Drainage and Wastewater Management Plans (DWMPs)

Workshop for the Stour DWMP

Monday 26 April 2021

Agenda

- Welcome and Purpose of the workshop

- Presentation: Problem Characterisation

- Break Out Session 1: Understanding the risks and identifying our strategy

- **BREAK**

- Presentation: Options Development and Appraisal

- Break Out Session 2: Identifying generic options

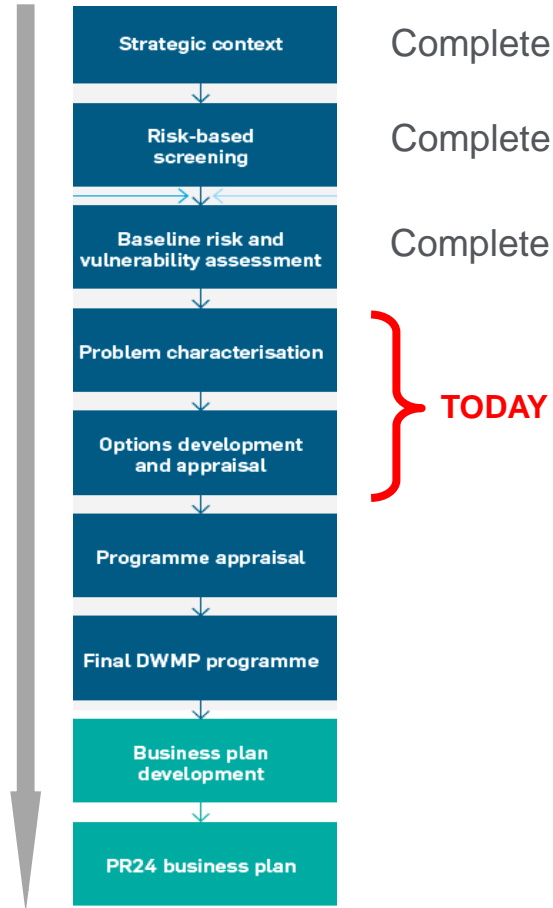- Prioritising Wastewater Catchments

- Next steps

Welcome and Purpose

Cigolene Nguyen

Head of Wastewater Asset, Strategy & Planning

DWMP Process: Where are we now?

Process Step	Status
Strategic context	Complete
Risk-based screening	Complete
Baseline risk and vulnerability assessment	Complete
Problem characterisation	
Options development and appraisal	**TODAY**
Programme appraisal	
Final DWMP programme	
Business plan development	
PR24 business plan	

Our aim today is to:

- Understand the problem: risks, causes and drivers

- Start the Options Development and Appraisal process by selecting generic options

- Prioritise catchments for detailed planning

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Purpose of the Workshop

- Determine the investment strategy for all wastewater catchments within the Stour river basin

- Start the options development and appraisal process by selecting generic options to progress to the detailed planning stage

- Prioritise wastewater catchments for the detailed planning stage; and

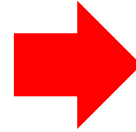- Identify where we can work with partner organisations on the detailed (level 3) plans

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Presentation: Problem Characterisation

Problem Characterisation

3 parts:

1. Causes and drivers of risks

Drivers of Risks

■	Customer
■	Hydraulics
■	Operational
■	Quality
■	Unknown

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Drivers

A **Driver** is "*a factor which causes a particular risk to happen or develop*". For the DWMP, it is the category associated with the cause of the risk, as set out below.

| Driver	Definition	Examples
Hydraulic	Risks dependent on the capacity of the sewer network to cope with current or future flows generated in the catchment	Rain water, surface water, highway run-off, and river flooding entering into combined or separate foul sewers. Infiltration from surface or groundwater.
Operational	Risks associated with our asset management and operational management activities	Asset failures such as sewer collapse, leaking sewers, pump breakdowns and power supply faults.
Customer	Risks dependent on the activities and behaviours of our customers.	Misconnections of surface water to foul sewers (or vice versa). Blockages caused by disposing of fats, oils and grease into sewer or flushing of baby wipes, nappies etc. Unconsented trade waste or chemicals being poured into drains.
Quality	Risks associated with the treatment capacity and flow and quality compliance of our wastewater treatment works	Unable to achieve permits specified by the Environment Agency, lack of adequate treatment capacity for the flow arriving at the treatment works.

Problem Characterisation

3 parts:

1. Causes and drivers of risk

2. Identifying Catchment Strategy

| Do Nothing |
| Maintain |
| Sustain |
| Enhance |
| Prepare |
| Defer |
| Improve |
| Change |
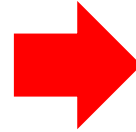
Problem Characterisation

3 parts:

1. Causes and drivers of risks

2. Identifying Catchment Strategy

3. Strategic Needs and Complexity Assessment
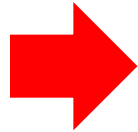
		Strategic needs score ("How big is the problem?")			
		Negligible	Small	Medium	Large
		1-2	3-4	5-6	7-8
Complexity factors score ("How difficult is it to solve")	High (8+)				
	Medium (5-7)				
	Low (<4)				

Purpose of Catchment Strategies

- Moves us to longer term thinking (25 year plan)

- Provides a clear statement of intent for our customers

- Align our whole business to get behind it and deliver

- Provides a focus for where investment is needed, and when

- Supports our investment planning

Catchment Investment Strategies

| Strategy	Description
Do Nothing	• No investment. • Baseline upon which to judge the cost effectiveness of doing 'something'
Maintain	• Current performance within acceptable limits and no major concerns for future. • Continue to maintain. Replace assets like for like when needing replacement. • Accept that climate change and growth may cause slight deterioration in levels of performance
Sustain	• Current performance acceptable, but risks will increase in the future. • Continue to maintain, but as assets need replacing look to increase capacity to keep pace with climate change, development and asset condition to sustain the existing level of performance into the future
Enhance	• Current performance is unacceptable. The causes are mostly operational. • Enhance current maintenance programmes (opex with some capital maintenance) to improve performance e.g. asset replacement/upgrades to improve reliability. No significant new assets or infrastructure required.
Prepare	• Current risks and performance are acceptable at the current time. • Maintain existing system and performance levels, but actively invest now to *plan and prepare* for future risks and performance issues (e.g. where significant growth planned, or future tightening of permits). Invest in data collection, surveys, model build and feasibility studies (not design).
Defer	• Current performance acceptable at current time, but concerns about future risks in longer term. Risks expected to be easy to resolve. • Continue to maintain, but defer decision and our consideration of options for capital investment for future rounds of the DWMP
Improve	• Current performance unacceptable. Need to reduce the current risks • Actively look to invest capital funding in the short term to address current performance issues (and allow for future changes when implementing improvements)
Change	• Current or future risk are/will be unacceptable, and the causes mean that the current system is not sustainable • Changes to the wastewater system needed i.e. new technology, discharge to alternative water body / transfer, additional treatment, re-use. Potential requirement for WINEP investment.

LEVEL OF EFFORT

Determining our Investment Strategies
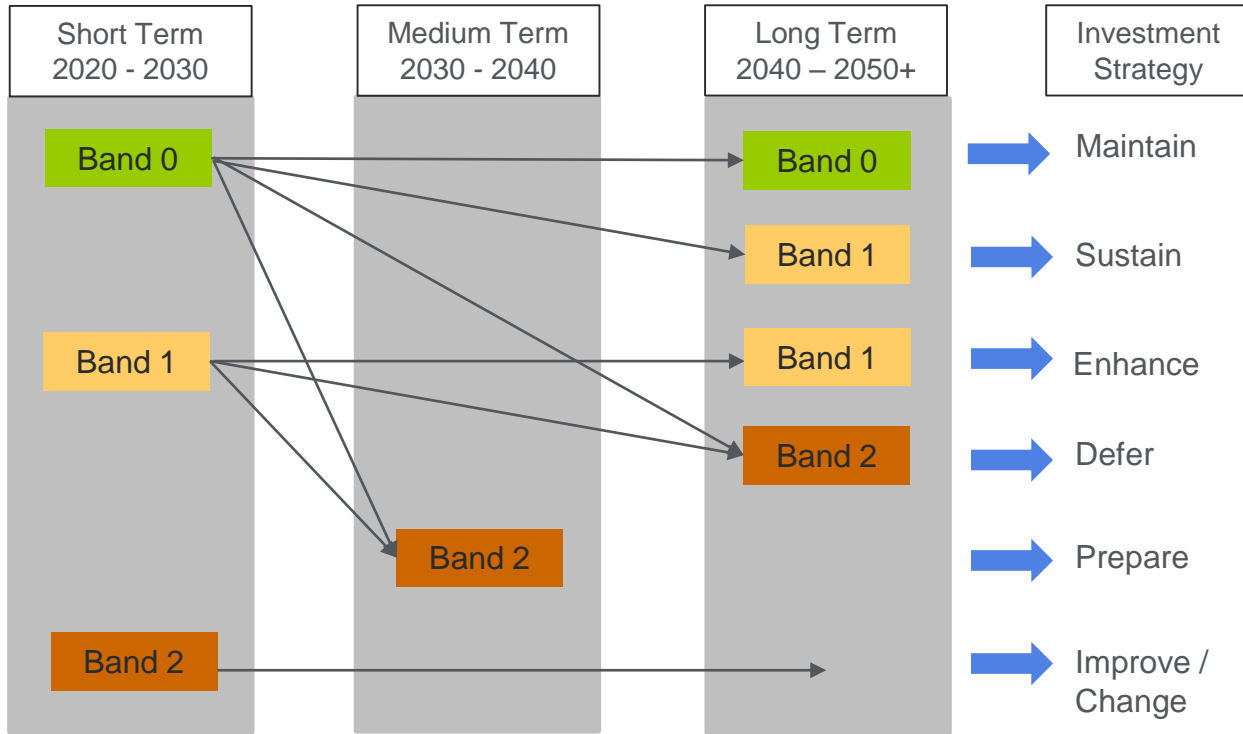
Catchment Strategies: Stour River Basin Catchment

| Ref	Wastewater Catchment	Number of Planning Objectives in each Band									Strategy
		2020			2035			2050			
ASHF	ASHFORD	5	5	2	1	1	0	1	3	2	Improve
BOOK	NATS LANE BROOK	10	1	1	2	0	0	5	1	0	Improve
BROM	BROOMFIELD BANK	4	4	4	1	0	1	2	2	1	Improve
CANT	CANTERBURY	3	6	3	1	1	0	2	2	2	Improve
CHAM	CHILHAM	9	1	2	1	0	1	3	1	2	Improve
CHAN	CHARING	7	4	1	1	0	1	3	1	2	Improve
CHAR	CHARTHAM	6	1	5	1	1	0	2	2	2	Improve
DAMB	DAMBRIDGE WINGHAM	7	3	2	1	0	1	2	3	1	Improve
ETRY	EASTRY	8	1	2	1	1	0	2	2	1	Improve
GOOD	GOOD INTENT COTTAGES EGERTON	0	0	0	0	0	0	0	0	0	Maintain
HERN	MAY STREET HERNE BAY	3	6	5	1	0	1	1	1	4	Improve
LENH	LENHAM	8	3	1	2	0	0	3	3	0	Improve
MINS	MINSTER IOT	8	4	0	1	1	0	3	2	1	Improve
NEWN	NEWNHAM VALLEY PRESTON	9	0	2	1	1	0	2	2	1	Improve
SELL	SELLINDGE	7	3	2	2	0	0	2	2	2	Improve
SWAL	SWALECLIFFE	2	5	7	1	1	0	1	1	4	Improve
WBER	WESTBERE	7	2	3	1	1	0	1	2	3	Improve
WEAT	WEATHERLEES HILL	4	2	7	1	1	0	2	1	3	Improve
WEHB	MARGATE AND BROADSTAIRS	5	6	2	2	0	0	3	2	1	Improve
WWLL	WESTWELL	9	1	0	1	0	0	3	1	0	Prepare
WYEW	WYE	8	0	4	2	0	0	3	0	3	Improve

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Catchment Strategies: Stour River Basin Catchment

Catchment Strategy
- Maintain
- Sustain
- Enhance
- Defer
- Prepare
- Improve
- Change

Maintain
Prepare

- 21 wastewater catchments
- 392 WPS
- 5325km sewers
- 16% area
- 96% homes connected

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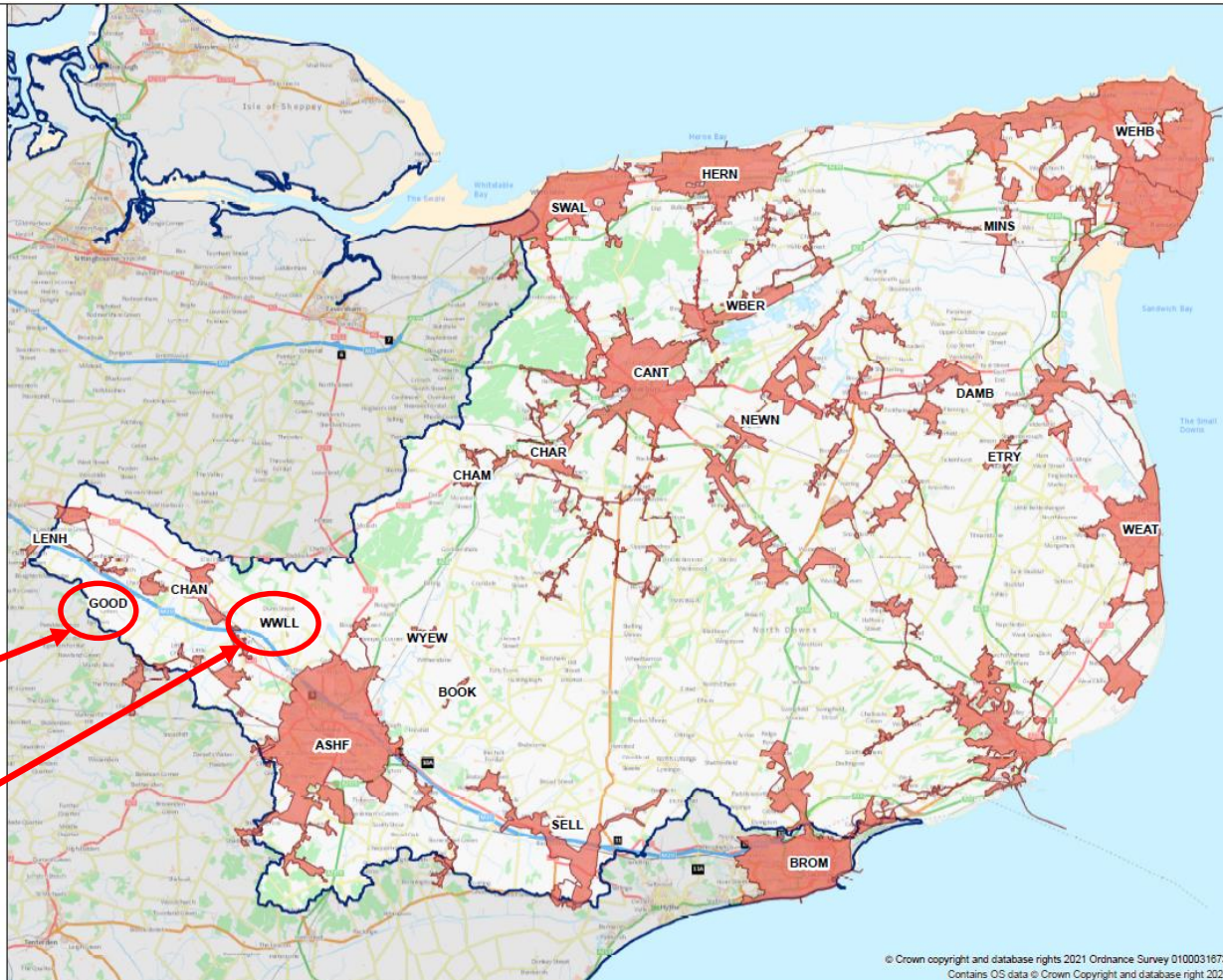
Questions

Break Out Session 1

Instructions for Break-Out Session 1

For one wastewater catchment:

1. Review the BRAVA results and decide the appropriate catchment investment strategy; and

2. Review the causes of the risks and decide the appropriate drivers

Time allowed: 30 minutes

Plenary: Feedback from Break-Outs

Poll 1

Options Development and Appraisal (ODA)

DWMPs: Identifying and Developing Options

Generic Options

Screening Questions:

- Could this generic option be utilised to manage and/or reduce the risks identified in the BRAVA?

Unconstrained Options

Screening Questions:

- Is the option **technically feasible** given site, operational or option-specific circumstances?
- Is it **cost effective** (based on a simple high, medium, low cost assessment)?
- Does the option achieve the required **outcome**?
- Are there **environmental risks** that cannot be mitigated or benefits provided?
- Would the option likely be supported by **customers**?
- Risk and uncertainty – does the option provide **resilience** against future uncertainties?

Constrained Options

Screening Questions:

1. Feasibility and risk:
- Customer acceptability?
- Political acceptability?
- Timeline for implementation
- Dependencies
- 'Third parties'
- Planning and regulatory constraints

2. Engineering and cost:
- Engineering complexity
- Cost

3. Performance:
- Outcomes
- Flexibility to adapt
- Resilience

4. Operational

5. Environmental
- High Level Screening (SEA, HRA, WFD, Biodiversity Net Gain, Natural Capital)

Feasible Options

Provide for each Feasible Option:
- A description of the option
- A description of how the option being described differs from baseline activities
- Scale of the benefits to be achieved against single or multiple planning objectives
- An assessment of customers' likely support for the option.
- An estimate of the time needed to investigate and implement the option, including the earliest start date.
- An assessment of the risks and uncertainty associated with the option.
- An assessment of the flexibility of the option to adapt to future uncertainty.
- An explanation of whether the option depends on an existing scheme or a proposed option, or is mutually exclusive with another option.
- An assessment of factors or constraints specific to the option (e.g. planning risks).
- A description of how the option will be utilised and impact on costs.
- An assessment of the environmental impacts of the option
- A Habitats Regulations Assessment if an option could affect any designated European site.
- An assessment of the costs and benefits.

DWMPs: Generic Options

Type of Measures	Generic Option Categories	Icon	Examples of Generic Options
Source (Demand) Measures (to reduce likelihood)	Control / Reduce surface water		Natural Flood Management; rural land management and catchment management; SuDS including blue and green infrastructure; storm management
	Control / Reduce groundwater infiltration		Re-line sewer pipe and manholes; pump away schemes to locally lower groundwater near network
	Improve **quality** of wastewater entering sewers		Domestic and business customer education; incentives and behaviour change (reduce Fats, Oils & Grease, wet wipes etc.); monitoring trade waste at source; on-site black water and/or greywater pre-treatment
	Manage the **quantity / flow** of wastewater entering sewer system		Water efficient appliances; water efficient measures; blackwater and/or greywater re-use
Pathway (Supply) Measures (to reduce likelihood)	Improve Network		Asset optimisation; additional network capacity; storage; separate flows; operational improvements; structural repairs; smart networks; sewer rehabilitation
	Improve Treatment		Increase treatment capacity; rationalisation of treatment works (centralisation / de-centralisation); install tertiary plant; UV plant or disinfection facilities; innovation; improve Technical Achievable Limits; new WTWs
	Wastewater Transfer		Transfer flow to other network or treatment sites; transport sewage by tanker to other sites
Receptor Measures (to reduce consequences)	Mitigate impacts on Air Quality		Carbon offsetting; noise suppression /filtering; odour control and treatments
	Improve Land and Soils		Sludge soil enhancement
	Mitigate impacts on Water Quality		River enhancement
	Reduce impact on properties		Property flood resilience; non-return valves; flood guards / doors; air brick covers
Other	Study / Investigation		Additional data required; hydraulic model development; WQ monitoring and modelling

Break Out Session 2

Instructions for Break-Out Session

Task:

Based on your understanding of the risks, causes and the drivers from the first break-out session, now ….

…… identify the generic options to progress in the detailed planning for the wastewater catchment

Time allowed: 30 minutes

Break-out Groups: Template to complete

Planning Objectives		Driver
PO1	Pollution	Operational
PO3	Sewer Collapse Risk	Operational
PO4	1 in 50 year	Hydraulic
BP09	Good Ecological status	Quality
BP10	Improve Surface Water & Reduce Flooding	Hydraulic
BP12	Reduce Groundwater Pollution	Operational
BP13	Improve Bathing Waters	Customer

Type of Measures	Generic Option Categories	Icon	Carry through to unconstrained list?	Reasons for rejection	Examples of Generic Options
Source (Demand) Measures (to reduce likelihood)	Control / Reduce surface water				Natural Flood Management; rural land management and catchment management; SuDS including blue and green infrastructure; storm management
	Control / Reduce groundwater infiltration				Re-line sewer pipe and manholes; pump away schemes to locally lower groundwater near network
	Improve **quality** of wastewater entering sewers				Domestic and business customer education; incentives and behaviour change (reduce Fats, Oils & Grease, wet wipes etc.); monitoring trade waste at source; on-site black water and/or greywater pre-treatment
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	Wastewater Transfer				Transfer flow to other network or treatment sites; transport sewage by tanker to other sites
Receptor Measures (to reduce consequences)	Mitigate impacts on Air Quality		N/A	Not included in first round of DWMPs	Carbon offsetting; noise suppression /filtering; odour control and treatments
	Improve Land and Soils		N/A	Not included in first round of DWMPs	Sludge soil enhancement
	Mitigate impacts on Water Quality				River enhancement
	Reduce impact on properties				Property flood resilience; non-return valves; flood guards / doors; air brick covers
Other	Study / Investigation				Additional data required; hydraulic model development; WQ monitoring and modelling

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Plenary: Feedback from Break-Outs

Poll 2

Prioritising Wastewater Catchments

Prioritising Wastewater Catchments

- Next stage of the DWMPs is to work on each Wastewater Catchment

  ➤ Use BRAVA results and outputs from Problem Characterisation

  ➤ Complete the selection of generic options for each wastewater catchment

  ➤ Move through the ODA stage from Unconstrained, to Constrained, to Feasible Options. Then select the Preferred Option through cost/benefit analysis.

- Where do we start? Which catchments should we do first?

- Would you like to work with us on any catchments?

Wastewater Catchments in Stour River Basin

Across Stour we have:

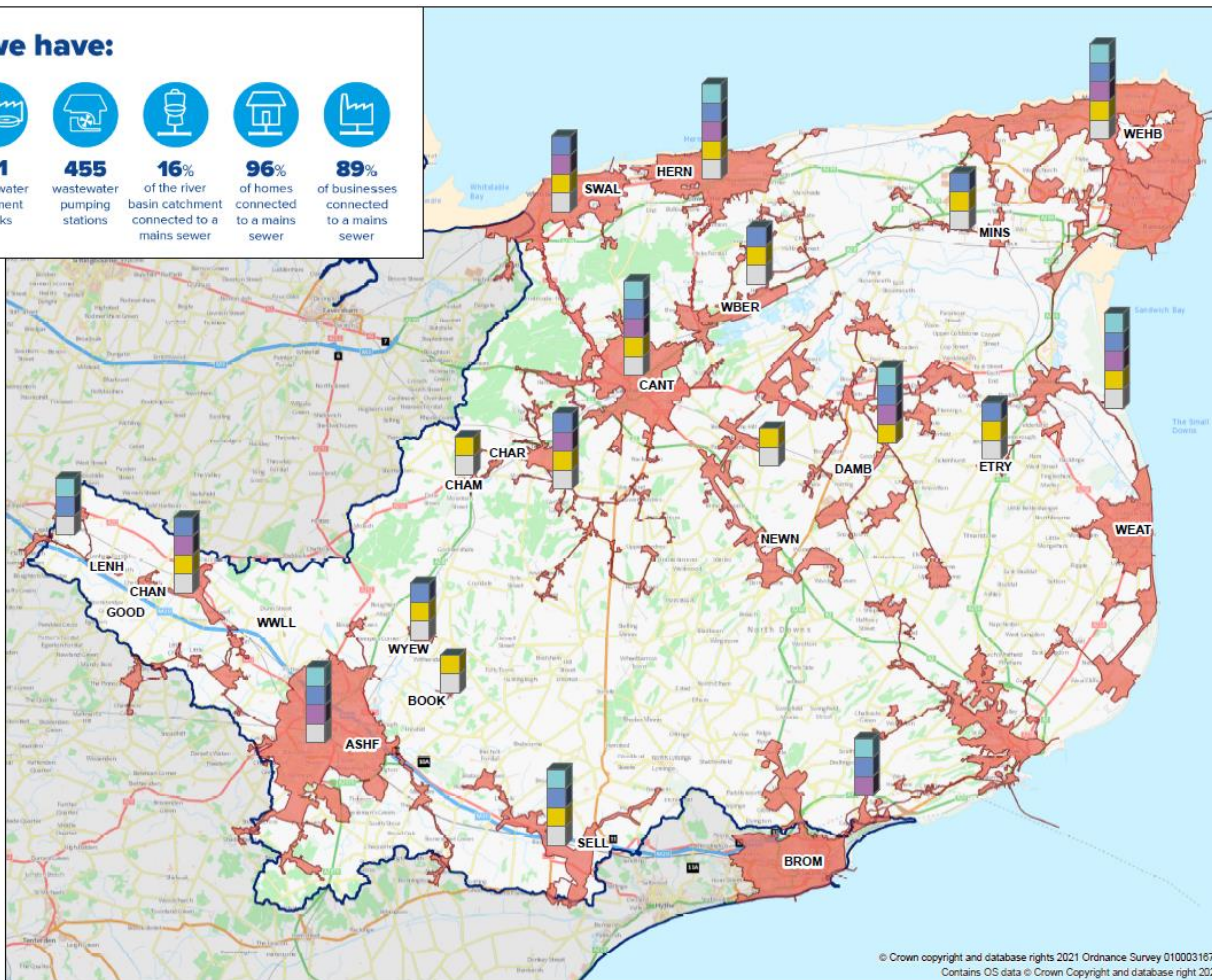|						
21 sewerage catchments	5,325 kilometres of sewers	21 wastewater treatment works	455 wastewater pumping stations	16% of the river basin catchment connected to a mains sewer	96% of homes connected to a mains sewer	89% of businesses connected to a mains sewer

Drivers of Risks
- Customer
- Hydraulics
- Operational
- Quality
- Unknown

Catchment Strategy
- Maintain
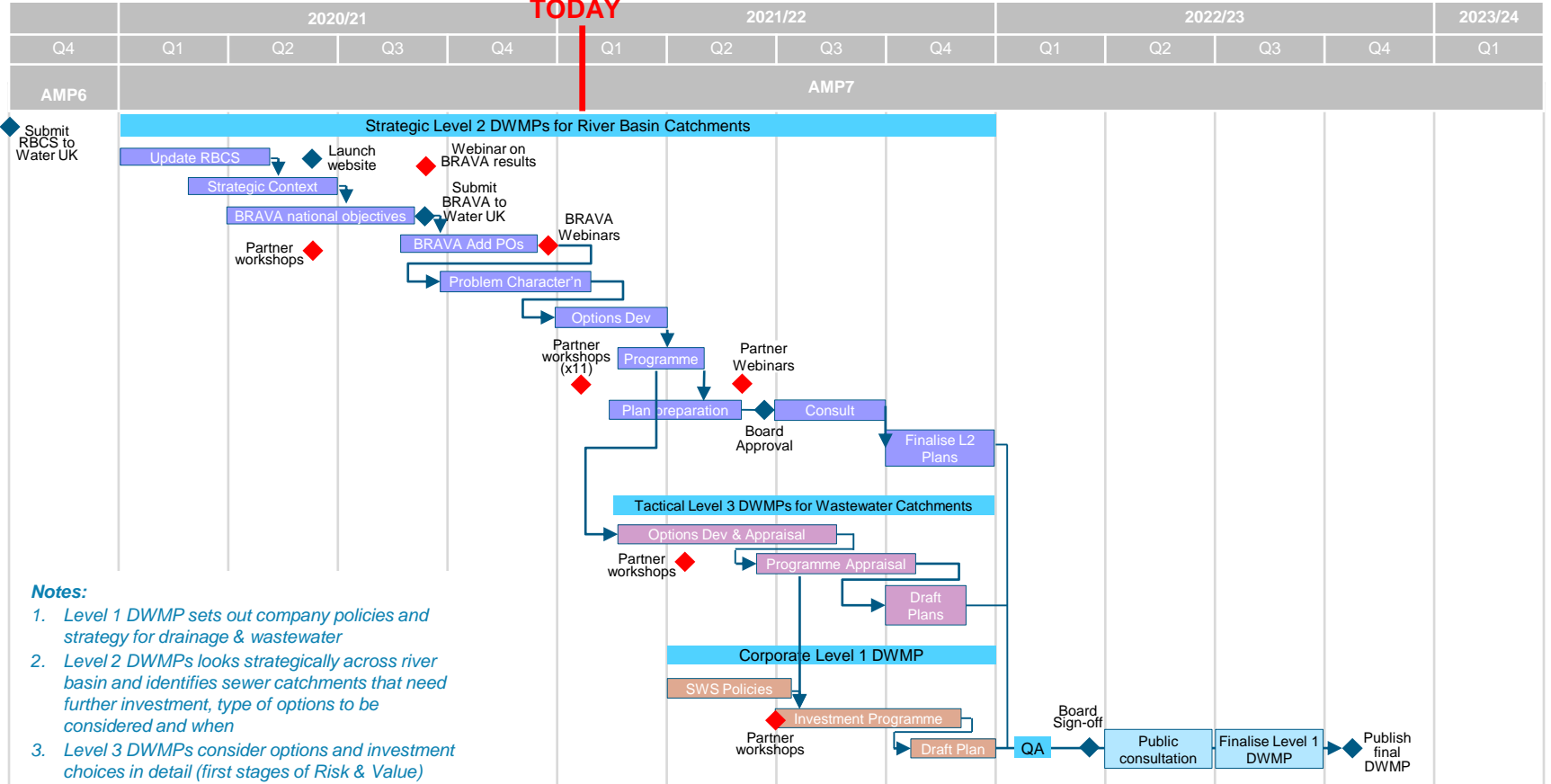- Sustain
- Enhance
- Defer
- Prepare
- Improve
- Change

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Prioritising Wastewater Catchments in Stour

Ref	Wastewater Catchment	Population	2020			2035			2050			Strategy	Matrix
			Number of Planning Objectives in each Band										
WEAT	WEATHERLEES HILL	91,319	4	2	7	1	1	0	2	1	3	Improve	Red
SWAL	SWALECLIFFE	37,104	2	5	7	1	1	0	1	1	4	Improve	Red
HERN	MAY STREET HERNE BAY	43,011	3	6	5	1	0	1	1	1	4	Improve	Red
CHAR	CHARTHAM	6,940	6	1	5	1	1	0	2	2	2	Improve	Red
BROM	BROOMFIELD BANK	114,249	4	4	4	1	0	1	2	2	1	Improve	Yellow
WYEW	WYE	2,135	8	0	4	2	0	0	3	0	3	Improve	Green
CANT	CANTERBURY	65,145	3	6	3	1	1	0	2	2	2	Improve	Yellow
WBER	WESTBERE	6,479	7	2	3	1	1	0	1	1	3	Improve	Green
WEHB	MARGATE AND BROADSTAIRS	92,788	5	6	2	2	0	0	3	2	1	Improve	Green
ASHF	ASHFORD	91,200	5	5	2	1	1	0	1	3	2	Improve	Green
DAMB	DAMBRIDGE WINGHAM	14,211	7	3	2	1	0	1	2	3	1	Improve	Green
NEWN	NEWNHAM VALLEY PRESTON	7,332	9	0	2	1	1	0	2	2	1	Improve	Green
SELL	SELLINDGE	5,439	7	3	2	2	0	0	2	2	2	Improve	Green
ETRY	EASTRY	2,465	8	1	2	1	1	0	2	2	1	Improve	Green
CHAM	CHILHAM	946	9	1	2	1	0	1	3	1	2	Improve	Green
LENH	LENHAM	3,169	8	3	1	2	0	0	3	3	0	Improve	Green
CHAN	CHARING	2,056	7	4	1	1	0	1	3	1	2	Improve	Green
BOOK	NATS LANE BROOK	308	10	1	1	2	0	0	5	1	0	Improve	Green
MINS	MINSTER IOT	5,114	8	4	0	1	1	0	3	2	1	Improve	Green
WWLL	WESTWELL	216	9	1	0	1	0	0	3	1	0	Prepare	Green
GOOD	GOOD INTENT COTTAGES EGERTON	15	0	0	0	0	0	0	0	0	0	Maintain	Green

Next Steps

DWMP High-Level Delivery Programme

Notes:
1. Level 1 DWMP sets out company policies and strategy for drainage & wastewater
2. Level 2 DWMPs looks strategically across river basin and identifies sewer catchments that need further investment, type of options to be considered and when
3. Level 3 DWMPs consider options and investment choices in detail (first stages of Risk & Value)

Completing our DWMP for the Stour (Level 2 DWMP)

1. **ODA**: Complete the work started today to identify generic options for each wastewater catchment

2. **Programme**: Use catchment prioritisation to develop our programme for developing the 21 wastewater catchment (level 3) DWMPs in the Stour

3. **Plan Preparation**: Combine the above with work previously completed, and drivers of future risk to create our Level 2 'Strategic' DWMP for the Stour

4. **Partner Engagement**: Share the draft Level 2 Plan with you in August, and update our website

5. **Consultation**: Share with customers in autumn 2021 and seek feedback

DWMPs for Wastewater Catchments (Level 3 DWMP)

1. **Problem Characterisation**. Develop further to identify 'hot spots' and root causes

2. **ODA**: Progress from generic options to preferred option for each wastewater catchment (Timescale: May to December 2021)

3. **Working together**. Identifying opportunities for partnership projects

4. **Programme Appraisal**. Establish 'best value' set of investments to reduce risks in the wastewater catchment (Timescale: Jan – March 2022)

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Summary

Summary of Workshop

What have we done today?

- Looked at causes and drivers of the risks

- Identified the catchment strategy for a wastewater catchment

- Determined the generic options to take forward and which to reject

- Prioritised the wastewater catchments in the Stour river basin

- Considered opportunities to work together on Level 3 DWMPs

Poll 3

Thank you for participating today

Website: www.southernwater.co.uk/dwmp

Contact us: DWMP@southernwater.co.uk

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