

WaPUG 92 - BLACKPOOL
AUTUMN MEETING & WORKSHOP

WORKSHOP 2

RESOURCE PLANNING FOR DAP's

Chairman - B.SHARMAN, North West Water

Drainage Area Studies include numerous elements of work, which require an integrated approach to the programming of resources to achieve the outputs of :

- A) Required quality of product
- B) Most cost effective within budgetary constraints
- C) Within allowable timescale.

The following SRM Phases constitute major elements required for the production of DAP's :

- Phase 2a - Assess Structural Condition
- Phase 2b - Assess Hydraulic Performance

To programme these successfully a number of questions have firstly to be resolved.

- 1) Manhole Records Upgrading
 - a. Do you use blanket surveys?
 - b. Do you computerise all records?
 - c. Do you undertake selective surveys only?
- 2) Structural Surveys
 - a. Which type (CCTV, Man Entry, Sonar)?
 - b. Do you survey critical sewers only?
 - c. What % completion is acceptable?
- 3) Model building
 - a. Start before records upgrade?
 - b. Use Impermeability survey?
 - c. Utilise CCTV data?
- 4) Flow Monitoring Surveys
 - a. Short/Medium/Long term survey?
 - b. Start before model is fully built?
 - c. Start after : Records upgrade?
Impermeability survey?
Comparison with historic data?
- 5) Model Verification
 - a. Use flow survey to identify selected areas for impermeability survey?
 - b. Start during flow survey using interim data?
 - c. Are historic records accurate?
 - d. Flooding questionnaires/survey during verification or during model build?

These questions were distributed to delegates attending the workshop in the form of a questionnaire. The workshops then investigated and discussed the available options under each of these headings and attempted to produce a programme of work to satisfy A - C above by the most cost effective utilisation of both staff and contractors resources. The short straw of analysing the questionnaire results was drawn by A.Eadon, who also assisted in keeping good order in the lively workshop sessions.

WORKSHOP DISCUSSIONS

Both sessions provided both interesting, informative and light hearted discussions, but agreement was difficult on many points. Some of the more significant comments, (although not necessarily agreed by all delegates), are noted below :

1. Manhole Records Upgrading

- Session 1 -**
- a. When undertaking blanket surveys, information can be lost when manholes cannot be located on site and paper records cannot be validated.
 - b. Blanket survey costs are high.
 - c. The digitisation of existing records can be questionable, as input errors are introduced.

- Session 2 -**
- a. The need for computerisation should be examined individually, however there is a substantial secondary use for the data ie. plan production; automated model build etc.
 - b. The recording of surcharge levels can assist in the verification of models.

2. Structural Surveys

- Session 1 -**
- a. The reasons for any abandonments should be investigated and followed up, especially in steeper catchments.
 - b. The pre-cleansing of sewers can cause problems.
 - c. The flow monitoring survey should take place before the CCTV survey.

- Session 2 -**
- a. Sonar techniques are not very reliable.
 - b. There were completely differing views on pre-cleansing. Approx. equal numbers of delegates favoured **NEVER** pre-cleanse as opposed to those who favoured, **ALWAYS** pre-cleanse.

3. Model Building

- Session 1 -**
- a. Impermeability surveys are impossible to undertake effectively on separate systems as mis-connections are very difficult to locate.
 - b. "Force fitting" is the only solution with catchments of this nature.
- Session 2 -**
- a. A "Fast track" approach is often applied to model building, therefore an ideal sequence is not possible.

4. Flow Monitoring Surveys

- Session 1 -**
- a. Always build the model first or the flow survey may be very wasteful.

5. Model Verification

- Session 2 -**
- a. The results from a door to door survey are considered more reliable than from a flooding questionnaire.

QUESTIONNAIRE RESULTS

Questionnaires returned: Session 1 = 43; Session 2 = 35
Delegates **IN FAVOUR** shown.

	SESSION	
	1	2
1. <u>Manhole Records Upgrading</u>		
a. Use blanket surveys	9	16
b. Computerise existing records	10	35
c. Undertake selective surveys	27	27
2. <u>Structural surveys</u>		
a. CCTV/Man Entry/Sonar	43/15/10	33/26/13
b. Critical Sewers only	35	33
c. % completion acceptable	80 - 90	85
3. <u>Model Building</u>		
a. Before records upgrade	23	21
b. Use Impermeability survey	17	23
c. Use CCTV data	20	35
4. <u>Flow Monitoring</u>		
a. Short/Medium/Long term	22/6/5	25/12/9
b. Before model build	16	11
c. After: Records upgrade	11	19
Impermeability survey	4	13
Compare with historic data	20	22
5. <u>Model Verification</u>		
a. Flow survey to identify imp survey	14	28
b. Use interim data	19	21
c. Historic records accurate	4	11
d. Flooding survey during verification	21	28

IDENTIFIED PROGRAMME

In both cases the required programme was obtained after much discussion.

Interestingly, the two workshops independently produced very similar programmes in terms of the order of work. The total duration of the work identified in Session 2 was however 1.5 times the duration from Session 1. The programme is shown in Table 1.

Points to note are:

1. Any impermeability survey is undertaken in two halves, both initially, to assist the model build, and following the flow monitoring survey when reasons for model mismatch are required to be identified.
2. Both the structural survey and the flow monitoring survey are being undertaken simultaneously. If the results of the flow monitoring survey are not to be invalidated, pre-cleansing of sewers must **NOT** take place. This would introduce unknown quantities of additional flow to the system and mobilise the silt which may result in monitors being covered, thereby rendering the velocity sensor inoperative.
3. Model verification should begin before the completion of the flow survey. Verification includes the checking of the sewer data on which the model was based as well as CCTV, operational and historic system performance data. This can be undertaken prior to receiving actual flow and rainfall data.

The two workshop sessions were well attended, proved most informative and generally highlighted the different approaches that can be made to this subject.

It must be understood that this paper is merely identifying the issues and reporting the discussions within the workshops. It must not be read as a prescription to be followed in all cases and does not constitute an official WaPUG user note.

B.J.Sharman
North West Water
Wastewater Network Planning
January 1993

WAPUG AUTUMN 92 - BLACKPOOL: WORKSHOP 2

PROGRAMME OF RESOURCES FOR SRM PHASES 2a AND 2b

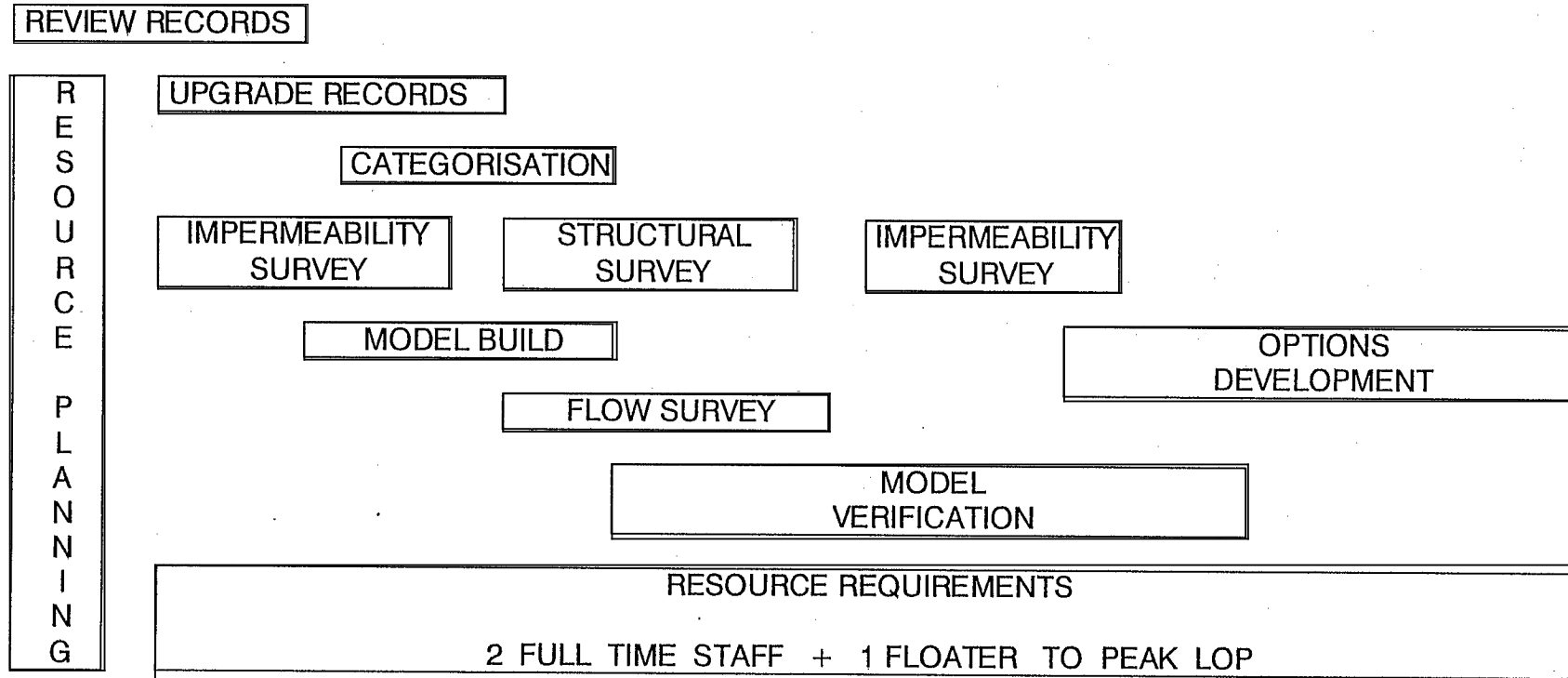


TABLE 1