Welwyn Hatfield Options Long List

Long List of Options

WHBC6 - Digswell Water

Long list option	Option measure	Description	Option considerations	Viability Score (1 – Low viability, 5 – High viability)	Take Forward to short list?
Do nothing	Do nothing	All operational and maintenance activities cease	. A reduction of maintenance within this hotspot would relate to a deteriorating condition of the River Mimran. Limiting the maintenance along the watercourse would result in decreasing channel capacity (through increased vegetation growth) and blockage of culverts and bridges. Within the hotspot, the watercourse passes below a highway bridge (Hertford Road), which if it were to become partially/fully blocked, would result in upstream flooding.	N/A	Yes
Do minimum	Do minimum	Continue with current operational and maintenance activities	Continued maintenance of the River Mimram will ensure no deterioration in channel capacity and operation of existing assets. However, this option will not provide any betterment to the existing scenario and will remain as per the existing situation.	3	Yes
Do more	Do more	Increased maintenance regime	Increased maintenance of culverts and sewers to include more regular jetting and better channel maintenance. This option would further reduce risks of blockage and localised flooding but would not fundamentally increase conveyance capacity and standard of protection to properties going forward. Furthermore, the dominant source of flood risk within this hotspot is surface water, and so increased maintenance of watercourses and associated structures would not have a significant impact upon the number of reported incidents in the area.	N/A	No
Option 1	Increased conveyance and temporary storage within the highway	Improve the conveyance of surface water and the volume	Increased storage in the north of the hotspot along New Road would reduce the volumes at the downstream end at the	3	No

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		of water which can be temporarily stored within the highway through increased kerb height or lowering of road surface	junction with Hertford Road whereby recorded flood incidents have been recorded. Increased storage should also be considered along Sewells and Harwood Close in the south of the hotspot whereby there is little other space to capture runoff before it reaches property.		
Option 2	Retrofitting of SuDS		In the north of the hotspot, a flow path from the northwest flows towards New Road. This water then flows south along the road and results in flooding downstream. This flow path originates on private land (gardens) and so the implementation of SuDS here is not easily implementable. Instead, SuDS could be constructed to intercept the flow path before it enters the highway using methods such as swales or rain gardens. There are areas of grass between the pavement and road that would provide opportunity for this.	3	Yes
Option 3	Property flood resilience	Protection to individual properties (e.g. via air brick covers, door guards etc.).	The flood depths shown to occur, within the modelling, around the at-risk areas, are typically low and so installation of property flood resilience may be a viable option. Based upon EA guidance, PFR should only protect against flood depths up to 0.6m; beyond this the structural integrity of a property is at risk. Should be considered if more holistic flood risk mitigation measures are not viable. This would be a viable option along St Ives Close whereby flooding has previously been reported. Flood depths during the 1 in 75-year flood event are predicted to be around 0.5m. Here other options such as increased kerb height would not be an option. Furthermore, the expected flood depths are relatively low. Property protection may also be required as a consideration	3	Yes

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			at The Alders as, here, there is fluvial flood risk in addition to surface water. Here flood depths are predicted to reach around 0.28m during the 1 in 75-year flood event, and so are within the range of PFR suitability. It should be considered that PFR would not be provided for flooding which has only impacted upon external areas of property. The reported incidents do not all have information, and so further investigation would be required.		
Option 4	Catchment Management	Management upstream to limit fluvial flood risk downstream	Within the hotspot, there is also fluvial flood risk associated with the Mimran River. Involvement of the EA is advised to assess the next steps that should be considered.	3	No

Table 1: Viability scoring criteria

Assessment Criteria	Assessment criteria description	Do Minimum	Option 1	Option 2	Option 3	Option 4
Construction & Maintenance	Disruption for construction and maintenance are minimised	5	4	4	3	3
Design Capabilities	Number of properties protected from flooding by surface water runoff	0	3	3	2	2
Design Capabilities	Level of additional environmental benefit provided	0	1	4	1	3
Health & Safety	Risk to maintenance operatives is minimised	5	3	3	4	2
Public Acceptability	Overall acceptability of the scheme to the public	3	3	4	4	3
Natural Environment & Visual Amenity	No adverse ecological effect on flora and fauna	5	3	4	4	4
Natural Environment & Visual Amenity	Scheme minimises visual impact on surrounding area	5	3	4	4	3
Climate Change Adaptation	Design can be easily adapted to accommodate climate change impacts	0	1	1	3	2
Cost	Low capital investment required	5	3	3	3	3
Cost	Low maintenance costs	5	2	2	4	3
	Total (out of 50)	**33**	**26**	**32**	**32**	**28**
	Viability Score (out of 5)	**3**	**3**	**3**	**3**	**3**
Scoring Criteria	0 = Does Not Meet Criteria					
Please Note: All options are ranked comparatively	5 = Fully Meets Criteria					

Short list of Options taken forward:

- **Do nothing**
- **Do minimum**
- **Option 2 – Retrofitting of SuDS**
- **Option 3 - Property flood resilience**
- Note: Options 1 and 2 relate to wider LLFA and LPA policy recommendation and therefore have not been taken forward for further investigation at this time.

Do-nothing Option Data

Summary Description of Option
No active intervention within the study area. No maintenance of watercourses / sewers undertaken. All assets approaching the end of their life allowed to fail.

Summary Advantages of Option
No costs incurred.

Summary Disadvantages of Option
Channel capacities will be reduced due to vegetation and debris. The risk of blockage of culverts and sewers will increase due to accumulated debris / sediment. The existing measures would cease to protect properties to the current standard. Overall flood risk would be expected to increase and additional properties could be put at flood risk.

Summary of Option Viability and Deliverability
The Do-nothing scenario is not viable in a well-developed area like Batchworth and should not be considered further. This option is however taken to the short list as it forms the comparative case in the economic analysis.

Do-minimum Baseline Option Data

Summary Description of Option
Existing maintenance regime to continue and existing assets to be repaired as required to ensure the current standard of protection is maintained. This scenario still poses flood risk to number of properties in the area. This will not prevent future increases in flood risk as a result of climate change.

Summary Advantages of Option
• Affordable (No capital spend). • Maintains the existing situation.

Summary Disadvantages of Option
• Does not provide any reduction in flood risk. • Potential for maintenance requirements (and costs) to increase over time.

Summary of Option Viability and Deliverability
This option is viable and can be delivered but offers no betterment to the existing scenario and will still result in an increased flood risk in the future due to climate change.

Standard of Protection Provided by Option

Based on the integrated surface water modelling of the area the level of protection offered by the current arrangement is less than a 1 in 5-year standard.

Properties at Risk from Flooding in Baseline Do-minimum Scenario

Number of Residential Properties at Risk from Flooding Very Significant Risk (>5% AEP)	**Number of Residential Properties at Risk from Flooding** Significant Risk (Between 5% and 1.3% AEP)	**Number of Residential Properties at Risk from Flooding** Moderate Risk (Between 1.3% and 0.5% AEP)	**Number of Residential Properties at Risk from Flooding** Low Risk (< 0.5% AEP)
20	40	87	90
Number of Non-Residential Properties at Risk from Flooding Very Significant Risk (>5% AEP)	**Number of Non-Residential Properties at Risk from Flooding** Significant Risk (Between 5% and 1.3% AEP)	**Number of Non-Residential Properties at Risk from Flooding** Moderate Risk (Between 1.3% and 0.5% AEP)	**Number of Non-Residential Properties at Risk from Flooding** Low Risk (< 0.5% AEP)
0	3	0	6

Option 2 – Retrofitting of SuDS

Summary Description of Option
Utilisation of small areas of green space within the built up as areas of storage. There are many grassed spaces between roads and pavements which could be used to intercept flow paths along the highway. Whereby extended parcels of grass are present, swales could be excavated to both store and convey water.

Summary Advantages of Option
• Reduces flow entering the downstream surface water sewer network. • Combination of small-scale actions, less reliance on one action. • Area-wide management scheme.

Summary Disadvantages of Option
• Increased maintenance may be required, as a result of additional greenspaces, dependent upon existing regime. • Retrofitting of SuDS may result in a loss of amenity space.

Summary of Option Viability and Deliverability
The area is highly developed and opportunity to incorporate SuDS into existing greenspace should be taken. The greatest opportunity and most impact would be achieved in the north of the hotspot whereby the flow path originates. This is a viable and deliverable option, as it simply involves a change of use for greenspace that currently has no purpose.

Option 3 – Property Flood Resilience

Summary Description of Option
Passive Property Flood resilience measures including flood doors, self-closing air bricks, etc. to be offered to all residential properties at risk of 1 in 75-year flooding.

Summary Advantages of Option
• No land take.

- Work areas limited to individual properties thus limited risk of difficult ground conditions, utility clashes, access constraints etc.

Summary Disadvantages of Option
• Does not address causes of flooding. • Some properties may not be suitable/ property owners may not want such measures. • Adoption by all properties within allocated area is required to ensure full potential of protection is achieved.

Summary of Option Viability and Deliverability
PFR remains a viable option but should be considered as an alternative should no other capital scheme be viable. Deliverability will be subject to the outcomes of a PFR survey and resident consultations.

Standard of Protection Provided by Option	1 in 75-year to all affected properties.