Report To:	**EXECUTIVE CABINET**
Date:	23 January 2019
Reporting Officer:	Councillor Allison Gwynne – Executive Member (Neighbourhoods) Emma Varnam - Assistant Director – Operations & Neighbourhoods
Subject:	**FLOODING – FLOOD PREVENTION AND REPAIRS**
Report Summary:	On 9 October 2017 the Strategic Planning and Capital Monitoring Panel supported a sum of £775k with regards to Flood Prevention and Repairs to routes damaged by recent flood events. £130k of works was undertaken in financial year 2017/18 with regards to repairing damaged footpaths and bridleways, accordingly £645k or works remain. Accordingly this report is in respect of the £645k, of which, £500k was identified for Flood Preventive Works and £145k with regards to outstanding repairs as a result of flood damage. The delivery options to complete these works are looked at in detail and preferred options and associated risks identified.
Recommendations:	That the identified options for the upgrading of key drainage inlet structures increase our resilience to flooding and the completions of repairs to footpaths and bridleways to a total of £645k approved.
Links to Community Strategy:	The proposals in the report will support the delivery of the Corporate Plan in terms of protecting the most vulnerable, strengthening the local business community and town centres and promote cleaner, greener and safer neighbourhood.
Policy Implications:	The proposed programme supports the Council's Corporate Plan priorities around the Sustainable Community Strategy. Further it supports the Council's duties as Lead Local Flood Authority (LLFAs) in leading in managing local flood risks (i.e. risks of flooding from surface water, ground water and ordinary (smaller) watercourses) under the Flood and Water Management Act 2010.
Financial Implications: **(Authorised by the Section 151 Officer)**	On October 2017, SPCMP supported £0.775m allocation for Flood Prevention and Repairs over a three year period. £0.275m of £0.775m was identified as funding which needed to repair extensive damage that had occurred to a number of routes by Storm Angus in 2016. In 2017/18, £130k was spent at eight different locations. and a total of £0.645m had been earmarked for Flood Prevention and Repairs in the capital programme in October 2017 which can be broken down as follows: • An estimated cost for flood prevention work is £0.500m which is one-off investment. It will be used for redesigning and reconstruction of drainage structures to bring it in line with Standards of the Environment Agency.

- A further £145K is required is repair for extensive damage over next two years, £75K and £70K for 2018/19 and 2019/20 respectively.

The total combined cost for both schemes can be seen in section 4 of this report which is profiled over three years.

The scheme has been marked as 'business critical' in the review of the capital programme paper to Board in July 2018.

The proposed investment will deliver potential savings in the long term as improved flood defence system will be more resilient to the bad weather. However, in the short term it will not ease revenue pressures, because the new structures will allow maintenance work to be carried out more frequently and according to planned schedules. This will counteract the current reactive approach.

This sustainable investment will enhance council's stewardship of the environment and will bring social and environmental good to the residents of Tameside due to qualitative nature of work and proactive options being considered

Legal Implications:

(Authorised by the Borough Solicitor)

The proposals are to support the Council's responsibilities as a Lead Local Flood Authority under the Flood and Water Management Act 2010 and as a Highway Authority under the Highways Act 1980

Risk Management:

- Inclement weather preventing commencement and completion of schemes.

  A comprehensive programme of works will be agreed between partners to ensure completion by approved dates. However, should the programme not be achieved it may be necessary to arrange for any outstanding financial resources to be transferred into the following financial year.

- Inability of design consultants and suppliers to deliver materials within a time frame to meet completion targets.

  If the design consultants and suppliers cannot meet the demand in line with the proposed installation schedule, then approval will be sought to carry over the project into the subsequent year for completion.

- The ability of the Council's own *Operational Services* or external contractors to implement the programme.

  This risk will be managed by ensuring that should Operational Services or the external contractor be unable to complete the works during the timescale, approval will be sought to carry over the project into the subsequent year for completion

Access to Information:

The background papers relating to this report can be inspected by contacting the report author, Alan Jackson

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1 EXECUTIVE SUMMARY

Proposed Investment

1.1 At the Strategic Capital Group on 9 October 2017 it was reported that a number of capital projects be approved subject to a further business case. This report sets out the improvements required to a number of the Borough's drainage structures (Appendix 1 describes these structures) together with the proposed investment and delivery details. This report is in respect of the £645k identified for flood prevention measures and completion of repairs to damaged footpaths and bridleway.

1.2 Following flooding in late 2017 and again in 2018, statutory 'Section 19' reports were produced as required by the Flood and Water Management Act 2010. These highlighted a number of flood and drainage assets that were substandard from a maintenance access and performance point of view and required improvement to help increase resilience across the Borough.

1.3 In addition, approval was given to commence a series of repairs due to the consequential damage caused by flooding. This programme commenced in 2017/18, and final approval for the outstanding works is now sought within the overall £645k funding.

Options for Investment – Flood Prevention

1.4 Three options have been assessed; Option 1- 'do nothing', Option 2 - Improve maintenance access and reconstruct drainage structures, Option 3 – Improvements to a restricted number of sites. As described in this report, Option 2 is the preferred option and will ensure the optimum outcomes based on known issues, locations and engineering design.

Project Delivery

1.5 The design of the new drainage structures will be undertaken by specialist consulting engineers which are part of the Council's existing framework arrangements. The delivery of the project will be managed through the Council's Engineering Service with the majority of the work procured via existing construction framework contractors.

Financial Investment

1.6 Option 2 is the preferred option and will require an investment of £500k of the £645k being sought. This will involve improvements to access, operational safety elements and replacement of dated drainage structures with modern structures to current design and maintainability standards based on tested designs.

Project Management and Monitoring

1.7 The project management will be undertaken by the Council's Engineers and Operations and Neighbourhoods Service will ensure a detailed cleansing and repair programme is put in place.

Conclusion

1.8 Option 2 is the preferred scheme which has identified a range of improvements for specific drainage structures within the Borough. The improvement costs are estimated at £500k as part of the Council's Capital Programme.

Recommendations for Flood Prevention

1.9 The business case for the proposed resilience works is supported by Strategic Planning and Capital Monitoring Panel and the proposed investment and scope of the improvements for this project, as detailed in Option 2, are set out in detail below.

1.10 The existing cyclic maintenance programme will incorporate the new drainage structures and will be managed within existing revenue budgets

Options for Investment – Consequential Damage Repairs

1.11 In addition, £275k was identified to repair extensive damage that had occurred to a number of routes (roads, footpaths and bridleways) in the east of the Borough as a result of the extensive flooding due to unprecedented rainfall associated with storms in November 2016 caused by Storm Angus.

1.12 A number of routes were affected and a number remain unusable having been closed off to users in the interest of public safety.

1.13 During 2017/18 works were completed at 8 locations at a cost of £100k, with £30k on schemes part completed.

1.14 The remaining works to be completed during 2018/19 and 2019/20 are detailed in this report.

Recommendations for Repair of Consequential Damage

1.15 Approval is given for the allocation of the remaining £145k, profiled 2018/19; £75k and 2019/20; £70k to complete the programme of identified works.

2. BACKGROUND AND EXISTING ARRANGEMENTS – FLOOD PREVENTION & CONSEQUENTIAL DAMAGE REPAIRS

Introduction

2.1 Tameside MBC covers an area of c103km^2. In the east of the borough, the topography is primarily of hills and valleys and this area is drained to a number of natural and culverted brook courses that ultimately discharge to the River Tame, River Etherow or the canal network.

2.2 Following a change in legislation in 2010, a number of roles and responsibilities which previously rested with the Environment Agency were passed to local councils who became designated as; Lead Local Flood Authorities (LLFA).

2.3 LLFAs are county councils and unitary authorities. They lead in managing local flood risks (i.e. risks of flooding from surface water, ground water and ordinary (smaller) watercourses). This includes ensuring co-operation between the Risk Management Authorities in their area. Under the Flood and Water Management Act 2010, LLFAs are required to:

- prepare and maintain a strategy for local flood risk management in their areas, coordinating views and activity with other local bodies and communities through public consultation and scrutiny, and delivery planning.
- carry out works to manage local flood risks in their areas (the power for works in relation to minor watercourses sits with either the district council or unitary authorities outside of IDB areas)
- maintain a register of assets – these are physical features that have a significant effect on flooding in their area.

2.4 In recent years, in particular in late 2016 and late 2017, flooding has occurred following spells of heavy rainfall. The subsequent Section 19 Reports identified the critical role that brooks and culverts and associated drainage structures play in ensuring efficient drainage flows.

2.5 Examination of the drainage structures identified improvements that are required at a number of locations to ensure maintainability and functionality.

Improvements Required

2.6 Examination of the drainage structures identified the need to improve vehicle and operative access, improvements to inspection, working and clearance access points and associated operative anchorages.

2.7 Ten critical drainage structures have been identified where existing design, access and working platforms restrict functionality, for example gratings that become overwhelmed with debris thereby becoming blocked leading to flooding. They also present maintainability issues because of restricted access and have poor safety standards which means in periods of poor weather, operatives cannot clear gratings as the design presents unacceptable hazards to our operatives.

2.8 The two most recent flow events have clearly shown our vulnerability should brooks and culverts become blocked. Whilst there can never be a 100% guarantees of removing flood risk, the appropriate upgrading of drainage structures will mean we are better able to inspect and maintain these structures and react to blockages in a safe and timely way during flood events.

Existing Funding Arrangements

2.9 Currently we have a revenue budget £30,000, this funds;

- inspections; regulator inspections as to the condition of the drainage structures also additional inspections when adverse weather is forecast
- debris clearance; removal of build-up of leaf debris, stones /rocks etc, general debris
- minor works; clearing vegetation, minor repairs to grills, bars etc.

2.10 These operations can only be done during periods of good weather due the design of these structures. Evidence has shown that structures constructed to a more modern and maintainable design are better able to cope in periods of poor weather. This is evidenced with the structure at Grey Street, Stalybridge which was upgraded approximately six years ago and coped extremely well during the 2016 and 2017 flood events. (This work was undertaken by the Environment Agency due to the location being formally classified as 'Main River').

2.11 Upgrading of these structures enables greater maintenance to take place and enables access during the critical periods of bad weather. This results in more efficient maintenance and enables us to provide a greater level of resilience from the existing funding allocations.

Business Needs/Council policies, strategies and plans

2.12 The proposed investment supports the Council's vision of;

- Supporting economic growth and opportunity
- Increasing self-sufficiency and resilience of individuals and families
- Protect the most vulnerable.

2.13 It is particularly relevant with regards to the recent moorland fires which have depleted large areas of vegetation in the east of the Borough exposing the sub-soil and thereby increasing run-off rates following rainfall.

Regional and national policies, strategies and plans

2.14 The proposed improvements are in accordance with our roles and duties a Lead Local Flood Authority under the Water and Flood Management Act 2010 and are reportable to the North West Regional Flood & Coastal Committee.

2.15 They demonstrate our commitment to fulfilling our statutory role and demonstrate our stewardship of the environment.

Benefits

2.16 The benefits are covered in each of the options.

Spending Objectives

2.17 The successful outcome can be summarised as below;

- Compliance with Health and Safety requirements with regards to inspection and clearance operations.
- Improved access and maintainability
- Increased local and Borough wide resilience for residents and visitors

Risks

2.16 Risks are covered in each of the options.

3. OPTIONS FOR INVESTMENT

Flood Prevention

OPTION 1: Do Nothing

3.1 The Council would continue with existing cyclic cleansing and general maintenance of accessible drainage structures. However a number have been identified as having sub-standard access, inspection and maintenance anchor points. Accordingly maintenance activities are therefore limited due to risks to operatives, in particular during bad weather.

Benefits

3.2 There is no additional cost incurred over and above the exiting revenue allocations maintainability and flood risks are not resolved.

Risks

3.3 A number of drainage structures are of poor design and therefore have significant risk of becoming blocked and overwhelmed during extreme or prolonged rainfall.

3.4 Inspection and maintainability is restricted due to access issues also hazards associated with operative safety, in particular during bad weather.

Risks with this Option:

Risk	Likelihood	Outcome/impact	Mitigation
Reduced maintenance activities due to unsafe access and working issues. Increased risk of substandard structures becoming blocked during extreme or prolong rainfall.	High	Decline in maintenance standards and increased risk of blockages and therefore flooding.	Little due to poor access and hazardous working issues.

Wider impacts

3.5 Concerns about these structures have been highlighted within the recent statutorily required 'Section 19' reports. Accordingly in the event of further flooding, and these structures being identified as a contributor, this would leave the Council open to criticism and possible claims.

OPTION 2: Improve maintenance access, working platforms, anchor points etc. Reconstruct drainage structures to modern and proven design standards.

Improve maintenance access, working platforms, anchor points etc.

3.6 Working with specialist Health and Safety consultants we have identified a number of drainage structures where current access and working areas do not meet best practise, are potentially hazardous and therefore limit the amount of maintenance works that can be undertaken. Improving these structures to ensure safe and efficient access and maintenance can be undertaken; costs are estimated at £75k.

Reconstruct drainage structures to modern and proven design standards.

3.7 The following drainage structures have been identified as in need of redesign and reconstruction to current design standards (this is based on experience from the 2016 and 2017 flood events and the design the standards of the Environment Agency);

Road	Town	Site
Demesne Drive 1	Stalybridge	rear of 113/115
Demesne Drive 2	Stalybridge	opposite 93/95
Mottram Old Road,	Stalybridge	
Micklehurst Road 1	Mossley	rear of 93
Micklehurst Road 2	Mossley	exit from pond
Halton Street	Hyde	
Gower Road	Hyde	
Store Street	Ashton-under-Lyne	
Ney Street	Ashton-under-Lyne	
Cartwright Street	Hyde	

Benefits

3.8 These fall into two main categories; health and safety improvements for operatives undertaking maintenance functions and the increased opportunities for the servicing of these structures, in particular during poor weather conditions.

3.9 Taken together these;

- Reduce flood risk – avoiding extensive reactive costs, clean-up costs and disruption to road uses.
- Maximises what we can deliver with our existing revenue allocations – more for the same
- Helps to safeguard our residents from flood damage and associated clean up and repairs costs, increased insurance premiums etc.
- Minimise risk of disruption to businesses, residents and associated community stresses.

3.10 **Costs;**

Element	Costs (£)
Reconstruction Structures	£425,000
Access, Health and Safety, Maintainability Works	£75,000
Total	**£500,000**
(Flood Preventions £145k) Grand Total	**£645,000**

3.11 **Risks with this Option**;

Risk	Likelihood	Outcome/impact	Mitigation
The project could be delayed due to the availability of some key contractors	Low	Project will take longer to deliver	Alternative contractors appointed
Inclement weather conditions during construction	Low / medium	Delay to overall project timescale	Phase construction over a number of seasons

Wider Impacts

3.12 This option reduces hazards to operatives in accessing and maintaining assets. It reduces flood risk to the Borough's residents and businesses, and it delivers the outcomes required which were highlighted in the Section 19 reports.

OPTION 3: Restrict Number of Sites

Restrict the number of sites to be improved.

3.13 The sites identified are known locations where there are access and maintainability issues. Restricting the numbers would still leave areas vulnerable should the weather conditions experienced in 2016 and 2017 be experienced again.

Benefits

3.14 Reduced capital expenditure.

Costs

3.15 Undertake works to sites prioritised using local knowledge and experience; £400k.

3.16 There are a number of variables and limited objective tools to produce a robust prioritisation of the identified structures. Accordingly this is a subjective approach and leaves officers and the Council open to criticism and challenge should there be a flood event at one of the sites not improved.

Risks with this Option;

Risk	Likelihood	Outcome/Impact	Mitigation
Reoccurrence of events experienced in 2016 and 2017	Medium	Significant, dependent on which areas are impacted	Little, not possible to predict which areas would be impacted

Wider Impacts

3.17 Potential for flood event at sites not improved therefore location of known flood risk not mitigated. Challenge of individuals and the Council for not undertaking works at those sites. Concerns of local communities and businesses with regards to lack of action and remaining flood risks.

Preferred Option
Summary of Options – Flood Prevention

Option	Preferred Option	Capital Cost ,000	Note
1, Do nothing	x	£0	Access and maintainability issues remain. Unable to service during adverse weather. V.high impact and costs at flood events
2, Improvement of the 10 Drainage structures	✓	£500	Complies with current design standards Adds maximum resilience Minimises costs of any future flood events
3, Reduced, prioritised investment	x	£400	Small capital saving Does not improve overall resilience due to impact at locations not improved

3.18 Option 2 is the preferred option as this would deliver a whole range of improvements to the Borough and provide the most resilience to our residents and businesses. It avoids reactive and clear up costs, it fits with our duties as Lead Local Flood Authority, supports objectives such as protecting the vulnerable, supporting business and protecting our transport infrastructure.

Consequential Damage Repairs

3.19 **Option 1: Do Nothing**
A number of footpaths and bridleways damaged during recent flood events will continue to remain closed or with restricted access thereby limiting choice and opportunities for access to these area.

Benefits
3.20 There is no additional capital cost.

Risks
3.21 Public perception due to routes being closed or restricted, Impact on use of other routes as reduced overall opportunity for walkers and riders to exercise and explore the area.

Risks with this Option:

Risk	Likelihood	Outcome/Impact	Mitigation
Reduced opportunities for walkers and riders and consequential reputational risk to poor stewardship and lack of support for outdoor exercise.	High	Complaints and reputational damage.	Permanently close paths and provide publicity regarding paths that do remain open

OPTION 2: Continue with restoration works to improve drainage and repair footpath and bridleway surfaces.

Benefits

3.22 Restores routes and improves their resilience to future events. Restores area network and demonstrates good stewardship.

Risks

3.23 None.

Cost

Element	**Costs (£)**
Drainage improves to increase resilience of routes	£70,000
Works to footpath and bridleway surfaces	£75,000
Total	**£145,000**
Flood Prevention £500k) **Grand Total**	**£645,000**

Preferred Option

3.24 Option 2 is the preferred option as it restores the network and increases future resilience.

Flooding - Consequential Damage

Route	**Work**	**2018/19 (£'000s) Est**
LON/4	Replace bridge and support embankment	28.50
Stoney Road	Improve drainage and resurface bridleway after flood damage	22.00
Edge Lane	Improve drainage and resurface bridleway after flood damage	29.00
DUK/3	Improve drainage and resurface bridleway after flood damage	22.50
LON/109	Improve drainage and resurface bridleway after flood damage	24.00
STA/121	Improve drainage and resurface bridleway after flood damage	19.00
		£145.00k

4.0 FINANCIAL INVESTMENT REQUIREMENT

Financial Case – Based on Option 2 for Flood Prevention and Option 1 for Consequential Damage Repairs;

	2018/19	2019/20	2020/21	Total
Consequential damage repairs Drainage channels and resurfacing works	£70,000	£75,000		£145,000
Design of new structures Design Consultants – design to current standards*	£25,000			£25,000
Access and maintainability works Access route improvements, hand	£75,000			£75,000

rails and gratings, warning signs etc - TMBC staff and external contractors *				
Construction of new structures To current design standards and best practice - TMBC staff and external contractors*		£250,000	£150,000	£400,000
Total	**£170,000**	**£325,000**	**£150,000**	**£645,000**

*Based on EA costs with regard to similar works

4.1 Once structures are upgraded, existing revenue costs are not expected to increase as inspection and maintenance can be undertaken more efficiently.

Summary of forecast financial investment

4.2 Following approval of this project the various types of work will be packages and procured in accordance with existing Engineering resources, standard and framework contracts.

4.3 Improvement work should start in late 2018 however this will be dependent on a number of factors such as the availability of contractor/s, inspection and approval of all the relevant documents – insurance, methods statements and weather conditions.

4.4 Subject to approval the project will be funded through the Council's Capital Programme. The above figures are based on the various unit costs via existing framework contracts.

5.0 PROJECT DELIVERY

5.1 Following the approval of this project, the majority of the work packages will be procured via existing Engineers' framework design consultants and contractors / STAR Procurement, Any saving from the procurement process will be returned as unused funding. Other packages of work will be procured in accordance with the Council's Standing Orders.

Project Risks

Risk	Likelihood	Outcome/Impact	Mitigation
Delivery of Works e.g. weather interventions	Medium	Delay to overall works programme and final completion date	Ability to reschedule elements of works programme, commissioning of increased resources, ongoing reviews of progress and target dates.
Procurement of design and engineering resources	Low	Delay to overall works programme	Use of existing Engineering Services resources and framework consultants and contractors
Delivery resources to complete programme	Low	Delay to overall programme	Commission of additional resources, ability to reschedule delivery programme

Procurement Project Plan and Timescales

Table 1: Procurement / Delivery Plan

Category	Preliminary design / Procurement	Start Works	Approx. Completion
Design for new drainage structures	October 2018	December 2018	April 2019
Access and maintainability works	October 2018	November 2018	June 2019
Consequential damage repairs	-	April 2019	September 2019
Construction of new drainage structures	January 2019	April 2019	December 2020

6.0 PROJECT MANAGEMENT AND MONITORING

Project Management, governance and reporting arrangements

6.1 The project will be procured and project managed by Operations & Neighbourhood – Head of Highways & Transport utilising our existing engineering resources and external design consultants.

Project monitoring

6.2 Regular monitoring and reporting will be provided to the Capital Monitoring Group and Strategic Capital Group.

Contract Management

6.3 All external contracts will be managed by the Heads of Service (Highway & Transport, Design & Delivery) and will be mainly delivered through the Engineers existing framework contracts or STAR frameworks. Alternative contractors will be sourced if existing framework contractors are not available.

Risks and Contingency

6.4 The main risks to this project are the availability of suitably experienced contractors to deliver the construction of the new drainage structures and risk of poor weather during construction. Accordingly regular progress reports are critical in terms of informing progress with regards timeframes and costs.

Post Implementation Review

6.5 The ongoing revenue monitoring process will be used to measure the success of this project to ensure it delivers stated objectives.

7.0 CONCLUSION

7.1 The Borough is at risk from future weather events due to poor access and maintainability issues with regards to 10 historic drainage structures. Works undertaken by this project will significantly increase the Boroughs resilience to future weather events, reduce impact costs and disruption to residents and businesses. It will also restore routes that were badly impacted by recent flood events.

8.0 RECOMMENDATIONS FOR FLOOD PREVENTION

8.1 As set out on the front of the report.