

WORK PLAN GUIDELINES

FOR THE

NATIONWIDE URBAN RUNOFF PROGRAM



Water Planning Division

U.S. Environmental Protection Agency

Washington, D.C. 20460

1984

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PREFACE

The purpose of these guidelines is to help insure uniformity among the work plans being submitted by the 208 agencies participating in the Nationwide Urban Runoff Program (NURP). Therefore, all agencies should follow the content and format of these guidelines when drawing up their own designated prototype project work plans. The material should be presented as indicated in the Table of Contents, and these guidelines have been organized the same way. The remainder of this preface will deal with the front matter of the work plan, and each subsequent section of these guidelines will indicate what should be included in the corresponding section of the work plan. It is recognized that the submitted work plans will differ in content and depth due to differences in what is to be accomplished, project scope and funding, phasing and duration of the contemplated effort. However, the need to be able to compare work plans from all across the country, minimize unnecessary duplication, determine the likelihood of meeting national objectives, and measure progress against plans requires that work plans be organized uniformly. Therefore, deviations from these guidelines can only be permitted on an exception basis.

Cover. The work plan cover should indicate the project title, preparation date, name of the grantee (who the project is being done for), and who will actually be performing the work. Other information and design and layout are at the discretion of the preparer.

Title Page. The title page will simply present the information contained on the cover minus any art work, logos, etc. In addition, it should indicate who actually prepared the work plan.

Signature Page. This is the approval sheet of the work plan. Its organization is optional, but provision should be made for signatures and dates by all designated responsible parties, including USEPA regional and headquarters project officers.

Preface. Optional. May be used for any special acknowledgements, statements of cooperation, etc.

Table of Contents. Should follow that of these guidelines.

List of Figures. Use if figures are included in the work plan.

List of Tables. Use if tables are included in the work plan.

I. PROJECT OVERVIEW

This section of the work plan serves as an executive summary of the material to follow. It should be brief and to the point. The overview should highlight the "why", "where", "what", "when", and "who" of the project. It is important that the project overview also address anticipated problem areas and plans for overcoming same. A paragraph on risk assessment should be included to provide the reader with a feel for the likelihood of meeting project objectives. If desired, subsections following the work plan format may be used as a method of organizing the overview, but alternatives are acceptable. The important thing is that all key aspects of the work plan are covered.

II. INTRODUCTION

This section should begin with a brief background discussion to set the stage for the project to be conducted. A brief summary of existing data may be given here if appropriate. This is the place in the work plan to present the "why" of the project. Therefore, the project background should be followed by a problem statement/assessment. This discussion should crystallize the need for the project to the reader and will be used to evaluate the elements of the work plan to follow.

The principal objective of the project should be presented next along with any secondary objectives to be achieved. These project objectives should be carefully formulated, since they represent a principal measuring stick against which the method of approach will be evaluated. As an example, the principal objective of a street sweeping project might be to compare the effectiveness of various street cleaning programs in reducing urban runoff pollution. Secondary objectives might include beneficial impacts on air quality, investigation of the mass balance relationships of street surface contaminants through various sections of the stormwater drainage system, a study of public reaction to on-street parking restrictions, etc. The project objectives should be clearly stated and related to the needs set forth earlier in this section. The pursuit of interesting but nonessential bypaths is strongly discouraged. Keep in mind that the designated prototype projects are not research efforts; they are to provide information upon which meaningful implementation plans can be based.

This section should be concluded with a scope of work that clearly delineates what is and is not to be considered a part of the project. This is especially important in view of the fact that CPP efforts will be proceeding in parallel with the Nationwide Urban Runoff Program.

III. DESCRIPTION OF STUDY AREA

This section is the place in the work plan to address the "where" of the project. It should provide a description of those aspects of the study area that are germane to the project such as population and demographic data; climatic information; geological, topographical, and hydrological data; land use and receiving water information; and so on. The actual scope of the project will determine which characteristics should be included in the description. Using the street sweeping evaluation as an example, the characteristics of the basin that need to be described are: condition and type of present sewage system, traffic conditions, construction activities on-going, road surface type and condition, etc. Include any information on the receiving waters affected by the project, including any statistics on present water quality. Charts, maps, photographs, and any other illustrative information could be useful here.

It is important that this section not only justify the selection of the study area from a local perspective, but that it also present the advantages the selected study area offers from a regional and nationwide viewpoint. With regard to data transferability, it would be helpful if similar areas within the planning district are delineated and others within (or even outside) the region are noted if such information is reasonably available.

IV. METHOD OF APPROACH

This section will comprise the bulk of the work plan in that it must present the "what" of the project in sufficient detail to convince a knowledgeable reader that there is a high likelihood that project objectives can be met if the work plan is followed. Project execution should be broken down into a series of logical tasks (they may be parallel as well as serial), each with its own identified sub-objective and implementation plan. Task interrelationships should be delineated and any critical dependencies noted. For larger, more complex projects, consideration should be given to including a dependency network in the work plan. An estimate of the manpower required and the time required for completion of each task should be given as well as a summary discussion of what is involved in its execution.

As an abbreviated illustration, the following sample of the Method of Approach for a street sweeping evaluation project is presented. What follows is suggestive, not exhaustive. Other tasks might be included, and task discussions are far from complete.

TASK 1. WORK PLAN DEVELOPMENT.

OBJECTIVE. To develop a detailed work plan that will guide project execution through completion and help assure that all project objectives are met.

DISCUSSION. A paragraph on the contents of the detailed work plan would be included. Tell how final details are to be developed and that it will be in accordance with these guidelines. Provide manpower and time estimates.

TASK 2. EXPERIMENTAL DESIGN AND LABORATORY SET-UP.

OBJECTIVE. *To provide a statistically based experimental design to assure that the planned sample number and frequency are appropriate, that proper parameter selection is made, that any confounding variables are identified and accounted for, and that the data gathering and analysis efforts will be satisfactory.*

DISCUSSION. A general description of what this involves would be given. In this task discussion, a description of the types of equipment to be used and why they were selected would be appropriate. For this task it would be important to present an analysis showing how the number of subsamples necessary to describe the condition of the study area would be determined. This would involve a discussion of the statistical procedures used to determine the number of samples (n) necessary as a function of the allowable error or uncertainty. If possible, illustrate the discussion by going through sample problems with given numbers. If the information can be portrayed through graphical methods, this is strongly encouraged.

This discussion would also include a list of the parameters to be analyzed, with a provision for adding or deleting parameters if the ongoing study finds this necessary. This task description lends itself to including graphs and charts detailing pollutants to be analyzed and the respective percentages of allowable error or the estimated number of samples required for various percentages of allowable error. This discussion would also include summary information on laboratory procedures and techniques to be used, calculations for determining the required number of samples or the required frequency of street sweeping, and any relevant information gathered in past studies that is necessary for an explanation of the proposed study design and procedures. Provide manpower and time estimates.

TASK 3. FULL-SCALE TESTS.

OBJECTIVE. *To gather actual street sweeping data to allow comparisons of the effectiveness of various street cleaning programs to be made.*

DISCUSSION. Since this task is a major element of the evaluation project, a large amount of effort might well be devoted to its implementation. Included in the discussion would be a listing of the types of sweepers to be used and the various frequencies for each type. The narrative would contain any information on the handling of the equipment, maintenance and operation, and manufacturer's involvement. Institutional considerations, parking bans, public involvement, etc., would be discussed. A summary is also needed on how the data collected will be used to compare the effectiveness of the various street cleaning programs. Provide manpower and time estimates.

TASK 4. PARTICULATE ROUTING AND MASS BALANCES.

OBJECTIVE. *To investigate solids routing and associated mass balances from the street surface to the discharge location.*

DISCUSSION. This discussion would include a description of any major physical and chemical processes involved in the mass balance. It would also include a summary of the approach to be taken. For example, the task could be divided into tracer studies and actual runoff studies in order to develop a mathematical model. Model development, calibration, and verification would be described. Parameters to be monitored and quality assurance procedures to be used as well as sampling techniques would be summarized in the discussion. Provide manpower and time estimates.

TASK 5. TREATABILITY AND ECONOMIC EVALUATION.

OBJECTIVE. *To determine the overall effectiveness of the various street cleaning programs including residuals management, cost considerations, institutional factors, and both positive and negative aspects of public reaction.*

DISCUSSION. The discussion would describe in detail the costing model to be used, including accounting procedures and assumptions. Terms such as Return on Net Investment (RONI) and Discounted Cash Flow (DCF) would be carefully defined to avoid ambiguity. The various data analyses to be performed would be detailed, including descriptions of anticipated conditions to be encountered in the study and how they will be accounted for in the analyses, (e.g., parked cars, varied traffic, leaf removal, etc.). Cost-effectiveness parameters to be used would be described, e.g. dollars per pound removed from street surfaces vs receiving water by constituent of interest, etc.

Plans for gathering and analyzing residuals management data would be included, and projected impacts of the Resource Conservation and Recovery Act (RCRA) would be accounted for. The discussion would present plans for measuring and analyzing public reaction to the project, including examples of questionnaires where appropriate. Provide manpower and time estimates.

TASK 6. FUGITIVE PARTICULATE LOSSES

OBJECTIVE. *To determine airborne fugitive particulate emissions from street surfaces for various combinations of influencing factors.*

DISCUSSION. The project methodology for accounting for fugitive dust would be described. Included would be a discussion of the anticipated variables to be encountered, the estimated importance of their effects on fugitive particle emission rates and their variabilities, and any possible synergistic or antagonistic effects. Provide manpower and time estimates.

TASK 7. PROJECT REVIEW MEETINGS.

OBJECTIVE. *To coordinate project implementation among all involved parties, review progress, allow for public participation, and provide a forum for assessment and midcourse correction as warranted.*

DISCUSSION. This task area would be included in any work plan regardless of the subject of investigation. Included would be a discussion of all necessary meetings, plans for scheduling meetings, or actual preliminary schedules as appropriate, and lists of participants for the various types of meetings to be held during the course of the project. Careful attention to plans for public participation meetings is appropriate. Include provisions for calling ad hoc meetings as situations warrant. Provide manpower and cost estimates.

TASK 8. REPORTING.

OBJECTIVE. *To clearly and concisely report progress against objectives, communicate findings, and transfer technology gained.*

DISCUSSION. This task area would also be included in any work plan regardless of the subject of study. The discussion would detail all types of reports to be submitted as part of the effort, their frequency, and distribution. What is to be included in each type of report (e.g.,

monthly progress, fiscal, technical quarterly, annual, episodic, and final reports) would be explicitly set forth. Annotated outlines of each type of report would be especially useful here. Provide manpower and cost estimates.

V. QUALITY ASSURANCE

Quality assurance is so vital to all designated prototype projects of the Nationwide Urban Runoff Program that a separate section of the work plan should be devoted to it. Here is the place to detail sample gathering and field techniques, sample preservation and handling procedures, equipment calibration and cleaning protocols, laboratory analytical methods to be used, etc. An organization diagram showing how the quality assurance effort fits in with the rest of the project would be useful. Identify the quality assurance coordinator if possible. Use the NURP Quality Assurance guidelines to assist in preparation of this section of the work plan. This section should explain how quality assurance will be effected, identify laboratories to be used in sample splitting, sources of performance check samples, and so forth, rather than simply parroting back words from the guidelines. Provide separate estimates of personnel and fiscal resources if at all feasible.

VI. SCHEDULE

This section of the work plan addresses the "when" of the project. A graphical presentation to accompany the narrative is desired. For all but the most comply projects, a simple bar or Gantt chart will probably suffice. This should show each project task and its respective time frame over the life of the project. Monthly time intervals are desired. The schedule should also indicate when outputs of each task are expected. An example is given in Figure 6-1. Any project particulars that might impact upon the schedule, such as receipt of long lead time procurement items, should be shown separately. The narrative of this section should summarize what is depicted graphically including any trigger points for task initiation or completion, especially those that depend upon outputs from other tasks or that are outside the control of the project manager (e.g., start of the spring rains).

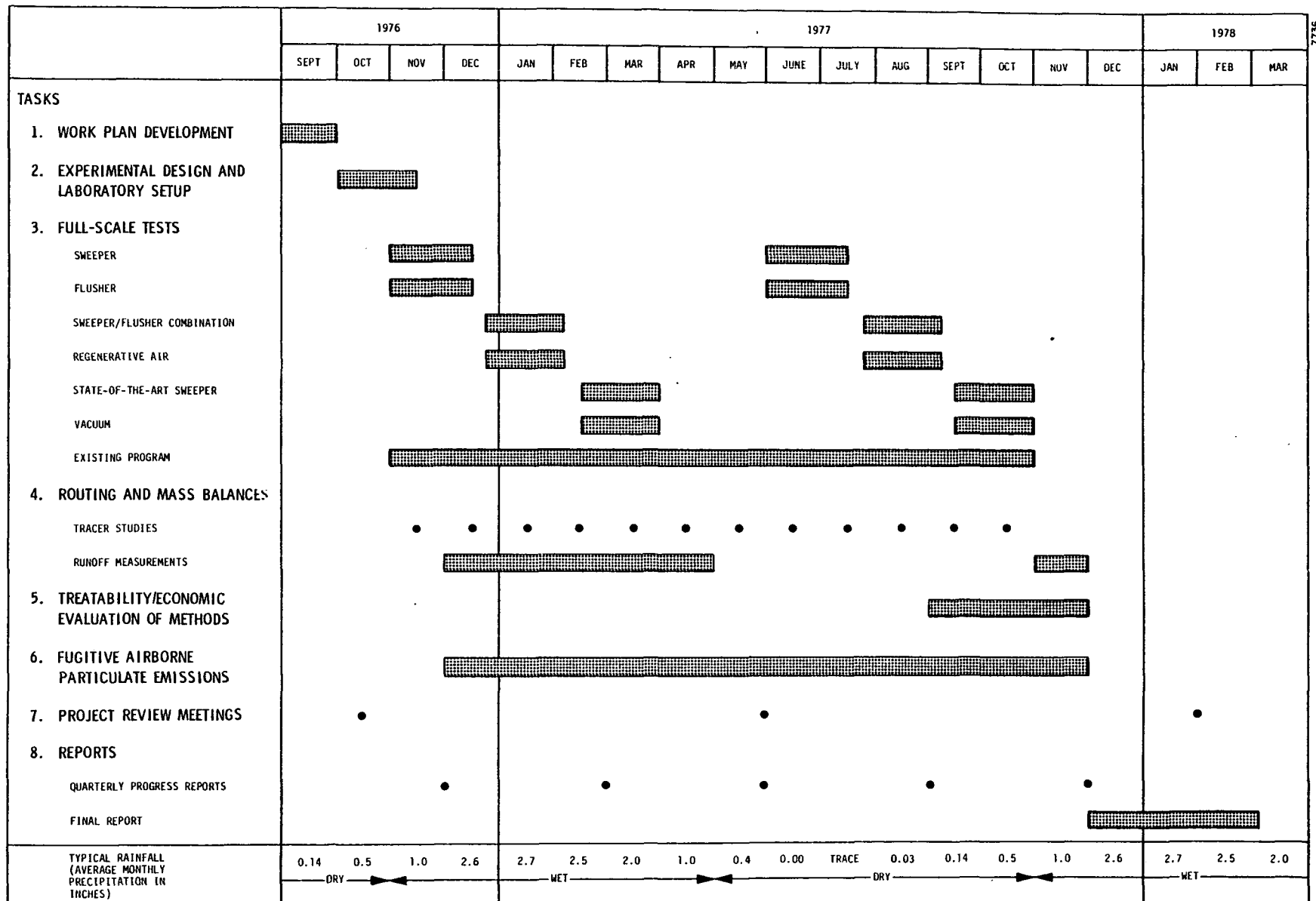


Figure 6-1. Schedule for Street Cleaning Demonstration Project

VII. PERSONNEL AND FACILITIES

This section may be brief, but should address the "who" of the project. Project participants should be identified, and roles and responsibilities clearly set forth. Where the use of outside consultants is contemplated, the name of the firm (if selected) and a brief experience/capabilities summary should be included; otherwise indicate the procedures to be used to select the consultant. Brief background sketches of key project personnel including any nonproject related assignments they will be given during the course of the project should be given. Indicate the division or agency they are assigned to and their tenure in their current positions.

This section of the work plan is the place to identify all equipment and facilities that are to be used in the execution of the project. For equipment not currently in inventory, indicate acquisition methodology and plans. Identify all key and special facilities required for project implementation, analytical laboratories to be used, etc.

VIII. RESOURCES

This section of the work plan should provide all budget information pertinent to the project. Tables plus an explanatory narrative should suffice for this purpose. The allocation of project resources should include a breakdown by labor category and cost on a task basis. Cost estimates should be specific and reasonably complete, including personnel, travel, computer time, equipment and supplies, laboratory fees, etc.

A summary for the overall project should be included. It should contain a planned expenditure chart against which actual spending can be compared with plans.

APPENDICES

Appendices may be used for material that would otherwise clutter the main body of the work plan. Examples might include detailed presentations of prior data, letters of agreement or cooperation, technical derivations, or descriptions of computer programs, models, and the like. Use of the appendices is optional, and only material that is germane to the understanding of the work plan should be included.