COLLABORATING IN THE FACE OF UNCERTAINTY: SEA LEVEL RISE ADAPTATION PLANNING WITH THE MARKS POINT AND BELMONT SOUTH COMMUNITIES

S Waters[1], A Felton[2], G Giles[2]
[1]Twyfords
[2]Lake Macquarie City Council

Introduction

Lake Macquarie in the NSW Hunter region is one of the largest coastal saltwater lagoons on the NSW Coast. It forms the heart of the City of Lake Macquarie and the playground for many of the 200,000 residents of the Lake Macquarie Local Government Area. However, the lake itself presents a very real threat to lakeside communities that suffer significant flooding. This threat is expected to increase over time as predicted sea-level rise puts more homes and community infrastructure at risk of permanent and temporary inundation.

This paper documents a unique response to the threat of future flooding in which Council and an at-risk community came together, overcoming a high level of conflict to co-create a local sea-level rise adaptation plan that will work for the long term. It describes a journey from conflict to collaboration, and a plan that is owned by residents, Council planners and elected representatives alike.

The Situation

Lake Macquarie is a tidal lake with an entrance to the ocean via the Swansea Channel. Water levels in the lake have always risen and fallen with tides and with rainfall events and these natural processes have long posed a flooding problem for low-lying coastal communities. In 2012 Council published the *Waterway Flood Study and Flood Risk Management Study*, which estimated that as many as 7,500 lakeside properties are currently at risk in a 1% annual exceedance probability (AEP) flood.

For many years flood affected properties have been required to have a flood notation on their property certificate, which indicates the specific planning controls that apply to that land. However, by including the effects of projected sea level rise many more properties are now identified as flood affected, and new planning controls could apply. For example, should dual occupancy developments be disallowed in flood-prone areas? Should land currently zoned medium-density residential and identified for future development be re-zoned or might stricter development controls be placed on it?

Extending flood notations to previously unaffected properties introduced a high level of uncertainty for property owners and for Council planners alike. The fear that flood notations had impacted on what residents could do with their land and reduced the value of their property generated a high level of outrage among homeowners. The situation wasn't helped by the timing of an increase in insurance premiums for flood-prone properties as a result of widespread flooding in Queensland and Victoria, which added to residents' feeling that they were being treated unfairly by Council's policies.

More than 800 people signed a petition of no confidence in Council's Flooding and Tidal Inundation Policy.

At the same time, Council planning staff needed clarity on how to respond to the development applications that were being lodged.

Sea Level Rise

While existing flooding is a significant problem and its management was causing angst for both Council and community, the situation was exacerbated by the inclusion of sea level rise predictions. The estimated 7,500 properties around the lake that would be affected by a current 1% AEP flood rises to 9,500 with 0.90metres rise in lake level. Homes affected by over-floor flooding would increase from about 875 to over 4000. The rise of 0.90metres in lake levels would permanently inundate some 400ha of residential land, affecting 7000 building footprints levels (WMAWater[2], 2012). This makes the Lake Macquarie Local Government Area the most exposed in NSW to the risks from rising sea levels (Department of Climate Change, 2009).

Planning for sea level rise

The *Flood Risk Management Study and Plan* had been unanimously adopted by Council in 2012. The first high-priority action recommended in the *Plan* was to "undertake a detailed assessment (Local Area Adaptation Plans) for each foreshore management area, in consultation with each affected community, of the implications and adaptation measures available to plan for and mitigate the effects of sea level rise (flooding and tidal inundation)" levels (WMAWater[2], 2012).

As a result of this high-priority action, Council undertook to work with affected communities around the Lake to create long-term adaptation plans that would provide certainty for homeowners and potential purchasers, and create clarity on the specific management actions that residents and council would and could take in order to respond to a lake level rise of 0.9m. Local adaptation plans will guide future land use decisions, how new assets such as roads are designed and maintained, what is required to make buildings safe and durable, how to manage erosion and other relevant actions.

Commencing the Collaborative Journey

A sea-level-rise adaptation plan is a complex document and no NSW Council had created one before. The commitment to create a plan with the very residents who were upset at Council's flood risk policy added another level of complexity. At the same time there was also a level of uneasiness among elected representatives (Councillors) who were ultimately responsible to the community for managing risk and accountable to them at election time. Given this complex scenario, Council was facing a difficult project and the simple question "How do we get started?"

Collaboration is the Key

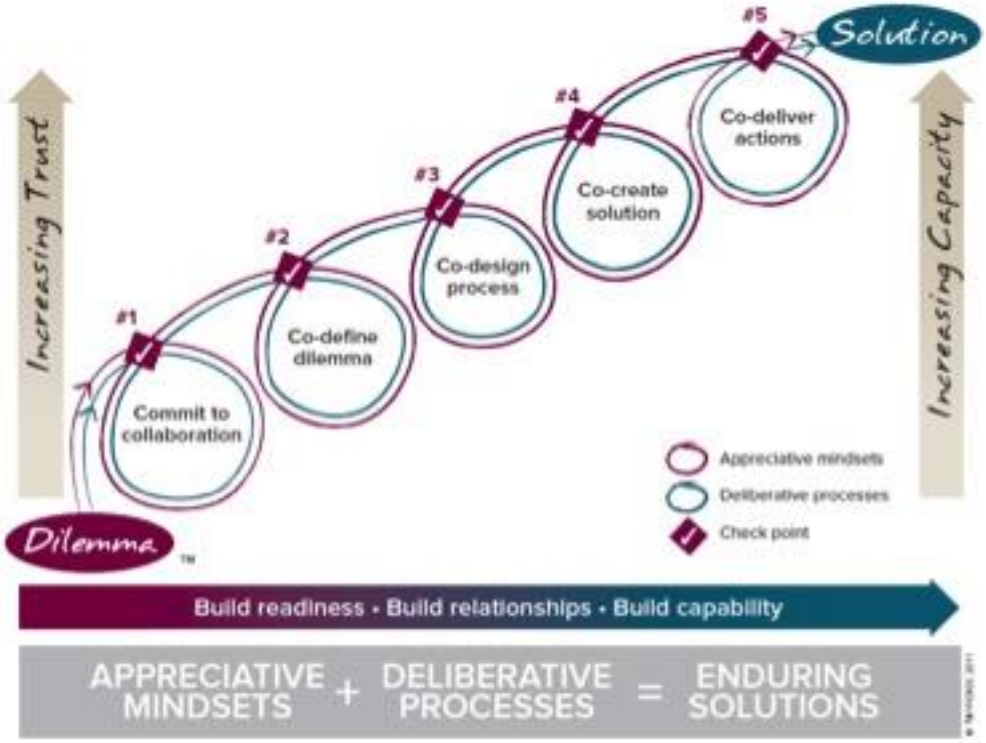
Internal Commitment

To help take the first steps Council engaged Twyfords to support some internal decision making in order to get clarity about how and where to start the journey. Twyfords' Advisor, Stuart Waters, facilitated a workshop attended by a cross-section of council personnel to explore important questions such as:

- Is this a complex issue?
- Do we need to collaborate with the community and if so why?
- How do we collaborate on this project?
- How do we take the first steps?
- What thinking and behavior is necessary when collaborating?

At this workshop Council was introduced to Twyfords' Collaborative Governance Pathway (Twyfords 2012), which provided the underlying structure for the ongoing collaboration (see Fig. 1).

Figure 1 Twyfords' Collaborative Governance Pathway



The Collaborative Governance Pathway is a process for supporting diverse stakeholders to collaborate in order to co-create enduring solutions to complex dilemmas. It provides a structure consisting of five steps:

1. Commit to collaboration – making the decision to work 'with' stakeholders rather than do something 'to' or 'for' them.
2. Co-define the dilemma – working together to build a shared understanding of the problem to be solved from all perspectives, and identify success factors and criteria.
3. Co-design the process – working together to design a governance structure and engagement process that meets the needs of all.

4. Co-create the solution – working smartly together to find a solution or solutions that endure.
5. Co-deliver actions – working together to implement the solution.

The Collaborative Governance Pathway is designed to provide clarity about the dilemma, confidence in the way forward and ownership by all of the outcomes.

Council chose to use this pathway as the 'skeleton' of the collaborative process. The internal workshop was a critical element of step 1 – building commitment to a collaborative approach.

External Commitment

For this collaboration to work it was essential that external community stakeholders developed a commitment to work with Council. In order to allow that commitment to develop Council was keen to work with the community as early as possible. To this end two large community workshops were held, with participants, particularly flood-affected landowners, drawn from across the whole Local Government Area. These two workshops were an opportunity to commence steps 2 and 3 of the Collaborative Governance Pathway, as well as to provide everyone with an opportunity to be heard on the issues that are important to them.

Key issues that emerged as important to participants included:

- Protection of infrastructure, including utilities, roads, parks, drains and homes
- The financial implications – what do adaptation actions cost and who pays?
- Safety, fairness, equity
- Is the science about climate change and sea-level-rise credible?
- How can we collaborate, how can everyone be included?

Participants provided input on who should be engaged and how, and a lot of information was gathered on the engagement activities that can work and how best to keep people informed. According to participants the adaptation plan should:

- Acknowledge that risks are *location specific* and are best addressed at the local level.
- Recognise that being prepared *requires input* from landowners, business owners, residents, special interest groups, community organisations, Council, and state government agencies.
- *Be timed* so the actions are implemented when they are required to accommodate increases in risk.
- Identify the *criteria for a successful outcome* (economic, social, environmental).
- Provide a level of *certainty* about how and when future actions will be required, yet be *flexible* enough to change with changing information (LMCC[1], 2013).

The workshops comprised an important step in co-defining the dilemma and co-designing the collaborative process. Input was used to refine the process for the specific adaptation planning process to follow. Importantly, by inviting residents into the process of defining the problem and designing the process, they were able to build their own commitment to taking the journey with Council. Overall, though, levels of mistrust and skepticism remained high.

Following this series of workshops Council was able to narrow down the project and make some important decisions about where to begin.

Where to Start?

Each of several foreshore management areas around the Lake was to have its own local adaptation plan and Council planned to start with one area then work around the Lake, creating a plan for each area. The question was, where to start? Which community would be on the learning journey with staff as a pilot project?

The decision to focus on Marks Point and Belmont South was made for a number of reasons:

1. there were a number of relevant development applications in the area that were causing concern and which needed resolving
2. This is a low-lying area that is quite flood-prone
3. There is a good mix of modern high-value and older residential stock and some commercial uses
4. Diverse infrastructure in the area includes a public school, State and local roads, state owned assets and utilities as well as a local airstrip.

The two-year collaboration with the people of Marks Point and Belmont South commenced.

Process Reflection

The decision about which area to select as the pilot was, in hindsight, a critical part of the process. While Council had good technical reasons for selecting Marks Point/Belmont South the fact that the decision was made on behalf of residents did leave some with the sense that they were being 'picked on'. This mattered to them as they felt that the adaptation plan would limit what they can do on their land, reduce their property value and raise their insurance costs. These issues were very important to residents and the process added to their angst.

On reflection, the question of where and how to start is an obvious opportunity to collaborate with the community, inviting everyone into the problem of how to start the adaptation process while ensuring residents feel they are treated fairly.

Engaging the Community

What Matters to Us?

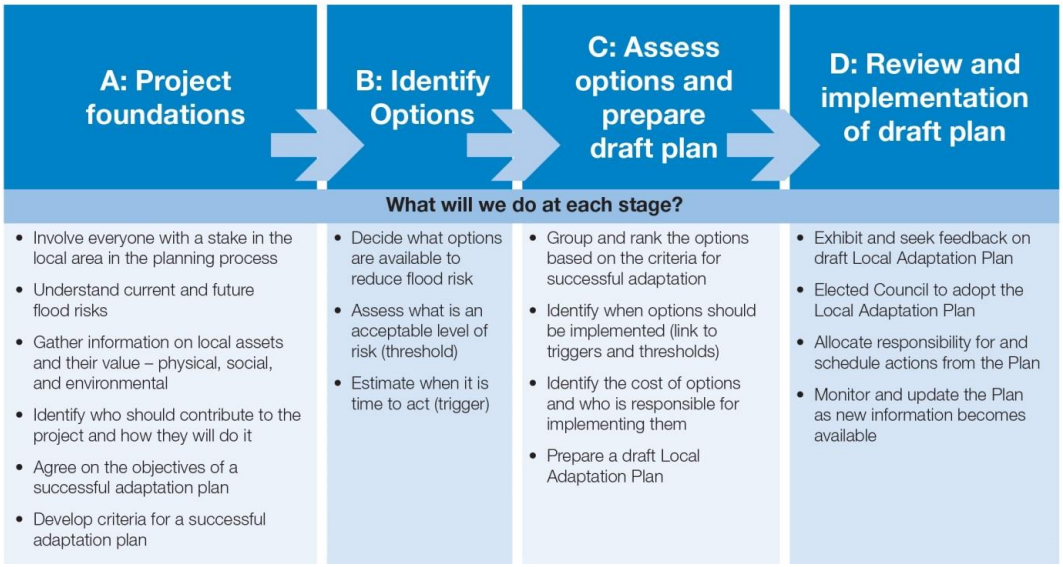
Over a period of weeks Council undertook a series of engagement activities including facilitated workshops and drop-in sessions as well as a feedback processes via post and on-line. A well-attended walking tour of the lake foreshore was also undertaken. These processes continued the logic of identifying key issues in order to:

- co-define the dilemma
- gather more data about the issues that residents were most concerned about
- explore what matters most to everyone
- provide information about the science and Council's role in planning for future flooding
- explore ways to work through the complex issues together.

Throughout the engagement phase the key issues of Insurance, the science, fairness, financial impacts and local drainage consistently emerged as issues that were on residents' minds.

An engagement framework was developed that set the specific elements of the process

Table 1: The community engagement process for adaptation planning, agreed between residents, Council and other agencies (LMCC[1], 2013)



A key learning through this phase was that the process is highly iterative. While the engagement plan and the Collaborative Governance Pathway call for criteria or objectives to be developed before moving to potential solutions, the reality of the conversations was very much that residents wanted to talk about solutions early. In practice the process moved back and forth between developing objectives and developing options.

The output of this phase of engaging the community was a list of 39 options for managing the risk of future flooding. All options were gathered without judgement, though not all were equally workable or suitable. The options suggested by the community included those suggested in the 2012 *Lake Macquarie Flood Risk Study and Plan.*

Moments of Breakthrough

Bringing people into the problem, listening to what matters to everyone and doing 'joint fact finding' together provides a rich opportunity for those involved in a complex problem to move past their positions and into a deeper understanding. During the engagement process there were moments when this process became visible. One such moment took place on the foreshore walk when the group of residents and others moved from a residential area to a wetland area. The project team talked about the potential impacts on this Council/community-owned asset and the complexities of managing these sensitive environmental areas in the face of flood risk. A resident on the tour later revealed that at that moment she realised that the problem of adapting to future flooding isn't only faced by lakeside residents. In fact it is Council's and the broader community's challenge as well. In other words it is 'our' problem, not just 'your' problem or 'mine'. This resident later went on to be a key participant in the sub-committee putting the plan together.

A second moment reveals the value external technical experts can contribute to a collaboration around a complex issue. Because the price of home insurance was very contentious Council provided a representative of the Insurance Council of Australia to talk to residents about how premiums are calculated and the way flood risk is incorporated. A local journalist was present at the event. She since revealed that it was while listening to the insurance specialist that she realised that Council weren't the "big bad guys" in this. That in fact the issue of insurance was complex, multi-factoral and something that Council couldn't control. It was, in fact, part of the dilemma.

Another moment where changing views were visible involved the science of climate change and lake level rise. Council had long-term data on lake levels and regularly presented the charts to the community. Those charts appear to tell a story of a gradual but inexorable rise, but each time Council talked about the data the discussion quickly revealed a lack of faith in the science, a mistrust in council and a skepticism that the data was real. This was a challenging dynamic.

A breakthrough came when, at a later workshop, one of the key community members in the collaboration stood up in front of an audience of community members and presented the same data, demonstrating his faith in the science and the story it was telling about lake level rise. The reaction from residents was very different when it was one of their own telling the story.

The Decision Logic

In order to choose between the options it was necessary to develop a set of objectives that the local adaptation plan should seek to achieve and a matching set of criteria by which options would be assessed. The input from the community engagement was used to develop draft objectives and a suite of matching criteria. For example:

Table 2: An example of how community input on what they value was processed into objectives and criteria

Community values	Draft Objective	Draft Criterion
1. I moved to this area for the lifestyle 2. Foreshore access 3. Opportunities to celebrate vast waterside playground 4. Public open space/ recreation	Maintain the lifestyle of residents	Will allow residents and community to continue to enjoy the amenities and benefits of living near the water

This work resulted in a matrix comprising seven objectives and ten criteria, measuring a range of factors including technical feasibility, social/community acceptability and financial impact. These were distributed widely to the affected community.

Stepping Up to Collaboration

From working group to sub-committee

The next major task was to work closely with the community - to collaborate – in order to create a short-list of potential flood risk management options from the long list of 39. At this point the practical question was 'How to do this?' Multi-criteria analysis across 39 often quite technical options is a difficult task at the best of times. In this case collaboration meant tackling a technical and quite abstract task with affected residents, some of whom were still in a state of high emotion, low trust and general skepticism.

The approach taken was to call for community volunteers for a community working group. Council was very keen not to be seen as picking people to work with. The clear decision was made to invite anyone who was interested to step into the process, thus ensuring that nobody who wanted to be involved would be excluded.

The invitation was mailed out to 1300 residents in the pilot area, as well as via social media, community posters and ads in the local press. A solid response from a motivated community meant that 30 people chose to participate and attended the first of several facilitated meetings.

At the first meeting of the community working group a couple of important realisations were made together. Firstly the community was clear that the task of assessing 39 very diverse and often technical options against 10 criteria was too difficult and abstract a task. Everyone, Council planners included, was getting lost in the detail and the process wasn't helping to identify a short list.

The emotional complexity of the task was increased by the fact that it involved cutting out suggested options, which, when the option being cut is passionately advocated by members of the group, is not an easy thing to do.

The complexity of the task led to the second realisation, which was that 30 people was too big a group to do this difficult work. As the frustration in the room built, a community member made the suggestion that a sub-committee be formed. Nominations were quickly called for and by meeting's end there were 12 names put forward. This group of volunteers now had the permission of the broader community to 'do the work on our behalf and report back when you've got a plan'.

This example of the community taking key process design steps into their own hand reflects the third step in Twyfords' Collaborative Governance Pathway. Rather than having a process dictated to them, the working group took control, made a smart recommendation, and shaped the rest of the project. This was a critical moment in the entire project and one that made the collaboration possible.

Process reflection

Whenever one collaborates there is a strong rationale for bringing as many people as possible into the process so that all voices are heard, everyone understands what is going on, and ownership of the process and outcomes can be as broad as possible. Each of these things is a desirable component of a collaborative process. At the level of principle the aim is to collaborate with everyone.

But at the level of practicality, the opposite is also true – that collaboration becomes exponentially more difficult as the number of collaborators increases. Collaboration is particularly difficult when emotions are running high and where the task is highly complex. The practicalities mean that it is easier to genuinely collaborate and work through all the difficult issues when working with only a small group. But this leaves the bulk of affected stakeholders outside the tent and outside the collaboration.

Managing this dynamic remained an issue throughout the project and one in which the members of the sub-committee were helpful in tackling.

Doing the work

The sub-committee met over a period of many months and became the engine room of the collaboration. Members included a former environmental engineer for a large production facility, an architect interested in innovative design and construction methods, a real estate agent, retired engineers and people with experience in the construction industry. Most, but not all, were flood-affected residents from the local area. What they all shared was an interest in solving the problem.

They met approximately 13 times. Half of those were formally facilitated meetings involving Council's project team. The remainder were meetings organised and run by the committee themselves. This willingness to meet and work outside the formal process demonstrated a very high level of commitment to and energy for the process. It also demonstrated a high level of trust on Council's behalf, as the project team was willing and able to share control and allow the residents to run their own process and come back with their own input. Once again, collaboration thrives when participants have control over how they work together.

Following the realisation that the task had been too complex, the early advice of the group was to screen the options using four criteria that they called "showstoppers";

1. Will it work?
2. Will it help maintain community lifestyle?
3. Will the environmental impacts be acceptable and manageable?
4. Will the benefits outweigh the costs?

The sub-committee volunteers worked for nearly a year to review the options against these four criteria. In some cases, specialist external advice was requested, for example, on the effectiveness of enlarging the entrance channel. In other cases, new research was necessary to assess the effectiveness of stormwater drainage and possible modifications to maintain function as lake levels rise.

Twenty-two of the 39 proposed options were assessed as "warranting further consideration", with the remaining 17 failing to meet the showstopper criteria.

Planning principles

Key work that the members of the sub-committee undertook by themselves was to develop some essential elements that applied to their situation and that would guide their thinking on the plan. Those adaptation essentials were:

1. Landfill is the only option
2. Retreat is not viable
3. Plan for the worst, act when necessary
4. 100 year plan = 2 x 50 year asset cycles
5. Act when you are ready
6. Setting of triggers work in progress
7. Action starts now and involves us – the community

It is true to say that the project team had some nervousness about what these meant in practice, but recognised that the community members owned them and wanted them

front and centre of their thinking. The fact that Council was able to be ok with them, without necessarily vesting in them heavily, was very important to the sub-committee. It was another step in the breaking down of cynicism and the creation of a collaborative bond.

Finalising the Draft Local Adaptation Plan

The sub-committee continued to work on reducing the list of options and on bundling them into groups of consistent actions. Throughout the process Council's project team provided significant technical support and process guidance, while honouring the desire of the committee members to drive their own process. It was not always an easy balance to strike and not every contentious issue was resolved to everyone's satisfaction. But, after almost a year of working together and walking the collaborative governance pathway, a draft local adaptation plan was produced.

Key aspects of the plan incorporated a group of actions that involved protecting the foreshore, filling land, and raising infrastructure. These actions were proposed to manage the hazard of permanent inundation of low-lying land and infrastructure as lake levels rose. The increased flooding hazard was addressed by constructing floors in new buildings above the projected 1% AEP flood over the life of the asset. This suite of actions was 'bundled' to form one adaptation pathway.

A plan that is owned

The Collaborative Governance Pathway is designed to deliver an outcome that is understood by all, owned by all, and implementable by all. The evidence suggests that this has largely been achieved, though the question of implementation is a long-term project.

For example, when the sub-committee was satisfied that they had the basis of a solid local adaptation plan they were keen to inform Councillors. Both the project team and the community members recognised how important it is to any collaboration that key decision makers are brought on the journey. Typically the appropriate Council staff would make the presentation to elected reps but in this case the community members were keen to present 'their' plan themselves. They attended a formal Council meeting and took Councillors through the plan and through the various discussions and deliberations that informed it. After the presentation the community members received a round of applause from elected representatives, one of whom described the process as being an "exemplary community engagement process".

For Councillors it was always very important that this plan would manage the long-term risk to residents and Council, and be created in a way that generated community support rather than resistance. To have the affected community members presenting the solution back to them was a very welcome sight. It did look like a journey from conflict to collaboration.

Further evidence of the extent to which the community owns the local adaption plan emerged when the sub-committee finally came back to the members of the large community working group of 30 residents to present the draft plan. Once again, the sub-committee led the conversation and presented the plan, along with the thinking and deliberations that informed it. The reaction from the larger group was one of relief and a level of acceptance that had previously seemed unlikely. Once again, having the community themselves talking up the plan, describing why it works and explaining how

they came to support the specific actions, was a very powerful way to build trust and acceptance among the wider stakeholder group.

Key Learnings

Throughout the three-year project there have been some significant learnings about what it takes to collaborate on a complex project such as sea-level-rise adaptation planning. They include:

- Find as many ways as possible to co-design the process with those affected. Cede control where possible over how we are going to collaborate in order to build trust and generate buy-in and to get a process that works.
- Recognise that when we are in an emotional state it is difficult to have conversations about process. We want to talk about the issues and why I am upset. Therefore it is important to find ways to allow people to focus on what matters to them, while finding ways to think about process together.
- It is very important to spend time thinking about what the dilemma is that the community together needs to solve through this planning process. For example, is it about fixing local drainage and/or is it about a long-term plan to protect us from permanent inundation? This discussion, Step 2 in the Collaborative Governance Pathway, is one that must continue throughout the lifetime of the project.
- Don't over-complicate the process, for example by having too many criteria and objectives and options. Find ways to make it simple but not simplistic. Use your stakeholders to help find the appropriate level of complexity to work with.
- Use experts to help inform and educate but don't rely on them. Don't assume that people listen to, hear, believe or remember anything that is presented to them. Find ways to understand together what we need to know and how we want to learn together.
- When collaborating, sit at the table together as collaborators rather than as 'us and them'. Spend time on building the collaborative dynamic. Build a shared literacy around what it will mean to collaborate on this project and keep coming back to those principles.
- Use a framework or roadmap to guide the collaboration, such as the Collaborative Governance Pathway, but recognise it is only a map, not the territory. Be flexible within that framework and share the journey of exploration together.

Conclusion

This three-year project has been a journey from conflict to collaboration. In 2012 the community of Lake Macquarie faced a significant long-term dilemma, a growing sense of community outrage and increasing Councillor nervousness. It was clear that what was needed was not just a plan that worked, but a plan that could be supported and implemented. What wasn't clear was how to make that happen.

By stepping into a collaboration Council put a great deal of faith in the relevant personnel and in their community. The project team trusted the community to work with them and they received growing trust in return. The collaborative pathway provided confidence in the way ahead and the collaboration worked because of the genuine commitment to create the plan together.

The draft local adaptation plan is currently on public exhibition and Council is receiving feedback from the whole Lake Macquarie community before finalising and adopting the plan.

Acknowledgements

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