



Newcastle ● voice

Wallsend Trial Flash Flood Alert Service

Survey Report

April 2016

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Executive Summary

In June 2015 Council launched a free, 12 month trial of a flash flood warning system for the middle and lower reaches of Ironbark Creek, Wallsend. It included the ability to issue alerts via SMS, email or landline messages to users who had registered voluntarily. The trial aimed to register 1,000 residents and undertake a test of the alerts. Evaluation of the trial was required to assist Council's decision-making on whether to roll out the service City-Wide or discontinue it.

The trial was evaluated via an online survey. All registered trial participants were invited to provide their feedback. The survey was open Tuesday 1 March - Sunday 27 March 2016. There were 920 registered trial participants that were invited to participate. A total of 144 people took part in the survey.

Overall response to flash flood alert system trial

The overall response to the trial was positive:

- 84% felt that it was very or extremely important that the flash flood service is available
- 89% were very or extremely satisfied with the trial flash flood alert service.
- 94% agreed or strongly agreed that the alert information is easy to understand
- 92% agreed or strongly agreed that the information is helpful
- 91% agreed or strongly agreed that it made them feel safer
- 90% agreed or strongly agreed that the alert received was timely
- The Net promoter Score calculated for the flash flood alert trial was +64.

Response to alert

- 28% reported taking some kind of action (excluding evacuation) in response to receiving an alert from the service.
- 22% monitored the situation.
- 17% did nothing.
- 13% alerted others to the warning to pass the information on.
- 5% checked the alert against other sources such as BOM, weather and news websites.

Reasons for the perceived importance of the alert service

The key reasons why the alert service was seen by trial participants to be very or extremely important were: to enable people to prepare, take precautions and plan (21%); to help people stay safe and even avoid loss of life (20%); and to help people travel safely in affected areas (17%) for example to reach their home, collect children from school etc.

Recommendations

The overwhelmingly positive reaction from subscribers indicates that the flash flood alert system should be continued, even rolled out city-wide, if feasible and practicable.

Introduction

Background

In June 2015 Council launched a trial of a flash flood warning system for the middle and lower reaches of Ironbark Creek, Wallsend. The trial was free to join for a period of 12 months. It included the ability to issue alerts via SMS, email or landline messages to users who had registered voluntarily. The alerts focussed on the potential for flash flooding in the Wallsend area and did not provide warning for other weather events. The trial aimed to register 1,000 residents and undertake a test of the alerts.

As part of the trial, an evaluation study was required to assist Council's decision-making on whether to roll out the service city-wide or discontinue it.

Within the trial period all participants were sent a welcome message when they registered. Three flash flood alerts have been issued, two on 5 January 2016 and one on 14 January 2016.

Objectives

The survey objectives consist of:

- Achieve general feedback from the registered users to the alerts issued in January 2016
- Establish if the alert messages were clear and understood
- Understand where recipients were when the alert was received
- Ascertain what was the immediate response and considered response to the alert
- Explore if there any recommended changes to the alerts

The results intend to provide an understanding of:

- When to trigger the alert
- What words to use in the alert
- How many alerts to send (Are we issuing the alerts too soon, not soon enough, too often?)

Methodology

Research approach

An online survey was conducted with registered users of the flash flood warning system trial. The survey used a mix of closed questions and open-end questions. A copy of the survey can be seen in Appendix 1.

All registered trial participants were invited to undertake the short survey. Email invitations were issued to those who had provided an email address upon registering. An SMS, including a link to the survey, was sent to those who had not provided an email address at registration.

Data handling

Data handling and analysis was carried out using Sparq software by the Engagement team at Council. The data has not been weighted.

Respondents

In total 144 people took part in the survey.

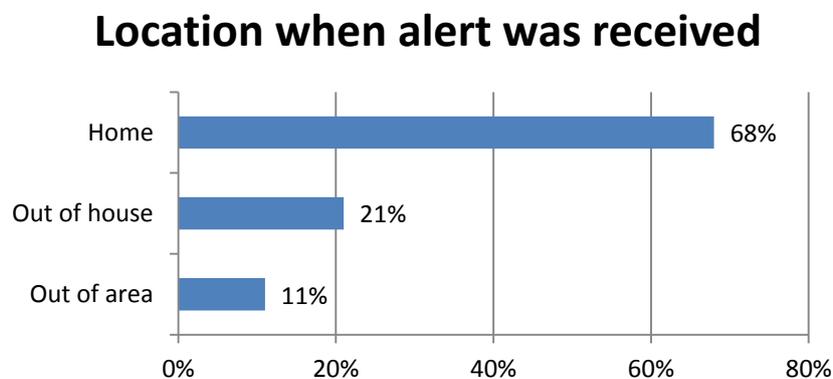
All respondents reported that they had received at least one alert during the trial period. The number of alerts claimed to have been received in the trial period ranged from 1 to 100 (see figure 1 below). Two-thirds (66%) of survey respondents claimed to have received 2 or 3 SMS messages. In reality 3 alerts plus a welcome message were sent during the trial period.

Figure 1: Number of alerts received during trial

Number of alerts	%
1	10
2	31
3	35
4	12
5	3
6	5
7	0
8	1
9	1
10	1
100	1

The majority of participants (68%) were at home when they received the alert. 21% were out of the house and 11% were out of the area. See figure 2.

Figure 2: Location at receiving alert



Survey Findings

Response to receiving the alert

Survey participants were asked what their response had been to the alert message/s they had received. This was asked in an open-ended style type question. The key themes that emerged can be seen in figure 3 below.

- Just over one in four (28%) reported taking some kind of action (excluding evacuation) and around one in five (22%) monitored the situation.
- 13% alerted others, typically family and friends in the affected area, to the warning to pass the information on.
- Five percent checked the alert against other sources such as BOM, weather and news websites.
- 17% reported that they did nothing, this being an active decision made in response to the alert and their situation at the time.
- One person evacuated as a response to the alert message.
- 13% of participants did not provide an answer.

Figure 3: Response to receiving an alert



Took action 28%

There were 28% of survey participants that stated they took some kind of action in response to receiving an alert message, regardless of where they were when they received the alert.

A range of actions were noted, as the quotes below illustrate. The actions taken were largely precautionary measures, for example going home to check house, going home before this became impossible, finding alternative travel routes, "battening down the hatches" and moving belongings to higher ground, considering next steps, purchasing candles etc just in case.

Business people were able to ensure stock and property was secure and that staff were safe. Several of those out of the area when the alert was received noted that they contacted people at their home or neighbours to check the situation and in some cases also ensure relevant actions were being taken.

Examples of actions taken

"Went back home to prepare incase of flooding" (Out of area)

"Packed a bag in case we needed to leave" (Home)

"Ensured loved ones were safe. Stayed off the road and were prepared for evacuation." (Home)

"Thankfull it made me check outside to make sure all my belongings were secure" (Home)

Monitored the situation 22%

There was a total of 22% of survey participants reported that on receiving an alert they monitored the situation, as the quotes below illustrate:

Examples of monitoring the situation

"My business is at Wallsend, by getting this alert we were able to keep our employees informed. Our office hours are 7am - 7pm, the alerts came through at approx. 6:30pm, we were able to pass this onto our staff who were still in the office." (Home)

"I wasn't near the effected area so didn't have to take action, but was on standby should it effect the street I was in. Monitored news, Newcastle council website and Facebook pages" (Home)

"watched & listened to the media for any other alerts to consider." (Home)

Did nothing 17%

Of those that did nothing (17%) stated that no action was required. In many of the cases it appears that the decision to do nothing was based on being at home and being able to assess the situation for themselves or not living in the flood area that was noted in the message. While no action was taken there was appreciation of being alerted to the situation.

However, one participant however recorded the following comment:

"I was quite shocked to receive this alert from an overseas number. In response, I did nothing." (Home)

Examples of doing nothing

"No action was needed to be taken. Appreciated being aware" (Home)

"No action necessary. Home is out of floor area, but getting to my children from school would be prevented if flooded" (Home)

"we were on Holidays at Stockton and got flooded at the caravan park but we weren't concerned for our house as we live on a hill" (Out of area)

Alerting others 13%

There were 13% of participants that alerted others to the situation to share what they perceived to be important information. 'Others' were typically family and friends living or working in the affected area, or with other reason to be needing to travel in/through the affected area e.g. to collect children from school.

Examples of alerting others

"Warned family and friends to take care and offered them somewhere to go if needed." (Home)

"Ok I will not be going out. Alert my children and husband that this rain is serious. My husband took another route home that day to avoid Wallsend." (Home)"

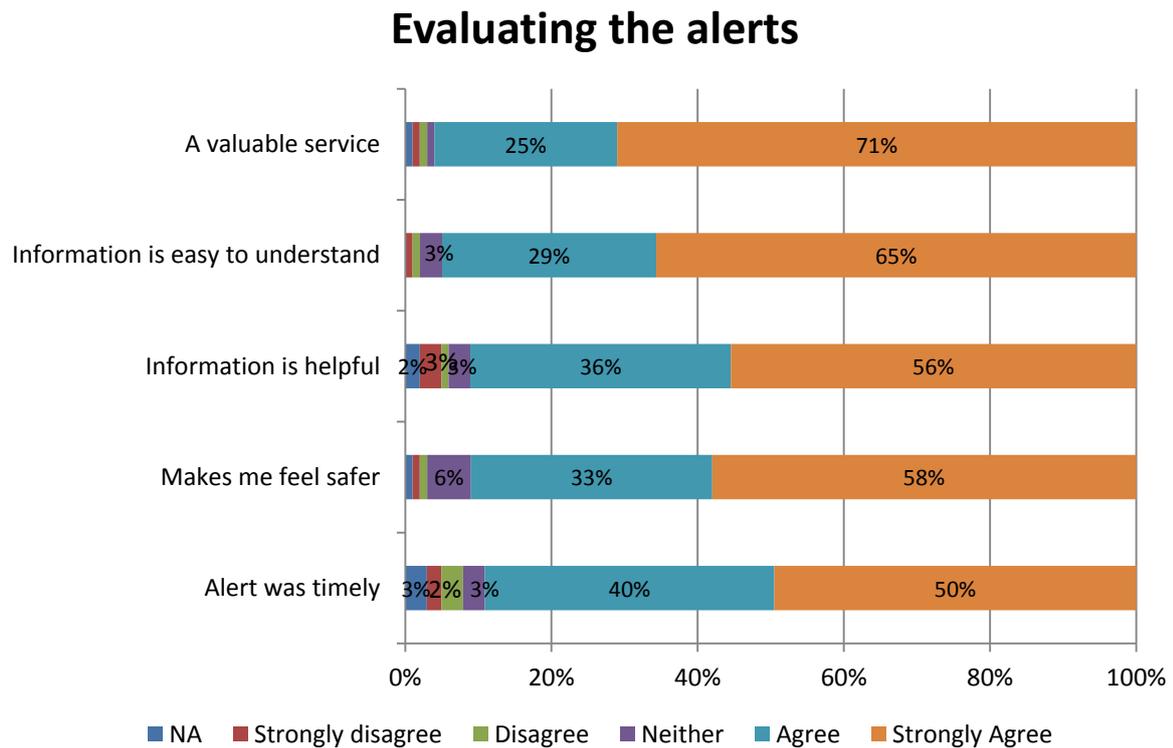
"to notify family and friends who aren't on the system in the area" (Home)

Evaluating the alerts

To evaluate the alerts, respondents were asked how strongly they agreed or disagreed with five statements.

The alerts were perceived positively on all aspects evaluated here. Nine in ten respondents agreed (agree or strongly agree) that this is a valuable service (96%), that the alert information is easy to understand (94%) and helpful (92%), the service makes me feel safer (91%) and that the alert received was timely (90%). See figure 4.

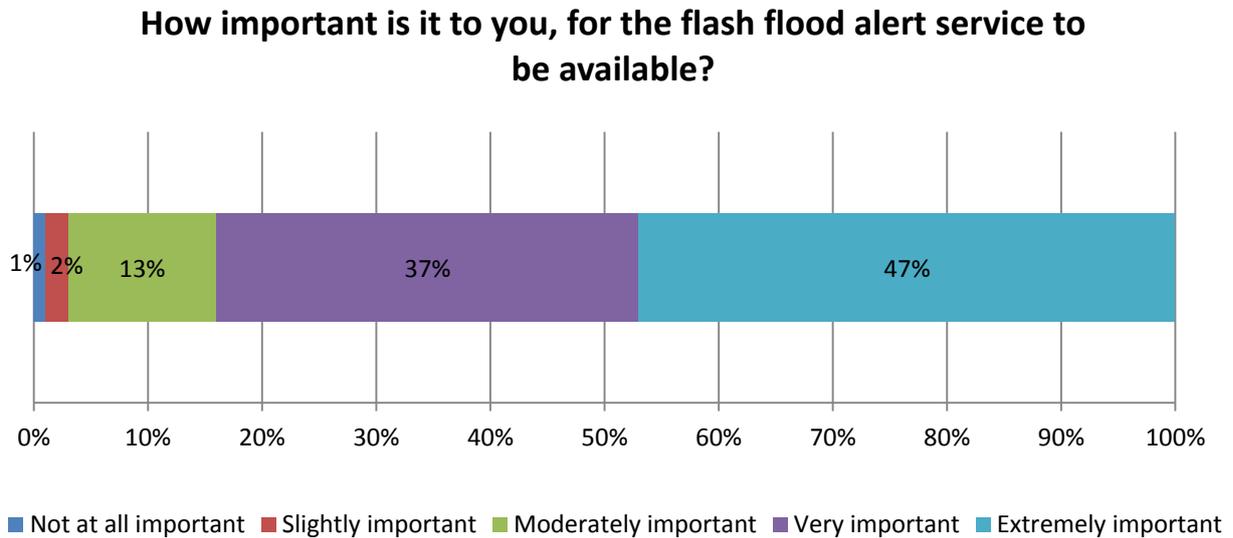
Figure 4: Evaluating the alerts



Importance of the alert service to trial participants

Over eight in 10 survey respondents (84%) felt that it was very or extremely important that the flash flood service is available. In contrast, just 3% felt that it was not at all important, or slightly important, that this service is available. See figure 5 below.

Figure 5: Importance of the alert service



Participants were asked to explain their response. The key themes that emerged from those who felt the service was very or extremely important are shown below in figure 6. The full list of responses can be seen in Appendix 2.

The key reasons why the alert service was seen by trial participants to be very or extremely important were:

- to enable people to prepare, take precautions and plan (21%)
- to help people stay safe and even avoid loss of life (20%)
- to help people travel safely in affected areas (17%) for example to reach their home, collect children from school etc.

The service was also appreciated for enabling people to be aware of the situation (13%), giving peace of mind (7%), enabling informed decision making (6%) and enabling others to be alerted (3%).

One participant commented on his/her own lack of mobility and the fact that being kept up to date by the alert system would enable them to call in help if required before their situation became an emergency.

Four percent of survey participants commented that the alerts were valuable because they were more specific to the local area than general news broadcasts, and 3% that they were quicker/more timely than having to wait for news broadcasts.

A small number of comments made reference to the need to be able to trust the alerts. Accuracy of the alerts impacts on the trust relationship, and knowing the source of the information can also assist in building trust.

Figure 6: Why the alert service I s/not seen to be important by trialists



[NB. Responses from those noting the service as very/extremely important. Multiple coding permitted]

The alert service is very/extremely important because....

"It is a specific alert service that is not available elsewhere"

"it is vitally important to ensure the safety of my staff and to ensure actions can be taken to maintain the ongoing viability of the business."

"It allowed me time to make preparations in case the area flooded. During one of the floods, the roads in our area were closed so we had to take alternative routes to get to and from home. It also let me warn family and friends in the area to be careful and that if needed there were places to go should we, or others, were unable to get home."

"With a young family we need time to react. If it wasn't for the alert service we wouldn't have known how heavy the rain had been and how close the drain was to overflowing. I like the warning otherwise it may have been worse and we wouldn't have been able to get out."

"To make the residents aware of possible flooding in the area and to take necessary precautions during the alert period. Also to stop people driving in flood water when it is absolutely not required and is dangerous for motorists and Rescue personnel."

"I am not very mobile and if I needed help from someone the alert keeps me up to date."

Reference made to trust:

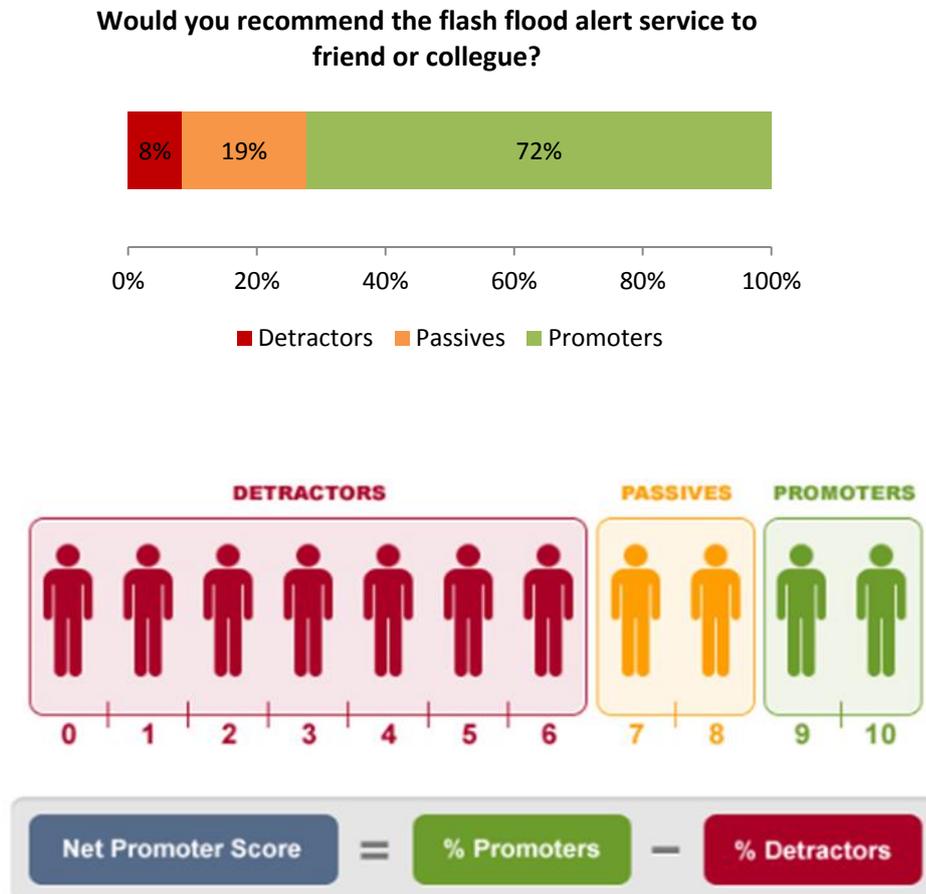
"It's a great idea but sending out false evacuation messages was very damaging to the level of trust I have in the service."

"It is extremely important, BUT, only if it is a result of information from the relevant authorities - SES & Police"

Net Promoter score for the flash flood alert service

The Net Promoter Score (NPS) for the flash flood alert service is **+64**, which is interpreted as excellent (see Appendix 4).

Figure 7: NPS from triallists for the flash flood alert service

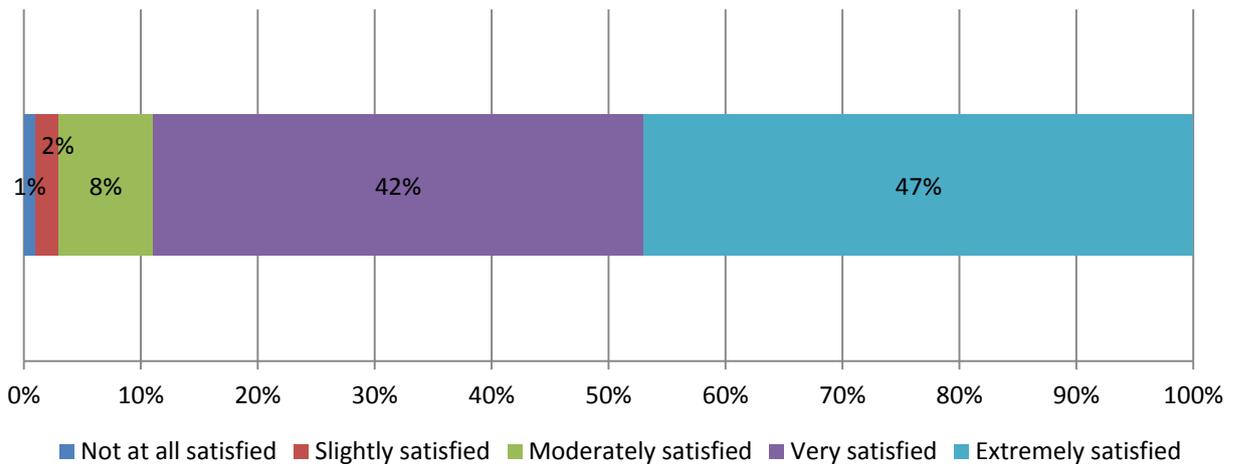


Level of satisfaction with the trial flash flood alert service

Almost 9 in 10 survey respondents (89%) reported that they were very or extremely satisfied with the trial flash flood alert service. Just 3% were dissatisfied (slightly or not at all dissatisfied). See figure 7.

Figure 7: Satisfaction with the trial

Overall, how satisfied are you with the trial flash flood alert service?

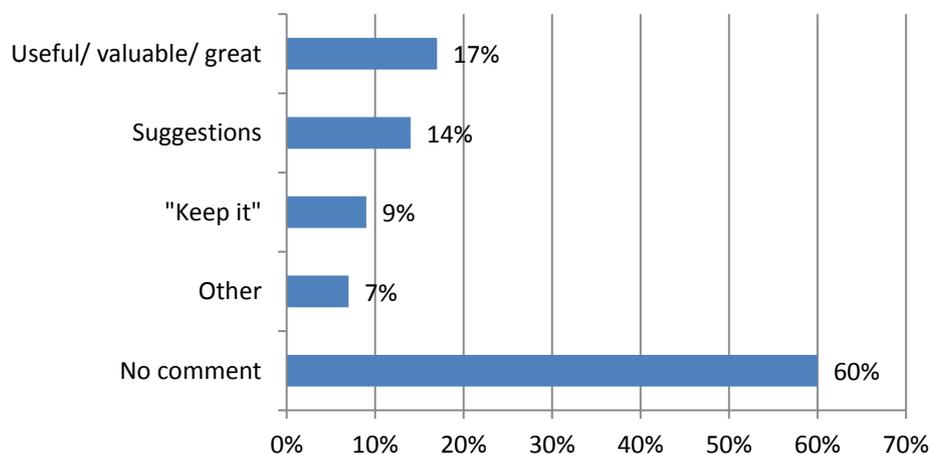


Additional comments

At the end of the survey, participants had the opportunity to make further comment on the trial flash flood alert service (40% of participants). The key themes emerging are shown in figure 8 and quotes to illustrate these themes are below. All comments can be found in Appendix 3.

Figure 8: Key themes of final comments

Final further comments



Support for the service (9%)

Nine percent of survey participants explicitly indicated that the service should be kept, continued and even rolled out:

"Please keep giving me these alerts it makes me feel safe"

"I think this should be an ongoing service. It is imperative to the safety of all by having these alerts especially with the increasing dangers of the weather/storms."

"Roll it out city wide. It is a great service."

"Please keep it going. I was unable to get home the normal way last year, before I was registered with the Flash Flood Alert and had to go out through Minmi. That road was cut earlier with fallen trees. I was lucky that the road had been cleared earlier. More heavy rain was predicted that night with strong winds. Please keep it going, it is an excellent service and should include other vulnerable areas. It would save lives."

Valuable service (17%)

A further 17% made positive comment along the line of the service being useful/ valuable/ great:

"I think it is an important early warning signal. Having talked to flash flood victims in Maitland I would rather be forewarned than trapped"

"Keep up the good work. This is a great service and will make a positive difference to how we respond and deal with severe weather events."

"Unreal service.. Some people still don't know about this service so I think it needs more awareness"

"Thank You. It is a helpful service which will hopefully save lives"

"Thank you for offering the service"

Recommended improvements (14%)

Fourteen percent of participants made suggestions that they would like to see incorporated into the service. These included:

"Updates for road closures, areas to avoid, and for when the threat of flooding has passed. I have been pleased with the service and thankful I signed up."

"Is it possible to quantify? Say Iron Bark creek likely to rise 5 meters. Elmore Vale will be flooded at Smith Street."

"The alerts should be more specific of which area of the suburb the alert relates to."

"Change of address form"

"I'd like to be able to change my preference and remove my home phone number"

"I think it's a great service. It just needs to be accurate and only send evacuate messages if you really need to evacuate."

"More specific details of where the flooding is likely."

"Notification when Flood Alert no longer required. Extend to other alerts. Extend to other locations. Provide as much relevant detail as possible (without information overload)."

"It would be good to have a link to a website which displays live water levels in the area to assist with timely risk analysis."

"Could the person making the announcement be changed or more clearer with the pronunciation."

Recommendations

The response to the trial was very positive:

- 84% felt that it was very or extremely important that the flash flood service is available
- 89% were very or extremely satisfied with the trial flash flood alert service.
- 94% agreed or strongly agreed that the alert information is easy to understand
- 92% agreed or strongly agreed that the information is helpful
- 91% agreed or strongly agreed that it made them feel safer
- 90% agreed or strongly agreed that the alert received was timely

These results indicate that, if feasible and practicable, the flash flood alert service should at least be continued in Wallsend and strong consideration given to rolling the service out to other areas of Newcastle.

Where to from here

The results from this survey will be taken to the Executive Management Team for decision on whether to:

- Proceed with the service
- Take the matter to Council for a decision
- Not proceed with the service

Appendix

Appendix 1 - The survey

Flash Flood Alert Service Feedback

This survey aims to gain feedback from users that have volunteered to receive alerts from the trial flood management system. The results of this survey will be reported to Council to determine whether the service will be rolled out City wide or discontinued.

Q1. Have you received an alert from the trial flood management system?

- The alert system sent out three alerts during January 2016.
- Yes (Q2)
 - No
 - Unsure

<NO> Please leave your contact details for to look into this further: _____

Do you have any additional comments?

<End of survey>

Q2. How many alerts have you received from the trial flood management alert system?

Q3. Where were you when you received the flash flood alert?

- Select one response only*
- Home
 - Out of home
 - Out of area

Q4. What was your response to the alert message/s?

Please state below the actions taken

--

Q5. How strongly do you agree or disagree with the following statements:

	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	Not applicable
The alert information is easy to understand						
The alert information was helpful						
The alert I received was timely						
Having the flash flood alert system in place makes me feel safer						
The alerts service is a valuable service						

Q6. How important is it to you, for the flash flood service to be available?

Please select one response only

- Not at all important
- Slightly important
- Moderately important
- Very important
- Extremely important

Q6a. Please explain your answer:

Please be as specific as possible

Q7. How likely is it that you would recommend the flash flood alert service to a friend or colleague?

0 - not likely at all	1	2	3	4	5 - neutral	6	7	8	9	10 - extremely likely	Don't know
<input type="checkbox"/>											

Q8. Overall, how satisfied are you with the trial flood alert system?

Please select one response only

- Not at all satisfied
- Slightly satisfied
- Moderately satisfied
- Very satisfied
- Extremely satisfied

Q9. Do you have comments you wish to make about the trial flash flood alert service?

Please be as specific as possible

<END OF SURVEY>

Survey complete.

Thank you for taking the time to participate in this survey.

Have your say on other projects, events and initiative in Newcastle, join Newcastle Voice today! <link>

Appendix 2 - Why is the alert service important/not important?

Extremely important	it is vitally important to ensure the safety of my staff and to ensure actions can be taken to maintain the ongoing viability of the business.
Extremely important	Although my house is not likely to flood it may be difficult to travel, the warning gives time to get organised. Pick up kids from school, get food, get home from work etc.
Extremely important	So I can prepare!
Extremely important	I live in the area
Extremely important	To make the residents aware of possible flooding in the area and to take necessary precautions during the alert period. Also to stop people driving in flood water when it is absolutely not required and is dangerous for motorists and Rescue personnel.
Extremely important	Having an Office at Wallsend, being an area that does flood it is very important to me to keep an eye on the office and staff members, Also have staff members driving on the road and need to keep them safe at all times
Extremely important	If i am out of the home i can make a decision to act
Extremely important	Flash flooding can occur quick in areas that a prone to flooding this service is ideal for people that dont always have access to news for information
Extremely important	as my job is a retirement village coordinator in the Wallsend area we have many venerable people .
Extremely important	it will advise me if the main street of wallsend could be flooded
Extremely important	It is good to know what to expect and prepare for the worst even if it is not that bad.
Extremely important	Wallsend is a known regular flood area and any early warning system is vital
Extremely important	I am not very mobile and if I needed help from someone the alert keeps me up to date
Extremely important	I work in an area that floods. Also travel a road home that could flood
Extremely important	I'm aware and Prepare or if out to be careful coming home
Extremely important	As I live and work in flood prone areas, this service gives me peace of mind.
Extremely important	Safety ..finance...community.. All important
Extremely important	it makes me feel more prepared and safer for me and my family
Extremely important	Allows for planning in the event that flooding eventuates. Gives peace of mind.
Extremely important	So know what is going on. If I need to get to safety. Etc

Extremely important	<p>I feel this provides people with peace of mind during natural disasters. It also provides a realistic update of the situation, not something that is hyped up by the media. If I am at work and there is a storm or any other natural disaster occurring, I want to be made aware if I should be leaving to go home and get my family, pets and house secured rather than relying on news, radio and facebook updates which are often embellished or exaggerated.</p> <p>The SMS updates are provided in a timely manner and are very informative.</p>
Extremely important	<p>It is extremely important as it allows us to keep our employees informed about any flash flooding in the Wallsend area.</p>
Extremely important	<p>Due to my close proximity to walsend park plaza drain and Nelson St.</p>
Extremely important	<p>Any early warning system that may prevent the loss of life is critical in my view.</p> <p>Having an early warning system helps me to plan - e.g. I can ensure that my house is secured, I will return home and avoid unnecessary travel through affected areas, I will ensure my pets and children are safe, and I will know to monitor the situation closely in case I need to evacuate my home.</p> <p>Without the early warning system I'd probably be unprepared / oblivious to the dangers which would put me in a position where my life or my family's lives would be in danger.</p> <p>By being prepared and aware thanks to the early warning system, I am also reducing the strain on emergency services who won't have to come rescue me for being the idiot driving through flood waters.</p>
Extremely important	<p>Just to feel safe an beware of what the weather is doing</p>
Extremely important	<p>I work in Wallsend and require this information for Customer and Staff safety.</p> <p>Also for securing work place.</p>
Extremely important	<p>It allows me to cater for the rain, ensure gutterings are clean and to be able to monitor the local reserve/creek in case of damaging flows plus assess damage</p>
Extremely important	<p>It is extremely important to me to know if I am in danger or where the dangers are and by knowing I can also inform others.</p>
Extremely important	<p>I need to know what's happening and If i am out and Wallsend is flooding I will need to come home Via Minmi.</p>
Extremely important	<p>Our house flooded in the Pasha Bulker Storm and the storm last April, I would hate to be stranded away from my house in the event of a flood.</p>

Extremely important	<p>The office had flooding up to the desk tops in the 2007 floods. We have only been in this office since July 2015 but obtained information from the business next door who were here in 2007. They told us how high the water came and how to protect our property in the event of another similar flood.</p> <p>This weather event in January did not get to that level but the water did rise quickly and we were able to rest assured that we had done all we could to avoid damage to our property.</p>
Extremely important	<p>Although it is unlikely that water would flood our residence, we are able to be prepared for road floodings and areas already underwater.</p>
Extremely important	<p>Keeps people aware of what is happening and what action to take. It needs to be part of a wider action, because a lot of people in the wallsend area are older and unlikely to use social media for updates</p>
Extremely important	<p>With a young family we need time to react. If it wasn't for the alert service we wouldn't have known how heavy the rain had been and how close the drain was to overflowing. I like the warning otherwise it may have been worse and we wouldn't have been able to get out.</p>
Extremely important	<p>My husband's office is in Wallsend Plaza, right next to the water storm drain. This area has experienced severe flooding in the past. The service is very handy to have local knowledge (instead of hearsay over social media which isn't always up to date) for the purpose as mentioned above. He has had colleagues trapped at work before because of flooding. Reduces the risk of driving unsafe dangerous roads. And reduces the risk of loss of property (car) due to flooding.</p>
Extremely important	<p>As I live in a flood prone area I feel it is extremely valuable.</p>
Extremely important	<p>It is extremely important, BUT, only if it is a result of information from the relevant authorities - SES & Police</p>
Extremely important	<p>Iron bark creek runs directly through my block if I was not aware of a flood in my home I and my animals would be at risk</p>
Extremely important	<p>Ensures my family and I are safe, can prepare and make plans if needed.</p>
Extremely important	<p>care of workers and equipment</p>
Extremely important	<p>Due to the flooding that has occurred and the poor council repairs it is important</p>
Extremely important	<p>My street and parts of my suburb is in a flood prone area, so I feel safer being kept up to date.</p>
Extremely important	<p>I live near and travel through the flood plain area. With my children, and if flooding occurs, we would be stranded on opposite sides of flood. This is vital to my safety and my children's. I also shop in Wallsend</p>
Extremely important	<p>i live by myself and have mobility problems</p>

Extremely important	If the alert was not in place I would have to be at the shop most of the night
Extremely important	I feel its important to know what's going on in my area
Extremely important	It allows time to ensure people are safe, property is removed or equipment made as safe as possible. Gives me time to make sur my family & children are in a safe area and know what is potentially about to happen . This service should save lives and in some cases will minimise damage to property that is mobile.
Extremely important	It makes people feel safe and not worry unnecessary. Also it gives time to plan what to do in the event of a flood.
Extremely important	It can help save lives
Extremely important	Allows me to organise a safe route out of Maryland and around Wallsend. When wallsend floods so usually does Minmi Road Maryland.
Extremely important	The flash flood alert service validates the need to keep an eye on water levels near our home because it isn't always easy to anticipate the expected volume of water and the alert allows time to take a course of action best suited to our specific area.
Extremely important	I am able to get home safely and warn anyone else who might be affected.
Extremely important	Although on this occassion we were on site since we were still at work but if it was out of usual business hours I may not have been aware on how fast the water was rising.
Extremely important	Wallsend is the most flash flood prone area in the state. I want to be aware when flood events are occurring
Extremely important	It helps my family and I to be able to make more informed decisions.

Very important	It is a specific alert service that is not available elsewhere
Very important	Allows me to know if I can get around my area in bad weather
Very important	It allowed me time to make preparations in case the area flooded. During one of the floods, the roads in our area were closed so we had to take alternative routes to get to and from home. It also let me warn family and friends in the area to be careful and that if needed there were places to go should we, or others, were unable to get home.
Very important	Keeps people informed
Very important	Always good to have forewarning
Very important	Timely and area specific. TV Weather reports are nightly and generic, Radio is good but may not be listening when alert given
Very important	For peace of mind and pro-activeness very good. Having no idea of how severe the flooding will be, drove me mad and I worried.

Very important	I feel because we live in Wallsend which is a high flood zone, it was very comforting to have the SMS alert service. Thankfully we live in a section that wasn't affected and required us to leave our street, but without the alert service we wouldn't really know what to do, i.e. whether to stay put, whether to evacuate, whether the storm was getting worse, etc.
Very important	Gives people time to act
Very important	Helps to make informed decisions about situations
Very important	I live in a flood prone area. Once water rises enough to warrant an alert I want to know about it.
Very important	It's a great idea but sending out false evacuation messages was very damaging to the level of trust I have in the service.
Very important	Wallsend is a flood prone area. I am not always near home when flooding occurs
Very important	Technology and knowledge you have is shared for a quick evacuation if necessary.....educated and informed public a must
Very important	The park behind me fills like dam and comes up to my back fence
Very important	Critical in knowing any natural disaster issues, which sometimes can be even more critical away from home. I work an hour away, so ensures I am aware of issues with family being at home.
Very important	if a simple service to give advanced warning can save lives then it is definitely a valuable service
Very important	Important to be aware. Though the message was very general
Very important	This is a service I think could absolutely help the community. Not only for piece of mind, but for safety.
Very important	I am the primary carer of very young children. It's important I make timely decisions in order to keep them safe. The alert gave me advice in an expert advice in a timely manner. This could save lives.
Very important	Needs to be accurate but I think it's a great idea. gets the information out instantly
Very important	So that I know if I need to get out of dangerous/cut off areas
Very important	I live alone
Very important	would not like to be unable to get out in time
Very important	It is very important to me as I work on the other side of ironbark creek and would not want to be cut off from home.
Very important	Our street floods very very easily and it allows me the time to move the cars and caravan away so they won't be flooded
Very important	Having notice allows me to be prepared
Very important	In my role I manage commercial premises so this enables planning to ensure advice to staff and action as required.
Very important	We feel that it is a very useful service as it alerts us to what is happening in our area.
Very important	I have a small child so access to and from home is crucial to provide for them and keep them safe
Very important	It helps me make arrangements and prepare

Very important	i live near the creek.
Very important	I live in wallsend. It's very handy to know that there is a weather event coming and your alerts give me an opportunity to monitor the weather and arrange to evacuate if need be.
Very important	Pre warning is key
Very important	We are constantly commuting between Shortland and Wallsend. As a manager at Wallsend Baptist Church with a community Centre open 5 days a week and the building used 7 days it is essential all users are protected against flash flooding.
Very important	We suffered significant damage in the storms last year. Warning about these may have helped us prepare better.
Very important	Great idea for property security
Very important	My current home is not likely to flood, but access points to get to our house do flood. I have a disabled daughter who uses public transport, our nearest bus stop is in major flood area. If flood is about to happen I need to put alternative plans in place. Also being a shift worker I need to know if I can get home esp when it is dark. My former house in Tyrell st had flood water up to the floorboards and we lost a car down the drain this happened during the night. Warnings are especially useful during the night.
Very important	I now live in Fletcher 2287. Minmi Rd is my only access road out of the area and during heavy rain periods the road can flood at both the Wallsend/Maryland & Minmi ends which can cut off my access either into or out of my house
Very important	I am in an area that the water rises quickly & makes it hard to get out of for 2 - 3 days.
Very important	It is important to get alerts early so action can be taken for the safety of me and my family
Very important	The storm was very close to my house. I felt like I was hearing truth not exaggerated information from tv or social media
Very important	Past experiences with flash flooding in Newcastle and North West NSW has taught me that I need to be quick in preparing my home for any water breaches. Early notification of what creeks, rivers and nearby streets that are likely to be affected is helpful in knowing how I can get home safely from work.

Moderately important	My house is high set however access can be adversely affected
Moderately important	It can help in planning.
Moderately important	I found it reassuring. We live in a valley so I appreciate the information. If it wasn't available, we would survive but without power it is hard to access information to keep up to date with the situation.
Moderately important	It doesn't involve my home but it does where I work

Moderately important	My address is on the high side of Bunn St and does not flood. It is helpful to know that flooding has occurred when access to the Wallsend Plaza and CBD is affected.
Moderately important	Don't reside in Wallsend but go there for work
Moderately important	There was one evacuate flood alert message but on Facebook the ses circumvented that alert so I was unsure who to follow
Moderately important	At the time that the alerts were issued I was at home & it was clear that the amount of rainfall would most likely cause the creek to flood. However, if away from home I may not have been aware of this & the alert would have let me know.
Moderately important	I think it would be good if there was also information on height of Ironbark creek and if it is rising or falling. This is much more relevant than a vaguely worded warning which can be interpreted differently by everyone.
Moderately important	Other forms of warning are available personally. At time of alerts I knew big storms and rainfall was expected
Moderately important	It hasn't ever flooded in my street so I feel relatively safe during floods... However I do like to stay safe so it's good to know where the flooding is occurring in case Yu have to evacuate
Moderately important	I'm the owner of a property that backs onto Ironbark Creek. The property it tenanted. The flood alert service allows me to contact the tenants, if required during a severe flood event, to check on their welfare.
Moderately important	I live in Elermore Vale on a hill so I don't experience flooding around my house very much however I am close to Wallsend and it was good to know about the flash flooding that was happening there especially considering the amount of rescues that took place. This service should be right out across Newcastle in areas that are affected
Moderately important	we are not in a flood situation but was made aware of places to avoid
Moderately important	Personally I am not in an immediate danger area in my suburb but I have close friends and family that are. My kids are 20 and 17 and are out and about independently of us, often in the bad flood areas. They get the alerts as well, as does my husband because his work often takes him into or through those areas. In that sense the alerts are very valuable but also knowing friends who would be directly affected can be assisted or at least checked on.

Slightly important	Know to keep clear of the affected areas
Slightly important	Our house is not in a flood zone however areas around our house are and these may be a driving route. in the event of an alert we can make arrangements to stay elsewhere if needed.

Not at all important	I have since moved out of wallsend
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Not at all important	I have never had a flooding problem since living in Wallsend since 1958, at two different addresses.
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Appendix 3 - Full list of additional comments

Extremely satisfied	Extremely useful
Extremely satisfied	Updates for road closures, areas to avoid, and for when the threat of flooding has passed. I have been pleased with the service and thankful I signed up.
Extremely satisfied	Please keep the service going or have available a App for up-to-date checking.
Extremely satisfied	Great local servic
Extremely satisfied	Please keep this service
Extremely satisfied	To be more accuate in affected areas
Extremely satisfied	Please keep giving me these alerts it makes me feel safe
Extremely satisfied	Great service
Extremely satisfied	please keep it.
Extremely satisfied	It's a valuable service that ensures the safety of the community & therefore should continue.
Extremely satisfied	Please keep it
Extremely satisfied	I definitely think this service should remain in place. I also believe that when/if it becomes a permanent service it should be promoted more than it currently it.
Extremely satisfied	Keep up the good work. This is a great service and will make a positive difference to how we respond and deal with severe weather events.
Extremely satisfied	Just thankyou
Extremely satisfied	Really great service
Extremely satisfied	I think this should be an ongoing service. It is imperative to the safety of all by having these alerts especially with the increasing dangers of the weather/storms.
Extremely satisfied	Valuable
Extremely satisfied	This a fantastic service and extremely helpful to allWallsend residents.
Extremely satisfied	Roll it out city wide. It is a great service.
Extremely satisfied	I think it is a very important service to people like me who live in high risk flood zones
Extremely satisfied	Unreal service.. Some people still don't know about this service so I think it needs more awareness
Extremely satisfied	Great valuable service. Hope it can continue for residents of Wallsend.
Extremely satisfied	The alert is good it would be much better if you would fix the problem
Extremely satisfied	I think it is an excellent service that should continue.
Extremely satisfied	Thank You. It is a helpful service which will hopefully save lives

Extremely satisfied	The audio quality of the message could be announced a little slower and in a clearer voice. Although it is good that the message is repeated to enable you to process the information you are hearing.
Extremely satisfied	Please keep it going. I was unable to get home the normal way last year, before I was registered with the Flash Flood Alert and had to go out through Minmi. That road was cut earlier with fallen trees. I was lucky that the road had been cleared earlier. More heavy rain was predicted that night with strong winds. Please keep it going, it is an excellent service and should include other vulnerable areas. It would save lives.
Extremely satisfied	I think its a great idea
Extremely satisfied	Thank you for offering the service
Extremely satisfied	I got warnings via mobile, email and landline. Very comprehensive service.
Extremely satisfied	This is an excellent service and a great opportunity for the council to provide a quality service to the residents of Wallsend

Very satisfied	There service could be useful for all areas of Newcastle
Very satisfied	I think it is an important early warning signal. Having talked to flash flood victims in Maitland I would rather be forewarned than trapped
Very satisfied	Is it possible to quantify? Say Iron Bark creek likely to rise 5 meters. Elmore Vale will be flooded at Smith Street.
Very satisfied	Please keep it. Very informative and extremely helpful
Very satisfied	Change of address form
Very satisfied	More specific details of where the flooding is likely.
Very satisfied	Better to be alerted and not need to end up doing much rather than be caught off guard - great service.
Very satisfied	Area specific
Very satisfied	Maybe join with ses and have them control the alert service as they are the ones who determine evacuations
Very satisfied	Nothing I can think of.
Very satisfied	Notification when Flood Alert no longer required. Extend to other alerts. Extend to other locations. Provide as much relevant detail as possible (without information overload).
Very satisfied	Not sure why they call to advise of the alert and then phone back again immediately after you have hung up to advise you again. I think this is a really good service as not everyone has their radio on to receive these sort of messages.
Very satisfied	good
Very satisfied	It would be good to have a link to a website which displays live water levels in the area to assist with timely risk analysis.
Very satisfied	As information develops I would expect the alerts to become more specific with regard to the threat (E.g. computer estimated depth of flooding)

Very satisfied	Pleased with having the warning
Very satisfied	I signed up to the service late so I only received 1 message. however during the heavy rain period in January there was a day where Minmi rd was cut of at both ends and it is good to have that information so I can organise alternate driving routes or accommodation if needed
Very satisfied	Could the person making the announcement be changed or more clearer with the pronunciation.
Very satisfied	I wish they would alert me earlier
Very satisfied	This has been a valuable service and gives peace of mind.

Moderately satisfied	The alerts should be more specific of which area of the suburb the alert relates to.
Moderately satisfied	The alerts didn't seem quite to be on time, but overall are a good start
Moderately satisfied	Can make one think they need to evacuate when it is not at all necessary. Can be misleading to a certain extent.
Moderately satisfied	See previous
Moderately satisfied	I'd like to be able to change my preference and remove my home phone number
Moderately satisfied	Yes get it all sorted as it is a bit of a joke how long it has taken to sort Wallsend out
Moderately satisfied	Having had to exchange my phone recently I have lost my records of the alerts and conversational threads regarding the alerts. I do recall the first alert warning of possible floods being followed almost immediately by another saying it was all on! Literally a couple of minutes between the two. Pretty useless info at that point. Primary warning needs to be much earlier to allow suitable response BEFORE the flood gets there.

Slightly dissatisfied	I think it's a great service. It just needs to be accurate and only send evacuate messages if you really need to evacuate.
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Extremely dissatisfied	It is irrelevant to me as I have never had flooding. It seems to occur in only a very small area of Wallsend and could probably be eradicated with a upgrade of drainage. I am also unhappy to receive this alert from an overseas number.
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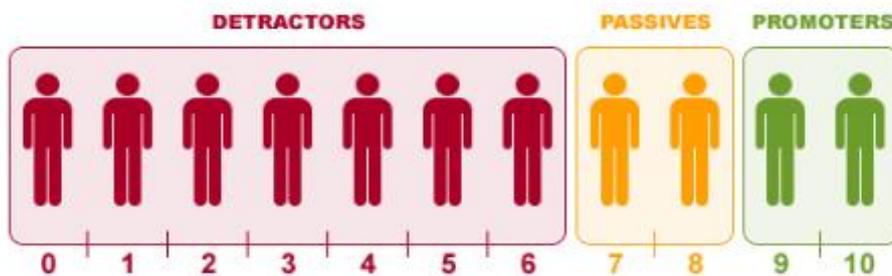
Appendix 4 – Net Promoter Score

The **Net Promoter Score** (NPS) is an index ranging from -100 to 100 that measures the willingness of customers to recommend a company's products or services to others. It is used as a proxy for gauging the customer's overall satisfaction with a company's product or service and the customer's loyalty to the brand.

NPS is calculated by asking customers one question: *How likely would you be to recommend xxx?* The question is answered by using a scale of 0 to 10 as shown:

0 - not likely at all	1	2	3	4	5 - neutral	6	7	8	9	10 - extremely likely	Don't know
<input type="checkbox"/>											

A score of 0-6 is seen as a “Detractor”, 7-8 as a “Passive” and 9-10 as a “Promoter”:



The NPS is then calculated by subtracting the proportion of Detractors from the proportion of Promoters.

$$\text{Net Promoter Score} = \% \text{ Promoters} - \% \text{ Detractors}$$

An NPS score can range from -100 to +100.