Prototype Grants
Management and
Planning System

State Energy
Conservation
Program

Volume 7 of the Sourcebook

7

MASTER

January 1978

Assistant Secretary for
Conservation and Solar Applications

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Management and
Planning System

State Energy
Conservation
Program

Volume 7 of the Sourcebook

January 1978

Assistant Secretary for
Conservation and Solar Applications

CONSERVATION PROTOTYPE GRANTS
MANAGEMENT AND PLANNING SYSTEM

Volume 7 of the Sourcebook

January 1978

U.S. DEPARTMENT OF ENERGY

Assistant Secretary for Conservation and
Solar Applications

Washington, D.C. 20545

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FOREWORD

Part C, Title III, of Public Law 94-163, the Energy Policy and Conservation Act of 1975 established a program for State Energy Conservation Plans designed to promote the conservation of energy and reduce the rate of energy demand growth. The Act authorized the Federal Energy Administration, which since has become part of the Department of Energy, to establish procedures for the program and to grant financial and technical assistance to eligible States in support of their Energy Conservation Plans.

The manual which follows describes a prototype Grant Management and Planning System (GMPS) which the States may adopt on a voluntary basis to administer grants under the Act. The system has been developed as a national prototype under the auspices of the Office of Conservation and Energy Resource Development, Region I, Boston, Massachusetts. The basic objective of the system is to provide pertinent financial and performance information for effective management of State Energy Conservation Programs. The program management concepts used in GMPS were derived from the ERDA-Uniform Contractor Reporting Guidelines which provided a foundation adaptable to the unique elements of the various State financial and reporting systems.

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SECTION 1 - INTRODUCTION

1.1 INTRODUCTION TO THE MANUAL

The Grant Management and Planning System (GMPS) is a comprehensive support system for program planning and management for individual states. A basic objective of the system is to provide pertinent financial and performance information for effective management of State Energy Conservation Programs, thereby enabling the States to fulfill the accountability requirements of Public Laws 94-163, Energy Policy and Conservation Act, Part C of Title III, and 94-385, Energy Conservation and Production Act, Part B of Title IV. The plans and reports described herein fall into two classes: (1) program resource management and (2) milestone progress. The proposed program management cost plans and reports would provide responsible officials with essential financial information on the utilization of resources. Milestone reports would be the primary means of communicating the current status and results of program activities. In this manner, GMPS provides a structured planning format coupled with performance measurement tools; both of which are tailored specifically to the needs of program measurement in general and the State Energy Conservation Programs in particular.

The reader/user will note that GMPS emphasizes the matching of projected rates of expenditure against program accomplishment to provide subsequent program control. It is of no value to know that funds are being spent at the correct rate if tasks are not being accomplished on time. In addition, no program is a static system; as time goes on unforeseen problems will affect progress. Therefore, the following three factors are essential to ensure program control:

- . Meeting a planned expenditure rate
- . Accomplishing planned milestones
- . Preparing cost and schedule estimates - to - complete

To be effective in the third factor, the use of accrued cost accounting or a best estimate of accrued expenditure is needed. This is an important consideration in program management as responsible officials must continually be in a position to assess progress and estimate funding needed for project completion.

The manual is organized to carry the reader/user through the four basic functions of the grant management process: planning, performance, measurement, and reprogramming. It provides basic information on such topics as the work breakdown structure (Sections 2 and 7) , cost and milestone planning (Section 2), types and functions of reports (Section 3), and the management decision process using data generated from the reports (Section 8).

The body of the manual is concerned with actual preparation of the plans and reports including completed sample documents (Sections 4, 5, and 6). The final section of the manual contains a glossary of terms applicable to the grant management process (Section 9).

GMPS enhances the planning and reporting procedures outlined in the FEA Grants-in-Aid Management Handbook and conforms with the standard financial procedures for grants as defined in Federal Management Circular's 74-4 and 74-7, and Office of Management and Budget Circular A-102. The level of

cost information used in GMPS is that identified in the State Energy Conservation Program Sourcebook, Volume 2 and 3, and as provided as part of the State Energy Conservation Plans.

1.2 BASIC FUNCTIONS OF PROGRAM MANAGEMENT

Program management may be defined as the coordination and integration of all resources, both human and technical, to accomplish specific results. In accordance with this broad definition, State grant management can be viewed in terms of four basic functions which form a cycle lasting one year. These basic functions are planning, performance, measurement, and reprogramming. Exhibit 1-1 presents an illustration of the grant program cycle.

PERFORMANCE
ACCOUNTABILITY FOR PERFORMING WORK

MEASUREMENT
FINANCIAL IMPLICATIONS

REPROGRAM
PLAN REVISIONS

Exhibit 1-1. Grant Management And Planning System

SECTION 2 - PLANNING

2.1 PLANNING FUNCTION

Planning can be subdivided into four essential phases as follows:

The first phase is concerned with defining the scope of work in terms of specific activities and objectives necessary to ensure that the longer range energy conservation goals are realized. The formulation of these activities and objectives into a State Energy Conservation Plan is the concluding activity in this initial phase.

2.2 WORK BREAKDOWN STRUCTURE (WBS)

The second phase, which is completed concurrently with work scope definition, sets out in family tree fashion the exact subdivision of effort required to achieve the desired end objectives. This WBS is developed by starting with the end objective and successively subdividing it into discrete increments, each having an output that is identifiable and, in most cases measurable. For example, a major task (Level 1) might be the estab-

lishment of a statewide carpool/vanpool program, and an associated milestone (Level 2) might be to hold a campaign to enroll major employers in the state. When completed, the WBS serves as the foundation for work assignment, and cost and schedule planning for the coming year. Exhibits 2-1 and 2-2 illustrate this concept. As can also be seen from the exhibits, information generated at Levels 1 and 2 (tasks and milestones) is the basis of reporting to the Regional Conservation Offices and Level 3 data (intermediate events) is used for State planning purposes. Section 7 of this manual provides detailed explanation of how to prepare and use the WBS.

2.3 MILESTONE PLAN

The next phase is concerned with establishing resource utilization baselines (basis for comparison). The baselines established are in the form of cost and milestone plans which designate the anticipated use of resources for specific intervals (months, quarters) throughout the year. The status and progress of the program is then monitored and measured in terms of these baselines. Deviations from baselines are expected and do not form a basis for revision, but are keynotes of exceptional areas where control measures may be initiated.

Within the framework of GMPS, the Milestone Plan is submitted for each task at the beginning of the project year to establish the baseline schedule. The schedule for each task is shown in sufficient detail to support analysis of schedule planning, milestone status, and program progress. Intermediate events which support critical milestones will be identified by a separate

Exhibit 2-1. Exemplar Work Breakdown Structure
Lighting Efficiency Standards

LEGEND

LEVEL 1 TASKS — STATE REPORTING TO CONSERVATION OFFICE
 LEVEL 2 MAJOR MILESTONES — STATE REPORTING TO CONSERVATION OFFICE
 LEVEL 3 INTERMEDIATE EVENTS — STATE PLANNING PURPOSES

Exhibit 2-2. Exampled Work Breakdown Structure
 Carpool/Vanpool

descriptive list (Intermediate Event Listing) attached to the completed Milestone Plan. The graphic symbology and charting conventions (triangular event figures, annotations, and activity bars discussed in Section 6) provide the means to visually present major milestones, intermediate events, approved schedule changes for major milestones, and early or late completion of milestones and events on the Grant Management Summary Report (discussed later in Section 3). Significant deviations from the schedule (ahead or behind) would be fully discussed in the State Implementation Progress Report (also discussed in Section 3). The key features of the Milestone Plan are as follows (refer to Exhibits 2-3 and 2-4):

1. The scheduled activity for the task in the current budget period is shown graphically in terms of months and quarters;
2. Each subtask (major milestone) is identified and its associated intermediate events are graphically displayed;
3. Subtasks performed by outside contractors or other state agencies are identified.

2.4 COST PLAN

A Cost Plan is also submitted at the beginning of the fiscal year or budget period. The plan provides a baseline for measuring cost variance and also provides basic information for updating and forecasting fund requirements and budget estimating. The Cost Plan shows all financial resources broken down by Program Measure and addresses each cost object category (personnel, supplies, etc.) applicable to the task. Although this level of detail may cause some inconvenience for required reporting, a thorough planning effort has to consider all resources.

1. Grant Identification No. 94-163		2. Task Number 400		3. Task Identification Lighting Efficiency Standards		4. Planning Period 10/01/77 through 9/30/78								
5. Performer (Name, Address) State of Alexandria – State Energy Office 150 Falls Church Ave. Great Falls, Alexandria						6. Task Start Date 1/01/77								
						7. Task Completion Date 11/01/79								
8. Identification Number	9. Planning Category (Work Breakdown Structure Element)	10. Project Year in Months and Quarters												11. Contractual/Agreement (Name of Performer)
		O	N	D	J	F	M	A	M	J	J	A	S	
400.1	Hire Lighting Standards Coordinator	▽A&B ▽C ▽D												State Build. Commission
400.2	Choose Membership Lighting Standards Committee	▽E ▽F ▽G												State Build. Commission
400.3	Prepare Lighting Stds.	▽H ▽I ▽J												State Build. Comm./State Energy Office
400.4	Conduct Public Hearings	▽K ▽L ▽M ▽N												
400.5	Amend State Building Code	▽O ▽P												
400.6	Publish & Distribute Statewide Lighting Stds.	▽Q ▽R ▽S ▽T												
400.7	Inform. Meetings Building Owners & Managers	▽U ▽V ▽W ▽X												
400.8	Enforcement Personnel Training Workshops	▽Y ▽Z ▽AA												
400.9	Recruit Audit Staff	BB ▽CC ▽DD ▽EE												State Build. Commission
401.0	Establish Inform. Bank	▽FF ▽GG ▽HH ▽II ▽JJ ▽KK												
401.1	Estab. Lighting Stds. Audits	▽LL ▽MM ▽NN												C1-79
12. Remarks		Event 00 under subtask 401.1 begins 9/25/78 and continues until 10/6/78. Subtask 401.1 ends 1/79.												
13. Signature of Program Manager and Date D. B. Bigg, Director, State Energy Office 7/01/77						14. Signature of Government Representative and Date								

Exhibit 2-3. Grant Milestone Plan

Exhibit 2-4. Intermediate Event Listing

PAGE 1 OF 1

1. Grant Identification No. 94-163		2. Task Number 400	3. Task Identification Lighting Efficiency Stds.	4. Planning Period 10/01/77 through 9/30/78
5. Event Code	6. Intermediate Event	7. Completion Date	8. Comments	
A	Publish Job Description In State Job Posting Sys. And News Media	10/3/77		
B	Obtain Qualified Indiv. List From State Skills Inventory System	10/3/77		
C	Conduct Interviews	11/4/77		
D	Select Appropriate Candidate	11/11/77		
E	Obtain List Qual. Indiv. To Serve On Light. Stds. Committee	11/4/77		
F	Interview Potential Candidates	12/9/77		
G	Select Appropriate Individuals	12/16/77		
H	Conduct Meetings Of Lighting Standards Committee	12/21/77		
I	Prepare Draft Of Lighting Standards	1/13/78		
J	Circulate Standards For Review And Concurrence	1/23/78		
K	Arrange Dates And Locations For Public Hearings	2/6/78		
L	Conduct Logistics And Support Activity For Hearings	2/13/78		
M	Conduct Hearings	3/10/78		
N	Monitor And Document Feedback	3/20/78		
O	Review Public Hearing Documentation	3/27/78		
P	Revised Standards And Draft Amendment To Building Code	5/12/78		
Q	Hire Contractor To Publish Brochure On Lighting Standards	4/7/78		
R	Contractor Draft Of Publication	5/19/78		
S	Publication Review And Approval	5/26/78		
T	Publish Brochure And Distribute Throughout The State	6/12/78		
U	Arrange Dates And Locations For Informational Meetings	6/5/78		
V	Conduct Logistics And Support Activity For Meetings	6/12/78		
W	Conduct Meetings	7/10/78		
X	Monitor And Document Feedback	7/21/78		
Y	Arrange Dates and Locations For Workshops	6/5/78		
Z	Prepare Lesson Plans And Training Materials	6/23/78		
AA	Conduct Training Sessions	7/28/78		
BB	Obtain Qualified Indiv. List From State Skills Inventory System	7/17/78		
CC	Publish Job Description In Inter-Agency And Public News Media	7/21/78		

The following are key features of the plan (refer to Exhibit 2-5 for illustration):

1. The planned schedule of expenditures for the task in the current budget period is shown graphically in terms of months;
2. Planned annual expenditures in future budget periods are shown by cost object category;
3. A subtotal is provided for each summary element. Space is also provided for a grand total of task costs for the duration of of the grant program; and
4. The Cost Plan is reviewed for reasonableness by the individual or office designated to be accountable for the program and/or task.

2.5 ACCOUNTABILITY STRUCTURE

The final phase of program planning under GMPS involves development of a formal structure which will facilitate the coordination and integration of program resources, and will be accountable for results. This process began with division of work under the WBS; it concludes with the establishment of relationships among the various operating units. In developing the accountability structure, consideration must be given to such issues as the degree of decentralization that should exist, span of control, delegation for reporting purposes, utilization of staff departments and the chain of command for certification of reported cost figures and schedule activity.

GRANT COST PLAN

PAGE 1 OF 1

1. Grant Identification No. 94-163					2. Planning Period 10/01/77 through 9/30/78														
3. Performer (Name, Address) State of Alexandria, State Energy Office 150 Falls Church Avenue Great Falls, Alexandria										4. Grant Start Date 1/01/77									
										5. Grant Completion Date 3/21/80									

6. Task I.D. Number	7. Task Description	8. Cost Category (e.g., Object Class, Personnel, Supplies, Etc.)	9. Planned Prior Budget Period	10. Actual Prior Budget Period	11. Planned Current Budget Period — Dollars Expressed in Thousands														12. Planned Future Budget Periods				13. Total Planned Costs (Columns 10 through 12)
					O	N	D	J	F	M	A	M	J	J	A	S	Total	a 79	b 80	c	Total		
100	Thermal Effic. Std.	Personnel																					
		Supplies																					
		Travel																					
		Equipment																					
		Contractual	20	25			3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	32	25	10		35	92	
		Other																					
200	Carpool/Vanpool	Personnel	30	26	4.2	4.2	4.2	4.2	4.2	4.2	3.8				3.8	3.8	3.4	40	45	15		60	126
		Supplies	6	5	1.5	4.0	4.0	.5	.5	.5					1.5	1.5	1.0	14	10	3		13	32
		Travel	4	3.5		3.0	3.0									1.0	1.0	8	10	4		14	25.5
		Equipment	15	18					29.0									29	34	11		45	92
		Contractual	10	10										8.0	9.0	8.0	24	36	12		48	82	
		Other																					
300	Procurement Practices	Personnel	11	11	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.3	12.5	15	5		20	43.5	
		Supplies																					
		Travel																					
		Equipment																					
		Contractual	1.8	1.3			.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	2	3	1		4	7.3
		Other																					
400	Lighting Effic. Stds.	Personnel	19	18.9	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.8	1.8	1.8	19.8	24	8		32	70.7	
		Supplies	1.5	1.0			.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	2	4	1.5		5.5	8.5
		Travel	2	1.7						.5	.5	.5	.5	.5	.5	.5	.5	2.5	3	1.0		4	8.2
		Equipment																					
		Contractual	30	31.6		4	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	45	40	15		55	131.6
		Other																					
500	Right Turn On Red	Personnel																					
		Supplies																					
		Travel																					
		Equipment																					
		Contractual	5	6.2			.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	5	7.5			10	
		Other																					
14. Total			155.3	159.2	8.3	17.8	21.0	15.5	44.5	15.5	14.6	11.3	11.3	24.8	26.0	25.2	235.8	256.5	89		345.5	740.5	

15. Remarks		

16. Signature of Program Manager and Date D. B. Bigg, Director, State Energy Office 7/1/77	16a. _____	17. Signature of Government Representative and Date _____
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2-9

Exhibit 2-5. Grant Cost Plan

SECTION 3 - PERFORMANCE

3.1 THE PERFORMANCE FUNCTION

Involved in the performance function under GMPS is the need to ensure that events conform to plans: **PERFORMANCE**

ACCOUNTABILITY FOR PERFORMING WORK

As a result of planning, specific cost and schedule objectives have been set in all important phases of the program. The performance function, if effectively carried out, will provide the manager with continual feedback concerning the program's status at a given point in time with respect to achieving these objectives. If objectives are not being achieved, or if their accomplishment is behind schedule, the program manager or his designee must use available information to identify the problem areas and develop alternatives to overcome these problems. As suggested reporting to supplement the required OMB documents (Financial Status and Funds Status Reports) and the State Implementation Progress Report, the Grant Management Summary and Cost Variance Reports will provide needed information for control activity, as they furnish

data and facts that are unavailable else where. The eventual value of these supplemental reports is highly dependent upon the manner in which they are generated. The key to data integrity is the accountability structure which was established in the planning phase. The cost data must be reflective of actual accrued costs. However, estimates of accrued cost may be used if they are reasonably accurate and exact amounts are unavailable. Whether actual accrued costs or estimates are used, they should be reviewed for reasonableness by the office or individual responsible for the conservation program or those designees responsible within the performing State agencies. In addition, periodic onsite performance reviews should be conducted to confirm that the information provided is reflective of actual experience and progress. When data integrity is established, the reports aid significantly in justification and documentation of program costs, provide a logical basis for developing the annual Conservation Plan and associated budgets, and are a framework for funds reallocation.

3.2 GRANT MANAGEMENT SUMMARY REPORT

The Grant Management Summary Report, which is prepared monthly within the State for each task, provides a concise, top-level summary of the baseline plans and current status of cost and schedule performance. The information for each task in the current project year is contained on a single page in a graphic format that permits rapid visual comparison of cost and schedule performance. Key features of this report are:

1. A comparison of planned cost - to - date and actual cost-to-date;
2. A comparison of planned versus actual costs in the current quarter;
3. The work schedule and event status is graphically displayed. The charting symbology prescribed by the Milestone Plan is also employed for this report;
4. Percent complete is presented and represents the work that has been accomplished as a percentage of the total work planned for each task;
5. The total activity percent complete can be compared to the percent of quarterly funds expended as a measure of relative efficiency; and
6. The report is reviewed for reasonableness by the individual or office designated to be accountable for the program or task.

Refer to Exhibits 3-1 and 3-2 for illustration.

3.3 STATE IMPLEMENTATION PROGRESS REPORT

The State Implementation Progress Report is a concise, factual, narrative assessment of the progress during the quarterly reporting period and the overall status of the program at the end of that period. The scope of this required report will be appropriate to the level of activity during the reporting period, the problems that have been encountered, and changes in

**Exhibit 3-1 Grant Management Summary Report Lighting Efficiency Standards
Year End Report**

PAGE 1 OF 1

1. Grant Identification No. 94-163	2. Task Number 400	3. Task Identification Lighting Efficiency Stds.	4. Reporting Period 7/01/78 through 9/30/78
5. Performer (Name and Address) State of Alexandria State Energy Office 150 Falls Church Ave. Great Falls, Alexandria			6. Task Start Date 1/01/77
			7. Task Completion Date 11/01/79

8. Months	O N D J F M A M J J A S	9. BP 78
-----------	-------------------------	-----------------

11. Major Milestone Status		12. Percent Complete Total Task
a. Hire Lighting Standard Coordinator	<div style="width:100%; height:10px; background-color:black;"></div>	100%
b. Choose Membership Light. Stds. Committee	<div style="width:100%; height:10px; background-color:black;"></div>	100%
c. Prepare Lighting Stds.	<div style="width:100%; height:10px; background-color:black;"></div>	100%
d. Conduct Public Hearings	<div style="width:100%; height:10px; background-color:black;"></div>	100%
e. Amend State Bldg. Code	<div style="width:100%; height:10px; background-color:black;"></div>	100%
f. Publish & Distribute State-wide Light. Stds.	<div style="width:100%; height:10px; background-color:black;"></div>	100%
g. Inform. Meetings Build. Owners & Managers	<div style="width:100%; height:10px; background-color:black;"></div>	100%
h. Enforcement Personnel Training Workshops	<div style="width:100%; height:10px; background-color:black;"></div>	100%
i. Recruit Audit Staff	<div style="width:100%; height:10px; background-color:black;"></div>	100%
j. Establish Inform. Bank	<div style="width:100%; height:10px; background-color:black;"></div>	100%
k. Establish Lighting Stds. Audits	<div style="width:50%; height:10px; background-color:black;"></div>	C1-79 50%(v)
l.		
m.		
n.		
o.		
p.		
q.		

13. Remarks **Item 11K — Continues into 1979. The delay is due to late preparation of training materials for audit personnel sessions; No cost impact expected.**

14. Signature of Program Manager and Date D.B. Bigg, Director, State Energy Office 4/15/78	15. Signature of Government Representative and Date
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**Exhibit 3-2 Grant Management Summary Report Lighting Efficiency Standards
Partial Year Report**

PAGE 1 OF 1

1. Grant Identification No. 94-163	2. Task Number 400	3. Task Identification Lighting Efficiency Stds.	4. Reporting Period 1/01/78 through 1/31/78.
5. Performer (Name and Address) State of Alexandria State Energy Office 150 Falls Church Ave. Great Falls, Alexandria			6. Task Start Date 1/01/77
			7. Task Completion Date 11/01/79

8. Months	O	N	D	J	F	M	A	M	J	J	A	S	9. BP	78
-----------	---	---	---	---	---	---	---	---	---	---	---	---	-------	-----------

10. Cost Status - Dollars Expressed in Thousands														
a. Budget Period Cost Graph													%	e. Planned Costs to Date 19.0
													100	f. Actual Costs to Date 21.7
													75	g. Planned Costs This Quarter 5.9
													50	h. Actual Costs This Quarter 8.6
													25	i. Planned BP Costs Per Task 69.3
Accrued Costs		b. Planned	1.6	5.6	5.9	5.9								
		c. Actual	1.6	5.6	5.9	8.6								
		d. Variance	0	0	0	2.7								

11. Major Milestone Status		12. Percent Complete Total Task
a. Hire Lighting Standard Coordinator	<div style="width:100%; height:10px; background-color: black;"></div>	100%
b. Choose Membership Light. Stds. Committee	<div style="width:100%; height:10px; background-color: black;"></div>	100%
c. Prepare Lighting Stds.	<div style="width:80%; height:10px; background-color: black;"></div>	80%
d. Conduct Public Hearings	<div style="width:30%; height:10px; background-color: black;"></div>	30%
e. Amend State Bldg. Code	<div style="width:0%; height:10px; background-color: black;"></div>	
f. Publish & Distribute State-wide Light. Stds.	<div style="width:0%; height:10px; background-color: black;"></div>	
g. Inform. Meetings Build. Owners & Managers	<div style="width:0%; height:10px; background-color: black;"></div>	
h. Enforcement Personnel Training Workshops	<div style="width:0%; height:10px; background-color: black;"></div>	
i. Recruit Audit Staff	<div style="width:0%; height:10px; background-color: black;"></div>	
j. Establish Inform. Bank	<div style="width:0%; height:10px; background-color: black;"></div>	
k. Establish Lighting Stds. Audits	<div style="width:0%; height:10px; background-color: black;"></div>	C1-79
l.		
m.		
n.		
o.		
p.		
q.		

14. Signature of Program Manager and Date D.B. Bigg, Director, State Energy Office 2/15/78	15. Signature of Government Representative and Date
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objectives or plans that have occurred. Within the GMPS framework, the State Implementation Progress Report would include a discussion of:

1. The tasks and activities initiated, continued, or completed during the reporting period and the progress, or lack of progress;
2. Variances from schedule baselines in terms of weeks behind or ahead;
3. Anticipated or actual problems and the action taken or proposed to resolve them; and
4. A forecast of events or circumstances that may affect the program in the near future.

3.4 COST VARIANCE REPORT

The Cost Variance Report is a quarterly assessment of cost status versus planned costs (refer to Exhibit 3-3 for illustration). It is used to monitor cost performance; to forecast accrued costs for subsequent reporting periods; and for near and long-term planning.

PAGE 1 OF 1

3-7

Exhibit 3-3. Cost Variance Report

Variances are reported only when actual cost deviates from planned values by 10 percent in either current period or cumulative task cost, or 20 percent for cost category differences. Variances must be broken into their component parts by cost object category (personnel, supplies, etc.) and discussed in detail in the explanation section or on an attached sheet.

FINANCIAL STATUS REPORT		1. Federal Agency and Organizational Element		2. Federal Grant No. or Other Identifying No. 94-163 Task 400 - Lighting Effic. Stds.					
3. Name and Address of Grantee Organization State of Alexandria State Energy Office 150 Falls Church Avenue Great Falls, Alexandria		4. Employer Identification No.	5. Grantee Account No. or Identifying No.	6. Final Report ☐ Yes ☒ No	7. Basis of Report ☐ Cash ☒ Accrued Expenditures				
		8. Project Period (Month, Day, Year) FROM 10 01 77 TO 9 30 78		9. Report Period (Month, Day, Year) FROM 1 01 78 TO 3 31 78					
10. STATUS OF FUNDS		PROGRAMS - FUNCTIONS - ACTIVITIES							
		(1) Personnel	(2) Supplies	(3) Travel	(4) Equipment	(5) Contractual	(6) Other	TOTAL	
		a. Total outlays previously reported	\$4,800	\$ 200			\$ 8,100		\$13,100
		b. Total program outlays this period	\$4,800	\$1,600	\$700		\$13,300		\$20,400
		c. Less: Program income credits							
		d. Net program outlays this period							
		e. Total program outlays to date							
		f. Less: Non-Fed. share of program outlays							
		g. Total Federal share of program outlays							
		h. Total unpaid obligations							
		i. Less: Non-Fed. share of unpaid oblig. . .							
		j. Federal share of unpaid obligations.							
		k. Total Fed. share of outlays and unpaid obligations							
		l. Total Federal funds authorized							
m. Unobligated bal. of Fed. funds									
11. Indirect Expense: a. Type of rate (Mark box)		12. REMARKS (Attach additional sheets if necessary)			13. CERTIFICATION - I certify that to the best of my knowledge and belief this report is correct and complete and that all outlays and unpaid obligations are for the purposes set forth in the grant award documents.				
☐ Provisional ☐ Final ☐ Predetermined ☐ Fixed									
b. Rate	c. Base								
d. Total amount	e. Federal share								
		Name			Title				
		D.B. Bigg							
		Signature of Authorized Official			Date Report Is Submitted				
					TELEPHONE Area Code Number Ext.				

Exhibit 3-4. Financial Status Report

SECTION 4 - FLOW OF INFORMATION

This section outlines the flow of information from the State Energy Conservation Plan to the plans and reports proposed to aid in grant management. These program control documents are tools to provide feedback information to management in order to adapt to changing situations and to relate accrued cost to scheduled achievement for accountability.

The Grant Management and Planning System (GMPS) illustrated in Exhibit 4-1 consists of five basic operations as follows:

- o Implement work breakdown structure to schedule activity - Milestone Plan
- o Implement cost procedure to work breakdown structure - Cost Plan
- o Milestone progress - State Implementation Progress Report (Required)
- o Cost and schedule status - Grant Management Summary Report (Suggested) and Financial Status Report (Required)
- o Status of variances by cost object category - Cost Variance Report (Suggested)

Exhibits 4-2 through 4-5 depict the information flow inherent in the grant management and planning process.

KEY COMPONENTS OF GMPS

EXHIBIT 4-1. KEY COMPONENTS OF GMPS

PLANNING
ORGANIZE WORK AND ESTABLISH COMPLETION SCHEDULE

**ORGANIZE
WORK EFFORT**

**ESTABLISH SCHEDULE
OF PERFORMANCE**

MONITOR PROGRESS

**STATE OF ALEXANDRIA —
ENERGY CONSERVATION PLAN**

0400 LIGHTING EFFICIENCY STANDARDS				
MILESTONES	YEAR 1977			
	1	2	3	4
400.1 Hire Lighting Stds. Coordinator			X	
400.2 Light. Stds. Comm. & Subcomm.			X	
400.3 Prep. Light. Stds.				X
400.4 Conduct Public Hearings on Lighting Standards				X
400.5 Amend State Bldg. Code To Incorporate Chap. 9 Of Ashrae 90-75 Or Equiv.				X
400.6 Pub. And Distribute Statewide Lighting Standards				X

FIGURE 1

WORK BREAKDOWN STRUCTURE

FIGURE 2

MILESTONE PLAN

FIGURE 3

INTERMEDIATE EVENT LISTING

1. Grant Identification No.	2. Task Number	3. Task Identification	4. Planning Period
94-163	400	Lighting Efficiency Stds.	10/01/77 through 9/30/78
5. Event Code	6. Intermediate Event	7. Completion Date	8. Comments
A	Publish Job Description In State Job Posting Sys. And News Media	10/3/77	
B	Obtain Qualified Indiv. List From State Skills Inventory System	10/3/77	
C	Conduct Interviews	11/4/77	
D	Select Appropriate Candidate	11/11/77	
E	Obtain List Qual. Indiv. To Serve On Light. Stds. Committee	11/4/77	
F	Interview Potential Candidates	12/9/77	
G	Select Appropriate Individuals	12/16/77	
H	Conduct Meetings Of Lighting Standards Committee	12/21/77	
I	Prepare Draft Of Lighting Standards	1/13/78	
J	Circulate Standards For Review And Concurrence	1/23/78	
K	Arrange Dates And Locations For Public Hearings	2/6/78	
L	Conduct Logistics And Support Activity For Hearings	2/13/78	
M	Conduct Hearings	3/10/78	

FIGURE 4

**GRANT MANAGEMENT
SUMMARY REPORT**

FIGURE 5

INFORMATION FLOW:

- THE TASKS IDENTIFIED IN THE STATE ENERGY CONSERVATION PLANS (LIGHTING EFFICIENCY STDS., ETC. AS SHOWN IN FIGURE 1) ARE ORGANIZED INTO A MATRIX FRAMEWORK WHICH DEFINES MILESTONES (EVENTS, PRODUCTS, OR ACTIVITIES) AND INTERMEDIATE EVENTS NECESSARY TO COMPLETE THE TASK.
- THE WORK BREAKDOWN STRUCTURE (FIGURE 2) ORGANIZES THE WORK INTO MANAGEABLE UNITS AND PROVIDES INPUT INFORMATION FOR THE MILESTONE PLAN (FIGURE 3), INTERMEDIATE EVENT LISTING (FIGURE 4), AND GRANT MANAGEMENT SUMMARY REPORT (FIGURE 5).
- THE MILESTONE PLAN AND INTERMEDIATE EVENT LISTING ESTABLISH THE BASELINE SCHEDULE AGAINST WHICH ACTUAL PROGRESS IS MEASURED ON THE GRANT MANAGEMENT SUMMARY REPORT.

**EXHIBIT 4-2 PLANNING — ORGANIZE
WORK AND ESTABLISH
COMPLETION SCHEDULE**

PERFORMANCE FINANCIAL STATUS

COMPARISON PLANNED COST
TO DATE VS. ACTUAL

PLANNED EXPENDITURES BY
TASK AND COST OBJECT

GRANT MANAGEMENT SUMMARY REPORT

FIGURE 1

GRANT COST PLAN

1. Grant Identification No.		2. Planning Period		3. Grant Start Date	
94-183		10/1/77 through 9/30/78		10/1/77	
4. Performer (Name and Address)		5. Grant Completion Date		6. Grant Start Date	
State of Alexandria, State Energy Office 150 Falls Church Avenue Great Falls, Alexandria		3/31/80		10/1/77	
7. Task ID Number	8. Task Description	9. Cost Category, i.e., Personnel, Supplies, Travel, Equipment, Contractual, Other	10. Planned Budget Period	11. Planned Current Budget Period - Dollars Expressed in Thousands	12. Planned Future Budget Period - Dollars Expressed in Thousands
100	Thermal Eff. Std.	Personnel			
200	Carpool/Vanpool	Personnel			
300	Procurement Practices	Personnel			
400	Lighting Eff. Std.	Personnel			
500	Right Turn On Red	Personnel			

FIGURE 3

EXPLANATION OF SELECTED
COST OBJECT AND
CUMULATIVE VARIANCES

COST VARIANCE REPORT

1. Grant Identification No.	2. Task Identification Number	3. Task Description	4. Last Submitted by	5. Actual Costs	6. Planned Budget Period	7. Variance	8. Explanation
94-183	400	Lighting Efficiency Study	Supplies	1.8	2.1	-0.3	
			Travel	2.1	2.5	-0.4	
			Contractual	21.4	20.4	1.0	

FIGURE 2

INFORMATION FLOW:

- THE GRANT MANAGEMENT SUMMARY REPORT [FIGURE 1] IS PREPARED MONTHLY WITHIN THE STATE FOR EACH TASK. THE TOTAL OF MONTHLY EXPENDITURES FOR EACH TASK IS DISPLAYED AND COMPARED TO PLANNED FIGURES TRANSCRIBED FROM THE GRANT COST PLAN.
- COST VARIANCES ARE REPORTED AND EXPLAINED QUARTERLY ON THE COST VARIANCE REPORT [FIGURE 2] WHEN:
 - ACTUAL COST FOR ANY COST OBJECT CATEGORY EXCEEDS PLANNED VALUES BY 20%
 - CUMULATIVE TASK COST TO DATE EXCEEDS PLANNED VALUES ANYTIME DURING THE BUDGET PERIOD BY 10%

PERFORMANCE MAJOR MILESTONE PROGRESS

GRANT MANAGEMENT SUMMARY REPORT

STATE IMPLEMENTATION PROGRESS REPORT
• NARRATIVE SUMMARY OF MILESTONE PROGRESS BY TASK
• IDENTIFY NO. OF WEEKS SLIPPED/AHEAD FOR EACH MILESTONE IN TASK
• NARRATIVE EXPLANATION OF VARIANCES MILESTONE

FIGURE 1

FIGURE 2

INFORMATION FLOW:

- THE STATE IMPLEMENTATION PROGRESS REPORT (FIGURE 1) IS PREPARED QUARTERLY. MAJOR SCHEDULE DEVIATIONS SHOWN GRAPHICALLY ON THE GRANT MANAGEMENT SUMMARY REPORT (FIGURE 2) ARE EXPLAINED IN DETAIL IN THE NARRATIVE PROGRESS REPORT.

SECTION 5 - PREPARATION OF PLANS AND REPORTS

The following pages contain examples of standardized plans and reports used under GMPS. They provide summary information concerning report preparation and the data elements to be reported. Some of the standardized reports are narrative and others consist of forms. For the forms and formatted reporting, instructions for preparation are provided with an annotated example (refer to Exhibits 5-1 through 5-6).

Multi-page plans and reports employing forms will consist of the same form for all pages. Heading items showing the performer's name and address, and grant/task start and completion dates will be shown on the first page; trailer items for totals, remarks, signatures, and dates will be shown on the final page for such reports.

The level of detail required in plans and reports is intended to provide summary cost and schedule information with variant areas annotated for management review. Reporting category entries will be: (1) elements of work (tasks, milestones within tasks) based on the work breakdown structures and (2) elements of cost (personnel, supplies, etc.) based on object categories in the State Energy Conservation Plans. Major tasks (Lighting Efficiency Standards, etc.) will form the basis for summary plans or management reports. Identification numbers (100, 200, etc.) and reporting category data elements must be carried from the plan to the associated management reports and be consistent within and between reports. Typical form heading, identification number, and reporting category data will be entered as shown in the following examples:

I. HEADING - PLAN/REPORT

A. PLAN

1. Grant Identification No. 94-163	2. Task Number 400	3. Task Identification Lighting Efficiency Standards	4. Planning Period 10/01/77 through 9/30/78
5. Performer (Name, Address) State of Alexandria - State Energy Office 150 Falls Church Ave. Great Falls, Alexandria			6. Task Start Date 1/01/77
			7. Task Completion Date 11/01/79

B. REPORT

1. Grant Identification No. 94-163	2. Task Number 400	3. Task Identification Lighting Efficiency Standards	4. Reporting Period 7/01/78 through 9/30/78
5. Performer (Name, Address) State of Alexandria State Energy Office 150 Falls Church Ave. Great Falls, Alexandria			6. Task Start Date 1/01/77
			7. Task Completion Date 11/01/79

II. REPORTING CATEGORIES - PLAN/REPORT

A. PLAN

1. MILESTONE

8. Identification Number	9. Planning Category (Work Breakdown Structure Element)
400.1	Hire Lighting Standards Coordinator
400.2	Choose Membership Lighting Standards Committee
400.3	Prepare Lighting Stds.
400.4	Conduct Public Hearings
400.5	Amend State Building Code
400.6	Publish & Distribute Statewide Lighting Stds.

2. COST

6. Task I.D. Number	7. Task Description	8. Cost Category (e.g., Object Class, Personnel, Supplies, Etc.)
400	Lighting Effic. Stds.	Personnel
		Supplies
		Travel
		Equipment
		Contractual

B. SUMMARY REPORT

3. Task Identification Number	4. Task Description	5. Cost Category (e.g., Personnel, supplies, Travel, Etc.)
400	Lighting Effic. Stds.	Supplies
		Travel
		Contractual

The symbol (v) will be used on reports to flag those reporting category elements that are exhibiting significant variances, problems, or unanticipated results. Unless otherwise specified, a significant variance for purposes of flagging and reporting is considered to be any schedule or technical variance, or a cost variance of 10 percent for either current period or cumulative task cost, or 20 percent for cost object category differences. The flagging symbol will be placed to the right at the same level or on the same line as the affected reporting category element. A brief discussion of the flagged issue will be provided in the remarks section or on a separate sheet attached to the report. Detailed discussion will be in the State Implementation Progress Report for milestone information and in the Cost Variance Report for cost expenditures. The discussion will include a systematic analysis of the cause of the variance/problem, its effect on the task and the program, and proposed solution(s) with anticipated results.

GRANT MILESTONE PLAN

PAGE 1 OF 1

1. Grant Identification No. 94-163		2. Task Number 400		3. Task Identification Lighting Efficiency Standards		4. Planning Period 10/01/77 through 9/30/78								
5. Performer (Name, Address) State of Alexandria – State Energy Office 150 Falls Church Ave. Great Falls, Alexandria						6. Task Start Date 1/01/77								
						7. Task Completion Date 11/01/79								
8. Identification Number	9. Planning Category (Work Breakdown Structure Element)	10. Project Year in Months and Quarters										11. Contractual/Agreement (Name of Performer)		
		O	N	D	J	F	M	A	M	J	J	A	S	
400.1	Hire Lighting Standards Coordinator	▽A&B ▽C ▽D												State Build. Commission
400.2	Choose Membership Lighting Standards Committee	▽E ▽F ▽G												State Build. Commission
400.3	Prepare Lighting Stds.	▽H ▽I ▽J												State Build. Comm./State Energy Office
400.4	Conduct Public Hearings	▽K ▽L ▽M ▽N												
400.5	Amend State Building Code	▽O ▽P												
400.6	Publish & Distribute Statewide Lighting Stds.	▽Q ▽R ▽S ▽T												
400.7	Inform. Meetings Building Owners & Managers	▽U ▽V ▽W ▽X												
400.8	Enforcement Personnel Training Workshops	▽Y ▽Z ▽AA												
400.9	Recruit Audit Staff	BB ▽CC ▽DD ▽EE												State Build. Commission
401.0	Establish Inform. Bank	▽FF ▽GG ▽HH ▽II ▽JJ ▽KK												
401.1	Estab. Lighting Stds. Audits	▽LL ▽MM ▽NN												C1-79
12. Remarks Event 00 under subtask 401.1 begins 9/25/78 and continues until 10/6/78. Subtask 401.1 ends 1/79.														
13. Signature of Program Manager and Date D. B. Bigg, Director, State Energy Office 7/01/77							14. Signature of Government Representative and Date							

DETAILED CHARTING INFORMATION AND INSTRUCTIONS FOR PREPARATION OF THE GRANT MILESTONE PLAN ARE PRESENTED ON THE BACK OF THE FORM. THE SYMBOLOGY USED FOR THIS FORM IS ALSO USED TO COMPLETE ITEM 11 OF THE GRANT MANAGEMENT SUMMARY REPORT. PREPARATION INSTRUCTIONS ARE ALSO REPRODUCED ON THE BACK OF THIS EXHIBIT.

1. PREPARATION – THE PLAN IS PREPARED BY THE AGENCY/OFFICE RESPONSIBLE FOR PERFORMANCE OF THE TASK OR THE CENTRAL AGENCY/OFFICE RESPONSIBLE FOR COORDINATION AND ADMINISTRATION OF THE GRANT.
2. SYMBOLOGY – TRIANGULAR FIGURES AND ACTIVITY BARS ARE USED TO SHOW PLANNED WORK. INTERMEDIATE EVENTS (IDENTIFIED IN ALPHABETICAL SEQUENCE) ARE DESCRIBED ON THE INTERMEDIATE EVENT LISTING WHICH WILL BE ATTACHED TO THE MILESTONE PLAN. NOTE: MILESTONE 401.1 EXTENDS INTO FY 79 AND IS ANNOTATED WITH THE SYMBOLS C = CONTINUATION, I = JANUARY COMPLETION, 79 = YEAR OF COMPLETION. REFERENCE SECTION 6 FOR DETAILED EXPLANATION OF SYMBOLOGY.
3. CONTRACTUAL/AGREEMENT – CONTRACTOR OR OUTSIDE AGENCY WORK IS IDENTIFIED IN THIS COLUMN OPPOSITE THE APPLICABLE MILESTONE DESCRIBED IN ITEM 9.

MILESTONE PLAN

PURPOSE

A baseline plan which displays work activity with the schedule for performing each task.

INSTRUCTIONS

- Item 1 — Enter the grant identification number as it appears in the official establishing document and append the latest modification number.
- Item 2 — Enter the task identification number as it appears in the work breakdown structure or the State Energy Conservation Plan. (e.g., 100, 200, etc.).
- Item 3 — Enter the task identification/description as it appears in the State Energy Conservation Plan (e.g., lighting standards, carpool/vanpool, etc.).
- Item 4 — Enter the inclusive start and completion dates of the budget period for which the plan is applicable.*
- Item 5 — Enter the name and address of the agency or office responsible for performance of the task.*
- Item 6 — Enter the start date of the original task.*
- Item 7 — Enter the task completion date, as of the latest modification to the grant.*
- Item 8 — Enter milestone identification numbers as follows: 200.1, 400.1, etc., where 200 or 400 signifies the task identification number and the decimal (.1) identifies the milestone.
- Item 9 — Enter the major milestone description as it appears in the work breakdown structure or the State Energy Conservation Plan.
- Item 10 — In the lower portion of the space for the item heading, enter the first letter of each month of the budget period. Enter schedule data below the project year and month heading and to the right of each reporting category listed in Item 9. Use charting information shown at the end of these instructions.
- Item 11 — Enter the name of any contractor or outside agency performing for the major milestone described in Item 9.
- Item 12 — Enter explanatory notes and brief comments. If more space is required, attach additional sheets and so indicate in this block.
- Item 13 — Enter signature of responsible performer, central agency, or organization program manager and date signed.
- Item 14 — Enter signature of the responsible Government Representative and date signed, verifying the reasonableness of the information furnished.

*These items need only be entered on the first page of multi-page reports.

CHARTING INFORMATION

SYMBOLS

△ Critical Milestone

▽ Intermediate Event (Deliverable, Supporting Event, or Decision Point)

▲ Intermediate Event completed early or late

Activity Bar

Time Now

EXAMPLES

CONVENTIONS

- 1 — Blacked-in figures or bars are used to show work done.
- 2 — Open figures or bars show work not done.
- 3 — △ (critical milestone) is twice as large as ▽ or ▲ (intermediate event).
- 4 — Under no condition should more than one △ (critical milestone) be shown on a single horizontal line. (See Example C for a method of denoting a rescheduled critical milestone △; the number "1" indicates the first rescheduling.) Normally the original symbol △ would be shown with the latest rescheduled date (a △ with an associated number). In certain cases, where it is desired to show a complete history of rescheduling, a series of △'s with associated sequence numbers might be shown as in Example G. △'s (representing critical milestone) will be shown above the activity bar when it is blacked in. If it is not desirable to retain the rescheduling history, Conservation Offices may request that only the current approved critical milestone △ be shown.
- 5 — Symbols for milestones may be used alone, with an activity bar, or with a time line as the preparer judges best.
- 6 — Intermediate events may be shown only in association with an activity bar or a time line. These event symbols are placed above the bar or line and each is labeled for identification. A description of each intermediate event should be provided in an attachment to the Milestone Plan. One of the two methods is used to show when intermediate events are completed.
 - a — If the event is completed on time, it is blacked in as provided in Convention 1 above (see Example F, Event B).
 - b — If the event is completed early or late, the symbol for the intermediate event is inverted (▲) and shown below the line or activity, identified in the same way as the original, and both symbols are blacked in (see Example F, Event A).

INTERMEDIATE EVENT LISTING

PAGE 1 OF 2

1. Grant Identification No.	2. Task Number	3. Task Identification	4. Planning Period
94-163	400	Lighting Efficiency Stds.	10/01/77 through 9/30/78
5. Event Code	6. Intermediate Event	7. Completion Date	8. Comments
A	Publish Job Description In State Job Posting Sys. And News Media	10/3/77	
B	Obtain Qualified Indiv. List From State Skills Inventory System	10/3/77	
C	Conduct Interviews	11/4/77	
D	Select Appropriate Candidate	11/11/77	
E	Obtain List Qual. Indiv. To Serve On Light. Stds. Committee	11/4/77	
F	Interview Potential Candidates	12/9/77	
G	Select Appropriate Individuals	12/16/77	
H	Conduct Meetings Of Lighting Standards Committee	12/21/77	
I	Prepare Draft Of Lighting Standards	1/13/78	
J	Circulate Standards For Review And Concurrence	1/23/78	
K	Arrange Dates And Locations For Public Hearings	2/6/78	
L	Conduct Logistics And Support Activity For Hearings	2/13/78	
M	Conduct Hearings	3/10/78	
N	Monitor And Document Feedback	3/20/78	
O	Review Public Hearing Documentation	3/27/78	
P	Revised Standards And Draft Amendment To Building Code	5/12/78	
Q	Hire Contractor To Publish Brochure On Lighting Standards	4/7/78	
R	Contractor Draft Of Publication	5/19/78	
S	Publication Review And Approval	5/26/78	
T	Publish Brochure And Distribute Throughout The State	6/12/78	
U	Arrange Dates And Locations For Informational Meetings	6/5/78	
V	Conduct Logistics And Support Activity For Meetings	6/12/78	
W	Conduct Meetings	7/10/78	
X	Monitor And Document Feedback	7/21/78	

INSTRUCTIONS FOR PREPARING THE INTERMEDIATE EVENT LISTING ARE PRINTED ON THE BACK OF THE FORM. SAMPLE INSTRUCTIONS ARE ALSO DISPLAYED ON THE BACK OF THIS EXHIBIT.

1. PREPARATION – THE LISTING IS PREPARED BY THE SAME AGENCY/OFFICE WHICH COMPLETED THE MILESTONE PLAN. THE FORM IS ATTACHED TO THE MILESTONE PLAN AND LISTS INTERMEDIATE EVENTS NECESSARY TO COMPLETE EACH MILESTONE.

2. EVENT CODE – THE EVENT CODE IS THE ALPHABETICAL DESIGNATOR DISPLAYED ON THE MILESTONE PLAN TO REPRESENT THE APPROPRIATE COMPLETION DATE OF THE EVENT.

EXHIBIT 5-2. INTERMEDIATE
EVENT LISTING

INTERMEDIATE EVENT LISTING

PURPOSE

Provides a key to intermediate events listed on the Grant Management Summary Report and the Grant Milestone Plan.

INSTRUCTIONS

- Item 1 — Enter the grant identification number as it appears in the official establishing document and append the latest modification number.
- Item 2 — Enter the task identification number as it appears in the work breakdown structure, or the State Energy Conservation Plan. (e.g., 100, 200, etc.).
- Item 3 — Enter the task identification/description as it appears in the State Energy Conservation Plan (e.g., lighting standards, carpool/vanpool etc.).
- Item 4 — Enter the inclusive start and completion dates of the fiscal year for which the listing is applicable.
- Item 5 — Enter event codes in alphabetical sequence relating to Item 6.
- Item 6 — Enter a brief description of each intermediate event as it appears in the work breakdown structure.
- Item 7 — Enter the planned completion date for each event.
- Item 8 — Enter explanatory notes and comments. If more space is required, attach additional sheets and so indicate in this block..

GRANT COST PLAN

1. Grant Identification No. 94-163			2. Planning Period 10/01/77 through 9/30/78																					
3. Performer (Name, Address) State of Alexandria, State Energy Office 150 Falls Church Avenue Great Falls, Alexandria			4. Grant Start Date 1/01/77																					
			5. Grant Completion Date 3/21/80																					
6. Task I.D. Number	7. Task Description	8. Cost Category (e.g., Object Class, Personnel, Supplies, Etc.)	9. Planned Prior Budget Period	10. Actual Prior Budget Period	11. Planned Current Budget Period - Dollars Expressed in Thousands																12. Planned Future Budget Periods			13. Total Planned Costs (Columns 10 through 12)
					O	N	D	J	F	M	A	M	J	J	A	S	Total	a 79	b 80	c	Total			
100	Thermal Effic. Std.	Personnel																						
		Supplies																						
		Travel																						
		Equipment																						
		Contractual	20	25			3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	32	25	10		35	92		
200	Carpool/Vanpool	Other																						
		Personnel	30	26	4.2	4.2	4.2	4.2	4.2	3.8				3.8	3.8	3.4	40	45	15		60	126		
		Supplies	6	5	1.5	4.0	4.0	.5	.5	.5				1.5	1.5	1.0	14	10	3		13	32		
		Travel	4	3.5		3.0	3.0								4.0	1.0	8	10	4		14	25.5		
		Equipment	15	18					29.0								29	34	11		45	92		
300	Procurement Practices	Contractual	10	10											8.0	9.0	8.0	24	36	12		48	82	
		Other																						
		Personnel	11	11	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.3	12.5	15	5		20	43.5		
		Supplies																						
		Travel																						
400	Lighting Effic. Stds.	Equipment																						
		Contractual	1.8	1.3			.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	2	3	1		4	7.3		
		Other																						
		Personnel	19	18.9	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.8	1.8	1.8	19.8	24	8		32	70.7		
		Supplies	1.5	1.0			.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	2	4	1.5		5.5	8.5		
500	Right Turn On Red	Travel	2	1.7					.5	.5	.5	.5	.5	.5	.5	.5	2.5	3	1.0		4	8.2		
		Equipment																						
		Contractual	30	31.6		4	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	45	40	15		55	131.6		
		Other																						
		Personnel																						
		Supplies																						
		Travel																						
		Equipment																						
		Contractual	5	6.2			.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	5	7.5	2.5		10	21.2		
		Other																						
14. Total			155.2	159.2	8.3	17.8	21.0	15.5	44.5	15.5	14.6	11.3	11.3	24.8	26.0	25.2	235.8	256.5	89		345.5	740.5		
15. Remarks																								
16. Signature of Program Manager and Date D. B. Bigg, Director, State Energy Office 7/1/77												17. Signature of Government Representative and Date												

INSTRUCTIONS FOR FILLING OUT THE GRANT COST PLAN ARE PRINTED ON THE BACK OF THE FORM. THEY ARE ALSO REPRODUCED ON THE BACK OF THIS EXHIBIT.

1. PREPARATION – THE PLAN IS PREPARED BY THE AGENCY/OFFICE RESPONSIBLE FOR COORDINATION AND ADMINISTRATION OF THE GRANT AND MAY BE THE SUMMATION OF INDIVIDUAL PERFORMER PROJECTIONS.
2. ALL COST OBJECT CATEGORIES MUST BE LISTED FOR EACH TASK EVEN IF NO EXPENDITURES ARE APPLICABLE, THIS WILL FACILITATE IDENTIFICATION OF TASK EXPENDITURE FOR THESE CATEGORIES UNDER ITEM 12, PLANNED FUTURE BUDGET PERIODS.
3. DATA FORMAT – COST INFORMATION SHOULD BE CARRIED TO NO MORE THAN ONE SIGNIFICANT DIGIT TO THE RIGHT OF THE DECIMAL POINT. DOLLAR AMOUNTS MAY BE ROUNDED BY A CONSISTENT METHOD. THE RESULTING TOTALS (HORIZONTAL AND VERTICAL) SHOULD AGREE WITH THE DETAILED FIGURES PRESENTED IN THE STATE ENERGY CONSERVATION PLAN. THE UNIT OF MEASURE FOR DOLLAR AMOUNTS MAY BE EXACT, HUNDREDS, OR THOUSANDS. THE SAME UNIT OF MEASURE MUST BE CONSISTENTLY APPLIED IN THIS PLAN AND ALL CORRESPONDING REPORTS USING COST PLAN DATA.
4. GRAND TOTAL – THIS BLOCK CONTAINS THE SUMMATION OF PLANNED CURRENT BUDGET PERIOD COSTS, PLANNED FUTURE COSTS, AND ACTUAL PRIOR EXPENDITURES.
5. OTHER – INCLUDE ALL FUNDING OTHER THAN SECP.

EXHIBIT 5-3. GRANT COST PLAN

GRANT COST PLAN

PURPOSE

A baseline plan to allocate costs to each reporting category required in the grant.

INSTRUCTIONS

- Item 1 — Enter the grant identification number as it appears in the official establishing document and append the latest grant modification number.
- Item 2 — Enter the inclusive start and completion dates of the budget period for which the plan is applicable.
- Item 3 — Enter name and address of the agency or office responsible for coordination and administration of the grant.*
- Item 4 — Enter the official start date of the original grant.*
- Item 5 — Enter the official completion date of the latest official modification to the grant.*
- Item 6 — Enter the identification numbers (e.g., 100, 200, etc.) associated with the task described, in Item 7.
- Item 7 — Enter the specified task descriptions (e.g., lighting standards, carpool/vanpool, etc.).
- Item 8 — Enter the following cost object categories for each task listed in Item 7.
a. personal	c. contractual	e. equipment
b. supplies	d. travel	f. other (than SECP funds)
- All categories must be listed for each task even if no expenditures are applicable, this will facilitate identification of task expenditures for these categories under Item 12, Planned Future Budget Period.
- Item 9 — Enter total planned costs in prior budget period for each category listed in Items 7 and 8.
- Item 10 — Enter total actual costs for all prior budget period for each cost category listed in Items 7 and 8.
- Item 11 — Enter the unit of measure for dollar amounts shown (e.g., exact, hundreds, thousands, etc.). In the blocks heading each column, enter the first letter of each month of the budget period.
- Item 12 — a through c — Enter budget period (e.g., 78, 79, etc.) for future budget period of the grant. Enter planned costs by future budget period for each category listed in Items 7 and 8.
- Item 13 — Enter the total planned grant costs for each reporting category listed in Items 7 and 8, (summation of items 10, 11, and 12).
- Item 14 — Enter the total costs for each column in Items 9, 10, 11, 12, and 13. Enter only on the final page of a multi-page Grant Cost Plan.
- Item 15 — Enter explanatory notes and brief comments. If more space is required, attach additional sheets and so indicate in this block.

Item 16 — Signature of responsible program manager and date signed, verifying the reasonableness of the information furnished based on his personal knowledge of the grant.

Item 16a — Signature and title of verifying official (if any) and date signed, verifying the reasonableness of the information furnished.

Item 17 — Signature of responsible Government Representative and date signed verifying the reasonableness of the information provided.

*These items need only be entered on the first page of a multi-page Grant Cost Plan.

GRANT MANAGEMENT SUMMARY REPORT

PAGE 1 OF 1

1. Grant Identification No. 94-163	2. Task Number 400	3. Task Identification Lighting Efficiency Stds.	4. Reporting Period 7/01/78 through 9/30/78																																																			
5. Performer (Name and Address) State of Alexandria State Energy Office 150 Falls Church Ave. Great Falls, Alexandria		6. Task Start Date 1/01/77	7. Task Completion Date 11/01/79																																																			
8. Months O N D J F M A M J J A S .9. FY 78																																																						
10. Cost Status -- Dollars Expressed in Thousands																																																						
a. Fiscal Year Cost Graph																																																						
<table border="1"> <tr> <td>Accrued Costs</td> <td>b. Planned</td> <td>1.6</td><td>5.6</td><td>5.9</td><td>5.9</td><td>5.9</td><td>5.9</td><td>5.9</td><td>6.4</td><td>6.4</td><td>6.6</td><td>6.6</td><td>6.6</td> </tr> <tr> <td></td> <td>c. Actual</td> <td>1.6</td><td>5.6</td><td>9.1</td><td>8.6</td><td>5.9</td><td>5.9</td><td>5.4</td><td>6.1</td><td>8.0</td><td>6.2</td><td>6.1</td><td>6.0</td> </tr> <tr> <td></td> <td>d. Variance</td> <td>0</td><td>0</td><td>3.2</td><td>2.7</td><td>0</td><td>0</td><td>(.5)</td><td>(.3)</td><td>1.6</td><td>(.4)</td><td>(.5)</td><td>(.6)</td> </tr> </table>				Accrued Costs	b. Planned	1.6	5.6	5.9	5.9	5.9	5.9	5.9	6.4	6.4	6.6	6.6	6.6		c. Actual	1.6	5.6	9.1	8.6	5.9	5.9	5.4	6.1	8.0	6.2	6.1	6.0		d. Variance	0	0	3.2	2.7	0	0	(.5)	(.3)	1.6	(.4)	(.5)	(.6)									
Accrued Costs	b. Planned	1.6	5.6	5.9	5.9	5.9	5.9	5.9	6.4	6.4	6.6	6.6	6.6																																									
	c. Actual	1.6	5.6	9.1	8.6	5.9	5.9	5.4	6.1	8.0	6.2	6.1	6.0																																									
	d. Variance	0	0	3.2	2.7	0	0	(.5)	(.3)	1.6	(.4)	(.5)	(.6)																																									
<table border="1"> <tr> <td>e. Planned Costs to Date</td> <td>121.8</td> </tr> <tr> <td>f. Actual Costs to Date</td> <td>127.7</td> </tr> <tr> <td>g. Planned Cost: This Quarter</td> <td>19.8</td> </tr> <tr> <td>h. Actual Costs This Quarter</td> <td>18.3</td> </tr> <tr> <td>i. Planned FY Costs Per Task</td> <td>69.3</td> </tr> </table>				e. Planned Costs to Date	121.8	f. Actual Costs to Date	127.7	g. Planned Cost: This Quarter	19.8	h. Actual Costs This Quarter	18.3	i. Planned FY Costs Per Task	69.3																																									
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11. Major Milestone Status																																																						
<table border="1"> <tr> <td>a. Hire Lighting Standard Coordinator</td> <td>██████████</td> <td>100%</td> </tr> <tr> <td>b. Choose Membership Light. Stds. Committee</td> <td>██████████</td> <td>100%</td> </tr> <tr> <td>c. Prepare Lighting Stds.</td> <td>██████████</td> <td>100%</td> </tr> <tr> <td>d. Conduct Public Hearings</td> <td>██████████</td> <td>100%</td> </tr> <tr> <td>e. Amend State Bldg. Code</td> <td>██████████</td> <td>100%</td> </tr> <tr> <td>f. Publish & Distribute State-wide Light. Stds.</td> <td>██████████</td> <td>100%</td> </tr> <tr> <td>g. Inform. Meetings Build. Owners & Managers</td> <td>██████████</td> <td>100%</td> </tr> <tr> <td>h. Enforcement Personnel Training Workshops</td> <td>██████████</td> <td>100%</td> </tr> <tr> <td>i. Recruit Audit Staff</td> <td>██████████</td> <td>100%</td> </tr> <tr> <td>j. Establish Inform. Bank</td> <td>██████████</td> <td>100%</td> </tr> <tr> <td>k. Establish Lighting Stds. Audits</td> <td>██████████</td> <td>C1-79 50%(v)</td> </tr> <tr> <td>l.</td> <td></td> <td></td> </tr> <tr> <td>m.</td> <td></td> <td></td> </tr> <tr> <td>n.</td> <td></td> <td></td> </tr> <tr> <td>o.</td> <td></td> <td></td> </tr> <tr> <td>p.</td> <td></td> <td></td> </tr> <tr> <td>q.</td> <td></td> <td></td> </tr> </table>				a. Hire Lighting Standard Coordinator	██████████	100%	b. Choose Membership Light. Stds. Committee	██████████	100%	c. Prepare Lighting Stds.	██████████	100%	d. Conduct Public Hearings	██████████	100%	e. Amend State Bldg. Code	██████████	100%	f. Publish & Distribute State-wide Light. Stds.	██████████	100%	g. Inform. Meetings Build. Owners & Managers	██████████	100%	h. Enforcement Personnel Training Workshops	██████████	100%	i. Recruit Audit Staff	██████████	100%	j. Establish Inform. Bank	██████████	100%	k. Establish Lighting Stds. Audits	██████████	C1-79 50%(v)	l.			m.			n.			o.			p.			q.		
a. Hire Lighting Standard Coordinator	██████████	100%																																																				
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q.																																																						
13. Remarks Item 11K -- Continues into FY79.																																																						
14. Signature of Program Manager and Date D.B. Bigg, Director, State Energy Office 4/15/78		15. Signature of Government Representative and Date																																																				

INSTRUCTIONS FOR PREPARING THE GRANT MANAGEMENT SUMMARY REPORT ARE PRINTED ON THE BACK OF THE FORM. SAMPLE INSTRUCTIONS ARE ALSO REPRINTED ON THE BACK OF THIS EXHIBIT.

1. PREPARATION -- THE REPORT IS PREPARED BY THE AGENCY/OFFICE RESPONSIBLE FOR PERFORMANCE OF THE TASK OR, THE CENTRAL AGENCY/OFFICE RESPONSIBLE FOR COORDINATION AND ADMINISTRATION OF THE GRANT.

2. COST DATA FORMAT -- THE UNIT OF MEASURE AND DATA FORMAT FOR FIGURES SHOWN MUST BE THE SAME AS USED IN THE COST PLAN.

3. COST GRAPH -- THE CURVES BEGIN AT ZERO AT THE BEGINNING OF EACH BUDGET PERIOD. THE BOTTOM LINE OF THE GRAPH IS SET AT ZERO AND AN APPROPRIATE SCALE IS SELECTED TO MAXIMIZE THE ACCURACY AND LEGIBILITY OF THE CURVE. THE GRAPHIC DISPLAY INDICATES THAT CUMULATIVE ACTUAL COSTS (SOLID LINE) EXCEED PLANNED COSTS (DASHED LINE) FOR THIS TASK. REFER TO SECTION 6 FOR DETAILED EXPLANATION OF CHARTING CONVENTIONS.

4. PLANNED AND ACTUAL COSTS -- EACH BLOCK REPRESENTS THE ACCRUED AMOUNT FOR A SINGLE MONTH AND IS NOT CUMULATIVE. ESTIMATES OF ACCRUED COST MAY BE USED IF THEY ARE REASONABLY ACCURATE AND EXACT AMOUNTS ARE UNAVAILABLE. THESE COSTS INCLUDE ALL FUNDS AVAILABLE TO AND UTILIZED ON THE PROGRAM MEASURE.

5. MILESTONE SYMBOLOGY -- THE CHARTING SYMBOLOGY PRESCRIBED FOR THE MILESTONE PLAN IS ALSO EMPLOYED FOR THIS REPORT. REFERENCE SECTION 6 FOR DETAILED EXPLANATION OF SYMBOLOGY.

6. EXTENDED ACTIVITY -- IF THE ACTIVITY EXTENDS BEYOND THE CURRENT BUDGET PERIOD, THE SCHEDULED COMPLETION DATE IS SHOWN IN THIS SPACE.

7. PERCENT COMPLETE -- THE PERCENT COMPLETE IS BASED ON THE BEST JUDGEMENT OF THE PROGRAM MANAGER OR HIS DESIGNEE. IT REPRESENTS THE WORK THAT HAS BEEN ACCOMPLISHED AS A PERCENTAGE OF THE TOTAL WORK THAT IS PLANNED. THE SYMBOL (v) IS USED TO SHOW VARIANCE FROM PLANNED PERFORMANCE.

EXHIBIT 5-4. GRANT MANAGEMENT SUMMARY REPORT

GRANT MANAGEMENT SUMMARY REPORT

PURPOSE

A single page graphic presentation of integrated cost and major milestones for rapid visual analysis and trend forecasting. Funding levels shown on this document represent all available resources.

INSTRUCTIONS

- Item 1 — Enter the grant identification number as it appears in the official document establishing the grant and append the latest modification number.
- Item 2 — Enter the task identification number as it appears in the work breakdown structure or the State Energy Conservation Plan (e.g., 100, 200, etc.).
- Item 3 — Enter the task identification/description as it appears in the State Energy Conservation Plan (e.g., lighting standards, carpool/vanpool, etc.).
- Item 4 — Enter the inclusive start and completion dates for the reporting period for this report.
- Item 5 — Enter the name and address of the agency or office responsible for performance of the task.
- Item 6 — Enter the official start date of the original grant.
- Item 7 — Enter the official completion date, as of the latest modification to the grant.
- Item 8 — Enter the first letter of each month of the budget period in the twelve blocks.
- Item 9 — Enter current budget period.
- Item 10 —
 - a — Enter on the left of the grid an appropriate scale in dollars for the horizontal lines in the grid and indicate unit of measure (e.g., exact, hundreds, thousands, etc.). To the right of the grid enter the percentage of funds allocated. On the grid formed by the dollar scale and the month of the year, plot planned cumulative cost (using a dashed line) for the current budget period and actual cumulative cost (using a solid line) for each month up to and including the month being reported, with a dotted line extended from that point to indicate estimate of costs to be incurred for the remainder of the budget period.
 - b — Enter planned cost for each month of the current budget period.
 - c — Enter actual cost for each month of the current budget period.
 - d — Subtract the planned cost (10b) from the actual cost (10c) for each month and enter the difference. Show minus amounts in parentheses. Flag actual or projected variance by placing the symbol (V) following the recorded variance.
 - e — Enter total planned costs for the current, as well as all prior budget periods.
 - f — Enter total actual costs for the current, as well as all prior budget periods.
 - g — Enter the planned costs for the current quarter
 - h — Enter the actual costs for the current quarter
 - i — Enter the planned costs for the current budget period.
 - j — Enter grant ceiling line at top of the graphical representation. The total grant ceiling is the total funds obligated by the government plus the performer's cost share. When applicable, reflect changes in grant ceiling without changing prior ceiling line
- Item 11 — a through g — Enter current budget period milestone descriptions established in the work breakdown structure of State Energy Conservation Plan. In the horizontal space to the right of each event, plot milestone and activity data by month using the charting information shown in instructions for the Grant Milestone Plan. If a milestone is not scheduled for completion in the current fiscal year, enter in the space at the extreme the planned month and year of completion prefixed with "C" (e.g., C 7-80). Flag any schedule variance by placing the symbol (V) in the percent completion column opposite the recorded event
- Item 12 — Enter percentage of completion of each task.
- Item 13 — Enter any explanatory remarks. All schedule variances must be briefly explained here or in the State Implementation Progress Report.
- Item 14 — Signature of responsible performer, central agency or organization program manager and date signed, verifying the reasonableness of the information furnished based on his personal knowledge of the grant's progress and status.
- Item 15 — Signature of responsible Government Representative and date signed, verifying the reasonableness of the information furnished.

EXHIBIT 5-5. IMPLEMENTATION PROGRESS REPORT

I. HEADING

The following data elements would be included in the heading of the report to facilitate handling and processing:

- A. Report Title, Number, Date, and Period Covered
- B. Grant Identification and Number
- C. State Name
- D. Total Conservation Funding to Date.

II. BODY

The body of the report would include the following major elements:

A. Program Status by Task

List each of the tasks and its related identification number. For each task, describe any changes to the technical approach and provide a summary of the work accomplished during the reporting period, the progress achieved, and the work planned for the next period. Items that are exhibiting unanticipated results (either favorable or unfavorable) or reportable variances should be highlighted.

B. Summary of Milestone Variances

All schedule variances (either current period or cumulative) must be systematically analyzed to access cause and effect on the work, proposed solutions with anticipated results, alternatives considered, and action taken as recommended. In many cases, variances or problems are multifaceted, affecting cost, schedule, technical, and interface factors. In light of this, the presentation should be made in a manner which best fits the circumstances.

C. Summary Status Assessment and Forecast

The program manager should use this section for his personal assessment of the current situation and a forecast of the near future, plus the effects present circumstances may have on the major goals of the project. It should encompass technical, cost, schedule, and other aspects the program manager considers essential. This section may also be used to present subject matter not covered by standard reports, as well as for general observations.

120

- up:

COST VARIANCE REPORT

PURPOSE

A periodic assessment of accrued costs in terms of their variances from the Cost Grant Plan in effect.

INSTRUCTIONS

- Item 1 — Enter the grant identification number as it appears in the official establishing document and append the latest modification number.
- Item 2 — Enter the inclusive start and completion dates of the reporting period for this report.
- Item 3 — Enter the task identification number as it appears in the work breakdown structure or the State Energy Conservation Plan (e.g., 100, 200, etc.).
- Item 4 — Enter the task identification/description as it appears in the State Energy Conservation Plan (e.g., lighting standards, carpool/vanpool, etc.).
- Item 5 — Enter the variant cost object category for each task in Item 4. This corresponds to the cost object in Item 8 on the Grant Cost Plan.
- Item 6 — All cumulative accrued costs shall be reported for each of the categories listed in Item 5. Enter costs accrued for each reporting category.
 - a — Enter the cumulative total of all costs incurred from the beginning of the period of performance to the end of the reporting period
 - b — Enter the cumulative total of all costs planned from the beginning of the period of performance to the end of the reporting period, as stated in the baseline Grant Cost Plan
 - c — Subtract the cumulative planned costs (6b) from the cumulative actual costs (6a) and enter the difference.
- Item 7 — Enter the grant recipient's best estimate of the cost to perform the remaining work on the task. The estimates may deviate from the baseline Grant Cost Plan.
 - a — Enter the estimated cost of the subsequent reporting period
 - b — Enter the estimated cost of the balance of the budget period (including the amounts in Items 6a and 7a).
- Item 8 — Enter planned budget period cost for each variant cost category. This information is displayed as a total under Item 11 of the Grant Cost Plan.
- Item 9 — Enter explanatory notes and brief comments. If more space is required, indicate so and attach additional sheets in this block.
- Item 10 — Enter signature of responsible central agency or organization program manager and date signed, verifying the reasonableness of the information furnished based on his personal knowledge of the grant's progress and status.
- Item 10a — Signature and title of verifying official (if any) and date signed, verifying the reasonableness of the information furnished.
- Item 11 — Signature of responsible government representative and date signed, verifying the reasonableness of the information furnished.

SECTION 6 - CHARTING AND SYMBOLOGY

6.1 MILESTONE PLAN

The Milestone Plan will be prepared to the level of detail of the work breakdown structure (Level 1 - task, Level 2 - milestone, Level 3 - intermediate event). It will address each specified task breakout required by the grant (Lighting Efficiency Standards, etc.).

The symbology and charting conventions to be employed for the Milestone Plan and Grant Management Summary Report are described on the reverse side of the Milestone form and listed below for information:

SYMBOLS

Critical Milestone

Intermediate Event (Deliverable, Supporting Event, or Decision Point)

Intermediate Event completed early or late

Activity Bar

Time Now

EXAMPLES

A. (Critical milestone with an activity bar)

B. (Time now and work done, event on critical path)

C. (First change approved)

D. (Activity ahead of schedule)

E. (Activity behind schedule)

F. (Late and on time completion of intermediate events A and B, respectively)

G. (Original critical milestone date and four subsequent approved changes (all slippages) to that date)

H. (Original critical milestone date and two subsequent approved changes (one slippage, one improvement) to that date)

CONVENTIONS

1. Blacked-in figures or bars are used to show completed work.
2. Open figures or bars show work not completed.

3. (critical milestone) is twice as large as or (intermediate event).
4. Under no condition should more than one (critical milestone) be shown on a single horizontal line. (See Example C for a method of denoting a rescheduled critical milestone ; the number "1" indicates the first rescheduling.) Normally the original symbol would be shown with the latest rescheduled date (a with an associated number). In certain cases, where it is desired to show a complete history of re-scheduling, a series of s with associated sequence numbers might be shown, as in Example G. s (representing critical milestone) will be shown above the activity bar when it is blacked in. If it is not desirable to retain the rescheduling history, Conservation Offices may request only the current approved critical milestone be shown.
5. Intermediate event symbols are placed above the bar and represent the date when the activity or event will finish. A description of each intermediate event should be provided in an attachment to the Milestone Plan. One of the two methods is used to show when intermediate events are completed:
- a. If the event is completed on time, it is blacked in as provided in Convention 1 above (see Example F, Event B).
 - b. If the event is completed early or late, the symbol for the intermediate event is inverted ( ) and shown below the line

or activity, identified in the same way as the original, and both symbols are blacked in (see Example F, Event A).

6.2 GRANT MANAGEMENT SUMMARY REPORT

The cost curves plotted on the Grant Management Summary Report are cumulative for the current budget period from the beginning of the budget period to the end of the reporting for actuals and to the end of the current budget period for planned.

Numerical cost data located beneath the graphs are entered for each month and are not cumulative. Variances are also monthly.

6.2.1 Cumulative Cost Graph - Item 10a

This item graphically presents cumulative costs - planned and actual - for the current budget period. The dollar scale for the graph in Item 10 must maximize accuracy and legibility of the graph. The bottom line on the graph is set at zero. Cumulative planned expenditures are shown by the broken line. The solid line represents the actual cumulative total spent at any given time through the end of the current reporting period. A dotted line represents the performer's estimate of costs to be incurred for the balance of the budget period. The horizontal line at the top of the graph represents the maximum cost obligation of the grant for the current budget period, as contained in the latest modification to the grant. The performer cannot exceed such ceiling limitations without written permis-

sion from the grantee. The "time now" line is a dashed line running vertically through all three segments (months, cost graph, milestone status) of the form indicating the end of the reporting period.

6.2.2 Milestone Status Graph - Item 11

The Major Milestone Status chart uses the time scale established in Item 8. The dashed vertical line indicates the end of the current reporting period. Only major milestones are shown in this chart, representing high levels of the work breakdown structure. In the example, the solid bars represent work completed up to this time. The large open triangle represents the expected completion date. If the activity extends beyond the current project year use the last column to indicate the month and year of scheduled completion (e.g., C10-80). The v flags a schedule variance that will be explained in detail on an attachment or in the State Implementation Progress Report.

6.2.2.1 Completed Critical Milestones and Intermediate Events

The activity bar is solid black and the blacked-in milestone triangle is raised to the top of the activity bar indicating the preparation of Thermal Standards is completed. The supporting events A, B, and C were completed earlier as shown. The percent complete would also be shown to be 100%.

6.2.2.2 Schedule Slippage and Intermediate Events

The open △ at the end of the activity bar indicates that completion of the task has slipped to that date but the change has not yet been approved. The open △ in the bar indicates the originally scheduled completion date. Intermediate Events A, B, and C have been completed;

however, as indicated by a blacked in Δ below the bar, the intermediate event B was completed behind schedule. Note the activity bar does not reach the "time now" line, indicating that progress is lagging behind schedule. This variance is flagged by the symbol v in the right hand margin. The overall task is subjectively estimated to be 65 percent complete by the program manager. This schedule slippage would have to be explained in the State Implementation Progress Report.

6.2.2.3 Late Intermediate Event

Prepare Thermal Standards, intermediate event Δ A, was completed late, as indicated by the inverted intermediate event symbol below the bar.

SECTION 7 - WORK BREAKDOWN STRUCTURE

7.1 INTRODUCTION

This section provides an explanation of the use of the WBS technique for managers responsible for program measures (or tasks) supporting State Energy Conservation Plans. The WBS is primarily a program planning technique aimed at defining within an organizational matrix framework, the detailed products, activities, and events to be accomplished for successful achievement of program objectives. When completed, the WBS serves as the foundation for work assignment, and cost and schedule planning for the coming fiscal year.

7.2 PURPOSE OF THE WORK BREAKDOWN STRUCTURE

For each task, the WBS is developed by starting with the end objectives of the task and dividing these objectives into the major milestones and intermediate events necessary to achieve the end-event or task (e.g., Lighting Standards etc.). The purpose of the WBS is to provide for planning and control by subdividing the work into smaller increments until a manageable unit is reached. A top-down approach is used to ensure the total program is fully planned and all derivative plans contribute directly to the desired end result. The basic approach under GMPS is to develop a WBS for each task identified in the State Energy Conservation Plan. These become the organizational framework for assigning responsibility, executing the task and its component parts, establishing plans, allocating resources, assessing status, evaluating performance, and reprogramming.

7.3 PREPARATION - LEVEL IDENTIFICATION AND CODING

The concept of organizing a WBS by "level" is a formalized and disciplined approach to identify the nature of elements within the WBS. In preparing a WBS, the program is first broken down by its major tasks (Level 1). The tasks will be the same as those program measures specified in the grant application (i.e., Carpool/Vanpool, Lighting Efficiency Standards, Thermal Efficiency Standards, etc.). The tasks would receive a 3-digit code (e.g., 100, 200, 300, etc.). Within these tasks, there are a number of critical steps which must be taken to ensure the successful completion of each task. These steps are called major milestones and comprise Level 2 of the WBS. Each major milestone would receive a code prefix identifying it as sublevel of its respective task. Additionally, each major milestone would receive a sequential decimal code. Typical major milestone codes may appear as: 200.1, 200.2, 200.3, etc.

The WBS elements in the third level are called Intermediate Events. These events are necessary integral components of the major milestones. Just as the major milestones are critical to the completion of the task, so too are the Intermediate Events critical to the successful completion of each major milestone. Coding is not specified here because only WBS elements within the first two levels are used in the planning sections of GMPS.

LEVEL 2: MAJOR MILESTONES

LEVEL 3: INTERMEDIATE EVENTS

The WBS may be broken down further into successively lower levels, but a 3-level WBS is considered sufficient for most tasks within the State Energy Conservation Plan. Moreover, the configuration, content, and level of detail of each WBS will vary from task to task depending on:

1. Complexity and time span of the task
2. Estimated cost of the task
3. Program management structure
4. Number of contractors and their relationship
5. Management needs and objectives.

A properly structured WBS will readily allow complete aggregation of cost, schedule, and performance data from appropriate lower levels up to the Task (or Program Measure) and Major Milestone levels where reporting would occur. Refer to Exhibit 7-1 as an illustration of this concept.

LEGEND

LEVEL 1 TASKS — STATE REPORTING TO CONSERVATION OFFICE

LEVEL 2 MAJOR MILESTONES — STATE REPORTING TO CONSERVATION OFFICE

LEVEL 3 INTERMEDIATE EVENTS — STATE PLANNING PURPOSES

Exhibit 7-1. Exampled Work Breakdown Structure

7.4 RELATIONSHIP TO MILESTONE PLANNING

Milestone planning focuses on sequential achievement of significant actions necessary for successful completion of each task. It provides schedules and sequential relationships among major activities and events of the task effort. The WBS provides the identification of many activities and events which will go into development and application of the milestone plan.

It is important to sound program management to develop a timetable for completion of milestones critical to the accomplishment of the major task or program measure. Major milestone planning presents a formalized structure that enables the program manager to plan for performance measurement of any given task.

The first step in milestone planning involves an estimate of the time required to complete each major milestone. The basis for this estimate may be the program manager's subjective judgement or objective measurement, when possible. For example, a program manager may estimate the number of man hours required for a particular milestone, then divide by the number of people planned to work on the milestone and base his milestone plan on this estimate. The exact forecasting method is not as important as the validity of the estimation. The following figure shows a Milestone Plan at the completion of this performance estimation stage.

[illegible]

In the case of milestone 200.6, the estimate was likely provided by the contractor, Greentree Publishing, and no separate estimation by the program manager was necessary.

Exhibit 7-2 shows the flow process of the major milestones. Initially listed in Level 2 of the WBS, the milestones are graphically plotted on the Milestone Plan. The completion time estimated for each major milestone provides parameters for estimating the Intermediate Event performance schedule.

Intermediate Events are product or activity oriented events listed in Level 3 of the WBS. Not all third-level WBS elements are listed as Intermediate Events because not all are critical decision points. As shown in Exhibit 7-2, the activities culminating in Intermediate Event "A"; Document Carpool Report Review, are not displayed on the Intermediate Event listing

**LEVEL 2
MAJOR MILESTONES**
**LEVEL 3
INTERMEDIATE
EVENTS**
WORK BREAKDOWN STRUCTURE

MILESTONE PLAN

1. Grant Identification No.	94-163	2. Task Number	200	3. Task Identification	Carpool/Vanpool	4. Planning Period	10/01/77 through 9/30/78							
5. Performer (Name, Address)	State of Alexandria, Department of Transportation 300 Richmond Drive Great Falls, Alexandria			6. Task Start Date	1/01/77	7. Task Completion Date	1/01/80							
8. Identification Number	9. Planning Category (Work Breakdown Structure Element)	10. Budget Period in Months and Quarters				11. Contractual Agreement (Name of Performer)								
		O	N	D	J	F	M	A	M	J	J	A	S	
200.1	Examine, Elaborate Masspool Report	A												
200.2	Prioritize Previously Contacted Employers	B C												
200.3	Contact High Priority Employers	D E												
200.4	Initial Contact New Employers	F G												
200.5	Brief Commerce & Dev. Staff & Energy Office	H												
200.6	Develop & Issue State Newsletter II	I J												GreenTree Publishing
200.7	Complete Ride Share Strategy & Identify Contracts	K L M												
12. Remarks														
13. Signature of Program Manager and Date H. R. Mancho, Director, Department of Transportation 7/1/77														
14. Signature of Government Representation and Date														

INTERMEDIATE EVENT LISTING

94-163	200	Carpool/Vanpool	10/01/77 - 9/30/78
A	Document Masspool Report Review	11/1/77	
B	Ride Share Potential Criteria Complete	11/21/77	
C	Prioritize Listing of Previously Contracted Employers	12/14/77	
D	Schedule Contact Appointments	1/16/78	
E	Complete Contact Presentations	4/14/78	
F	Schedule Contact Appointments	1/16/78	
G	Complete Contact Presentations	4/14/78	
H	Complete Briefing Materials	7/21/78	
I	Inventory Materials Complete	8/14/78	
J	Draft Newsletter Development	9/8/78	
K	Complete Ride Share Strategy	8/7/78	
L	Implementation Plan Developed	8/25/78	
M	Contracts Identified	9/22/78	

EXHIBIT 7-2. MAJOR MILESTONE FLOW

but are identified on the WBS since they are essential to completing Event A and, in turn, Major Milestone 200.1

7.5 MANAGEMENT CONSIDERATIONS

The management of nearly all programs will benefit from the application of the WBS technique. Programs which are basically simple in nature (neither of long duration nor calling for large expenditures of effort and resources) may not require a detailed hierarchial WBS. This will depend on the professional judgement of the program manager. Good management practice would indicate, however, that a reasonably complete definition of work elements to be accomplished would be developed to ensure completion of program end-items.

WBS is not an end in itself; rather it is a tool to be used by management to ensure accomplishment of objectives, with minimum expenditure of resources and time on unfruitful effort. As such, the initial development of the WBS requires detailed effort on the part of the program manager, supporting staff, and subordinate management personnel. This will ensure that the WBS will reflect program management needs and objectives, and represent designated responsibilities and work effort. As the program progresses, continuing management effort will be required for updating, reviewing, and evaluating program effort as defined by the WBS. Since program management and activity is a dynamic process, changes in the WBS can be expected to become necessary. Such changes will require consideration and decision during the management review and evaluation effort.

Care must be taken to ensure that the WBS provides for logical division of program work, and subdivision elements represent all elements required to complete the higher level from which they are derived. The development of the WBS, from the top level downward, facilitates this audit effort.

SECTION 8 - MEASUREMENT AND REPROGRAMMING

8.1 THE MEASUREMENT FUNCTION

Measurement, as defined in the GMPS context, is the steps taken to assess the financial implications of past program performance upon the following fiscal year's planned activities. The measurement function can be accomplished using a host of techniques requiring varying degrees of sophistication. While analysis is not mandatory for GMPS purposes, good management practice would dictate that some form of evaluation be done. Regardless of the method of analysis, the effort should focus on the following essential areas: (1) cost/benefit analysis of each task and (2) evaluation of effectiveness in planning and performance.

MEASUREMENT

FINANCIAL IMPLICATIONS

GOVERNOR'S OFFICE
OR CENTRAL STATE
ENERGY AGENCY/OFFICE

COORDINATES
WITH PERFORMING
AGENCIES/OFFICES

8.2 COST/BENEFIT ANALYSIS

The initial activity for cost/benefit analysis considers each task against the predetermined energy savings criteria established by Region-

al Conservation Offices. This is accomplished through the annual Program Report, which evaluates energy savings by task. Once a measure of program achievement is derived, an assessment of the activities needed to continue the task can be made. In concert, a determination will be made of the costs required to carry out the task in the coming year.

A revised WBS becomes the basis for structuring these future activities and costs, and the Grant Management Summary Report provides both background information and an analytical framework for staff and line managers to evaluate priorities and allocate budget funds among competing objectives and program needs. When these budget determinations are completed, program management can evaluate the benefits available at various levels of expenditure and effort, and can study the consequences in energy efficiency of not carrying out tasks below these levels.

8.3 EVALUATION OF PAST PLANNING AND PERFORMANCE

The second phase of the measurement function involves evaluation of effectiveness in past planning and performance and is performed concurrently with cost/benefit analysis. One technique which could be used for ongoing program control, as well as year-end resource planning, is based on three indices progressively computed and charted over time. The three indices used in this technique are:

1. Cost Index (CI), which is the ratio of planned costs to actual costs.
2. Achievement Index (AI), which is the ratio of planned achievement to actual achievement (each measured

in terms of percent complete).

3. Efficiency Index (EI), which is the ratio of the Cost Index to the Achievement Index.

The data used to compute these indices can be taken directly from the Grant Management Summary Report, as shown in Exhibit 8-1. Exhibit 8-2 depicts the criticality levels associated with the Efficiency Index; Exhibits 8-3 and 8-4 illustrate the way the plots of EIs can provide management with basic information; and Exhibit 8-5 delineates the manner in which indexed data may be used to graphically monitor past planning and current program performance.

The graphic display of indexed performance data allows program managers to visually compare performance trends of several tasks for which they are responsible. It provides a convenient comparison mechanism to analyze tasks of different funding levels because data is normalized in index form. Since performance data is plotted periodically, extensive management review of cost variance information is not required at year's end to ascertain which programs or tasks are marginal in terms of performance, economic benefit, or program continuance. The actual calculation and plotting of indices is simplified because the required information is readily available from the Grant Management Summary Report. The following is an example of the way the indices are computed (refer to Exhibit 8-6 for specific cost data):

Exhibit 8-1. Measurement - Calculation of Performance Indexes

Exhibit 8-2. Efficiency Index Upper And Lower Bounds

Exhibit 8-3. Sample Efficiency Index Plots

A. PROJECT ON TARGET

- (1) LOOK FOR SUPERIOR METHODS, SKILLS, AND TALENT – APPLY ELSEWHERE

B. PROJECT DEFINITION PROBLEM

- (1) PLAN NEEDS TO WORK
- (2) OBJECTIVES MAY BE UNCLEAR
- (3) MANAGEMENT REORGANIZATION INDICATED

C. PROJECT PLAN CONSISTENTLY OPTIMISTIC

- (1) MORE RESOURCES REQUIRED
- (2) REVIEW PLAN

D. PROJECT PLAN CONSISTENTLY PESSIMISTIC

- (1) RESOURCE REALLOCATION TO OTHER ACTIVITIES INDICATED
- (2) REVIEW PLAN

Exhibit 8-4. Sample Efficiency Index Plots

E. PROJECT PROGRESSIVELY OUT- PERFORMING PLAN

- (1) PLAN NEEDS REVIEW DEFINITION
MAY BE SUPERFICIAL
- (2) RESOURCE REALLOCATION TO
OTHER ACTIVITIES INDICATED
- (3) LOOK FOR SUPERIOR SKILLS AND
TALENT - USE IN NEEDY ACTIVITY
ELSEWHERE

F. PROJECT GOING OUT OF CONTROL

- (1) MORE RESOURCES MAY BE NEEDED
- (2) PLAN NEEDS CRITICAL REVIEW AND
REVISION
- (3) MANAGEMENT REORGANIZATION AND ACTION
REQUIRED - CORRECTIVE MEASURES NEEDED

G. PROJECTS CONVERGING TOWARD PLANNED PERFORMANCE

- (1) LOOK FOR METHODS WHICH
CAUSED IMPROVED PERFORMANCE
- APPLY ELSEWHERE
- (2) MAY REFLECT THE EFFECTS OF
PREVIOUS MANAGEMENT ACTION

H. PROJECT PROBLEM WITH RECURRENT PATTERN

- (1) MAY INDICATE CORRECTIVE ACTION
WAS ONLY A SYMPTOMATIC CURE
- (2) MAY INDICATE LACK OF FOLLOW-UP
IN REVISED PLAN
- (3) MANAGEMENT REVIEW INDICATED

EFFICIENCY INDEX GRAPH

KEY ELEMENT

- EVALUATES EFFECTIVENESS OF PAST PLANNING AND PERFORMANCE

COST/SCHEDULE VARIANCE GRAPH

KEY ELEMENT

- EVALUATES PROGRAM PERFORMANCE TRENDS

Exhibit 8-5. Graphic Display of Financial Implications

Task: Carpool/Vanpool

Period: Second Quarter

Cost Index:

$$\frac{\text{Planned Quarter Cost}}{\text{Actual Quarter Cost}} = \frac{43.1}{45.2} = .95$$

Achievement Index:

$$\frac{\text{Planned Achievement}}{\text{Actual Achievement}} = \frac{400\%}{320\%} = 1.25$$

Efficiency Index:

$$\frac{\text{Cost Index}}{\text{Achievement Index}} = \frac{.95}{1.25} = .76$$

EFFICIENCY INDEX GRAPH

COST/SCHEDULE VARIANCE GRAPH

GRANT MANAGEMENT SUMMARY REPORT

1. Grant Identification No. 94-163	2. Task Number 200	3. Task Identification Carpool/Vanpool	4. Reporting Period 1/1/78 through 3/31/78
5. Performer (Name and Address) State of Alexandria, Department of Transportation 300 Richmond Drive Great Falls, Alexandria			6. Task Start Date 1/01/77
			7. Task Completion Date 1/01/80

8. Months	O N D J F M A M J J A S	9. BY 78
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11. Major Milestone Status	12. Percent Complete Total Task
a. Examine, Elaborate Carpool Report	100%
b. Prioritize Previously Contacted Employers	100%
c. Contact High Priority Employers	60% (v)
d. Initial Contact New Employers	60% (v)
e. Brief Commerce & Dev. Staff & Energy Office	
f. Develop & Issue State Newsletter II	0%
g. Complete Ride Share Strategy & Idem. Contr.	0%
h.	
i.	
j.	
k.	
l.	
m.	
n.	
o.	
p.	
q.	

13. Remarks **Item 11c - Delays encountered in computerizing data; Cost overrun due to increased user charges; No further cost impact.**
 Item 11d - Delays in initiating contact; No cost impact expected.

14. Signature of Program Manager and Date H. R. Honcho, Director, Dept. of Transportation	15. Signature of Government Representative and Date
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8.4 REPROGRAMMING

Because GMPS may be used as an internal management tool, it can play a significant role in helping to justify budget requests for both base programs and increases. By utilizing the cost-benefit structure, program managers can readily see the end benefits and cost effectiveness of each task. Thus, reallocation of resources, schedule amendments, and priority modification needs become evident where they exist, easing the burden on program managers and budget officials in their preparation and submission of proposals. As a result, GMPS provides managers with another tool to help allocate scarce resources effectively and maximize the contribution to national, state, and agency objectives.

SECTION 9 - GLOSSARY OF TERMS

Accrued Costs - The formal recognition of costs for the actual or constructive receipt of goods and services at the time they are received regardless of whether payment has been made. Incurrence of cost results from, but is not limited to, any of the following: (1) receipt of an invoice, (2) report of materials and services received, (3) reports from contractors of cost incurred under cost type contracts, or (4) in the absence of any of the above, when a liability is incurred or a payment is made. Capitalized inventory and other assets received are also accrued, but are not considered a cost until consumed or expended.

Acquisition - The process of obtaining the services of an outside organization (laboratory, company, university, Government agency, etc.) to provide products and/or services that are required to carry out an approved program.

Authorized Work - That effort that has been defined and is on contract and for which contract prices have not been agreed to but for which authorization has been received by the performer from the grant officer.

Budget - A dollar translation of the resources required during stated periods of time for the accomplishment of a work plan or plans intended to achieve one or more goals.

Cost, Direct - Costs readily identified with specific activities. The term should not be used without stating "direct to what." For example, a cost may be direct to a program, but indirect to a program subdivision; or

direct to a grant, but indirect to a subdivision of work under the grant.

Cost Variance Report - Details the performer's cost performance against the Grant Cost Plan and provides a current estimate of future program costs. The reporting categories used in the Cost Variance Report should be identical to those established for the Grant Cost Plan. The order of reporting category presentation should also be identical in both reports.

Deliverable - A product of one or more tasks that satisfy one or more objectives. The report or other product that must be delivered to satisfy grant requirements.

Direct Labor Hours - Hours worked for labor or services that are directly assignable to a specific program, system, or task. Although the hours representing labor or services of an overhead nature are directly attributable to a service output, these hours are not considered as direct in this context.

Estimated Cost at Completion - Performer's estimate of final costs for performing all agreed upon work. It will be actual cumulative cost to date plus the estimated costs for remaining authorized work.

Cost Plan - Displays the planned rate of dollar cost for the life of the program. If a grant is funded with a single dollar amount and does not contain specified tasks, or work breakdown structure (WBS) elements, the performer will report on one line the rate of cost for the total grant. If a grant contains specified tasks, or WBS elements that are specified as reportable items in the grant, such items, in addition to the total grant, will appear as reporting categories in the report.

Grant Management Summary Report - Summary status report contains a concise, visual presentation of the performer's plan and status in two areas - cost and major milestone schedule. Planned, actual, and variance amounts are plotted graphically on the two grid charts.

Intermediate Events - The more detailed events and activities whose prior completion are necessary for, and lead to, the completion of a major milestone.

Major Milestones - The most significant milestones in the program cycle, representing major accomplishments or decision points.

Milestone - An important or critical event and/or activity that must occur in the program cycle in order to achieve the program objective(s).

Grant Milestone Plan - The grantee's milestone schedule for all work breakdown structure items, or deliverables specified in the grant.

Outstanding Orders - The amount of orders for goods or services outstanding for which cost has not yet accrued. This amount includes orders for goods and services for which advance payment has been made, but for which goods or services have not yet been received.

Program - An endeavor with a specific objective to be met within prescribed time and dollar limitations and which has been assigned for definition or execution.

Program Manager - An official who has been assigned responsibility for accomplishment of a specifically designated unit of work effort or group

of efforts established to achieve stated or anticipated objectives or tasks as part of the program. The Program Manager is responsible for the planning, controlling, and reporting of the program.

Program Measure- See task definition below.

Task - Any definable unit of work; must have an identifiable start and ending and usually produces some recognizable result. Synonymous with Program Measure.

Work Breakdown Structure (WBS) - A product or event oriented task hierarchy of all work to be performed in accomplishing program objectives. The product(s) or event(s) may be hardware, software, support services, tests, documentation, or other quantified elements of the program objectives. The task hierarchy has, as its first level, the categories of the major "end-items" of the program. The successive levels provide increasingly detailed definition of the individual work tasks that contribute to the production of end items. The scope of and number of levels in the task hierarchy depend upon the scope and complexity of the individual project.

Work Breakdown Structure Element - Any one of the individual items or entries in the WBS hierarchy, regardless of level.

Work Package - A segment of effort required to complete a specific job such as a research or technological study or report, experiment or test, design, specification, piece of hardware, element of software, process, construction drawing, site survey, construction phase element, procurement phase element, or service, which is within the responsibility of a single

unit within the performing organization. The work package is usually an element of the lowest level of the WBS.