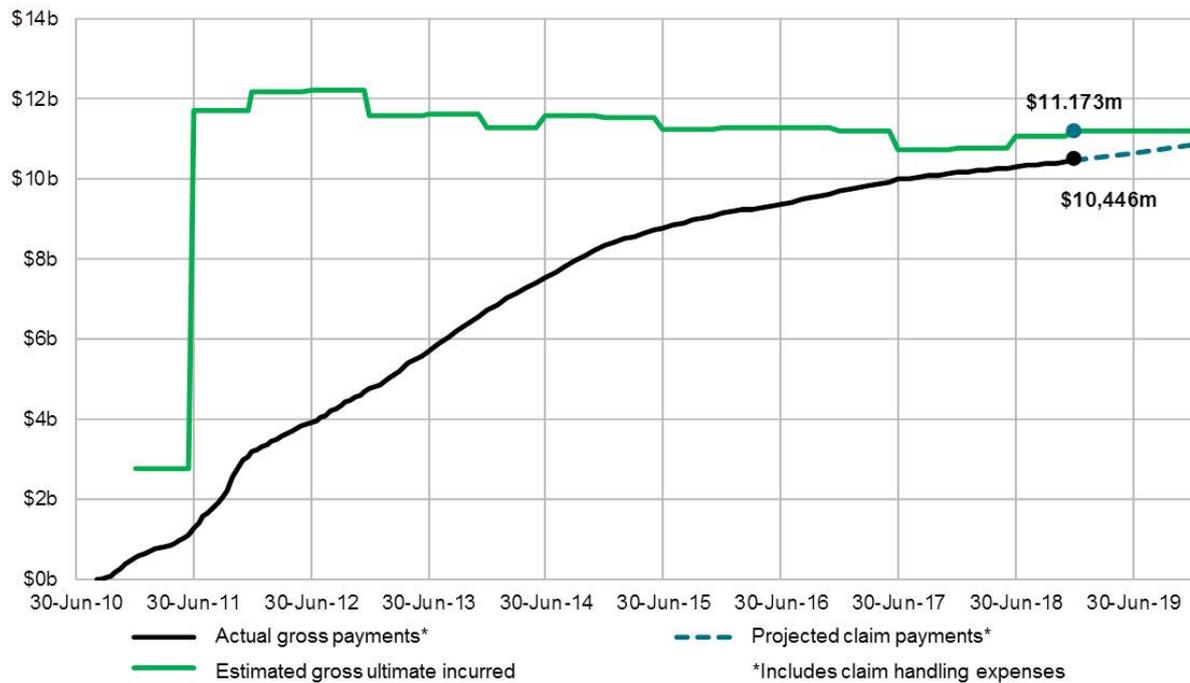
- f if claims are closed or still not fully settled.
- 13 As the actuaries use large amounts of data in financial projection models, the data needs to be easily extracted from the claims management system. Information which is embedded in text fields or attached documentation may not be accessible, significantly reducing its utility for financial projections.
- 14 The reinsurers will generally rely on summarised claim data, and supporting material from the actuaries, but have the right to review individual claims files to support any claim EQC makes on its reinsurance policies.
- 15 EQC's reinsurance contracts are either triggered on the basis of the total claim payments arising from a single event (although this may include a number of individual earthquakes within a specified time period) or arising in aggregate from all events over a longer period. Consequently, it is critical that the claims data is accurately recorded by event and can withstand scrutiny.

#### *Insurance Liability Valuation Report*

- 16 Every six months EQC engages Melville Jessup Weaver (actuaries) to undertake an Insurance Liability Valuation Report (ILVR) to estimate:
  - a ultimate claims costs;
  - b outstanding claims liability;
  - c premium liabilities; and
  - d any associated reinsurance recoveries.
- 17 The ultimate claims costs are the total amount that EQC will pay out based on all the claims it currently has on its books or that are expected to be made for a past event. The outstanding claims liability is the amount yet to be paid from this ultimate claims cost.
- 18 The Insurance Liability Valuation Report is a critically important document for EQC. It is used as a basis for discussions with reinsurers, the Treasury, and other government agencies. It is based on the best information available at that point in time.
- 19 **Figure 1** below shows how EQC's estimated ultimate claims cost from the Canterbury earthquake sequence have changed over the past eight years. It also shows the historic total outflow of claims payments.

20 These figures include claims handling expenses, which are what EQC has spent in operating costs to manage these claims. The solid black line shows all payments to date, including through the Fletcher EQR programme. The blue dotted line is projected future payments.

**Figure 1: Canterbury earthquakes: gross claim payments including claims handling expenses (actual and future central estimates)**



21 The actuarially calculated estimate of the total amount of claims has proven fairly accurate. As early as 2011, it was estimated that total claims costs would exceed \$11 billion, even though only around \$1 billion of claims payments had been made at the time.

22 Feedback from actuaries is that EQC’s data is a source of frustration for them. In particular, the inability to extract more insightful information from the claims management system hinders for example, the actuaries’ ability to predict, and therefore estimate the liability in respect of, the number of claims that will likely reopen. In the view of the actuaries, enhancements to the claims management system would support the provision of highly useful management information.

## KAIKŌURA EARTHQUAKE – 14 NOVEMBER 2016

- 23 There is significantly less data held by EQC on the Kaikōura earthquake, because the claims are being managed on behalf of EQC by private insurers (the agency model). Consequently, the actuaries' ability to accurately model the ultimate claims cost is significantly hampered. The lack of data on outstanding open claims is an example.

### *Data required for EQC's claims on its reinsurance*

- 24 The data EQC holds within ClaimCenter v8 is not sufficiently accurate for the purposes of EQC's reinsurance claims for the September 2010 and February 2011 Canterbury earthquakes (the only two events sufficiently large to trigger a reinsurance payment). Currently EQC is reliant on calculations and advice from Melville Jessup Weaver for reporting of claims paid per event to reinsurers.

### *Claims data for financial reporting*

- 25 Melville Jessup Weaver's advice on the allocation of claims payments to specific events is also used in the preparation of EQC's financial statements. Claims handling expenses are also allocated to events based on this advice.

## **A short history of ClaimCenter – EQC's claims management system**

- 26 EQC's claims management system is used for the lodgement, validation, processing and payment of natural disaster insurance claims. The original ClaimCenter system, ClaimCenter v4, was first installed in 2007. At its simplest, the system was designed to cash settle insurance claims.
- 27 At the time it was introduced, ClaimCenter was a big step forward for the organisation as it was "web-based, making it accessible to all individuals dealing with a claim whether they are at EQC's head office, claims handling centre in Brisbane or in the disaster area."<sup>5</sup>

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<sup>5</sup> Earthquake Commission, *Annual Report 2007/08* (2008), page 3. [https://www.eqc.govt.nz/sites/public\\_files/eqc-annual-report-2007-08.pdf](https://www.eqc.govt.nz/sites/public_files/eqc-annual-report-2007-08.pdf)

### *ClaimCenter Events*

- 28 Claims are classified into separate events on ClaimCenter. Following a natural disaster event, the decision on whether to set up a new event in ClaimCenter is made by EQC senior management on a case by case basis. These decisions have typically been based on the number of claims received in the hours following the event. If a claim is received for a subsequent related event (such as an aftershock) which has not been classified as an event, it will be grouped (for ClaimCenter purposes) with all other earthquake claims that were made in the same calendar month.
- 29 For example, following each Canterbury earthquake, EQC management had to decide whether to open a new ‘event’ in ClaimCenter. For EQC’s purposes, the 2010-2011 Canterbury earthquake sequence comprised four major events, and eleven other damage-causing events.
- 30 There were two significant earthquakes on 13 June 2011, one at 1.20pm (magnitude 5.5) and one at 2.20pm (magnitude 6). These were grouped together as one event. The two earthquakes on 23 December 2011 were also treated as one event. This is because the earthquakes occurred within a 48 hour period.
- 31 The EQC Claims Manual for Insurers describes an ‘event’ as:

*“The EQC Act does not use the term “event”, but this description is a useful way to describe individual natural disasters insured under the EQC Act. All damage occurring within a consecutive 48 hour period which is a direct result of natural disaster is to be treated as an “event”. A single cap and excess is applied to each event.”*

*“If the time between natural disasters is longer than 48 consecutive hours, the EQC Act requires EQC to treat the events separately.”<sup>6</sup>*

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<sup>6</sup> Earthquake Commission, *EQC Claims Manual for Insurers* (version as at 28 September 2017), paragraph 7C.a.i. [https://www.eqc.govt.nz/sites/public\\_files/images/Insurer%20manual%20-%201%2C3%2C4%2C5%2C6%2C7%2C8%2C9%2C10%20and%20Appendix%201%2029092017\\_0.pdf](https://www.eqc.govt.nz/sites/public_files/images/Insurer%20manual%20-%201%2C3%2C4%2C5%2C6%2C7%2C8%2C9%2C10%20and%20Appendix%201%2029092017_0.pdf). In respect of any natural disaster damage to one property occurring during a 48 consecutive hour period, EQC is obliged to only pay the amount by which the insurance payment under the EQC Act exceeds the excess specified in the regulations: see clause 1(a), Schedule 3, EQC Act. For this and other reasons the “48 hour period” has been applied.



## UPGRADE TO CLAIMCENTER v8

- 32 The review of EQC's catastrophe response plan in 2009 had identified that the ClaimCenter system would need to be upgraded.<sup>7</sup> The EQC Board approved this upgrade in August 2010. Due to the Canterbury earthquakes it was decided to postpone the upgrade. In October 2014, EQC agreed to restart the upgrade process.<sup>8</sup>
- 33 The new system, ClaimCenter v8, began to be utilised for entering new claims in May 2017. The original intention was for all legacy Canterbury claims to be finalised in the ClaimCenter v4 system. As the timeframe for finalising Canterbury claims continued to lengthen, EQC decided to transition Canterbury claims to ClaimCenter v8. All outstanding Canterbury claims were migrated by 4 May 2018, and on 26 July 2018, ClaimCenter v4 was taken offline.
- 34 ClaimCenter v8 was another step forward for EQC, as the system "provides a clearer picture of the total number of claims than reported from the previous system. Reporting from v8 is understood to be simpler than from v4, as data is grouped by a 'master' (initial) claim record, and follows a process structure that is consistent with operational processes."<sup>9</sup>
- 35 The move to ClaimCenter v8 also led to new challenges for reporting on data. Over the previous 10 years, EQC had developed a number of small amendments to the v4 system. Those amendments were not standard to the software system, and so were not included in the v8 system. For example, v8 does not have fields to record apportionment, which means that EQC staff need to hold apportionment information in a separate system.
- 36 The financial information that is kept in ClaimCenter v8 is also not complete, as it is built to contain core claim payments and fees associated with a claim. It does not contain other payments that may be made, but that are not directly related to the claim payments. That means we do not have a single view of financial costs from a claim. For any individual claim, that full picture has to be manually gathered from different systems.

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<sup>7</sup> See Briefing to the Public Inquiry, *Catastrophe Response Programme*, dated 13 March 2019.

<sup>8</sup> See Briefing to the Public Inquiry, *Earthquake Commission Information Management and Technology*.

<sup>9</sup> KPMG, *Independent Review of Christchurch Claims Data* (July 2018), page 10 (report #43 in Appendix 1, Briefing to the Public Inquiry, *External Reviews of the Earthquake Commission since 2010*, dated 4 March 2019).

## AN ADDITIONAL 949 CLAIMS

- 37 In the process of migrating data from ClaimCenter v4 to v8, EQC identified 949 claims that had not previously been reported to the Minister Responsible for the Earthquake Commission or in accountability documents. These were not new claims; they had all been actively progressed, but were not visible in reported numbers due to reporting and data issues.
- 38 This issue was caused by old business process practices which led to records being placed in individuals' work queues. Those individual work queues were not captured in aggregated reporting, and this added to other data integrity issues that prevented the records being included in reports.
- 39 Analysis of the 949 additional claims showed that, although they had not previously been reported, 944 were in progress, and staff immediately contacted the other five claimants.
- 40 There was considerable media interest in this additional claims data when it was made public in May 2018. The EQC Chief Executive publicly stated that EQC was “disappointed to find that we have under-reported our claim numbers. The fact that this error has occurred is frustrating and further demonstrates the need for us to continue improving our reporting processes.”<sup>10</sup>
- 41 A review of the issue by KPMG in July 2018 concluded that “a high level of confidence can be taken that the data residing in the data warehouse is complete and that all open claims have been uploaded to ClaimCenter v8.”<sup>11</sup>

### *How private insurers interact with ClaimCenter*

- 42 Private insurers have access to ClaimCenter in order to verify insurance (as EQC cover is only available if the claimant had a valid contract of fire insurance at the time of the event). Prior to 2010, this access was solely to enable insurers to provide verification that the customer has valid contract of insurance in place.

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<sup>10</sup> The Press, *EQC finds an extra 949 unresolved Canterbury quake claims during system upgrade* (15 May 2018). <https://www.stuff.co.nz/the-press/business/the-rebuild/103919301/eqc-finds-extra-949-unresolved-claims-during-system-upgrade>

<sup>11</sup> KPMG, *Independent Review of Christchurch Claims Data* (July 2018), page 3 (report #43 in Appendix 1, Briefing to the Public Inquiry, *External Reviews of the Earthquake Commission since 2010*, dated 4 March 2019).

- 43 In 2010, EQC began exploring ways to expand some of the informal understandings and claim handling protocols with individual private insurers into more formal agreements. In April 2010, draft protocols for coordinating EQC and insurance company claims were provided to the four major insurers (IAG, Tower, Vero and AMI).
- 44 At the time of the 4 September 2010 Canterbury earthquake, these private insurers had yet to sign and return the protocols. Instead, following the earthquake, EQC granted private insurers expanded access to ClaimCenter. Insurers were given access to a broader range of fields and screens, including scopes of works and cost estimates. The intention was that this would speed up claims processing, particularly of near and over cap claims.

#### *Gathering claims data from the Canterbury earthquake sequence*

- 45 Following the 4 September 2010 earthquake, there was a rapid escalation in EQC's activities. EQC's primary focus, in line with government objectives, was to assess and settle claims, repair houses, manage safety across 67,000 home repair sites and ensure the continued confidence of international reinsurers.
- 46 The Canterbury earthquake sequence also saw EQC take on extra functions and activities, following Ministerial directions<sup>12</sup> and/or Board decisions, including:
- a rapid inspection of 180,000 residential homes (insured and uninsured) after the 22 February 2011 earthquake, and emergency repairs to many of these houses;
  - b delivering the winter heat programme in 2011 (including the installation of heat pumps and log burners). Fletcher EQR took over responsibility for this role from the Energy Efficiency and Conservation Authority (EECA);
  - c the repair of houses through the project management agreement with Fletcher Construction.
- 47 As noted above, EQC's data systems were set up to cash settle claims, and its core systems were not designed to manage this wide range of extra functions and activities EQC took on. Consequently, manual processes were often developed to enable EQC to meet both its core and additional functions and activities.

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<sup>12</sup> See Briefing to the Public Inquiry, *Ministerial Directions since 1 January 1994*, dated 14 March 2019.

- 48 For example, EQC received direct invoices from contractors for emergency repairs following the February 2011 earthquake. This resulted in significant work for EQC. By late 2011, EQC had received over 60,000 invoices for processing through a system designed to settle claims, not pay accounts. In a number of cases, the rapid growth of businesses to cater for the increased demand resulted in contractors having insufficient processes of their own to meet the requirements (such as valid tax details or a fully itemised description of the work completed) for EQC to make payment.
- 49 EQC also identified cases of inflated charging, poor workmanship, works not covered by the EQC Act, and even work that was not completed or for which EQC had reimbursed a homeowner who did not pass the payment on to the contractor. All these factors contributed to well-publicised complaints about slow payments.
- 50 A further example is that, under the Canterbury Home Repair Programme, scopes of work were developed for houses that were to be repaired. Those scopes of work were all entered into EQC's ClaimCenter system as scanned PDFs. This means these documents cannot be easily searched, and there is no single database that outlines the key types of repair undertaken (foundation repair, chimney removal, etc).

#### *Managing data quality issues from the Canterbury earthquake sequence*

- 51 By March 2011, EQC had three specific teams working on improving the data that was held in its systems. The make-up of these teams evolved throughout 2011.
- 52 The Pre-Inspection Team was based in the Hagley Field Office in Christchurch, and worked with assessors to reduce the number of duplicate claims entered into the system (see paragraphs 55–60 below).
- 53 The Data Cleansing Team was based in Wellington, and worked through lists of claims suspected to contain inaccurate data. The team was disbanded in May 2011 in tandem with the expansion of the Business Information Unit.
- 54 The Business Information Unit was formed in response to the high demand for Canterbury earthquakes data and analysis, both from within EQC as well as from external organisations. This team developed an inventory of known data integrity issues across EQC and looked to resolve them. This team has continued to evolve and continues to exist at EQC.

## MANAGING DUPLICATE CLAIMS

- 55 The lodgement of duplicate claims was one of the most significant data issues following the Canterbury earthquakes. Duplicate claims occur when two or more claims are lodged for the same damage, often by the same claimant, and for the same event.
- 56 Analysis conducted by the Business Information Unit in January 2011 concluded that 8-11 percent of all claims at that time were likely to be duplicates.
- 57 Duplicate claims were lodged in one of two ways. Either a claimant lodged the duplicate claim online, or an EQC Call Centre Operator lodged the duplicate claim, either without knowing that an earlier claim had been lodged or without understanding the correct process.
- 58 Some of the causes for duplicate claims were:
- a separate claims were lodged for damage to buildings, contents and/or land;
  - b a separate claim was lodged for newly-discovered damage from an event for which an existing claim had already been lodged;
  - c two different claimants lodged claims related to the same damage, either mistakenly or fraudulently;
  - d a claimant knowingly lodged a duplicate claim as a way of 'being sure' that their damage was reported;
  - e a single claim lodged online generated several identical duplicates on ClaimCenter with identical lodgement times (e.g. 4.57pm). This is thought to have occurred due to the claimant pressing 'enter' multiple times before the transaction had been processed; and
  - f errors caused by claimants free typing information (primarily address details). For example, Flat 1, Number 5 Victoria Street could be entered as 1/5 Victoria Street, 1-5 Victoria Street, F1 5 Victoria Street, 5A Victoria Street, or 5a Victoria Street.
- 59 Closing duplicate claims was a high priority to avoid the possibility that the same property could get inspected twice by different assessors. A Duplicate Claims Training Manual was created to promote consistency in closing duplicate claims, including a process to determine which claim was the original and which was the duplicate.

- 60 This process was complicated by the fact that some claims which were technically ‘duplicates’ had already been assessed or settled. The majority of duplicates were identified and resolved through these processes, but a small number were only identified during the physical assessments of dwelling and contents claims.
- 61 The closing of duplicate claims in the system is one of the reasons that the reported figures for numbers of claims generated by Canterbury events (or at least the description of those figures) has changed over time. For example, in January 2011, EQC stated that it had received 157,247 claims related to the 4 September 2010 event.<sup>13</sup> However by December 2014, the published Insurance Liability Valuation Report stated that EQC had received 144,931 notified claims (without duplicates) or 156,546 notified claims (including duplicates).<sup>14</sup> The figure used for the total number of notified claims has remained steady at approximately 156,000 since 2014.

#### *Known issues with the Canterbury data*

- 62 In 2011, EQC commissioned Linking Strategy to Implementation (LSI) to propose a framework for management-level reports with a focus on Canterbury earthquakes claims management.
- 63 The Linking Strategy to Implementation (LSI) report noted that EQC had identified the following significant gaps in its ability to measure the performance of its main function, claims management:
- a current reporting is fragmented with multiple sources of data;
  - b data integrity at best remains patchy;
  - c data management appears siloed and as a result, data overlaps that may contradict each other occur; and
  - d it is difficult to provide valid information for true performance management.<sup>15</sup>

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<sup>13</sup> Earthquake Commission media release, *Latest aftershocks are another “new event”* (20 January 2011) <https://www.eqc.govt.nz/news/latest-aftershocks-are-another-%E2%80%9Cnew-event%E2%80%9D>

<sup>14</sup> Melville Jessup Weaver, *Earthquake Commission Insurance Liability Valuation as at December 2014* (12 February 2015), Part 2, page 22. [https://www.eqc.govt.nz/sites/public\\_files/Insurance%20Liability%20Valuation%20-%20December%202014%20Part%202.pdf](https://www.eqc.govt.nz/sites/public_files/Insurance%20Liability%20Valuation%20-%20December%202014%20Part%202.pdf)

<sup>15</sup> Linking Strategy to Implementation (LSI), *EQC Claims Reporting Review: Stage One* (August/September 2011), page 2 (report #8 in Appendix 1, Briefing to the Public Inquiry, *External Reviews of the Earthquake Commission since 2010*, dated 4 March 2019).

- 64 The report recommended that EQC:
- a implement a reporting management framework;
  - b ensure one single management oversight body;
  - c develop a performance management framework that clearly defines critical control points of the reporting framework and any components that stem from this; and
  - d ensure critical management information points are clearly defined within the reporting management framework and are agreed by the strategic users of that information and reporting.<sup>16</sup>
- 65 As a result of the report, EQC confirmed in late 2011 that the Business Integrity Unit would be the 'single source of truth' information management unit, and confirmed that ClaimCenter would be a 'single source of truth' information platform. While this was the intention, the limitations of ClaimCenter meant that many teams across EQC continued to use their own data sets.

#### PRIVACY BREACH LEADS TO DATA WAREHOUSE

- 66 In March 2013, an EQC employee inadvertently emailed a spreadsheet containing claims information relating to 83,000 homes in the Canterbury Home Repair Programme to an external person.<sup>17</sup>
- 67 This privacy breach led to a shutdown of all EQC computer systems. A subsequent review by KPMG<sup>18</sup> concluded that the lapse was not the result of a security breach leading to the theft of data or programming faults in the claims management system. It was human error committed within operating processes that had evolved to cope with the rapid escalation in the volume and breadth of EQC's functions and activities.

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<sup>16</sup> Linking Strategy to Implementation (LSI), *EQC Claims Reporting Review: Stage One* (August/September 2011), page 5 (report #8 in Appendix 1, Briefing to the Public Inquiry, *External Reviews of the Earthquake Commission since 2010*, dated 4 March 2019).

<sup>17</sup> See Earthquake Commission, *Fact sheet: EQC privacy breach 3 April 2013*.

[https://www.eqc.govt.nz/sites/public\\_files/Privacy-breach-fact-sheet-April-3.pdf](https://www.eqc.govt.nz/sites/public_files/Privacy-breach-fact-sheet-April-3.pdf)

<sup>18</sup> KPMG, *Review of Privacy Breach* (August 2012), page 3 (report #17 in Appendix 1, Briefing to the Public Inquiry, *External Reviews of the Earthquake Commission since 2010*, dated 4 March 2019).

- 68 Following the privacy breach, an internal privacy impact assessment noted the following issues with EQC's reporting and analysis (which closely matched some of the comments from the Linking Strategy to Implementation (LSI) report from 2011<sup>19</sup>):
- a it is difficult to obtain a complete view of information because EQC cannot easily report and analyse across multiple data sources;
  - b there are no fraud or audit frameworks to enable analytics and reporting to facilitate effective fraud detection and auditing;
  - c there is no provision for time series reporting, making it difficult to look back at a point in time, or to undertake trend analysis and future modelling;
  - d the Business Information Unit has only limited, time consuming tools with which to analyse data and produce reports;
  - e there is no consistent method or framework to produce reports and undertake analysis, resulting in inconsistent approaches, rework, and differing results;
  - f creating reports and undertaking analysis requires a detailed knowledge of the underlying tables of each database, requiring a high level of technical skill to use; and
  - g there is no easy method of publishing completed reports to EQC staff.
- 69 The internal privacy assessment concluded that these issues result in time consuming, ineffective reporting, and limited analysis, and that unless these issues are addressed, the situation would not improve.<sup>20</sup>
- 70 The privacy breach gave added impetus to work on a data warehouse that was under development to curb the proliferation of ad hoc spreadsheets. The data warehouse combined information from eight systems, which allowed the relevant data team to provide richer information in a timelier manner.

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<sup>19</sup> See paragraphs 62-65 above.

<sup>20</sup> Privacy Impact Assessment, September 2013 (internal EQC document).

*The challenge of managing data across two organisations (or more)*

- 71 Once Fletcher Construction began to work on the Canterbury Home Repair Programme, it needed to be able to track the number of properties that were being repaired. Fletcher therefore developed its own database of properties. Fletcher’s database was based on a ‘property view’ and this was different to EQC’s ‘claims view’.
- 72 This meant that there were situations where Fletcher EQR would report a single ‘property’ as having been repaired, but EQC would report that three building exposures had been closed (as the property owner had submitted three valid claims for three separate earthquake events). This situation led to different reports being generated from different databases.
- 73 Consequently, in September 2016, EQC publicly announced that it had about 2200 more remedial requests in its work streams than were being captured in its reporting.<sup>21</sup> At the time this was explained as follows:

*“An internal review has found that in our reporting of remedial requests we have not correctly interpreted some of the data held across the Fletcher EQR and EQC information systems. This has meant that our reporting had not fully captured the work needed to resolve remedial requests.”*

- 74 As part of the response to this new data issue, EQC noted it was undertaking an internal review to ensure measures were put in place to improve analysis of EQC’s data.

*Defining what a re-opened claim is*

- 75 One of the main challenges in the ClaimCenter system is the classification of re-opened claims.
- 76 For EQC, it is important to understand if a claim is being re-opened for an administrative reason (e.g. information is being corrected, or an address is being updated) or for another reason. Non-administrative reasons for claims being re-opened include being opened for a claim top up, because repairs failed, because contractors used the wrong repair strategy, to make payment to a supplier or contractor, or because it was closed in error.

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<sup>21</sup> Earthquake Commission media release, *Earthquake Commission revises remedial request numbers* (2 September 2016). <https://www.eqc.govt.nz/news/earthquake-commission-revises-remedial-request-numbers>



77 Until 2018, EQC was not able to automatically create reports on re-opened claims as ClaimCenter v4 had no fields for this information to be entered. At present, EQC has information on claims that have been closed and then subsequently re-opened in ClaimCenter v8. These are reported in the monthly dashboard on the EQC website.<sup>22</sup>

### **Kaikōura – moving to an agency model**

78 After the 14 February 2016 Christchurch earthquake, EQC piloted a new claims assessment model with Vero Insurance, whereby Vero managed the assessment of claims for EQC customers, and EQC made the final payments to claimants. A subsequent review found that there was a lack of data transferability between EQC's and Vero's systems.<sup>23</sup>

79 This model was expanded into what is known as “the agency model” following the 14 November 2016 Kaikōura earthquake. At that stage eight private insurers agreed a Memorandum of Understanding with EQC to manage (as EQC's agents) the majority of EQC's residential building and contents exposures arising from the Kaikōura earthquake.

80 The Memorandum of Understanding was developed and signed in a very short time. Once EQC and private insurers began to discuss the details of data exchange, it became clear that there had been little thought put in to the potential challenges and mitigations and how it would work in practise.

81 Once the Memorandum of Understanding was signed, an EQC team provided the private insurers with a set of data requirements needed for claims management. The five data sets covered a claim life cycle and were grouped for: lodgement, assessment, validation, closure, payment.

82 The intention was that there would be a data transfer between private insurers and EQC systems to allow claim management. However, each insurer had different technology systems, and collected different data sets to those that EQC required.

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<sup>22</sup> See Performance dashboard reports on the Earthquake Commission website. <https://www.eqc.govt.nz/about-eqc/our-publications/performance-reports>

<sup>23</sup> Acuo, *Post-implementation review Valentine's Day EQC/Vero Integration Pilot* (August 2016), page 3 (report #38 in Appendix 1, Briefing to the Public Inquiry, *External Reviews of the Earthquake Commission since 2010*, dated 4 March 2019).

- 83 EQC agreed that insurers would transfer data twice weekly to EQC. This data transfer would allow claims to be lodged and validated. All other elements of the claims life cycle required further data transfers. For example, once a week EQC would advise insurers if there were any properties that had prior claims in EQC’s system relating to the Canterbury earthquakes. Where those prior claims were open or in litigation, EQC would manage the Kaikōura claim.
- 84 This lack of data comparability also affected other teams in EQC. The Risk and Assurance team were unable to automate their assurance programme as the underlying data was not well structured. Therefore, for auditing purposes, EQC’s auditors often had to individually inspect claim files, rather than being able to rely on running an automated report.
- 85 Finally, when claims were completed, private insurers agreed to provide details of the work they had undertaken. However due to systems not being able to exchange this data, EQC received scanned PDFs containing the details of that repairs that had been undertaken. This means that for EQC to audit and review claims, staff need to open each document individually.
- 86 The agency model used following the Kaikōura earthquake underlined the fact that data exchange between EQC and private insurers remains a big issue. A subsequent review of the Kaikōura response noted that “there are eight insurers, some with multiple data systems that need to regularly exchange information with EQC around customer claims.”<sup>24</sup> The review also noted that data flows happen at various stage of a claim life cycle (from lodgement, to assessment, to settlement) and that the lack of clarity about data requirements at an early stage of the information sharing process then slows down the sharing at all later stages.
- 87 Finally, the review noted that there is a need to clarify data requirements, and transfer formats across the insurance sector in New Zealand, and that this is a priority for preparing for future events. EQC has begun work on a Data and Analytics Strategy and is holding discussions with private insurers on how we may access and share information in the future.

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<sup>24</sup> Acuo, *External Review of Response to the Kaikōura November 2016 Earthquake: Stage 1: Initial Set-up* (September 2017), page 10–11 (report #37 in Appendix 1, Briefing to the Public Inquiry, *External Reviews of the Earthquake Commission since 2010*, dated 4 March 2019).



## Earthquake Commission Amendment Act 2019

- 88 The Earthquake Commission Amendment Act was passed on 12 February 2019. The new Act provides EQC with broad scope to share information as necessary to settle insurance claims and for other specified purposes. The amendments relating to information-sharing took effect immediately.
- 89 The Amendment Act enables, for example:
- a if private insurers act as EQC's agents to settle claims (as they have done for the Kaikōura earthquake), EQC will be able to share previous claim information on the property;
  - b EQC can provide claim information to a prospective buyer of a house that EQC has previously repaired; and
  - c EQC can collect and share personal information for the purpose of facilitating natural disaster preparedness, response, or recovery (including settlement of insurance claims by insurance companies).

## Current state of EQC's data

- 90 EQC is continually reviewing its use of ClaimCenter, and prioritising the long list of potential improvements that it could make. EQC is also incrementally improving the ClaimCenter system and processes.
- 91 The move to ClaimCenter v8 means EQC has a claims system that is designed to cater for another Canterbury-sized event (i.e. at least 450,000 claims). It also puts the customer at the heart of the process, as for the first time, all claims related to a customer can be associated with a customer record. This allows customer details to be managed in one place, rather than across each claim. It also gives EQC a master list of all customers in the system. Claims can also be grouped by property, again simplifying the view of claims.
- 92 Additionally, the updated ClaimCenter has fewer fields that accept free text, meaning there is less chance of duplicate claims being entered into the system. Having more structured data will also allow EQC to undertake more standardised reporting on claims and customers.

- 93 In March 2019 the system was updated so that lodgements made through the EQC website would be automatically loaded into ClaimCenter. Previously if a claimant lodged a form via the EQC website, an EQC staff member would have to manually re-enter that data into ClaimCenter. This change removes the majority of the manual process for claim management, and will save staff time loading new claims.
- 94 While the current version of ClaimCenter is an improvement on the past, there is still more work to be done to ensure it is fit for purpose for future events. This includes ensuring it can manage apportionment of claims, if there were to be another sequence of events like Canterbury.

#### DEVELOPING A DATA AND INFORMATION PROGRAMME

- 95 In 2018, the report of the Independent Ministerial Advisor made several recommendations about improving data and information management capability required in EQC.<sup>25</sup> This was the latest in a series of reviews that highlighted issues with EQC's data.
- 96 In April 2018, an internal information, communications and technology capability assessment confirmed that data and information management was an area of low capability that needed urgent attention and focus to address. Tenzing Consulting was commissioned to conduct a gap analysis against a 2016 review into EQC's information management capability.<sup>26</sup>
- 97 This followed on from a previous information management review undertaken by Tenzing in April 2017<sup>27</sup> which highlighted the fact that the data EQC collects for private insurer managed claims varies, is poor, and is impacting EQC's ability to carry out activities such as fraud detection.
- 98 The findings of all of these reviews were consistent, recommending that EQC needed to take a more strategic approach to managing data and information in future.

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<sup>25</sup> *Report of the Independent Ministerial Advisor to the Minister Responsible for the Earthquake Commission* (26 April 2018), (report #41 in Appendix 1, Briefing to the Public Inquiry, *External Reviews of the Earthquake Commission since 2010*, dated 4 March 2019).

<sup>26</sup> Tenzing Consulting, *EQC IT Capability Assessment Report* (August 2018) (report #44 in Appendix 1 Briefing to the Public Inquiry, *External Reviews of the Earthquake Commission since 2010*, dated 4 March 2019).

<sup>27</sup> Tenzing Consulting, *Information Management: Current State Assessment and readiness*, (April 2017) (Report #47 in Appendix 1, Briefing to the Public Inquiry, *External Reviews of the Earthquake Commission since 2010*, dated 4 March 2019).

- 99 As a result, EQC established a Data and Information Programme. A report to the EQC Audit and Risk Committee in November 2018<sup>28</sup> noted that:
- a we have received consistent advice that we need to build better foundations for data management; strategy and governance across data and analytics to respond effectively to the Statement of Intent. We have embraced this advice through the four key activities streams that are underway; and
  - b by leveraging internally and sharing data and Information across government, local government and industry groups, EQC will improve the understanding of natural hazard risks and the likely impacts on people, land and buildings.
- 100 The November 2018 report also noted that EQC was working on the development and delivery of the following priorities:
- a data and information strategies: information management, data and analytics, GIS, content and knowledge management, and information security;
  - b operating models to support the above strategies, and supporting people, process and tools capability maturity;
  - c Future State Roadmaps;
  - d a Business Glossary (one source of truth for terms) and an updated Data Dictionary – supported by better tools and governance structure, and
  - e complete the backlog of critical reports.
- 101 EQC has also begun discussions with private insurers on what a joint work programme for future data requirements across the industry would look like.

#### A VIEW TO THE FUTURE

- 102 As EQC transforms over the next few years from an organisation that deals directly with customers and individual claim settlements to one that oversees and coordinates others within the industry to provide those services, our operating model will look very different to what it is does today.

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<sup>28</sup> Paper to the Earthquake Commission Audit and Risk Committee, *Data and Information Programme Update* dated 16 November 2018. Paper available on request.



- 103 The role that EQC fulfils in a natural disaster event response in the future will be quite different from the role they have played in the past. Therefore we anticipate that the way EQC manages and uses data and analytics will continue to change as we start to coordinate the wider 'insurance response' to events.
- 104 Additionally, in the next six months, EQC is aiming to complete critical reporting requirements including delivery of a 'Time Series' view of historical data on our databases. This will provide some of the information on historical events that EQC currently struggles to access and present.
- 105 In the medium term EQC will need automated and accurate data sharing from across the public and private sector to provide a reliable source to base our natural hazard risk reduction strategies on.

## Appendix 1: Major earthquakes in New Zealand since 1848

1 A historical perspective reveals that major earthquakes are an on-going and inevitable phenomenon in New Zealand. **Figure 2** below outlines major earthquakes in New Zealand since 1848, (considered to be magnitude 6 and above, aside from 14 February 2016 which is included for completeness) along with the number of claims lodged with EQC (where this information is relevant and available).<sup>29</sup>

**Figure 2: Major earthquakes in New Zealand, 1848-2018**

<i>Year</i>	<i>Event</i>	<i>Magnitude</i>	<i>Claims on EQC</i>
1848	Marlborough	7.8	
1855	Wairarapa	8.2	
1868	Cape Farewell	7.0-7.5	
1888	North Canterbury	7.1	
1929	Murchison	7.8	N/A
1929	Arthur's Pass	7.1	
1931	Hawke's Bay	7.8	
1934	Pahiatua	7.6	
1942	Wairarapa I	7.2	
1942	Wairarapa II	7.0	
1968	Inangahua	7.1	10,500
1973	Central North Island	7.0	2,300
1976	Milford Sound	6.5	450
1987	Edgecumbe	6.5	4,352
1988	Te Anau	6.7	unknown
1990	Weber II	6.4	2,632
1991	Wanganui	6.5	2,142
1992	Marlborough	6.3	970
1993	Gisborne	6.4	2,800
1994	Arthur's Pass	6.3	3,000
1998	Taumaranui	6.3	547
2001	Gisborne	7.0	448
2003	Fiordland	7.2	2,840

<sup>29</sup> The claims data for pre-2007 earthquakes is taken from EQC's 2012 Canterbury Event Response Report. The claims data for the Canterbury earthquakes was taken from the June 2018 ILVR, while the claims data for all other post-2007 earthquakes was extracted from ClaimCenter in February 2019.

<i>Year</i>	<i>Event</i>	<i>Magnitude</i>	<i>Claims on EQC</i>
2004	Te Anau	7.2	839
2005	Opunake	6.4	268
2007	Gisborne	6.8	6,221
2007	George Sound	6.7	899
2009	Tuatapere / Fiordland	7.8	5,226
2010	Darfield (4 September)	7.1	156,623
2011	Christchurch (22 February)	6.3	157,309
2011	Christchurch (13 June)	5.5 <sup>30</sup>	56,211
2011	Christchurch (23 December)	6	48,795
2012	Opunake	7	122
2013	Seddon	6.5	5483
2013	Lake Grassmere	6.6	5992
2014	Eketahuna	6.2	5247
2015	St Arnaud	6.2	586
2016	Christchurch (Valentine's Day)	5.7	13,370
2016	Te Araroa	7.1	469
2016	Kaikōura (14 November)	7.8	38,618
2018	Taumarunui	6.2	618

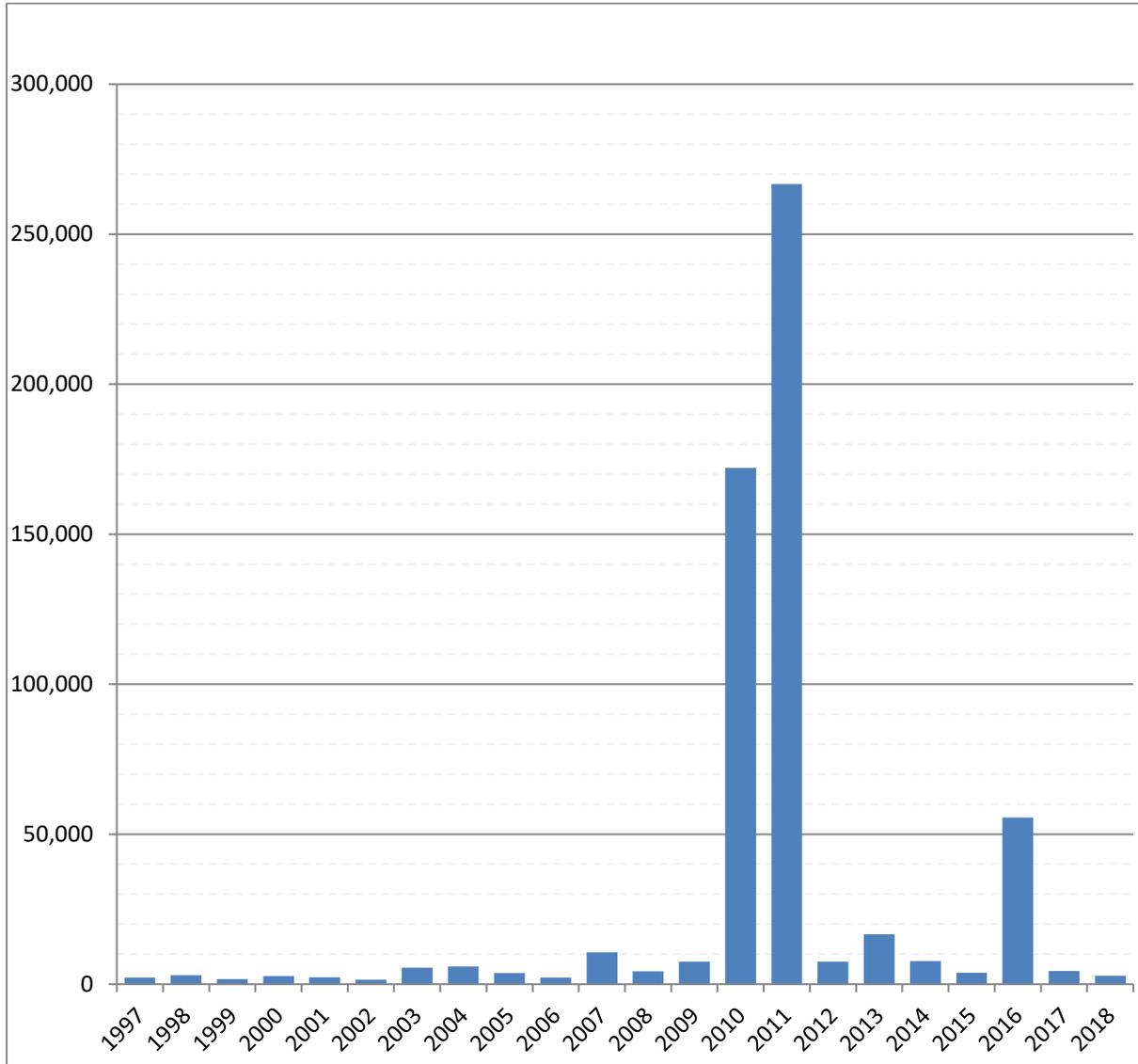
<sup>30</sup> There were two significant earthquakes on 13 June 2011, one at 1.20pm (magnitude 5.5) and one at 2.20pm (magnitude 6). These were grouped together as one event. In ClaimCenter, the event is referred to as the magnitude 5.5 earthquake, as it was the first event of the day.

## Appendix 2: Canterbury events and claims data

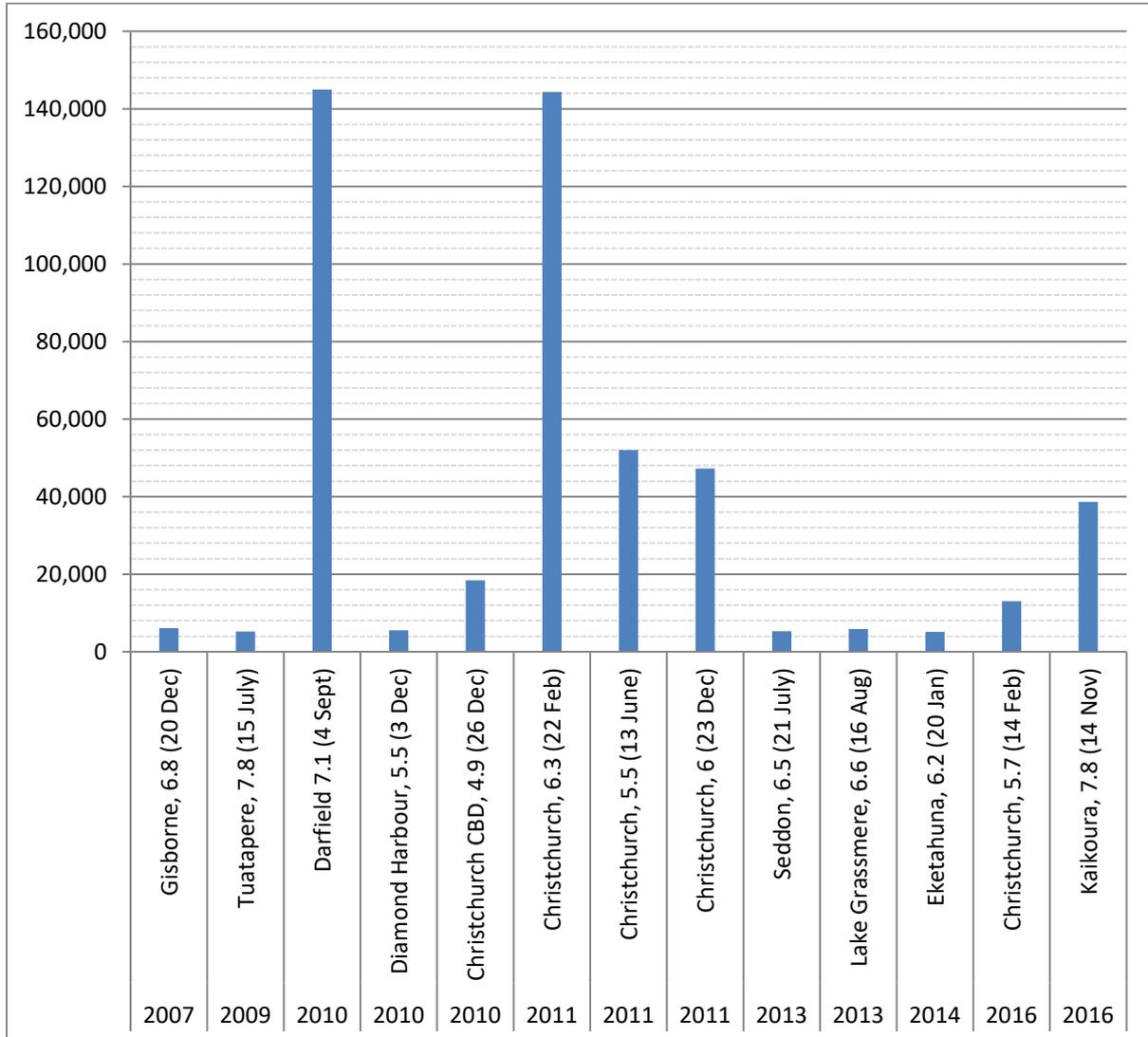
### *Canterbury in context*

- 1 Prior to the Canterbury earthquake sequence, EQC would in ‘normal’ times, handle about 4,000 to 5,000 claims a year. These mostly comprised landslip, storm and flood claims, with occasional earthquake, volcanic eruption and hydrothermal claims.
- 2 The Inangahua earthquake of 1968 had generated the most claims from a single event with 10,500 claims.
- 3 In the past eleven years (2007–2018) there have been 78 earthquakes that have resulted in more than 100 claims being lodged with EQC.
- 4 Aside from the Canterbury and Kaikōura earthquakes, in that period the largest number of claims from a single earthquake was from Gisborne in December 2007, with 6,221 claims being lodged.
- 5 In comparison, there were over 460,000 claims lodged with EQC from the 2010-2011 Canterbury earthquake sequence.
- 6 In the 2007–2018 period there were also 35 storm or flood events that resulted in more than 100 claims per event. The largest number of claims from a single storm event was 1,329 from the February 2004 storm that affected a large swathe of New Zealand.
- 7 **Figures 3 and 4** below highlight how much of an outlier the Canterbury earthquakes were in terms of claims lodged, compared with the total number of claims from all natural disasters.

**Figure 3:** Total claims lodged per year 1997–2018 (data extracted from ClaimCenter December 2018, duplicate claims removed)



**Figure 4:** Earthquake claims lodged 2007-2016, excluding events with fewer than 5,000 claims (data extracted from ClaimCenter December 2018, duplicate claims removed)



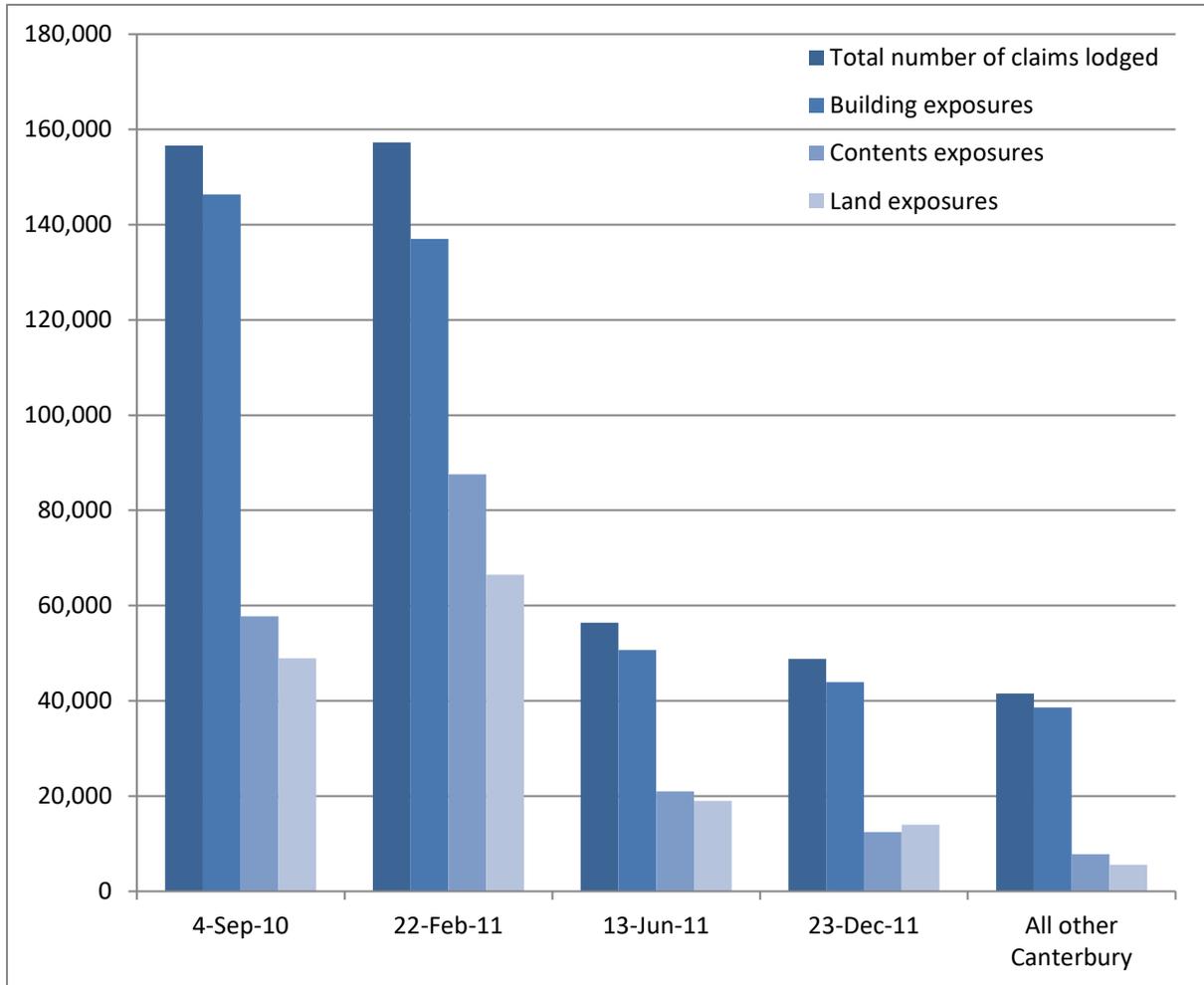
### *Claims generated from the Canterbury earthquake sequence*

- 8 In total there were just over 460,000 claims lodged with EQC arising from the Canterbury earthquakes of 2010 and 2011. There were a further 14,300 claims lodged for Canterbury earthquakes in 2016. For reporting and actuarial purposes in the Insurance Liability Valuation Report, claims numbers have been split into the four main earthquakes, and then all other earthquake events grouped together. The four main earthquakes were:
- a 4 September 2010;
  - b 22 February 2011;
  - c 13 June 2011; and
  - d 23 December 2011.
- 9 Each claim can be made up of sub-claims (exposures): land, building and contents. Overall EQC has received a total of just over 757,000 sub-claims for the Canterbury earthquake sequence (made up of approximately 416,300 building exposures, 186,500 contents exposures and 154,000 land exposures), as noted in the December 2016 Insurance Liability Valuation Report.
- 10 As noted in paragraph 8 above, there are different published numbers for claims, depending on when data was extracted from EQC's systems. The information in **Figure 5** below was taken from the December 2016 Insurance Liability Valuation Report,<sup>31</sup> and contains the claim numbers for all relevant Canterbury earthquakes as at December 2016. This was the last time this information was published in the Insurance Liability Valuation Report.

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<sup>31</sup> See Earthquake Commission website for recent copies of Insurance Liability Valuation Reports: <https://www.eqc.govt.nz/about-egc/publications/reports>

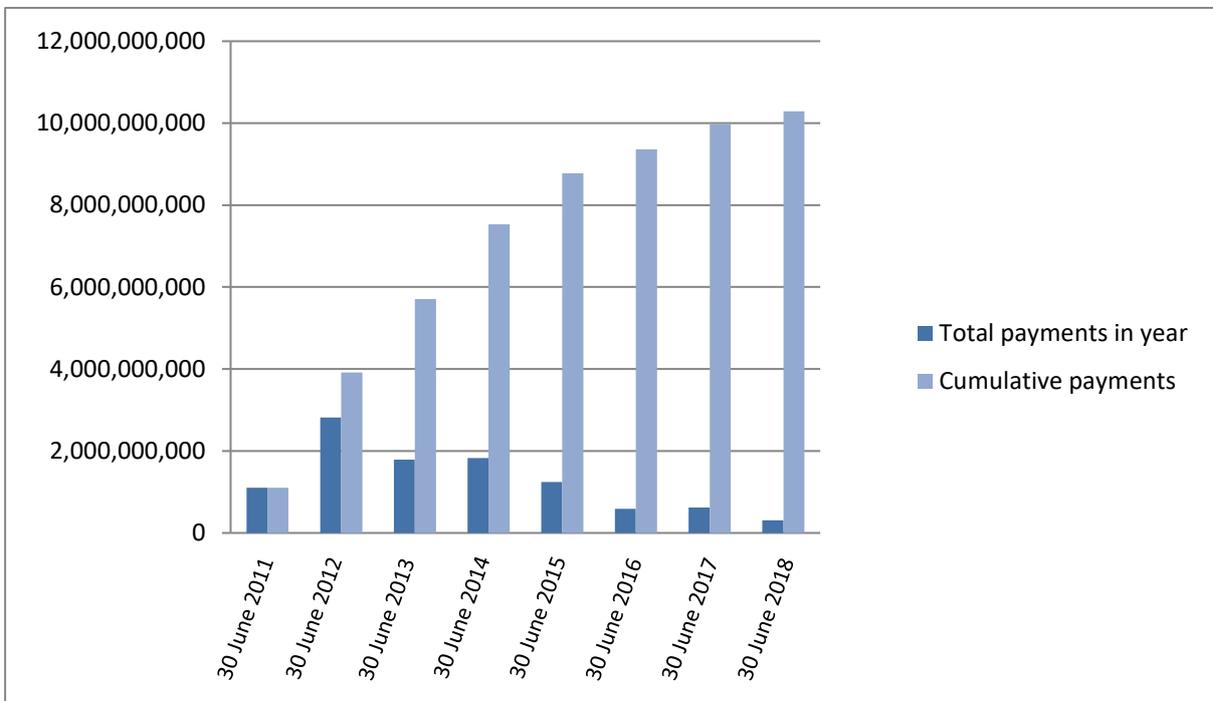
**Figure 5:** Total claims lodged by exposure type, all Canterbury events (including 14 February 2016 earthquake) (data from Insurance Liability Valuation Report December 2016)



*An overview of the costs from the Canterbury earthquakes*

- 11 In June 2010, the value of the Natural Disaster Fund stood at \$5.9 billion. By June 2018, it had reduced to \$135 million.
- 12 In that time EQC had paid out just over \$10.2 billion in gross costs and claims related to the Canterbury earthquakes. This includes all claims handling expenses and costs.

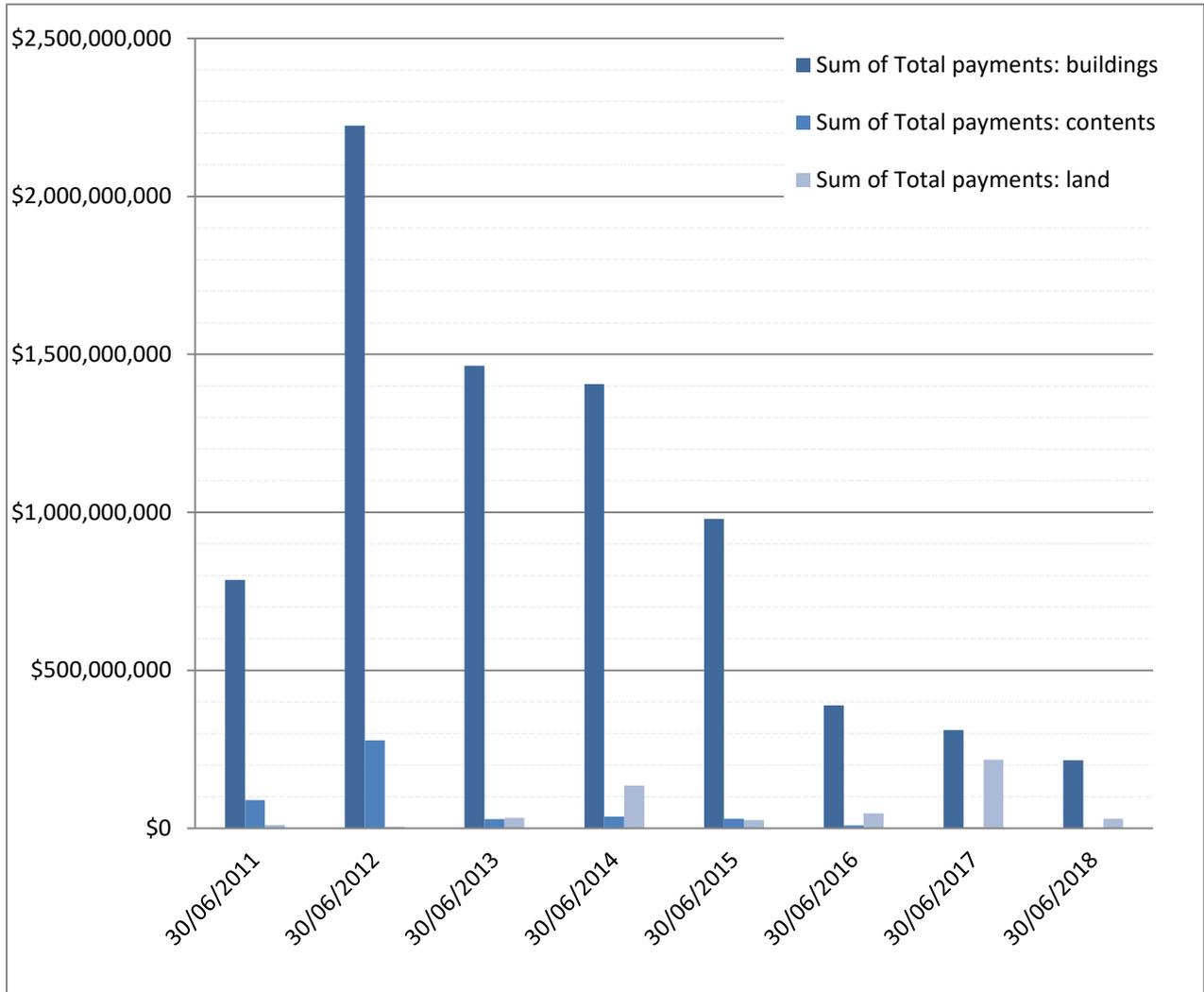
**Figure 6:** *Payments per year compared with cumulative payments for Canterbury claims (including claims handling expenses) by financial year ending 30 June (data from June Insurance Liability Valuation Reports)*



*Payments made by EQC for Canterbury exposures*

- 13 In the period from 2010 to June 2018, EQC has paid out over \$10.2 billion relating to Canterbury claims (land exposures, building exposures, and/or contents exposures).
- 14 **Figure 6** above shows that by 30 June 2014, EQC had paid out just over 73 percent of the value of all claims that have been paid to date (\$7.5 billion out of \$10.2 billion to June 2018). However, the total figure does not show variations by exposure type. By 30 June 2014 EQC had paid:
- a 75 percent of building exposures by value to date;
  - b 90 percent of contents exposures by value to date; and
  - c 36 percent of land exposures by value to date.
- 15 This reflects the challenges inherent in the land programme, whereby two new forms of land damage, Increased Flooding Vulnerability (IFV) land damage, and Increased Liquefaction Vulnerability (ILV) land damage, were recognised for the first time. It was not until December 2014 that EQC obtained a Declaratory Judgment confirming that IFV and ILV were forms of land damage that EQC could recognise.
- 16 **Figure 7** below shows payments made per year for building, contents and land exposures.

**Figure 7:** Payments per year for building, contents and land exposures for Canterbury claims (excludes claims handling expenses) by financial year ending 30 June (all data from June Insurance Liability Valuation Reports)



*Claims settled each year*

- 17 **Figure 8** below outlines the number of Canterbury claims EQC reported as having open, and closed, to 30 June each year. This graph aims to illustrate trends only, rather than exact numbers.
- 18 This data is based on information gathered from the Insurance Liability Valuation Reports and has been sourced from ClaimCenter at each valuation. This data should be interpreted with caution, as claims may have been opened or closed for administrative or other reasons.
- 19 For example, EQC currently has a large number of claims where we have paid a claimant and/or repaired a dwelling but have not yet recovered the excess that is due. From a customer perspective those claims are closed, but for EQC they are open, as we have not received the excess payment.

**Figure 8:** Trends of open and closed Canterbury claims for years ending 30 June (all data from June Insurance Liability Valuation Reports)

