



# A Third Way

A proposal for cyclone mitigation assistance

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# Executive Summary

In March 2015 the Australian Government established the Northern Australia Insurance Premiums Taskforce (the Taskforce), which is

*charged with exploring the feasibility of options that use the Commonwealth balance sheet to reduce home, contents and strata insurance premiums in those regions of Northern Australia that are experiencing insurance affordability concerns due to cyclone risk. (Josh Frydenberg MP, 2015)*

While the Taskforce has initially been focussed on options for either a mutual cyclone insurer or a cyclone reinsurance pool, it has also advised that it will consider other options.

In determining the optimal policy response from Government to address premium affordability, there are a number of reasons why the two core options proposed may not represent the optimal choice for the Federal Government.

- For the majority of households in at risk areas, higher household insurance premiums are the direct result of damage claims and in fact a number of insurers report that they make a loss on cyclone insurance. Premium levels in cyclone-prone regions are not the result of insurance market pricing power.
- A mutual insurer or reinsurance pool is likely to add significantly to Government liabilities over time, as has been demonstrated through, for example, the US National Flood Insurance Program (NFIP), which currently holds US\$23 billion in debt.
  - Given fiscal constraints currently faced by all levels of Government, options that can reduce premiums at the lowest cost to Government should be given the highest priority.
- Neither option mitigates against the damage inflicted by cyclones on people, properties, communities and the broader economy.

In this context, Urbis was engaged by the Insurance Council of Australia to put forward the framework for a potential third option: a program to support the take-up of cyclone mitigation initiatives by vulnerable housing, including strata units, that does not meet current (post-1981).building standards for cyclone regions.

James Cook University's Cyclone testing Station has identified roof loss as causing the greatest amount of both direct and collateral damage from cyclones and that a low-cost mitigation option is available to retrofit roofing for approximately \$12,000 (Urbis has conservatively assumed up to \$15,000 for modelling purposes, to allow for contingencies), using an over-batten system. Options for strata units will more likely include a range of possible upgrades to external surfaces.

However, recognising that low income households in cyclone prone regions will typically not have access to \$15,000, and that the benefits generated via lower premiums resulting from mitigation will take many years to pay back the investment, it is likely that these households will require assistance with mitigation investment costs.

The proposed approach presented in this report involves two key components.

- **A grant for mitigation** – households would receive support of 75% of the cost of the mitigation, up to a maximum value of \$11,250. The grant would be paid directly to the authorised contractor on completion and approval of the works.
- **A premium subsidy** – 20% of insurance premiums would be rebated, from receipt of approval until completion of installation, up to a maximum period of 24 months. Insurance rebates would be processed as part of the householder's annual tax return.

It is recognised that, while many low-income households have limited access to savings to pay for substantial capital works, there will be a greater incentive to ensure value for money works are carried out if some financial responsibility remains directly with households and if there is a cap on grants.

The small contribution required by households for the grant will be repaid over time through reduced premiums. This includes through the immediate subsidy available from the Government prior to completion of works, which will also address short term premium affordability issues.

This report:

- assesses the rationale for the proposed policy option to provide support for mitigation through a Mitigation Assistance Scheme (MAS),
- provides a framework for eligibility selection for housing, strata units and homeowners
- discusses MAS implementation, operation and review
- estimates the expected costs of the scheme.

The MAS, as presented in this report, is recommended over other potential options being considered by the Taskforce, for a number of reasons.

- It is temporary, timely and targeted, reflecting best practice policies.
- The cost of the scheme, at a total of \$361.2 million in Net Present Value terms over the life of the MAS, is likely to be well below the cost of a mutual pool or reinsurance option.
- Mitigation will deliver both lower policy costs and also additional economic benefits in the form of:
  - reduced property damage bills from cyclonic events
  - reduced community costs from cyclonic events, including physical and mental health, disruptions to business, displacement from home, work and education etc.
  - increased resilience in an area of increasing economic importance for the Australian economy
  - the opportunity to develop expertise and become a global market leader in mitigation.

# Introduction

The Australian Government Actuary has observed that property insurance prices in North Queensland are significantly higher than elsewhere in Australia (Martin, 2014).

A detailed analysis of insurance data by the Insurance Council of Australia (ICA) shows that approximately 57% of policy holders in cyclone-prone regions of North Queensland – representing around 72,000 houses and 22,500 strata units – pay above a normalised mean<sup>1</sup> of \$1,400 for cyclone insurance, with the majority of premiums concentrated between \$1,400 and \$2,400.

To address this issue, in March 2015 the Australian Government established the Northern Australia Insurance Premiums Taskforce (the Taskforce), which is:

*charged with exploring the feasibility of options that use the Commonwealth balance sheet to reduce home, contents and strata insurance premiums in those regions of Northern Australia that are experiencing insurance affordability concerns due to cyclone risk. (Josh Frydenberg MP, 2015)*

While the Taskforce has initially been focussed on options for either a mutual cyclone insurer or a cyclone reinsurance pool, the Taskforce has also advised that it will consider other options.

In determining the optimal policy response from Government to address premium affordability, there are a number of reasons why the two core options proposed may not represent the optimal choice for the Federal Government.

- For the majority of households in at risk areas, higher household insurance premiums are the direct result of damage claims and in fact a number of insurers report that they make a loss on cyclone insurance (Martin, 2014). Premium levels in cyclone-prone regions are not the result of insurance market pricing power.
- A mutual insurer or reinsurance pool is likely to add significantly to Government liabilities over time, as has been demonstrated through, for example, the US National Flood Insurance Program (NFIP), which currently holds US\$23 billion in debt (U.S. Government Accountability Office, 2015).
  - Given fiscal constraints currently faced by all levels of Government, options that can reduce premiums at the lowest cost to Government should be given the highest priority.
- Neither option mitigates against the damage inflicted by cyclones on people, properties, communities and the broader economy.

In this context, Urbis was engaged by the Insurance Council of Australia to put forward the framework for a potential third option: a program to support the take-up of cyclone mitigation initiatives by vulnerable housing that does not meet current (post-1981) building standards for cyclone regions.

The James Cook University (JCU) Cyclone Testing Station identified three key mitigation strategies to significantly reduce cyclone damage (James Cook University, 2011). Examination of Suncorp claims data by JCU found that housing constructed before 1981 performed particularly poorly in terms of cyclone damage against those built after the introduction of stricter building codes in 1981.

Analysis undertaken by Urbis on behalf of the Suncorp Group (Urbis, 2015) demonstrated that low-cost mitigation options for both opening protection and roofing upgrades delivered Benefit Cost Ratios (BCRs) above one.

The benefits of mitigation included not only reduced premiums as a result of a reduction in damage to properties, but also lower costs to governments, communities and individuals due to the wider impacts of

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<sup>1</sup> The normalised mean represents the average premium for a standard house type of average value. Across all households, the average premium paid is one dollar for each \$253 of coverage. The normalised mean allows for comparison of premiums across different value dwellings.

household damage including collateral property damage, physical and mental health, absenteeism and presenteeism, displacement and so on. These additional costs are estimated to account for as much as 200% of direct property damage (Walker, GR, Mason, MS, Crompton, RP & Musulin Rt, 2015).

Options assessed were:

1. a community preparedness and awareness campaign, to be undertaken by relevant government authorities with a focus on reducing the large quantity of small claims that result from untied shade cloths, loose debris in garden, water ingress through unsealed windows, etc.
2. protection for doors, windows and other openings
  - low-cost options for protection of openings that demonstrated a BCR above one<sup>2</sup> were estimated by JCU to cost on average \$1,660 and were self-installed; higher cost options at \$3,500 demonstrated BCRs of greater than one only in some regions and only under the highest level of cyclone exposure (as measured by Australia New Zealand Wind Loading Standard)
3. structural roof upgrading
  - a \$15,000 roof replacement and strapping upgrades using an over-batten system is considered a realistic (conservative) costing option; a full roof upgrade is estimated to cost \$27,000 to \$30,000 and also demonstrated BCRs of greater than one only in some regions and only under the highest level of cyclone exposure.

Roof loss causes the greatest amount of both direct and collateral damage (Smith & Henderson, 2015). However, recognising that low income households in cyclone prone regions will typically not have access to \$15,000, and that the benefits generated via lower premiums resulting from mitigation will take many years to pay back the investment, it is likely that these households will require assistance with mitigation.

Furthermore, by stimulating the market for mitigation through such assistance, it is likely that other households will be encouraged to implement similar measures and that the market itself will innovate and develop lower-cost options over time, as has been seen in a number of markets such as for solar panels.

This report discusses the rationale for the proposed policy option to provide support for mitigation, a framework for eligibility selection for housing and homeowners, implementation and operation, and the expected costs of the scheme.

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<sup>2</sup> That is, the benefits (avoided costs) resulting from the investment exceeded the cost of the mitigation.

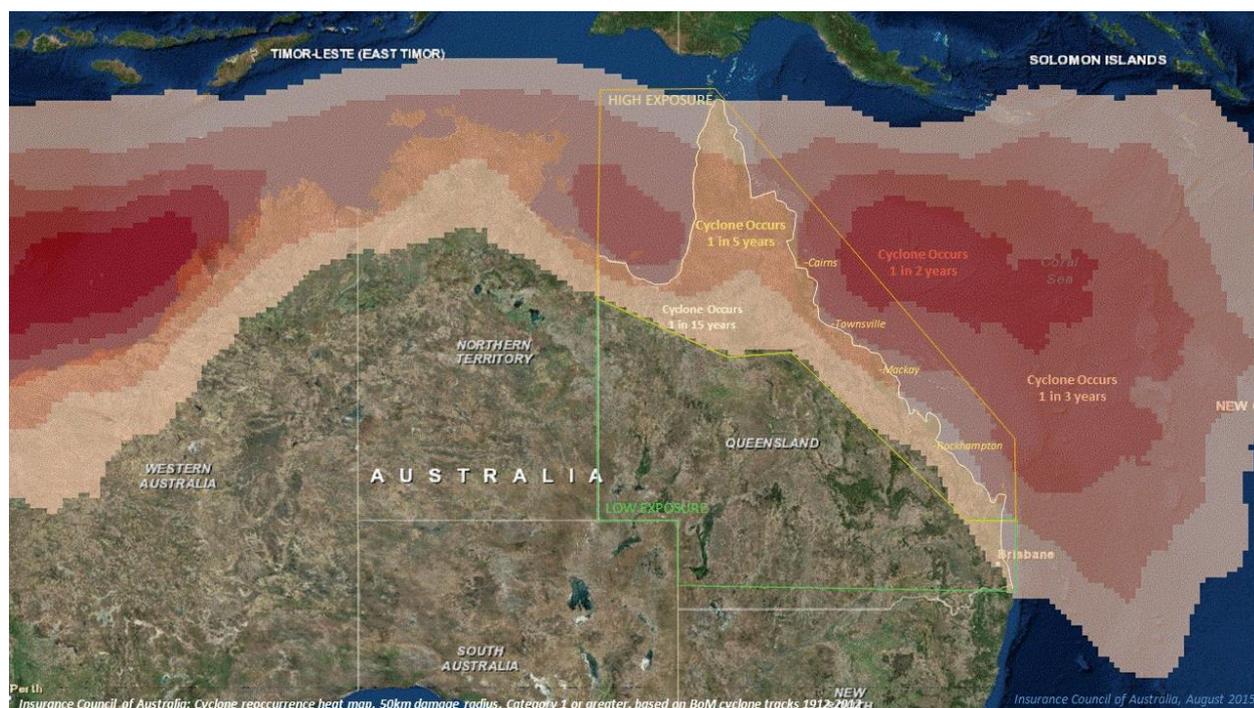
# 1 The problem

## 1.1 CYCLONE RISK AND COSTS

Coastal regions across Northern Australia have a long history of cyclones. North Queensland, as the region with the greatest population and housing stock density in Northern Australia, is particularly exposed to the risk of significant damage from cyclones. Across the east coast of Australia there have been 207 known impacts of cyclones dating back to 1858, with the majority falling in North Queensland (BOM, 2015).

The area of coastline stretching from Mackay to Cape York has a one in five year risk of a cyclone occurring. Areas of this coastline, including the major regional centres Cairns and Townsville, are exposed to a one in three year risk of cyclones (see Image 1-1) (Insurance Council of Australia, 2015a).

IMAGE 1-1 – CYCLONE RISK, AUSTRALIA



Source: (Insurance Council of Australia, 2015a)

Many of the cyclones that make landfall in North Queensland require substantial payouts from insurers, governments and individuals. The four largest cyclone events, measured by insured losses, have occurred since 1970. Insured losses for each of these events are presented in Table 1-1; results have been adjusted for factors such as demographics, housing stock and inflation, as if each event had occurred in 2011, to enable a like for like comparison of the impact.

TABLE 1-1 – IMPACT OF TROPICAL CYCLONES

CYCLONE	YEAR	CATEGORY	INSURED LOSSES	GOVERNMENT DAMAGE BILL
Ada	1970	4	\$1,001m	N/A
Althea	1971	4	\$648m	N/A
Larry	2006	4	\$609m	\$500m*
Yasi	2011	5	\$1,405m	\$800m

Note: 2011 prices.

\*includes damage from Cyclone Monica

Source: (QDCS, 2012), (Queensland Government, 2011), (BOM, 2006)

Changing demographics in cyclone prone regions, such as the expansion and increasing density of town centres, and further development of the built environment can influence the scale of impacts from cyclones. With the scale of housing stock in North Queensland increasing, the scale for insured losses to households increases.

The risk of cyclone damage to any one building depends not only on frequency of cyclone events, but on building construction and design. Changes to the Queensland Home Building Code in 1981 introduced significant structural improvements for houses, designed to resist strong winds. Evidence from Cyclone Yasi found that, in the worst hit areas, less than 3% of post-80s houses (those built under the updated building code) experienced significant roof damage while more than 12% of pre-80s houses had significant roof damage – rising to more than 20% in some areas (James Cook University, 2011). Buildings constructed before the changes to the building code in 1981 are more at risk to damage from cyclones. This has implications for insurance premiums.

## 1.2 INSURANCE AFFORDABILITY

The financial cost of cyclones has had a measurable impact on insurance premium affordability for homeowners in cyclone-prone regions. In 2012-13, Australian premium rates were, on average, around 50% of North Queensland premiums (Martin, 2014).

Home and contents insurance premium prices in North Queensland depend on a number of factors, including the construction and design of the building, and exposure to cyclonic events. Higher cyclone risk in North Queensland has been found to be a major driver of higher insurance prices in the region (Martin, 2014).

Given a standard insured value of \$354,400 and an excess of \$500, the median premium for households in higher cyclone exposed regions of Queensland is \$1,509 compared to \$830 for households in lower cyclone exposure regions – an 82% increase (Insurance Council of Australia, 2015a).

Average insurance premium quotes from major insurers at Mission Beach (located on the North Queensland coast between Cairns and Townsville) show the reduction in premiums that cyclone compliance can provide (Table 1-2). When compared to cyclone compliant houses, non-cyclone compliant houses can face up to a 75% increase in insurance premiums.

TABLE 1-2 – INSURANCE PREMIUMS, MISSION BEACH 2014

EXCESS	CYCLONE COMPLIANT			NON-CYCLONE COMPLIANT		
	\$500	\$1,000	\$2,000	\$500	\$1,000	\$2,000
Insurer A	\$3,723	\$3,501	\$2,922	\$4,470	\$4,202	\$3,507
Insurer B	\$2,808	\$2,360	\$2,000	\$4,935	\$4,125	\$3,765
Insurer C	\$2,447	\$1,994	\$1,441	\$3,300	\$2,622	\$1,792
Insurer D	\$2,360	\$2,174	\$1,957	\$2,997	\$2,754	\$2,474

Source: Insurance Council of Australia internal documentation 2015

Cyclone compliance can reduce premiums significantly; however cyclone risk still plays a significant role in insurance premiums. For example, Insurer D offers a premium of \$1,594 with a \$500 excess for the same building and sum insured in non-cyclone exposed areas of Brisbane, a 33% discount on the cyclone compliant building.

## 2 The policy framework

### 2.1 OBJECTIVES OF GOVERNMENT ACTION

The Northern Australian Insurance Taskforce has been established to assess ways to reduce the cost of cyclone insurance.

The Taskforce is giving consideration to options for a mutual insurance pool or a reinsurer; both these options would spread the cost of cyclone claims across a broader base (i.e. all Australian taxpayers) and so lower the premiums paid by at risk households. However, neither would reduce the actual impact of cyclones that causes higher premiums and which are a regular climactic feature of North Queensland.

Mitigation options for households, however, have the potential to reduce both home insurance premiums in cyclone prone regions as well as actual physical damage – both direct and collateral. A number of insurance companies such as Suncorp have already announced a significant reduction in premiums will be available to households that implement approved mitigation measures.

This paper considers options to assist low income/low economic resource households to invest in cyclone mitigation which will reduce damage from cyclones to both households and the community and economy more broadly.

### 2.2 RATIONALE FOR PROVISION OF ASSISTANCE

Low income households are significantly more likely to have inadequate or no levels of house and contents insurance than other segments of the community. A study undertaken by the Brotherhood of St Lawrence identified that approximately 32% of low-income Australians did not have home contents insurance and 9% had no insurance (Collins, 2011). This is not to suggest that low-income Australians are not aware of the role insurance plays in protecting assets. Most low-income households desire greater levels of insurance cover. Affordability is the greatest barrier to holding desirable levels of insurance cover (Collins, 2011).

As outlined in the Australian Bureau of Statistics (ABS) 2009-10 Australian Household Expenditure Survey, households spend an average of \$7.81 or 1.4% of total weekly household expenditure (lowest income quintile) and \$8.82 or 1.1% of expenditure (second lowest income quintile) on house and contents insurance. By contrast, the top income quintile spends an average of \$16.61, or 0.8% of total household expenditure, per week.

The level of house and contents insurance taken out by low income earners is also likely to be the minimum or most basic cover offered. The Centre for Social Impact has estimated that the annual cost of basic contents insurance (excluding house insurance costs), in which only key assets are protected from basic risks, was \$344 in 2013 (or \$6.62 per week) (Centre for Social Impact, 2014). Basic coverage may not enable the restoration of all belongings, further disadvantaging low income earners.

As recognised in the recent Natural Disaster Insurance Review (Trowbridge, 2011), while low income households are less likely to take-up insurance generally, they can have a greater need for insurance if they do not have the financial resources to restore any assets or belongings that were damaged or destroyed as a result of a cyclone or natural disaster. This is not restricted to low-income households who own their own homes. For low incomes earners, and tenants in particular, the contents can be their primary assets - without the financial resources to replace these assets in the event of a natural disaster, they could face serious financial hardship akin to that faced by homeowners who have lost their homes (Trowbridge, 2011). This can also prevent low-income earners from confidently accumulating assets as they are least able to absorb losses or readily replace lost assets (Good Shepherd Microfinance, 2013).

In addition to the issue of insurance coverage and insurance affordability, household mitigation activities are rarely affordable for people living in poverty. As recognised by the Australian national, state and territory Councils of Social Service, low income and disadvantaged groups are more likely to live in poorer quality housing, and have less capacity to adequately prepare their homes against disaster (Australian Councils of Social Services, 2014).

According to the ABS 2009-10 Household Expenditure Survey, 32.5% of low income households<sup>3</sup> could not raise \$2,000 for an emergency within a week. This figure rises to 40.8% for low wealth households and 43.3% for low economic resource households. Less than 20% of low economic resource households are able to regularly save money.

Of those able to raise \$2,000, less than half of low resource households (47.7%) would rely on own savings; one third (30.3%) would raise a loan from family or friends, with the remainder borrowing (bank or credit card) or selling something.

## 2.3 POLICY FRAMEWORK

The proposed Mitigation Assistance Scheme (MAS) would provide assistance to low income households to invest in mitigation covering roofing upgrades.

Addressing mitigation requires a different approach for houses and multi-unit strata dwellings, with the latter involving a greater degree of complexity. While the overarching framework is similar for all classes of building, there are some important differences, and so these are discussed separately here.

### 2.3.1 MAS – HOUSES

#### ***Household Eligibility***

To be eligible to apply for assistance, households must:

- live in an approved cyclone-risk postcode
- be the owner of the home
- live in the home (primary place of residence)
- have the home approved as suitable for mitigation (see below)
- meet the income test (see below).

#### ***Mitigation options covered by the scheme***

The scheme will cover roofing upgrades for suitable houses. JCU has identified potential roof upgrades, using an over-batten system as a cost-effective option. The estimated cost for this option is approximately \$12,000, however, Urbis has conservatively modelled an average cost of up to \$15,000, to allow for contingencies. A complete roof replacement and strapping upgrade is estimated to cost \$30,000.

Houses must have been constructed prior to 1984 (post-1984 houses are generally compliant with stricter building codes) and be deemed suitable for a roofing upgrade by an accredited assessor.

#### ***Income Eligibility***

Eligibility would also be determined on the basis of household income. As income is typically correlated with home prices (SA Centre for Economic Studies, 2004), this will also serve to remove from eligibility those with high value properties, where higher premiums are likely to be driven more by the value of the home than the impact of cyclone coverage.

The income eligibility caps, which are based on the levels set for similar schemes, such as the National Rental Assistance Scheme (NRAS) and the Queensland Structural Assistance and Essential Household Contents Grants, are:

- Individual \$909 (\$47,289 per year)

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<sup>3</sup> Persons in the lowest two quintiles of both equivalised adjusted disposable household income (adjusted to include imputed rent) and equivalised household net worth

- Couple: \$1,257 (\$65,378 per year)
- Sole parent, one child: \$1,258 (\$65,423 per year)
- Couple, one child \$1,559 (\$81,063 per year)
- For each additional child add a further \$302 per week

### **Value of Assistance**

Eligible households would receive:

- **Grant for mitigation** – households would receive support of 75% of the cost of the mitigation, up to a maximum value of \$11,250. The grant would be paid directly to the authorised contractor on completion and approval of the works.
- **a premium subsidy** – 20% of insurance premiums would be rebated, from receipt of approval until completion of installation, up to a maximum period of 24 months. Insurance rebates would be processed as part of the householder’s annual tax return.

It is recognised that, while many low-income households have limited access to savings to pay for substantial capital works, there will be a greater incentive to ensure value for money works are carried out if some financial responsibility remains directly with households and if there is a cap on grants.

The small contribution required by households for the grant will be repaid over time through reduced premiums. This includes through the immediate subsidy available from the Government prior to completion of works, which will also address short term premium affordability issues.

### HOUSEHOLDS COVERED BY THE SCHEME

The ICA estimated the number of households paying above a benchmark premium considered affordable to be 102,420, or 57% of total households in high risk cyclone areas of Queensland.

The benchmark was set at \$1 of premium purchases less than \$253 in cover, which represents the average cost of insurance irrespective of the value of the house.

Of these houses, 70.7%, or approximately 72,000 houses, were deemed to be non-compliant with current cyclone building standards.

**Applying the eligibility criteria above, a total of 29,363 houses would be covered by the scheme.**

### 2.3.2 MAS – STRATA UNITS

The multiple ownership structure of strata units places additional complexity on the MAS scheme. Not all residents within a strata building will meet eligibility criteria, and it is not possible to state how many strata buildings will comply and be able to gain support from all unitholders.

Further, JCU reports that mitigation options and costs for buildings will vary widely, depending on the size and structure of buildings; many large strata buildings would not be suitable for household-style roofing mitigation, but would suit other upgrades to the building.

To overcome these issues, it is proposed that grants would be made available for strata building upgrades where a minimum of 50% of owners qualify for assistance. The premium subsidy, however, will only be available to eligible households within the strata building.

#### **Strata Size definitions:**

- Small strata complex: a strata building with three or fewer storeys
- Large strata complex: a strata building with four or more storeys

## ***Strata Eligibility***

To be eligible to apply for assistance, the body corporate must:

- be in an approved cyclone-risk postcode
- have the building approved as suitable for mitigation
- be able to demonstrate that 50% or more of owners meet the income test.

## ***Mitigation options covered by the scheme***

The scheme will cover roofing and external upgrades for suitable buildings.

For eligibility, buildings must have been constructed prior to 1984 and be deemed suitable for upgrade by an accredited assessor.

For small strata complexes, mitigation options are likely to be similar to housing options but may also include some other external upgrades.

Small strata complexes include:

- Semi-detached, row or terrace house, townhouse etc. with one storey
- Semi-detached, row or terrace house, townhouse etc. with two or more storeys
- Flat, unit or apartment in a one or two storey block
- Flat, unit or apartment in a three storey block

While there is no standardised costing data available to be modelled, Urbis has assumed a pro-rata cost of up to \$10,000 per unit. So, for example, the cost of roofing mitigation for a six-unit dwelling is estimated to be \$60,000.

Large strata complexes include all other buildings of four storeys or higher.

Again, there is no standardised cost, and Urbis has assumed a maximum cost of \$5,000 per unit, reflecting the higher density of taller buildings.

Whilst these figures represent the upper limit of assistance, Urbis modelling has assumed this will be paid

This aspect of the scheme would require greater consideration before finalisation, including detailed discussion with industry experts including JCU.

## ***Income Eligibility***

Income caps are as for houses.

Where 50% or more of unit holders meet the income criteria, the building will be eligible for the 75% rebate on mitigation. However, only unit holders who meet income criteria will also be eligible for the premium subsidy.

## ***Value of Assistance***

Eligible households would receive:

- **Grant for mitigation** – households would receive support of 75% of the per unit cost of the mitigation, up to a maximum value of \$7,500 (small complexes) and \$4,000 (large complexes). The grant would be paid directly to the authorised contractor on completion and approval of the works.
- **a premium subsidy** – 20% of insurance premiums would be rebated to eligible households only, from receipt of approval until completion of installation, up to a maximum period of 24 months. Insurance rebates would be processed as part of the householder's annual tax return.

## STRATA HOUSEHOLDS COVERED BY THE SCHEME

The ICA estimated the number of strata units paying above a benchmark premium considered affordable to be 18,073

Strata units in buildings of similar design to households (i.e. three storeys or fewer) made up 92% of total strata units.

It was assumed that the ratio of strata units deemed to be non-compliant with current cyclone building standards is the same as for houses, at 70.7%.

**Applying the eligibility criteria above, a total of 5,127 strata units would be covered by the scheme.**

## 2.4 LOCAL GOVERNMENT COMPLIANCE

Significant works would typically require compliance with local government building approval regulations. In order to minimise red tape and compliance costs, it is recommended that:

- the Queensland Government, on behalf of the Federal Government, negotiate a framework with affected councils such that approval by the MAS constitutes approval by the relevant local authority
  - MAS approval would require approval by an accredited assessor both prior to and on completion of works
- the MAS would issue quarterly reports to councils notifying them of households that had been granted approval to proceed and those that had completed works and had these assessed and certified as compliant

## 2.5 ACCREDITATION AND RESOURCING

Establishment of an appropriate accreditation system will require additional resources. There are already many contractors capable of undertaking this work, as we see post-disasters such as Yasi and Marcia. However, it is essential to ensure that demand is met by suitably qualified professionals who can demonstrate this expertise, or who undertake a short training program. Details of such a program would need to be worked through, but could be done in consultation with a range of industry experts as long as additional resourcing was provided where required.

In conjunction with accreditation, it is expected that a broad public education campaign would be undertaken and maintained throughout the open application period (five years) to alert households to the scheme and its requirements and benefits.

This aspect of the program has not been costed, but it is expected that the outcomes could be achieved with a budget of \$1 million per annum.

## 2.6 INSURANCE INDUSTRY DATABASE

Householders can apply to the insurance industry for a rebate on receipt of the assessor's approval. Over time, however, households may choose to switch companies or houses will change ownership. A centralised database will ensure accurate record keeping so that mitigation can be reflected in premium pricing.

A detailed database will also assist Government to understand how and where mitigation is being taken up over time; this will support any auxiliary actions required to ensure the scheme reaches its full potential to drive take up of mitigation.

It is therefore recommended that the MAS work with the insurance industry to build a database of rectified properties, to be made available to both policy makers and insurance companies. Once the MAS is wound up, the database would be managed by a third party such as the ICA.

### 3 Examples of mitigation assistance

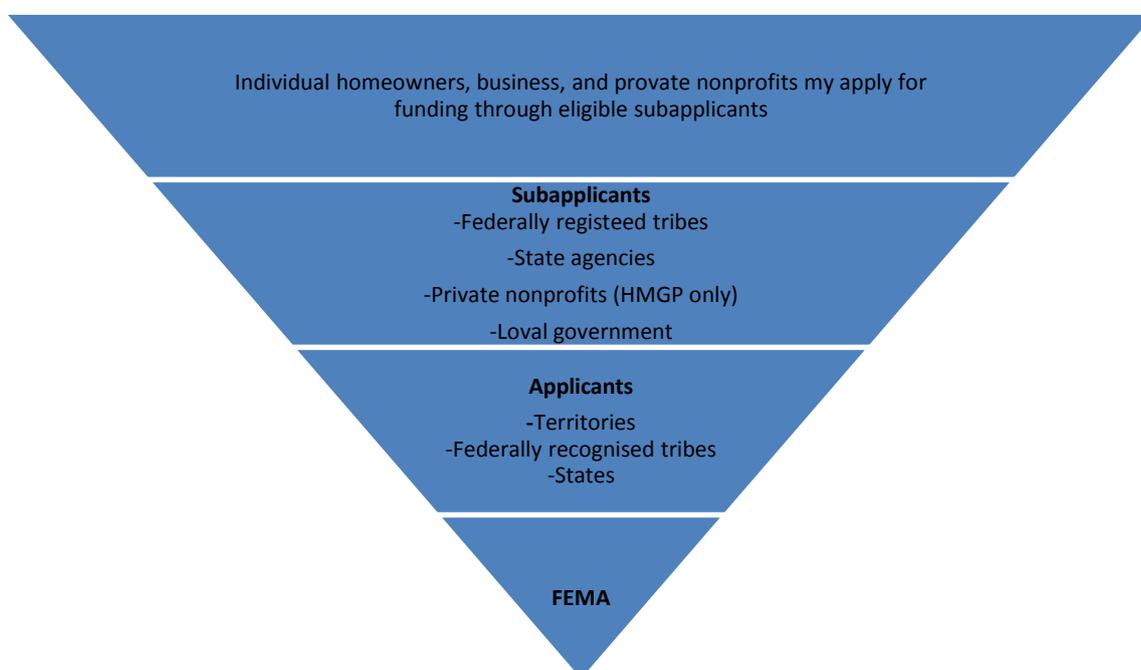
This section provides examples of assistance programs in the US, both grant paying and non-grant paying. Such programs offer guidance for an Australian assistance program.

#### 3.1 THE HAZARD MITIGATION GRANT PROGRAM (HMGP)

The US Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) was set-up to help communities implement hazard mitigation measures. Under the HMGP, FEMA pays 75% of the cost of improvements to a structure while the remaining 25% may be covered by the state, non-profit organisations or households.

Private non-profits play an important role in this program. This is due to the fact that individual households are unable to apply for funding to the state government alone. Instead, households apply to private non-profits who gather a cohort of houses seeking to access mitigation funding. Non-profits then apply to state governments who forward applications to FEMA.

Non-profit organisations such as Rebuild Northwest Florida started as a grass roots effort, but eventually became a public-private partnership that exists to coordinate recovery initiatives and home mitigation projects. It has so far retrofitted 10,000 homes.



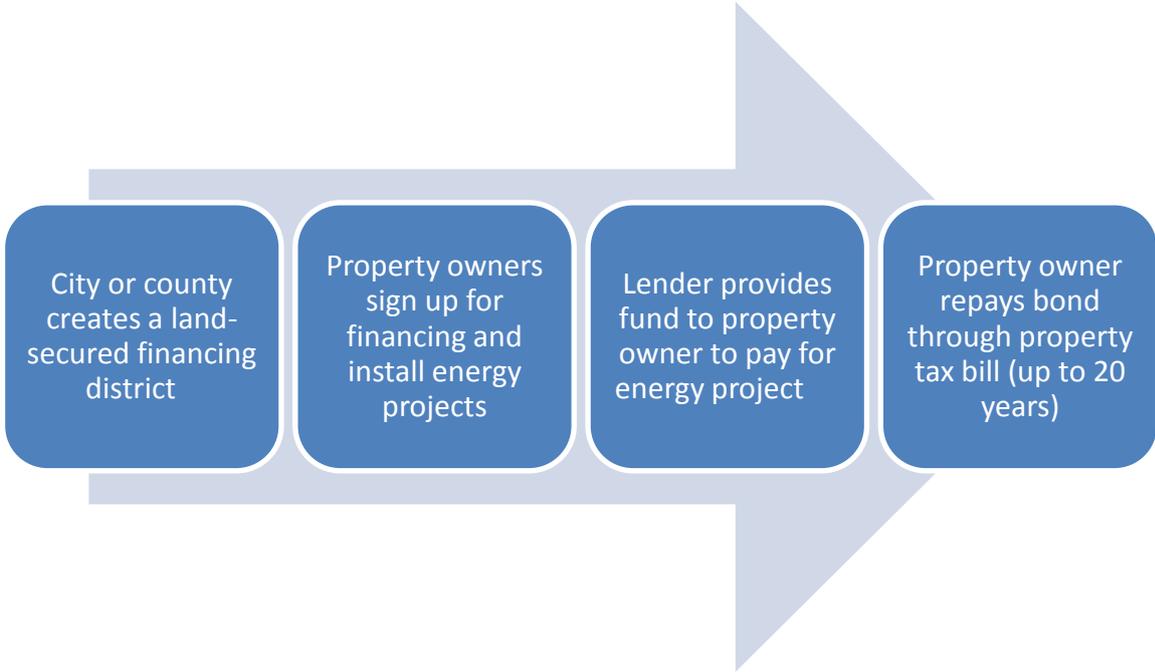
#### 3.2 PROPERTY-ASSESSED CLEAN ENERGY PROGRAMS (PACE)

The US property-assessed clean energy (PACE) model is a mechanism for financing energy efficiency and renewable energy improvements on private property. The PACE program allows local governments, state government and other inter-jurisdictional authorities to fund the up-front cost of energy improvements on commercial and residential properties, which are paid back over time by the property owners.

Property owners voluntarily choose to participate in a PACE program and then repay their improvements costs over a set time period – typically 10 to 20 years – through property assessments, which are secured by the property itself and paid as an addition to the owners' property tax bills. Non-payment generally results in the same set of repercussions as the failure to pay any other portion of a property tax bill.

This means that debt is tied to the property rather than the property owners, so the repayment obligation may transfer with property ownership. The benefit of this model is the elimination of disincentive to

investing in energy improvements, since many owners are hesitant to make property improvements if they think they may not stay in the property long enough for the resulting savings to cover the upfront costs.



### 3.3 RESILIENCE STAR

The US Department of Homeland Security (DHS) designed a program to build and retrofit homes that have greater disaster resilience. The first phase is focusing on single-family homes in hurricane prone communities.

The pilot program is tasked with conferring a standardised and objective designation of resilience on homes in select high-risk communities. With supervision provided by the Insurance Institute for Business and Home Safety (IBHS), third-party evaluators will inspect homes to ensure they meet the resilience standards.

While this program does not offer grants to participating households, the DHS argue that individual insurance companies have shown a willingness to offer reduced premium and other incentives to home owners who take specific measures to make their homes more disaster-resistant.

## 4 Implementation and review

FIGURE 4-1: MITIGATION ASSESSMENT SCHEME (MAS) - PROCESS

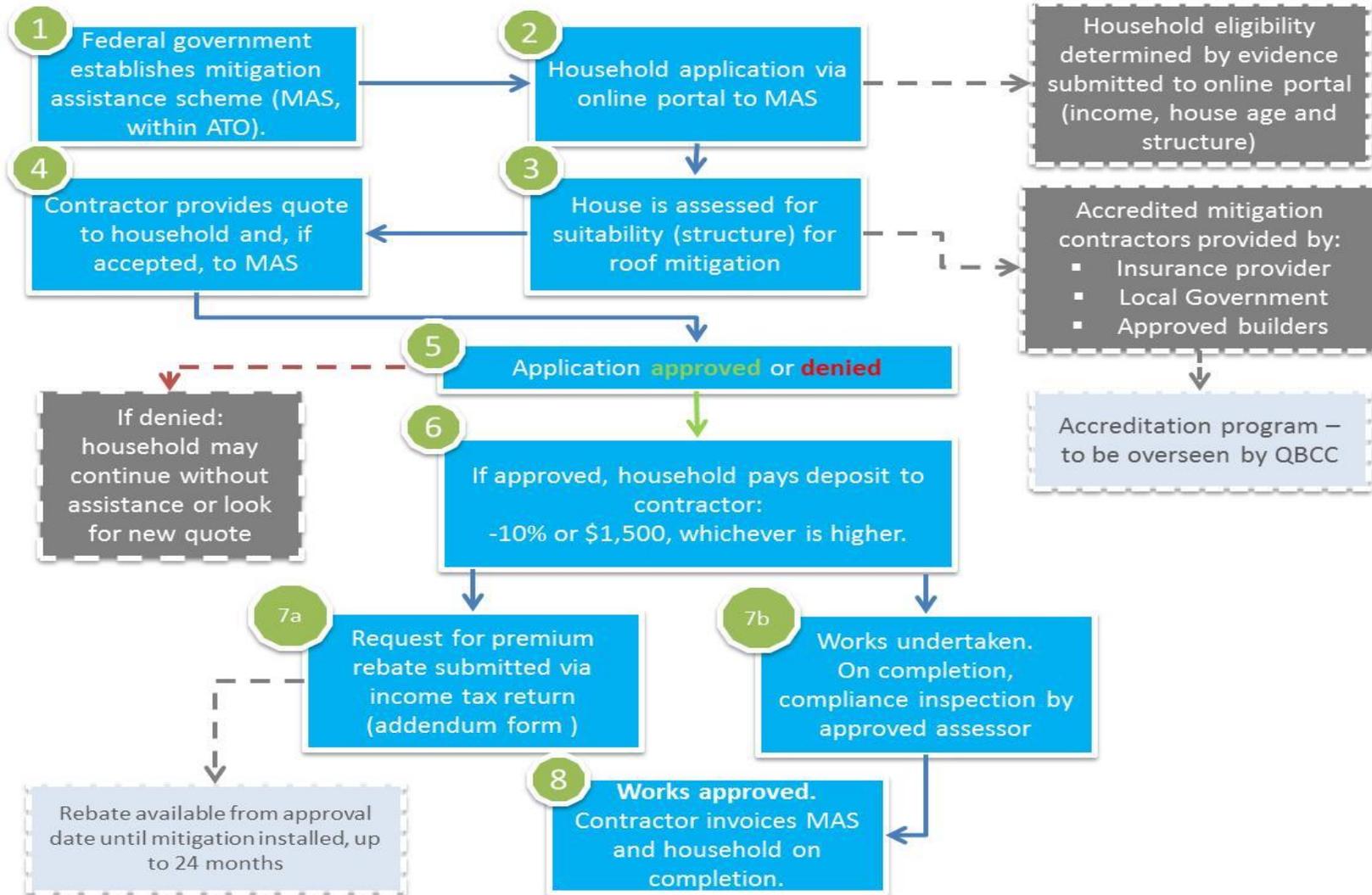


Figure 4-1 above outlines the framework for the MAS. Key considerations are discussed below.

## 4.1 ESTABLISHMENT OF SCHEME

The scheme is assumed to begin in January 2016 with a six-month implementation phase. No households will be able to access the scheme during this period.

To minimise implementation and administration costs, it is recommended that both the subsidy and the grants be administered by a single Government unit. As the subsidy will be returned via the income tax assessment process, the most suitable scheme administrator would be the Australian Taxation Office (ATO).

It is estimated that a team of 20 full time personnel would administer the scheme over its lifetime. However, on commencement, a temporary taskforce would need to be established to set up relevant IT systems and design and rollout a web portal and relevant online and printed forms (for those without access to a computer and/or the internet).

Simultaneously, this initial six-month period would be used to educate contractors and to provide accreditation to those wishing to act as assessors and as building contractors carrying out mitigation works. For maximum effectiveness, Government should engage with relevant organisations, such as the Master Builders' Association (MBA), and organisations such as the Queensland Building and Construction Commission (QBCC).

It is envisaged that the scheme would be open for applications for assistance for a period of five years from July 2016. Implementation would continue for a period of two years and two months following closure of applications, subject to a post-implementation review (see below).

## 4.2 ASSESSMENT AND APPROVAL

Once the scheme is ready for commencement in July 2016, households would apply either through an on-line portal or through a paper-based application from available from the ATO.

Initial confirmation of household eligibility would be received if the household meets key criteria (see Section 2.3).

In the case of strata units, the body corporate would need to gain a vote of support by all members to proceed and provide evidence of this to the MAS unit. If agreement is reached as a body corporate, assistance for either subsidies or grants will only be provided on evidence of income for all unit holders. Unit owners unwilling to disclose this evidence to the body corporate would be liable for their full share of the cost of mitigation.

The householder/body corporate would then apply for an assessment of suitability for mitigation by an accredited assessor. A list of accredited assessors could be provided by the MAS portal, insurance companies, local government authorities, and, for example the MBA and QCBB.

Once the dwelling is assessed as suitable, the householder would apply to an accredited contractor to provide a quote for the mitigation option. If acceptable to the household/body corporate, the quote would then be provided to the MAS unit for final approval.

On receipt of approval, the household would pay a deposit of 10% of \$1,500 to the contractor, whichever is the higher. In the case of a body corporate, the deposit would be 15%.

On completion of the work, a compliance inspection is undertaken by the approved assessor. On receipt of a certificate of compliance, the contractor directly invoices:

- the household/body corporate for the remainder of their share of the costs
- the MAS for the balance owing.

### **Application for premium subsidy**

Once approval for works is received, households and unit holders may apply for insurance assistance for a period of up to 24 months or until works are completed, whichever is the shorter. Once works are complete, the compliance certificate is to be presented to the insurance company which will adjust premiums accordingly.

A period of 24 months has been set to acknowledge that there may be delays in undertaking work once approval is received. Urbis acknowledges that this is a nascent market and that in its initial stages the number of accredited providers may be insufficient to meet demand.

If demand for the scheme is strong, contractors are likely to take on additional workers to assist on mitigation, but each contractor will need to be accredited and compliant.

### **4.3 REVIEW**

As with all new policies and programs, a period of review post-implementation is required.

It is recommended that, following a period of two years, that is, in January 2018, an evaluation of the scheme be undertaken to understand how well it is functioning and where adjustments – for example, to timelines – might be required.

# 5 Cost of scheme

This section details the methodology behind costing the proposed scheme, and the resulting outcomes.

## 5.1 METHODOLOGY

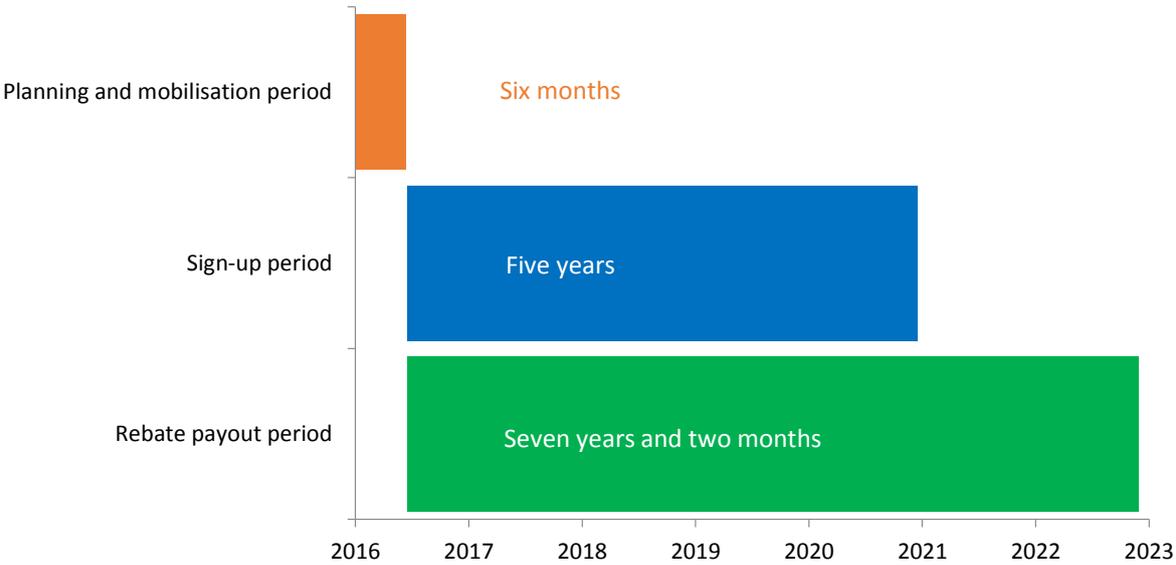
### 5.1.1 TIMEFRAME

The scheme is planned to begin rollout at the beginning of 2016 with a six-month planning and mobilisation period from this point until the beginning of July 2016. No households will be able to access the scheme during this period.

From July 2016, households will be able to sign-up for the scheme, which will run for five years from this date. It is assumed that there will be an even and constant take-up by households over the five year period and that households are eligible to sign-up to the scheme at any point over the five years. Premium and mitigation rebates will be paid out to existing households up to two years and two months after the end of the sign-up period.

For each household, it is assumed that it will take two months from sign-up up to arrange an inspection and acceptable quote and agree to undertake mitigation. The cost of inspection and subsequent quote is paid in the same month as the household signs up. After this two month period, households receive two years of premium discounts before they need to install mitigation. It is assumed that all households will take two years to install mitigation. Upon installation of the mitigation at the end of these two years, the mitigation rebate will be paid. The total period for each dwelling from signing up to scheme to installation of mitigation is two years and two months.

FIGURE 5-1 – SCHEME TIMEFRAME



Note: Total length of scheme is from January 2016 to September 2023

### 5.1.2 ELIGIBLE DWELLINGS

Eligible dwellings are households located in high risk areas of Queensland, equating to 105 postcodes in Queensland. For strata, only those postcodes out of the 105 high risk postcodes that have three or more strata policies are included – a total of 53 postcodes.

Eligible dwellings must also meet the following criteria:

- houses or strata are not built to the required cyclone resistant building standards

- insurance premiums are a recognised level above the state norm
- dwellings are owner/occupied, and are the primary place of residence
- meet income eligibility criteria.

The group of eligible dwellings includes 29,636 houses and 5,675 strata units, of which 5,127 are in small strata complexes and 548 in large complexes.

Where 50% or more of unit holders meet the income criteria, the building will be eligible for the 75% rebate on mitigation. However, only unit holders who meet income criteria will also be eligible for the premium subsidy. It is assumed that eligible unit holders are spread across strata complexes in such a way that they constitute 50% of unit holders in as many buildings as possible. In essence a total of 11,349 units, or double the 5,675 eligible strata units, will receive the 75% rebate on mitigation. This assumption allows the most possible strata units to receive the mitigation rebate, and as such is the upper estimate of the cost to strata. The engineering quote only applies to those 5,675 units that meet the income criteria.

See Section 2.3 for a more detailed outline of eligible dwellings.

Data collected by ICA undercounts total houses by approximately 6% and total strata units by approximately 25%. Total dwellings included in the modelling have been adjusted to take into account undercounting.

### 5.1.3 SCHEME COSTS

All costs of the scheme are assumed to be constant across all postcodes and dwellings. Scheme costs are outlined in Table 5-1 below.

TABLE 5-1 – SCHEME COSTS

ITEM	COST PER DWELLING
House mitigation	\$15,000
House mitigation rebate	\$11,250 (75% of house mitigation cost)
Small strata complex mitigation	\$10,000
Small strata complex mitigation rebate	\$7,500 (75% of mitigation cost)
Large strata complex mitigation	\$5,000
Large strata complex mitigation rebate	\$3,750 (75% of mitigation cost)
Engineering inspection cost	\$1,000
Average insurance premium houses	\$1,700
Premium rebate houses	\$340 (20% of premium)
Average insurance premium strata*	\$1,970
Premium rebate strata	\$394 (20% of premium)
Administrative cost**	10% of total costs

\* The average insurance premium for strata is taken as the weighted average of median premiums across the eligible postcodes

\*\* Based on Victorian government recommendations (Victorian Government, 2015)

Source: Urbis modelling, industry estimates

#### 5.1.4 DATA COLLECTION AND ASSUMPTIONS

Total number of at risk dwellings not compliant with required cyclone resistant building standards was provided by ICA at a postcode level.

To obtain the eligible households (houses and strata) from the ICA dataset, postcode-level dwelling and household characteristics from the 2011 Census were used. The Census at a postcode level was able to provide the following data:

- family size (number of children) by family type (i.e. sole parent and two parent families)
- number of occupied and unoccupied private dwellings
- number of households by income brackets by household type (i.e. lone person, couple, sole parent family, two parent family)
- home ownership by income bracket.

The above data specifically addressed eligibility criteria for income, dwelling ownership and dwelling occupancy. A number of assumptions were made for the data, including:

- ratio of occupied to unoccupied private dwellings is the same across all income levels, family types and for at risk households only
- income of family is unaffected by number of children
- there is an even distribution of incomes across any one income bracket
- family type and size has no effect on dwelling ownership rates.

For each whole postcode, the proportion of eligible households was identified. The characteristics of the group of non-compliant households for each specific postcode are assumed to be the same as the entire postcode (e.g. if 25% of all households were two parent families with one child then it is assumed 25% of non-compliant households were two parent families with one child). The characteristics gathered at a postcode level are applied to the group of non-compliant households for each postcode, resulting in a final count of eligible households.

It was assumed that across the final count of eligible dwellings there would be a 95% take up rate for the scheme.

#### **Strata**

Not all at risk non-compliant strata units, despite meeting income and ownership criteria, are able to receive the same mitigation options, as some are located in small strata complexes while others are located in large apartment complexes that require unique mitigation solutions.

Units in small strata complexes – those in buildings such as townhouses of three or fewer storeys, which represent more than 90% of strata buildings in at risk postcodes – were considered suitable for similar types of mitigation to that offered to houses. It is assumed that these smaller buildings units would require similar mitigation options to houses for roofing potentially alongside some additional external upgrades.

Large strata complexes, those with four or more storeys, are eligible for the scheme, yet are likely to require unique mitigation solutions.

Census data from 2011 at a postcode level was used to provide data on dwelling structure enabling the proportion of strata units in buildings of three storeys or fewer and in buildings with four or more storeys to be identified. These two proportions were applied across the total at risk non-compliant strata units in each postcode to produce the final number of strata units in buildings with three or fewer storeys, and the final number of strata units in buildings with four or more storeys.

## 5.2 OUTCOMES

Using the above methodology, a total of 29,363 houses, 5,127 small strata units and 548 large strata units were eligible. Of these, it is assumed that 95% – or 27,895 houses, 4,870 small strata units and 521 large strata units – will elect to participate in the scheme.

Outcomes for the scheme are listed in Table 5-2 and Table 5-3 below. Net Present Value (NPV) of the scheme was calculated using a 2.5% inflation rate, and real discount rate of 9.5%. NPVs are presented in 2015 dollars.

TABLE 5-2 – BREAKDOWN OF SCHEME OUTCOMES – HOUSES

OUTCOME	VALUE
Houses in the scheme	27,895
Total house inspection quote costs (NPV)	\$23.0 million
Total house mitigation rebate costs (NPV)	\$224.7 million
Total house premium rebate costs (NPV)	\$14.6 million
<b>Total houses costs (NPV)</b>	<b>\$262.3 million</b>

Source: Urbis modelling

TABLE 5-3 – BREAKDOWN OF SCHEME OUTCOMES – STRATA

OUTCOME	VALUE
Small strata units in the scheme	4,870
Small strata units receiving mitigation rebate	9,740
Total small strata complex inspection quote costs (NPV)	\$4.0 million
Total small strata complex mitigation rebate costs (NPV)	\$52.3 million
Total small strata complex premium rebate costs (NPV)	\$2.5 million
<b>Total small strata complex costs (NPV)</b>	<b>\$58.9 million</b>
Large strata units in the scheme	521
Large strata units receiving mitigation rebate	1,041
Total large strata complex inspection quote costs (NPV)	\$430,000
Total large strata complex mitigation rebate costs (NPV)	\$2.8 million
Total large strata complex premium rebate costs (NPV)	\$272,000
<b>Total large strata complex costs (NPV)</b>	<b>\$3.5 million</b>

Source: Urbis modelling

**The NPV of the cost of the scheme over the life of the MAS is \$361.2 million, including an administrative cost of \$36.5 million.**

## 6 Conclusions

A Mitigation Assistance Scheme (MAS), as presented in this report, is recommended over other potential options being considered by the Government, for a number of reasons.

- It is temporary, timely and targeted, reflecting best practice policies.
- The cost of the scheme, at a total of \$361.2 million in Net present Value terms over the life of the scheme (seven years, two months), is likely to be well below the cost of a mutual pool or reinsurance option.
- Mitigation will deliver both lower policy costs and also additional economic benefits in the form of:
  - reduced property damage bills from cyclonic events
  - reduced community costs from cyclonic events, including physical and mental health, disruptions to business, displacement from home, work and education etc.
  - increased resilience in an area of increasing economic importance for the Australian economy
  - the opportunity to develop expertise and become a global market leader in mitigation.

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