Stevenage BC Options Long List

Long List of Options

SBC1 - Matthews Close, Rectory Lane and Chancellors Road

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 ordinary watercourse beyond Matthews Close. This channel has limited capacity resulting in flooding during storm events. Further lack of maintenance would allow overgrowing of vegetation, resulting in reduced capacity and conveyance. Consideration should also be given to the maintenance of gullies, where blockage would lead to an increased risk of surface water flooding.	N/A	Yes – for economic appraisal
Do minimum	Do minimum	Continue with current operational and maintenance activities	Continued maintenance will ensure no deterioration in the ordinary watercourse beyond Matthews Close. However, this option will not provide any betterment to the existing scenario and the standard of protection (SoP) will remain as per the existing.	3	Yes – for economic appraisal
Do more	Do more	Increased maintenance regime	Increased maintenance of the ordinary watercourses would potentially increase channel capacity and conveyance. However, the channels here are ill-defined and removal/cutting of vegetation is not likely to have a significant impact upon channel capacity, and consequently flood risk.	N/A	No
Option 1	Allocation of Land within Local Planning	Long term designation of land, placing more vulnerable land uses away from at-risk areas.	Land designation involves altering land uses in at risk areas. Consequently, less vulnerable land-uses (e.g. recreation space, car parks etc.) are placed within the areas that have a higher chance of being flooded. However, the properties at risk are within a well-established town community and so it is	3	No

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			not feasible to re-designate the land use.		
Option 2	Flow restrictions on outflows from new developments	Recommending restrictions on surface water outflows from new developments within the catchment (to greenfield runoff rates)	As the LLFA for the area, Hertfordshire County Council advise the LPA on the suitability of surface water drainage plans for new developments. The LPA can then lower runoff rates of a planned site, if justifiable through the Local Plan or SFRA. However, the current national and local standards do not require reducing flows from developments below greenfield rates. The guidance would need to be changed to allow imposing stricter requirements. This wouldn't however constitute a stand-alone flood mitigation option. It should be noted that a large development is planned in the northern rural catchment, for around 800 dwellings, which will significantly alter runoff if schemes to control are not put in place.	2	No
Option 3	Natural Flood Management (NFM)	Natural flood management techniques (i.e. soil management, slowing water movement through catchment by use of planting, etc)	Within the hotspot, the large area of rural land in the north provides an ideal area for implementing natural flood management techniques. However, this area of land is within an area proposed for a planning application and so options are limited. Although this could be considered as a complementary interim measure, it cannot be relied upon as primary method of a flood defense scheme.	4	No
Option 4	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. Around Matthews Close, where all the reported incidents are reported, flood	3	Yes

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			depths are all below the threshold. One of these properties has reported internal flooding, however the others are unknown. . PFR should be considered only where more holistic flood risk mitigation measures, which address the source of flooding, are not possible.		
Option 5	Flood wall / earth bund upstream of the watercourse	Incorporate flood defence wall / embankment into the currently rural area upstream of the watercourse	The dominant flow path within the site flows over the area of rural land, upstream of the watercourse. Obstruction of the flow path limits the volumes entering the watercourse however flooding still occurs downstream, affecting Matthews Close where previous incidents have occurred. Options to drain the area, at a time of flood, would be required in order for the scheme to be viable. This scheme would also require consideration of the current planning application within the area.	3	No
Option 6	Flood wall / earth bund beyond the gardens of Matthews Close	Incorporate flood defence wall/ embankment into the open land area beyond Matthews Close	The installation of an obstruction on the right bank of the watercourse prevents flooding which consequently affects Matthews Close.	4	Yes
Option 7	Connection of drainage ditch to sewer network	Connection of the unnamed drainage ditch, beyond Matthews Close, to sewer network	The drainage ditch currently has no connection to the sewer system. Connection would provide drainage for the watercourse, reducing the flood extents. This is not a viable option, as the sewer system downstream of the watercourse is already at full capacity and there is no additional headroom for water from the ditch.	2	No

Table 1: Viability scoring criteria

Assessment Criteria		Do Minimum	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7
Construction & Maintenance	Disruption for construction and maintenance are minimised	5	5	5	3	3	4	4	2
Design Capabilities	Number of properties protected from flooding by surface water runoff	0	0	0	3	2	4	5	3
	Level of additional environmental benefit provided	0	0	1	5	1	1	1	1
Health & Safety	Risk to maintenace operatives is minimised	5	5	3	4	4	4	4	2
Public Acceptability	Overall acceptability of the scheme to the public	3	3	3	2	4	2	5	3
Natural Environment & Visual Amenity	No adverse ecological effect on flora and fauna	5	5	1	5	4	5	5	1
	Scheme minimises visual impact on surrounding area	5	3	1	5	4	5	5	3
Climate Change Adaptation	Design can be easily adapted to accommodate climate change impacts	0	1	1	2	3	2	2	1
Cost	Low capital investment required	5	5	5	3	3	3	3	2
	Low maintenance costs	5	5	3	3	4	3	3	2
	Total (out of 50)	**33**	**32**	**23**	**35**	**32**	**33**	**37**	**20**
	Total (out of 5)	**3**	**3**	**2**	**4**	**3**	**3**	**4**	**2**

Scoring Criteria *Please Note: All options are ranked comparatively*	0 = Does Not Meet Criteria 5 = Fully Meets Criteria

Short list of Options taken forward:

- **Do nothing**
- **Do minimum**
- **Option 4 – Property flood resilience**
- **Option 6 – Flood wall / earth bund beyond the gardens of Matthews Close**
- 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 Stevenage 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			
Very Significant Risk (>5% AEP)	Significant Risk (Between 5% and 1.3% AEP)	Moderate Risk (Between 1.3% and 0.5% AEP)	Low Risk (< 0.5% AEP)
Number of Residential Properties at Risk from Flooding			
13	2	3	6
Number of Non-Residential Properties at Risk from Flooding			
0	0	0	0

Option 4 – 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 standalone option particularly for smaller groups of affected properties and may also be considered as an alternative or complimentary to other capital schemes. 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.

Option 6 – Flood wall / earth bund beyond the gardens of Matthews Close

Summary Description of Option
1. Incorporation of a flood wall / bund in the open field space beyond Matthews Close to prevent flood waters reaching the properties

Summary Advantages of Option
• Direct interception of flood waters which otherwise poses a threat to property. • Little impact upon the current landscape. • Visual peace of mind to public that they are protected from flooding.

Summary Disadvantages of Option
• Will not be entirely effective during high return period events. • Changes to the sewer system will result in potential disruption to road services during construction. • Has no amenity benefits. •

Summary of Option Viability and Deliverability
The built up area surrounding Herkomer Road has many flow paths that transfer water into the Homefield Road area whereby there have been several incidents of flooding reported. This area should be approached as a 'risk area' and managed as a whole to result in overall reduction of surface water. The area is highly developed with little green space to provide natural storage options and so a more-engineering approach is required. The options within this management scheme are viable, however will only have a notable impact when combined to have an overall effect.