

**North Yorkshire County Council**  
**Business and Environmental Services**

**Executive Members**

**26 January 2018**

**Flood Risk Management Programming Methodology and Scheme Prioritisation**

**Report of the Assistant Director – Highways and Transportation**

**1.0 Purpose of the Report**

- 1.1 To seek approval from the Corporate Director - Business and Environmental Services (BES), in consultation with the BES Executive Members for:
- i) The development, delivery and funding of schemes to address flood risk for locations at high risk of flooding in North Yorkshire.
  - ii) For the use of a method of prioritisation of locations at flood risk in North Yorkshire, to instruct the delivery of the programme of works by the Flood Risk Management Team.
  - iii) A NYCC contribution to the progression of a multi-source flood study for Great Ayton during quarter 4 of financial year 17/18.

**2.0 Background to the report**

- 2.1 On 24 February 2017 a report was brought to the BES Executive Members and BES Corporate Director to give an update on the Flood Risk Management (FRM) programmed work commitments of NYCC.
- 2.2 In addition to seeking approval for the progression of projects in Malton, Norton and Old Malton and in the Rye catchment, the report also detailed the work that was being undertaken to create a methodology for a future programme of schemes, to address locations at risk of surface water and groundwater flooding within North Yorkshire County Council's administrative area.
- 2.3 This report updates on the outcome of the work to establish a programme methodology and seeks approval for a method of affording a priority to locations at risk of flooding, and a process for delivering the identified works.

**3.0 The requirement for a programme of work**

- 3.1 Repeated flooding has wide ranging consequences for the communities it effects. In addition to the individual property recovery issues and the associated stress encountered by those with properties at flood risk, there is also a much wider associated cost to both the community and the responding organisations, following a flood event.
- 3.2 The costs of immediate response to incidents by the emergency services and local authorities can be significant, and similarly the costs of recovery following the event are typically substantial. These costs can include the administration of council tax discounts and property level resilience schemes, disruption to public services such as school, hospitals or doctors surgeries, additional street cleansing, maintenance of

drainage systems, repair of road damage, staff resource in terms of investigating the events and supporting the communities, and inspection and repair to critical infrastructure, including bridges.

- 3.3 In addition to the costs incurred by local authorities and first responding organisations, there are other long term costs to the local economy and community, including the implications on the ability to gain property insurance, loss or closure of business, impacts upon public health, repeated disruption to transport links, and a negative effect on property values.
- 3.4 Communities may also experience secondary issues such as a detrimental impact upon economic growth and development, and carry a wider reputational damage associated with locations at high flood risk.
- 3.5 In most cases, proportionate proactive action to mitigate flood risk in the locations at highest risk, would generally represent best value, not only in terms of the resilience of the community, but also when evaluated against the future potential costs of response and recovery, and when considering the degenerating effect that flood risk has on a communities future economic growth potential.
- 3.6 In the past 10 years there have been several significant flooding events affecting numerous locations across county, the largest events being experienced in 2009, 2012, and most recently 2015. This has understandably afforded a high profile status to the work of the Flood Risk Management Team within our affected communities, and there is an expectation that work to alleviate flood risk will be undertaken by NYCC, in its capacity as Lead Local Flood Authority (LLFA).

#### **4.0 The role of North Yorkshire County Council**

- 4.1 On becoming aware of a flood in its area, the LLFA is required by Section 19 of the Flood and Water Management Act 2010 to investigate (to the extent that it considers it necessary or appropriate) which risk management authorities have relevant flood risk management functions, and whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.
- 4.2 Flood investigation is duly undertaken by NYCC following an event, with the scale and scope of the investigation being proportionate to the specific circumstances, as directed by the NY Flood Risk Strategy.
- 4.3 Often the future action identified by investigation is outside of the remit or established priorities of other risk management authorities, and investigation may therefore establish the contributing factors to a flood event, but with no single authority having clear responsibility, can lead to no ownership of the future reduction of risk.
- 4.4 North Yorkshire County Council has permissive powers under Section 14 of the Land Drainage Act 1991 to undertake work to mitigate surface water flooding or groundwater flooding, and to undertake works to ordinary watercourses.
- 4.5 The NY Flood Risk Strategy directs the prioritisation of the work of the Flood Risk Management Team towards high risk locations. To date, whilst the role of the Flood Risk Management Team has been becoming established, workload has been reactive to the most recent events, and largely directed by opportunities afforded by the prioritisation of locations by other organisations in the aftermath of large scale flooding events.

- 4.6 Following a review of the service in 2016, it was recognised that there was a need to move away from this approach and establish more order and accountability to the work of the FRM team, to offer a robust criteria for when and where work is undertaken and therefore afford a higher level of transparency and understanding to our affected communities.
- 4.7 It is proposed that a programme of work which initially targets communities with a known and documented flood risk, as opposed to those for example, with a high theoretical risk as demonstrated by EA mapping technologies, would give the most demonstrable added value for our communities through the delivery of flood risk mitigation works in the county.

## **5.0 Considerations when prioritising locations**

- 5.1 Variation in the deliverability of schemes
- 5.2 There are a large number of properties at flood risk in North Yorkshire, (most recently demonstrated by the 600 properties affected during the Boxing Day events of 2015), however the vast and predominantly rural nature of the county, means a large variety of factors may be contributing to the likelihood of a flood incident in any given location.
- 5.3 Catalysts for flooding include interrelated drainage systems, capacity issues, land management and stewardship issues, variances in topography and ground conditions, spatial constraints, and variances in catchment responses to rainfall.
- 5.4 This determines that there is not a “one size fits all” approach to the reduction of flood risk in communities, and targeted schemes would need to be developed to specifically address the issues in ways most appropriate to each distinct set of circumstances.
- 5.5 The differences in the approaches that may be taken to reduce flood risk affect the cost of works, and in some circumstances costs of a scheme may be unaffordable and unlikely to achieve funding, if an appropriate value of benefits cannot be delivered by a scheme.
- 5.6 Flood schemes can vary in the level of protection they can offer properties, ranging from significantly reducing the risk delivered via hard engineering solutions, through to more natural approaches which seek to store water in upper catchments and “slow the flow”, and at the other end of the spectrum, adaptation and resilience works which permit the property to more quickly become habitable following flood events.
- 5.7 This also has an impact upon the cost of work, and sometimes opting for a reduction of risk with a lesser standard of protection is the only financially viable option in the circumstances.

## **6.0 Ownership of affected flood risk assets**

- 6.1 NYCC does not have a statutory duty to maintain flood risk management assets (except in its distinct capacities as highway authority or exceptionally, through property ownership). This makes delivery of schemes more complicated, as a solution to address flood issues are likely to be required to be undertaken on third party assets in most circumstances.

- 6.2 Riparian owners have no responsibility to improve drainage systems in order to reduce flood risk and are only obliged to ensure that drainage is adequately maintained, to permit the conveyance of water without obstruction, so therefore a scheme may be made unviable if a landowner would not be willing to take future maintenance responsibility for any improvement undertaken.
- 6.3 The most suitable option for a methodology and criteria supporting an NYCC programme is therefore considered to be a system of prioritisation which defines the communities at most risk and those with most opportunities, alongside a process that considers the views of the affected communities and landowners through effective engagement, and then establishes the feasibility of schemes and outline designs and costs based on the requirements and constraints in the location, before decisions over future funding and asset ownership are taken.

## **7.0 Measuring benefits and affordability**

- 7.1 The revenue budget available to NYCC to perform its flood risk management responsibilities is detailed in Section 9 below, but aside from the constraints of the finite annual budget, there also must inevitably be consideration given to attributing a value to the benefits a scheme may deliver.
- 7.2 Given the range of options for flood mitigation, it would be extremely rare that some level of increased protection or resilience would not represent good value, however the constraints of affordability may offer a standard of protection that does not meet the expectations of the community. Given the relatively small conurbations that are dispersed across North Yorkshire, the costs of a preferred scheme would not always be likely to be secured through grant applications, to external funders, and community engagement and understanding is therefore a key deliverable to the work.
- 7.3 The Environment Agency populates a regional programme of investment for flood and coastal schemes, and funding is available for LLFA's to undertake schemes from its Flood Defence Grant in Aid programme.
- 7.4 The Environment Agency establishes the level of investment appropriate to a location through robust calculations of the benefits that can be achieved, per property protected, in terms of the annual weighted cost of damages that would derive from no action, but also, for example, from establishing the weighted value of costs to any affected infrastructure and land. The figures generated are clearly dependent on the design standard and the level of protection the scheme will afford. The calculations for this are included in its publication, "Flood and Coastal Erosion Risk Management, A Manual for Economic Appraisal".
- 7.5 As funding for flood schemes is available to LLFA's through FDGIA, it would seem sensible to establish affordability through the EA's existing method, thereby populating NYCC commitments on the wider regional programme.
- 7.6 This would permit a view to be taken on the level of additional local partnership contribution required to undertake the schemes, based on the benefits it would deliver, and would steer future work to secure that funding.
- 7.7 If a holistic solution to a problem was ultimately considered unfeasible, property level resilience measures to a value of £5,000 per property at risk could be offered, implemented by the County Council, as the most suitable scheme to the location.

7.8 The Regional Flood and Coastal Committee Levy fund, which NYCC contributes towards, would be available where appropriate for match funding and other external opportunities such as LEP growth funding and catchment partnership funding opportunities could also be explored.

## **8.0 Prioritising Locations**

8.1 In order to create a programme which tackles high flood risk it is clearly necessary to quantify the risk, through an assessment of the consequences following a flood event, and also in terms of the opportunities available and the benefits that a scheme could deliver, so that an objective priority can be afforded.

8.2 Following a report of flooding, the FRM team records the details of the location and the event prior to undertaking investigation on the Flood Incident Review Register (FIRR). This therefore represents a comprehensive list of the communities which we have worked with and our full understanding of the active flood risk across North Yorkshire.

8.3 A copy of the Flood Incident Review Register (FIRR) is available as a background document to this report.

8.4 The FIRR generates a value for each location through a set of weighted criteria. This permits a decision to be taken on the scale of response and investigation to be attributed following any reported flooding incident, in line with the NY Flood Risk Strategy.

8.5 The methodology used on the register was approved by BES Executive Members and the BES Corporate Director at their meeting on the 27 February 2015.

8.6 The criteria and weightings are demonstrated in annex 1 of this report.

8.7 The weighted criteria includes the property type involved, the history and frequency of previous flooding incidents, the critical infrastructure affected, and how likely the scheme would be to attract partnership contribution.

8.8 Priority is given to locations which include higher numbers of affected properties, to locations with critical infrastructure affected and where NYCC funding could secure additional partnership contribution which would normally be required in order to undertake works. This then affords a score which determines the scale of the investigation that it would be reasonable for the FRM team to undertake.

8.9 Of course, if the circumstances are right the risk of flooding is not isolated to these known locations, and there are many other communities at a theoretical flood risk from surface water and ground water flooding, this risk is represented through the EA surface water maps.

8.10 It is however considered sensible to extend the use of this prioritisation tool, and to formulate a programme using locations where the team has undertaken previous investigation, to establish a synergy through the work of the team and to extend the opportunities leading from investigation.

8.11 The property numbers considered at risk in each of the locations generated by filtering the FIRR based on high risk would be validated by the Environment Agency to ensure that an appropriate amount of FDGIA can be applied for, to optimise delivery in North Yorkshire.

## 9.0 Process for Delivering Works

- 9.1 An annual report listing the locations for prioritisation in any given financial year would be presented to BES Executive Members and the BES Corporate Director, to seek their approval to proceed with any new schemes.
- 9.2 Figure 1 demonstrates the suggested annual committee process to permit decisions over the progression of schemes.

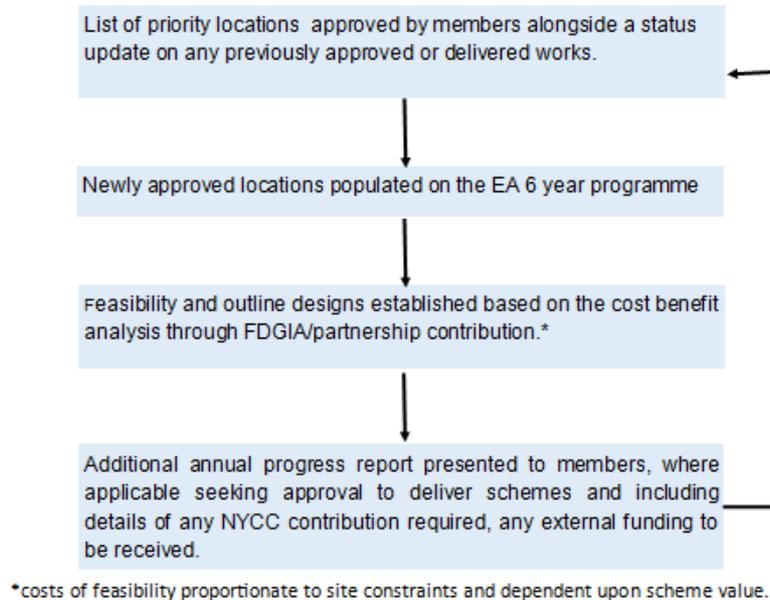


Figure 1 – Annual committee process for scheme locations and any associated decisions required.

- 9.3 It is suggested that the proposed committee decisions will be sought in April and October annually.

## 10.0 Proposed Priority Locations, Work In Quarter 4 17/18

- 10.1 A full further report detailing the locations which score the highest using the proposed criteria will be brought to members and the corporate director in March, to seek approval of the work required to progress schemes in the locations and an estimation of the costs.
- 10.2 At the time of writing the four locations which are at highest risk according to the Flooding Incident Review Tool (FIRT) criteria are Malton, Norton and Old Malton, Tadcaster, Filey and Great Ayton.
- 10.3 Given their high risk status, schemes are already in development or are on-going in Malton, Norton and Old Malton, Tadcaster and Filey, however there is opportunity to also commence work in Great Ayton during Quarter 4 17/18.
- 10.4 BES Executive Members and the Corporate Director, BES have already agreed to the progression of a business case for Malton, Norton and Old Malton, in February 2017, and work towards this has continued during the last two quarters.
- 10.5 A distinct report concerning the progression of the Malton, Norton and Old Malton scheme will be presented to members separately.

- 10.6 Tadcaster and Filey both have schemes already in development, by the EA and Scarborough Borough Council respectively. Contributions to this work maybe required from NYCC at a future date.
- 10.7 Great Ayton falls within the Northumbrian Integrated Drainage Partnership (NIDP) boundaries, of which NYCC is a member.
- 10.8 Great Ayton has experienced significant flooding events in 2012, 2013 and has most recently flooded in 2016. The source of flooding is from surface water, ground water, sewer flooding and from main river, meaning there is no one risk management authority responsible. The effects of flooding in Great Ayton impact upon residential properties and businesses, critical infrastructure including the public sewers, and priority one highways.
- 10.9 The NIDP has an established method for undertaking partnership studies, which sees all implicated risk management authorities offering a proportionate contribution to a study, which is led by Northumbrian Water, liaising with all involved. The study determines the sources of water and the feasibility of undertaking a mitigation scheme, addressing all Risk Management Authorities distinct responsibilities.
- 10.10 Northumbrian Water has an under-spend from its budget towards this work during this financial year, which would permit Great Ayton to have a feasibility study commence in quarter 4. The overall cost of the study is estimated at approximately £100k. This would require a contribution of approximately £40k from NYCC as LLFA.
- 10.11 If this work is not delivered this financial year, it would be required to be prioritised as part of Northumbrian Waters 18/19 programme, and weighted compared to other locations across the wide geographic area it serves, and the opportunity may therefore be lost.
- 10.12 It is suggested that, given the high status afforded to Great Ayton by the NYCC prioritisation method, it would be appropriate to take the opportunity that presents and offer the contribution towards the feasibility study during Quarter 4 17/18.

## **11.0 Financial Implications**

- 11.1 In addition to the approximately £350k given to NYCC by central government in order for it to undertake its duties as LLFA, an additional £200k is committed by members for the delivery of flood risk management across the county.
- 11.2 This funding has historically remained underspent annually, and is committed to reserve for future intended programme delivery accordingly.
- 11.3 At the time of writing there is £650k available from the flood risk management reserve, with approximately £600k to be committed at the end of this financial year. This is as a result of an underspend (approx. £250k) of the allocated revenue budget and due to reimbursement from the budget for the property level resilience grants (approx. £350k) as a result of the closure of the scheme and reconciliation by central government.
- 11.4 It is suggested that the resource in reserve is used by NYCC proportionately towards the delivery of the future programme, in line with the application of EA benefits calculations, which considers the numbers of properties protected and the benefits the scheme could potentially deliver, and that once the reserve has been committed,

the annual funding that is ear-marked for flood risk management continues to be directed by the prioritisation and process detailed in this report.

- 11.5 The partnership nature of flood risk management and the wide ranging benefits of the delivery of schemes means that additional funding could be sourced, as detailed earlier in the report, from the EA, the LEP, the RFCC, catchment partnerships and other Risk Management Authorities, where appropriate.
- 11.6 Decisions regarding NYCC contributions towards scheme delivery would be put to members in a bi-annual programme progress report.

## **12.0 Legal Implications**

- 12.1 North Yorkshire County Council has permissive powers under Section 14 of the Land Drainage Act 1991 to undertake work to mitigate surface water flooding or groundwater flooding, and to undertake works to ordinary watercourses.
- 12.2 This report seeks to agree a method of prioritisation and process for utilising these powers. The affordance of a priority to high risk locations is detailed in the NY Flood Risk Management Strategy and it is considered that the method suggested strengthens this commitment.
- 12.3 Because work is required to be undertaken on third party assets, a decision over the ownership and maintenance of any future assets resulting from the work would be required following the establishing of a preferred scheme and prior to its delivery.
- 12.4 Specific contracts detailing the future maintenance commitments of third party owners following a scheme may be required to be entered into as a consequence of any distinct future decisions taken over a future projects delivery, but this is not a matter for this report.

## **13.0 Equality Implications**

- 13.1 An Equalities Impact Screening Assessment is attached as Annex B of this report.

## **14.0 Recommendations**

- 14.1 It is recommended that the Corporate Director – BES, in consultation with BES Executive Members:
  - i) grant approval in principle to the development, delivery and funding of schemes to address surface water and ground water flood risk for the highest priority locations in North Yorkshire County Council’s administrative area;
  - ii) approve the extended use of the Flood Incident Review Protocol criteria and its associated weightings to establish the locations which are prioritised as part of a future NYCC programme;
  - iii) approve in principle that partnership funding is sourced by NYCC where appropriate to ensure the delivery of schemes and support the population of the EA’s FDGIA programme with the intended programme commitments of NYCC;

- iv) agree that a future bi-annual report/progress report delivered in April and October will seek approval for the locations to be addressed by the programme on a year by year basis and the estimated costs of scheme development;
- v) agree to an NYCC contribution, towards the cost of a multi-source study for Great Ayton as part of the NIDP programme in quarter 4 17/18.

BARRIE MASON  
Assistant Director - Highways and Transportation

Author of Report: Emily Mellalieu

Background Documents:

NY Flood Risk Management Strategy  
Flood Incident Review Register



## Appendix B - Equality impact assessment screening form

Name of Directorate and Service Area	BES H & T Network Strategy
Lead Officer and contact details	Emily Mellalieu – 01609 534876
Names and roles of other people involved in carrying out the EIA	Mike Douglas
How will you pay due regard? e.g. working group, individual officer	Any issues identified will be considered by the report author.
When did the due regard process start?	When the NY Flood Risk Management Strategy was introduced a full EIA was prepared, which considered how the work to manage flood risk would be prioritised. Subsequently, a prioritisation method was given approval which directed the investigatory works of the flood risk management team. It is now proposed to roll this out further to use the criteria for the development of schemes.
Sign off by Assistant Director (or equivalent) and date	<i>Barrie Mason</i> 15.01.18

**Section 1. Please describe briefly what this EIA is about.** (e.g. are you starting a new service, changing how you do something, stopping doing something?)

Approval is sought for a standard process for the delivery of flood risk management works in NY and an associated prioritisation criteria by which locations are identified for works. Additionally, approval in principle is sought for the commencement of a programme of works to target flood risk.

This EIA seeks to consider any equality impacts arising from the weightings and criteria suggested to identify and then deliver schemes.

The prioritisation method will determine in which locations flood schemes are progressed. This involves attributing a value to a location, due to the effects of flooding on particular aspects of the community, for example the number of residential/business properties affected, critical infrastructure affected (doctors, hospitals, utilities, schools etc) and so a community with certain attributes may score more highly than another with a similar flooding problem.

**Section 2. Why is this being proposed?** (e.g. to save money, meet increased demand, do things in a better way.)

A service review in 2016 identified that there was a need for more structure and accountability to the delivery of NYCC in its capacity as lead local flood authority, which has historically been opportunistic and has arisen from large flood events.

In adding structure to delivery, there consequently has to be a method by which locations which have experienced flooding are afforded a priority. Given the scale of the county and the different scenarios that may affect risk, it has been necessary to seek to attribute a value to the various issues typically associated with flooding, so that a locations risk can then be quantified and compared.

**Section 3. What will change? What will be different for customers and/or staff?**

At present the flood risk management team responds reactively to flood events. The criteria will mean that in the future locations are afforded a priority and projects are developed as part of a programme resulting from the priority afforded to each location.

**Section 4. What impact will this proposal have on council resources (budgets)?**

**Cost neutral? Y – This is a change in process not an alteration in budget**

**Increased cost? N**

**Reduced cost? N**

**Please explain briefly why this will be the result.**

Funds are ear-marked for the delivery of flood risk management annually. At present, there is a trend for an under-spend to be committed to reserve at the end of each financial year for future use, and any projects which are progressed are done so based upon its own merits rather than through a comparison of other similar locations as part of a larger programme. This change to process will ensure the money annually delivers works, and that the works are targeted at the communities at most risk, with the largest residual effects, based on a methodology, rather than schemes viewed in isolation.

<b>Section 5. Will this proposal affect people with protected characteristics?</b>	<b>No Impact</b>	<b>Make things better</b>	<b>Make things worse</b>	<b>Why will it have this effect? State any evidence you have for your thinking.</b>
Age	X			The proposal will not have any impact upon age, as it is simply a methodology and a criteria for quantifying risk. As part of the calculation, “critical infrastructure” – which would include residential care homes is given a higher weighting than other factors, given that the risk of flooding has a higher and more far reaching impact than other factors. This means that locations which have residential facilities, doctor’s surgeries and hospitals would have a higher priority than locations which do not. This would neither benefit nor dis-benefit any protected characteristic but would seek to target flood risk works at locations where flood risk is heightened by its effects, which may include facilities used more by those with some protected characteristics. The weightings are included as annex 1 of the committee report.
Disability	X			As above

Sex (Gender)	X			The proposal is to offer a methodology for the delivery of flood mitigation works. Fundamentally the whole programme would be based upon locations that flood rather than based upon measures which benefit a particular set of individuals, the proposals will therefore have the same impact on all individuals.
Race	X			As above
Gender reassignment	X			As above
Sexual orientation	X			As above
Religion or belief	X			As above
Pregnancy or maternity	X			As above
Marriage or civil partnership	X			As above
<b>Section 6. Would this proposal affect people for the following reasons?</b>	<b>No impact</b>	<b>Make things better</b>	<b>Make things worse</b>	<b>Why will it have this effect? Give any evidence you have.</b>
Live in a rural area	X			Locations which are extremely rural are likely to have a lower score as the impact on the wider community is lower than when in a larger conurbation with critical services and larger property numbers. Notwithstanding this, the impacts of flooding in a larger conurbation have a secondary effect on the wider community that the town services, for example, critical infrastructure such as hospitals, wider growth issues, disruption to transport, loss of business etc. and therefore the prioritisation used aims to target those locations which have the largest effect on the wider community and not just the individual properties affected.

Have a low income	x			The proposal would not affect this as the criteria would not distinguish between any factor that could identify a person's income.
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**Section 7. Will the proposal affect anyone more because of a combination of protected characteristics? (e.g. older women or young gay men?) State where this is likely to happen and explain what you think the effect will be and why, giving any evidence you have.**

This is not likely to affect any one more because of a combination of protected characteristics.

**Section 8. Only complete this section if the proposal will make things worse for some people. Remember that we have an anticipatory duty to make reasonable adjustments so that disabled people can access services and work for us.**

**Can we change our proposal to reduce or remove these adverse impacts?**

N/a

**Can we achieve our aim in another way which will not make things worse for people?**

N/a

**If we need to achieve our aim and can't remove or reduce the adverse impacts get advice from legal services. Summarise the advice here. Make sure the advice is passed on to decision makers if the proposal proceeds.**

**Section 9. If the proposal is implemented how will you find out how it is really affecting people? (How will you monitor and review the changes?)**

Priority locations for the financial year and an additional 6 monthly progress report will be presented to BES Executive members and BES Corporate Director annually. If there are found to be disparities which have not been considered as a result of this method of prioritisation then this will be picked up by the annual reviewing this procedure will require.

**Section 10. List any actions you need to take which have been identified in this EIA**

Action	Lead	By when	Progress