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To: Cllr Ray Hughes (Chairman)

Councillors: Mike Allport, Haydn Bateman, Sean Bibby, Chris Dolphin, Andy Dunbobbin, David Evans, Veronica Gay, Cindy Hinds, Dave Hughes, Joe Johnson, Colin Legg, Vicky Perfect, Paul Shotton and Owen Thomas

6 December 2017

Dear Councillor

You are invited to attend a meeting of the Environment Overview & Scrutiny Committee which will be held at 10.00 am on Tuesday, 12th December, 2017 in the Delyn Committee Room, County Hall, Mold CH7 6NA to consider the following items

*** Please note that there will be an information session by the Food Safety team, which is for the members of the Committee only, commencing at 9.30am before the public session commences at 10am.**

A G E N D A

1 APOLOGIES

Purpose: To receive any apologies.

2 DECLARATIONS OF INTEREST (INCLUDING WHIPPING DECLARATIONS)

Purpose: To receive any Declarations and advise Members accordingly.

3 MINUTES (Pages 3 - 8)

Purpose: To confirm as a correct record the minutes of the meeting on 17 October 2017.

4 PEST CONTROL (Pages 9 - 16)

Report of Chief Officer (Planning and Environment) - Cabinet Member for Planning and Public Protection

Purpose: To receive a report outlining the services provided to Flintshire residents by the Pest Control Team.

5 **MOLD FLOOD ALLEVIATION SCHEME - REVIEW OF OPTIONS FEASIBILITY** (Pages 17 - 64)

Report of Chief Officer (Planning and Environment) - Cabinet Member for Planning and Public Protection

Purpose: To receive a progress report on the proposed scheme.

6 **COUNCIL PLAN 2017/18 - MID YEAR MONITORING** (Pages 65 - 84)

Report of Chief Officer (Planning and Environment), Chief Officer (Streetscene and Transportation) - Cabinet Member for Planning and Public Protection, Cabinet Member for Streetscene and Countryside

Purpose: To review the levels of progress in the achievement of activities, performance levels and current risk levels as identified in the Council Plan 2017/18.

7 **FORWARD WORK PROGRAMME** (Pages 85 - 90)

Report of Environment Overview & Scrutiny Facilitator -

Purpose: To consider the Forward Work Programme of the Environment Overview & Scrutiny Committee

Yours sincerely



Robert Robins
Democratic Services Manager

ENVIRONMENT OVERVIEW & SCRUTINY COMMITTEE **17 OCTOBER 2017**

Minutes of the meeting of the Environment Overview & Scrutiny Committee of Flintshire County Council held in the Delyn Committee Room, County Hall, Mold on Tuesday, 17 October 2017

PRESENT: Councillor Ray Hughes (Chairman)

Councillors: Mike Allport, Haydn Bateman, Sean Bibby, Chris Dolphin, Andy Dunbobbin, David Evans, Veronica Gay, Cindy Hinds, Dave Hughes, Joe Johnson, Colin Legg, Vicky Perfect, Paul Shotton and Owen Thomas

ALSO PRESENT: Councillors Bernie Attridge and Patrick Heesom attended as observers

CONTRIBUTORS: Councillor Aaron Shotton, Leader and Cabinet Member for Finance, Councillor Chris Bithell, Cabinet Member for Planning & Public Protection; Councillor Carolyn Thomas, Cabinet Member for Streetscene & Countryside; Chief Officer (Planning & Environment); and Chief Officer (Streetscene & Transportation), Finance Manager (minute no. 33), Highways Network Manager (minute no. 36), North Wales Residual Waste Treatment Project (NWRWTP) Contract Manager (minute no.38)

IN ATTENDANCE: Environment Overview & Scrutiny Facilitator and Democratic Services Officer

31. DECLARATIONS OF INTEREST

There were no declarations of interest.

32. VARIATION IN ORDER OF BUSINESS

Following a suggestion by the Chair, a change in the order of business was agreed to bring forward agenda item 4, Financial Forecast and Stage One of the Budget 2018/19.

33. FINANCIAL FORECAST AND STAGE ONE OF THE BUDGET 2018/19

The Finance Manager introduced a report to provide the current financial forecast position for 2018/19 and consult on the Stage 1 Council Fund Revenue budget proposals for 2018/19. He provided background information and referred to the financial forecast which had been reported to Cabinet in July 2017 and was detailed in the report. He advised that the reported "gap" was £11.7m due to national, local, and workforce pressures, and the latest projections for inflation.

The Finance Manager gave a brief update on the Provisional Local Government Settlement for Wales for 2018/19 which was announced last week. He emphasised that the Settlement was provisional at this stage and that

specific grant confirmations were due to be received on 24 October. He advised that the provisional Settlement indicated a 0.9% reduction in funding to the Authority which would increase the “gap” by £1.6 - £1.9m due to the new responsibility for homelessness and unresolved pressures. The Finance Manager explained that a statement on the provisional Settlement and Stage 2 of the budget process would be made at the meetings of the Corporate Resources Overview & Scrutiny Committee on 19 October, and Cabinet on 24 October, and analysis of the Settlement would follow to all Members.

Councillor Aaron Shotton spoke of the negative impact of the provisional Settlement and the implications of a further reduction in funding. He advised that the Authority and the Welsh Local Government Association would continue to enforce its lobbying case robustly for “betterment” before the Final Settlement was announced in December. Councillor Shotton commented that much rested on the Chancellor’s UK budget statement in November and the possibility of some improvement in the austerity measures imposed to date.

The Finance Manager reported on the main considerations as detailed in the report concerning emerging pressures, specific portfolio pressures, inflation and risks.

The Chief Officer (Streetscene and Transportation) and the Chief Officer (Planning and Environment) reported on the specific portfolio pressures and operating model efficiencies for their respective portfolios. The Chief Officers also reported on the current resilience position for their portfolios which was appended to the report and which set out the context for the savings and efficiencies proposed for 2018/19. Further details on the portfolio options for savings and efficiencies were included in the Operating Models appended to the report.

During discussion the Chief Officer (Streetscene and Transportation) responded to the comments and questions raised around streetlighting and the introduction of a no side waste policy which would coincide with the introduction of a charge to discourage people from leaving garden waste as side waste.

The Chief Officer (Streetscene and Transportation) agreed to meet with Councillor Chris Dolphin to discuss the specific concerns expressed around repair and maintenance of roads and streetlighting in his Ward.

The Chief Officer (Planning and Environment) responded to the questions around planning fee income. He advised that many services within the Planning portfolio were mandatory and that collaboration may be considered as an option for some of the services, however, he explained that whilst this may provide resilience it would not necessarily save costs.

RESOLVED:

- (a) That the Committee’s comments on the portfolio budget options and the portfolio financial pressures be noted; and

- (b) That the Committee was satisfied with the approach being taken to Stage One of the Council Fund Revenue budget 2018/19 for the Streetscene and Transportation and Planning and Environment portfolios.

34. MINUTES

The minutes of the meeting held on 19 September 2017 were submitted.

Matters arising

Revised Environmental Enforcement and Car parking arrangements

Page 9: Councillor Andy Dunbobbin explained that his point was about what learning the Authority could take from the way private enforcement operators worked with a view to providing an in-house service after 2 years.

Page 9: In response to a request from Councillor Veronica Gay concerning the location of Fixed Penalty Notices the Cabinet Member advised that she had requested that an extra column be added for future reports to include information on time and location.

RESOLVED:

That the minutes be approved as a correct record and signed by the Chairman.

35. BURIAL STRATEGY AND BEREAVEMENT SERVICES

The Chief Officer (Streetscene and Transportation) introduced the report to provide information on the activities of the Bereavement Services Team within Streetscene and Transportation and proposals to extend the service for residents. He provided background information and advised that there were a number of challenges and risks facing the service which needed to be addressed and the report detailed these and the proposals to deal with them.

The Chief Officer reported on the main considerations, as detailed in the report, around the memorial safety policy, grounds maintenance, public health burials, burial space, and child burial fees. The Chief Officer advised that grounds maintenance was one of the largest costs incurred by the service and, referring to ways in which the Council could reduce costs in the future, it was proposed that the Service look to develop a policy of working with Town and Community Councils and local communities by establishing local volunteer groups to undertake maintenance works within the cemeteries. Councillor Paul Shotton spoke in support of this suggestion as a way forward. Councillor Owen Thomas asked if consideration had been given to spraying grass to slow down growth within cemeteries. The Chief Officer agreed to make further enquiries into this.

Councillor David Evans asked if consideration had been given to establishing a new cemetery as opposed to extending the existing sites. The

Chief Officer advised that all options were being considered and the Council's Asset Team were looking at potential sites.

RESOLVED:

- (a) That the Committee recommends that the Cabinet approves the changes to the current inspection and management arrangement for memorials within Council owned cemeteries;
- (b) That the Committee recommends that the Cabinet approves plans to investigate partnership agreements with local communities to deliver grounds maintenance for cemeteries and closed churchyards;
- (c) That the Committee recommends that the Cabinet approves the new arrangements for house searches, in respect of Public Health burials;
- (d) That the current capacity within the Council owned cemeteries be noted; and
- (e) That the committee recommends that the Cabinet approves the adoption of the Memorandum of Understanding being developed by Welsh Government to standardise Child Burial Fees across Wales.

36. POTHoles AND RESURFACING PROGRAMMES

The Highways Network Manager introduced a report to provide an update on the processes used to identify resurfacing programmes and the preferred methods of repairing and maintaining the highway network. He advised that the report outlined the approach to detect identification, including the inspection regime and the intervention levels operated by the Council. The report also provided details on capital expenditure and investment levels on the various highway assets, the preferred treatment option for carriageways such as patching, surface dressing or resurfacing and the cost benefit of temporary pothole repairs.

In response to the concerns raised by Councillor Chris Dolphin around the condition of some roads, the Highways Network Manager advised that regular safety inspections took place and any defects were noted and the necessary repair work arranged. Defects which required urgent attention were corrected or made safe at the time of the inspection. Defects which did not represent an immediate hazard or risk were programmed for repair within the times defined within the policy as set out in the report. The Highways Network Manager acknowledged the concerns raised by Councillor Dolphin and agreed to meet him following the meeting to discuss the specific problems within his Ward concerning road maintenance and street lighting. The Highways Network Manager advised that the Council reviewed its inspection policy every 2 years and a revised 'Policy for Highway and Car Park Safety Inspections, Intervention Criteria and Response Times' would be submitted to Cabinet for approval by July 2018.

In response to the comments and suggestions by Members regarding the need to explore the use of alternative types of materials for road surface dressings, the Chief Officer said a number of alternative products had been used in the past and he would continue to make enquiries on the suggestions put forward and report back his findings to a future meeting of the Committee.

During discussion it was agreed that Members would be provided with information on when highway safety inspections were undertaken in their Wards and feedback on the condition scores would be provided.

RESOLVED:

That the report be noted.

37. NORTH WALES RESIDUAL WASTE TREATMENT PROJECT (NWRWTP)

The North Wales Residual Waste Treatment Project (NWRWTP) Contract Manager introduced a report to provide an update on the North Wales Regional Waste Partnership. He provided background information and advised that following the successful award of the North Wales Residual Waste Treatment Project contract to Wheelabrator Technologies Inc (WTI) the Parc Adfer waste treatment facility on Deeside Industrial Park was now under construction. The contract term with Wheelabrator Technologies Inc was 25 years. The five partner authorities had also signed an Inter Authority Agreement which formalised their partnership for the duration of the contract. Members were informed that Parc Adfer would be fully operational by 2020. Wheelabrator Technologies Inc had engaged with the local community and would continue to do so throughout the construction process and into the future.

Members spoke in support of the Community Benefit Fund which would become available when Parc Adfer was operational and would have a value of £230k per annum for community projects in the Deeside area. The NWRWTP Contract Manager advised that in addition to the Community Benefit Fund WTI had launched their own construction phase community fund of £50k over the construction period.

Councillor Aaron Shotton also spoke in support of the Community Benefit Fund and said this would be welcomed by community groups and would benefit residents in the Deeside area. He explained that the Council would decide how the Community Benefit Fund was allocated and further details concerning this would be provided to the Committee. Councillor Shotton also spoke of the positive outcome that the gate fees payable would be lower than the guideline or 'bid' price which had been set at the outset.

In response to a question from Councillor Owen Thomas the NWRWTP Contract Manager advised that a railway link was not part of the current plan, however, there was potential to attach a railway link in the future.

Following a suggestion by the NWRWTP Contract Manager, it was agreed that the Facilitator would arrange for Members to have a site visit to the Parc Adfer waste treatment facility on Deeside Industrial Park.

RESOLVED:

- (a) That the progress of the construction of Parc Adfer be noted; and
- (b) That the scheduled operational date for Parc Adfer be noted.

38. FORWARD WORK PROGRAMME

The Facilitator presented the current Forward Work Programme for consideration.

The facilitator advised that a workshop had been arranged in November to include School Transport. Cllr David Evans agreed that whilst a workshop may be a suitable way to take this matter forward, the item should remain as an item for the Committee for the present time, pending the outcome of the workshop.

RESOLVED:

- (a) That the Forward Work Programme be noted; and
- (b) That the Facilitator, in consultation with the Chair of the Committee, be authorised to vary the Forward Work Programme between meetings, as the need arises.

39. MEMBERS OF THE PUBLIC AND PRESS IN ATTENDANCE

There was one member of the press in attendance.

(The meeting started at 10.00 am and ended at 12.18pm)

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Chairman



ENVIRONMENT OVERVIEW AND SCRUTINY COMMITTEE

Date of Meeting	Tuesday 12 December 2017
Report Subject	Overview of Flintshire County Council's Pest Control Service
Cabinet Member	Cabinet Member for Planning and Public Protection
Report Author	Chief Officer (Planning and Environment)
Type of Report	Operational

EXECUTIVE SUMMARY

The purpose of this report is to provide an overview of the work undertaken by Flintshire County Council's Pest Control Service.

Although it is a non-statutory service it fulfils an important role in supporting the public health agenda. In particular, rats and mice transmit a number of serious diseases. If they gain access to properties they can spread disease, cause damage and contaminate food. Since April 2015 all aspects of the service offered by Flintshire County Council are chargeable, which is consistent with the position adopted by other local authorities in the region.

In Flintshire the team of three officers also undertake dog warden duties, which is a statutory service the authority must offer in accordance with the Environmental Protection Act 1990.

RECOMMENDATIONS

1	Members to note the contents of the report, and promote the Pest Control Service within their local communities, where possible.
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REPORT DETAILS

1.00	OVERVIEW OF FLINTSHIRE COUNTY COUNCIL'S PEST CONTROL SERVICE
1.01	As part of the Planning and Environment's business planning process the Pest Control Service was identified as a service that should, eventually, become self-financing. Ambitious, incremental, income targets were set for the service over a four year period.
1.02	<p>The team offers a professional and comprehensive service, treating the following types of pests:</p> <ul style="list-style-type: none">▪ Rats▪ Mice▪ Fleas▪ Wasps▪ Crawling ants <p>Services range from basic advice on pest prevention to the direct control of pests. The rates offered are competitive and include follow-up visits, with concessions available (at present) on the full rate if the service user is in receipt of certain benefits. All pest control officers are fully trained and qualified to industry standards.</p> <p>Maintenance contracts are also available with an annual fixed price. These contracts are tailored to the client's needs and include regular scheduled inspections, pest monitors and an information binder.</p>
1.03	<p>Since January 2016 there has been a concerted effort to try and improve the uptake of the service through promotion.</p> <p>Some of the positive developments to support and promote the service are as follows:</p> <ul style="list-style-type: none">▪ Appointment of a corporately funded Flintshire Trainee in September 2016.▪ Design and distribution of new leaflets. Leaflet drops have been made, targeting, in particular, newer housing estates who may not have been included in the mass mail out which was done in early 2016.▪ Articles promoting the service have been distributed via the press and social media.▪ Letters have been sent to businesses in the area and subsequent phone calls made to discuss pest control contracts.▪ Work has also been undertaken to assist the Environmental Control Team where there have been complaints of filthy and verminous

	properties.
1.04	The progress of the service is monitored at the Planning and Environment Programme Board.

2.00	FINANCE AND RESOURCE IMPLICATIONS
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2.01	<p>At present there is an in-year risk of not achieving the Pest Control fee income target for 2017/18, with a shortfall of approximately £0.043m projected.</p> <p>Prior to financial year 2015/16, Pest Control income targets were set at approximately £30,000 annually with fee income consistently falling short annually on average of 50%. The income target was raised in 2015/16 as part of the 3 year Business Planning efficiencies at a rate of 79% from £31,919 to £57,229.</p>
2.02	<p>Pest Control fees are reviewed annually and increased in line with inflation. In 2015/16 the fees were reviewed and restructured in line with commercial organisations to demonstrate a competent and competitive service. A widespread increased marketing exercise and publicity promotion to introduce the service to both domestic and commercial areas and widen the customer base within Flintshire was undertaken. The fee shortfall in-year was an improvement on previous years at 39%. The 2nd and 3rd year of the Business Planning efficiencies have seen the income target further increased to its current level of £100,229. In-year monitoring has shown that the income target is not being achieved.</p>
2.03	<p>The number of Pest Control calls also increased in 2016/17 following the publicity from the previous year. This, however has now reduced in the first half of 2017/18.</p>
2.04	<p>The largest number of pest control fees received are in the £20 - £60 range.</p>

3.00	CONSULTATIONS REQUIRED / CARRIED OUT
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3.01	None required as a result of this report.
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4.00	RISK MANAGEMENT
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4.01	The progress of the service is monitored through the Planning and Environment Programme Board.
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5.00	APPENDICES
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5.01	Appendix A – Schedule of Charges Appendix B – Publicity Leaflet
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6.00	LIST OF ACCESSIBLE BACKGROUND DOCUMENTS
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6.01	Contact Officer: Sian Jones, Community and Business Protection Manager Telephone: 01352 702132 E-mail: sian-jones@flintshire.gov.uk
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7.00	GLOSSARY OF TERMS
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7.01	None
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Pest Control and Dog Warden Service Fees 2016-17

Activity	Fees	Notes
Pest Control		
Rats and Mice (Private Household)	£50 (£60 inc VAT)	Concessionary fee is for all the pest control fees and is for householders on Disability Living Allowance, Income Support, Job Seekers Allowance or State Pension. If more than one treatment is required during each visit, an additional charge of half the unit rate will apply per additional treatment.
Wasps	£45 (£53 inc VAT)	
Bees	£15 (£18 inc VAT)	
Ants	£41 (£49 inc VAT)	
Fleas (Private Householders)	£54 (£64 inc VAT)	
Concessionary Fee	£10 Bees (£12 inc VAT) £30 all other (£36 inc VAT)	
Commercial Business Premises (inc Schools) Internal council depts. And businesses within Flintshire Rats, mice, wasps, ants, fleas	£48 (£58 inc VAT)	First visit including materials. Subsequent visits charged in quarter of an hour increments of the £48 figure.
Stray Dogs		
Return of stray dogs directly to owners	£20	This will apply where dogs can be identified by microchip or tag and owners are available to receive the dog.

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Pest Control Services

01352 701234

pestcontrol@flintshire.gov.uk



Who are we?

Flintshire County Council Pest Control offers a professional and comprehensive service for both domestic and commercial clients when YOU need it most.

What do we do?

Our services range from basic advice on pest prevention to the direct control of rodents and insects.

Our rates are competitive and include follow-up visits.

All our work is carried out in line with current health and safety regulations, protecting non-target animals. All pest control officers are fully trained and qualified to industry standards.

We use pesticides and preventative measures to ensure that the infestations are identified and remedied as quickly and humanely as possible. We also provide information on how to prevent the pests returning.

We currently offer the removal of the following pests:

- Rats
- Mice
- Fleas
- Wasps
- Crawling ants

For other pests, please refer to the Yellow Pages or www.yell.com.

Commercial contracts

We offer maintenance contracts to services and organisations who require on-going support.

A pest maintenance contract with Flintshire County Council is tailored to suit your individual needs and provides the following:

- Regular scheduled inspections by our pest control officers;
- Pest monitors installed throughout the site;
- An annual fixed price for the term of the contract;
- Information binder (containing summary of visits, contract specifications, site risk assessments, pesticide safety data and useful contact numbers).

Get in touch!

For professional advice and more information, call Flintshire County Council's Streetscene Call Centre on 01352 701234 or email pestcontrol@flintshire.gov.uk.

You can also visit our page on the Council's website www.flintshire.gov.uk.

Gwasanaethau Rheoli Pla

01352 701234
pestcontrol@flintshire.gov.uk



Pwy ydym ni?

Mae Gwasanaethau Rheoli Pla Cyngor Sir y Fflint yn cynnig gwasanaeth profesiynol a chynhwysfawr i gleientiaid domestig a masnachol pan fydd ei angen arnoch CHI fwyaf.

Beth ydym yn ei wneud?

Mae ein gwasanaethau'n amrywio o gyngor sylfaenol ar atal plâu i reoli cnofilod a phryfed yn uniongyrchol.

Mae ein cyfraddau'n gystadleuol ac yn cynnwys ymweliadau dilynol.

Mae ein holl waith yn cael ei wneud yn unol â rheoliadau iechyd a diogelwch cyfredol, gan ddiogelu anifeiliaid nad ydynt yn darged. Mae'r holl swyddogion rheoli plâu wedi'u hyfforddi'n llawn ac yn gymwys i safonau'r diwydiant.

Rydym yn defnyddio platladdwyr a mesurau ataliol i sicrhau bod y plâu yn cael eu nodi a'u cywiro cyn gynted â phosibl a heb iddynt ddioddef. Rydym hefyd yn darparu gwybodaeth am sut i atal y plâu rhag dychwelyd.

Ar hyn o bryd, gallwn gael gwared ar y plâu canlynol:

- Llygod Mawr
- Llygod
- Chwain
- Cacwn
- Morgrug

Ar gyfer plâu eraill, cyfeirwch at Yellow Pages neu www.yell.com.

Contractau masnachol

Rydym yn cynnig contractau cynnal a chadw i wasanaethau a sefydliadau sydd angen cymorth parhaus.

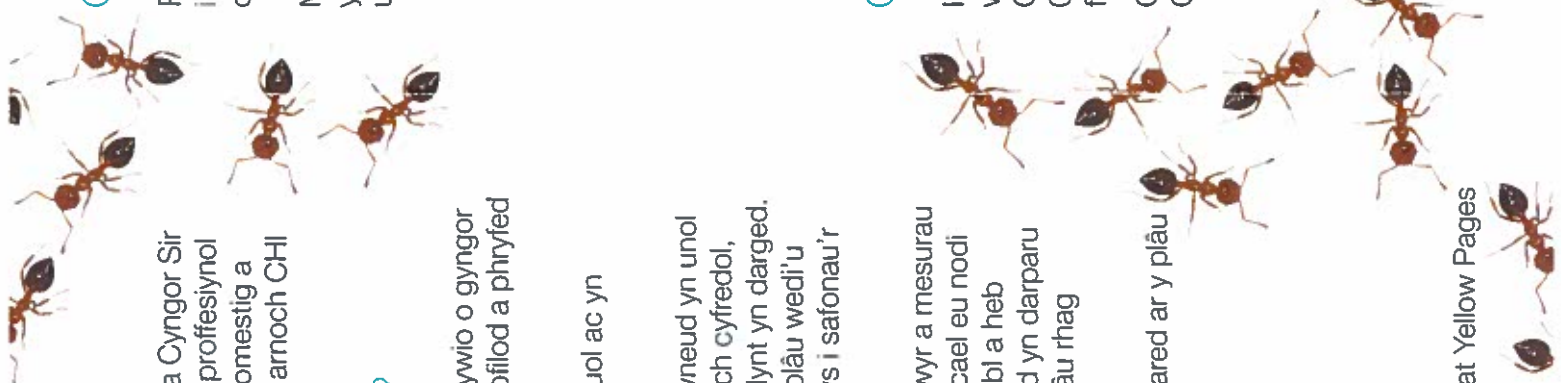
Mae contract cynnal a chadw plâu gyda ni yn cael ei deilwra i gyd-fynd â'ch anghenion unigol ac yn darparu'r canlynol:

- Arolygiadau rheolaidd wedi'u trefnu gan ein swyddogion rheoli plâu;
- Offer monitro plâu wedi'u gosod ar draws y safle;
- Pris sefydlog blynyddol ar gyfer cynnod y contract;
- Ffeil wybodaeth (yn cynnwys crynodeb o ymweliadau, manylebau contract, asesiadau risg y safle, data diogelwch plaleiddiaid a rhifau cyswllt defnyddiol).

Cysylltwch â ni!

I gael cyngor profesiynol a rhagor o wybodaeth, ffoniwch Ganolfan Alw Gwasanaethau Stryd Cyngor Sir y Fflint ar 01352 701234 neu e-bostiwch pestcontrol@flintshire.gov.uk.

Gallwch hefyd ymweld â'n tudalen ar wefan y Cyngor www.sirylflint.gov.uk.





ENVIRONMENT OVERVIEW & SCRUTINY COMMITTEE

Date of Meeting	Tuesday 12 December, 2017
Report Subject	Mold Flood Alleviation Scheme – Review of Options Feasibility
Cabinet Member	Cabinet Member for Planning and Public Protection
Report Author	Chief Officer (Planning & Environment)
Type of Report	Operational

EXECUTIVE SUMMARY

Welsh Government requested information to be submitted by October 2017 from all Lead Local Flood Authorities (LLFAs) describing any Flood and Coastal Risk Management (FCERM) capital works that are being considered for progression within the next five year period. This has enabled Welsh Government to develop its ‘five year pipeline programme of FCERM schemes’. This pipeline includes schemes led by both local authorities and Natural Resources Wales (NRW), and allows the alignment of Welsh Government funding to these priority schemes.

This report updates Members on one of these important projects, highlighting recent work led by the Council’s Flood and Coastal Erosion Risk Management (FCERM) Team relating to a review of feasible options for designing and delivering a Mold Flood Alleviation Scheme.

RECOMMENDATIONS

1	That the individual opportunities identified in the Waterco Feasibility Study for ‘smart flood management’ in Mold are progressed to ‘Project Appraisal Report’ stage so that initial options identified are progressed and tested further in terms of their economic viability and therefore future deliverability through Welsh Government’s pipeline programme.
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REPORT DETAILS

1.00	UPDATE OF THE MOLD FLOOD ALLEVIATION SCHEME
1.01	<p>In May 2017, Welsh Government wrote to all Lead Local Flood Authorities (Appendix A) outlining changes to their long term capital settlement and the need to establish a national pipeline of Flood and Coastal Erosion Risk Management (FCERM) schemes to take forward as part of their flood programme. A newly established FCERM programme board will now assist Welsh Government to consider and prioritise all schemes from both local authorities and NRW.</p>
1.02	<p>This new structured approach will promote transparency and consistency and allow Welsh Government and Local Authorities to better plan schemes over multiple years and assist in making the case for future settlement rounds. In conjunction with the new arrangements Welsh Government will be shortly releasing their revised project appraisal guidance for FCERM schemes based primarily on the 'Five Case Model'.</p>
1.03	<p>All Lead Local Flood Authorities were requested to submit to Welsh Government details of all schemes (over £100k) being considered over the next five years. Schemes at Project Appraisal (PAR), Design or Construction stages are eligible for application for grant funding of up to 85%.</p>
1.04	<p>The benefits of contributing to the Welsh Government pipeline of projects are that flood risk improvements in Flintshire can potentially be delivered with the support of grant funding opportunities, which in turn illustrates the need for preparedness and forward planning of projects to be able to access those funding opportunities.</p> <p>Appendix B provides a useful overview of the stages of standard FCERM capital projects and the typical resource, funding and timing arrangements.</p> <p>It should be noted that Welsh Government's five year pipeline programme applies only to large scale works. Other related programmes are available such as the 'Small Scale Flood Risk Management Grant'. Appendix C provides a short summary of the present funding options available for FCERM capital works.</p>
1.05	<p>One of these principal schemes relates to Mold Flood Alleviation where the FCERM Team has recently commissioned a review of the previous scheme design and feasibility work. The previous scheme, designed and developed on behalf of the local authority by Ymgynghoriaeth Gwynedd Consultancy (YGC), consisted of a culverted bypass channel to the west of Mold and large underground attenuation tanks at Ysgol Glanrafon. A cost review indicated construction budgets would be in excess of £12m, making this scheme economically unfeasible and unaffordable. The design carries additional risks in relation to legal, environmental, technical, and maintenance aspects of the proposal.</p>

1.06	<p>Waterco Consultants were therefore commissioned in late 2016 to undertake the task of building upon the previous scheme information and exploring alternative options to deliver flood risk mitigation in Mold. This feasibility study was asked to take account the effectiveness, affordability and reliability of the approaches identified.</p> <p>A copy of the Waterco Consultant’s study: <i>‘Mold Flood Alleviation – Smart Flood Management’</i> is provided in Appendix D.</p> <p>In summary the study identifies the following key opportunities:</p> <ul style="list-style-type: none"> • Infrastructure improvements through Mold (pages 9-13) • Upstream catchment attenuation (pages 14-15) • Cae Bracty resilience measures (page 20) • Catchment diversions (pages 22-23)
1.09	<p>The ‘Smart Flood Management’ – Opportunity Maps on pages 33 and 34 provides a useful visual overview of each of the opportunities identified.</p>
1.10	<p>This report recommends that the options identified for Mold in the Waterco study are progressed to the next stage of Project Appraisal (PAR) to further test their economic cases and potential deliverability.</p> <p>In order to maximise the potential deliverability of the components of the scheme, it is proposed to that each opportunity be assessed as a standalone smaller scheme and also as part of a suite of phased schemes in accordance with the new national project appraisal guidance. This will conclude where viable business cases exist, and support grant applications if progressed to detailed design and/or construction stages through Welsh Government’s ‘pipeline programme’.</p> <p>This approach offers some advantages over the previous larger scheme, as the potential for longer-term phased delivery of works may be more deliverable and achievable within budgetary and resource constraints.</p>

2.00	RESOURCE IMPLICATIONS
2.01	<p>Personnel: The capacity of most local authorities to deliver large flood infrastructure schemes has diminished in recent years through a combination of budget pressures and a decreasing technical staff resource. For Flintshire Council to deliver successful FCERM projects requires adapting to the role of ‘informed client’, using a smaller pool of internal technical staff to procure external expertise and resources as is necessary for each individual project.</p> <p>Measures are already underway to modernise the Council’s approach to flood risk management, including implementing an asset management database (AMX) to record and manage all local flood and drainage infrastructure, flood history, etc. This is a statutory requirement under the Flood and Water Management Act 2010. Such improvements are essential</p>

	to ensure the Council can support ongoing and future grant applications with robust evidence and standardised data consistent with Welsh Government requirements.
2.02	<p>Financial: As outlined in Appendix C, the majority (75-85%) of FCERM capital works costs for PAR, Design and Construction stages is funded through Welsh Government grant funding, with a local authority contributing the balance through its capital budget. These favourable rates allow Lead Local Flood Authorities to deliver schemes and improve local infrastructure that may otherwise be unaffordable through the Council's core capital budget. Notwithstanding the above, a 15% contribution rate may still present a significant demand on core capital budgets, particularly on larger schemes. Therefore individual bids and business cases will need to be made in line with the Council's approval process i.e. Asset Programme Board approval, Cabinet approval and Full Council approval.</p> <p>Developing and maintaining a transparent and robust programme of local FCERM projects is critical to ensure that Flintshire avails of ongoing and future FCERM grant funding to deliver local improvements where needs arise.</p>

3.00	CONSULTATIONS REQUIRED / CARRIED OUT
3.01	Not applicable.

4.00	RISK MANAGEMENT
4.01	As noted in Welsh Governments letter (Appendix A): <i>“By not including schemes to us by the end of September deadline you risk not being able to progress schemes at a later date as the programme up to March 2021 will be published in late Autumn”</i>

5.00	APPENDICES
5.01	A: Letter from Welsh Government of 17 th May 2017: <i>Development of a pipeline of Flood and Coastal Erosion Risk Management schemes.</i>
5.02	B: An Overview of the Typical Stages of FCERM Capital Projects.
5.03	C: Current Funding Options Available for Flood and Coastal Erosion Risk Management Capital Works
5.04	D: 'Mold Flood Alleviation – Smart Flood Management – Feasibility Study Report and Opportunity Map'

6.00	LIST OF ACCESSIBLE BACKGROUND DOCUMENTS
6.01	<p>Contact Officer: Ruairi Barry (Project Engineer FCERM) Telephone: 01352 704707 E-mail: Ruairi.Barry@Flintshire.gov.uk</p>

7.00	GLOSSARY OF TERMS
7.01	<p>FCERM Programme – A nationally based Welsh Government funded programme for identifying priority schemes to address flooding issues, prioritised on the basis of risk to life.</p> <p>Lead Local Flood Authority – Flintshire County Council is a Lead Local Flood Authority (LLFA) and has powers and duties for managing flooding from local sources.</p> <p>NRW – Natural Resources Wales</p> <p>Feasibility Study – An initial assessment of the flooding issues that require mitigation and a scoping of the opportunities and options to develop a solution.</p> <p>Project Appraisal Report – A more detailed case for proceeding with a project or proposal, involving comparing various options, using economic appraisal.</p>

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Llywodraeth Cymru
Welsh Government

17th May 2017

Dear Lead Local Flood Officer,

Development of a pipeline of Flood and Coastal Erosion Risk Management schemes

As part of continued improvements to our Programme, we have committed to prioritising the Flood and Coastal Erosion Risk Management (FCERM) Schemes nationally based on risk to life and also to create a prioritised pipeline of schemes to be taken forward. This pipeline will include schemes led by both local authorities and Natural Resources Wales (NRW).

We have recently received a longer term capital settlement rather than an annual budget, and know what our yearly budgets will be for the next four years, up to the end of March 2021. We now need to establish a national pipeline of schemes to take forward as part of the flood programme. This will also assist in verifying the required levels of capital funding following the committed 4 years.

Pipeline of flood and coastal risk management schemes

To help us to bring together a national pipeline of schemes we need information about what schemes local authorities and NRW are considering over the coming years.

Whilst budgets are confirmed for 4 years, we are looking for you to consider what you may be planning over the next 5 years, which will then be combined with the NRW medium term plan and prioritised nationally with the support of the FCERM Programme Board.

The FCERM Programme Board was established in December 2016 and includes representation from Welsh Government, NRW, WLGA, two local authorities, Dŵr Cymru Welsh Water (DCWW) and the Institution of Civil Engineers. The Board will assist us to consider all schemes from local authorities and NRW and to prioritise these schemes using the Communities at Risk Register along with information about local flood risk and historic flooding.

Benefits

A prioritised pipeline of schemes is something we have been looking to bring together for a while. As we now have a confirmed four year budget settlement for flood and coastal erosion risk management, this pipeline will allow us to better plan schemes over multiple years and make the case for future budget settlement rounds.

We will be able to share with local authorities and NRW the prioritised pipeline, meaning that you will be able to see where your schemes fit within a national scale programme and when funding is likely to be available.

A prioritised pipeline will ensure funding is focussed on the most at risk areas across the whole of Wales and provide a more transparent method for allocating funding both to risk management authorities and the public.

Understanding the location and type of works planned around the country will allow us to consider with local authorities whether similar schemes in neighbouring authorities could progress together and also link with NRW or DCWW's works. This is in line with our aim of a catchment management approach and further promoting regional working. This could also provide economic benefits as well as potentially reducing disruption to the public.

What information do we need from you?

In order to generate a pipeline of potential schemes, we need to gather information about schemes which local authorities may be considering submitting to Welsh Government seeking grant funding for between now and March 2021. This includes all schemes with expected construction costs over £100K (below this value, works should proceed through the small scale works grant).

The attached spreadsheet asks for basic information about proposed flood (ordinary watercourse and surface water) and coastal works. Information you provide should set out all stages of a scheme separately with your programmed dates for taking each stage forward. Guidance is attached at the bottom of this letter explaining the information being asked for.

We recognise that some of this information, particularly around plans for the next 5 years, may not be readily available, therefore we are proposing that this is collected in a 2 phased approach. Firstly, schemes that are ready, or will be ready, to be put forward for the 2018/19 programme will be considered in detail at the next FCERM Programme Board meeting at the end of June. Secondly, we will bring together a 5 year pipeline to be published in autumn 2017. Please see below details of what information is being requested and by when.

- **By Wednesday 14th June 2017**
 - Full details on the attached spreadsheet of schemes which you are likely to be seeking funding for in the next financial year and what stage they are currently at.
 - Draft details of scheme to be included within the 5 year pipeline.

- **By end September 2017**
 - Full details on the attached spreadsheet of the schemes you are considering over the next 5 years, or
 - An email explaining why your local authority is not considering any schemes over the next 5 year period.

For local authorities not putting forward any schemes for the 5 year pipeline, please provide an explanation for this decision. **By not including schemes to us by the end of September deadline you risk not being able to progress schemes at a later date, as the programme up to March 2021 will be published in late autumn.**

We are aware that you cannot always plan where and when funding may be needed quickly, for example damages following a flood event, however any requests for emergency funding to make repairs to flood damaged assets will be considered on a case by case basis in discussion with the Welsh Government Flood Team and in consultation with the FCERM Programme Board.

Please do not include schemes you have already submitted for the Coastal Risk Management Programme. If this programme is over subscribed and schemes are not successful, these will be placed into this pipeline.

If you have any questions, do not hesitate to contact me by email at sarah.dafydd@wales.gsi.gov.uk or by phone on 0300 062 5696.

Please return completed spreadsheets for phase one to me by **Wednesday 14th June**.

Yours sincerely,



Sarah Dafydd
Programme Manager, Flood and Coastal Erosion Risk Management, Welsh Government

Guidance for completion of spreadsheet

Please complete one line of the spreadsheet for every stage (PAR, design, construction) of each scheme which you are considering taking forward

For ease of completion, please find below summary of information we are looking for under each heading

- Location – please provide the nearest town/village and postcode – this should link to the Communities at Risk Register area
- Grid Reference (Easting and northings)
- Communities at risk rank – combined max ranking
- Local evidence of flood risk – what is your evidence – S19 reports, modelling etc.
- Historic flood events – Dates of recent flooding, numbers of properties affected etc.
- Stage of work – PAR, Design, Construction
- Estimated cost – for each stage of the scheme
- Benefits to properties – estimated number of properties at risk, split homes and businesses where possible
- Programmed start and end dates – for each stage of the scheme
- Link to FRMP/LFRMS – What is the strategic context – how does this link to your Flood Risk Management Plan or Local Flood Risk Management Strategy

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APPENDIX B: An Overview of the Typical Stages of FCERM Capital Projects

STAGE 1: IDENTIFICATION OF ISSUES

- **Overview:** Local Authorities identify a risk/issue problem generally using historical data from flood events (S19 Flood Investigation Reports) or evidence of failing coastal defences. This stage tends to be reactive and draws upon local knowledge and observations.
- **Resource:** Local Authority (in-house)
- **Funding:** Local Authority
- **Timing:** Built up over time utilising flood data, flood event history and observations from officers and the public.

STAGE 2: STRATEGIC OUTLINE CASE (Pre-feasibility or Viability studies)

- **Overview:** The purpose of this stage is to confirm the strategic context of the issues and to provide robust evidence for a case for action. Typically this may involve site specific surveys and investigations, often some basic hydraulic modelling. The outcomes of this stage should be a long list of potential options for further consideration and appraisal.
- **Resource:** Local Authority (in-house). Limited use of external consultants e.g. for modelling/survey work.
- **Funding:** Local Authority (occasionally may be eligible for WG grant support)
- **Timing:** SOCs should be achievable within 3 months.

STAGE 3: OUTLINE BUSINESS CASE (Project Appraisal Report)

- **Overview:** Further identification of the problem and modelling of extreme events. Investigates and compares the long list of options and intervention scenarios against a 'do nothing' scenario. Uses benefit-cost analysis in line with national Flood and Coastal Defence Project Appraisal Guidance (FCDPAG3) to arrive at the most feasible and economically best value for money solution.
- **Resource:** Local Authority staff and external consultants.
- **Funding:** WG grant funding available for up to 85% costs, remainder via LA core capital
- **Timing:** 6 – 12 months

STAGE 4: FULL BUSINESS CASE (Design and Development)

- **Overview:** Further detailed modelling and design of the preferred option, formal consultation with statutory consultees and often a public consultation exercise. Obtaining necessary consents, planning permission, EIA etc. Preparation of contract drawings and tender documents with tender process likely to have to comply with OJEU process.
- **Resource:** External consultants required across several specialisms e.g. QS, design etc.
- **Funding:** WG grant funding available for up to 85% costs, remainder via LA core capital.
- **Timing:** Minimum of 12 months.

STAGE 5: PROJECT DELIVERY (Construction)

- **Overview:** Submission to WG of application for construction costs of agreed scheme accompanied by tender documents and all necessary consents and agreements to carry out works. Following tender process full costs are used for approval letter. Works delivered as per tender.
- **Resource:** LA staff, external consultants and civil engineering contractors.
- **Funding:** WG grant funding available for up to 85% costs, remainder via LA core capital.
- **Timing:** 3 – 12 months subject to scale.

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APPENDIX C: CURRENT FUNDING OPTIONS AVAILABLE FOR FLOOD & COASTAL EROSION RISK MANAGEMENT (FCERM) CAPITAL WORKS

- **Flintshire County Council - Core Capital Funding.**
- **Welsh Government's FCERM Capital Programme** (5 year pipeline of flood and coastal risk management schemes). This national programme provides opportunities for Local Authorities to bid for WG grant funding for FCERM capital works. At present the grant contribution rates are 85% towards fluvial and land drainage schemes and 75% towards coastal schemes.
- **Coastal Risk Management Programme (CRMP 2018-2021).** This programme provides a one-off opportunity for local authorities to implement transformational projects for our coastline and coastal communities with Welsh Government contributing 75% of project design and construction costs and up to 100% for the initial strategic and/or outline business case stages.
- **Welsh Government's Small Scale FCERM Works Grant.** A grant for smaller flood and coastal risk management works which can progress relatively quickly. Uses a more simplified application process rather than the traditional route of carrying out a full project appraisal report. Applicable to works up to a maximum value of £100k. Grant contribution rates are in line with the current grant rates for the Flood and Coastal Erosion Risk Management Programme; 85% for land drainage or 75% coastal works.
- **Other:** Occasionally other grant funding opportunities may arise that FCERM capital works, may be eligible to apply for. Particularly projects that can demonstrate wider benefits in line with Wellbeing and Future Generation Act goals e.g. NRW's 2018/19 'Open Call for projects'.

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Mold Flood Alleviation Scheme

Smart Flood Management

Feasibility Study and Opportunity Map

DOCUMENT VERIFICATION RECORD

CLIENT:	Flintshire County Council
SCHEME:	Mold FAS – Smart Flood Management – feasibility study and opportunity map
INSTRUCTION:	The instruction to carry out this report was received from Mr Ruairi Barry Project Engineer Flood and Coastal Risk Management, Flintshire County Council, on 18th October 2016

DOCUMENT REVIEW & APPROVAL

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ISSUE HISTORY

ISSUE DATE	COMMENTS
20/03/2017	First issue

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Introduction

Mold has a long history of flooding with extensive residential and commercial areas having suffered in the last decade on several occasions. Previous studies have identified some 81 residential and 10 commercial properties as being at risk of flooding. One of the areas, Cae Bracty, is particularly prone to flooding. An earlier flood alleviation scheme encountered budget constraints and landowner objections.

Waterco were commissioned by Flintshire County Council (FCC) to look at the use of Smart Flood Management (Smart FM) to reduce flood risk more cost effectively. Smart FM is an extension of Natural Flood Management (as further described in the next section).

This feasibility study aims to build upon the previous investigations by exploring ways in which Smart FM can reduce flood risk in Mold from fluvial flows generated in the upper catchments, as well as the pluvial flows generated by the rainfall directly over the town; and in particular, the following:

1. **Infrastructure improvements:** using the existing pipework model (developed as part of the FAS study) to examine whether relatively short lengths of upsized or dual culvert would make a worthwhile difference to the overall system capacity.
2. **Upstream catchment attenuation using Smart FM:** investigate opportunities for 'smart' natural flood management - such that relatively small storage volumes, activated just at the peak of the event, will allow the infrastructure (improved as item 1) to carry residual flows.
3. **Cae Bracty:** undertake a study of this area and in conjunction with the development of infrastructure and attenuation options (in the context of items 1 and 2 above); consider the available options.
4. **Catchment diversions:** assess the potential for retaining part of the proposed cut-off drain (present FAS) and also consider a directional drill tunnel to take some flow directly to the River Alyn.

Flintshire CC also asked that the study take account of the following:

1. **Constructability:** Cost effective solutions, that can be delivered efficiently through collaboration with contractor, consultant and client
2. **Effectiveness:** demonstrating the benefits to be realised from a pragmatic, staged approach
3. **Affordability:** budget costings need to be realistic to avoid 'ballooning' costs during the detailed design stage
4. **Reliability:** ensuring any new approach has no risk of failure.

Smart Flood Management Approach

The principle objectives of Smart Flood Management can be expressed, in simple terms, as follows:

- 1 optimise the flood flow capacity of the existing system

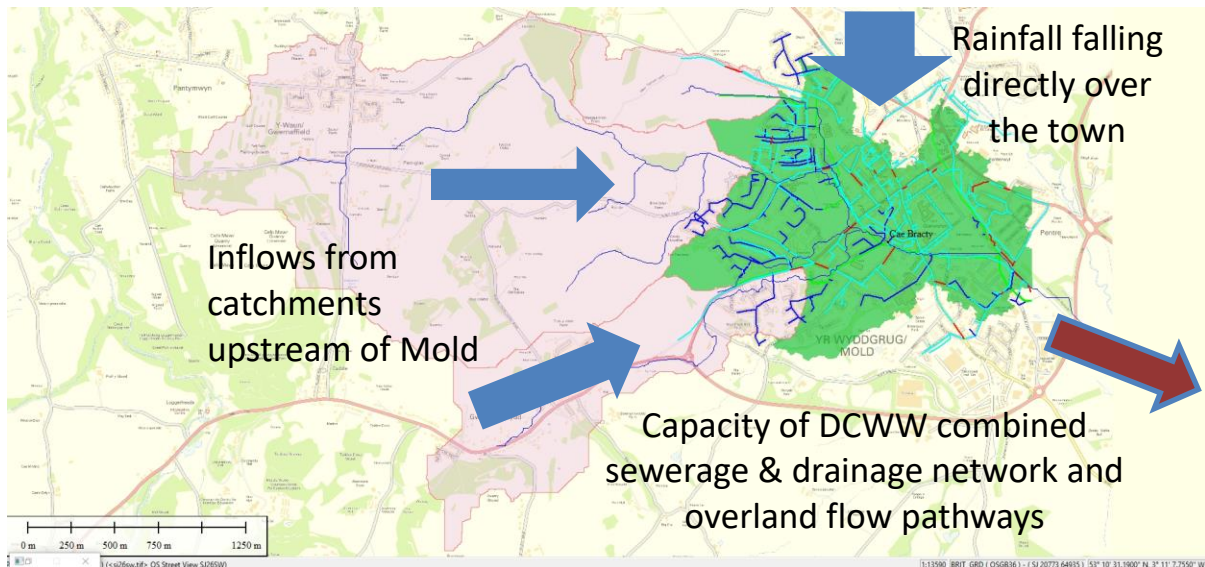


Figure 1: Integrated model for Mold Smart Flood Management System

- 2 attenuate, through attenuation storages, the peak flows

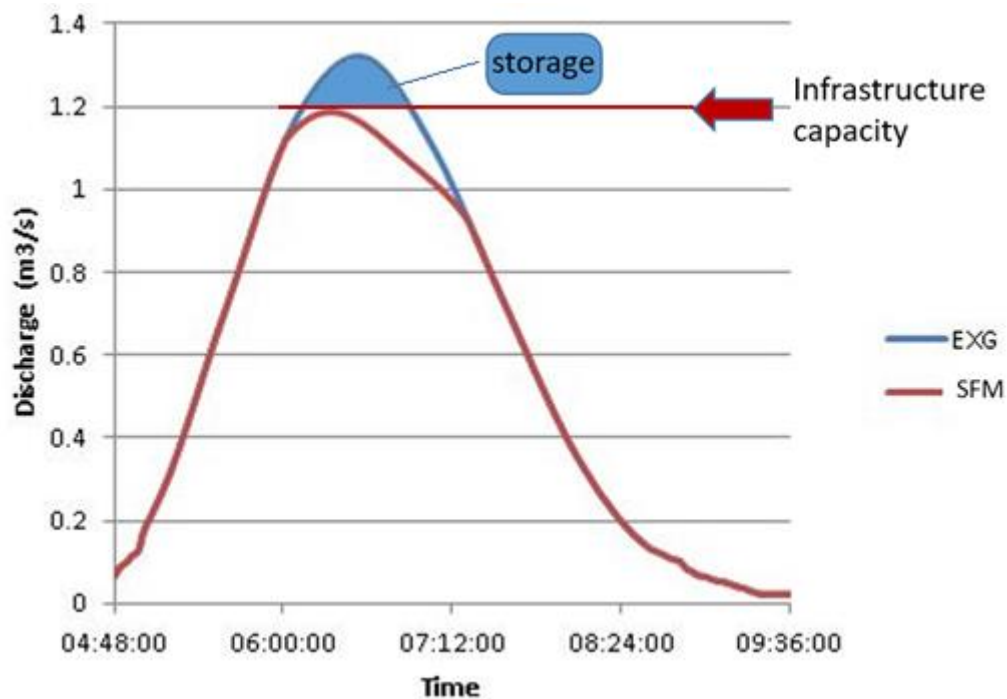


Figure 2: Assessing attenuation storage capacity for a Smart Flood Management system

In Natural Flood Management, each sub-catchment that has either an ephemeral or permanent channel can be enhanced with storage and attenuation features for 'slowing the flow'. Smart FM also utilises the principle of 'slowing the flow' by creating attenuation storage capacity which complements and enhances the capacity of the existing system.

Smart FM comprises:

- i) assessing the 'optimised capacity' of the waterway for flood prevention,
- ii) assessing peak flood flows derived from hydrological analysis,
- iii) assessing attenuation storage(s) in various parts of a catchment,
- iv) actively managing the attenuation storage(s) using control structure(s) to ensure the peak flow rate through the waterway does not exceed its 'optimised capacity'.

The components of a Smart FM system, optimised to work at the right time for the duration of a flood event, results in the management of exceedance flows which, ordinarily, would exceed the system capacity, thus preventing flooding with a significant increase in cost-effectiveness, compared to NFM and traditional flood defence systems.

Attenuation storages provided closer to the at-risk area work more efficiently compared to distant attenuation storage sites, i.e. those in the far reaches of the catchment will generally be less cost effective and may require a careful evaluation of the relative benefits of passive versus active smart control.

The potential for implementing Smart FM for alleviating flood risk to Mold is to be undertaken in conjunction with examining whether relatively short lengths of upsized or dual culvert would make a worthwhile difference to the overall sewerage & drainage system capacity.

Hydrology

The hydrology is primarily concerned with the rural catchments where storage and control have the space and timescale to operate within Smart FM. FEH data indicates two main catchments, the larger containing Gwernaffield and the smaller containing Gwernymynydd, please see Figure 3. A much smaller catchment incorrectly assigned by FEH data to the River Alyn is seen as a rectangular section by NW Mold, it is designated later as catchment '1' or Fir Grove.

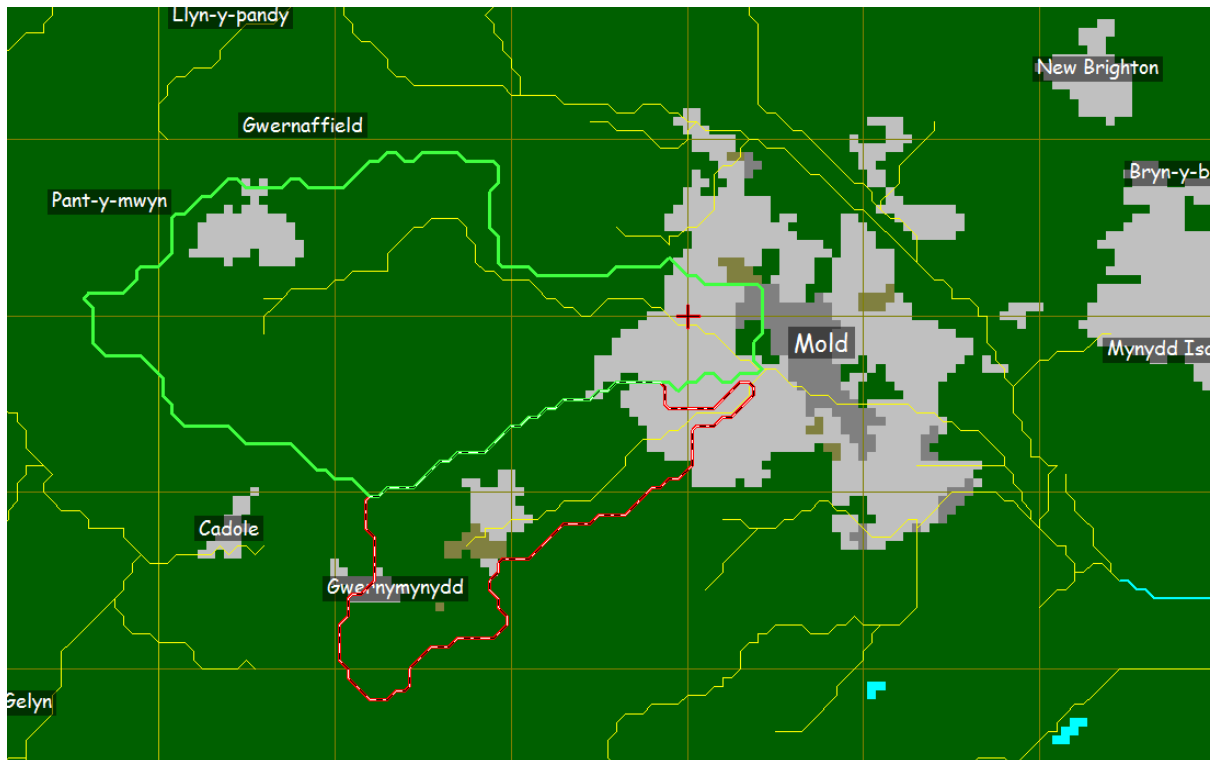


Figure 3 Main catchments: Gwernaffield (green outline) and Gwernymynydd (red outline)

The two main catchments are somewhat different in respect to flows from modelled rainfall events. ReFH software indicates that the Q100 flow of the smaller catchment Gwernymynydd is much larger per unit area than the larger Gwernaffield catchment. Table 1 shows the ReFH catchment flows at the confluence of the two natural catchment streams in Mold, and the ReFH flows to Brook St and two potential storage areas.

Table 1: Catchments draining into Mold

Catchment	Area (km ²)	BFIHOST	Q100 (m ³ /s)	Q100 per unit area (l/s/ha)
Gwernaffield (to confluence in Mold)	4.15	0.71	2.2	5.3
Gwernymynydd (to confluence in Mold)	1.71	0.59	1.8	10.5
Gwernaffield+Gwernymynydd at Brook St.	6.07		3.8	
Gwernaffield at Marsh storage	3.21		1.8	
Gwernymynydd at Ruthin Road storage	0.92		1.6	
Fir Grove (catchment '1') Rural	0.6	0.85	0.2	3.3

OS mapping from 1888 indicates the route of the Gwernaffield catchment stream to have been on the edge of urban Mold at that time. It flowed in an open channel towards the cricket ground and was diverted around the cricket field, across the Ruthin Road/New Road, to alongside the area currently known as Cae Bracty, finally on to Brook street and Gas Lane. The culverted route is very similar to the original open channel route and during more extreme rainfalls the overland route will follow the culverted route; albeit that raised road surfacings will mean considerable ponding.

Gwernymynydd catchment stream is shown in 1888 OS mapping to be open channel alongside the Ruthin Road until Hendy Road. It now appears to have been diverted into a smaller catchment stream to the south causing overland flows and piped flows to flow along parallel paths as the flows approach Cae Bracty.

The design storm approach using ReFH relies heavily on the soil loss model. The model assumes the catchments are initially fairly dry (Gwernaffield) and fairly wet (Gwernymynydd). Should the antecedent wetness be much higher than expected from a series of closely spaced smaller storms followed by the design storm, the Gwernaffield catchment, in particular, will have markedly increased volumes for Q100 flows. The FEH statistical method used in the previous study by CES Ltd gave higher values than ReFH, but the choice of good close donor stations is limited.

The Gwernaffield catchment is affected by mining drainage. The Milwr tunnel was driven below the northern boundary of the catchment in 1948 (estimated) and passed out of the catchment by 1955 (estimated) to terminate at Cat Hole (now called Cadole) in 1957. The drainage tunnel intersects several other east-west mineral vein mining tunnels. The effect is a reduction in the antecedent wetness of the east portion of the catchment. This would dry the soils beyond what the ReFH model estimated and may reduce peak flows. However, more extreme events that can raise the saturation levels of the shallow soils quickly have a timescale which would be too rapid for the mining drainage to effectively reduce peak flows.

The smaller Gwernaffield flow per unit area is partly explained by the soils of the catchment: having a large area on limestone, where soils are thin and the drainage rapid into the limestone below, i.e. a higher BFIHOST. In contrast, Gwernymynydd has a proportionately larger area of deeper soils over less porous glacial till. It is also about 20% steeper according to the DPSBAR catchment descriptor and has more urbanisation per unit area. These combined effects make Gwernymynydd a flashier catchment than Gwernaffield.

Volumes from Q100 design storms are approximately 48,500 m³ (58,300 m³ with climate change allowance) and 87,200 m³ (104,700 m³ with climate change allowance) from Gwernymynydd and Gwernaffield catchments, respectively.

Total Q100 flows entering Mold in the Cae Bracty catchment are uncertain due to smaller catchment routes and urban diversions both through culverts and overland. A suitable estimate is found by adding Table 1 values for the combined Gwernaffield / Gwernymynydd catchments with Fir Grove (rural plus urban) and the uncertain Gwernymynydd B catchment. The Q100 value for the combined catchments without critical storm duration analysis is 3.8 m³/s at upper Brook St.

Identification of subcatchments

Watershed software, GlobalMapper was used to compare smaller subcatchments with OS mapping. Generally OS mapping defines and maps permanent streams whereas GlobalMapper defines flow routes based on the underlying topography, a combination of LiDAR and OS 50 data in this case. If too fine a subdivision of catchments is carried out, the results can be physically meaningless as channels are not present. The presence of an ephemeral but dry channel is an important indicator of long return period flows, dependent on soil and rock types. Figure 4 shows the GlobalMapper generated streams and subcatchments using a 0.1km² stream catchment generation area.

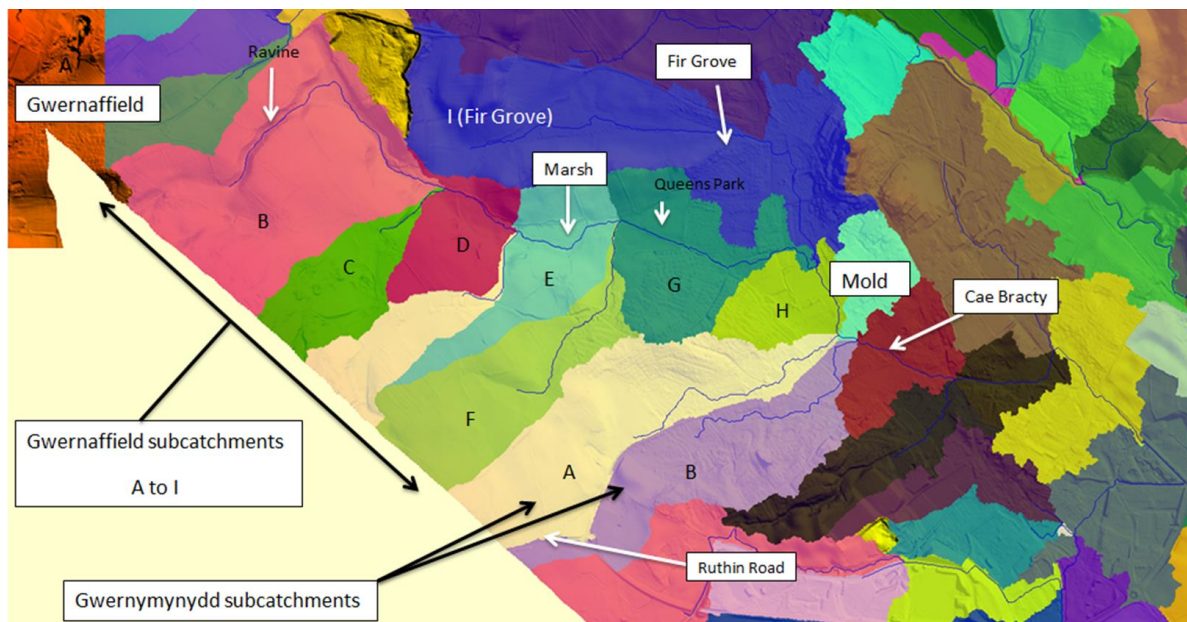


Figure 4: GlobalMapper generated catchments

Gwernaffield catchments

Travelling upstream, the stream from the confluence in central Mold passes through Mold urbanised subcatchments H and G before exiting at Queens Park where it has been channelled in a straight line through the field. It is shown by OS mapping to stop well before the ravine and it presumably becomes ephemeral. Its dry channel is clear from LiDAR and geological maps as it extends to just south of Gwernaffield. The 10m deep ravine in catchment B (Figure 4) is likely to be a paleochannel but it is also an indication that the flow network for extreme events has the ability to generate large flows rapidly. Earlier OS mappings show this ravine stream to be permanent but land use changes and/or water abstraction may have altered flows.

The catchment beyond the ravine (NGR 321535 364558) has an area of 1.6km² that can, according to ReFH, generate a Q100 flow of 1.1 m³/s and a Q100 volume of about 10,000 m³, making the ravine an area of interest for attenuation storage.

Streams generated as drainage routes in catchments C, E and F are present in OS mapping but appear to be culverted or piped in parts of their routes. Flows from catchments C, D and the unlettered catchment south of D could be captured in the marsh area (NGR 322456 364032). This area is currently felled woodland and is biologically degraded. It is an excellent location for bundled

storage and could be revitalised as an ecologically valuable bog. Close by on the edge of urban Mold by Queens Park is a field through which the main stream flows from 90% of the catchment area. It too has an excellent bunded storage potential.

Catchment 'I' or Fir Grove, about 0.6 km² rural and another 0.25 km² in urban Mold, see Figure 4, enters Mold through Fir Grove and passes into a low spot flowing south past the Mold Community Hospital. The catchment has a high BFIHOST and from its small area is unable to generate a permanent stream channel. The hospital channel has probably been deepened and is mapped as permanent. Unfortunately, the ephemeral stream route was urbanised many years ago by Fir Grove. This area behind Fir Grove housing in the field is an area of saturation excess overland flow where flows converge during wet periods and emerge from the ground. They may appear as an overland flow flash flood but most of the flow is probably from below ground. At some stage a pipe was laid for some distance under the shallow valley floor of the catchment. This now carries flows direct to the Mold Community Hospital channel and on in to central Mold. Ditching alongside Maes Garmon Lane may be connected to this artificial route. Overall, the pipe and ditching have added a significant Q100 flow to central Mold where once the flow would have been minimal and slow to react. Note that catchment 'I' is designated as Gwernaffield (Catchment B) in previous reports by CES Ltd.

Q100 flows from catchment 'I' in total (rural and urban) are suggested by ReFH scaling to be about 0.4 m³/s. Interception of this flow would require more effort than the other catchments. It can be achieved by using a simple bund, or as suggested in a previous FCA by CES Ltd using a cutoff culvert, however flows could be bypassed underneath by saturated groundwater. This may leave about 0.2m³/s, during Q100 flows, entering Mold north of Cae Bracty.

Gwernymynydd catchments

Gwernymynydd's subcatchment 'A', Figure 4 is the main catchment. It is piped in urban Gwernymynydd and reappears following the A494 until culverted again just before the A494 bypass roundabout along a cut-off section of road. It reappears in open channel along the Ruthin road and becomes culverted again entering urban Mold. The stream channel is very variable in width having been trained in places but also constrained by materials dumped into the stream channel.

Gwernymynydd's subcatchment 'B' is mainly an urban catchment. OS 1888 mapping shows it to be ditched and directly connected to the channel at Cae Bracty. However, it is now culverted except south of Highfield Villas and at some stage Gwernymynydd's catchment 'A' pipe was diverted into it from near Hendy Road. The upper drainage route may have been altered by the Mold bypass route. Its estimated area is 0.43 km² though its contribution to flow requires more investigation and a preliminary estimate of Q100 flow is about 0.3m³/s. This flow is not included in Table 1 flows due to the uncertainty of catchment routing.

Cae Bracty urban subcatchment

Cae Bracty of about 2500m² in area to the 108.5m contour using 2m resolution LiDAR is located in a small depression embedded in a larger catchment of about 0.15 km² in area, see Figure 5, which originally, seen on 1888 OS Maps, drained directly into the ditched open channel stream. This larger catchment, here designated Cae Bracty, will in storm conditions overwhelm local drainage and

attempt to re-engage with the original drainage route along the line of the culvert above it, but subject to deviation by subsequent urbanisation. The Cae Bracty catchment falls towards the culvert line more steeply from the SW, mean gradient 0.033, than from the NE, mean gradient 0.014. Only part of the larger Cae Bracty catchment, perhaps 20%, flows towards the Cae Bracty depression in storm conditions. However this area, along with the culvert flowing at full capacity, is more than sufficient to flood Cae Bracty in storm conditions.

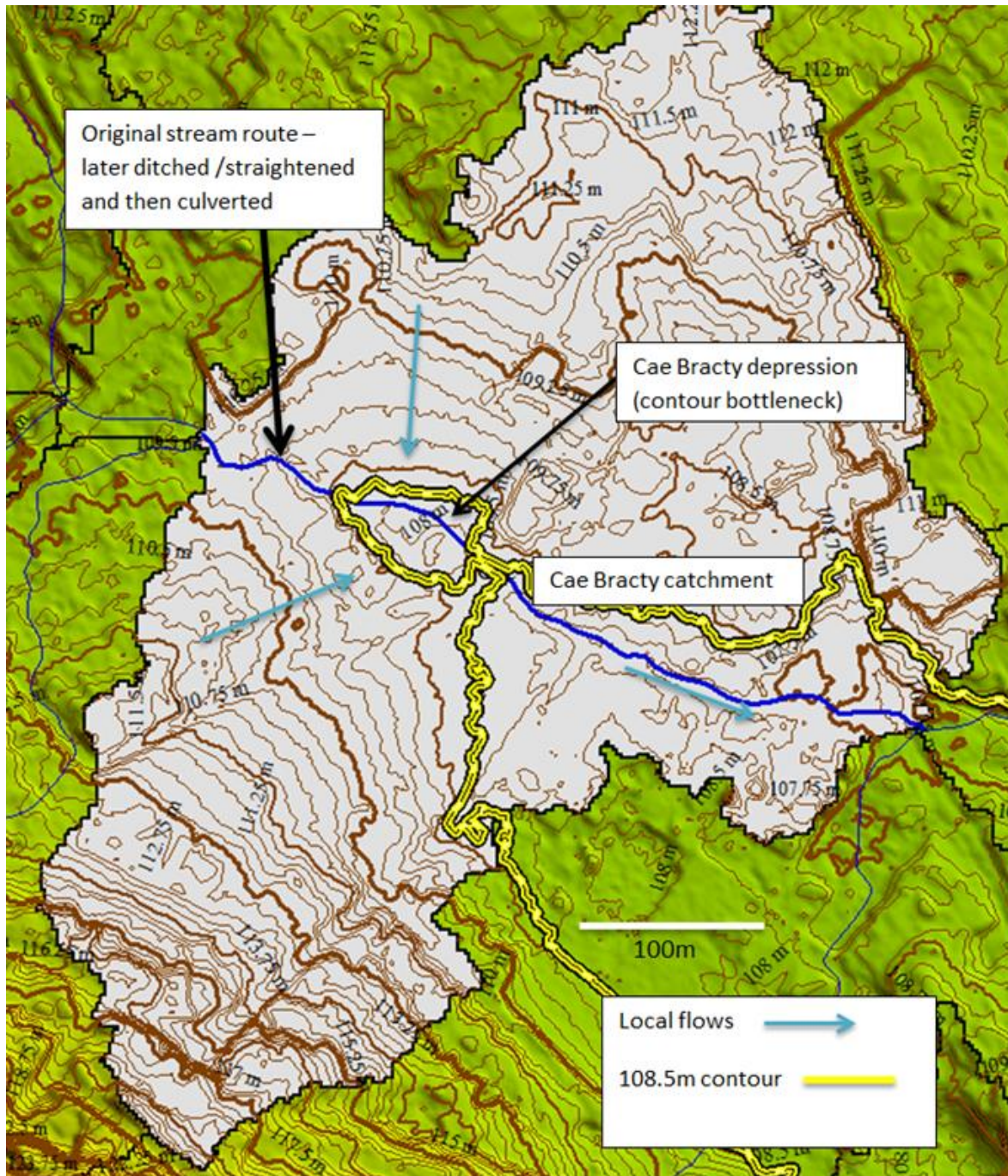


Figure 5: Cae Bracty catchment

Infrastructure improvements

The residential and commercial properties in Mold are at risk of flooding from the inflows from the upstream catchments as well as the rainfall falling directly over the town. The drainage network in Mold consists of streams entering the town from upper catchments passing into culverts and being joined by surface water drainage and also a (legally) separate Dwr Cymru Welsh Water (DCWW) combined sewerage & drainage network. The previous study mentions of modelling some 15km of surface water drainage network and 28km of combined sewerage & drainage system.

The previous modelling exercise updated and constructed a detailed 1D/2D model of River Alyn and the preferred alignment of the proposed cut-off channel. Some modelling of the flooding mechanism in the town was undertaken.

The previous modelling exercise did not appear to consider the effect of possible sewerage & drainage flow contributions from elsewhere such as Gwernymynydd and possibly Buckley. Although that exercise evaluated options of adding storage to the sewerage & drainage system as well as creating a wetland, it did not evaluate any upgrades to the sewerage & drainage system that has developed independently over time, such as the removal of adversely sloped pipes and bottlenecks in the system. Sewerage & drainage improvements can augment the capacity of the system and any improvement to the capacity of the sewerage & drainage system should result in a reduction in the quantity of required offline or online storage. Further, the systems were modelled in isolation. The previous flood models are a mixture of MicroDrainage (pipes, channels but seems to be used mainly for hydrology) ESTRY (fluvial, urban drainage), ISIS (fluvial) and TUFLOW (urban surface) models.

The available modelling data provided by FCC shows some network data, see Figure 6.



Figure 6: Missing information and network issues

Of the above, the first dataset could only be used for the network modelling due to missing information in the other datasets. Additionally, no information on the pumping station at Cae Bracty could be found. Depending on the level of confidence and detail required at any subsequent detailed design stage, such information may be useful or indeed necessary.

This dataset has been used together with the LiDAR data in this study to build, using MIKE Urban software by DHI, a single integrated model comprising a 2D surface water flood model that is linked to both the 1D surface water network with catchment flows as boundary conditions and the 1D

sewerage & drainage network, see Figure 7. The rainfall has been applied directly on to the 2D surface model. The MIKE Urban software has the capability to model catchment flows in 2D, connect the flows to either the 1D river network or both the 1D river network and the 1D sewerage & drainage network. Flows enter from a 2D surface to the 1D networks by draining from the 2D surface, or conversely spill onto the 2D surface from the 1D network and generate flooding. This enables alterations in one part of the system to directly interact with the other elements, giving a better picture of the overall system. Thus, it provides a better configuration representing the flood mechanism.

The newly built model for Mold is substantially different to the previous model which focused on the cut-off channel and the River Alyn. The new model effectively models the potential interventions in the catchment as well as in the urban areas.

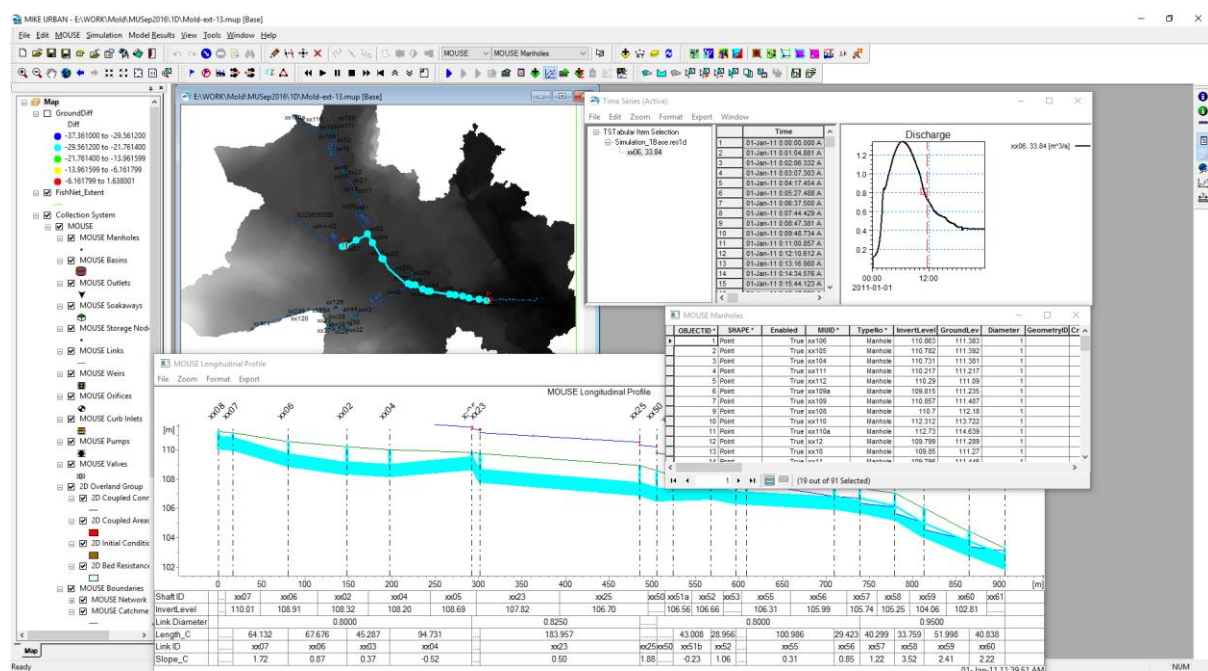


Figure 7: MIKE Urban model setup

The existing urban drainage was investigated to explore potential improvements that could be made to convey significantly more flows; such as removing bottlenecks and adding capacity over short stretches of the network. Investigations identified some restrictions and bottlenecks in the system near Cae Bracty. The works to remove these restrictions and bottlenecks would be limited to the sections where additional capacity can be achieved without a need to disturb most of the network as shown in Figure 8.

By removing some restrictions and bottlenecks and allowing some overland flow to occur in the integrated model, see Figure 9, it is estimated that a throughput of some 1.4 cumecs could be achievable from Cae Bracty onwards.

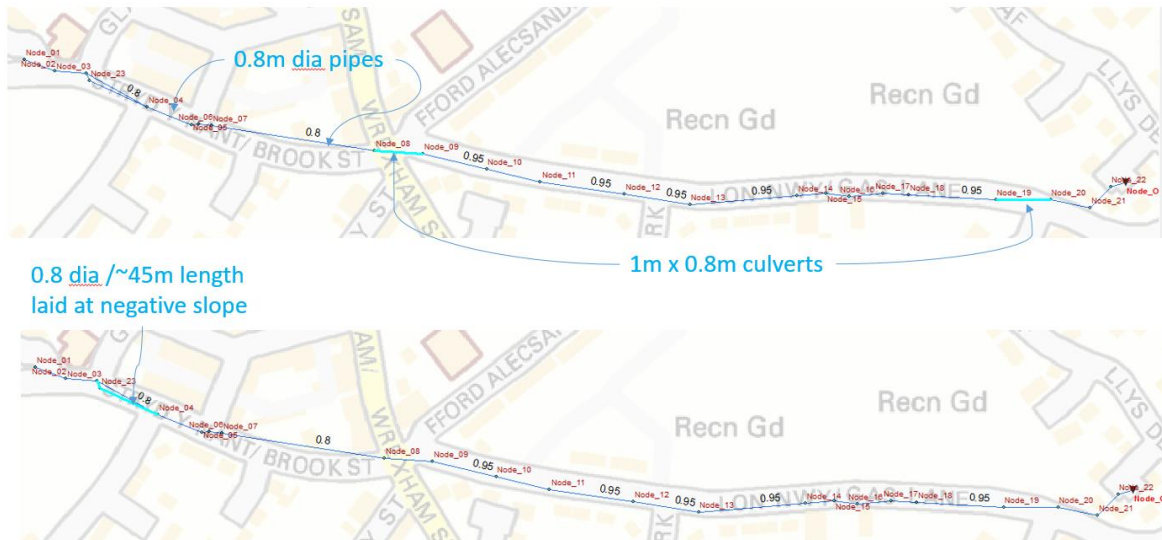


Figure 8: Potential locations for infrastructure improvements

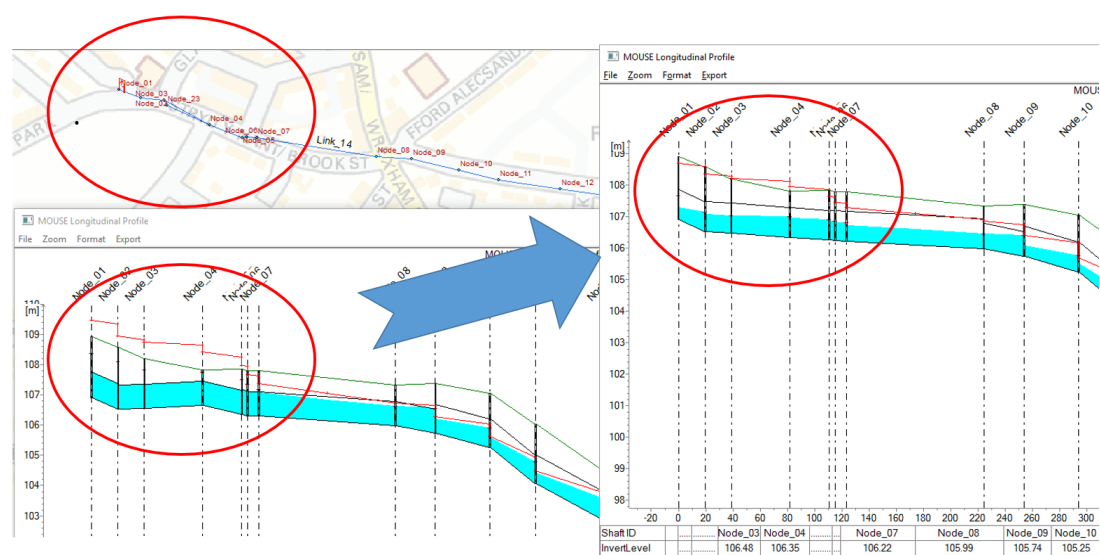


Figure 9: Model output showing reduction in max flood depth post network improvements

More bottlenecks were also noticed in parts of the town upstream of Cae Bracty, see Figure 10. It needs to be noted that adverse falls, although troublesome from a siltation point of view are not necessarily a bad thing for the network as they can act to hold back (attenuate) flows.

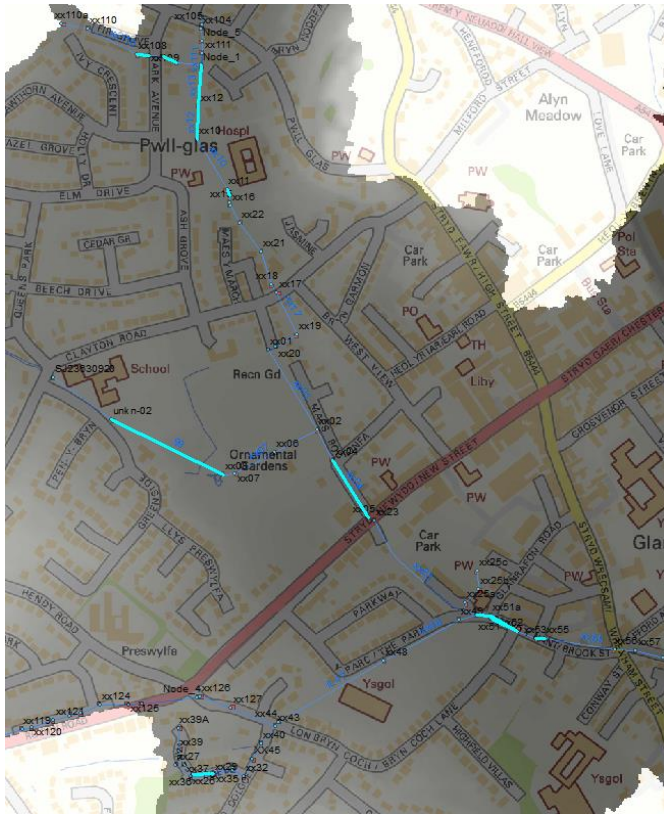


Figure 10: Negative slopes elsewhere in the sewerage & drainage network

However, it was found that removal of the restrictions and bottlenecks in the system near Cae Bracty only marginally alleviates the flooding to the properties, see Figure 11.

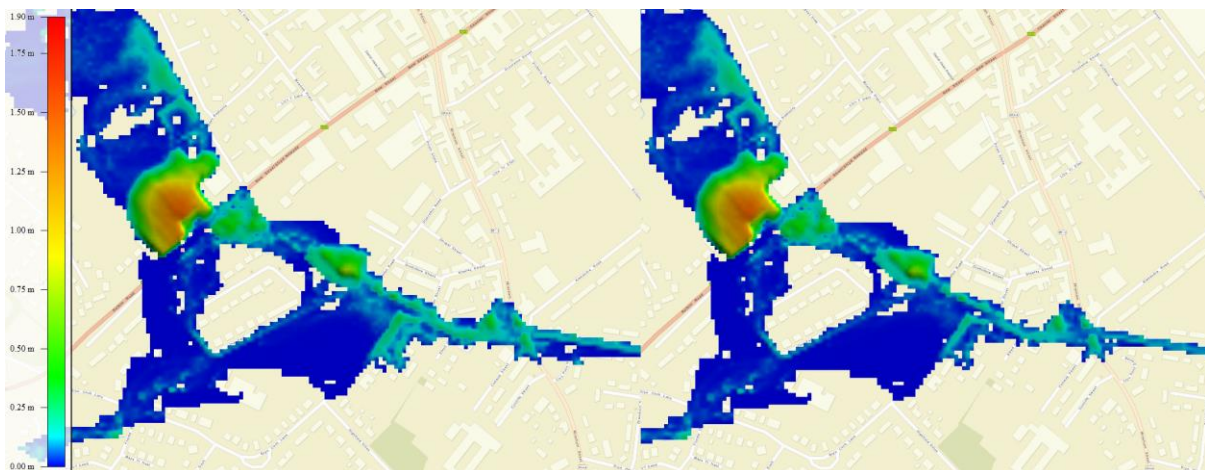


Figure 11: Max flood extents near Cae Bracty comparison for 100CC event

The limited benefit can be attributed to the topographic depression in which Cae Bracty is located. (see earlier Hydrology section). Changes to the drainage at Cae Bracty, such as a separate pipe from the lowest level at Cae Bracty or actively managing the flows using the pumping station, appear to be needed.

Further investigations were undertaken to identify locations of flooding from Gwernaffield as shown in see Figure 12, Gwernymynydd and Fir Grove catchments separately. This exercise identified that flows from all the catchments need to be managed to alleviate flooding to Mold.

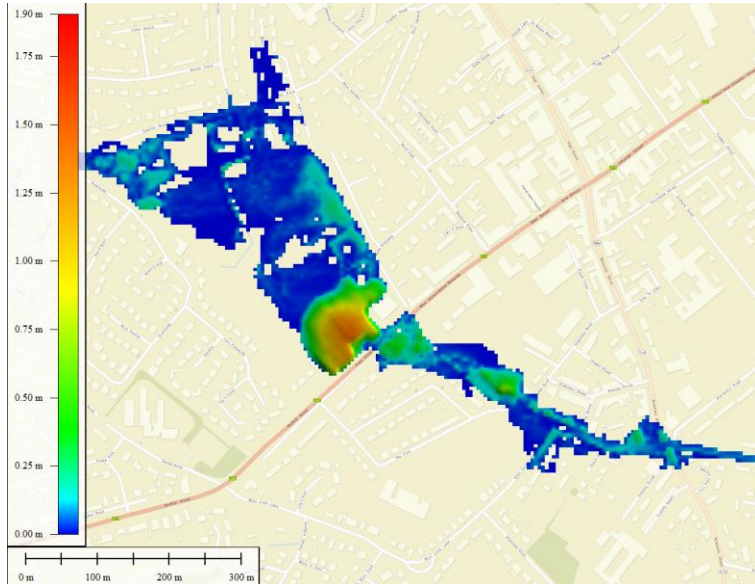


Figure 12: Max flood extents from Gwernaffield flows only for 100CC event

There is a significant drainage constraint at Cae Bracty where two 850 mm drains and one 600mm join together, but the combined outlet is still only 800 mm diameter. The cost of a new dual pipeline will be high, but the benefits to the system and to Cae Bracty in particular will be significant. The practicality of installing a new pipeline down Brook Street and crossing the Wrexham Road into Gas Lane should be investigated. Hydraulically a new 600mm should suffice, but if space permits a new 800mm should be installed so that the existing one can be refurbished and potential blockage and flow constraints due to service crossings can be investigated and rectified.

Upstream attenuation storages for Smart FM

Attenuation storage volumes

The flow rate which could be safely conveyed past a given location of interest provides the context for calculating the required upstream storage volume for alleviating flood risk at a specific downstream location. At Cae Bracty, it has been assumed that a flow rate of 1.4 m³/s can be safely conveyed without overland flow which can increase to 2 m³/s by allowing shallow flooding of the road. It was also noted that for the network upstream of Cae Bracty to remain flood free, further flow restrictions are required on the peak flow entering the drainage system. The required storage volumes in the catchments with these considerations have been estimated as given in Table 2 below.

Table 2: required attenuation storage volumes for individual catchments

Catchment	100yr+CC peak flow rate (m ³ /s)	Peak flow rate after SFM (m ³ /s)	Required attenuation storage volume (m ³)
Gwernaffield	2.2	0.5	32,800
Gwernymynydd	1.8	0.5	18,600

A higher level of attenuation in one of the catchments may mean a lower level of attenuation could be provided in the other. It is immediately apparent however that these storage areas would require construction and ongoing monitoring under the Reservoirs Act. This is discussed further in later sections.

Storage sites

Exploration of potential attenuation storage sites has been undertaken using topographic and land use data. Preference has been given to natural topographical depressions to achieve attenuation storage with minimal requirement of structures. Particular attention has been given to the existing land use to minimise potential difficulties involved in securing land. No landowner engagement has been undertaken at this stage, given the sensitivity of the Mold Flood Alleviation scheme.

One of the benefits of Smart FM is that the controls for the usage of the potential attenuation storage areas can be configured in such a way that the land is flooded for only a short period, so that the existing land use is not significantly affected. Any proposed structures, including the control structures will need to be sited in such a way as not to interfere with the existing land use activities.

Consideration should also be given, at the detailed design stage, to maximising the benefit by possible modifications to the proposed schemes to achieve additional benefits, such as biodiversity, social and environmental health and wellbeing, which may unlock additional funding for the scheme.

For the Gwernaffield catchment, the ravine in the upper catchment was initially identified as a possible suitable site. However, further identified sites, at the marsh and Queens Park field, in the lower catchment are preferred over the ravine due to their further downstream location and therefore their ability to attenuate flows from a larger portion of the catchment.

An excellent location for the Gwernymynydd catchment attenuation exists alongside the Ruthin Road Roundabout (NGR 323250 364850) to catch a significant flow from the catchment, as 50% of the catchment drains through that point. Part of the land is not in productive use, is visually poor

and would provide a high-profile site to demonstrate positive action is being taken in relation to flood risk reduction.

Moving down the catchment to find further attenuation storage and to intercept more of the flow is hindered by a more diffused flow path and entry into urban Mold. However, as this catchment is flashy and the single storage site only covers 50% of the total catchment area, it is considered important to investigate storage options in the urbanised Gwernymynydd 'A' catchment and in urbanised Gwernymynydd catchment 'B'.

Key information about the attenuation storage areas is presented in Table 3 and figures (Figure 13 to Figure 15) below.

Table 3: Salient details of the identified attenuation storage areas

	Name of the Attenuation Storage Area		
	Marsh	Queens Park	Ruthin Road Roundabout
Area	20,720 sqm	29,360 sqm	22,750 sqm
Bund height / level	4m / 121.0 mAOD	2m / 116.0 mAOD	2m / 144.0 mAOD
Bottom level	117.0 m	114.0 m	142.0 m
Max water depth	3.5 m	1.5 m	1.5 m
Max WL	120.5 mAOD	115.5 mAOD	143.5 mAOD
Max storage volume	26,060 m ³ /s	39,610 m ³ /s	15,095 m ³ /s
Required attenuation storage volume (from Table 2)		32,800 m ³	18,600 m ³
Max fill surface area	20,420 sqm	27,930 sqm	11,300 sqm
Side slopes	1:3	1:3	1:3
Clearance	NA	3 m from properties	3 m from road

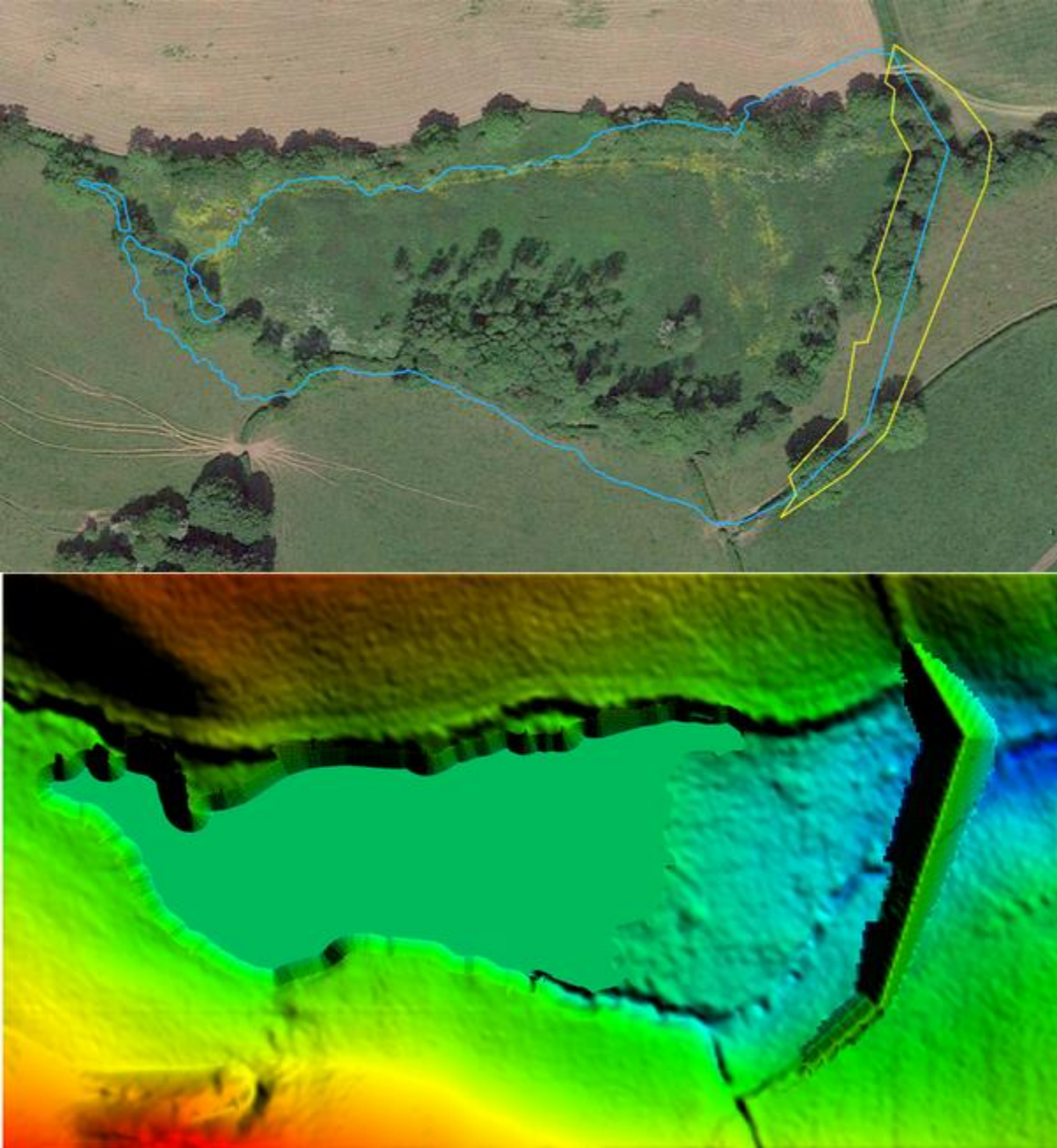


Figure 13: Marsh attenuation storage area

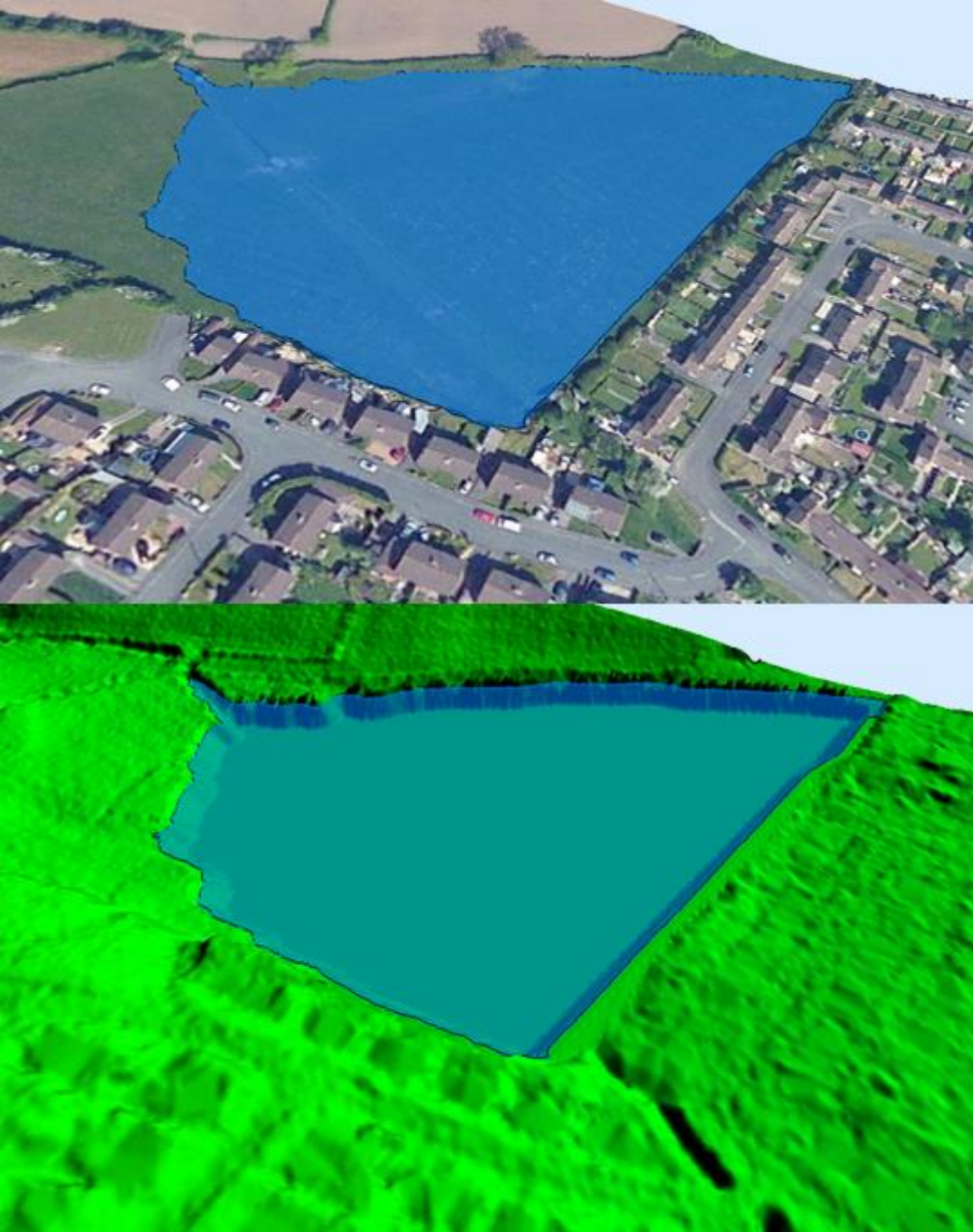


Figure 14: Queens Park attenuation storage area



Figure 15: Ruthin Road attenuation storage area

Catchment 'I', Fir Grove, could be problematic for active storm storage. A possible solution is a deep storage tank near Fir Grove with pumping or a gravity flow to the River Alyn catchment a little further north. This would take in about 70% of the catchment area, the remaining being in urban Mold.

The assessment confirms a healthy mix of potentially developable attenuation storage areas to alleviate flood risk to Mold.

These attenuation storage areas can be developed in a way that also provides benefits of Natural Flood Management whilst being 'smart'. The storages will be activated only for short periods of few hours to 'catch the peak' and therefore the land will still be available for their existing land-use.

These attenuation storages can capture and attenuate a significant amount of peak flood volume previously planned to be intercepted by the present FAS proposed cut-off drain. The works would need some significant earthworks but appear entirely feasible and very cost effective.

Smart FM implementation

Appendix A shows a chart utilising the full Smart FM on the three Gwernaffield potential storages and one Gwernymynydd storage. In this arrangement, the Fir Grove flows are exported to the River Alyn.

Gwernaffield catchment

The Gwernaffield catchment is the largest catchment and under certain conditions has the potential for much higher flows than expected. It is therefore important that more than one storage site be considered. If the upstream ravine storage is suitable it would have a set of activated gates and a series of storage bunds. For control simplicity all gates in a storage site would activate from a single command and not act independently. A level sensor on the lower bunded store and a flow outlet gauge would determine the input and output conditions of the system. Similar considerations apply to the downstream storages of the Marsh and Queens Park. Depending on further investigations, a transfer function (TF) model of each storage can pass data so that the three models run in a chain and each set of storage gates can operate independently. If it is found that one TF model can be used for the whole catchment and the gates can be controlled in unison then the simpler solution would be implemented.

As a rainstorm arrives over the combined catchment, three rain gauges would send data combined to a representative value to the input of the TF model. The model once calibrated would be operating in forecast mode and the storage gates would be throttled down to collect water close to the peak of the storm. Given a suitable clear forecast by the TF model rain gauge input, the stored water would be released later at a rate suitable for the capacity of Mold's urban drainage culverts.

Loss from the Milwr tunnel would be incorporated in the general TF model without a separate investigation.

Gwernymynydd catchment

The storage would have multiple gates and in this instance they would be controlled separately by commands from the TF model forecast, such that the lowest pond gets filled first. A level sensor and flow sensor outlet gauge determine the operating conditions for input to the TF model. This catchment is small and may have short response time. If the forecast lead time using the TF model is too short it could operate on a simpler level controlled storage – this option would be investigated during initial TF calibration and site instrumentation.

Catchment 'I', Fir Grove

Catchment 'I', Fir Grove, would require a level sensor for pump activation and could essentially be passive, though flows should be investigated during the whole catchment calibration period. As long as flows were exported out of the catchment and into the River Alyn catchment, it can act independently.

Rainfall data

Rainfall data for the catchment can be measured using tipping bucket rain (TBR) gauges when a suitable site is available or by using piezoelectric rain gauges if the site is prone to leaf fall and debris. TBR gauges are often used in pairs to increase data reliability and reduce maintenance visits. Three pairs of TBR gauges or three piezoelectric gauges is the minimum number needed to cover all catchments. The rainfalls across the catchments are similar; both have a SAAR of about 900mm, a modest annual rainfall total.

Cae Bracty

Cae Bracty, located in a natural topographic depression is at risk of frequent flooding from the rain falling directly over the town. It is one of the most problematic areas at risk of flooding in Mold. The suggestion has been made that it may be more cost effective to demolish these properties and rebuild them at a higher level. However, this study will focus on possible ways of saving the properties, while reducing flood risk to a more tolerable level.

Upstream Interventions

Storage on the Gwernaffield and Gwernymynydd catchments, as well as diversion of Fir Grove water has the potential to reduce flows to allow excess Cae Bracty water into the culvert. This may be a long term solution, but it appears likely that in the short term this area can be removed from significant flood risk in a cost-effective manner more locally.

Local overland flow diversions

There does not appear to be much scope for urban overland flow diversions, particularly along highways from the steeper SW direction (Bryn Coch direction) Although this could route incoming water around the Cae Bracty depression it might simply shift the problem elsewhere.

Infrastructure improvements

In addition to possible pipe network infrastructure improvements discussed previously; if the 'dam' caused by the raised road levels along Brook street and at the Wrexham Road off the Cae Bracty depression can be 'bypassed' by laying a pipe beneath (that only operates in storm conditions), the current storage will be far more effective.

Improving the current storage

Utilising the existing storage but with Smart FM to stop the storage filling too early, from minor storms before a major storm, has its merits. If the bottleneck can be opened by other improvements, as described, then Smart FM peak flow lopping can be used to optimise the use of the existing storage.

Storage could be increased (beyond the current 40m³ tank capacity) by installing additional tanks in the nearby playing fields. This would require further investigation of the potential volumes that can accumulate in the Cae Bracty depression during storm conditions. Increased storage provision is likely to require pumping – but this could be restricted to just extreme events and only for the duration of peak flow lopping.

Individual property flood protection

Flood proofing two or three of the lower level properties would increase above ground storage. Smart FM system operating on culvert/storage tank levels would inform residents (by phone, text or email) to move vehicles and install their doorway flood defences in good time.



Figure 16: Pumping station at Cae Bracty

Exploration of green infrastructure in the town may also help alleviate some of the flood risk whilst providing additional social and environmental benefits. Such measures are also likely to help unlock additional funding.

Catchment diversions

It is understood that wider scale modelling of the River Alyn undertaken by NRW has confirmed that there is capacity in the River Alyn to receive additional flow.

Therefore, although substantial attenuation storage options in the upper catchments seem achievable, any residual flows to ensure the required standard of protection to the properties and businesses in Mold may be diverted to the River Alyn. This can be achieved by either constructing a diversion channel/culvert or a directional drill diversion tunnel or a combination of a channel and a tunnel as shown in Figure 17.

In engineering hydrology, cut-off channels are well known to be an excellent method of diverting or capturing unexpected flows during more extreme events. Cut-off channels have less potential for blockages compared to culverts, however, they are seen by landowners as intrusive. Less intrusive culverts still require cut and cover construction but directional drill tunnels are a low intrusion option.

The advantage of adding flood storage to the catchments' diversion plan is flexibility. Diversion channels, culverts or tunnels can be substantially smaller and shorter. The length of diversion could be as minimal as capturing Fir Grove flows, an intermediate length capturing Gwernaffield and Fir Grove or the original full length capturing all three catchments but carrying smaller flows.

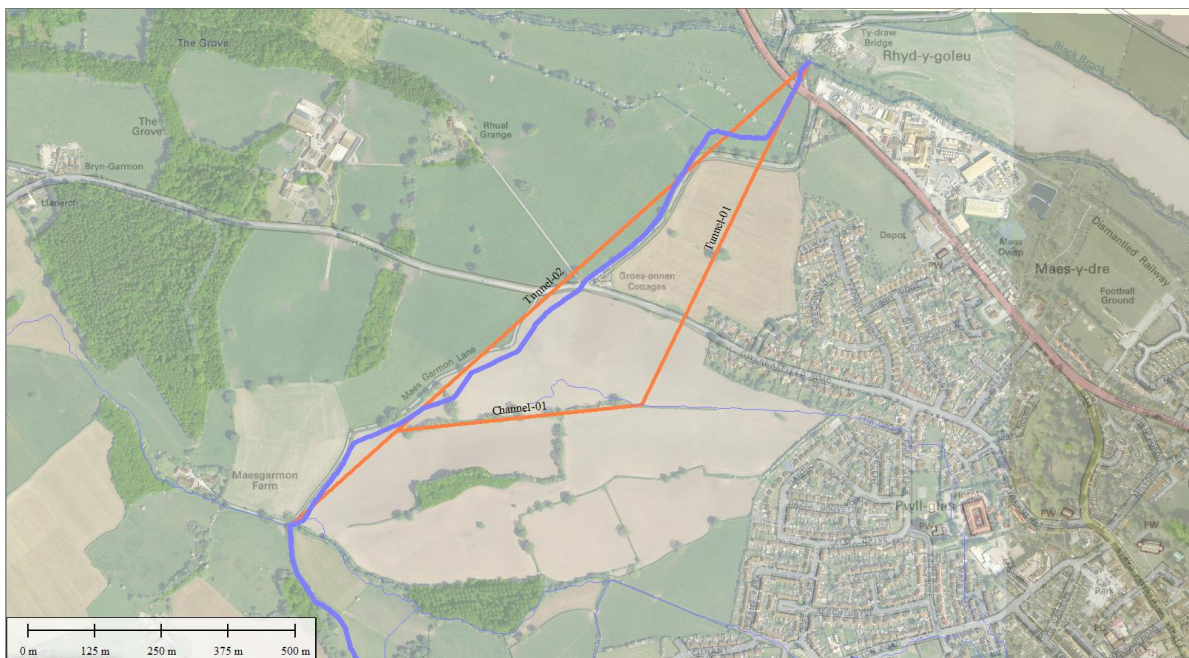


Figure 17: Diversion options for any residual flood flows

Although all diversions discussed drain north to the River Alyn upstream of Mold, there is scope for diversions south of Mold to the River Alyn for the Gwernymynydd catchment in association with attenuation storage at Ruthin Road. An overview of all the potential attenuation storages and diversions for alleviating flood risk to Mold is presented in Figure 18

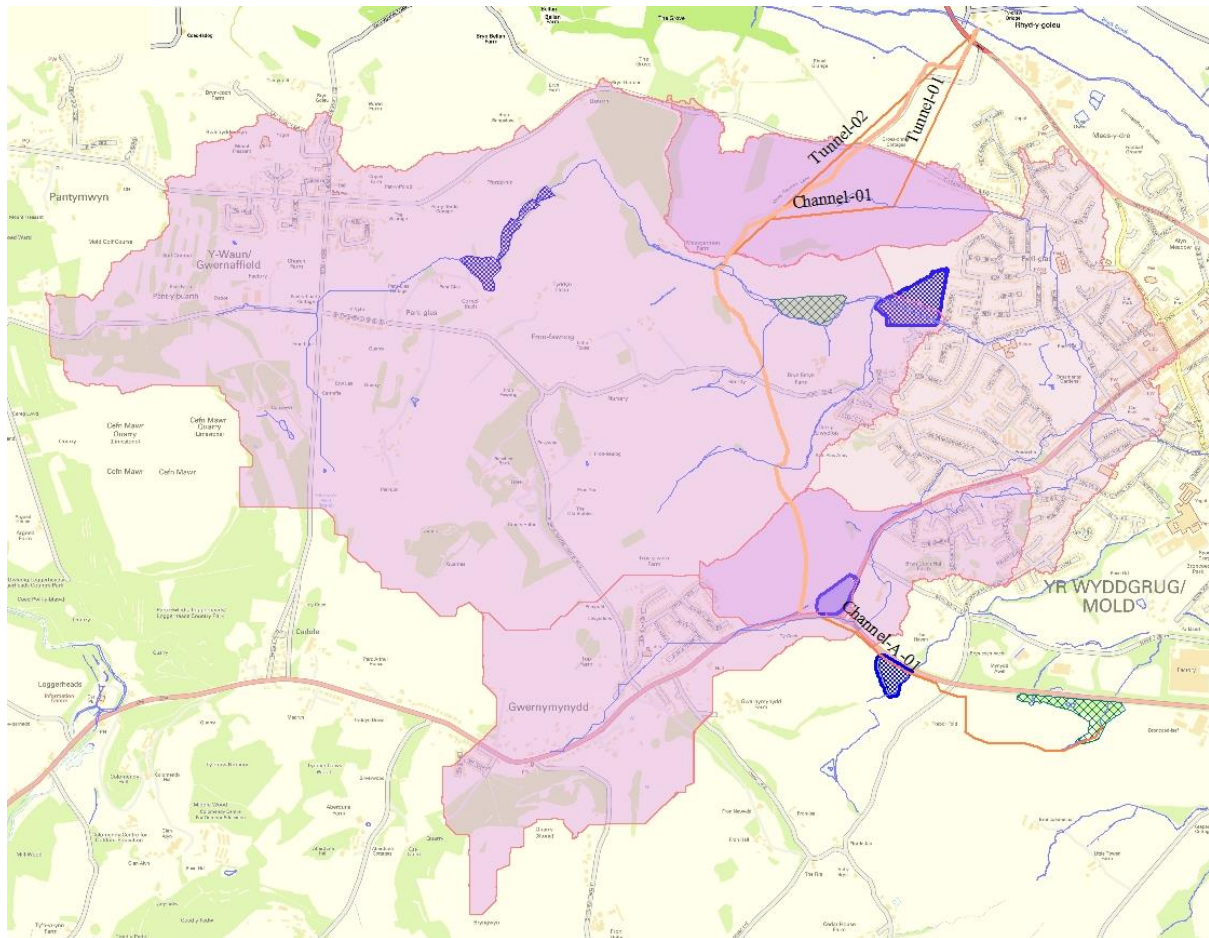


Figure 18: Overview of all the potential attenuation storages and diversions

These options have not been explored 'on the ground' as landowner contact would be needed for this but some of the proposed interventions are along the route of the cut-off drain proposed in the present FAS. Nonetheless, land use and mapping has been reviewed and there does appear to be merit in looking further at these options.

However, it has been concluded that a combination of various measures will provide a sound balance here. Keeping storage volumes below 10,000 m³ will reduce both construction cost and ongoing supervisory costs as the storage areas will not fall under the Reservoirs Act. Diverting flow to the River Alyn will take volume out of the Gwernaffield flood flow and installing an additional drain in the urban area from Cae Bracty to Gas lane will reduce flood risk there. This overall methodology is presented on the flow diagram and 'Opportunity Map' included as an appendix to this report.

Joint working, funding and additional benefits

Joint working with the stakeholders is an important tenet of the SFM / NFM approach. A collaborative process not only identifies the key stakeholders, but also provides vital support and information necessary for the success of a flood scheme. An additional benefit of the collaborative process is that it may identify additional funding sources by matching the plans and objectives of the key stakeholders with those of the potential options for a flood scheme.

Flintshire County Council and DCWW are the key relevant stakeholders keen to solve flooding issues in Mold. Therefore, it is suggested that this Smart Flood Management feasibility study be used to initiate a FCC-DCWW partnership; and then additional stakeholders can be approached for their involvement and support.

With the uncertainties associated with any hydrological assessment compounded by the impact of climate change, there is a clear need to add a factor of safety. The attenuation storage areas can be sized to accommodate more extreme exceedance events. Green infrastructure measures (hedge and tree planting in particular) - both around the storage areas and in the catchment generally - should be explored to provide further flood risk reduction benefits to counter uncertainty. Furthermore, Green Infrastructure will further enhance the environment by improving water quality, air quality, biodiversity and other benefits.

The above methodology focusses on solutions and outcomes. Refining and documenting the process will make it readily transferrable to other catchments.

The cascade storage at the roundabout could be landscaped to be visually attractive and at the very least an improvement on the tip scene that presently greets visitors to Mold. At best it could be iconic.

Social gains will be obtained from dealing with the depressing frequency of flooding at Cae Bracty and some properties could be brought back into use.

Biodiversity gains should be possible at the marsh area which is presently almost derelict

Listening and engaging with landowners, as opposed to imposing something on them they disagree with, will bring about enthusiasm and support and ensure the project is delivered quickly and cost effectively.

Conclusions

This study has explored feasibility of Smart FM alternatives to the cut-off flood relief channel proposed in the earlier FAS. Building on previous data, hydraulic models, and local knowledge of the catchments the exploratory work undertaken has identified a number of Smart FM options available to alleviate flood risk issues in Mold, with the most promising ideas being as follows:

1). There is a significant drainage constraint at Cae Bracty where two 850 mm drains and one 600mm join together, but the combined outlet is still only 800 mm diameter. The cost of a new dual pipeline will be high, but the benefits to the system and to Cae Bracty in particular will be significant. The practicality of installing a new pipeline down Brook Street and crossing the Wrexham Road into Gas Lane should be investigated.

2). In the meantime the risk to the properties in Cae Bracty appears unreasonable and a short term remedy which will be compatible with (1) above to provide greater long term protection will be to install Individual Property Flood Protection at the entrances to the lower lying properties and install new Smart controls to the storage tank and pump back arrangement. In the event that item (1) above proves to be too costly another possible solution at Cae Bracty will be to install additional pumped storage beneath the nearby playing fields.

3). Two flood attenuation areas have been identified as being viable with Smart FM controls to make the storage volumes useful. It should be highlighted that these would need to be significantly larger storages if Smart FM is not used. Flows from the Gwernymynydd area can be attenuated at the Ruthin Road Roundabout while the Gwernafield flows can be attenuated at a 'marsh area' upstream of Queens Park. There is also a valuable attenuation potential on the edge of Queens Park, but this could be within the envelope of future urban development. The imperative there will be to ensure flood attenuation forms part of any development proposal. A small scheme also needs to be developed at Fir Grove.

4). Due to the nature of the soils in the Gwernafield catchment, flows could be higher than predicted by current ReFH software. Some caution and contingency is therefore warranted and the potential for diverting flow directly to the River Alyn should be investigated with landowners. By not having to collect from Gwernymynydd the ditch could be smaller and routed to avoid the Alwen Aqueduct (which was an impediment to the original scheme).

Overall the conclusion has been reached that a combination of interventions will provide the best and most cost effective solution as shown in the appended flow diagram. Subject to detailed modelling, design and early stakeholder engagement this approach should significantly outperform the cut-off channel proposed in the current FAS on constructability, affordability, reliability and sustainability criteria and bring the scheme back within the original budget.

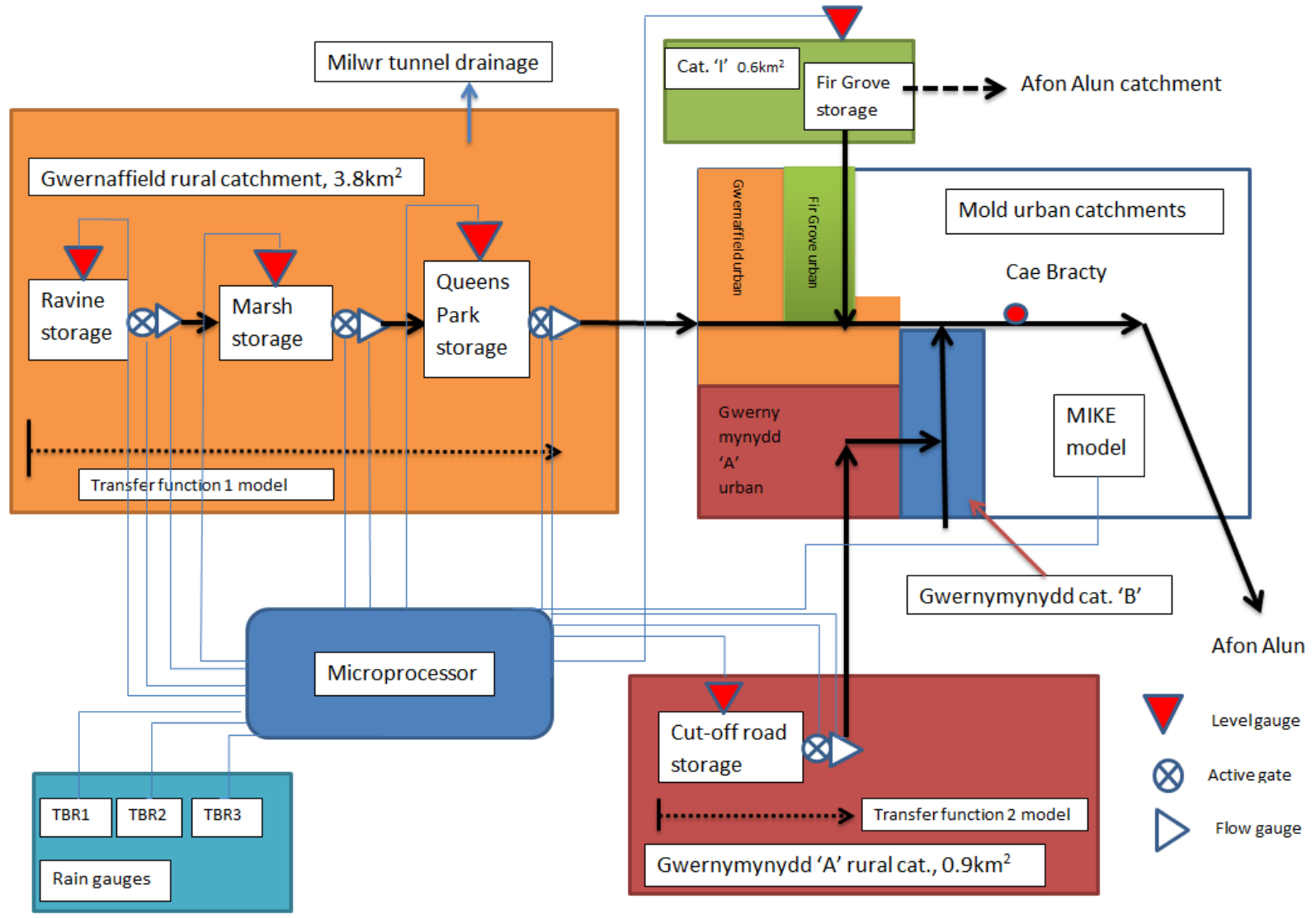
The appended 'Opportunity Map' is supplemented on the next page by an Action Plan, with broad cost estimates below. Recommended strategic next actions then conclude the report.

Action plan and budget costings

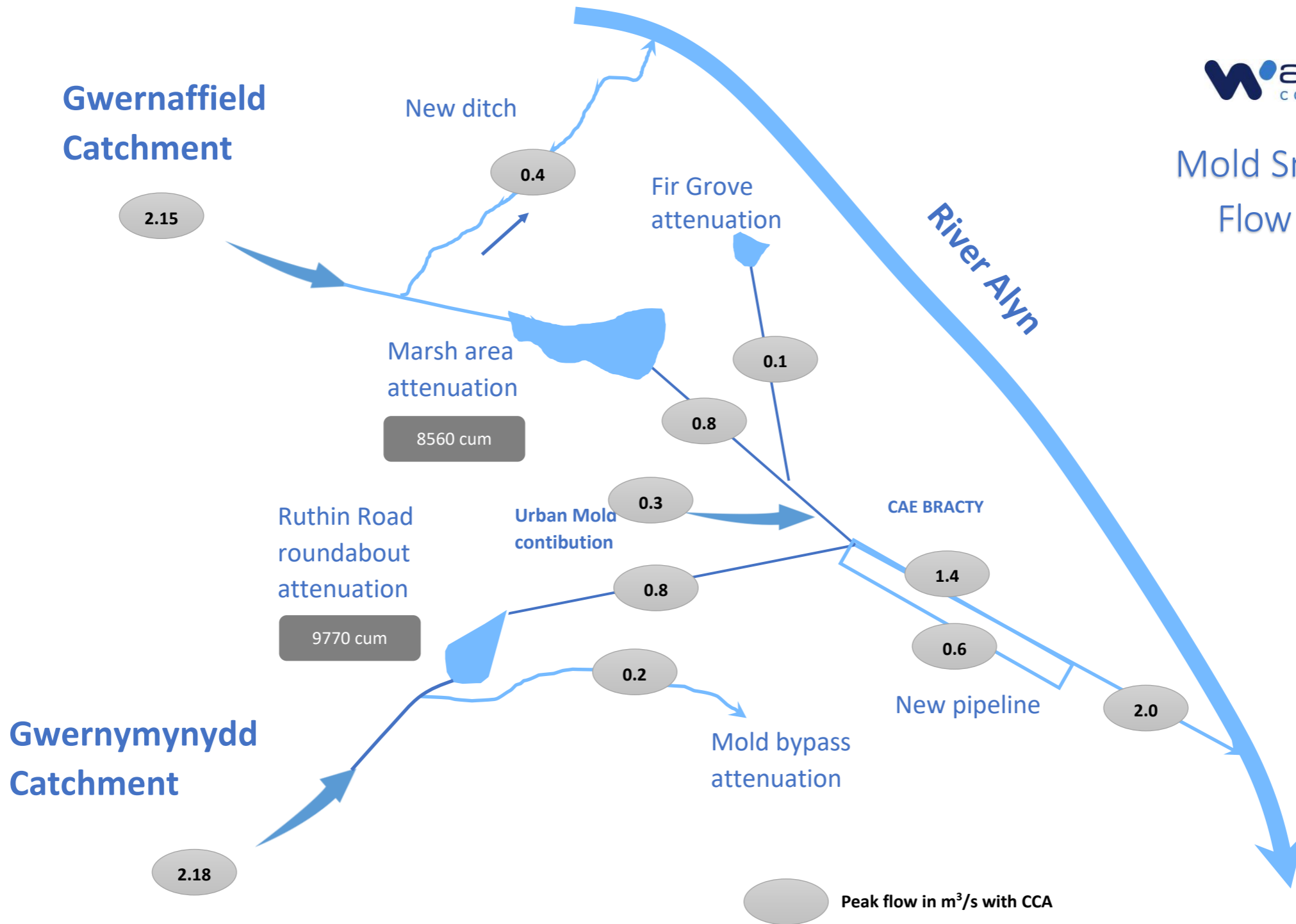
Stage	Description	Budget est.
1	Installation of individual property flood protection at Cae Bracty, together with implementing Smart system to control tank storage and pump back operation	£200 k
2	Engage with landowners; prepare full working details of storage alongside Gwernymynydd / Wrexham Rd roundabout; implement a Smart FM scheme; and allow for ongoing maintenance	£1000 k
3	Engage with landowners; prepare full working details of storage in the marsh area upstream of Queens Park; implement a Smart FM scheme; and allow for ongoing maintenance	£700 k
4	Engage with landowners; prepare full working details of diversion ditch and associated culverts and install to NRW requirements	£1100 k
5	Engage with landowners; prepare full working details of storage in the area upstream of Fir Grove; implement a Smart FM scheme; and allow for ongoing maintenance	£400 k
6	Investigate and engage with DCWW and construct new 800mm diameter pipeline from Cae Bracty to Gas Lane (including directional drill under Wrexham Road). Alternatively install additional tank storage beneath playing fields opposite Cae Bracty.	£1600 k
7	Engage with landowners; prepare full working details of storage alongside Mold Bypass to counteract climate change flow increases; implement a Smart FM scheme; and allow for ongoing maintenance	£500 k
8	Ensure that any future planning application for the land alongside Queens Park takes account of the valuable flood attenuation storage opportunities that exist (funded under Section 106 by developer).	nil
	Broad budget total	£5.5 million

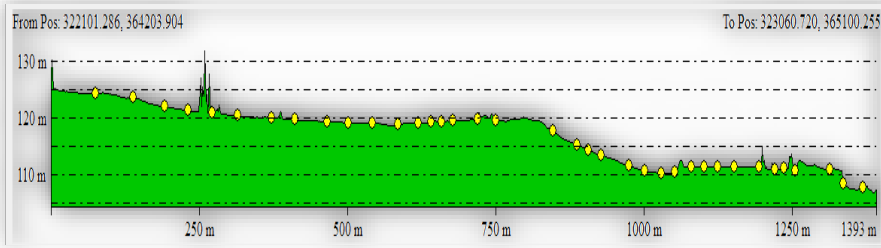
Recommended Strategic Next Actions

1. Submit a copy of this report to Welsh Government to confirm the Smart FM approach is acceptable in principle; and that grant funding on the basis of a budget of £5.5 million is available. Agree a phased delivery programme.
2. Undertake a topographical survey of Cae Bracty, obtaining threshold levels and details of property drainage. Obtain prices for supplying and installing Individual property flood protection (IPFP) to affected properties (including non-return valves on drains and protection to air bricks).
3. Liaise with DCWW and obtain details of the existing drainage arrangement in the vicinity of the existing Cae Bracty storage tank and the pump back system. Prepare details of a (Smart) automated system that makes most use of the existing storage in conjunction with IPFP. Investigate whether DCWW might contribute to the cost of these works.
4. Undertake a topographical survey of Brook Street / Wrexham Road / Gas Lane together with existing drainage and all utility apparatus. Prepare a scheme to install a new drain to carry flood water from Cae Bracty to Gas Lane. Undertake a modelling assessment downstream to ensure no undue adverse impact of passing forward flood water flows. Obtain tenders for the works.
5. Engage with landowners, undertake topo and ecology surveys and develop schemes for Smart FM attenuation (in sufficient detail to obtain cost estimates) at three locations:
 - Gwernymynydd/Wrexham Rd roundabout
 - Marsh area upstream of Queens Park
 - Edge of the Fir Grove Estate
6. Engage with landowners and investigate the viability of a ditch (similar route, but smaller in size that the original FAS and avoiding Alwen Aqueduct) to the River Alyn; to divert water from the Gwernaffield catchment and improve the standard of flood protection.
7. Ensure that any future planning application for the land alongside Queens Park takes account of the valuable flood attenuation storage opportunities that exist. Work with developers under a Section 106 Agreement to obtain some degree of 'betterment', i.e. storage volume over and above the standard greenfield run off associated with any development



Mold Smart FM Flow Diagram





Proposed new ditch profile – with localised culverts to divert flow alongside Maes Garmon Lane directly to River Alyn



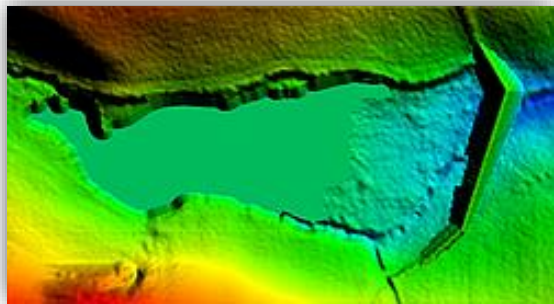
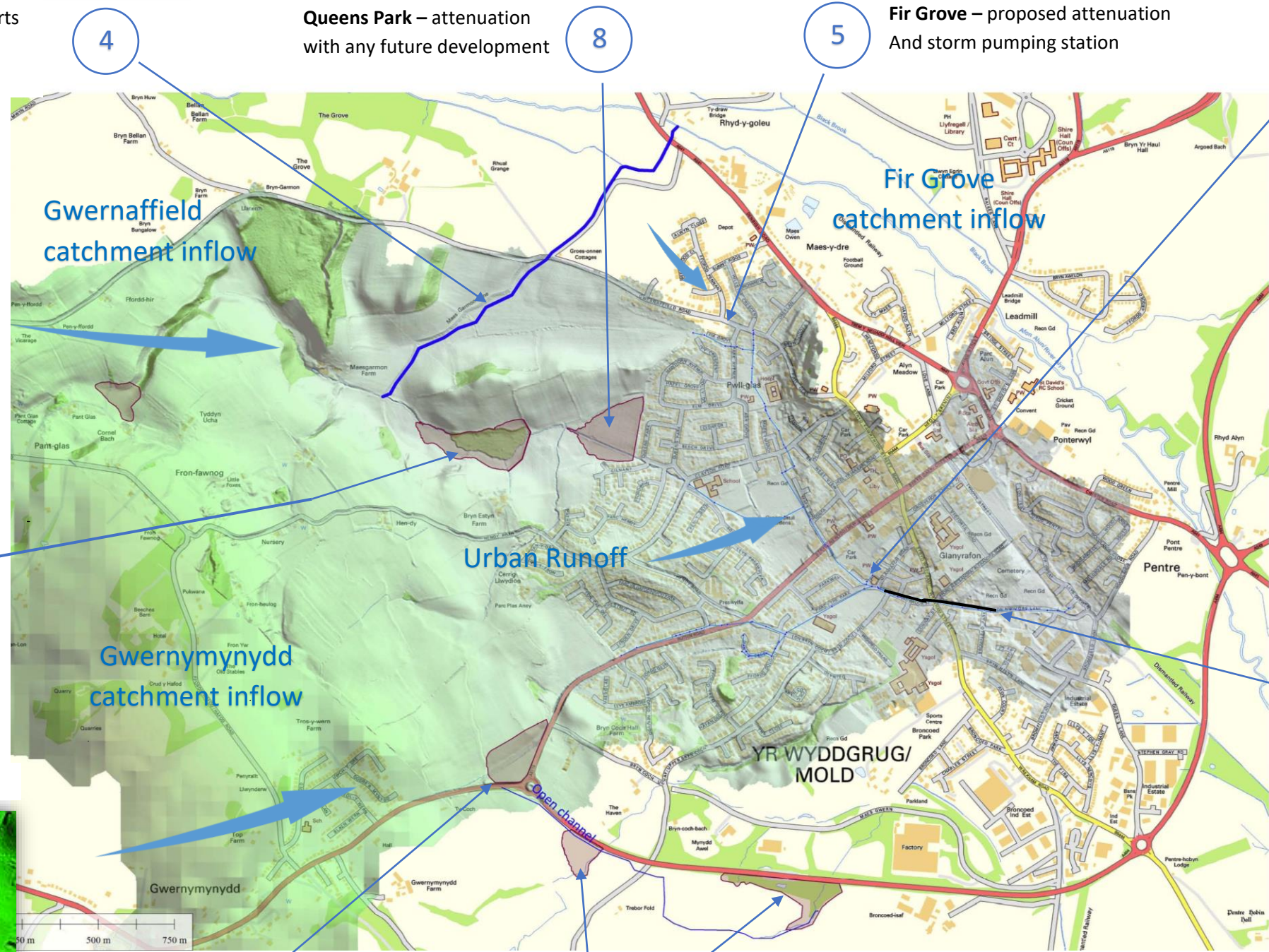
Queens Park – attenuation with any future development



Fir Grove – proposed attenuation And storm pumping station

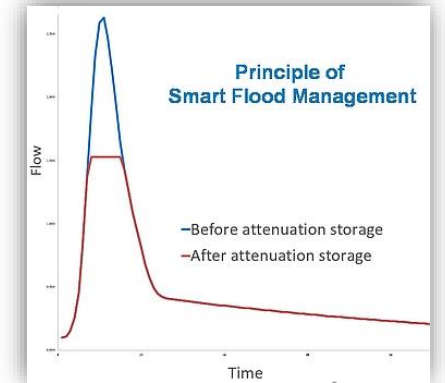


Cae Bracty – proposed individual property flood protection and addition of Smart controls to existing storage tank and pump.



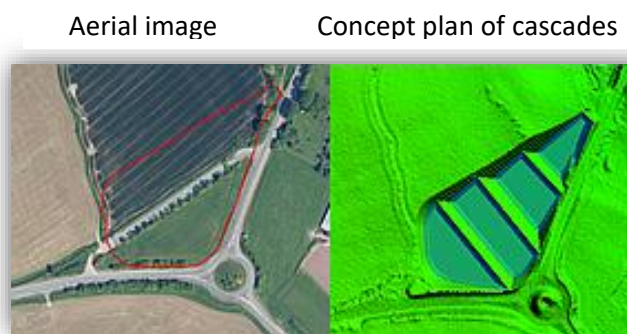
Marsh Area – proposed attenuation Volume <10,000 m3

3



Brook St. to Gas Lane storm relief proposed new pipeline parallel with existing 900 mm storm drain

6



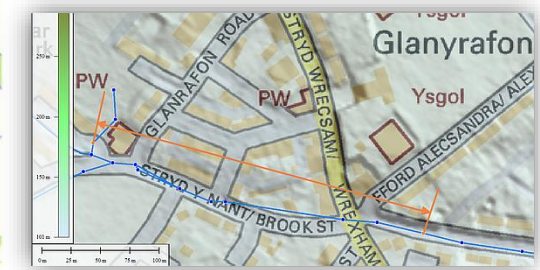
Gwernymynydd / Ruthin Road roundabout proposed attenuation in 4 cascade pools Volume <10,000 m3

2



Land alongside Mold bypass With potential for additional attenuation areas to offset climate change.

7



Proposed Order of Implementation



ENVIRONMENT OVERVIEW & SCRUTINY COMMITTEE

Date of Meeting	Tuesday 12 th December, 2017
Report Subject	Council Plan 2017/18 - Mid year monitoring
Cabinet Member	Cabinet Member for Planning and Public Protection Cabinet Member for Streetscene and Countryside
Report Author	Chief Officer (Planning and Environment) Chief Officer (Streetscene and Transportation)
Type of Report	Operational

EXECUTIVE SUMMARY

The Council Plan 2017/23 was adopted by the Council in September 2017. This report presents the mid-year monitoring of progress for the Council Plan priority 'Green Council' relevant to the Environment Overview & Scrutiny Committee.

Flintshire is a high performing Council as evidenced in previous Council (Improvement) Plan monitoring reports as well as in the Council's Annual Performance Reports. This first monitoring report for the 2017/18 Council Plan is a positive report, with 88% of activities being assessed as making good progress, and 67% likely to achieve the desired outcome. In addition, 65% of the performance indicators met or exceeded target. Risks are also being successfully managed with the majority being assessed as moderate (67%) or minor (8%).

This report is an exception based report and therefore detail focuses on the areas of under-performance.

RECOMMENDATIONS

1	That the Committee consider the Council Plan 2017/18 mid-year monitoring report to monitor under performance and request further information as appropriate.
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REPORT DETAILS

1.00	EXPLAINING THE COUNCIL PLAN 2017/23 MONITORING REPORT
1.01	The Council Plan monitoring reports give an explanation of the progress being made toward the delivery of the impacts set out in the 2017/23 Council Plan. The narrative is supported by performance indicators and / or milestones which evidence achievement. In addition, there is an assessment of the strategic risks and the level to which they are being controlled.
1.02	This is an exception based report and detail therefore focuses on the areas of under-performance.
1.03	<p>Monitoring our Activities</p> <p>Each of the sub-priorities have high level activities which are monitored over time. 'Progress' monitors progress against scheduled activity and has been categorised as follows: -</p> <ul style="list-style-type: none"> • RED: Limited Progress – delay in scheduled activity; not on track • AMBER: Satisfactory Progress – some delay in scheduled activity, but broadly on track • GREEN: Good Progress – activities completed on schedule, on track <p>A RAG status is also given as an assessment of our level of confidence at this point in time in achieving the 'outcome(s)' for each sub-priority. Outcome has been categorised as: -</p> <ul style="list-style-type: none"> • RED: Low – lower level of confidence in the achievement of the outcome(s) • AMBER: Medium – uncertain level of confidence in the achievement of the outcome(s) • GREEN: High – full confidence in the achievement of the outcome(s)
1.04	<p>In summary our overall progress against the high level activities is: -</p> <p>ACTIVITIES PROGRESS</p> <ul style="list-style-type: none"> • We are making good (green) progress in 51 (88%). • We are making satisfactory (amber) progress in 7 (12%). <p>ACTIVITIES OUTCOME</p> <ul style="list-style-type: none"> • We have a high (green) level of confidence in the achievement of 39 (67%). • We have a medium (amber) level of confidence in the achievement of 19 (33%). • We have a low (red) level of confidence in the achievement of 0 (0%).
1.05	<p>Monitoring our Performance</p> <p>Analysis of performance against the Improvement Plan performance indicators is undertaken using the RAG (Red, Amber Green) status. This is defined as follows: -</p>

	<ul style="list-style-type: none"> • RED equates to a position of under-performance against target. • AMBER equates to a mid-position where improvement may have been made but performance has missed the target. • GREEN equates to a position of positive performance against target.
1.06	<p>Analysis of current levels of performance shows the following: -</p> <ul style="list-style-type: none"> • 46 (65%) had achieved a green RAG status • 18 (25%) had achieved an amber RAG status • 7 (10%) had achieved a red RAG status
1.07	<p>There are no performance indicators (PI) showing a red RAG status for current performance identified for the Environment Overview & Scrutiny Committee.</p>
1.08	<p>Monitoring our Risks Analysis of the current risk levels for the strategic risks identified in the Improvement Plan is as follows: -</p> <ul style="list-style-type: none"> • 1 (2%) is insignificant (green) • 4 (8%) are minor (yellow) • 32 (67%) are moderate (amber) • 11 (23%) are major (red) • 0 (0%) are severe (black)
1.09	<p>The major (red) risk identified for the Environment Overview & Scrutiny Committee is: -</p> <p>Priority: Green Council Risk: Funding will not be secured for priority flood alleviation schemes.</p> <p>Grant availability continues to be monitored. A five year programme of capital works and flood alleviation schemes has been developed based on transparent criteria in line with Welsh Government guidance to feed into the national pipeline programme. These projects have been assessed on affordability and ability to maximise capital funding from internal and external sources. The required skill sets to implement effective and innovative flood risk management continue to be developed within the team.</p>

2.00	RESOURCE IMPLICATIONS
2.01	There are no specific resource implications for this report.

3.00	CONSULTATIONS REQUIRED / CARRIED OUT
3.01	The Council Plan Priorities are monitored by the appropriate Overview and Scrutiny Committees according to the priority area of interest.
3.02	Chief Officers have contributed towards reporting of relevant information.

4.00	RISK MANAGEMENT
4.01	Progress against the risks identified in the Council Plan is included in the report at Appendix 1. Summary information for the risks assessed as major (red) is covered in paragraph 1.09 above.

5.00	APPENDICES
5.01	Appendix 1 - Council Plan 2017/18 Mid-Year Progress Report – Green Council.

6.00	LIST OF ACCESSIBLE BACKGROUND DOCUMENTS
6.01	<p>Council Plan 2017/18: http://www.flintshire.gov.uk/en/Resident/Council-and-Democracy/Improvement-Plan.aspx</p> <p>Contact Officer: Margaret Parry-Jones Telephone: 01352 702324 E-mail: Margaret.parry-jones@flintshire.gov.uk</p>

7.00	GLOSSARY OF TERMS
7.01	Council Plan: the document which sets out the annual priorities of the Council. It is a requirement of the Local Government (Wales) Measure 2009 to set Improvement Objectives and publish a Council Plan.
7.02	Risks: These are assessed using the improved approach to risk management endorsed by Audit Committee in June 2015. The new approach, includes the use of a new and more sophisticated risk assessment matrix which provides greater opportunities to show changes over time.

7.03

Risk Likelihood and Impact Matrix

Impact Severity	Catastrophic	Y	A	R	R	B	B
	Critical	Y	A	A	R	R	R
	Marginal	G	Y	A	A	A	R
	Negligible	G	G	Y	Y	A	A
		Unlikely (5%)	Very Low (15%)	Low (30%)	Significant (50%)	Very High (65%)	Extremely High (80%)
Likelihood & Percentage of risk happening							

The new approach to risk assessment was created in response to recommendations in the Corporate Assessment report from the Wales Audit Office and Internal Audit.

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Mid-year Council Plan 2017/18 Progress Report

Green Council



Flintshire County Council
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Print Date: 07-Nov-2017

4 Green Council



Actions

ACTION	LEAD OFFICER	STATUS	START DATE	END DATE	COMPLETE %	PROGRESS RAG	OUTCOME RAG
4.1.1.1 Improve, protect and enhance the built environment	Lynne Fensome - Support Manager Environment	In Progress	01-Apr-2017	31-Mar-2018	25.00%	 AMBER	 AMBER

ACTION PROGRESS COMMENTS:

Between April and June initial scoping of the Local Heritage Plan strategy content was completed by the Built Conservation Team however, further progress was delayed while waiting the outcome of Redesign Work. Initial scoping of the strategy was challenged by Cabinet Members as not incorporating aspects such as tourism and countryside heritage or key heritage sites and projects such as Bailey Hill and Flint Castle. This was not the intended purpose behind the proposal to develop this strategy from within the Planning and Environment portfolio. The intention was to deal specifically with matters relating to the built Conservation function within P&E, relating to listed buildings, buildings at risk, listed building enforcement, development within conservation areas, and to serve as a promotional and bidding tool for capital funding which the Built Conservation Team has not had for a number of years. It also aligns with the Heritage Act and the publication by Welsh Government in May 2017 of Technical Advice Note 24 The Historic Environment, as well as work streams now emerging from the North Wales Built Heritage Service Redesign work. The scope of this strategy will be revisited to narrow it to the issues outlined above, and rename as the Flintshire Built Conservation Strategy. The strategy will be publicised to indicate how it can influence development of a wider corporate Flintshire Heritage Strategy in the future.

Last Updated: 31-Oct-2017



ACTION	LEAD OFFICER	STATUS	START DATE	END DATE	COMPLETE %	PROGRESS RAG	OUTCOME RAG
4.1.1.2 Manage our natural environment and accessible green-space networks to deliver health, well-being and resilience goals.	Lynne Fensome - Support Manager Environment	In Progress	01-Apr-2017	31-Mar-2018	50.00%	 GREEN	 GREEN

ACTION PROGRESS COMMENTS:

We are delivering projects set out within the ESD grant application, including flood defence, biodiversity duty and green-space enhancement-Flood Defence The allocation of this part of the single revenue grant is primarily used to support employee costs in delivering the duties placed on the Council as a Lead Local Flood Authority (LLFA) Key milestones include : Implementation and continued development of Asset Management Expert (AMX) as the LLFA Flood Risk Asset Register issuing of consents under S23 of the Land Drainage Act Investigation of 6 flood events Fulfilled role as a statutory consultee to the Local Planning Authority in relation to the review of proposed surface Water management schemes on new development to promote compliance with national standards Development of a 5 year programme of capital works and flood alleviation schemes Prepared a draft flood risk management plan Enhancing sense of place in Flintshire's greenspaces The allocation of this part of the grant is being used to deliver Flintshire's Greenspace Strategy, improve greenspace facilities to encourage access, enjoyment and well-being and to facilitate engagement through arts in the community. Key Milestones include : Pen y Maes wood – 200 meters widened and surfaced Preshaven – 150 m board walk renewed Point of Ayr 50m new path to bird hide Installation of two three valley access barriers at Llwyni to reduce anti -

social behaviour 300m of new step free boardwalk, replacing steps and handrail, installation of interpretation panels Wepre Park Surfacing and improvements of footpath near Ewloe castle (10m), creating a sitting area and step refurbishment to golf course Installing four benches and a view box in the Old Hall garden. Arts in the Park. Snake sculpture created to utilise dam excavation arising's. Interactive sculpture for children and community in dell. 2 days creating animated film through engagement with visitors. Two films and artwork created which will come back for display in the visitor centre after showing at Theatre Clwyd. Garden sculpture day event. Supported Friends of Wepre to run an art session and photo and poetry event Cherry tree planting with community Buckley Higher common Greenfield Dock – seeding up of the west sides bed Community Greenspace Involvement The allocation of this part of the grant is being used to encourage and enable community volunteering into the management of their local greenspace. Key milestones include : Coastal volunteer team - 3000 hours 1000 hours in group time in support to the coastal ranger 'Guardians of the Castle' and 'Arch' over the last six months have volunteered 500 hours at Wepre Park, with a further 2000+ hours from individual volunteer support for the Wepre Ranger Halkyn Mountain, Llwyni and Talacre consultative groups have been facilitated plus support for Friends of Bagillt and Wepre Positive environmental action in local greenspaces Grant allocated to supporting Mold Spring Clean, the Big Dee Day and Greenfield Valley Day. Key milestones include : Big Dee Day – 6 counties involved. Over 250 people and around 300 bags rubbish collected plus a few tonnes of flytip in Flintshire alone. 412 gorse plants, a meadow raked and loads of scrub cleared. 20m of path laid, 6m of boardwalk built, trees removed from Moel Famau, footpaths repairs on Snowdon, scrub cleared and benches painted in Cheshire and Shropshire scrub cleared for skylarks 70 students from Coleg Cambria Greenfield Valley day – Tesco's support for clean-up with 65 bags of rubbish cleared. Local schools involved in bulb planting car parks. Biodiversity Duty Delivery Plan and the Biodiversity and ecosystems resilience duty Working for long term benefits for natural resources and nature conservation in an integrated approach with communities across Flintshire. Key milestones include : Internal communication strategy to improve understanding of the Biodiversity and Sustainability requirements of new legislation Work towards accreditation under the Bee Friendly Wales scheme Strategic invasive non-natives species control Species/habitat specific action including relevant surveys (Great Crested Newt, Dormouse, Sand lizard, natterjack toad, bat, badger and ancient woodland. Ongoing management of County Hall meadow Education and Awareness programme Draft Tree, woodland and planting strategy produced



Last Updated: 31-Oct-2017

ACTION	LEAD OFFICER	STATUS	START DATE	END DATE	COMPLETE %	PROGRESS RAG	OUTCOME RAG
4.1.1.3 Maximising the potential of Council assets for energy efficiency: Control/reduction of Council energy consumption and thereby cost.	Sadie Smith - Energy Conservation Engineer	In Progress	01-Apr-2017	31-Mar-2018	50.00%	 GREEN	 GREEN

ACTION PROGRESS COMMENTS:

Energy efficiency projects completed or in progress to reduce carbon emissions and energy use include: -Upgrading of external lighting at Broughton CP School to LED lights. -Upgrading of heating controls at Aston Flying Start to improve control of the heating and hot water. -Upgrading of heating controls at Ysgol Bryn Garth. -Installation of a battery storage system at Ysgol Abermorddu to store excess solar generation. -Completion of lighting upgrade (LED and T5) at Hawarden Village School -Completion of a 10kWp solar Photovoltaic (PV) installation at Broughton CP School -Surveying of sites for lighting upgrades is in progress with projects to be completed by 31st March 2018 Delivery of Phase 2 of the renewable energy action plan is in progress following a workshop with Officers in Valuation and Estates, and Planning, 6 potential brownfield sites were identified as possible locations for renewable energy generation. Initial feasibility assessments have been completed for these sites. 3 sites have been prioritised and detailed feasibility studies completed. The next steps will be to assess the final business case once a formal grid connection offer has been received. A high level review of the Council's agricultural estate has been completed assessing energy generation potential, acreage available and possible planning/legal constraints. Further feasibility will be completed. Potential sites for hydro power have been assessed with Wepre Brook prioritised. A detailed design has been completed and planning permission applied for. Assessment has been completed by Coed Cymru/Forestry Officer which indicated potential for biomass crops on the agricultural estate in Sealand as well utilising waste wood and timber from public and private woodlands.



Last Updated: 31-Oct-2017

ACTION	LEAD OFFICER	STATUS	START DATE	END DATE	COMPLETE %	PROGRESS RAG	OUTCOME RAG
4.1.1.4 Maximise the recovery and recycling of waste with a view to reducing the reliance on landfill.	Harvey Mitchell - Waste and Ancillary Services Manager	In Progress	01-Apr-2017	31-Mar-2018	50.00%	 GREEN	 GREEN

ACTION PROGRESS COMMENTS:

Ongoing recycling awareness campaigns and an interim residual waste treatment contract have ensured that Council remains committed to maximising recovery opportunities and diversion from landfill where possible.



Last Updated: 02-Nov-2017

ACTION	LEAD OFFICER	STATUS	START DATE	END DATE	COMPLETE %	PROGRESS RAG	OUTCOME RAG
4.1.1.5 Strengthen regional air quality collaboration to help promote better health and well-being outcomes	Sian Jones - Public Protection Manager	Completed	01-Apr-2017	31-Mar-2018	100.00%	 GREEN	 GREEN

ACTION PROGRESS COMMENTS:

A regional air quality assessment on behalf of the North Wales local authorities has been undertaken which meets our statutory requirements by submitting the report to Welsh Government by 30th September. The need to develop a local strategy has been highlighted by the Public Service Board, and work is underway to identify how Flintshire can further improve air quality.

Last Updated: 01-Nov-2017



ACTION	LEAD OFFICER	STATUS	START DATE	END DATE	COMPLETE %	PROGRESS RAG	OUTCOME RAG
4.1.1.6 Identification of the Local Development Plan preferred strategy	Lynne Fensome - Support Manager Environment	In Progress	01-Apr-2017	31-Mar-2018	50.00%	 GREEN	 GREEN

ACTION PROGRESS COMMENTS:

The Draft Local Development Plan preferred strategy has been presented to and endorsed by Planning Strategy Group. Prior notification events were held with members, and with Town and Community Councils during July to raise awareness of the Preferred Strategy ahead of being reported to Cabinet. A further technical report was presented to and endorsed by The Planning Strategy Group on 27th July outlining i) an assessment of candidate sites in terms of their broad compliance with the Preferred Strategy and ii) the requirement to issue invitation for alternative sites as part of the Preferred Strategy consultation. A progress update report on the Preferred Strategy was presented to and endorsed by Planning Strategy

Group in September outlining reasons for the delay in starting the consultation process. The Preferred Strategy was presented to and approved by Cabinet on 26th September. Consultation on the Preferred Strategy will commence on 9th November 2017.

Last Updated: 01-Nov-2017



ACTION	LEAD OFFICER	STATUS	START DATE	END DATE	COMPLETE %	PROGRESS RAG	OUTCOME RAG
4.2.1.1 Access and use available grant funding to support Council priorities for accessing employment, health and leisure and education.	Katie Wilby - Transportation and Logistics Manager	In Progress	01-Apr-2017	31-Mar-2018	25.00%	 GREEN	 AMBER

ACTION PROGRESS COMMENTS:

We have successfully bid for 2017/18 Local Transport Funding (LTF), and a grant has been awarded to improve bus services and encourage walking and cycling in Deeside. Part of this money will be spent on developing new bus interchanges and bus priority measures on the B5129 Shotton Corridor and bus infrastructure on Deeside Industrial Park, while the remainder will support the introduction of active travel routes within the Deeside Business Park. £600,000 Access to Employment £325,000 Developments for Passenger Growth (Deeside Corridor) £10,000 Active Travel – integrated network mapping £100,000 B5129 Bus Corridor and Quality Partnership Scheme £289,500 community transport hubs

Last Updated: 01-Nov-2017

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ACTION	LEAD OFFICER	STATUS	START DATE	END DATE	COMPLETE %	PROGRESS RAG	OUTCOME RAG
4.2.1.2 Prioritise the Council's road infrastructure for repairs and maintenance and implement programmes of work within available funding in order to improve the resilience, efficiency and reliability of the transport network.	Barry Wilkinson - Highways Networks Manager	In Progress	01-Apr-2017	31-Mar-2018	50.00%	 GREEN	 GREEN



ACTION PROGRESS COMMENTS:

The highway network has been reviewed and assessed for investment need and repairs. The capital programme for preventative maintenance has been developed, tendered and implemented across the network.

Last Updated: 30-Oct-2017



ACTION	LEAD OFFICER	STATUS	START DATE	END DATE	COMPLETE %	PROGRESS RAG	OUTCOME RAG
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4.2.1.3 Work closely with the communities to develop innovative and sustainable community based transport schemes.	Katie Wilby - Transportation and Logistics Manager	In Progress	01-Apr-2017	31-Mar-2018	50.00%	 GREEN	 AMBER
<p>ACTION PROGRESS COMMENTS: We are continuing to work actively with communities to support and develop alternative transport options. 3 out of the 6 proposed pilot transport schemes are now up and running in: i) Higher Kinnerton-Broughton) ii) Penyffordd-Buckley iii) Northop Hall-Connah's Quay</p> <p>Last Updated: 02-Nov-2017</p>							



ACTION	LEAD OFFICER	STATUS	START DATE	END DATE	COMPLETE %	PROGRESS RAG	OUTCOME RAG
4.2.1.4 Deliver a compliant, safe and integrated transport service	Katie Wilby - Transportation and Logistics Manager	In Progress	01-Apr-2017	31-Mar-2018	80.00%	 GREEN	 GREEN
<p>ACTION PROGRESS COMMENTS: The Integrated Transport Unit (ITU) has administered a transformational review of the Council's passenger transport services over the last 18 months to ensure that all routes are compliant. The service has moved to a new method of procurement known as a Dynamic Purchasing System (DPS), allowing new suppliers to apply to join at any point during its lifetime. The new arrangements are aimed at reducing the workload both within the ITU and local supply chain. The new contracts will operate for a period of 4 years or for the length of the pupils or students education at a particular school or college or until the need for a specific transport provision ceases.</p> <p>Last Updated: 01-Nov-2017</p>							

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Performance Indicators

KPI Title	Pre. Year Period Actual	Period Actual	Period Target	Perf. RAG	Perf. Indicator Trend	YTD Actual	YTD Target	Outcome RAG
IP4.1.3.1M01 Percentage of environmentally efficient front line operational vehicles to Euro 6 standard.	No Data	33.77	20	 GREEN	N/A	33.77	20	 GREEN

Lead Officer: Lynne Fensome - Support Manager Environment
Reporting Officer: Ian Bushell - Technical and Performance Manager
Aspirational Target:
Progress Comment: We are currently running 34% of the fleet to Euro 6 standard. A schedule is in place to re-new the remaining vehicles to Euro 6 Standard
 Last Updated: 01-Nov-2017



KPI Title	Pre. Year Period Actual	Period Actual	Period Target	Perf. RAG	Perf. Indicator Trend	YTD Actual	YTD Target	Outcome RAG
IP4.1.3.2M02 Number of street furniture and street light units replaced with LED lighting.	No Data	1520	1500	 GREEN	N/A	4337	3000	 GREEN

Lead Officer: Lynne Fensome - Support Manager Environment
Reporting Officer: Darell Jones - Operations Manager (North and Streetlighting)
Aspirational Target: 6000.00
Progress Comment: The number of lanterns changed has exceeded target and will allow the project to be delivered within the projected timeframe. Energy and CO2 savings are now being realised as reported by our energy supplier with savings in real terms being made. However a 16% increase in base energy costs has been placed upon the service by the energy supplier.
 Last Updated: 01-Nov-2017

KPI Title	Pre. Year Period Actual	Period Actual	Period Target	Perf. RAG	Perf. Indicator Trend	YTD Actual	YTD Target	Outcome RAG
IP4.1.3.3M03 Reduce our carbon footprint across our Council buildings (non housing)	1.85	15.31	2	 GREEN	↑	15.31	2	 GREEN



Lead Officer: Lynne Fensome - Support Manager Environment
Reporting Officer: Sadie Smith - Energy Conservation Engineer
Aspirational Target:
Progress Comment: figures are not weather corrected at this point in the year. The percentage reduction can be attributed to:
 i) The transfer of leisure centres and libraries to Aura who were historically high consumers of energy.
 ii) The transfer of heating fuel at Ysgol Terrig and Ysgol Parc y Llan from LPG to natural gas has contributed to the reduction as LPG has a higher carbon emission factor than gas.
 iii) The general reduction in the number of assets has had a positive effect, for example, the closure of 2 schools, community asset transfers.

Last Updated: 01-Nov-2017



KPI Title	Pre. Year Period Actual	Period Actual	Period Target	Perf. RAG	Perf. Indicator Trend	YTD Actual	YTD Target	Outcome RAG
IP4.1.4.1M01 (PAM/030) Percentage of waste reused, recycled or composted	No Data	70.3	68	 GREEN	N/A	70.53	68	 GREEN

Lead Officer: Lynne Fensome - Support Manager Environment
Reporting Officer: Danielle Richards - Area Recycling Officer
Aspirational Target:
Progress Comment: There has been an increase in the tonnage of dry recycling collected via kerbside recycling schemes. However, there has also been a decrease in the overall tonnage of Soil and Rubble arising from highways and area construction works. This has resulted in a slight downturn on the quarterly performance achieved in Q2 2016/17



Last Updated: 01-Nov-2017

KPI Title	Pre. Year Period Actual	Period Actual	Period Target	Perf. RAG	Perf. Indicator Trend	YTD Actual	YTD Target	Outcome RAG
IP4.1.4.2M02 Average recycling rate across all HRC sites	No Data	78.39	80	 AMBER	N/A	78.34	80	 AMBER



Lead Officer: Lynne Fensome - Support Manager Environment
Reporting Officer: Danielle Richards - Area Recycling Officer
Aspirational Target:
Progress Comment: Household Waste (HWRC) Recycling Centre performance has increase by 6.5% compared with the same period last year (71.48%). Improvement works carried out at both Buckley & Mold HWRC sites and an emphasis on residual waste bag splitting to increase material diversion across the sites have made a positive contribution to the overall recycling performance.
 Last Updated: 01-Nov-2017

KPI Title	Pre. Year Period Actual	Period Actual	Period Target	Perf. RAG	Perf. Indicator Trend	YTD Actual	YTD Target	Outcome RAG
IP4.2.2.4M04 Percentage of inspections undertaken to ensure reinstatements meet the required standards	0	15.01	14	 GREEN	↑	14.97	14	 GREEN

Lead Officer: Lynne Fensome - Support Manager Environment
Reporting Officer: Sam Tulley - Road Space Manager
Aspirational Target:
Progress Comment: Flintshire County Council inspect a percentage of works undertaken by Utility companies working on the highway network. The purpose of these inspections are to ensure streets are reconstructed to the required standards, reducing the need for future remedial works which causes unnecessary congestion and safeguarding the highway asset. By undertaking the inspections and working with the Utilities and their contractors, Flintshire are able to promote good working practices.
 Last Updated: 24-Oct-2017

KPI Title	Pre. Year Period Actual	Period Actual	Period Target	Perf. RAG	Perf. Indicator Trend	YTD Actual	YTD Target	Outcome RAG
IP4.2.4.1M01 Percentage of contracts awarded that are financially compliant	0	85.44	100	 AMBER	↑	85.44	100	 AMBER


Lead Officer: Lynne Fensome - Support Manager Environment
Reporting Officer: Ceri Hansom - Integrated Transport Unit Manager
Aspirational Target:
Progress Comment: 264 routes (school, adult social care, local bus routes) have been through a compliant tendering exercise. Following additional or change in demand for travel from September 2017, a small number of routes will need to be procured within the next 3-4 months (approx. 25 routes) and a further procurement exercise will be required for college transport services (approx. 35 routes).
 Last Updated: 01-Nov-2017

KPI Title	Pre. Year Period Actual	Period Actual	Period Target	Perf. RAG	Perf. Indicator Trend	YTD Actual	YTD Target	Outcome RAG
IP4.2.4.2M02 The percentage of safety compliant checks delivered	No Data	25	25	 GREEN	N/A	25	25	 GREEN

Lead Officer: Lynne Fensome - Support Manager Environment
Reporting Officer: Ceri Hansom - Integrated Transport Unit Manager
Aspirational Target:
Progress Comment: 25% have been achieved since start of September 2017. Daily monitoring and compliance checks taking place on site at schools and day care centres. The aim is to achieve 100% by Jan 2018
 Last Updated: 01-Nov-2017

RISKS

Strategic Risk

RISK TITLE	LEAD OFFICER	SUPPORTING OFFICERS	INITIAL RISK RATING	CURRENT RISK RATING	TREND ARROW	RISK STATUS
Reduction of the Single Environment Grant	Tom Woodall - Access and Natural Environment Manager	Lynne Fensome - Support Manager Environment	 Amber	 Amber		Open

Potential Effect: Income targets not met
 Potential reduction could impact staffing resource to maintain service delivery
Management Controls: Raised as a pressure for 2017/18.
Progress Comment: Welsh Government have reduced the Environmental and Sustainable Development grant by £110k for 2017/18. This was better than the forecasted expectation therefore the allocations across the two portfolios have been maintained and projects continue to be delivered. However this remains a risk in that the quality of the bid submissions need to be maintained to ensure full draw down of the grant. Further reductions for 2018/19 again will lead to a potential reduction in services that can be delivered

Last Updated: 01-Nov-2017

RISK TITLE	LEAD OFFICER	SUPPORTING OFFICERS	INITIAL RISK RATING	CURRENT RISK RATING	TREND ARROW	RISK STATUS
Limitations on suitable Council sites with sufficient area for larger scale renewables schemes and suitable connections to the electric grid	Sadie Smith - Energy Conservation Engineer	Lynne Fensome - Support Manager Environment	Amber	Amber	↔	Open

Potential Effect: Failure to meet Carbon Reduction target
Management Controls: Continue to review the availability of sites
Progress Comment: We are continuing with an ongoing review of the available sites, particularly in terms of the agricultural estate and the viability of these sites. We have developed a good working relationship with Scottish Power Energy networks which has allowed for informal discussions to take place ahead of formal plans being submitted. This will help in workload capacity of the team and in prioritising the most suitable sites. Alternatives to grid connections are also considered as part of the process to provide more innovative solutions such as selling to a large user which may be a more financially viable option given the costs of connecting to the grid and ultimately delivers both greater financial savings and greater income opportunities

Last Updated: 01-Nov-2017

RISK TITLE	LEAD OFFICER	SUPPORTING OFFICERS	INITIAL RISK RATING	CURRENT RISK RATING	TREND ARROW	RISK STATUS
Funding will not be secured for priority flood alleviation schemes	Ruairi Barry - Senior Engineer	Lynne Fensome - Support Manager Environment	Red	Red	↔	Open

Potential Effect: Flooding of homes and businesses across the county
 Potential homelessness
Management Controls: Review our approach to funding capital projects
Progress Comment: Grant availability continues to be monitored. A five year programme of capital works and flood alleviation schemes has been developed based on transparent criteria in line with Welsh Government guidance to feed into the national pipeline programme. These projects have been assessed on affordability and ability to maximise capital funding from internal and external sources. The required skill sets to implement effective and innovative flood risk management continue to be developed within the team.

Last Updated: 01-Nov-2017

RISK TITLE	LEAD OFFICER	SUPPORTING OFFICERS	INITIAL RISK RATING	CURRENT RISK RATING	TREND ARROW	RISK STATUS
Customer expectations around the delivery of flood alleviation schemes are not effectively managed	Ruairi Barry - Senior Engineer	Lynne Fensome - Support Manager Environment	Yellow	Yellow	↔	Open

Potential Effect: Reduced public confidence to effectively manage flood risk
Management Controls: Review our approach to funding capital projects
Progress Comment: A five year programme of capital works and flood alleviation schemes has been developed based on transparent criteria in line with Welsh Government guidance to feed into the national pipeline programme.

Last Updated: 01-Nov-2017

RISK TITLE	LEAD OFFICER	SUPPORTING OFFICERS	INITIAL RISK RATING	CURRENT RISK RATING	TREND ARROW	RISK STATUS
Lack of holistic air quality data across the region leading to on cost for the Council to manage its own review	Dave L Jones - Pollution Control Officer	Lynne Fensome - Support Manager Environment	Yellow	Yellow	↔	Closed

Potential Effect: Knock on effect for capacity within the team to manage own review
Management Controls: Full engagement with the regional project
Progress Comment: The pollution control team has fully engaged with the regional project, and consultants appointed to produce the regional report. All data has been supplied and verified for inclusion in the report, and submitted to Welsh Government within the required timeframe

Last Updated: 01-Nov-2017

RISK TITLE	LEAD OFFICER	SUPPORTING OFFICERS	INITIAL RISK RATING	CURRENT RISK RATING	TREND ARROW	RISK STATUS
Insufficient funding to ensure our highways infrastructure remains safe and capable of supporting economic growth	Barry Wilkinson - Highways Networks Manager	Lynne Fensome - Support Manager Environment	Amber	Amber	↔	Open
<p>Potential Effect: Deterioration of the condition of highways in Flintshire</p> <p>Management Controls: Focussed investment through the funding of schemes that maintain or reduce the pace of deterioration of the condition of the main highway infrastructure. Road Safety Scheme identification for improvement to routes through available funding. Maximize funding received through the quality of the bid submission by aligning submissions to follow successful bid model techniques.</p> <p>Progress Comment: Preventative and corrective work will be completed across a number of improvement and maintenance schemes of the highest ranked sites within the network as planned, in accordance with available funding.</p> <p>Last Updated: 27-Oct-2017</p>						

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RISK TITLE	LEAD OFFICER	SUPPORTING OFFICERS	INITIAL RISK RATING	CURRENT RISK RATING	TREND ARROW	RISK STATUS
Sufficient funding will not be found to continue to provide subsidised bus services.	Ceri Hansom - Integrated Transport Unit Manager	Lynne Fensome - Support Manager Environment	Amber	Amber	↔	Open
<p>Potential Effect: Decrease in bus services to residents, particularly in rural areas</p> <p>Management Controls: Develop services so that they become more commercially viable</p> <p>Progress Comment: Withdrawal of subsidies could affect the viability of some commercial bus services which may impact on people with no alternative choice of travel particularly rural communities.</p> <p>Last Updated: 01-Nov-2017</p>						

RISK TITLE	LEAD OFFICER	SUPPORTING OFFICERS	INITIAL RISK RATING	CURRENT RISK RATING	TREND ARROW	RISK STATUS
Supply chain resilience	Katie Wilby - Transportation and Logistics Manager	Lynne Fensome - Support Manager Environment	Amber	Amber	↔	Open

Potential Effect: Transport services cannot be provided
Management Controls: i) Management of safety compliance checks.
 ii) Management of financially compliant contracts
Progress Comment: The control measures have been put in place to mitigate against another major transport services provider going into administration or not able to meet the required operating standards. New processes have been established and officers are carrying out both safety compliance checks and also finance compliance checks on contractors
 Last Updated: 26-Oct-2017

RISK TITLE	LEAD OFFICER	SUPPORTING OFFICERS	INITIAL RISK RATING	CURRENT RISK RATING	TREND ARROW	RISK STATUS
Adverse weather conditions on the highway network	Barry Wilkinson - Highways Networks Manager	Lynne Fensome - Support Manager Environment	Amber	Amber	↔	Open

Potential Effect: Increase in cost to future planned repairs as network deteriorates beyond that can be rectified by planned maintenance
 Increase in insurance claims
Management Controls: Targeting funding on those schemes that maintain or reduce the pace of deterioration of the condition of the main highway infrastructure.
Progress Comment: Operational Managers review weather forecasts and confirm appropriate actions, which may result in the allocation of direct labour resource to avoid impact on highway network users.
 Last Updated: 27-Oct-2017

RISK TITLE	LEAD OFFICER	SUPPORTING OFFICERS	INITIAL RISK RATING	CURRENT RISK RATING	TREND ARROW	RISK STATUS
Lack of community support for transport options	Ceri Hansom - Integrated Transport Unit Manager	Lynne Fensome - Support Manager Environment	Yellow	Yellow	↔	Open

Potential Effect: i) Planned programme of community transport hubs not delivered. iii) Decreased passenger numbers on bus services.
 iii) Increase in individual car usage
Management Controls: Realistic deliverable programme for 2017/18 of 4 Community Transport Hubs that have been supported by the local communities and Town and Community Councils
Progress Comment: We are continuing to work with local communities and Town and Community Councils on delivering the 4 hubs that were developed as projects in 2016/17, and use and customer satisfaction of the Higher Kinnerton hub.
 Last Updated: 01-Nov-2017



ENVIRONMENT OVERVIEW & SCRUTINY COMMITTEE

Date of Meeting	Tuesday 12 December 2017
Report Subject	Forward Work Programme
Cabinet Member	Not applicable
Report Author	Environment Overview & Scrutiny Facilitator
Type of Report	Operational

EXECUTIVE SUMMARY

Overview & Scrutiny presents a unique opportunity for Members to determine the Forward Work programme of the Committee of which they are Members. By reviewing and prioritising the Forward Work Programme Members are able to ensure it is Member-led and includes the right issues. A copy of the Forward Work Programme is attached at Appendix 1 for Members' consideration which has been updated following the last meeting.

The Committee is asked to consider, and amend where necessary, the Forward Work Programme for the Environment Overview & Scrutiny Committee.

RECOMMENDATION

1	That the Committee considers the draft Forward Work Programme and approve/amend as necessary.
2	That the Facilitator, in consultation with the Chair and Vice-Chair of the Committee be authorised to vary the Forward Work Programme between meetings, as the need arises.

REPORT DETAILS

1.00	EXPLAINING THE FORWARD WORK PROGRAMME									
1.01	Items feed into a Committee's Forward Work Programme from a number of sources. Members can suggest topics for review by Overview & Scrutiny Committees, members of the public can suggest topics, items can be referred by the Cabinet for consultation purposes, or by County Council or Chief Officers. Other possible items are identified from the Cabinet Work Programme and the Improvement Plan.									
1.02	<p>In identifying topics for future consideration, it is useful for a 'test of significance' to be applied. This can be achieved by asking a range of questions as follows:</p> <ol style="list-style-type: none"> 1. Will the review contribute to the Council's priorities and/or objectives? 2. Is it an area of major change or risk? 3. Are there issues of concern in performance? 4. Is there new Government guidance of legislation? 5. Is it prompted by the work carried out by Regulators/Internal Audit? 									
1.03	<p>At the meeting of the Constitution & Democratic Services Committee which was held on 25th October, it was resolved that each committee should be canvassed for views on meeting preference as part of their forward work programme item. The options are as follows:</p> <table border="1" data-bbox="284 1124 1369 1258"> <tr> <td>9.30am</td> <td>10am</td> <td>1.30pm</td> <td>2pm</td> <td>4.30pm</td> <td>6.00pm</td> <td>Alternate am/pm</td> <td>Rotate 10am/2pm/4.30pm</td> <td>Rotate am/pm/6pm</td> </tr> </table> <p>The Environment Overview & Scrutiny committee, which currently meets on a Tuesday morning at 10.00, is asked to express a preference for its meeting pattern. This information will be reported back to the Constitution & Democratic Services Committee.</p>	9.30am	10am	1.30pm	2pm	4.30pm	6.00pm	Alternate am/pm	Rotate 10am/2pm/4.30pm	Rotate am/pm/6pm
9.30am	10am	1.30pm	2pm	4.30pm	6.00pm	Alternate am/pm	Rotate 10am/2pm/4.30pm	Rotate am/pm/6pm		

2.00	RESOURCE IMPLICATIONS
2.01	None as a result of this report.

3.00	CONSULTATIONS REQUIRED / CARRIED OUT
3.01	Publication of this report constitutes consultation.

4.00	RISK MANAGEMENT
4.01	None as a result of this report.

5.00	APPENDICES
5.01	Appendix 1 – Draft Forward Work Programme

6.00	LIST OF ACCESSIBLE BACKGROUND DOCUMENTS
6.01	<p>None.</p> <p>Contact Officer: Margaret Parry-Jones Overview & Scrutiny Facilitator</p> <p>Telephone: 01352 702427</p> <p>E-mail: margaret.parry-jones@flintshire.gov.uk</p>

7.00	GLOSSARY OF TERMS
7.01	Improvement Plan: the document which sets out the annual priorities of the Council. It is a requirement of the Local Government (Wales) Measure 2009 to set Improvement Objectives and publish an Improvement Plan.

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ENVIRONMENT OVERVIEW & SCRUTINY FORWARD WORK PROGRAMME

Draft Forward Work Programme

Date of Meeting	Subject	Purpose of Report/Presentation	Scrutiny Focus	Responsible/Contact Officer	Submission Deadline
Tuesday 16th January 2018 10.00 am – Greenfield Valley	Greenfield Valley Museum Heritage Park visit and presentation	To receive an update on the developments at Greenfield Valley Heritage Park.	Assurance	Chief Officer Planning and Environment	
	Review of Grass Cutting Policy	To review the Policy and provide comments to Cabinet.	Options Appraisal	Chief Officer Streetscene and Transportation	
Tuesday 13th March 2018 10.00 am	Q3 Council Plan Monitoring	To enable members to fulfil their scrutiny role in relation to performance monitoring.	Performance Monitoring/ Assurance	Facilitator	
	Review of Highway and Car Park Safety Inspection and Intervention Level and Response to Policy	To review the policy in line with the revised national guidelines.	Policy Review	Barry Wilkinson	
	North East Wales Bus Strategy Fly Tipping on Public and Private land (development session prior to meeting)	To seek a recommendation to Cabinet to approve the North East Wales Bus Strategy	Options Appraisal	Chief Officer Streetscene and Transportation	
Tuesday 17th April 2018 10.00 am					

ENVIRONMENT OVERVIEW & SCRUTINY FORWARD WORK PROGRAMME

Date of Meeting	Subject	Purpose of Report/Presentation	Scrutiny Focus	Responsible/Contact Officer	Submission Deadline
Tuesday 12th June 2018 10.00 am	Year-end Reporting & Council Plan Monitoring	To enable members to fulfil their scrutiny role in relation to performance monitoring.	Performance Monitoring/ Assurance	Facilitator	

Items to be scheduled

Subject
North Wales Metro System
Enforcement and Environmental Care
Contact Centres review
National Resources Wales
Decriminalised Parking Since 2013 – request from Member
Flintshire Bridge Converter Station (site visit?)

Site visit to Parc Adfer – date in February to be confirmed.