

Queensland Flood Risk Management Framework
Metrics Trends Report



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Cover image: Brisbane flood, February 2022.
Credit: RAW.Exposed.

Metric 1

Annual investment (AUD\$) in Flood Risk Management

		2020–2021	2021–2022	2022–2023	
Increase in the investment in preparing for and preventing the detrimental impacts of flooding on our communities	M1a	Annual investment (AUD\$) in Flood Risk Management	\$40,582,747	\$436,687,667	\$400,738,055
	M1b	Percentage of M1a allocated following a significant event	53%	90%	99%

Key insights

- Proactive funding in flood risk management remains variable, and significantly less than that resulting from response and recovery efforts.
- Under the Statewide Assessment of Flood Risk Factors, Queensland’s largest Flood Risk Management (FRM) need is for further investment in contemporary flood studies and flood risk management strategies.

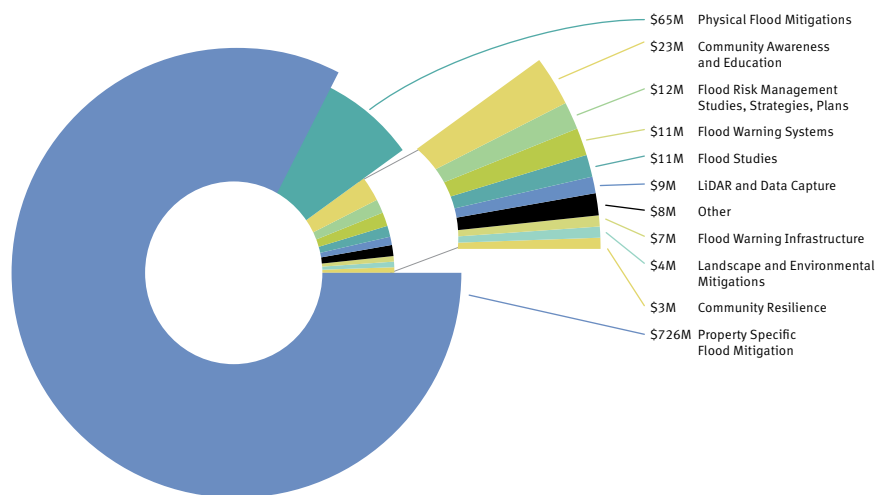
Metric 1 captures the funding approved for flood risk management activities across the state. This metric is informed by QRA administered grant and funding programs and only includes investment in Flood Risk Management (FRM) programs and projects. The aim of the metric is to monitor proactive investment in flood risk management, with the aspiration of seeing an overall increase in funding not resulting from an event.

Investment in FRM flood has increased significantly since the Baseline Report, as a result of the 2021-2022 disaster season through the Disaster Recovery Funding Arrangements (DRFA) and other Resilience Funding Arrangements.

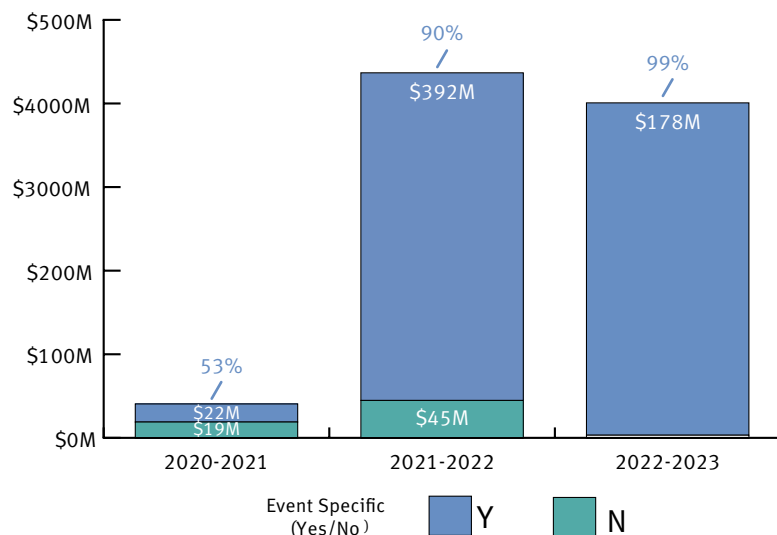
Proactive investment in FRM increased in 2021-22 compared to the baseline (\$45M from \$19m) however reduced to \$4m in 2022-23 with DRFA funding being the primary investment source.

Property specific flood mitigation received the highest overall investment, as a result of \$741 million Resilient Homes Fund to help Queenslanders across 39 local government areas whose homes were impacted by the 2021-2022 floods.

Total Flood Risk Management Investment 2020–2023



Annual Investment in Flood Risk Management based on event specific funding



Metric 2

Risk-based land use planning

2020–2021 2021–2022 2022–2023

Land use planning decisions consider natural hazards and mitigate risks to ensure long-term sustainability of our communities	M2a	Number of councils with SPP2017 compliance Natural hazards, risk and resilience	61	69	69
	M2b	Area of residential zoned land within the QFAO 1% AEP extent	107,210 ha	110,170 ha	110,170 ha

Key insights

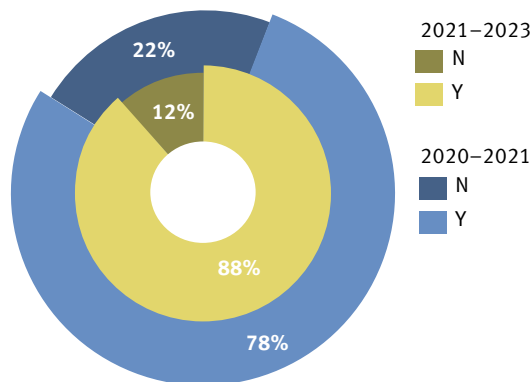
- High percentage of local planning schemes being considered compliant with the SPP 2017 Natural Hazards Risk and Resilience state interest, however it's unknown how well flood risk identification and risk assessment is integrated into fit-for-purpose measures in planning schemes.
- There's no statewide land use planning mapping database to inform what land use patterns and urban growth patterns are present across Queensland, in particular residential zoned land within the 1% AEP extent.
- 26% of residential zoned land statewide is within the 1% AEP extent for riverine flooding. With increasing land use pressures and housing demand, the importance of risk-based planning is high to ensure people and property are protected to strengthen community resilience to floods.

This metric captures the number of councils with a local planning scheme which is considered consistent with the risk-based planning principles outlined in the State Planning Policy 2017 (SPP). The SPP defines matters of state interest in land-use planning and development, of which Natural Hazards Risk and Resilience is one. Guidance to support the implementation of the SPP discusses the use of a risk-based assessment considering both current and future climate conditions and future urban growth plans.

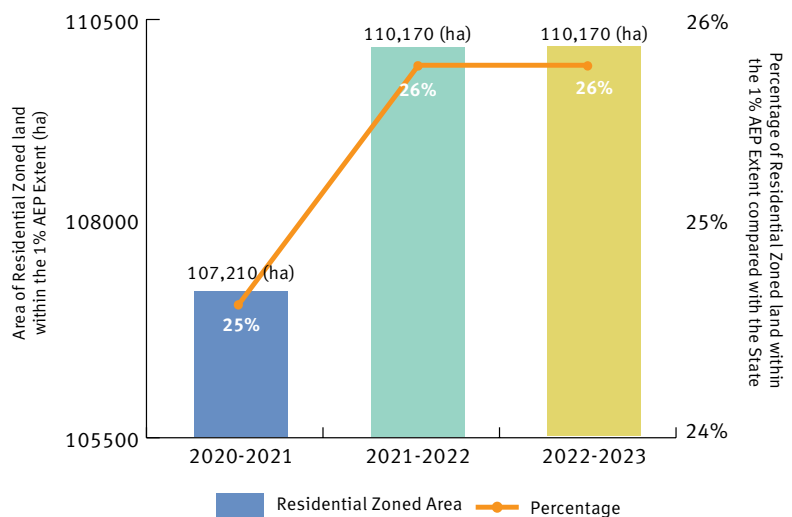
Metric 2b captures the percentage of residential-zoned land within the 1% Annual Exceedance Probability (AEP) design flood extent for riverine flooding, which is defined by Councils known flood studies and where no other data is available the existing state-wide Queensland Floodplain Assessment Overlay (QFAO). Planning scheme mapping is also limited, with some Councils not having schemes spatially mapped, resulting in the data analysis for this metric being incomplete, mostly for remote and rural areas.

88% of Councils have considered the Natural Hazards Risk and Resilience state interest in some form in their planning scheme. Within this, 26% of residential zoned land in Queensland is within the 1% AEP extent.

Planning Scheme Compliance with SPP 2017 Natural Hazards, Risks and Resilience



Area of Residential Zoned land within the 1% AEP extent and percentage to total residential land in QLD



Metric 3

Flood Study Coverage

		2020–2021	2021–2022	2022–2023
Flood risk is understood for current and future conditions	M3a LGAs with full coverage of level 3 flood studies	5	6	6
	LGAs that have some level 3 flood studies with some gaps	8	9	10
	LGAs consists of no level 3 flood studies	65	63	62
M3b	Value (AUD\$) of investment in flood studies that year	\$280,000	\$1,804,750	\$8,350,872

Key insights

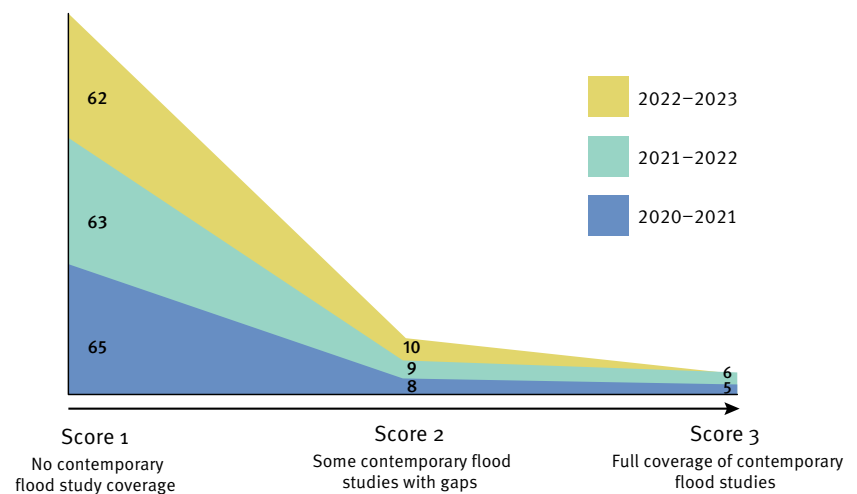
- Overall, the need for new flood study investment spans across the whole state, with only 8% of Councils having full coverage and almost 80% of Councils without any contemporary flood studies.
- Contemporary flood studies are fundamental in the Flood Risk Management Process and are used on a full range of management options, including the best use of land, design of built form, land and water management practices, as well as disaster management, community resilience and response management, and structural mitigation.
- With an increase in flood study investment in 2022-2023, LGA coverage of contemporary flood studies will increase.

This metric seeks to capture the percentage area of habitable floodplains within a Local Government Area (LGA) covered by contemporary flood studies. Habitable floodplain is defined as populated places of an urban settlement (town or city) and the population indicated by ABS Census 2011 figures.

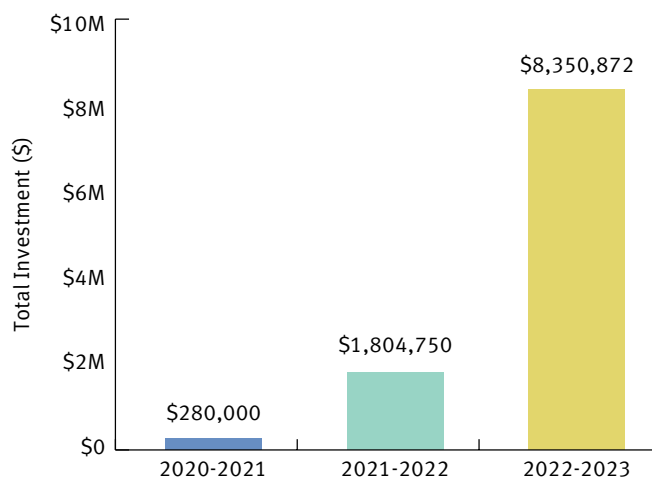
A contemporary flood study (Score 3) utilises 2-dimensional hydrodynamic flood modelling software with a version of that software no older than five years, along with hydrological inputs that were generated using the latest ARR2019 guidelines. Only 6 LGAs have full coverage of contemporary flood studies, 10 councils have some coverage but gaps, and almost 80% of QLD councils don't have contemporary flood studies to define the hazard and understand the behaviour.

QRA currently has limited access to local flood study data, as such, reporting will be limited to the available data. Ideally future reports will expand to cover the full extent of flood studies undertaken in Queensland, as more data is shared with the state government (in accordance with the expectations articulated in the QFRMF).

Flood Study Coverage per LGA



Value (AU\$) of investment in flood studies



Metric 4

Accessible Flood Information

2020–2021 2021–2022 2022–2023

		2020–2021	2021–2022	2022–2023	
Flood information is publicly available and accessible	M4a	Number of councils providing outputs of flood studies on their website	20	22	24
	M4b	Number of councils with property level information portals	4	5	14
	M4c	Number of councils with disaster dashboards	61	65	69

Key insights

- 31% of councils publish their flood study outputs Online, with 18% of Councils having property level information portals that assist residents to understand, be more informed and better prepared for future flooding events by having access to flood risk information specific to their property.
- The capability and capacity for smaller councils to publish and maintain such mapping systems is challenging, with implementation of such activities only available through ad-hoc investment as a result of an event.
- Regionally consistent explanations of key concepts and terminology is key in assisting residents and visitors to understand flood-risk information and support appropriate preparedness actions. With additional funding under the \$10 million DRFA Property Level Flood Information Portal Project, 39 Councils will have the opportunity to develop or improve their portals to ensure a consistent statewide approach is being applied regarding accessible flood information.

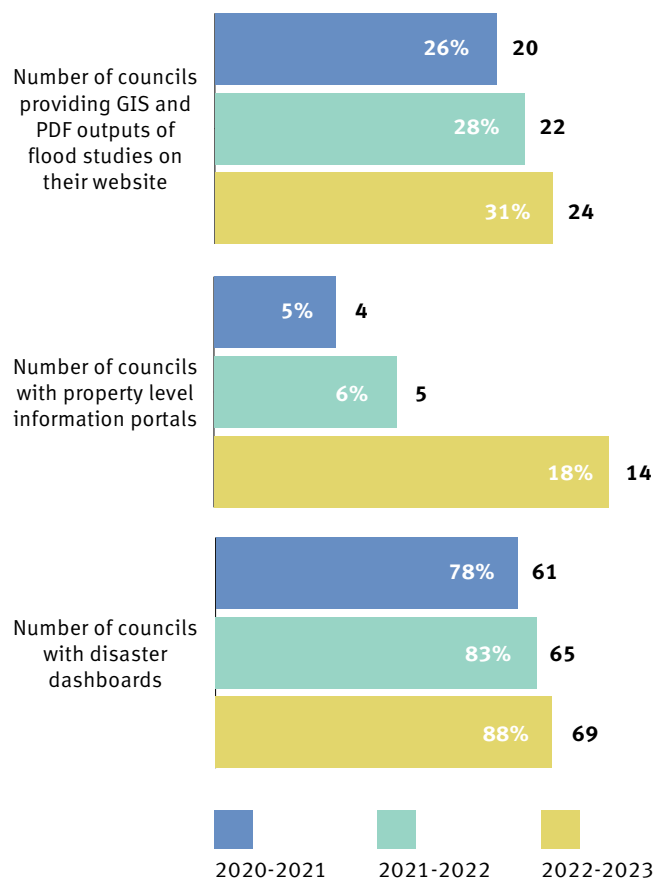
This metric captures the number of councils that provide key flood awareness information on their public facing websites. Under the QFRMF, responsibility for flood risk management and flood awareness information generally rests with local governments, as they are the major service provider to communities and are responsible for managing local development.

Flood awareness information for this metric is sourced through desktop research of council’s websites and subsequent council engagement. The metric focuses on the provision of the flood studies, property level information portals, and disaster dashboards.

Flood resilient communities are risk-informed, appropriately-prepared and adaptable. Providing communities with consistent and clear flood mapping information will help inform them of the hazard and levels of risk to their property and surroundings. 31% of Councils in Queensland have flood study mapping available on their website, with 14 Councils providing property level information portals.

In terms of situational awareness during an event, 88% Councils have disaster dashboards available on their website. Most disaster dashboards include information about: evacuation centres; river heights; road conditions and closures; power and phone outages; and helpful contacts.

Council’s Accessible Flood Information



Metric 5

Flood Warning Infrastructure

2020–2021 2021–2022 2022–2023

Queensland has a best practice network to prepare for and respond to flooding	M5a	Total number of river and rain assets for the primary purpose of flood warning	3,166	3,210	3,212
	M5b	Percentage of M5a which are automatic gauges	71%	73%	73%
	M5c	Number of councils utilising a flood intelligence system	8	19	24
	M5d	Number of gauges that underwent a change in flood class levels under BoM's annual review	1	22	46
	M5e	Total number of new assets (signs, cameras, gauges) installed that year through grant funding	86	213	29
	M5f	Total number of creek assets for flood warning purposes for under 6 hrs	–	–	487

Key insights

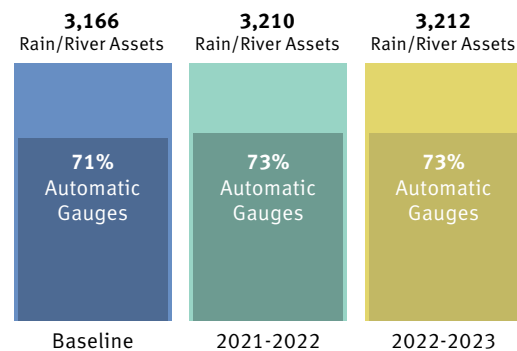
- Queensland’s Rain and River asset continues to mature, with 73% of the network being Automatic gauges.
- Ongoing maintenance cost of flood warning infrastructure continues to be of a concern for Councils to contribute to the network.
- The number of councils that utilise flood intelligence systems has increased three-fold since 2020, pushing the need for coordinating these systems into a statewide flood intelligence feed.
- 2022-2023 involved an increased effort in revising flood classifications to accurately reflect the impacts at key river height stations.
- An \$8 million grant funded Flood Warning Infrastructure Network Project in 2021-2022 contributed to 213 new assets across 28 local government areas in northern and western Queensland.

This metric captures improvements made to Queensland’s flood warning infrastructure network. In Queensland, flood warning infrastructure assets are owned and operated by more than 60 entities including state and local government, the private sector, and the Bureau of Meteorology.

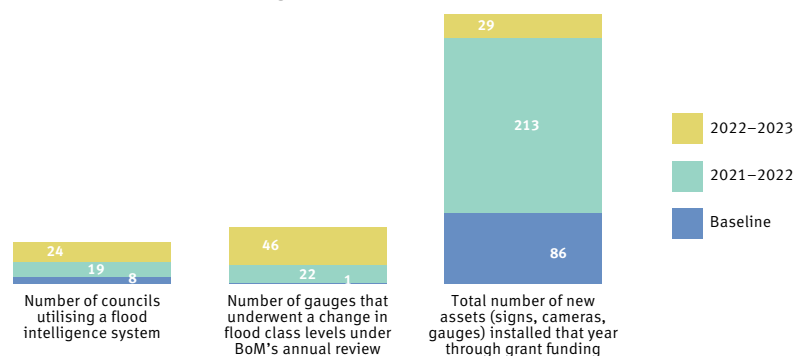
For Metrics 5a, b, and d, flood warning infrastructure is sourced from Bureau of Meteorology’s Service Level Specification (SLS) for Flood Forecasting and Warning Services for Queensland.

Metric 5f data is limited as there is currently no centralised database for non-SLS assets, in particularly those used to support flash flooding environments.

Queensland’s river and rain assets for primary purpose of flood warning



M5c-M5d Flood Warning Infrastructure Assets



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