

Submission by Councillor Jonathan Sri to Brisbane City Council investigation regarding the February 2022 flood event

8 April, 2022

Thanks for the opportunity to make a submission regarding the February 2022 floods. The insights shared here are based on my own observations and experiences during this recent disaster, and also (where indicated) draw upon the observations of local residents of my electorate.¹

Also attached to my submission are two submissions from community groups that have been heavily involved in the flood response and in broader urban planning issues, but have not (yet) been offered a direct opportunity to make submissions into this investigation. Attachment 1 is a submission from Community Plus+ and Attachment 2 is a submission from Resilient Kurilpa, a collective which includes reps from West End Community Association, Kurilpa Futures, West End Traders Association, MICAH, Westender, Zero-Net Kurilpa, Community Plus+ (operator of West End Community House) as well as individual community members.

Unfortunately, the short deadline for submissions and the competing demands on my own time mean that this submission is not as comprehensive as I'd like, and omits or skims over a range of important issues. In particular, I'm disappointed that I have not been able to provide more detailed commentary on:

- land use zoning and the (flawed) interaction between different codes and overlays in City Plan 2014
- coordination gaps between BCC and other departments such as the Queensland Fire and Emergency Service in terms of the cleanup of private properties
- BCC's general shift towards leaving latter recovery stages up to the private sector, with relatively little support for individuals
- the widespread exploitation of renters by both small and large private landlords, which BCC facilitates through investor-centred support and policy-making
- the BCC's ongoing tendency to underestimate or ignore increasing environmental hazards arising from global warming
- the glaring gap in planning and emergency support regarding the hundreds of residents who live in vessels on Brisbane's various waterways
- the impact of council decisions on insurance premiums and policy coverage
- the socio-economic unevenness of flooding impacts and the fact that (in general) poorer residents have been hit hardest by the floods

¹ Please note that the 'Document Outline' view (accessible via a button on the left of screen) should allow for Contents Page-style navigation of this submission via relevant headings.

There's a great deal we can and should learn from how our city did and didn't support residents during and after the February floods. It's important that in interpreting and acting on these lessons, subject matter specialists and key decision-makers are mindful of the biases and limitations of our own standpoints, and remain willing to consider and take seriously the perspectives of others with different life experiences and frames of reference.

My electorate of the Gabba Ward includes the suburbs of West End, South Brisbane, Highgate Hill, Dutton Park, Kangaroo Point, the western/northern side of Woolloongabba and a few households within the suburb of East Brisbane. Compared to other parts of the City of Brisbane, the Gabba Ward has a relatively young population, and a higher proportion of migrant workers and international students. The Gabba Ward also has one of the highest proportions of renters in South-East Queensland, which means many residents are already in a precarious housing situation. A strong majority (i.e. well over 50%) of Gabba Ward residents did not live at their current address at the time of the 2011 floods, and many have only lived in inner-city Brisbane for a couple of years.

While some other parts of the Brisbane were more severely affected by the February flood in terms of how high the waters rose, a very large number of Gabba Ward residents (perhaps close to 10 000) lost power for a prolonged period due to flooding of high-density residential areas, and at least 100 residents have been made homeless long-term due to serious property damage.

This submission begins by identifying existing 'built form' vulnerabilities that were present prior to the floods and storms of late February, before examining how Brisbane City Council managed the disaster itself and the immediate cleanup, then talks about other long-term changes which are needed to mitigate risk for future floods. Overall, I think this flood demonstrated that BCC has not properly acted on expert advice and key lessons from previous floods, and I'm worried that the council will continue to make similar mistakes in future, increasing our city's vulnerability to environmental hazards and further climate change-related disasters.

Existing vulnerabilities caused by poor planning

The 2022 floods have shown very clearly that Brisbane's key public infrastructure, services and systems are far less resilient to flooding and other climate change-related disasters than they need to be. The Brisbane River flood peak in the CBD on 28 February, 2022 was 3.85 metres. In contrast, the 2011 flood peak was around 4.5 metres, the 1974 flood peak was 5.45 metres, and back in February 1893, floodwaters peaked in Brisbane at a whopping 8.35 metres. (There are several other major floods in the historical record for anyone who cares to look)

Placed in this historical context, this latest flood was nowhere near as severe as it could've been (although I should note that the added combination of significant creek flooding meant that many areas were affected more seriously than in 2011).

While technically classed as a 'major' flood event, this was a relatively moderate flood compared to what the river is capable of (particularly considering the added uncertainty of global warming and the increased likelihood of severe weather). Despite this, a lot of significant public and private infrastructure was detrimentally affected.

The February floods were not a 'natural disaster.' They were a human-made disaster, caused by anthropogenic climate change, and by a failure to plan and design our city in such a way as to mitigate the risk of known environmental hazards.

The term 'natural disaster' evokes the idea that the floods were difficult to foresee, and that the resultant damage was caused by factors outside human control, however the flooding experienced was entirely foreseeable, being well within the range of previous and predicted floods. The damage, injury and loss of life was attributable to human decisions to locate residential housing and key infrastructure on land which was known to be vulnerable to flooding. It's well-known that the Brisbane River floods. This 'disaster' was a planning disaster, not a 'natural' disaster.

Residential housing on flood-prone land

After the January 2011 flood, it was widely acknowledged that further development in flood-prone low-lying areas of Brisbane should be restricted, so as to avoid placing more residents in the path of flooding. This conclusion was reinforced by predictions that flooding and severe rain events would become more likely due to anthropogenic climate change.

The Queensland Floods Commission of Inquiry Report included a range of recommendations to limit floodplain development and introduce more rigorous flood risk assessments for a wider range of development proposals.

But development on low-lying floodplain areas has instead intensified since 2011. For example, within the Gabba Ward, Brisbane City Council has approved thousands of additional apartments for construction on land that has been mapped as 'Flood Planning Areas' in City Plan 2014. Although in most cases, the residential apartments themselves were above the flood level, a lot of supporting infrastructure and facilities including connecting roads and footpaths, sewerage and power infrastructure, communal gardens and shared outdoor spaces, elevator shafts, basement carparking and basement storage were all well below the flood level. The consequences for residents were significant.

By approving these developments, BCC knowingly introduced residents into a vulnerable environment, exacerbating risk and the likelihood of personal injury and property damage. This contributed to a range of negative flow-impacts which are discussed in greater detail later in this submission.

This problem was evident not only on sites within the main Brisbane River floodplain, but also along most of Brisbane's creeks. Residential development has been permitted in areas which are prone to creek flooding, which directly exposed more homes to floodwater, but also led to more water being pushed onto neighbouring properties and streets that would otherwise have been unaffected by flooding if not for the new residential development.

BCC has at least required (most) developers to keep residential apartments above the 1% annual exceedance probability flood level, but in many cases, developers have constructed new dwellings that are only slightly above this height. If, as seems likely, the city experiences future floods where the river rises higher than it did in 2011, many more residential buildings will be inundated.

Power infrastructure within the flood zone

The floods revealed significant weaknesses and vulnerabilities in terms of the location of both public and private electrical power infrastructure. In suburbs like West End, multiple Energex power transformers were located on low-lying flood-prone land around the river and were damaged by floodwaters, which meant entire neighbourhoods lost power for several days even if actual homes weren't inundated.

As part of the immediate flood cleanup, it was a relief to see that some of these transformers were replaced with new pole-mounted transformers located well above predicted flood levels, however other public power infrastructure has remained on sites which could flood again in future. This vulnerability should have been addressed after the 2011 floods.

Even more concerningly, a large number of apartments - including some built after the 2011 floods - had electrical infrastructure located below the flood level, in spaces like basement carparks. Inundation and damage to such infrastructure left some residential apartment buildings without power access for weeks, forcing body corporates or property managers to organise petrol generators to power essential services like elevators. In a few notable cases, buildings were still without power a month after the floods due in part to difficulties sourcing replacement parts.

Crucially, there were some homes - both low-rise detached homes and multi-residential apartment blocks - which suffered significant damage in part as a result of Energex shutting off the power without warning customers.

I've spoken to property managers of several buildings in my electorate who said that because mains power was switched off, the water pumps in their basement carparks failed, resulting in flooding of basement carparks that in some cases could have been prevented or mitigated if the power had stayed on.

Similarly, some mains-powered elevators were stuck at ground level or basement carpark level with the power switched off, so even though building managers could have had time to locate

the elevator itself to a higher floor before the floodwaters rose, that opportunity was lost because the power was allegedly disconnected by Energex as a precaution without notifying anyone.

Sewerage infrastructure not flood-resilient

In spite of obvious lessons that should have been learned after the 2011 floods, much of Brisbane's sewerage network remains vulnerable to flooding, which significantly increases safety hazards for local residents. As huge volumes of rain fell across the city, stormwater flooded the sewerage network, resulting in poo washing out into backyards, and in some cases, toilets backing up and overflowing inside residents' houses.

Sewer covers popped off, leaving gaping holes hidden underneath shallow floodwaters or rivermud.

The sudden release of so much faecal matter onto the streets and into the waterway was not only a significant public health concern, but also an environmental catastrophe, contributing to dramatic spikes in bacterial blooms in local creeks and the river. Some residents complained of poo and toilet paper floating past their front door.

While completely enclosing a centralised sewerage system so that it is 100% immune to stormwater inundation may not be possible, it seems clear that further steps should be taken to at least prevent backing up of toilets and the discharge of sewage into residential yards.

This in turn would reduce the risk that flooded furniture has been contaminated by human faeces, and increase the proportion of muddy furniture that can be cleaned and salvaged, thus also reducing the volume of flood-damaged waste that ends up going to landfill.

Major waste, food and transport infrastructure in flood zones

Brisbane City Council's household waste disposal services are predominantly managed by the private company, Suez. Outsourcing to the private sector has reduced council's direct control and oversight over this essential service. One of Suez's main service centres, where a large proportion of Brisbane garbage truck fleet is garaged, is located at 1801 Ipswich Rd, Rocklea, on a site which was inundated by flooding in February 2022. Floodwaters reportedly rose almost to the point where the trucks themselves were flooded.

Even though the trucks were not damaged in this comparatively moderate flood event, the roads leading to the service centre were cut by floodwaters at multiple locations, which delayed workers from accessing the site and apparently contributed to delays in the resumption of garbage collection services even after the storms had passed.

Waste collection is clearly an important service, particularly in the aftermath of a flood, and this example highlights the need to ensure that core facilities for such services are not located in low-lying areas at risk of flooding.

The well-known Brisbane Markets (also known as Rocklea Markets) is also located on an extremely flood-prone site. The markets are a major node in South-East Queensland's food distribution network, with hundreds of thousands of tonnes of fresh produce passing through this hub. A heartbreakingly large volume of fresh produce was lost due to inundation and power outages at the markets, contributing to supply chain disruptions and food shortages on some supermarket shelves around Brisbane in the days following the flood.

Council's public transport infrastructure and facilities were also severely affected by flooding, both in terms of direct impacts to bus depots, but also smaller issues like inundation of the toilet facilities used by drivers on certain routes. Some of these local toilets were out of action for some time due to flooding, with significant consequences.

In inner-city areas such as West End, a large proportion of residents do not own or use private cars and rely more heavily on public transport. But the flooding of the bus driver toilets at Orleigh Park meant that the Blue Cityglider bus service was not restored to operation for a week after the floods, even well after the roads themselves had been cleared of mud and debris. A comparatively small vulnerability - a single flooded toilet - ended up depriving thousands of residents of access to their main mode of transport.

There are many other similar examples of such vulnerabilities throughout the city. For much of Brisbane's history, council has allowed industrial development on low-lying flood-prone land which was deemed unsuitable for residential housing. But many of those industrial land uses, from food distribution hubs to building materials warehouses to parking for garbage trucks or council buses, are actually quite important for the recovery phase immediately after a disaster. Many of the industrial businesses and services that our city relies upon to rebuild and clean up after flooding are themselves located in flood-affected areas. This requires deeper investigation and change.

Residential neighbourhoods lack local services and facilities

The combination of creek and river flooding meant that many roads across the city were impassable, particularly from Sunday, 27 February to Tuesday 1 March, cutting off certain neighbourhoods from the wider city.

Most of suburban Brisbane lacks a sufficiently diverse mix of land uses within discrete localities. Entire neighbourhoods and even whole suburbs are comprised of predominantly residential housing, with very few commercial, industrial and community facilities land uses within walking distance. In many areas, residents are in the habit of driving across multiple suburbs in order to

get to shops and medical services, so the floods caused disruption and hardship even for areas that weren't directly flooded.

If residents had greater access to core services and shops within their local area, flood impacts to the road network would not have been such a big problem. As it was, lots of people were still out driving longer distances even as heavy weather intensified on the Saturday and Sunday, because they felt they didn't have viable alternatives within closer range. This significantly exacerbated traffic issues during the disaster.

Backflow prevention devices (BPDs)

I'm aware that other councillors' submissions are also focussing heavily on backflow prevention devices, and will try to limit my commentary to salient points, but I do think serious questions need to be asked about how BCC has managed this issue.

I believe Brisbane City Council has failed to fully implement recommendations 10.14 and 10.15 of the Queensland Floods Commission of Inquiry, which included identifying and installing backflow flooding prevention devices in appropriate areas, and educating the public about how such devices worked and under what circumstances their properties might still flood in spite of backflow prevention devices being installed.

The 2012 AECOM Backflow Investigation Summary report commissioned by BCC identified 51 systems/locations where it was considered feasible to install devices that would prevent water rising up through the stormwater drainage network, flooding neighbourhoods that weren't at risk of direct flooding from the river.

Apparently only 12 of the 51 systems identified in the report have been installed. The remaining systems were to be "considered in Council's future drainage program," but were never implemented.

Many houses and apartments again suffered backflow flooding in February 2022. Of course, some streets and homes would have flooded directly from the river breaking its banks anyway. And in certain areas, it wouldn't have been possible for backflow devices to close because so much rain was falling locally and the stormwater needed to drain out.

However there were several streets and neighbourhoods where properties would have taken longer to flood (because it takes longer for the water to break over the river bank than to rise up through the stormwater pipes), or where flooding could have been prevented altogether, if backflow devices had been installed.

Backflow flooding from stormwater drains isn't just a concern if it impacts habitable rooms in residential homes. Flooding of basement carparks, yards, storage areas, footpaths and streets still causes significant costs and issues, particularly in terms of river mud clean-up. Backflow

flooding of streets can also cut residents off from services and assistance, trapping them in their homes even if the buildings themselves are above the flood level.

A large number of new apartments were built after 2011 on the western side of Montague Road, West End. Some of the flooding in this area - including substantial flooding of basement car parks and basement storage areas - was a direct consequence of water rising up through stormwater drains, rather than flowing over the surface after breaking the river bank.

It seems plausible, if not quite likely, that much of the associated damage could have been avoided or mitigated if backflow prevention devices had been installed. For example, if devices had been installed on system number 216 (which includes Forbes and surrounding streets in West End) as recommended in the AECOM report, and had been in operation in late February 2022, little or no flooding is likely to have occurred on these streets.

With more regular climate-change-induced flooding likely in future, the risk of not installing these devices is likely to substantially increase, which will have a flow-on impact to insurance costs and property prices.

In undertaking its rough-and-ready cost-benefit analysis of the backflow prevention systems identified as 'feasible' in the 2012 AECOM report, Brisbane City Council underestimated the frequency of future flooding, failing to account for climate change. BCC also ignored costs arising from likely damage and disruption to streets, footpaths, car parks, yards and storage areas, focussing only on the value of residential homes that might be damaged by backflow flooding from stormwater drains.

I welcome a commitment from the mayor that a new detailed investigation will be conducted into whether further BPDs should be installed around the city, but I'm concerned that no clear timeframe for this investigation has been set, and that no budget for installing further devices has been allocated. In planning for the installation of future backflow prevention devices, BCC will also need to ensure that water isn't simply pushed onto neighbouring streets through other parts of the stormwater drainage network.

Forbes Street, West End - Case study of bad council decision-making

The proposed Forbes Street BPD system (system 216 in the 2012 AECOM Report) is an important case study in highlighting deep flaws in Brisbane City Council's own internal processes for evaluating the need for and effectiveness of specific BPDs.

After the 2011 flood, BCC concluded that Forbes Street was flooded by water overtopping the banks of the Brisbane River, with floodwater spreading overland to inundate Forbes Street (see Attachment 3 - Letter from Brisbane City Council to Helen Towler). This conclusion appears to have been incorrect, and contradicted the insights and photographic evidence from local residents.

In reaching its seemingly incorrect conclusion, BCC apparently relied heavily on mapping which roughly estimated how far floodwaters reached in 2011 (for an example of this, see the map on the last page of Attachment 3). The mapping shows the extent of floodwaters, but doesn't clearly indicate whether the water reached the locations in question via stormwater drains or via overtopping of the river bank.

Although it appears in some of the rough maps that the floodwaters around the middle of Forbes Street may have connected to flooding further south from riverbank overtopping, the flooding on Forbes Street was not connected at surface level with the floodwaters further south near Orleigh Park and the river. The floodwater rose up through the stormwater drains, spreading across the street and private properties to almost connect back to the flooding from riverbank overtopping to the south.

Crucially, private insurers who conducted their own investigations after the 2011 floods also concluded that properties in the vicinity of 30 to 40 Forbes Street were flooded by backflow flooding from the stormwater drain network rather than flooding from water that overtopped the riverbank (see Attachment 4 - BCC Community Petition Letter for further explanation and context of this).

Recognising that BCC has made a mistake in this respect is extremely important not just to this locality, but for other low-lying parts of Brisbane in a similar situation. BCC's decision not to install BPDs for Forbes Street was based in large part on the conclusion that Forbes Street 'would have flooded anyway' from the river overtopping its banks, even if BPDs were present. But in fact, the river level would have had to rise even higher than it did in January 2011 in order for Forbes Street to be inundated by flood waters spreading across the surface of the land from the river.

Residents have expended significant time and energy in the decade since the 2011 floods trying to explain this to the council, including signing petitions and sending detailed submissions to BCC to highlight the council's error, but their evidence-based concerns have been ignored.

Once again, in February 2022, Forbes Street (including the basement car parks of the newer apartments on the northern side of Forbes Street) was flooded by water rising up through the stormwater network (and not from water overtopping the river bank and spreading across the land into the low-lying parts of Forbes Street). I confirmed this from my own on-site observations on 1 and 2 March, 2022.

If Brisbane City Council can incorrectly conclude that Forbes Street would have been flooded in 2011 anyway even if BPDs were present (despite proactive lobbying and contradictory testimony from residents), and on this basis decided not to install BPDs, it seems likely that similar mistakes have been made and overlooked in other parts of the city, and that BCC's information-gathering and decision-making processes regarding proposed BPD installations across the city were fundamentally flawed.

Insufficient education regarding mitigation effects of BPDs

With respect to QFCI recommendation 10.15, this year's flood also revealed that many flood-affected residents do not understand how backflow prevention devices work, or the specific kinds of circumstances where they will and won't be effective in mitigating flooding. Some residents incorrectly thought they were protected from flooding because they knew (or assumed) that backflow prevention devices had been installed in their area.

In some cases, residents had wrongly assumed that backflow prevention devices had already been installed in their area, because in 2012 Brisbane City Council made public statements to this effect, but later (in around 2014) changed its position and decided not to install many of the BPDs which the council had initially indicated **would** be installed.

Many residents also do not understand the distinction between different types of flooding, and in particular, underestimated how quickly floodwaters can rise via backflow flooding.

More public education is needed about the specifics of different kinds of flooding, and what kinds of mitigation measures and technologies will and won't work in particular circumstances, including explaining how and why backflow prevention devices might not close when heavy rain is falling within a local catchment.

Sandbag depot locations

Brisbane City Council only maintains four main depots for sandbag filling and collection across the entire city of Brisbane. These depots are not conveniently located in close proximity to the floodprone neighbourhoods which are most likely to require sandbags during an emergency.

During severe rain events, it's common to observe significant traffic congestion and vehicle queuing on the approach to each of the depots. The closest depot to the Gabba Ward is at Morningside, however in an emergency it is often impractical - and sometimes dangerous - to encourage residents in suburbs like West End and Woolloongabba to drive all the way along Lytton Rd/Wynnum Rd to pick up sandbags.

I have personally raised this issue repeatedly in my six years as a councillor, and I know individual residents - particularly in some of the most floodprone streets of Woolloongabba and East Brisbane around Norman Creek - have complained about this for many years, without seeing any changes from BCC.

Issues accessing sandbags were further compounded when one of the depots was itself apparently affected by flooding, but it took some time for BCC to distribute widespread notification of this, meaning that people were still travelling to the depot to pick up sandbags even though it had flooded.

Ideally, more sandbag filling depots should be established across the city.

If BCC identifies that certain neighbourhoods will have higher demand for sandbags, but it is difficult to establish permanent sandbag depots in those areas, a standard process should be established of proactively dropping off a large truckload of sandbags to accessible locations **each and every time** a flood warning is issued. Suitable locations for bulk sandbag drop-off and distribution might include well-known parks, council maintenance depots, ward offices, council libraries or active community centres and sports clubs.

Establishing this practice (even for weather events where it turns out sandbags aren't needed) will give residents greater confidence that they can access sandbags locally whenever the need does eventuate, and significantly reduce the number of cars driving across the city to sandbag depots at a time when it would be better for residents to stay off the roads due to severe weather.

Advanced warnings and information dissemination during crisis

One of the most common themes I've heard in resident feedback regarding the floods is that warnings about the risk of serious flooding did not come soon enough, and it was difficult to access important information during and immediately after the storms via official government channels. There has already been a lot of (legitimate) criticism and commentary about the text message alert system, but other council-controlled platforms for sharing information were also poorly utilised.

I believe that a small but significant part of the problem is a general lack of public engagement with commentary from government - particularly local council. Most of the time, most people do not pay much attention to what official sources are saying. It takes a while for people to realise something serious is going on, and to tune in more closely to government channels and reliable media sources. However, this doesn't change the fact that governments need to be proactive and well-organised about identifying emerging crises, and as efficient as possible in communicating risks to the wider public. This did not happen in late February of 2022.

BCC was slow to appreciate and communicate the risk of severe flooding

As a local councillor with the Greens party, I do not have direct access to all the information that's available to the mayor, LNP committee chairs, and senior council staff. However, even I was able to recognise that the city was likely to experience some unusually heavy rain and possible flooding well before Brisbane City Council or the State Government started alerting residents to this fact.

I reached this conclusion in part from my own observations of local waterways and rainfall patterns where I lived, as well as drawing on information from independent social media pages such as [South Brisbane Storms](#), and from regularly checking the river height and rainfall data published on the Bureau of Meteorology website.

I first began warning local residents of the possibility of localised flooding on the morning of Friday, 25 February via [Facebook posts on my public city councillor page](#), suggesting people should move their cars out of low-lying streets. By Friday night, [South Brisbane Storms](#) had highlighted the extremely high creek levels in Lockyer Creek, indicating the possibility of flooding.

At 6:45am on Saturday morning, 26 February, I made [this post on my Facebook page](#) telling residents that we were in for some of the worst flooding the city had seen since 2011.

On Saturday morning, 26 February, I texted a city councillor who is a senior member of the LNP to ask whether they thought the river would flood and what steps the council was taking to alert residents. I then called the council's Local Disaster Coordination Centre (LDCC) with similar questions. Both of these points of contact gave me the impression that at that point, they thought that any flooding would be minor, and that the situation was nowhere near as serious as the 2011 floods.

In fact, the tone from the LDCC was - in my view - excessively reassuring, to the point where I began second-guessing my own conclusion that flooding would be severe. On Saturday morning, the information that councillors and other senior decision-makers were receiving from the LDCC would have given them the impression that they could relax and 'clock off' for the weekend.

But by late Saturday morning, the significant amount of rain that had already fallen in the catchment made it certain that minor flooding of the Brisbane River would occur, and created a situation where further heavy rain over Saturday and Sunday would cause a 'moderate' or 'major' flood. The council and the state government should have been able to work this out and spread the word to residents.

Much has been made of the 'atmospheric river' and the huge volume of water that fell over Brisbane late on Sunday morning and early on Sunday afternoon in a very short period of time. But this unusual occurrence does not mean that flooding was 'unforeseeable' or couldn't have been predicted. I made [this post on Facebook at 9:23AM on Sunday, 27 February](#), seeking to emphasise that flooding was likely to be worse than the official government channels had been indicating - this was well before the 'unforeseen rain bomb' that some commentators identified as the major cause of flooding.

Other sources of information were also pointing to the severe risk of flooding much earlier than official channels. Via local community social media pages, residents were reporting flooding in localities like Rocklea and Buranda/Woolloongabba as early as Friday night. The fact that

people were evacuating homes due to flooding in Rocklea by Saturday morning (if not earlier) should have made it clear that this was going to be a major disaster for the wider city.

Why did official channels take so long to recognise the high likelihood of flooding?

There's a lot of information I'm not privy to, and I must emphasise that the following three paragraphs of commentary is unsubstantiated conjecture which requires further investigation.

I believe that **one** of the reasons state and local government authorities underestimated the likelihood and severity of flooding in late February 2022 (at least on the Saturday) was that they were looking primarily at the levels of the main Brisbane River tributaries (including Lockyer Creek, Bremer River, Stanley River) and how much water was flowing into Wivenhoe Dam, and not looking closely at other sources of water entering the catchment.

Generally speaking, the smaller tributaries of the Lower Brisbane River - such as Enoggera Creek, Bulimba Creek, Norman Creek, Oxley Creek, Wolston Creek, and the many other unnamed creeks now buried under roads and buildings - do not contribute significantly to Brisbane River water levels compared to the major tributaries further upstream. As such, experts responsible for predicting flooding tend not to look closely at these creek levels, because their contribution to river heights is usually negligible. However in late February, Brisbane's urban creek catchments were heavily saturated, with little capacity to absorb more rainwater, and creek levels were already unusually high by the Friday evening (25 February).

The combined volume of all Brisbane's urban creeks - and the additional heavy rain falling on the city itself - was so much higher than usual that it ceased to be a 'negligible' contributor to Brisbane River levels. Early on, locals such as myself were paying close attention to creek levels because we were worried about localised creek flooding. The rapidly rising height of Norman Creek on Friday (25 February) and on the Saturday morning was one of the main indicators alerting me to the fact that Brisbane hadn't seen a weather pattern quite like this one before.

I suspect that by Sunday morning, official forecasters had started paying closer attention to the levels of Brisbane's smaller tributaries, and to local rainfall totals, and realised belatedly that even if Wivenhoe Dam still had some flood mitigation storage capacity left, there was so much water falling downstream of the dam that flooding was inevitable. Warnings were updated accordingly. But perhaps the severe flood risk would have been recognised sooner if key decision-makers had paid more attention to creek levels, and not just the levels of the Bremer River and Wivenhoe Dam.

Poorly adapted text message alert systems

As others have noted, Brisbane's text message alert systems did not give residents enough warning about the specific risk of serious flooding.

Like many Brisbane residents, I am a subscriber to the Weatherzone text message alerts, and received two warnings for 'Intense rainfall and damaging winds' on Thursday, 24 February. I received four warnings for 'damaging winds and heavy rainfall' on Friday, 25 February, four warnings for heavy rainfall and damaging winds on Saturday, 26 February and four warnings for damaging winds and heavy rainfall on Sunday, 27 February.

All of these warnings were of a very general nature, and are similar to the messages I receive almost every time Brisbane is hit by heavy rain storms. The generality and high frequency of these messages for every major storm made it difficult to assess and identify that this particular weekend of storms was even more severe than others, and these texts made no mention of flooding.

The existence of a text warning system like this can create a false sense of assurance. Because the alert system is clearly working and I'm getting regular warning texts, as an end-user I assume that if there were higher specific risks of other particular environmental hazards - such as flooding - that I would also be getting notified of that via text.

I am also subscribed to alerts from Seqwater, and received four warnings on the evening of Friday, 25 February about dam releases, and a further single message from Seqwater at 1:31am early on Sunday morning saying "Flood releases from Wivenhoe Dam expected recommence at 4am. Downstream bridges are closed. Avoid fast flowing or deep water downstream." This was the first explicit mention of flooding that I received via text, and it did not specifically indicate that there was a risk of riverine flooding unless you clicked through to the accompanying link and took the time to read it in detail.

In addition to Weatherzone and Seqwater, I received a text message from 'BCCEmpAlert' on Sunday, 27 February at 4:08pm advising "Flooding impacting some Council work locations. Employees who can work from home on Monday should do so. Check email/contact team leader for information."

I was surprised by this message, as it was the first text communication I'd seen directly from BCC to employees. If the council had the ability to directly send targeted texts to employees, I'm surprised more messages weren't sent out earlier. The text advised employees to contact team leaders for information. As a leader for the staff at my ward office, I didn't have any additional information to offer them, as I hadn't received any further info from BCC at that point, other than generic LDCC update emails sent to my work inbox.

At 8:34pm on Sunday, 27 February, I finally received a more specific text message which began: "Brisbane City Council advises: Major Flooding likely on the Brisbane River. Evacuate if required..."

This was the first specific warning text message I received that mentioned flooding. By this point, thousands of residents across Brisbane had already evacuated due to flooding of their homes, and for many others, it was too late to evacuate - they were trapped in their homes by floodwaters.

While the BCC administration has said they started sending out text messages earlier in the day and it took a while for the system to send the thousands of messages, I believe they should still have started sending out these specific messages warning of flooding much sooner. Minor flooding of the Brisbane River was already occurring on Saturday morning, so they should have started sending out texts warning of the risk of 'Moderate Flooding' by lunchtime on Saturday. They also should have known that the text message alert system takes a while to send out messages, and planned accordingly.

I agree with complaints by some residents that there was a lack of actionable information in warnings. For example, texts could have included specific advice such as "If in low-lying areas, move cars and furniture to higher ground" and "charge your devices and prepare for power outages."

Residents have also complained to me that there were no text warnings from Energex about power outages. Although many of the outages occurred at short notice literally as the water inundated infrastructure, I understand there were some precincts where Energex shut off the power in anticipation of flooding. In these areas, if residents had received even five or ten minutes' warning of the power outages, this would have given people time to relocate elevators to higher levels of their apartment building, and open electronic carpark gates so they could get their cars out of underground basements, preventing significant infrastructure damage.

Inconsistent and Inadequate BCC Social Media Usage

The Brisbane City Council Facebook page has almost 180 000 followers and huge reach across the city. Posts from this account are often shared widely, and it is treated by many as an authoritative source of reliable information.

The warnings posted on this page on [Friday afternoon \(25 February\)](#) and [Saturday morning](#) were relatively generic, and at that time did not accurately convey the severity of the threat that Brisbane was facing. This arguably created a false sense of security for some residents. The Saturday morning post mentioned clearing leaf litter from gutters and securing loose items around the yard, when in fact it should have been encouraging residents to move cars and furniture to higher ground.

Subsequent posts at [12:22pm](#) and [12:24pm](#) on the Saturday had significantly stronger messaging, but these were the only two posts that afternoon until [8:11pm](#). Considering the number of staff BCC assigns to digital communications, and that by Saturday afternoon, many areas were already experiencing significant flooding of residential properties, it seems strange that BCC's main online mouthpiece was not posting more frequently and sharing more specific

information about road closures, anticipated flood levels etc. This suggests to me that there are inefficiencies or bottlenecks in BCC's current internal processes for approving and sharing posts during a disaster. Perhaps there is a case to be made that once the LDCC has been activated, the LDCC should have more direct control over the main BCC Facebook account and be given the flexibility to make more regular and specific posts with minimal delays for approvals and cross-checking.

Similarly, while the Mayor's Facebook page and other social media accounts were posting more [regular updates](#) about the severe weather on Saturday 26 February, they were also of a more general nature. Posts resembled the kinds of posts that the mayor shares during other less severe weather events, encouraging people to avoid flooded roads etc. It wasn't until [a post at 5:58pm on Saturday, 26 February](#) that the mayor's Facebook page highlighted the severity of flooding and directly acknowledged that thousands of homes were likely to be inundated.

Ultimately, the results speak for themselves. While some residents were able to identify the risk of flooding comparatively early on, and were moving cars and belongings to higher ground on Friday night and Saturday morning, many residents didn't hear the warnings at all, and suffered millions of dollars' worth of property damage because they didn't have time to relocate

Emergency response during and immediately after flooding

An event that caused mass homelessness

One of the biggest gaps in reporting and record-keeping after the 2011 floods was the lack of precise data regarding how many residents experienced long-term homelessness following the disaster. While an approximate number of damaged homes was eventually recorded via insurance claim statistics, the precise figure of people who lost their homes and weren't able to rebuild or return remains unclear.

The same phenomenon appears to have occurred in the wake of the February 2022 floods. We know that thousands of homes had habitable rooms affected by flooding. We also know that hundreds more apartments sustained significant damage to key infrastructure like power circuits and elevators, and remain uninhabitable in the medium-term until parts can be secured and repairs can be affected. But regrettably, no-one seems to have counted how many people were displaced from their housing with no hope of return.

A key difficulty here is that in some areas, such as West End, most of the homes and rooms most severely affected by flooding were rental properties. Out of the dozens of homes in the Gabba Ward that have remained uninhabitable since late February, almost all of them were rental properties.

If tenants end their lease and move out of a flood-damaged rental property while repairs are made, and six months later a different group of tenants move in (often paying higher rent), it is unlikely that the home will be recorded as a location where people became homeless due to flooding, even if that is indeed the medium-term fate of the displaced tenants.

I'm also aware of examples, such as on Ryan Street, West End, where landlords live upstairs while renting out rooms to tenants downstairs. In the Ryan Street property, tenants lost possessions and their home, while the landlord remained high and dry above. The landlord was unable to report with confidence what happened to his tenants after they moved out. He will take an insurance payout from the floods, renovate the downstairs area, and likely rent it out to new tenants at a higher income. Meanwhile his former tenants will likely struggle to find a new rental.

In some parts of the city, many owner-occupiers who have to make extensive repairs will be without a home for several months at least. It's possible that the combined costs of repairs, insurance etc. might lead to some of these owners selling their homes at a loss, and left with heavy debts. Such situations are also unlikely to be captured in homelessness statistics.

I have been deeply concerned by Brisbane City Council's failure to help recently homeless residents find alternative stable accommodation. Just this week, our office was contacted by another resident whose houseboat sunk in the river during the flood, and who appears to have received very little support to get back on his feet or find a new home.

Brisbane City Council is well-placed to partner with property developers, investors, hotel operators and other residents with spare bedrooms to deliver creative solutions to the growing housing crisis, matching people in need of housing with people who have spare rooms or empty buildings. But BCC has failed to seize this opportunity, instead passing the buck to the private sector and higher levels of government.

Once BCC's evacuation centres were closed, homeless residents were transferred into short-term hotel accommodation, but not necessarily given a realistic pathway into more stable long-term housing. Of course, only a small proportion of those who were left homeless actually made it to the council evacuation centres due to the inaccessible locations (this problem is discussed further in a later section of this submission).

I estimate that 50 to 100 Gabba Ward residents have lost their homes due to the floods and related storm damage. I imagine that in some wards, that figure will be closer to several hundred. Citywide, there may be as many as 1000 residents who have been made long-term homeless by the floods. In the medium-term, thousands more will be unable to return to their homes until extensive repairs are completed, and will also be searching for rental properties in an increasingly competitive market.

There's a lot more the council can and should be doing to address this crisis, including increasing the number of homes provided as affordable accommodation through BCC's Community Housing Partnership Program, and introducing rates incentives to discourage investors from leaving homes empty long-term. At the very least, BCC should be engaging policy levers to facilitate and encourage the conversion of short-term accommodation back into long-term residential accommodation.

Unfortunately, the council's failure to take any steps in this direction means the already-severe homelessness crisis is only becoming worse since the floods.

Insufficient information about closed roads

Over the last weekend of February and into the first week of March, so many roads were affected by overland flash flooding, creek flooding and river flooding that local and state government departments and resources, including the <https://qldtraffic.qld.gov.au/> website, weren't able to keep up, and had only listed a small proportion of roads that were closed due to floodwater inundation.

On Sunday, 27 February, traffic congestion in several parts of Brisbane became severe, despite the premier's requests for people to stay off the roads, because certain major arterials were cut. In some cases, people were driving across the city to collect sandbags. In other cases, residents didn't have access to services and retail shops closer to home, and were driving further away to stock up on essentials.

Creek flooding in particular caused major connectivity disruptions between Brisbane's middle-northern suburbs and in the inner-north/inner-city. Flooding along Enoggera Creek/Breakfast Creek and its tributaries meant that by Sunday afternoon, almost every bridge and tunnel connecting into the inner-north was cut to road traffic, but it took several hours for government websites and private mapping services like Google Maps to be updated accordingly.

This lack of information meant that motorists were driving back and forth across the city to get across flooded creeks, leading to long queues and dangerous driving situations in heavy weather. Motorist confusion was exacerbated by radio traffic reports that major bridges over the river itself were still open, creating the false impression that if bridges over the river were clear, the arterial roads connecting to those bridges would also still be open.

While it's understandable that during an extreme weather emergency, government workers may not have the time - or even the transport access - to travel across the city to physically install signage notifying of closed and flooded roads, and may not even be able to centrally manage an up-to-date database of all flood-affected roads, democratic use of technology could facilitate crowd-sourcing of accurate road closure information.

Brisbane City Council should investigate implementing a publicly accessible online mapping service where residents can report road hazards such as flooding (along with photos to assist in verification) which are immediately visible to other residents. Obviously the unverified reports on such a platform will not be as reliable as government sources, but in a context where government institutions are stretched beyond capacity, allowing residents to map and report flooded roads directly could save hundreds of other residents a lot of time and stress.

This resident reporting of flooded roads and other related disruption was widespread on social media during the disaster, but public reports and photos were being posted on many different groups, pages and platforms, rather than all being posted to a single online map that was updated in real-time.

It's also important to note that as with previous floods, some areas were also flooded with high volumes of sightseeing vehicle traffic. This made it difficult for flooded residents to access their properties, move belongings, or evacuate, and also made road environments more dangerous for pedestrians. Better information about road closures should be accompanied by clearer communication of the importance of not driving into flooded neighbourhoods. (As other commentators have noted, when journalists who are filming 'on location' near floodwaters remind everyone else to stay home, the visual signal of the journalists being shown near an overflowing creek or river can undermine the message they're trying to convey, and subconsciously increase viewers' urge to want to go see the spectacle themselves.)

Failure to protect BCC ferry fleet

At the time of the 2011 Brisbane flood, BCC's ferry fleet was moved to a sheltered harbour in Moreton Bay. This tactic to protect the ferries proved successful, as of the 19 CityCats and nine cross-river ferries, [only one vessel sustained minor damage from floating debris](#).

However, despite the benefit of this prior experience, the ferry fleet was left in the river during the 2022 flood. Leaving the fleet in the river during the 2022 flood saw eight CityCats damaged and one (the Beenung-Urrung) sunk, while all four of the smaller KittyCat ferries also had to be taken off the river for damage assessment.

While the flood damage to ferry terminals may have also impacted services even if the vessels themselves were not damaged, the impacts on services and costs borne by Brisbane residents would have been significantly lower had the ferry fleet been removed from the river and temporarily anchored in the bay.

BCC has explained that the sudden onset of heavy rain meant there wasn't enough time to move vessels out to the bay without risking the safety of ferry workers (I should note that I've spoken to some former ferry workers who are very skeptical of this explanation, but this is outside my field of expertise). This 'lack of time' reinforces the above-mentioned concerns about inadequate warnings, and the council's failure to recognise the impending risk of flooding and

act accordingly. It perhaps also highlights another weakness of allowing expensive council assets - i.e. citycat vessels - to be managed and maintained by a private ferry operator company.

It's foreseeable that in certain future flood events, there could be enough warning and time to relocate vessels, but Moreton Bay itself may be too dangerous a location due to coastal storm activity. As such, BCC should also explore and identify alternative locations closer to the existing ferry docking locations, where vessels can be moored temporarily, outside of the path of fast-flowing floodwaters and debris. For example, the Evans Deakin dock at Kangaroo Point could comfortably accommodate 6 citycats and several smaller ferries in an emergency (assuming it has been dredged regularly and maintained to preserve a sufficient depth of water). BCC should identify and secure the rights to multiple alternative safe locations along the river for mooring council vessels in an emergency.

Inaccessible evacuation centres vs the value of local community hubs

Once it became apparent that flooding would displace some people from their homes, Brisbane City Council established an evacuation centre at Sleeman Sports Complex at Chandler, and later a second evacuation centre at Kedron Wavell Services Club at Chermerside. Both of these locations were roughly half an hour's drive away from flood-affected suburbs under normal weather and road conditions. With many roads cut due to flooding, and most public transport no longer operating, these locations were very difficult to access for people whose homes had just been flooded or had lost power.

On Monday, 28 February and Tuesday, 1 March, I spoke to dozens of residents who made the choice to remain living in flooded homes without power (in most cases where downstairs rooms were flooded but upstairs rooms were dry), rather than relocating to the evacuation centres, because the centres were too hard to get to. I also spoke to two rough sleepers who had nowhere to shelter during the weekend of heavy rain. In the words of one of them, who was sleeping along Riverside Drive, West End, "I was homeless before the floods, and I'll be homeless after them."

While a lot of support services were made available at the evacuation hubs, my impression is that only a small proportion of the people who needed that support actually made it out to the hubs to avail themselves of it.

In contrast, a diverse range of community centres, small businesses and other organisations established de facto drop-in and support spaces, in close proximity to areas that had been flooded. In some cases, these were simple affairs, such as local cafes and other businesses providing a space where flood-affected residents could charge electronic devices, make calls, get a free meal etc. In other examples, such as West End Community House in my ward, a combination of paid staff and volunteers delivered an even wider range of crucial services,

including providing facilities for people to sleep, have a shower, wash clothes, and access the internet, and opportunities to talk to people who could help with applications for government financial assistance, or just provide a sympathetic ear and offer emotional support.

I should make special mention of East Brisbane Bowls Club, which was converted into a volunteer-run, air-conditioned community drop-in space to serve surrounding flood-affected neighbourhoods. Volunteers based out of the old bowls club building (which no longer functions as an actual bowls club) served around 60 free meals per day in the first week of march, as well as providing access to hot showers, electricity, internet, and an important social connection point. This part of the city was severely affected by both river flooding and flooding of Norman Creek, but did not have good local access to other established and better-funded community centres. Given that Brisbane City Council is currently considering whether to demolish the bowls club building, its role as a community hub in times of crisis needs to be recognised and preserved.

As touched on above, in times of extreme weather, people need access to services and support in their immediate local area. Local community centres and drop-in spaces are more important than ever, and can provide better links back into a resident's broader local community.

Local evacuation centres are arguably also a better way to cater to residents' needs during the ongoing covid health emergency. Rather than bringing people from across the city to a single evacuation centre at Chandler, where there is more risk of a virus spreading, providing emergency accommodation to smaller numbers of people in multiple discrete local locations is a better way to minimise virus transmission.

Widespread failure to care for people with disabilities and acute health conditions

As has been widely publicised in the media (see e.g. [this article](#) and [this article](#)), many people with disabilities and chronic health issues were particularly at risk during the floods, but found that their needs were overlooked.

Many residents with impaired mobility or impaired vision who rely on elevators and intercoms to get in and out of their homes were trapped in their apartments once the power went out. To be trapped in a building with no way out is not just an inconvenience, it is a dangerous and traumatic event.

In a lot of cases, residents who needed regular access to medical treatments such as dialysis were evacuated to appropriate facilities, but some were overlooked, or there were no suitable locations where they could be evacuated to, particularly if they had compromised immune systems and the ongoing risk of covid meant it wasn't safe for them to go to a crowded evacuation centre.

I heard from one building where building managers made a decision to shut off elevator services even before the power went out, without any communication or evacuation plan for disabled residents. This raises important questions about what duty of care building managers and body corporate office-bearers might owe to other residents, and what steps they should take to go door-to-door during a crisis and ensure no-one has been forgotten.

Generally speaking, there is a vacuum of responsibility in terms of who checks and attends to the needs of people with disabilities during a crisis or disaster.

Some people will have paid carers and existing support services that they're connected to, but often, support workers are paid to attend only at specific times or to help with specific tasks. The kinds of support someone needs during a disaster may be quite different to the regular support they have arranged to assist with day-to-day life.

This is a crucial issue which requires further investigation in respect of how Brisbane City Council's disaster management response coordinates with other government agencies and community organisations. It is not a responsibility which can be wholly entrusted to neighbours or body corporate volunteers.

Power Access

In the days following the flood, lack of access to power was a major issue for thousands of residents and businesses.

Notably, when reporting power outages, Energex often refers to the number of affected 'customers,' however sometimes an entire apartment building that's home to hundreds of residents may only have two or three 'customer' accounts (e.g. one account for common property facilities, another account for the private residences and a third account for the ground-level commercial cafe tenancy), so all those hundreds of people are counted as just a few customers.

This approach, which potentially confuses 'affected customers' with 'affected people' led to a severe under-estimation of the number of residents and businesses impacted by power outages in the days following the flood, particularly in high-density neighbourhoods and urban centres. The failure to accurately report and understand how many people were without power likely misinformed other decisions about what support services were most urgently needed, and how best to communicate with residents.

Considering the wide scale of power outages and the importance of power access for timely dissemination of information, local and state governments should have coordinated a crowd-sourced list of locations where residents were able to freely access electrical power points and charge devices. In certain areas where whole neighbourhoods lacked power and residents were a long way away from community hubs that still had electricity running, the

council could have deployed mobile, solar-powered phone charging hubs [such as this one](#), which were used to charge phones, run lights and operate pressure hoses to assist with the cleanup.

Residents have suggested that in anticipation of future disasters, Brisbane City Council could install freely available off-grid solar/battery power and communications hubs within walking distance of most residents. If these hubs are available and used before a disaster, residents will know where they are and how to use them (which is better than deploying ad-hoc hubs in some areas once severe weather is already occurring.)

Flood cleanup response

Volunteer coordination

The flood clean-up was characterised by efficiencies and deficiencies of different models of volunteer coordination, including some notable differences from the approach in 2011.

After Brisbane's 2011 floods, with comparatively little top-down coordination, thousands of people travelled into flood-affected communities to help with the clean-up. Many drove in private cars, causing serious congestion issues leading in and out of flooded suburbs. Organisation was mostly either very decentralised or non-existent. Some streets got heaps of timely and much-needed help from volunteers, while other areas were initially overlooked. Some volunteers engaged in risky behaviour, or arrived without any protective gear or useful cleaning equipment. Some volunteers got a little carried away, throwing out muddy possessions that the owners would've preferred to clean and keep.

This time, Brisbane's mayor was more active about announcing and promoting a formal signup process for volunteers (managed in partnership with Volunteering Queensland), telling the general public not to rush straight into flooded neighbourhoods to clean up as soon as the waters receded.

As a city councillor of a flood-affected ward, I wasn't briefed at any stage regarding how the central portal for volunteer recruitment and coordination would be used. No-one called me to explain that a central portal was being set up, or who would be responsible for directing volunteers. The first I heard about it was via the media. This meant that as a councillor, I didn't have enough information to determine whether it was better to encourage potential volunteers to sign up centrally through the 'official' Mud Army 2.0 pathway, or to direct volunteers through local channels and networks instead.

In light of how long it took to mobilise volunteers via Mud Army 2.0 channels, I am glad my office did not encourage people to sign up through this process, and that we instead focussed on coordinating volunteers locally.

The highest flood peak was on Monday morning, 28 February, by which point thousands of Brisbane residents were already eager to help out. But none of the volunteers who signed up through the 'official' platform were mobilised by BCC until Saturday, 5 March, and by the end of Saturday, Brisbane City Council declared that: "Due to the Mud Army 2.0's incredible effort on Saturday 5 March, Brisbane City Council has confirmed that the Mud Army 2.0 can now put down their tools. Volunteers are no longer needed to clean-up Brisbane on Sunday 6 March."

As others have rightly pointed out, volunteers were actually needed for cleanup from Monday/Tuesday onwards, and were still needed in some areas even after the 'official' Mud Army was stood down.

The council was understandably reluctant to deploy volunteers too early, in part due to fears that subsequent tidal peaks would inundate areas a second time. However for many residents in low-lying areas (including parts of West End in my ward), it did actually make sense to clear out flood-damaged furniture from under houses immediately after the Monday morning tidal peak. This is because clearing furniture and other obstacles immediately would make it easier to clean out mud after the Tuesday and Wednesday high tides, and in some cases would allow furniture to be salvaged if it hadn't been underwater for too long. Rivermud is much easier to clean away while it's still wet, so getting volunteers out on the ground soon after floodwaters recede can significantly reduce the overall difficulty of the work.

During the first week of March, thousands of residents were already out on the ground helping clean up. From what I saw in my ward, perhaps 90% of the labour-intensive work of sweeping mud out of flooded properties and carrying damaged furniture to the footpath was undertaken by volunteers before BCC's Mud Army 2.0 ever hit the streets.

A local exception to this was some of the flooded apartment block basement carparks on the western side of Montague Road, which took over a week to pump out and empty of floodwater before anyone could get inside to help clean up, however I don't believe 'official' Mud Army 2.0 volunteers were deployed to help clean out flooded apartment block carparks in West End even after the basement carparks were pumped out.

There are advantages and disadvantages to centralised volunteer coordination, and in this case it seems like concerns about more severe weather were one of the main factors contributing to the delay in deploying Mud Army 2.0 volunteers. However the practical effect of the way Mud Army 2.0 was promoted and deployed, including discouraging people from 'hitting the streets' too soon and suggesting that the centralised signup was the 'best' way to get involved, meant that Brisbane City Council seized a large chunk of potential volunteer energy, then held off deploying it until most of the immediate flood clean-up work had already happened.

The 2011 'Mud Army' became a positive symbol of our city that politicians could get extra kudos for being associated with, which has given rise to concerns that some decisions about how Mud Army 2.0 was promoted and managed were calculated to maximise political advantage for LNP

councillors. For example, I was surprised to learn that some LNP councillors were invited to be present at the suburban ‘muster stations’ where volunteers were assembled and briefed prior to being bussed out to flood-affected streets. To my knowledge, this opportunity was not offered to non-LNP councillors (including me), even though it would have been great to be able to observe this process and to talk to the volunteers directly to understand what their experiences were like on the day.

From my observations, less-centralised forms of volunteer organising were much quicker and more efficient than the top-down coordination approach taken by Brisbane City Council. In some cases, cleanup work was undertaken by immediate neighbours autonomously heading down the street or around the corner to see where they were needed, or by people travelling from slightly further away and just getting stuck in, much like in 2011.

In other cases, it was existing networks of relatives, friends, work colleagues or community groups mobilising to help specific residents or businesses that they were connected to.

And in some areas, including Brisbane’s inner-south side, we saw an ecosystem of community groups, elected representatives and political parties taking on partial coordination roles, recording requests for assistance and advising volunteers where they were most needed.

Within the Gabba ward, a lot of volunteer work was coordinated by the Greens, who reassigned federal election campaign staff to work on supporting the flood recovery effort. I’d venture to suggest that volunteers organised through Greens networks (along with other local networks such as West End Community House, Kurilpa Futures and West End Community Association), got a lot more done in suburbs like West End and East Brisbane than those who signed up through BCC and who then waited several days before being mobilised.

I was already on the ground cleaning up under houses when some of the ‘official’ Mud Army volunteers were finally deployed around East Brisbane on Saturday morning. They arrived in a bus, kitted out in protective gear, with brand new brooms and clipboard-wielding council staff briefing them and directing them. They were all really eager to get stuck in, and one of the volunteers complained to me that it had taken two hours of marshalling, transportation and briefing before they even got to any of the houses that needed help.

When I saw that there was a surplus of volunteers on the street, I asked one of the council workers if some of the volunteers could be directed to instead pick up a lot of the rubbish and detritus that had accumulated along the edge of Norman Creek. But the officer’s instructions were clear – volunteers were only to assist with carrying out muddy furniture and cleaning out homes. Picking up rubbish along the waterway was not part of the defined tasks.

The slow deployment and the narrow restrictions regarding what Mud Army volunteers were instructed to assist with obviously wasn’t the volunteers’ fault. Nor is it the fault of council officers. It’s a predictable feature of highly-centralised, top-down volunteer coordination by risk-averse bureaucratic entities.

Locally coordinated volunteers can mobilise more quickly, and can adjust their plans more flexibly around tidal peaks and predicted storms. Whereas if you're organising thousands of volunteers to all gather at a central suburban meeting point, prepping them to participate in a very specific activity, then bussing them across the city to locations that were only roughly scouted in advance, you can't easily delay the mobilisation while a storm passes, or redeploy people to different tasks.

I should add that I've heard from several people who contacted Brisbane City Council to request help from the Mud Army 2.0, were told that they'd be assisted, but then never received assistance. I suspect this is because rather than assigning volunteers to specific households that had asked for help, BCC just bussed volunteers into general neighbourhoods depending on where they'd received requests from, and the council officers directing volunteers on the ground weren't actually double-checking whether all the specific household requests had been met.

Conversely, there were instances where volunteers were bussed into a flood-affected neighbourhood, but households had already been assisted earlier in the day.

On the flipside, there were probably also examples where a resident got in touch with a local organisation to ask for help, but if that organisation was too busy and stretched, the request wasn't passed on to other groups that had more volunteer capacity. In this respect, shared online documents came in handy. By recording needs online in one place that anyone could access, it was easier for different groups and individuals to proactively reach out to offer help without a central coordinating entity acting as a bottleneck.

In times of crisis, it's ideal to have volunteers who've been collectively organised beforehand – people who already know and trust each other and are accustomed to working together – and who are directly connected to the communities requiring help. Such groups can be directed towards (or can proactively identify) areas of need, and autonomously assist in whatever ways they deem necessary. In the best case scenario, they are already organised and specially trained through channels like the State Emergency Service or Rural Fire Service.

The second-best option is probably for volunteers who aren't already part of a community network or organisation to sign up to be directed by a local group that has a better sense of where people are needed on the ground.

One way that Brisbane City Council could have facilitated this would have been to collect volunteer contact details centrally, ask different local groups how many volunteers they needed, then pass on contact details.

Even when Brisbane experiences a severe flood, the majority of residents across the wider city aren't directly affected by flooding of their home, which means there are plenty of potential volunteers available – you just have to get them where they're most needed. Other kinds of climate disasters – where a larger proportion of the city is directly impacted and fewer

volunteers are available – would be quite another matter. So we definitely need to improve our systems for mobilising and coordinating volunteer energy going forward.

Weak processes to encourage or support salvaging of flood-affected possessions

After the February 2022 floods, thousands of tonnes of ‘flood-damaged’ items ended up being deposited along footpaths and trucked out to landfill. In many cases, furniture and other belongings were so badly damaged by water and mud that they were beyond salvaging. But as many residents have rightly pointed out to me, a lot of stuff was also thrown out that could easily have been cleaned and reused.

The absence of any wider coordinated strategy to divert flood-affected possessions from landfill greatly increased the amount of waste that BCC had to deal with, which carries both a high financial and environmental cost. The high disposal rates of salvageable items were exacerbated by the fact that many residents with flood insurance knew that they would be fully reimbursed for the cost of anything they threw out.

While some items were no doubt cleaned, saved and re-sold via BCC’s Treasure Troves (the tip shops), this represents a small proportion of the total volume of waste that could have been diverted. Ultimately it is far more efficient to clean and salvage belongings in a local neighbourhood rather than transporting them further away.

In the days after the flood, residents who were traumatised and exhausted were grappling with difficult decisions regarding whether to throw out or salvage furniture and clothes, at a time when many homes still lacked electricity, hot water and suitable cleaning equipment. Muddy clothes that could easily have been washed ended up growing mouldy and being thrown out.

The BCC decision to deploy significant publicly-funded resources in the form of kerbside collection garbage truck services, while not deploying other resources that could have assisted in cleaning and salvaging, sent a strong signal to the broader community about what priorities they as individuals should set for the flood clean-up. This fed into a broader cycle that encourages an unsustainable consume-and-dispose culture.

In addition to free waste collection services for all the items that couldn’t be saved, BCC could have also organised:

- Free electricians deployed to flood-affected neighbourhoods to safety test electrical items that were only mildly affected by floodwater, and advise owners on whether they can be saved *before* residents throw them out
- Mobile cleaning trucks with large tubs of hot water, detergents, and free cleaning equipment
- Free mobile laundry services with high-capacity dryers, and/or free vouchers for local laundromats

- Additional financial and promotional support for existing repair cafes and tool libraries to restore and repurpose equipment and resources
- Widespread publication of cleaning tips and advice
- A public behaviour change campaign to celebrate and promote residents and businesses that worked to salvage and recycle flood-damaged items rather than throwing them out
- Separate designated areas to leave items whose components could be stripped and reused for other purposes (including scrap metal salvaging, timber recycling etc)

This slight shift towards a greater focus on salvage and reuse should also have been reflected in the deployment of Mud Army 2.0 volunteers, who were primarily briefed on tasks like sweeping out mud and carrying away rubbish, rather than cleaning items and diverting them from landfill.

If BCC had placed a greater emphasis on reuse and salvage, rather than purely on encouraging and facilitating waste disposal, it's likely that far less waste would have ended up in landfill, and the environmental burden of the floods (in terms of waste disposal) would have been much lower.

Patchy communication and coordination regarding cleanup

In the week following the floods, I was surprised at how little direct communication I received as local councillor regarding the progress of the cleanup. While I appreciate the council officers were very busy, more timely communication about what kinds of infrastructure were being cleaned first and what services were being organised would have saved time and hassle for both council workers and other residents.

For example, in the absence of clear information about food waste disposal and the timing of the next garbage collection services, some apartment building managers organised their own private food waste collection services.

Brisbane City Council officers did not communicate with me directly prior to deciding on appropriate locations for food waste collection bins, with the result that the entire suburb of West End was initially overlooked for the placement of bins (despite thousands of homes losing power) until I proactively raised concerns about this.

Similarly, there were certain roads and pathways where council organised to clean mud off the road while cars were still parked there. As soon as the floodwaters receded, I wrote to the council to recommend that Riverside Drive, West End should be closed to cars. This was not done, and motorists began parking there on a regular basis. A few days later, council workers began clearing the thick layer of dried mud off Riverside Drive, but had to work around dozens of parked cars, resulting in significant inefficiencies and certain parts of the roadway not being cleaned on the first attempt. If the council had been able to publicise when certain streets would

be cleared of mud, at the very least I could have used my communication channels to advise residents not to park there.

The council's cleanup priorities also reflected existing biases in terms of what the administration does and doesn't value. For example, most major roads that function as car commuter corridors were cleared of mud very quickly, whereas it generally took the council much longer to clear bikeways and pedestrian routes that also served as major active transport commuter corridors, even where those pathways were equally accessible to council cleanup crews and maintenance vehicles. This suggested to residents that the council valued car-based transport more than active transport, and seemed at odds with public messaging that residents should avoid driving in and out of flood-affected neighbourhoods if possible.

Looking ahead

We must buy back the most floodprone homes

Voluntary home acquisition schemes have been the subject of significant commentary in other circles, however I wanted to again add my voice to calls for local and state governments to buy back the lowest-lying, most flood-affected properties from residents who are willing to sell.

I've spoken to residents who've said that the buyback scheme after the 2011 floods was not clearly explained to them, and that if they'd had more time for research and consideration, they would have sold their home. The case for a new round of flood buybacks is very strong. Residents need to be supported to relocate to higher ground, but will not be able to afford to do so if they sell their current home at a significant loss.

I'm also aware that many residents refused to sell to the council via previous buyback schemes, but did move out shortly afterwards and sold through the private market instead, because they could get more money that way. They turned down the opportunity for a publicly-funded buyback, but then left another unsuspecting or naive future resident to deal with the problem.

I believe that in addition to voluntary flood buybacks, there may be a case on some sites, in very specific circumstances, for the council to compulsorily acquire certain properties in order to get residents and other sensitive land uses out of the flood zone.

The long-term costs of safely providing infrastructure and services to extremely flood-prone homes will continue to increase. Insurance premiums for flood-affected properties are also increasing, to the point where thousands of residents are now uninsured or under-insured.

In some areas, landlords and investors may decline a voluntary flood buyback opportunity because it is their tenants, rather than the owners, who have to deal with most of the practical negative impacts of flooding. The landlords simply get to collect the rent, and occasionally make

post-flood renovations using insurance payments. An investor-owner of a floodprone property who is not personally at risk of becoming homeless from flooding (because they live somewhere else) is likely to make very different decisions whether to accept a buyback offer than current (or future) owner-occupiers.

Similarly, land speculators may turn down voluntary buyback offers because they would prefer to wait for land values to rise and later sell the property to a developer, who will increase the intensity of land use on the floodprone site. Their primary motivation is likely to be medium-term financial profit, and they will be less likely to engage with deeper multi-factorial questions about whether it would be best in the long-term for their site to be restored to parkland or some other less-vulnerable land use.

In these contexts, on land that is highly floodprone, Brisbane City Council or the State Government should seriously consider compulsory acquisition of non-owner-occupied homes, even where the owners are reluctant to sell..

Lessons from high-density floodplain neighbourhoods demonstrate need for deep change

As alluded to in the first section of this submission, the floods caused very significant disruption to high-density neighbourhoods in low-lying areas, such as the newly developed highrise apartment precincts to the west of Montague Rd, West End, around Melbourne St in South Brisbane, along the river at St Lucia, and low-lying parts of Milton such as Railway Terrace and Walsh Street.

In these precincts, which have seen a lot of residential development *after* the 2011 floods, relatively few residential homes were inundated and rendered permanently unlivable, as the new apartments themselves had been built above the flood level. However the disruption to daily life, and the ensuing costs, was still dramatic, and the sheer number of people affected means the potential for secondary impacts to the wider city needs deeper reflection. This was in part because newer building typologies are in many respects less resilient to disaster and service disruption.

Within the Gabba Ward, thousands of apartment residents lost power for at least a week after the February floods, and in some cases, some buildings still haven't had power fully restored over a month later. These newer buildings are more power-dependent than older styles of detached housing and medium-density apartments. Most new apartments are designed to be cooled by airconditioning rather than passive ventilation. Elevators stop working, and enclosed building stairwells become both inconvenient and dangerous due to the lack of electrical lighting.

Flooded basement carparks take weeks to clear out and are unsafe to use without electrical lighting, meaning thousands of residents have to compete for limited street parking. Many

residents who didn't receive warnings in time lost tens of thousands of dollars' worth of possessions and vehicles due to flooded basement carparks. The majority of residents in these high-density neighbourhoods are renters, and were not fully insured for flood damage.

Compact living also means residents don't have much space to dry out clothes and clean up other possessions (they ordinarily rely on clothes dryers), or to temporarily store waste while they wait for it to be collected. Many new apartments have been designed so that waste collection services are also underground via basement carparks, meaning that building waste can't easily be collected until the flooded carpark is cleaned of mud and debris.

In some especially low-lying areas, even the building evacuation routes proved flawed, as they were cut off by floodwaters, and some people were trapped in their apartments until the water level dropped (note also the above-mentioned concerns regarding people with disabilities). Residents reported to me that the only way they could get out of their newly-built, post-2011 homes and evacuate to safer locations was by wading through knee-deep floodwaters. This clearly should not be the case for new developments that are supposed to have been designed with flooding in mind.

On top of all this, the logistical and administrative challenges of coordinating cleanup of basement carparks and common areas, negotiating with insurance companies, organising tradespeople to make repairs and specialist services to address time-sensitive issues etc. placed a significant burden on volunteer body corporate committee members and part-time property managers who were called upon to project manage tasks that were well outside their ordinary role responsibilities.

Cleanup costs for some of these buildings would have run into the hundreds of thousands of dollars, but we must also consider the hours and hours of unpaid administrative labour that residents have had to take on, which is often more complex than for single detached homes that might have had flooding through yards or under the house.

In these high-density neighbourhoods, both in terms of public infrastructure and private or body corporate property, there is still a huge amount of work to do in recovering from the floods.

While on the surface, the streets have been cleaned and the neighbourhoods seem to be returning to 'normal,' subterranean infrastructure such as stormwater drains, gross pollutant garbage traps, sewer lines etc. is still in a poor state of repair, and will be difficult to restore in the short-term due to the added complexities of a space-constrained high-density environment and rising material costs.

Some damaged elevators or ventilation units require replacement parts that have to be imported from overseas and are in short supply.

Biting midges are breeding in moist, muddy drains out of sight and out of reach.

Mould has spread through internal building walls after prolonged heavy rain and days without airconditioning, but can't be accessed without major disruptive renovation work to dozens of residential units.

Side roads that carry a much higher volume of car and truck traffic than most suburban residential streets have cracks and potholes emerging at a faster rate than council workers can repair them.

All of this combines to create an environment where thousands of people are dealing with extra short-term and long-term stress as a result of living in a floodprone area. From body corporate volunteers having to take time off work, to residents experiencing interrupted sleep or breathing issues from unventilated air, the impacts of flood in these high-density neighbourhoods are lasting and significant.

The degree of stress and inconvenience experienced by these residents is nowhere near as high as those who've had flooding through actual residential homes, but the massive number of people who've been affected in this way is still a big concern.

The more residents we have living in these areas and these kinds of buildings, the more negative flow-on impacts there will be to other workplaces and industries.

Right now across Brisbane, the number of high-density apartment residents dealing with the kinds of flood-related inconveniences mentioned above probably numbers around ten to twenty thousand. But if a slightly higher proportion of the city's population had been affected this way, the negative impacts to the city's recovery would have been amplified noticeably.

It is in this context that we must ask ourselves, do we really want to introduce even more residents into this kind of living situation?

In recent decades, the council has approved residential and commercial developments on land where such development was historically prohibited, in large part due to concerns about flooding. In their eagerness to secure development rights on lucrative sites, property developers constructed elaborate myths about their buildings being flood-resilient, claiming that as long as the apartments themselves were above the flood level, the flood risk was minor and manageable. But the basement water pumps failed as soon as the power cut out, or weren't located in the right places to begin with.

Developers' claims that it is appropriate to continue building in these areas and to intensify residential settlement on some of the most floodprone parts of the city, can no longer be accepted at face value.

When the science tells us that sea levels will rise by up to a metre by the end of this century, and severe storms and flooding could become much more frequent, we need to seriously reevaluate the wisdom of allowing development in these areas.

Looking ahead, it is essential that Brisbane City Council and the State Government rezone low-lying land to prevent further high-density residential development on flood-prone sites. There are certain parts of the city where the flood risk is such that single detached dwellings raised above the predicted flood level may be appropriate, but higher-density residential and mixed-use developments - where the impacts of flooding would be borne by exponentially more residents - must not be allowed in such places at all. Funding must be allocated to convert these sites into public parkland and flood-resilient community facilities such as courts and sports fields.

Generally speaking, I would strongly recommend that no further private development should be permitted in Flood Planning Areas 1, 2a, 2b or 3 (as mapped on City Plan 2014) even where core infrastructure and habitable areas are supposedly above the flood level.

I also recommend that the 1% Annual Exceedance Probability flood level is no longer an appropriate design threshold, and that buildings should be designed to withstand much higher floods.

Building design and construction methodology changes

In addition to preventing development on the most flood-prone land, and designing buildings to withstand flood levels which are significantly higher than the 1% annual exceedance probability, Brisbane City Council and the State Government also need to insist on mandatory inclusion of 'blue-green infrastructure' to reduce flood severity. This is important not just for buildings on low-lying land, but for developments further uphill, so that the volume and speed of stormwater flowing downhill is reduced.

At the very least, BCC should increase the minimum requirements for deep-planted trees and porous surfaces that developers must adhere to for new projects. The Greens have advocated that 20% of the site area of new multiple-dwelling developments should be set aside for deep-planted trees, and that 25% of site area should be set aside for trees on single detached housing sites. Requiring more green space and trees within private development footprints reduces the proportion of impervious surfaces and allows urban landscapes to soak up more rainwater before overland flooding occurs.

For the same reason, developers and private homeowners should be required and encouraged to include stormwater collection and harvesting - such as installing large rainwater tanks - to collect some of the rain that falls during heavy storms and reduce the volume of water which immediately rushes down into the nearest creek or river.

More holistic flood impact modelling must also be required and undertaken for all new developments. Rather than accepting a development applicant's claims that a particular building will not have a material impact on flow paths or flooding, BCC should be assessing these proposals much more rigorously, and thoroughly examining the cumulative impacts of multiple

construction projects within overland flow paths, and how this might push more water onto neighbouring homes.

BCC also needs to introduce more rigorous standards regarding erosion and sediment control, both for active construction projects and land uses outside of a construction context. During the flood, huge volumes of sediment were washed off yards and construction sites, clogging drains and contaminating neighbouring properties. Generally speaking, sediment control standards and practices across Brisbane are not strong enough. This is clearly evidenced by the change in the colour of local creeks, which have become significantly browner since the heavy storms, even in their upper reaches. While browner water in the main river can be largely attributed to sediment runoff upstream from different local government areas, the high volume of sediment and pollution washing into local creeks is very much Brisbane City Council's concern and responsibility to address.

Redesign of Pontoon systems

Significant destruction of infrastructure along the river was caused by dislodged heavy debris, including floating pontoons which would likely have remained in place if they had been properly tethered or tied off to jetty pylons. Brisbane City Council should call on the Queensland Government to amend its Design Criteria for Floating Walkways and Pontoons to ensure that all pontoons:

- have additional physical restraints e.g. cables/chains to prevent them floating away in flood events
- Are not made of polystyrene, which causes a major environmental hazard when damaged pontoons degrade in our waterways

Developer accountability and body corporate responsibilities

Within the Gabba Ward, a lot of difficulties experienced by residents and businesses in newer flood-affected buildings were directly attributable to decisions made by the property developers and construction companies who profited from those developments. A common sentiment among residents I've spoken to is that developers made all the money from building on the floodplain, but it's residents and commercial tenants who actually have to clean up the mess and grapple with the ongoing implications, such as rising insurance costs.

Crucially, volunteer members of body corporate committees are, in some cases, having to do a lot of administrative and logistical work to organise cleanup and repairs of common areas and facilities around their buildings. Queensland's laws regarding body corporate decision-making structures and processes are not well-adapted to the challenges of collective decision-making and property management that arise when very large residential apartment buildings are recovering from floods and other disasters. So the stress and workload that ends up falling on the hapless residents who end up holding key positions on body corporates is dramatic.

Relevant legislation must be reformed to ensure decision-making and recovery work for multiple-dwelling residential buildings is more efficient and practical, and to allow body corporates to remove or reassign property management rights and responsibilities, rather than being locked in long-term to a particular building manager who was appointed by the developer.

A comprehensive investigation is also required into evacuation plans and emergency protocols for apartment complexes. Many buildings have clear plans and protocols for what to do in a fire, but no similar plans for flooding.

As noted above, many evacuation routes proposed by developers and property managers turned out to be unviable in practice in the context of a flood. So BCC needs to ensure that every building has a clear plan for what route residents should follow to evacuate, not just to get to the property boundary, but to get to clear high ground that's not cut off by street flooding.

A building's emergency plan should also document important site-specific information for building managers and body corporate committees to be aware of in order to minimise flood damage, such as knowing of any particular residents who need checking in on, ensuring elevators are secured at higher levels (rather than at the lower floor where they will be flooded) and opening basement carpark security doors before power is switched off and cars are trapped in underground carparks.

Serious consideration must also be given to holding property developers more directly accountable for the problems they've helped create. This could, for example, include placing more responsibility on developers for negotiating and bearing the costs of long-term insurance coverage for their buildings. If a developer is not willing to share insurance costs for their buildings over a 50 or 100-year timeframe, and build that into the cost of the product they're selling, this highlights that they are knowingly outsourcing those escalating costs to future residents.

Conclusion

Overall, I think Brisbane City Council has done an ok job in terms of managing the February emergency itself and the immediate cleanup and aftermath, but a very poor job of rectifying the systemic failures that created the flood risk in the first place.

BCC's response had a few major gaps and flaws, and many minor inefficiencies, but wasn't an abject failure. It is the poor planning decisions which led up to the disaster, and the apparent reluctance to make major policy changes in response, that I'm most concerned about.

Our city has just come through an artificially-created disaster with a huge damage bill, that appears to have left hundreds, if not thousands, of residents homeless. This is not something that should be casually shrugged off as soon as the next rain shower has washed away the last of the dried mud. The best available science tells us that the environmental hazards will only

increase over coming decades, and that we should be planning for and adapting to the possibility of more frequent and severe flooding in future. It's time for some big changes, and I sincerely hope our city's leaders can muster the courage to make those changes happen.