

Report of Director of City Development

Report to Executive Board

Date: 13 February 2019

Subject: Phase 2 Leeds (River Aire) Flood Alleviation Scheme

Are specific electoral wards affected?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If yes, name(s) of ward(s): Hunslet & Riverside, Little London & Woodhouse, Kirkstall, Armley, Bramley & Stanningley, Horsforth, Calverley & Farsley	
Are there implications for equality and diversity and cohesion and integration?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the decision eligible for call-in?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does the report contain confidential or exempt information?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If relevant, access to information procedure rule number:	
Appendix number:	

Summary of main issues

1. The vision for Leeds is to be the best city in the UK: one that is compassionate and caring with a strong economy, which tackles poverty and reduces inequalities. A key element of the Leeds Inclusive Growth Strategy is supporting people, place and productivity through the provision of 21st century infrastructure. The Phase Two Leeds (River Aire) Flood Alleviation Scheme (LFAS2) aims to reduce the risk of flooding and the significant physical and economic damage which can occur from flood events. In line with the Council's Best Council Plan, the scheme will make communities more resilient, support the further growth and regeneration of the Leeds economy, and protect key transportation infrastructure and the high quality public services it supports.
2. During the last two months of 2015 northern Britain received some of the highest recorded rainfall on record, culminating with storm Eva which during the Christmas period led to significant urban and rural flooding across Yorkshire, Cumbria and southern Scotland. Evidence gathered from sites in Kirkstall indicate the flood event that began in Leeds on Boxing Day saw flood water levels rise higher than those in 1866 when a number of lives were lost to flooding in the city.
3. The impact caused by flooding was wide reaching, damaging 2,683 residential buildings, and significantly affecting all scales and sectors of commercial operations, from sole traders through to extensive factory and engineering firms together with the first class professional rugby league facility of the Leeds Rhinos adjacent to Kirkstall fields, all of which provide significant employment opportunities to the region. To

ensure this doesn't happen again the Council continues to take a comprehensive approach to defending the wider city against flooding from the River Aire.

4. The multiple award winning Phase One Leeds (River Aire) Flood Alleviation Scheme (LFAS1) which included movable weirs at Crown Point and Knostrop, has reduced the flood risk to areas downstream of the train station. The use of pioneering technology has placed Leeds at the cutting edge of national flood defence schemes, raising the profile of the city both nationally and internationally.
5. Building on this, LFAS2 has considered the whole Aire catchment. To move the scheme forward the City Council has worked collaboratively with the Environment Agency (EA) to design a scheme that responds directly to the Leeds Flood Alleviation Scoping Report that was issued by the Secretary of State in 2016. Accordingly, the scheme that has been identified makes use of a range of flood defence measures including Natural Flood Management (NFM), conveyance improvements, flood attenuation and linear defences and is closely aligned to the ambitions set out in the Government's 25 Year Environment Plan and the recent recommendations made by the National Infrastructure Commission.
6. In recognition of the Government's latest position though that they are currently unable to provide any more than £65million of funding and the need to move forward with urgent flood defence measures as soon as possible, the prospect of further delay whilst Leeds awaits the outcome of next year's Comprehensive Spending Review (CSR) is neither attractive nor acceptable. Accordingly, it is intended to progress a two step approach to the delivery of the 1 in 200 year level of protection that is needed.
7. The first step will be the delivery of a scheme which provides a 1 in 100 year standard to the area upstream of the train station through the promotion of all the defences which have been identified with the exception of the Calverley flood attenuation area. Then subject to available funding, the second step will be the attenuation work required to provide a 1 in 200 year standard to all areas of Leeds along the River Aire.
8. This approach facilitates the expedited delivery of the scheme and as such detailed design and build tenders and planning applications are now progressing without delay with an anticipated start on site date of summer 2019. It is imperative this essential flood defence scheme progresses without delay to ensure the risk to people's home and livelihoods is mitigated at the earliest opportunity.

Recommendations

The Executive Board is requested to:

- i) Approve the scheme as described within this report;
- ii) Agree the two step phased approach as the most pragmatic way forward at this time;
- iii) Approve the injection of the remaining confirmed funding as listed in 4.4.1;
- iv) Subject to the affordability of tendered prices, delegate authority to spend consultant and contractor costs to progress the recommendations of this report to the Director of City Development subject to agreement with the

Executive Member for Regeneration, Transport and Planning and the Leader of the Council;

- v) Approve that Leeds City Council will take responsibility for maintenance and operation of all assets constructed as part of the LFAS2; &
- vi) Note that the Chief Officer Highways and Transportation will be responsible for the implementation of these actions.

1. Purpose of this report

- 1.1 This report provides a further update on LFAS2 and seeks all remaining Executive Board approvals required to deliver the proposals.

2. Background information

- 2.1 In the aftermath of the 2015 Boxing Day flood which was of a magnitude in excess of 1 in 200 years, a commitment was made by the Secretary of State for the Department of Environment, Food and Rural Affairs (Defra) to provide Leeds with a good standard of protection. This was subsequently reaffirmed as part of the 2016 Spring budget which included the announcement of a new flood alleviation scheme for Leeds which was to comprise of traditional flood defences, upstream storage and planting of trees in the upper catchment.
- 2.2 Since then, the City Council and the EA have been working with a team of contractors and consultants on a business case, design work and a package of advanced measures. The business case included a thorough appraisal identifying three main scheme options for consideration.
- 2.3 The 1 in 75 year scheme option excludes wider NFM benefits and is comprised of flood walls & minor conveyance works. This is a lower standard than the 1 in 100 year level currently provided to the Phase One area successfully delivered on time and budget through a collaborative effort by the City Council and government agencies.
- 2.4 The 1 in 100 year scheme option includes a catchment wide NFM programme that would bring transformational change delivering several of the Government's strategic ambitions as set out in the 25 Year Environment Plan, and do so on a landscape scale. It would significantly contribute to realising the vision of the Northern Forest in the Aire catchment, restore and create new habitat, increase biodiversity resilience, improve water quality through reduced sedimentation and provide circa £90M worth of benefits through carbon sequestration.
- 2.5 The 1 in 200 year scheme option would alleviate the impact of a re-occurrence of the 2015 Boxing Day flood. Communities along this reach of the river are still recovering from the extensive damage and disruption caused. Had the flood occurred on a normal working day, rather than Boxing Day, the impacts would have been far more severe. The flooding heavily affected a significant number of local businesses, a number of which have since failed or have relocated outside of the area.
- 2.6 This standard aligns with the recent National Infrastructure Commission recommendation that all properties should where feasible benefit from a minimum 1 in 200 year level of protection or greater for large urban areas and also with the Upper Aire Flood Risk Management Strategy, produced and approved by the EA in 2010. Crucially, the inclusion of an attenuation area means this level of protection would be provided across both the Phase One and the Phase Two areas, effectively eliminating the requirement for future interventions.

- 2.7 Aside from the benefits derived by the 1 in 75 year and the 1 in 100 year schemes, the 1 in 200 year scheme delivers significant additional economic benefits and is estimated to generate Gross Value Added (GVA) benefits of £774m using the HM Treasury Green Book Appraisal Guidance.
- 2.8 The 1 in 200 year scheme would better protect 1,048 residential properties within the flood zone. The project will unlock housing land for 1,613 new homes and help create an additional 1,669 jobs. The scheme would provide improved flood protection to 370 businesses and has a benefit to cost ratio of 9.4 when GVA is included.
- 2.9 The EA's large project review group have been engaged throughout the options appraisal, with a role of providing technical assurance to the government prior to the Floods Minister confirming the amount of funding which Defra will provide. This has included five submissions of a business case and corresponding review meetings. At a very late stage during this process, it became apparent that due to a policy decision relating to the use of flood reduction benefits derived from NFM, the option which the assurance group could approve is a scheme which provides a 1 in 75 year standard of protection.
- 2.10 Leeds is the third largest employment centre in the UK and contributes £16.3 billion GVA to the UK economy annually. Managing flood risk effectively is essential to sustain commercial confidence and to ensure that Leeds remains an attractive location in which to do business. Leeds is a major transport hub centred on Leeds train station, the future terminus of HS2. The station is the busiest in the north of England, used by over 100,000 people a day and even without HS2 or HS3, a 114% increase in passengers is forecast resulting in flows on par with Gatwick Airport. The A65 passes along the river corridor, and this is the primary highway connection between the train station and Leeds Bradford International Airport, and for many businesses and commuters based in the west of the city. A flood protection scheme that responds to the 2015 Boxing Day floods needs to provide a 1 in 200 year standard of protection. Anything below this standard is simply illogical and would not prevent a reoccurrence.
- 2.11 In recognition of the Government's latest position that they are currently unable to provide any more than £65million of funding and the need to move forward with urgent flood defence measures as soon as possible, the prospect of further delay whilst Leeds awaits the outcome of next year's CSR is neither attractive nor acceptable. Accordingly, it is intended to progress a two step approach to the delivery of the 1 in 200 year level of protection that is needed.
- 2.12 The first step will be the delivery of a scheme which provides a 1 in 100 year standard to the area upstream of the train station through the promotion of all the defences which have been identified with the exception of the Calverley attenuation area. Then subject to available funding, the second step will be the attenuation work required to provide a 1 in 200 year standard to all areas of Leeds along with River Aire, ultimately with allowance for climate change to the year 2069.
- 2.13 This approach facilitates the expedited delivery of the scheme and as such construction tenders and planning applications are now progressing without delay with an anticipated start on site date of summer 2019.

- 2.14 In parallel with work on the business case and initial design, a package of advanced measures has been progressed. These not only reduce flood risk, but also demonstrates the Council's commitment to the scheme and provides reassurance to the areas devastated by flooding. The measures completed so far include:
- a flood wall 730 metre in length to better protect 88 businesses at the Stourton Industrial Park;
 - the removal of a low platform underneath Redcote Lane Bridge (Gotts Bridge) to reduce flood risk caused by debris blockage;
 - working with Yorkshire Water to install a flap valve on an outfall into the River Aire to reduce flood risk to areas including Kirkstall Bridge retail park;
 - advanced River Stewardship – debris clearance and invasive species treatment to better manage the river channel and facilitate the future LFAS2 main works;
 - NFM pilots – the beginnings of working at a catchment scale to reduce flood risk in Leeds (see below for more information);
 - providing advice to businesses on how to best invest their Property Level Resilience Grant (administered by LCC); &
 - liaising with the City Council's Emergency Planning and professional partners to influence EA Flood Warning messages to make clearer when flood water is likely to close Kirkstall Road.

3. Main issues

3.1 It is intended to progress a two step approach for the delivery of the 1 in 200 year level of protection that is needed. The measures which have been identified as part of LFAS2 are NFM, Conveyance Improvements, Linear Defences, and Attenuation at Calverley as described below and contained within Appendix A – LFAS2 Drawings. The first step will be the delivery of a scheme which provides a 1 in 100 year standard to the area upstream of the train station through the promotion of all the defences which have been identified with the exception of the Calverley flood attenuation area. Then subject to available funding, the second step will be the attenuation work required to provide a 1 in 200 year standard to all areas of Leeds along the River Aire.

3.2 Natural Flood Management

3.2.1 The scheme includes an ambitious package of NFM measures which extends beyond the Leeds boundary and will involve partnership working and extensive community involvement, to work with, restore or emulate the natural regulating function of the river catchment to reduce flood risk.

3.2.2 Land management and widespread tree planting over significant areas of upstream land will be promoted to reduce flood risk, across different stretches of the catchment. With an anticipated planting programme of tree saplings into the many

hundreds of thousands in number, this scale of NFM will place the River Aire catchment not just on the national map, but the European one.

- 3.2.3 In order to ensure the main programme of work has the maximum impact and best chance of success, the team have been working on a number of pilot sites across the catchment (see Appendix B). These sites have been chosen because they represent different scenarios that will be encountered across the catchment, and because they provide an opportunity to test a number of different approaches from procurement and partnership arrangements through to landowner engagement and design and implementation of the measures.
- 3.2.4 The first pilot site was delivered on the upper reaches of the Aire in Eshton, Craven, and the initial tree planted by the Leader of Leeds City Council in March 2018. Since then, the team have been working with a range of partners to develop the remaining sites at Harden Moor, Bradford; Marlfield Farm, Earby, Pendle; the Flasby Estate, Romside Beck, Craven and additional sites in Eshton, Craven. Work at the Eshton sites is underway and work on all sites should be completed by the end of summer 2019.
- 3.2.5 Lessons learnt from other smaller schemes across the country have been reviewed, including Weardale, Calderdale and Stroud. Each has provided much useful insight, saving the team time and increasing their efficiency. The team have also been working closely with Water@Leeds and the i-CASP team at Leeds University, and the Open Data Institute, Leeds, to develop a catchment wide monitoring strategy and delivery plan. This has brought together national experts to help shape and inform this work. By working with partners across the catchment, and from a range of sectors including the West Yorkshire Combined Authority and the National Farmers Union, the Leeds FAS nfm programme is providing a galvanising force for collaboration and a new Integrated Catchment Partnership, hosted by the Aire Rivers Trust, is being developed. This will help the team deliver the work effectively and efficiently, and will also ensure that it provides a clear legacy and lasting impact for generations to come.

3.3 Conveyance Improvements

- 3.3.1 This includes the removal of structures across the river that could obstruct the river flow, namely the replacement of the bridge by Armley Mills, raising the pedestrian footbridge at Milford Place, and removing the pipe bridge in the vicinity of Washington Street.

3.4 Linear Defences

- 3.4.1 The residual outcome of the various components identified is that some raised defences would need to be constructed. These will be appropriate to each location and include property level protection, embankments, concrete walls with cladding, sheet piles, glazed panels and measures to prevent water eroding the river banks. Additionally, four pumping stations (largely below ground) will be constructed to mitigate surface water impacts during a river flood event.
- 3.4.2 The heights of the raised defences are compatible with maximum desirable wall heights under environmental, planning and landscaping constraints, typically averaging 1.2 metres to 1.5 metres in height at the 1 in 200 standard of protection. Although in some isolated sections a flood defence level of up to 2.5 metres may be required, these are at non-sensitive locations. The table below provides an illustration of defence heights although through the detailed design refinement

process, it is likely that a number of ways to achieve this level will be identified with reduced impact on surroundings.

Leeds Station to Whitehall Rd	0 – 0.5m
Whitehall Road – Wellington Br	0 – 1.3m
Wellington Br - Viaduct Rd	0.2 – 1.0m
Viaduct Rd - Cardigan Fields	0.6 – 1.7m
Cardigan Fields - Armley Weir	0.0 – 1.2m
Armley Weir - Home Office	0.0 – 2.2m
KVNR - Kirkstall Bridge (Aire)	0.0 – 1.2m
Kirkstall Br - Kirkstall Abbey weir (Aire)	0.0 – 1.4m
Up and downstream of Newlay Bridge	0.8 – 1.1m
Apperley Bridge	0.0 – 1.7m

3.5 Calverley

- 3.5.1 To increase the standard of protection to a 1 in 200 year level, it is proposed to construct a flood storage area at the upstream Leeds boundary of the river. Crucially, this will also increase the level of protection within the Phase One area to a 1 in 200 year level without needing additional construction works within the LFAS1 area itself. The most suitable land for this flood storage area was identified as Calverley floodplain, which is located within Leeds City Council's boundary towards the northern end of the scheme. The surrounding area is mostly rural, with areas of woodland to the north and south and residential properties within the vicinity.
- 3.5.2 It is proposed to increase the capacity of the floodplain at Calverley by increasing water levels by up to 2.5 metres during a flood event. To make this possible, a control structure will need to be constructed within the river channel. This will be in the form of two moveable weirs, each 15 metres wide. As the existing river channel is approximately 25 metres wide at this location, it will be necessary to widen it by approximately 6 metres to accommodate these moveable weirs. During normal river conditions, the weirs will be in lowered positions and will not affect water movement along the river. However, during significant flood events, the moveable weirs will be raised to temporarily store flood water and manage flows downstream.

3.6 Ecological and Landscape Enhancements

3.6.1 The scheme passes through several important environmental areas, including Armley Mills, Kirkstall Abbey & Kirkstall Meadows and Apperley Bridge. Mitigation measures have been outlined for each of these locations as a means to prevent, reduce or control adverse environmental effects of the project, and include restitution for any damage to the environment caused by those effects through replacement, restoration, compensation or any other suitable means. The measures that are outlined below are specific to the scheme and do not include environmental best practice measures, as these will be implemented as standard procedure.

3.6.2 Armley Mills

The works proposed at the Mill are designed to exclude flood water from the site. These comprise of flood walls, the removal of the redundant pipe bridge and two new control structures with flood gates at the downstream and upstream end of the site – during normal flow conditions these will remain open, allowing a consistent water flow. When the river levels become too high the gates will close so that the museum is protected from flood water.

3.6.3 Kirkstall Abbey and Kirkstall Meadows

There are minimal works being undertaken within the Kirkstall Abbey Conservation Area as a result of the scheme, although more significant works are being undertaken in its setting. A new structure needs to be built across the entrance of the goit and in front of Kirkstall Abbey sluice gates which will tie into the listed weir. This control structure will limit the volume of water during high river level conditions, to ensure that water does not back up along the goit and flood the surrounding area. This has been designed to ensure that the structure complements the sensitive historic environment in which it is situated, and the existing sluice gates and gate house will be retained. The structure will also be a walkway that could provide additional amenity facilities for visitors to the site and potentially open up new views.

The flood defences opposite Kirkstall Abbey (Kirkstall Meadows) consist of an embankment that runs along the back of Kirkstall Meadows to protect the railway line. To undertake these works, the bridge used to access the site on the southern entrance will need strengthening for construction vehicles. It is proposed to leave the three rugby pitches on the southern end of the scheme untouched and transform the northern 2.4hectares of the scheme into wetland habitat including kingfisher banks, otter holts and wetland scrapes for fish. This wetland habitat creation will help mitigate the loss of 3hectares of habitat in total within the scheme boundary; the remaining 0.6hectares will be provided by replanting through the rest of the scheme.

3.6.4 Apperley Bridge

Within the scheme extent of the non NFM works, there is a small section within the Bradford boundary at Apperley Bridge. The businesses and residential properties within this area currently have less than a 1 in 100 year standard of protection. As

such, the scheme proposes to increase the standard to these properties and businesses to the same level as the rest of the scheme in Leeds.

In order to achieve this, existing walls will require raising along with works to a listed bridge. Whilst works to the bridge will be minimised as far as possible, they will be required to address restrictions imposed on the volume of water that can pass underneath the bridge as a result of its arch structure.

3.6.5 Kirkstall Road and Kirkstall Valley Nature Reserve

Additionally, public accessibility measures continue to be progressed. Along the Kirkstall Road section, the key components are landscaping and access improvements running parallel to the river frontage consisting of a new cycle way and footpath, which links an existing pocket park near Wellington Bridge to Washington Street. At Kirkstall Valley Nature Reserve, works proposed include a new cycle way and footpath along with two new footbridges. A separate planning application is due to be submitted in the coming weeks for these measures whilst the affordability of the two step approach is confirmed.

4. Corporate considerations

4.1 Consultation and engagement

- 4.1.1 A dedicated team of officers is leading on a programme of detailed communication and consultation activities. This has involved engagement with key stakeholders including revisiting Councillors, statutory consultees, landowners and tenants which began in September 2017 ahead of a series of public consultation drop-in events held during winter 2017/18. This has also included several briefings to Leaders and senior officers from Pendle, Craven, Bradford and North Yorkshire which have been positively received. This engagement will continue throughout the scheme, targeted to areas for delivery to ensure suitable prioritisation and autonomy with decisions at the district level.
- 4.1.2 Recognising the scale of the challenge of developing a catchment approach to reducing flood risk to Leeds, not least the need to bring together a wide range of pre-existing partnerships, their different aspirations and capabilities, as part of the scheme the EA has worked with the existing partnerships to create an “Upper Aire Catchment Network”.
- 4.1.3 The Network creates a positive ambitious environment, which complements existing governance arrangements. The concept of all parties becoming a network of people with a common purpose in relation to flood risk across the catchment has given confidence to key partners to build new and important relationships. This is being reflected in a range of initiatives from sharing learning and best practise to improve community engagement and resilience, and developing river stewardship across the catchment focussed in flood affected communities. Crucially, the concept of working as a Network has also enabled the Leeds FAS project team to traverse partnership politics to gather evidence, at pace, to support the development of the integrated catchment approach.

- 4.1.4 All the activities undertaken so far have been used to not only gauge peoples' reactions to the options, but to also manage expectations and gather valuable information. A leaflet was produced to support the consultation with a tear-off questionnaire to allow people to provide their thoughts if not attending an event in person.
- 4.1.5 Furthermore, relationships local to defence proposals have been strengthened through attendance at a variety of meetings and engagement events, including community business resilience networks and door knocking with affected residents and businesses to ensure all stakeholders are well sighted. The project team also held a large exhibition about LFAS2 at the Kirkstall Festival in July 2018.
- 4.1.6 Due to the catchment wide approach being adopted by LFAS2, with benefits to neighbouring areas, the engagement strategy being followed looks to inform those within the study area, whilst also flagging a process for keeping those in neighbouring areas updated as plans for the scheme progress. Residual common themes which have arisen include NFM and time taken to develop a scheme.
- 4.1.7 In recognising the duration a scheme can take to come to fruition, proactive communications around the programme of advanced works have been undertaken in order to provide confidence that measures are being put in place to mitigate flood risk. This has included direct engagement with landowners and business owners in the Stourton area. Regular contact has been kept with these stakeholders to ensure positive working relationships are maintained.
- 4.1.8 Additionally, quarterly newsletters are distributed to a large list of subscribers which provides regular updates on progress and key milestones. A scheme twitter account is well established, issuing weekly tweets alongside the schemes website which is updated on a regular basis.
- 4.1.9 Aside from the formal planning application consultation process, landowner notifications were sent to 175 affected landowners and tenants. Engagement during the determination period will continue during this critical part of the scheme.

4.2 Equality and diversity / cohesion and integration

- 4.2.1 An Equality and Diversity, Cohesion and Integration (EDCI) screening has been completed to inform the consideration of the issues set out in this report and is attached at Appendix C. Although there are no EDCI implications currently identified, this will be kept under review throughout the delivery stage of the scheme to ensure the most disadvantaged are not adversely impacted and that individual needs and the requirement to make reasonable adjustments where necessary are recognised.

4.3 Council policies and best council plan

- 4.3.1 This scheme embodies many of the priorities and outcomes sought in the Best Council Plan (BCP) as outlined below:

- (i) Good Growth – the scheme will seek to support the sustainable growth of the Leeds economy through safeguarding jobs in the area protected by flood defences. The progression of measures to reduce flood risk with regard to opportunities presented by the South Bank Master Plan (Europe’s largest regeneration area with the potential to create 35,000 new jobs and 4000 new homes), HS2, the A65 Kirkstall corridor and its interface with wider existing Network Rail infrastructure will directly support the BCP ambition for a strong economy.
- (ii) Resilient Communities – adopting a catchment based approach to flood defence offers a high level of community confidence against future flood events, enhances public citizen and stewardship involvement, and helps with the moving toward a more holistic solution to a flood defence initiative to vanguard community ownership and their association to local flood protection measures. This will support the BCP outcome for people to be safe and feel safe. It will also directly support the BCP ambition for a more engaged public.
- (iii) Transport and Infrastructure; Low Carbon – the scheme seeks to enable the growth of the city whilst protecting its distinctive green character; it will enhance the waterfront areas through new or improved public spaces to support leisure and amenity uses, in keeping with the urban context, sense of place and identity. This will support the BCP outcome for people to live in clean and well cared for places and for people to enjoy greater access to green spaces, leisure and the arts.
- (iv) The scheme will better protect road, rail and pedestrian/cycle accessibility to the city centre from the west, safeguarding local multi-modal commuting routes and city regional transport links and through the protection afforded to the South Bank and Leeds Station area, it helps the city become ready for HS2, Northern Powerhouse Rail and the interchange facilities to be provided at the remodelled ‘Yorkshire Hub’. This will support the BCP outcome of moving around a well-planned city easily.

4.4 Resources and value for money

4.4.1 Funding - The affordability of the two step approach will be confirmed upon receipt of detailed design and build tenders programmed to be returned in March 2019. It is anticipated that the first step will be funded from the £65million of current Government commitments, with the balance underwritten by the Council. The delivery of the second step is envisaged to require further Government support through the next CSR, whether as a direct grant or from other Government programmes such as the Housing Infrastructure Fund (HIF), Highways England’s Designated Fund and the European Structural Investment Fund (ESIF). Other additional funds are also actively being pursued. The list below shows the current position of the identified funding:

Source	Amount	Status
LCC	£10,000,000	Confirmed (already injected)
Government Booster (1)	£3,000,000	Confirmed (already injected)
Government Booster (2)	£1,517,000	Confirmed (already injected)

Government Booster (3)	£60,483,000	Confirmed (to inject)
Network Rail	£1,400,000	Confirmed (to inject)
ESIF (1)	£533,500	Confirmed (already injected)
ESIF (2)	£3,280,000	Application submitted
Local Growth Fund	£3,900,000	Application submitted
Forestry Commission	£1,750,000	Application being compiled
Yorkshire Wildlife Trust	£480,000	Application being compiled
Woodlands Trust	tbc	
Carbon Credits	tbc	
Water Environment Grant	tbc	
Future Prosperity Fund	tbc	
HIF	tbc	
Highways England	tbc	
Community Infrastructure Levy	tbc	
Developer contributions	tbc	
Yorkshire Water	tbc	

4.4.2 Revenue Implications – The Council is responsible for all aspects of operation and maintenance of LFAS1. The EA is assisting with inspections of the static defence walls and terraces, incorporating these into their annual programme of River Aire surveys. The current working assumption is that the Council will similarly take a leading role in the ownership, operation and maintenance of any new assets constructed as part of LFAS2. The whole life maintenance cost estimated for the 1 in 100 year standard scheme is estimated to be £2,513,000. The whole life maintenance cost estimated for the 1 in 200 year standard scheme is estimated to be £5,027,000.

4.5 Legal implications, access to information, and call-in

4.5.1 The Council has already entered into an agreement with the Environmental Agency pursuant to powers conferred under Section 165(5) of the Water Resources Act 1991. This devolves the EA's statutory powers to the Council to enter private land for the purposes of undertaking flood defence and drainage works in connection with the Leeds Flood Alleviation Scheme outlined in this report.

4.5.2 This report is eligible for to call in.

4.6 Risk management

4.6.1 Time is critical as Leeds remains exposed to the same risk as it did before the Boxing Day floods. Delays pose reputational risks and are likely to cause difficulties with funding bodies.

4.6.2 In recognition of the Government's latest position though that they are currently unable to provide any more than £65million of funding and the need to move forward with urgent flood defence measures as soon as possible, the prospect of

further delay whilst Leeds awaits the outcome of next year's CSR is neither attractive nor acceptable. Accordingly, it is intended to progress a two step approach to the delivery of the 1 in 200 year level of protection that is needed.

- 4.6.3 This approach facilitates the expedited delivery of the scheme and as such detailed design and build tenders and planning applications are now progressing without delay with an anticipated start on site date of summer 2019.
- 4.6.4 In order to reduce the risk of a repeat in the catastrophic impacts to residents and business which occurred in 2015, it is imperative this essential flood defence scheme progresses without delay to ensure the risk to people's homes and livelihoods is mitigated at the earliest opportunity.

5. Conclusions

- 5.1 Members will be aware that historically Leeds has had no formal flood defence from the River Aire. Through the success of LFAS1 and the use of innovative movable weir technology for the first time in the United Kingdom, the city centre area downstream of the railway station is now protected from the river to a 1 in 100 year standard, with an additional allowance for climate change to the year 2069.
- 5.2 Building on this success, LFAS2 is taking a whole catchment approach, and will again promote an exciting and innovative range of both civil engineering and land use and management measures, to provide a comprehensive flood defence scheme. Crucially, by progressing a scheme consisting of all the identified components, it's expected that the standard of protection of LFAS1 will be uplifted to a 1 in 200 level, effectively eliminating the requirement for future interventions.
- 5.3 The progression of LFAS2 to protect areas further west of the city centre is crucial to underpin the aspiration of a Northern Powerhouse, its foundation of secure and rapid transport and the ambitions of a Best City together with the objectives of the Local Enterprise Partnership Strategic Economic Plan.
- 5.4 Protecting communities, the well-being of people and sustaining inclusive economic growth is the basis of the BCP. Recent weather and flood events have visibly demonstrated the necessity to develop a scheme or programme of works to safeguard the local population from flooding.
- 5.5 The existing project delivery team has developed a strong multi-organisational 'one team' approach, and has considerable specific skills and expertise. The progress made to date on the accelerated programme of work to develop LFAS2 alongside delivery of LFAS1 has meant the city has already capitalised on this, and it is of significant value to continue at pace.

6. Recommendations

- 6.1 The Executive Board is recommended to:
- i) Approve the scheme as described within this report;
 - ii) Agree the two step phased approach as the most pragmatic way forward at this time;
 - iii) Approve the injection of the remaining confirmed funding as listed in 4.4.1;

- iv) Subject to the affordability of tendered prices, delegate authority to spend consultant and contractor costs to progress the recommendations of this report to the Director of City Development subject to agreement with the Executive Member for Regeneration, Transport and Planning and the Leader of the Council;
- v) Approve that Leeds City Council will take responsibility for maintenance and operation of all assets constructed as part of the LFAS2; &
- vi) Note that the Chief Officer Highways and Transportation will be responsible for the implementation of these actions.

7. Background documents¹

7.1 None.

8. Appendices

8.1 Appendix A – LFAS2 Drawings

8.2 Appendix B – NFM Pilot Sites

8.3 Appendix C – Equality, Diversity, Cohesion and Integration Screening

¹ The background documents listed in this section are available to download from the Council's website, unless they contain confidential or exempt information. The list of background documents does not include published works.