



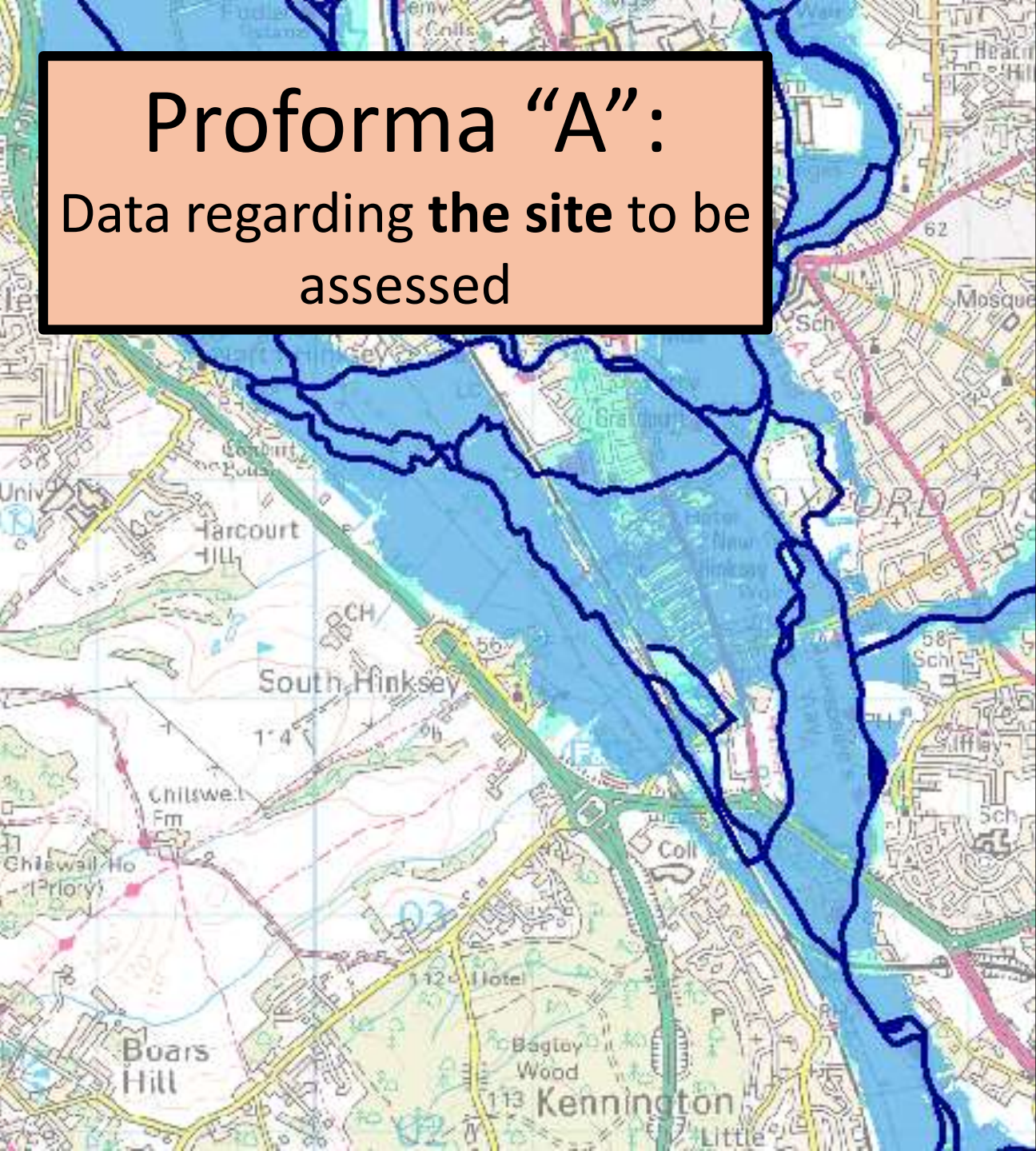
EU DG-ECHO
Humanitarian Aid and Civil Protection

Flood-CBA2

Oxford Flood Alleviation Scheme: Demonstration Case Study*

* The situation as of 2015/16, not necessarily the final scheme

Proforma "A":
Data regarding the site to be
assessed



TASK 1.

Topographic map
(1:50,000), with the
flood plain at Oxford
Blue = 100 years
Turquoise = 1,000 years

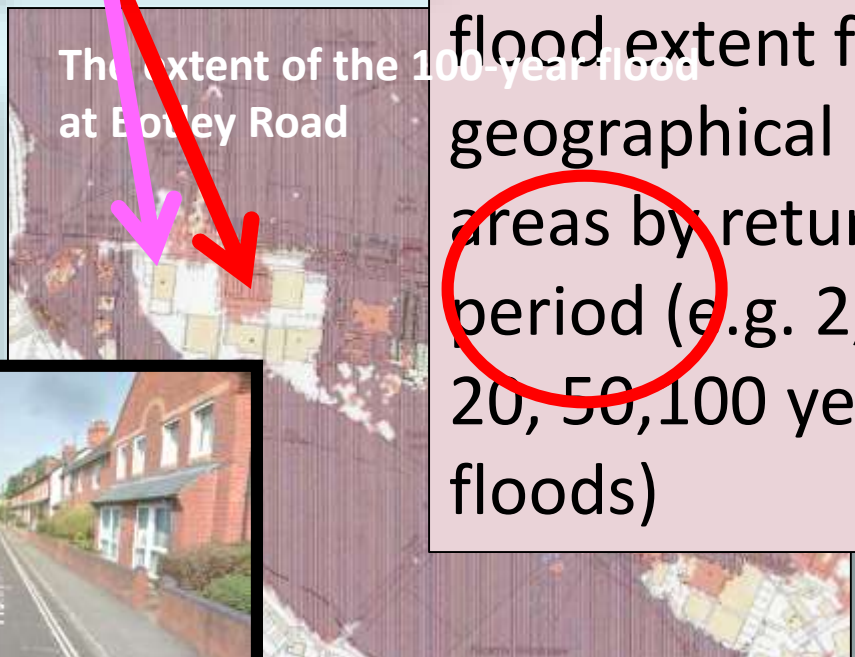
The extent of the 5-year flood at Botley Road



The extent of the 20-year flood at Botley Road



The extent of the 100-year flood at Botley Road



TASK 9.

Modelled or estimated flood extent for geographical areas by return period (e.g. 2, 20, 50, 100 year floods)



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Proforma “D”:

An assessment of the possible future changes and/or interventions that may affect the site

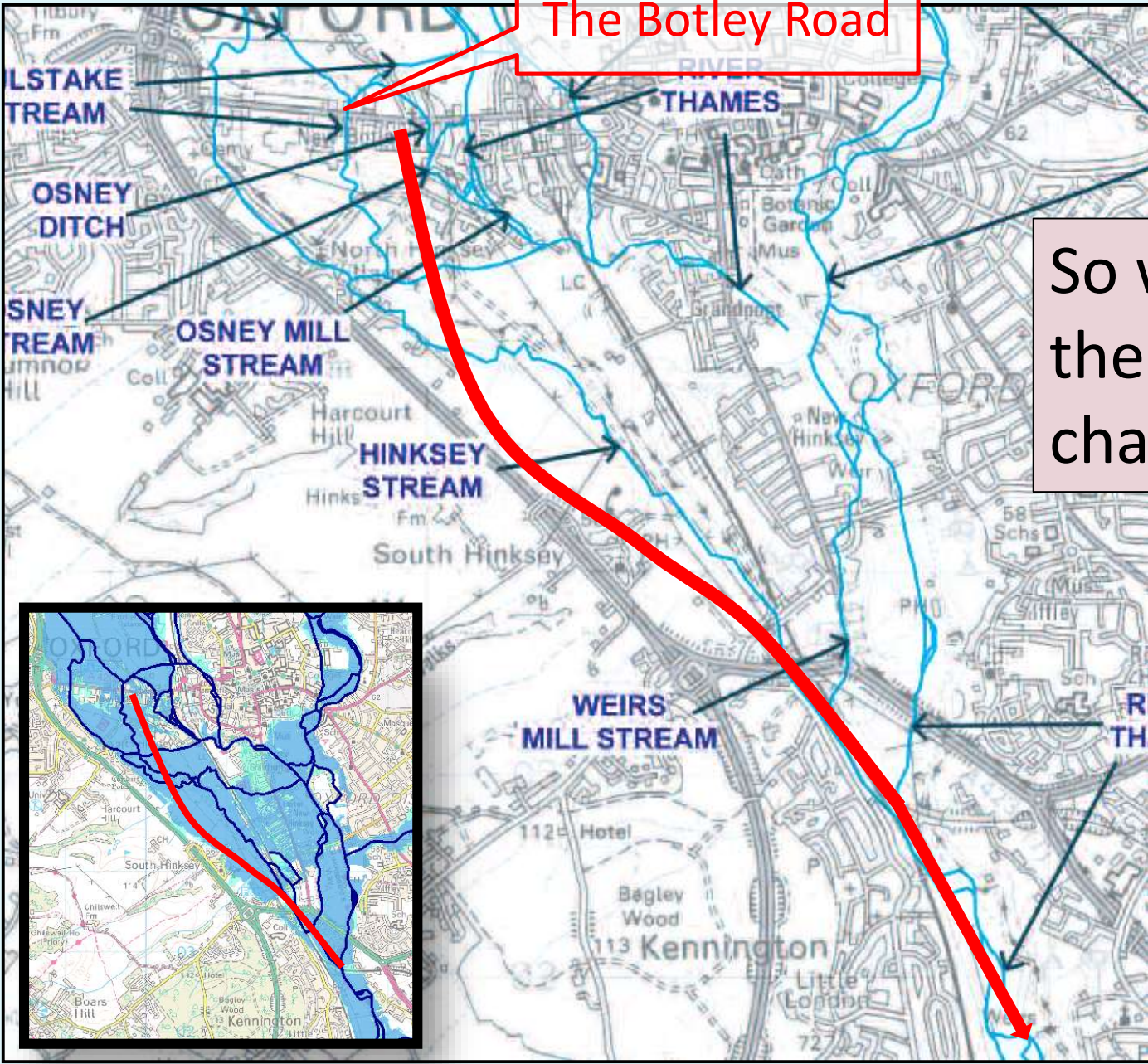
TASK 17.

Decide on a shortlist of, say, 3- 6 interventions at different costs and hence standards of protection.

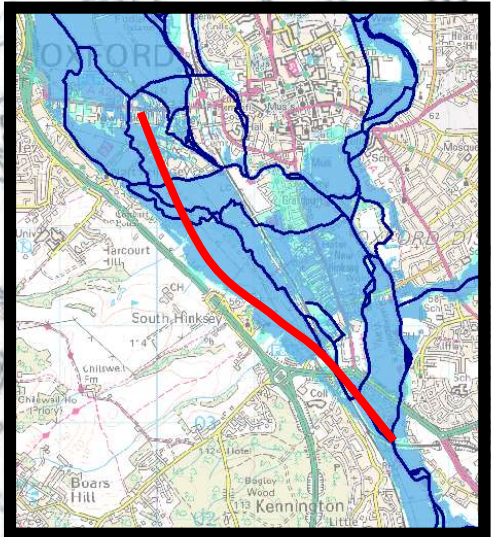
The Oxford “short list”:

1. Do nothing
- 2a. Do minimum
- 2b. Do minimum (“extend”) **[Works on locks and weirs]**
3. Local defences (at Grandpont, etc.)
4. “By-pass channel” and medium sized culverts under the railway
5. Channel, medium culverts and local defences (as a “portfolio” of measures)

The Botley Road



So what might the by-pass channel be like?



Proforma "E":

The potential of a range of flood risk prevention measures and assess their efficacy based on **CBA and/or MCA** methods



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TASK 22.

Calculate the ratio of benefits to costs

$$£922.2m / £17.4m = BCR 52.8$$

$$£1,147.6m / £117m = BCR 9.80$$

Option number	Option 1	Option 2a	Option 2b	Do Minimum (extend)	Medium Culverts	and Defences
COSTS:						
PV capital costs		0.0	4.0	7.6	92.9	96.5
PV operation and maintenance costs		17.4	17.4	17.6	20.4	20.6
Total PV Costs £m		17.4	21.4	25.2	113.3	117.0
BENEFITS:						
Total monetised PV benefits £m		922.2	918.6	944.0	1,115.3	1,147.6
Total PV damages £m		15.2	15.2	15.2	11.0	89.8
Total PV benefits £m		939.6	939.6	939.6	1,104.3	1,147.6
DECISION-MAKING CRITERIA:						
excluding contributions						
<i>Based on total PV benefits (includes benefits from scoring and weighting and ecosystem services)</i>						
Net Present Value NPV		905	918	944	1,002	1,031
Average benefit/cost ratio BCR		52.8	43.8	38.6	9.8	9.8
Incremental benefit/cost ratio IBCR			4.3	8.1	1.9	1.9

Proforma "E":

The potential of a range of flood risk prevention measures and assess their efficacy based on **CBA and/or MCA** methods



Oxford demonstration case study

The best option?
The safest option?

TASK 25:
Calculate the value of (a) benefits minus costs and (b) the **incremental benefit:cost ratios**

Option number	Option 1	Option 2a	Option 2b			
Option 1	Do Nothing	Do Minimum	Do Minimum (extend)			
COSTS:						
PV capital costs		0.0	4.0	7.6	92.9	96.5
PV operation and maintenance costs		17.4	17.4	17.6	20.4	20.6
Total PV Costs £m	0.0	17.4	21.4	25.1	113.3	117.0
BENEFITS:						
PV benefits from avoided damage	1,237.4	315.2	297.8	267.9	122.1	89.8
PV benefits from avoided flooding		922.2	939.6	969.5	1,115.3	1,147.6
Total monetised PV benefits	1,237.4	315.2	297.8	267.9	122.1	89.8
Total monetised PV benefits excluding contributions		922.2	939.6	969.5	1,115.3	1,147.6
Based on total PV benefits (includes benefits from scoring and weighting and ecosystem services)						
Net Present Value NPV						
Average benefit/cost ratio BCR		52.8	43.8	38.6	9.8	9.8
Incremental benefit/cost ratio IBCR			4.3	8.1	1.9	1.9

IBCR = 4.3

IBCR = 1.9

IBCR = 1.9

52.8 43.8 38.6 9.8 9.8
4.3 8.1 1.9 1.9