

INSURANCE AFFORDABILITY

A MECHANISM FOR CONSISTENT INDUSTRY & GOVERNMENT COLLABORATION

PROPERTY EXPOSURE & RESILIENCE PROGRAM

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Abstract

The Property Resilience and Exposure Program (PREP) is designed to collate data sources and indicate the resilience of homes to natural hazards. The PREP is a collaborative program with the insurance industry that uses the best available hazard data, combined with building information to form a resilience rating for individual properties. The Building Resilience Rating Tool is used to create a Resilience Map that provides a suburb level view of resilience and highlights potential vulnerable areas or areas where development controls may be improving resilience. PREP offers a solution to the growing risk faced by communities and local governments struggling to identify where to focus climate change adaptation efforts.

PREP provides a mechanism for local governments to:

- Measure and disclose the resilience of homes in the community
- Engage with, and open a dialogue with, the insurance industry on insurance affordability
- Explore mechanisms to improve resilience including building guidelines and building controls
- Identify local issues that may be driving increases in insurance premiums
- Consider the costs and benefits of specific mitigation options that might lead to constituents being able to access reduced insurance premiums following implementation.

PREP provides a mechanism for insurers to:

- Appreciate the existing mitigation and adaptation that a local government has undertaken to modify and reduce the impacts of local hazards
- Ensure that they are able to continue to provide cover in locations where hazards are perceived to exist.

Introduction

Insurance affordability is a growing issue for some community members, particularly those that live in regions prone to extreme weather events.

Insurers in Australia must charge premiums that are sufficient to address the assessed probability of damage occurring and a claim being paid. Insurers compete with each other to offer potential clients the most accurate risk based premiums for the hazards in their location, that their particular policy offers cover against.

In locations where hazard exposure and building vulnerability factors combine to create a higher risk of damage occurring. It can be anticipated that this will be reflected in higher insurance premiums for owners and occupants who choose to insure in locations where these factors occur.

The Insurance Council of Australia (ICA) and its members seek to continually improve understanding of the relationship between these factors which in turn can have a strong influence on premiums. Many insurance company members of the ICA are also actively pursuing opportunities to improve insurance affordability for their policyholders, by adopting more accurate hazard information where it can be made available.

With closer cooperation between governments and the general insurance industry, it will be possible to more accurately understand hazards and the impacts on the built environment, which in turn will help to address insurance affordability in many instances.

Some recent examples: Access to more accurate government flood mapping in Port Douglas (QLD) and the Tweed Shire (NSW) resulted in more than 10,000 addresses receiving lower premiums after the extent of flooding was more accurately defined. In Roma (QLD) a number of insurance companies have been able to reduce premiums by an average of 40%, following the provision of more accurate flood mapping and details of the completion of flood mitigation works. Access to government bushfire prone land mapping has assisted some insurers to more carefully price the risk of a bushfire event and to begin to tailor products for those with higher levels of risk.

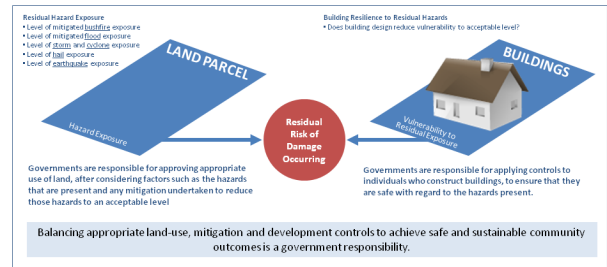
Whilst a more collaborative approach between governments and insurers will assist with delivering more accurately priced insurance protection for individuals in the community, the same price signal methodology may also assist to prioritise mitigation efforts using predicted insurance affordability outcomes as an input to determining where best to allocate limited mitigation funding.

Responsibility for protecting the community from hazards

State and Territory Governments rightly retain responsibility for land use and development activities within each of their jurisdictions.

State Governments normally delegate land-use management and development control to Local Governments, who are typically required to make relevant decisions within a state level planning framework.

For example, local governments are required in many states to make land-use and development control decisions with reference to an approved Local Environment Plan (LEP), or similar instrument that has been approved by the state. An LEP might provide the framework for how a local government then makes development decisions by taking into account environmental issues, biodiversity, hazards, heritage and infrastructure issues in a consistent way.



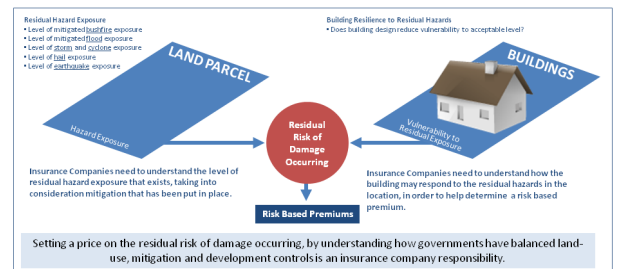
The role of the Federal Government with regard to land-use planning and development control decisions is limited to matters of national relevance, for example the protection of national parks and resources. However, the Federal Government does contribute funding to mitigation activities where local land-use planning and development controls have not been able to prevent hazards from impacting the community, as well as additional resourcing for State Governments when necessary following large disasters.

Responsibility for providing protection against residual risks and financial loss

Whilst governments have the overarching role to reduce community risks to reasonable levels, it is not possible to remove all risk to individuals or their assets.

Insurance products provide community members with a mechanism to protect themselves from loss due to the residual risks that inevitably exist in the community.

Accurately measuring the extent of the residual problem at a specific location, in order to price the risk and establish an insurance premium, requires both an understanding of the relevant hazards and how government controls may have worked to reduce the exposure.



Collaboration to measure the residual risk and to identify potential resilience improvements

Part of the ICA mission is to work with all stakeholders to support insurance companies achieving their core objectives – competitive provision of insurance protection and security for the community.

To help achieve this, the ICA is focused on understanding and acknowledging local work already done to measure hazards and to reduce property risks and seeks to work with local governments in particular, to ensure that appropriate information can flow between industry and government to achieve a closer alignment.

Several State Governments and an increasing number of Local Government's have supplied hazard and building data to the insurance industry, through the ICA. However, there is a wide variance in the consistency and availability of relevant information, which hampers a more comprehensive alignment between how governments have measured and managed hazards, with how insurers acknowledge that work through risk based premiums.

The program described here provides a consistent methodology to facilitate achieving that alignment and to ensure that when it comes to discussions about community exposure to hazards, that all parties can reference the same information and therefore focus on addressing agreed residual challenges where they are proven to exist.

A Collaboration Mechanism - The Property Resilience and Exposure Program (PREP)

PREP provides a mechanism for the Insurance Council of Australia (ICA) to engage with local governments on insurance affordability issues, where the primary drivers may be poor-quality hazard data, or a lack of visibility regarding development controls used by local governments to reduce a buildings exposure; as well as mitigation works that may have been implemented to reduce or further control the risks.

PREP provides an opportunity for an individual local government to:

- Provide consistent information to the insurance industry that may assist to more closely align insurance pricing with the best available local government information.
- Engage with the ICA and insurance companies on insurance affordability, identifying local issues that may be driving increases in insurance premiums.
- Gain an appreciation for the modelled resilience of buildings in their local government area to extreme weather hazards, by quantifying residual risks of damage to buildings after considering how development controls and mitigation activities are performing.
- Consider the costs and benefits of specific mitigation options, or changes to development controls, that over time might lead to property owners facing fewer or less extreme hazard impacts.

PREP assists the Insurance Council to achieve its mission, by:

- Working collaboratively with local governments to focus on what may be contributing to insurance premium increases in their area, as well as what the practical solutions may be.
- Assisting the insurance industry to be able to compete strongly, by accessing the ‘best available’ local hazard data and building information, reducing the opportunity for outdated or absent data to be a causal factor in higher insurance premiums.
- Assisting the insurance industry to provide insurance products that are able to competitively acknowledge the spectrum of risk reduction efforts undertaken by a local government through mitigation and development controls, where it is prudentially appropriate to do so.

Why participate in *PREP*?

Local government stakeholders reading about *PREP* will probably have already noted constituent concerns about insurance affordability.

The *PREP* program is not a ‘silver bullet’ that will universally lead to lower premiums for the community. Such a solution does not exist in any market globally.

However, the *PREP* program provides a mechanism to quickly resolve many of the common issues that can contribute to higher insurance premiums, leaving local government and the insurance industry in a position to then more appropriately focus on possible actions that can begin to address the measured residual exposures.

If a local government is concerned about insurance pricing in its area, this is a mechanism to start analysing the issues and then do something practical about it.

An overview of *PREP* levels

PREP has three tiered levels, which can be flexibly implemented according to a Local Governments capacity and appetite to help influence insurance affordability in their region:

1	<i>PREP Tier</i>	Understanding local hazards through an exchange of hazard data.
2	<i>PREP Tier</i>	Collection of raw building data that may assist underwriters to understand how local development controls in the area have assisted to protect buildings.
3	<i>PREP Tier</i>	Comparative analysis of the resilience of all buildings in the area to known hazards. Assisting local governments to see where development controls are performing well and where (if at all) mitigation or changes to development controls may yield better results with regard to long term insurance affordability for constituents.

For some local governments, only the first tier may be applicable or achievable. For other local governments, typically those with acute hazard and insurance affordability concerns, completion of all three tiers will deliver the best outcomes.

The End-State

At its heart, *PREP* seeks to achieve a more appropriate alignment between how a local government has managed hazard impacts for the community and the information that insurers can access in order to make competitive and measured decisions regarding insurance premiums.

The end-state of *PREP* is to ensure that insurers and local governments can reference to the same baseline data when making decisions and that future actions to control risks can be considered with insurance affordability as one of the key outcomes.

PREP METHODOLOGY AND IMPLEMENTATION

PREP Tiers in Detail

PREP has three tiers which can be flexibly and independently implemented based on the varying degrees of existing data availability in a local government, as well as any resourcing and capacity constraints that may exist.

PREP Tier One

Agreeing on relative exposure by establishing a ‘best effort’ baseline regarding the existing hazards:

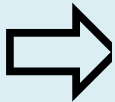
The purpose of *PREP Tier One* activity is to produce an agreed set of hazard references for the Local Government Area (LGA), that the ICA and Local Government can use to:

- Discuss insurance affordability pressures in the context of the hazards that are agreed to exist in the LGA.
- Ensure that where old data may be being referenced by the insurance industry, that updated data can be sourced and provided to help address any inaccuracy that may be impacting on community members.
- Discuss the need for any additional hazard mapping to be planned in concert with relevant state government agencies.

PREP Tier One involves the ICA providing access to existing hazard data for the LGA, where data has been previously collected or created, using the ICA DataGlobe¹.

This will typically involve data that is commonly available across the entire general insurance industry, rather than bespoke or commercially sensitive hazard materials developed by individual insurance companies. It is important to understand that whilst this data is available to insurers, most will seek to combine this data with other sources of information as well as their own unique claims data, in order to calculate insurance premiums that meet their own underwriting criteria.

Where the initial data provided is poor quality, the Local Government will have an opportunity to provide updated hazard mapping products and information that could improve upon accuracy, or more importantly that might fill gaps in the hazard data.



The inputs for *PREP Tier One* are currently published or ‘best available’ flood, overland flow, drainage, bushfire, earthquake and storm hazard maps in a suitable GIS format for analysis.

- **Input One** – Available hazard datasets that have been accessed, collated or created by ICA for hazard analysis and access by insurers.
- **Input Two** – Additional hazard datasets from Local Government that fill gaps and/or improve the accuracy of what is currently available.

The outputs from *Component One* start with a baseline hazard data layer for the local government area, which can be used by industry and local government for analysis, planning and discussion, or options to acquire new data that may fill existing gaps.

- **Output One** – Agreed raw datasets that represent the current ‘best effort’ hazard datasets for the LGA, for access by industry and Local Government.
- **Output Two** – Access to the ICA DataGlobe for the Local Government, allowing interactive use of the ‘best effort’ hazard data at address level.
- **Output Three** – Access to ICA resources to



¹ ICA DataGlobe – An online Google maps based resource managed by the ICA to visualise hazard data and other metrics relevant to insurance, across the entire Australian continent.

assist with constituent inquiries regarding insurance affordability issues as well as community forums on related issues.

Raw hazard data comes in many forms.

The typical raw hazard data that is of assistance to better calibration of insurance premiums, includes materials such as:

<p>Earthquake Potential Mapping</p> <p>GIS extents of earthquake hazard zones referred to for the purposes of development control and building codes.</p>	<p>Flood Data</p> <p>Gridded depth data for the 1, 2%, 5% and PMF riverine events, with associated digital terrain models.</p> <p>Flood extent data in GIS formats for design events.</p> <p>Details of local mitigation including protection footprints, overtopping ARI and design heights.</p> <p>Published flood studies and flood risk management plans for the local area.</p> <p>Local overland/stormwater/groundwater flow maps in grid and/or extent formats.</p>	<p>Severe Rainfall and Hail</p> <p>Gridded peak rainfall intensity data that allows estimation of 1%, 2%, 5% AEP rainfall events in millimetres.</p> <p>GIS extents or postcode data showing average recurrence intervals for hailstones at 2cm, 5cm and 8cm in size.</p>
<p>Cyclone</p> <p>GIS data showing cyclone tracks impacting the area during the last 100yrs.</p> <p>Address level data, depicting the number of cyclones that have occurred within 50km of the address during the last 100yrs.</p>	<p>Bushfire</p> <p>GIS extents showing the designation of any land as 'Bushfire Prone Land' in order to guide appropriate development controls.</p> <p>Address level data, providing an estimated Bushfire Attack Level for the centroid of the address, based upon proximity to vegetation and slope as the key factors.</p>	<p>Wind</p> <p>Gridded peak wind data estimating the average recurrence interval for winds exceeding 50kmh, 75kmh and 100kmh.</p>

PREP Tier Two - Analysing buildings:

In this component, building information that is already held by LG is collated and additional building information is collected where necessary. This building information is combined with the hazard data from Component One, and is processed through the Building Resilience Rating Tool to produce resilience ratings for all properties in the Local Government area.

The input for *Component Two* is specific building survey data (also referred to as Metadata) extracted from council records or collated by council staff (in format specified) at property level.

The outputs from *Component Two* are:

A Resilience Map provided by the PREP process for Local Government, identifying where properties are potentially more vulnerable than others, due to the extent of the local hazards, each buildings design, materials used and the performance of local mitigation.

Whilst the resilience map is designed to be useful to Local Government, insurers need access to raw data in order to understand the risks comprehensively. The second output is raw building data, specific to each address in the Local Government area, that can be used by underwriters to acknowledge the benefit of councils development controls in limiting the potential damage due to extreme weather events. *For example, floor height data for each building that confirms that buildings have been constructed so as to not suffer from over floor flooding during design flood events*

Component Three - Addressing Insurance Affordability:

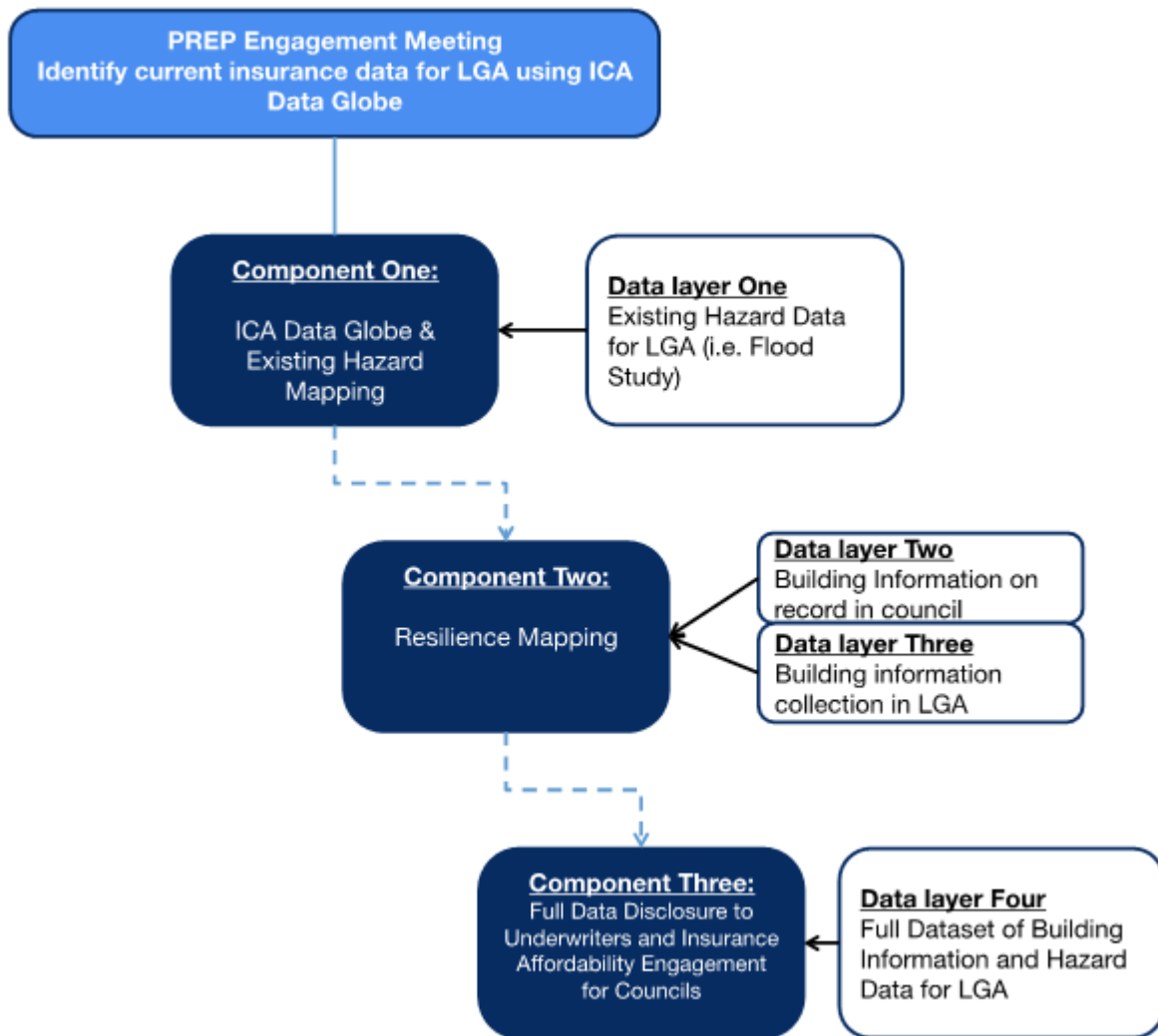
Release of raw data and resilience scoring in a forum that allows underwriters to optionally improve the accuracy of insurance pricing at an individual address level, and for councils to focus on those locations where residual risks may remain a driving force behind higher insurance premiums.

The outputs from this component are:

Access to the raw building data and hazard data agreed during the process between local government and the insurance council, on the ICA's DataGlobe, for access by all authorised parties.

Identified mitigation and development control priorities (if any) that will assist with lowering the residual risks to buildings in the area and therefore assisting to reduce further pressures on insurance affordability.

The figure below shows the expected flow of PREP components, starting with a PREP engagement meeting to determine the likely components to be undertaken by a LG and the scope of data available and to be collected.



PREP — Building Resilience Rating Tool (BRRT)

Insurers, given the right inputs, are experts at assessing the potential for a building to suffer damage from extreme weather events. The processes undertaken by insurers are naturally commercially sensitive, as are the precise inputs considered.

To assist in understanding the impacts of hazards on the built environment, without compromising the commercial sensitivity of any individual insurance company's data and processes, the ICA has developed the Building Resilience Rating Tool (BRRT).

The BRRT undertakes a simplified process to rate the resilience of buildings to common weather hazards using hazard data inputs and data regarding the buildings construction.

The BRRT allocates a score of 1 to 5 for each building based on the hazard at that location and the nature of the building. A poorly designed building in a hazardous location would score 1. A well designed building for the hazards in that location would score 5.

The BRRT development process included engagement with over 120 stakeholders; extensively researched the resilience and durability of building materials; and developed calculations and formulations to form the basis of the BRRT. The methodology of the BRRT has been supported and informed by an Expert Advisory Group.

The PREP process requires the use of the BRRT to analyse thousands of buildings in a single pass, based upon the collection of appropriate data. The BRRT can also be used for single buildings at the consumer level, where opportunities for education and understanding about extreme weather vulnerabilities may assist with local understanding about the potential impacts of hazards. See the figure below for a screenshot of the resilience rating tool being used in a web interface for consumers.

Your Hazard Profile

Your House Type

Your House

House Details

Your Resilience Rating

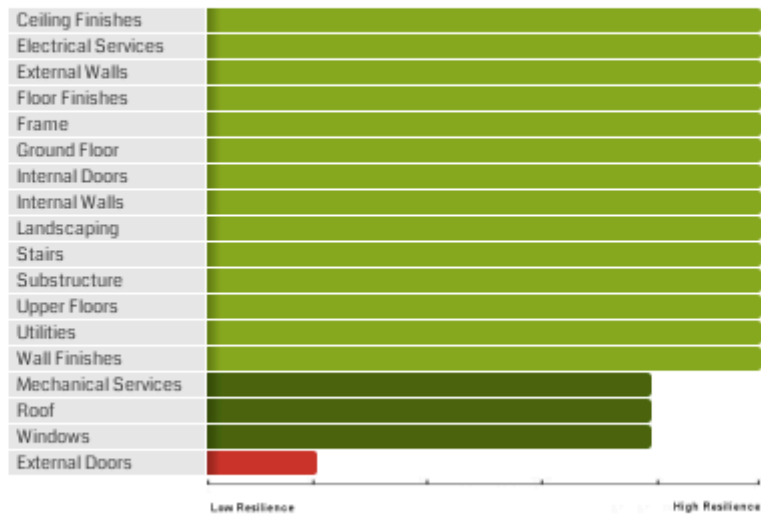
Your Resilience Rating

31 Culgoa St Koonawarra 2530



PROPERTY ELEMENT RESILIENCE RATINGS

Overall Inundation - Freshwater Inundation - Saltwater Wind Rain Hail



Taking action — Implementing PREP

The circumstances and nature of local governments vary significantly across Australia. With that context in mind, the implementation of PREP can be tailored to any local government.

Regardless, the first step remains the same — **Requesting a briefing from the Insurance Council of Australia, followed by a discussion to scope the level of PREP activity that might deliver best results.**

DATA REQUIREMENTS AND COLLECTION

Each Component of PREP requires data layers regarding hazards and buildings. LGs typically hold significant amounts of building and hazard data, but in many cases, this is not held in an accessible or centralised resource.

In some cases, LGs may need to undertake data collection in order to obtain the minimum levels of data required to run PREP. A pilot study and subsequent work with local governments has confirmed that with some small innovation and effort, most of the required data can be extracted, collected or modelled by existing local government resources.

Data requirements

Data required for PREP Component One:

Preliminary Hazard Data: Hazard data is required for any event that may cause damage to existing or planned development. For example, flood studies in GIS formats, earthquake vulnerability maps, bushfire prone land maps, BAL ratings. Mapping should be suitable for the analysis of hazard frequency and impact at land parcel scales.

At the initiation of PREP, the Insurance Council will work with the Local Government to define what generic hazard data is currently available (provided by ICA) and what further data needs to be provided or improved upon. This work will typically be supported by a working group of insurers with a direct interest in helping their customers in the local government area.

Data required for PREP Component Two:

Resolved Hazard Data: Hazard datasets that have been reviewed by the Local Government and the Insurance Council during *Component One* and have been agreed to be the 'best currently available'.

Building data: Data on the building located at each address in the Local Government area that is consistent with the [Building Data Metadata Specification](#).

Building data is divided into **two priority levels** in the Metadata Specification:

Priority 1: The minimum data required to generate a resilience rating using the BRRT, as well as the information that can potentially have greatest impact on insurance pricing if resolved.

Priority 2: Data designed to improve the quality of the resilience rating, as well as having a longer term impact on the accuracy of insurance pricing.

Building data required can be divided into **four categories**:

Survey Information: Information regarding council's collection or extraction process for the data, to help determine its accuracy and origin.

Building Information: General information regarding the building including its position on the plot, orientation, etc.

Building Control Information: Information regarding standards and controls that the building has been subjected to in relation to natural hazards.

Building Material Information: Information about building design, materials and products used that will affect how the building may respond to extreme weather hazards.

Data required for PREP Component Three:

Final Hazard Data: Hazard datasets used for Component Two that can be used for controlled release to the insurance industry through the ICA DataGlobe.

Final Building Data: Cleansed and processed building data in a raw (CSV) format that can be accessed by industry members who wish to use the information to assist with pricing and/or recognise the value of building controls on the reduction of risk.

Resilience Heat Mapping. Address level rating map for the entire local government area that helps Local Government to identify locations where the residual risk of extreme weather hazards may eclipse the ability of the building (as constructed) to resist damage.

The data collection process

This can be the fundamental challenge of the PREP process for many Local Governments. Much of the building and land parcel data required for PREP *Component Two* will typically be available in existing databases in various formats. In some instances the data may need to be specifically collected or modelled.

Further documentation and options for trained support are available upon request.

Data ownership

Data collected and provided to the ICA will generally be done so under creative commons principles and will not involve the collection of personal information. Individual data usage and agreements can be negotiated on a case-by-case basis.

Local governments who wish to engage with the Insurance Council of Australia on the issue of insurance affordability, and who wish to potentially undertake the PREP program for their local government area, can make contact with the following staff to discuss opportunities: Karl Sullivan, General Manager Policy Risk & Disaster, ksullivan@insurancecouncil.com.au