



Perth & Kinross Council – Communities Service

Perth Surface Water Management Plan

Public Engagement Report: Questions & Answers

Drafted:	Approved:	Version
30/04/2026	07/05/2026	FINAL

**Developing
a stronger
and greener
economy**

1. Introduction

Perth & Kinross Council recently carried out a Surface Water Management Plan (SWMP) for the city of Perth. The Council engaged with the local community on the outputs through an online consultation in October 2025, as well as hosting a community drop in event in January 2026:

- the risk of surface water flooding in Perth;
- the findings from the Perth SWMP;
- other actions to raise awareness of flood risk and improve community flood resilience.

The community events were supplemented by an online consultation, with the display materials also made available on the Council's consultation hub (at <https://consult.pkc.gov.uk/communities/perthswmp/>) from 01 October – 30 October 2025. This allowed residents to view the draft outputs from the SWMP. Residents were encouraged to complete the online form provided to record their comments and views.

A community drop-in session was held at the Dewars Centre, Perth on Thursday 29 January 2026 between 2pm and 7pm. This supplemented the information already made available on the Council's website and offered residents the opportunity to speak directly with Council officers and Amey Consulting (design consultants), as well as Scottish Water, the Scottish Flood Forum and members of Perth Community Flood Aid.

The Council would like to thank those that took the time to provide comments and attend the drop-in session.

This report collates the comments received and provides the Council's response to those questions.

1.1. Community Response

Twenty five responses were provided through the earlier online engagement, with a significant proportion of feedback concentrated around the Craigie Burn area of Perth (notably Cherrybank and Craigie).

During the community drop in event 14 people recorded their attendance via a sign in sheet, although it is estimated that the event was attended by more than 30 people in total. The majority of attendees had previously submitted feedback and took the opportunity to follow up directly with Officers. It should be noted that six attendees came from the Scone area, which is out with the Perth SWMP project area. This was due to the fact that Scone has a separate SWMP ongoing and these attendees were interested in what outputs they may expect from that project.

In terms of the feedback received, this covered the SWMP as well as wider issues within the catchment. Feedback was received on the flood study methodology, options appraisal and recommendations, as well as on topics including existing maintenance arrangements, concerns about new development and the combined sewer capacity in the city.

Appendix A (below) provides a list of all the questions along with the Council's response. Those submitting forms have not been named for confidentiality reasons, and the wording of some questions have been amended for the same reason (and to cover multiple questions on the same topic). This report will be published on the Council's Consultation Hub (at the web address detailed above) and distributed to local Councillors, the Perth Community Flood Aid group and those that registered attendance at the drop-in session or provided a consultation response.

1.2. The Next Steps

The Council will now update and finalise the Perth SWMP and report the conclusions to the Climate Change and Sustainability Committee on 27 May 2026. Thereafter, the Council will implement the recommendations of the report.

If you require any further information on the Perth SWMP, please contact:

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Appendix A: Questions and Answers, Perth Surface Water Management Plan (SWMP)

General – Funding & Timescale

Q1. How much will the Perth SWMP cost?

The Perth Surface Water Management Plan is an identified action contained within the Tay Local Flood Risk Management (FRM) Plan. The document sets out funding arrangements for the actions contained within it. This details that the development of the Perth SWMP is funded from the Council's revenue budget.

The final cost of the consultant is expected to be £131,933.26.

Q2. Why did it take so long for outcomes to be presented publicly?

The project took longer than initially anticipated in order to ensure the hydraulic model best represented surface water flooding across the catchment. This required the extensive Council road gully dataset and associated connections to appropriate drainage outlets (such as watercourses or combined/surface water sewers) being added to the hydraulic model in order to understand and represent all sources of surface water entering the combined and surface water networks.

This was considered the most appropriate approach to represent surface water flooding in the surface water study area. This is because rainfall in the model is able to enter drainage systems via road gulleys and other drainage features as it would do naturally, rather than being routed directly into the piped system by the model and potentially missing surface water flow paths.

Internal Council resourcing issues contributed towards delays of the latter stages of the project, ultimately delaying the publication of outputs and community engagement.

Whilst these delays are regrettable, we thank you for your patience awaiting the delivery of the SWMP.

Perth SWMP Methodology

Q3. Why does the Perth SWMP not differentiate between pluvial and fluvial flood risk?

The SWMP focusses on surface water (pluvial) flood risk. The term surface water flooding is often used to describe the complex interaction of many sources of flooding as a result of rainfall run-off flowing overland, exceedance of small urban watercourses (including culverted watercourses) or artificial drainage systems (e.g. combined sewer), and groundwater

The hydraulic model does consider the impact of watercourse (fluvial) flooding through its interaction with drainage outfalls (e.g. where outfalls are prevented from outflowing due to elevated river water levels); however the flood maps do not include the wider flood risk directly from watercourses.

Fluvial flood risk in Perth has been mitigated through the construction of the Perth Flood Prevention Scheme (PFPS) in 2001 to primarily protect areas of the city from the River Tay, Perth Town Lade and River Almond. The PFPS was considered, at that time, to have a 1 in 250-year standard of protection. The PFPS also includes flood protection measures at Almondbank, Craigie Burn, three flood storage ponds at Broxden, and two reservoirs located at South Inch Park and North Muirton.

Q4. What is the relationship between the Perth SWMP and the Craigie Burn flood study that was completed in 2023?

The Tay Local FRM Plan identifies two distinct actions for Perth – a surface water management plan for the city and a flood protection study for the Craigie Burn. The Perth SWMP is a Perth-wide action, rather than just targeting the Craigie Burn catchment, identifying and focussing on the areas of highest surface water flood risk across the city, although there are clear overlaps between the two.

The projects were procured separately, with Amey Consulting being awarded both contracts, and there were clear benefits in having the same consultants deliver both projects, particularly given that the same hydraulic model was used (although a much more extensive model was required for the SWMP).

The Perth SWMP considered the outputs from the Craigie Burn Flood Study, and these were noted in the SWMP recommendations.

Further to Q3 above, we would note that the Craigie Burn Flood Study was not exclusively focussed on fluvial flooding, with surface water flood risk (both overland flows and sewer flooding) being fully considered in the study's assessment of total flood risk in the catchment.

Updates on the ongoing work on the recommended option for the Craigie Burn can be found on the Council's website at: www.pkc.gov.uk/craigieburnfps.

Q5. Does the SWMP consider the impacts of climate change?

Yes, The Perth SWMP has quantified and considered the impacts of climate change. The study has run model simulations to represent future scenarios, in line with the latest climate change guidance. This means that a 39% uplift was added to the peak rainfall to assess the potential future risk.

The modelled 1 in 30-year rainfall event (the rainfall event with a 3.33% chance of occurring in any one year) identified a total of 405 properties as being potentially at surface water flood risk. When this event rainfall is uplifted with an allowance for the effects of climate change, this estimate increases to 1,041 properties. Similarly, for the modelled 1 in 200-year flood event (the flood event with a 0.5% chance of occurring in any one year), identifies 1,217 properties as potentially at risk, with this estimated to increase to 2,198 properties due to the effects of climate change.

The SWMP clearly highlights the increased risk of surface water flooding across the city as a result of climate change.

Q6. The flood maps appear to have some significant omissions in terms of development that has been approved or completed? For example, the map doesn't show the new housing at Woodlands (off Berwick Brae) or proposed development at Necessity Brae (Aldi) and energy related developments above Broxden?

The model, and associated flood maps, are representative of the point in time at which it was developed. Unfortunately, it is not possible to continually update a model throughout a project, as a baseline needs to be established. It is recognised that the mapping may omit areas of new development after this point. We would not look to include developments that aren't complete/substantially completed as proposed sites may be subject to change or not developed at all. With that said, new developments must comply with the relevant planning policies at the time and therefore should submit a Flood Risk Assessment that evaluates the likelihood and potential impact of flooding from all sources and how, if relevant, this will be managed within the site. Alongside this, the principle of SuDS is that any new development must not increase the runoff which would naturally drain from the catchment to a receiving watercourse, drainage system or infiltrate naturally into the ground. Therefore, this still provides a suitable assessment of the associated surface water flood risk in this area.

Importantly, SWMP's form part of a cyclical flood risk management process, with the expectation that they are updated every 6 years (in line with the flood risk management delivery cycles defined by the Flood Act). It is anticipated that where

significant changes have occurred the hydraulic model will be reviewed and updated as part of this process. The next FRM cycle covers the period 2028-2034 and this is where the next review of the Perth SWMP will be undertaken. This work will be prioritised against other identified projects within that period and more detail will be provided in the Tay Local FRM Plan (2028-2034) on the likely timescales.

Q7. There are some differences between the SEPA surface water flood hazard maps and the Perth SWMP's flood maps. Are all topographic features captured in the ground information used as part of the hydraulic model?

The differences between the SEPA flood hazard maps and those produced through the Perth SWMP reflect the different modelling approaches and the resolution of the details captured. The Perth SWMP is a more detailed, city-wide scale assessment of surface water flood risk compared to the national scale approach of the SEPA maps.

The key difference is how drainage infrastructure is included within each modelling approach. The SEPA flood hazard maps do not explicitly represent drainage infrastructure in the model, instead removing a volume of the modelled rainfall to represent what is considered to enter drainage systems (which is an appropriate approach for national-scale surface water modelling). The Perth SWMP hydraulic model however includes the drainage infrastructure within the model, which is more appropriate for a detailed city-scale study.

In terms of topographical details, the ground model has been produced using the latest available level information derived using LiDAR (an aerial remote sensing technique) which has a resolution of 1m, and this is supplemented with ground-based survey information (where available) to ensure the data is representative.

However, as the flood model is developed to assess flood risk at the community level (in this case, the city of Perth) it is not possible to capture every topographic feature that may influence flow paths, particularly at the individual property level. The maps provide a good indication of flood risk but may not reflect all the localised features that can affect the flow of water around specific properties.

Q8. Where is the evidence to support the flood map predictions?

It is important to remember that the flood maps produced in the study reflect 'design' rainfall events of a range of magnitudes (such as the 1 in 200-year (or 0.5% annual exceedance probability) rainfall event). To ensure confidence in the outputs, the hydraulic flood model was first calibrated and validated against available surface water flooding information. Rainfall data and flooding records held by the Council (and other organisations) were used to support this process, as well as information provided by residents through community survey and from previous projects and flood events. There are inherent uncertainties associated with flood modelling, so it

is important to recognise that all models have limitations, but they provide a powerful tool in identifying and assessing flood risk.

Q9. There are a number of areas where the combined sewer network potentially interacts with watercourses. Does the study consider any direct links between the sewer and watercourses that may influence sewer flood risk?

As noted in the response to Q3, the hydraulic model does consider the impact of watercourse (fluvial) flooding through its interaction with drainage outfalls. This is done by considering where elevated water levels in watercourses may prevent drainage systems discharging into them and cause the system to back up and contaminated water (untreated sewage) to surcharge from manholes.

It is understood that there are locations where some sewer manholes are present within the floodplain and may be subject to inundation during high water levels. This may allow additional fluvial flows to enter the sewer, using up available sewer capacity more quickly. The study does not explicitly consider this. This is partly due to the need to assess the condition of each access point to understand the potential for ingress into the sewer system and model this accordingly. The hydraulic model assumed that no fluvial flows could enter manholes in the floodplain but the below ground drainage networks was able to surcharge out into the watercourse.

This is a matter which will be discussed with Scottish Water to consider their view of the risk and whether manholes require sealing. There is a need to carefully consider sealing any manhole/access on the sewer system as this may result in transferring flood risk elsewhere as it removes the ability of the sewer to release at sealed locations.

Q10. How significant is the new ‘super sewer’ installed along Tay Street in helping to reduce surface water/sewer flooding?

In June 2025, Scottish Water completed work to upgrade a 520m length of sewer along Tay Street and Shore Road. This project has been carried out to provide additional sewer capacity for the planned growth around Perth, as well as bringing secondary sewer flood risk benefits to low-lying areas near the River Tay. Further information regarding the benefit of these works can be found at:

<https://www.scottishwater.co.uk/In-Your-Area/Investments-in-Your-Area/040423-Tay-St-Perth/Tay-Street-and-Shore-Road>

Options Appraisal

Q11. How was the short-list of options developed? Who decides what is ‘not feasible’ or ‘potentially viable’ as part of the process from long to short list of options?

The process for developing the short-list is an iterative one and was covered on information board 4 displayed the drop-in event and online. This is summarised below:

- Areas of highest surface water flood risk were identified using the hydraulic model. The highest areas of risk were identified using a high level damage assessment based on numbers of properties at risk, flood depths and likelihood of flooding. The assessment placed a higher weighting on areas with residential properties at risk, versus those with only non-residential properties at risk.
- The Identified areas were reviewed to focus on areas at significant flood risk and identify appropriate viable options. This was based on a high-level flood damage assessment, observed flooding records and the suitability for SuDS/mitigation options.
- A long list of actions for the 14 identified areas was considered and refined to an initial short-list of 18 potential options. These actions were identified by applying engineering judgement and experience, site visits and workshops between Amey Consulting and Perth & Kinross Council.
- A high-level scoring exercise to evaluate the 18 potential options on the initial short-list. This produced a final short-list of 10 options that were considered most likely to be viable. The criteria and relative scoring matrix is shown below.

Criteria/Score	Low	Medium	High	Weight
Impact on watercourse	Likely detriment to hydraulic conditions in the watercourse	Zero or manageable impact on watercourse	Improvement or reduction on watercourse flows	High
Impact on sewer system	Increase in flows to sewer system	Negligible change in flows to sewer system	Reduction in flows to sewer system	Low
Water quality	No improvement likely to water quality	Option provides water quality treatment	Improvement to water quality through reduced CSO spills	Medium
Biodiversity	Negligible impacts on biodiversity	Small scale or local biodiversity improvements	Significant or notable impacts on biodiversity	Low
Buildability	Complex build with utility or contamination issues	Build with utility or contamination issues	Straightforward build	High
Land ownership	Private land - occupied	Private land - vacant	Land owned by Council	Medium
Water efficiency	No water removal	Some removal of the water from system	Large amounts of water removed from the system	Low
Cost CAPEX	High	Medium	Low	High
Cost OPEX	Frequent maintenance required	Some maintenance required	Minimal maintenance required	Medium
Transport/traffic calming	No changes to transport	Minimal traffic calming improvements	Considerable traffic calming improvement	Low
Community benefit	No benefit	Minimal benefit	Considerable benefit	Low
Health and safety	Specific H&S issues	Manageable H&S issues	Minimal H&S issues	Medium
Climate change resilience	No resilience	Some resilience within design	Resilience to climate change and could also be retrofitted at a later date	Medium
Enabling of economic development	Making potential for economic development worse	Minimal potential	Considerable potential	Low
Integrated investment	No potential	Potential	Potential with more than one investor	Low

Sensitivity testing was undertaken to confirm that the weighting applied to each criteria did not unduly influence the outcome of this process.

- A detailed appraisal of the final short-listed options was undertaken using the hydraulic model. This involved evaluating their flood risk benefits under different scenarios and considering their implementation requirements. Recommendations were made based on the outcome of this process, with factors such as effectiveness, affordability, environmental and social impacts also being considered. Non-structural measures were also considered as part of the overall recommendations.

Q12. Explain how the benefit-cost ratios are worked out? How are the estimated flood damages calculated? What do these include?

In managing flood risk, the Council is required to have regard to the economic impacts of its actions. In simple terms, this means that the cost of doing something must not exceed the benefits gained for something to be considered economically viable. This is expressed as a benefit:cost ratio, which must be greater than 1.0.

The economic appraisal of flood risk options involves several steps. Firstly, a flood damage assessment is carried out to establish a baseline to compare options against. The potential benefit of each option is calculated, in terms of flood damage avoided, by comparing against the baseline damages. The estimated costs of an option are then estimated, including upfront capital costs and longer-term operation/maintenance costs, and compared against the potential benefits.

The potential flood damages are calculated by running a range of flood events across a 100-year appraisal period. Properties at higher risk of flooding typically generate the most damages, due to more frequent flooding across the appraisal period. Damages start to be generated when flood levels are within 300mm of the lowest internal threshold of a property, so it is not only those at potential risk of internal flooding that accrue damages that are included in the economic appraisal. Flood damages are considered for a range of factors, including damage/replacement of damaged items, damage to building and damage to vehicles. Costs to emergency services are also considered, including emergency response and impacts on the road network. Intangible impacts are also considered as well.

It must be stressed that the value of damages are not based on what individual residents have suffered. It is based on economic damages that provide a standardised way of assessing the cost of flooding, which isn't skewed by individual circumstances. Damages are also capped, so they cannot exceed the (approximate) value of the property.

Options are then built into the hydraulic model and tested for their potential impact on managing/reducing flood risk. The remaining damages following the inclusion of an option are compared against the baseline flood damages to give the benefit of an option.

A cost estimate for each option is built up. This sets out the estimated capital outlay, as well as the long-term operating and maintenance costs of an option. This is typically high level at the feasibility stage due to the amount of uncertainty at this point in the process. A factor is built into the estimates, known as optimism bias, to help account for this, but experience shows that costs will typically increase from the feasibility estimates as the costs/risks become better defined.

The economic assessment was undertaken in accordance with Scottish Government Surface Water Management Planning guidance and the guidance for FCERM (Flood and Coastal Erosion Risk Management) Appraisal

(<https://www.gov.uk/guidance/fcerm-appraisal-guidance>). Cost and damage estimates, and the corresponding benefit:cost ratio are considered accurate at the time of the report, but future reassessment is required where actions move forward to more detailed assessment and design stages.

Further information on this can be found on the following website: <https://www.mcm-online.co.uk/public/>.

Q13. Are the assessed benefits of each option limited to the immediate area of the option, or are all ‘downstream’ benefits also considered?

In short, yes all downstream benefits are incorporated into the economic appraisal (benefit:cost ratio) for each option.

Whilst it makes sense that options further up the drainage catchment will free up further capacity downstream, this does not necessarily translate into significant downstream benefits (i.e. reduced flood risk). This is because surface water inputs in large urban areas are widely distributed across the catchment so the spare capacity is quickly used up and any downstream benefits may be spread across a number of areas, resulting in much more marginal benefits. It is also important to recognise that options should not benefit one area to the detriment of others (i.e. transfer flood risk). Where this is identified as a possibility at feasibility stages, mitigation is required to be considered as part of any future design of an option.

Q14. Oakbank Crescent and Oakbank Place option not recommended – can this be reconsidered?

We understand the frustration of residents in areas where measures have been considered but ultimately concluded that they are not viable. In managing flood risk, the Council must have economic regard for its actions, which simply put means that any action invested in must have more benefit than it cost to implement.

The option (Option 5a) considered at Oakbank Place and Oakbank Crescent had very limited benefits compared to the level of investment required. The option would

not have significantly reduced flood risk from properties, and this is why it was not recommended.

Q15. Did the options appraisal consider further storage tanks on the combined sewer network, such as those installed at Low Road and Darnhall Park?

Yes, this was considered, but the costs of such measures are disproportionately high in comparison to the reduction in flood risk.

There have been recent joint PKC and Scottish Water projects in Perth that have considered these measures at Feus Road and Cavendish Avenue/Gray Street. The outcome of this was reported to the Council's Climate Change & Sustainability Committee on 31 May 2023. The committee papers can be viewed at: <https://perth-and-kinross.cmis.uk.com/perth-and-kinross/Meetings/tabid/70/ctl/ViewMeetingPublic/mid/397/Meeting/3467/Committee/136/Default.aspx>.

The storage tanks at Low Road and Darnhall Park were installed to mitigate additional foul flows only from new developments, to ensure there was no increased flood risk on the combined sewer system. This requirement was identified through Scottish Water's development appraisal process. These features are therefore not intended as flood protection measures.

Recommendations

Q16. Recommendations appear to focus on downstream measures, and not upstream measures to slow the flow of water. Surely more benefit would be achieved through upstream measures?

As noted above in Q13, urban surface water inputs are typically widely distributed across a drainage catchment, meaning that it is not always straightforward to identify upstream measures that can have significant benefit to the downstream areas. This is combined with the fact that Perth is quite constrained in terms of opportunities for larger areas of surface water storage across the city, due to the steep topography and limited greenspaces.

General best practice now considers that as part of the SuDS treatment train, new developments seek to reduce flows as close to source as possible. This approach can also be applied retrospectively at the individual property level in older developments that pre-date SuDS. It is encouraged that residents consider installing measures that can help reduce surface water flows discharging rapidly to existing drainage systems. This can include measures such as water butts, storage planters and raingardens to take water from roof downpipes (and/or garden outbuildings). Where ground conditions are suitable, property owners may be able to further disconnect surface water and discharge this to soakaways.

The level of effectiveness of these measures varies depending on the level of storage capacity that may be possible (space/cost) and that where water is stored, there may not be further capacity to retain water in subsequent rainfall events unless actively managed (such as emptying water butts between events). Whilst the measurable benefit is limited at the individual property level, these approaches can help reduce surface water inflows to overloaded sewers and other drainage systems where present in large numbers across the catchment scale.

These property level measures also help reduce pressure on water supplies, which is another important benefit when considering the challenges posed by our changing climate.

Q17. A number of responses commented that the reference to ‘relatively shallow’ flooding in a number of areas was disrespectful – can this statement please be clarified?

The statement that flood depths in many places across the city are ‘relatively shallow’ was not intended to cause offence. It is recognised that relatively shallow flood depths can still cause significant impacts to a property, both in terms of damage and upheaval, but also on those who live within areas at risk of flooding.

By ‘relatively shallow’ we mean that surface water flows are generally below 600mm in depth, which is the typical limit of effectiveness for property flood resilience (PFR) measures, such as flood barriers, flood doors, airbrick covers, sump pumps and non-return valves. The purpose of this statement was to reinforce the point that PFR is an effective action residents can take to quickly improve their resilience to flooding.

Q18. Dewars/Perth Leisure Pool – does potential redevelopment of the site not make this option obsolete? Does this limit any potential wider benefits

The option (Option 14) recommended at Dewars/Perth leisure pool was covered on information board 6 displayed at the drop-in event and online. This included the following statement:

“The option at Dewar’s Perth Leisure Pool was initially identified through an opportunity to utilise the significant areas of greenspace through the site’s current use. More recent, and ongoing discussions regarding the future use or redevelopment of the site do not alter these conclusions.”

The option here is not considered obsolete, and any redevelopment of the site will require some of the option to be realised through the provision of SuDS. Council flooding officers are engaging with these future proposals through the planning process to try and maximise the flood risk benefits offered through any redevelopment of the site.

Next Steps

Q19. How will options be delivered through local development plan (LDP3)?

The two options found to be feasible through the appraisal process were located on land already allocated in the local development plan, or subject to potential redevelopment.

The recommendations have been discussed with planning officers, and it is considered the best way to secure delivery through the Local Development Plan is through site-specific development requirements and blue-green infrastructure mapping and guidance.

Q20. How will this study be used to inform future decision-making?

The outputs from the Perth SWMP will be used to inform future flood risk management in Perth, alongside other relevant past studies undertaken in Perth. These studies provide the best available baseline understanding of current flood risk, as well as an understanding of the future impacts from climate change.

The Perth SWMP will be used to inform the assessment of future development, such as through the next iteration of the Local Development Plan, as well as through the review of individual planning applications.

The SWMP will also be used to inform future inspection and maintenance work within the city, with an improved understanding of the flood risk mechanisms and where maintenance may be more beneficial compared to other locations.

Scottish Government guidance dictates that SWMP's form part of a cyclical flood risk management process, with the expectation that they are updated every 6 years (in line with the flood risk management delivery cycles defined by the Flood Act).

Q21. What is the relationship between SWMP and any survey or forward plans that Scottish Water has identified or programmed?

Scottish Water were engaged with as part of the SWMP. Separate to this however, the Council has developed a close working relationship with Scottish Water, particularly with regards to flooding issues across Perth. This includes frequent liaison meetings to ensure we are working effectively together to maximise joint opportunities.

In June 2019, Scottish Water, in partnership with PKC, concluded the Perth Integrated Catchments Study (ICS). This study helped highlight the areas of highest internal sewer flood risk, from which more detailed assessments of sewer flood risk and potential mitigations were identified.

Following the Perth ICS, Five areas were the focus of further investigations, with two areas jointly investigated by Scottish Water and the Council (Cavendish Avenue/Gray Street and Feus Road). The other areas included Perth City Centre, Bells Sport's Centre and Marshall Place. Whilst the outcomes of the joint investigations ultimately concluded that no flood scheme was viable that could be jointly delivered by both organisations, Scottish Water were able to identify options that they may be able to invest in separately. The outcome of this joint study work was reported to the Council's Sustainability and Climate Change Committee on 31 May 2023 (<https://perth-and-kinross.cmis.uk.com/perth-and-kinross/Meetings/tabid/70/ctl/ViewMeetingPublic/mid/397/Meeting/3467/Committee/136/Default.aspx>). The Council continues to be involved in discussions around these projects, with a view to providing support through various parts of the Council, such as the Flooding, Property and Roads Maintenance teams. This highlights the ongoing working collaboration between both organisations aiming to manage, and where possible, reduce flood risk in Perth (and the wider Council area).

New Developments and Flood Risk

Q22. Many comments expressed concern that new developments are responsible for an increase in frequency of flooding (particularly within the Craigie Burn catchment area of Perth), and that the sustainable urban drainage systems (SUDS) are ineffective.

It is common for concerns about flooding to be raised in connection with new development. Since 2011, all new developments must manage surface water at source within the development site using sustainable urban drainage systems (SuDS). These systems ensure that the surface water generated on the site is gathered, stored, and attenuated before being released slowly to a receiving drainage system or watercourse. Any release of water from a development must match the pre-development 'greenfield' runoff rate for the site, ensuring that the new development will not increase the existing flood risk elsewhere and will have a neutral impact.

The design standards for surface water drainage are regularly updated in line with the most-up-to-date understanding of rainfall/runoff estimation and around the impact of climate change. The Council's planning requirements are updated in line with the latest guidance, which should ensure new SuDS features have more capacity in future to deal with increased frequency/intensity of rainfall due to climate change. The drainage design for any development will be based on the current guidance/standards in place at the time planning permission was granted. This is important to recognise in terms of the older development which forms a large proportion of the Perth City area. These areas were developed before the legal requirements for SuDS and as such, do not have the same capacity to store water during intense rainfall events. Traditionally, many of these areas are served by the combined sewer network, meaning both foul and surface water use the same system. This is an outdated approach with SuDS requiring that surface water is dealt with entirely separately from foul water for new developments.

It is important to note that all watercourses, flood defences and drainage systems have a finite capacity and when that is exceeded flooding will occur. Unfortunately, climate change means the frequency of these 'exceedance' events will increase.

Q23. Why did the study not assess the impact of development (new and proposed)?

As noted in Q6, the impact of new development on existing flood risk is controlled through the planning process. Developers must demonstrate that their proposals are not at flood risk, and also do not increase flood risk to others. The flood study therefore considers that any proposed development will have a neutral, at worst,

impact on existing flood risk, in line with the requirements of the National Planning Framework for new developments.

The drainage infrastructure for recent developments (e.g. Cherrybank and Broxden) is built into our hydraulic model, where available. Therefore, the study accounts for these developments in the baseline understanding of flood risk. The study does not retrospectively check the surface water design of these developments.

Scottish Water are also statutory consultees under Scottish planning policy and their overarching policy is that no new surface water connections will be permitted into the combined sewer network – this has been the position for a considerable time. All new developments must therefore have separate surface water drainage in the form of SuDS. Where there are existing connections, any new/redevelopment must ensure there is no increase in the flows discharged from site, or wherever possible reduce this.

Q24. Who is responsible for the ongoing maintenance of SUDS?

Surface Water Drainage systems may remain under private ownership or adopted by the local authority, Scottish Water or, in the case of residential development, through a joint maintenance agreement between the Council and Scottish Water.

The developer of a site remains legally responsible for the drainage infrastructure until such time that it is adopted.

Q25. Does the design of SUDS consider the future impact of climate change on our rainfall patterns (i.e. increased intensity and frequency of storm events)?

SUDS are designed to replicate the natural (pre-development) run-off rate of a site. They do so by throttling any surface water discharge from a new development to what is called the 'greenfield run-off rate'. A number of methods exist to derive the greenfield run-off rate for a site. These are based on historical rainfall records, and other parameters to represent the natural characteristics of a catchment/site.

As noted in Q5, to account for climate change an uplift is applied to the peak rainfall. This is currently 39% for locations within the River Tay catchment (i.e. Perth), based on the latest climate change guidance. The understanding of climate change impacts is constantly developing, and as such, the uplift factors applied have changed through time. The drainage design for any development will be based on the current guidance/standards in place at the time planning permission was granted.

Existing Maintenance

Q26. Watercourses within the city are never cleared or dredged. Who is responsible for maintaining the watercourses?

Public and private landowners have a responsibility to maintain the bed and banks of any watercourse as it passes through their property (often referred to as riparian responsibilities). This includes preventing any material entering the watercourse that could become an obstruction to the flow of water and/or cause a flood risk elsewhere. It is also the responsibility of the riparian landowner to remove any such debris from their section of the watercourse even if it has been transported downstream from another property.

The responsibility for clearing, improving or increasing the capacity of a watercourse lies with the riparian landowner, who may need to acquire a licence from SEPA before proceeding.

Under the Flood Risk Management (Scotland) Act, the Council carries out routine watercourse inspections and the condition of each watercourse is assessed with respect to flood risk. If it is found that the condition of a particular body of water gives rise to a risk of flooding, and clearance and repair works would substantially reduce that risk, then a schedule of those works will be prepared, and the Council will carry them out. Any identified works are carried out in order of priority and as budgets allow. The schedule can be viewed at <https://www.pkc.gov.uk/article/14718/Flooding-duties-and-responsibilities>. The schedule is a list of identified works due to be carried out, it does not provide a historic record of all watercourse clearance works across Perth & Kinross.

This does not include the fortnightly inspection and clearance of trash screens along the watercourses, which is carried out by the Council's Roads Maintenance Partnership (RMP). The RMP also inspect the Council's flood protection schemes annually and have carried out a significant amount of maintenance work on the Perth Flood Protection Scheme from these inspections.

Planned inspections on the Craigie Burn (including Scouring and Buckie Burns) and the Town Lade are carried out on a six-monthly basis. Other minor urban watercourses in Perth are inspected annually. There are also a series of known culverted watercourses and the Council undertakes periodic CCTV surveys to assess their condition. This includes culverted sections of the Craigie Burn, Town Lade and the Goodly Burn.

Between planned inspections, the Council will also inspect and assess any issues that are reported to us. The Council's Flooding webpages set out how you can report any concerns to the council, including out of hours contact details. This can be viewed at <https://www.pkc.gov.uk/flooding>.

Q27. The road gullies and drains are never cleared. Surely this contributes to existing flooding issues?

Drainage systems are only able to cope with a certain volume of water and can be quickly overwhelmed during high rainfall. This does not always mean that the drains are blocked.

Surface water systems across large areas of Perth connect into the combined sewer network, which is a common situation across all towns/cities. When the sewer is at capacity, surface water has nowhere to drain, causing it to temporarily pond on the surface until capacity returns to take it away.

The Council cleans out the gullies that collect surface water from public roads and footways. These are cleaned out by a schedule of works and reactive visits by gully tankers to respond to blockages where they give greatest risk to property. In general, gullies on A class roads are cleaned out once per year; those on other roads are cleaned out at least once every two years. A number of identified flood sensitive areas are checked on a 6-monthly basis, and cleared where required, although it should be noted that overall resources limits the ability to undertake this level of service more widespread across the road network. The Council's road gully cleansing was discussed at an Environment and Infrastructure committee meeting in August 2024 (<https://perth-and-kinross.cmis.uk.com/perth-and-kinross/Meetings/tabid/70/ctl/ViewMeetingPublic/mid/397/Meeting/3996/Committee/150/Default.aspx>).

Road drainage problems are identified by the regular inspections of the network, by calls to Clarence, or as a result of reports from the public; and appropriate action is taken to deal with the problems that are identified. For enquiries, or to report a problem with a gully (e.g. blockages), contact Clarence by telephone on 01738 476476 or 01738 475000, or visit the Council's webpages (<https://www.pkc.gov.uk/drainsandspillages>).

It must be noted that in the context of significant flooding (such as August 2020, September 2022, October 2023 and July 2025), a small number of blocked gulleys will have no significant impact on the level of flooding, particularly where the receiving combined sewer is already over-capacity.

Where flooding has occurred from the sewer system (combined or foul systems), you should report this to Scottish Water. Scottish Water are responsible for the public sewer network and can assist with the clean-up and decontamination associated with out-of-sewer flooding. Details can be found at: <https://www.scottishwater.co.uk/In-Your-Area/Flooding-Information/Report-a-Flooding-Incident>.

Q28. What happens if parked cars prevent gullies being inspected and/or cleansed?

There are occasions where access to road drainage gullies is not possible due to parked vehicles. In the event a significant number of gullies are not accessible, the cleaning operation will be rescheduled to the next available date, and if appropriate a letter will be issued to request residents do not park in a way that prevents access for cleaning.

Where it is the case that only a very limited number of gullies are affected, and nearby drains are clear, then a return visit will not be undertaken and gullies will be cleansed as per the gulley cleansing schedule.

The Council do not have the resources, and it is not standard practise, to issue letters in advance of gulley cleaning operations as they are subject to change at short notice.

Q29. Has the condition of the combined sewer system been assessed?

It is clear from the Perth SWMP that there are areas where the existing sewer system is under considerable pressure during heavy rainfall, however a full assessment of its condition was beyond the scope of the project.

Scottish Water are responsible for the public sewers and are required under section 16 of the Flood Risk Management (Scotland) Act 2009 to undertake their own assessment of sewer flood risk. Any concerns regarding the condition of the sewer, such as potential blockages or damage, should be reported directly to Scottish Water (using the website details noted at the end of Q27).

Community Resilience

Q30. Is any grant funding available to homeowners/residents to install property flood resilience measures?

The SWMP advises that property flood resilience measures are an effective tool to improve the overall flood resilience of the city. It recommends the uptake of these measures by property owners in areas of surface water flood risk, with a preference for passive measures (e.g. flood doors, automatic air brick covers etc) due to the speed at which surface water flooding can occur. This recommendation is in line with the recently published National Flood Resilience Strategy.

As part of the 2026-27 budget, the Council has approved initial funding to support a Property Flood Resilience Grant that residents will be able to apply for to assist with the costs of installing appropriate measures at their property.

Further details on the available grant funding and how residents will be able to apply for this will be made available in due course.

Q31. Minor measures – can a low bund be considered for the Low Road area? The Craigie Burn flood study did not recommend a viable option for this area and indicated that surface water (both overland flows and out of sewer flooding) is a major factor here.

Following feedback from the Community, Amey Consulting have considered this in more detail. An initial assessment suggested this may provide some benefit to properties at Low Road; however once considered in more detail there are constraints on the site that affect the viability of this option, notably the presence of two mature trees.

In order to construct a suitable bund, the root zones of these trees would be encroached upon, ultimately resulting in the failure of these trees. Advice was sought from the Council's Tree Officer and Amey are now investigating alternative options to avoid damaging the trees, but this may compromise the overall effectiveness of any option.

A report summarising this work is being produced and will be shared with the Perth Community Flood Aid Group.

If you or someone you know would like a copy of this document in another language or format, (on occasion, only a summary of the document will be provided in translation), this can be arranged by contacting the Customer Service Centre on 01738 475000.

You can also send us a text message on 07824 498145.

All Council Services can offer a telephone translation facility.

BSL users can contact us via Contact Scotland BSL, the online British Sign Language video relay interpreting service. Find out more on the Contact Scotland BSL website <https://contactscotland-bsl.org>