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16. Abstract

An important decision for District Engineers is to determine the most efficient assignment of routine maintenance projects to either State forces or private contractors. Frequently this decision may not be fully supported from the point of view of cost-effectiveness. The purpose of this Study is to perform an economic comparison of the two options concerning four types of projects: seal coats, pavement markers, guardrail repair and rest areas. The fundamental objective of this research is to quantify and document all significant components of the cost of maintenance projects using State forces or private contractors. The most significant costs associated with the use of State forces were found to be: materials, labor, equipment, overhead, insurance, building-use, and downtime. Alternatively, for contractors the most significant elements found were: bid price, materials, contract administration, and supervision. Total average costs are documented for both in-house and contractor projects on the basis of 403 projects conducted in six selected Districts of SDHPT. It is recommended that a more complete database be developed for more extensive comparisons between the two options.

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EVALUATION OF IN-HOUSE MAINTENANCE CONTRACT COSTS FOR GUARDRAIL, REST AREAS, PAVEMENT MARKER, STRIPING AND SEAL COATS

By

Alberto Garcia-Diaz
and
Fernando Cediel-Franco

Research Report 280-1F
Research Study No. 2-18-86-380

Cost Comparison of Maintenance Activities and a Selected Cost-Benefit Application

Conducted for the

State Department of Highways and Public Transportation

by the

Texas Transportation Institute
The Texas A&M University System
College Station, TX 77843

July 1988

METRIC (SI*) CONVERSION FACTORS

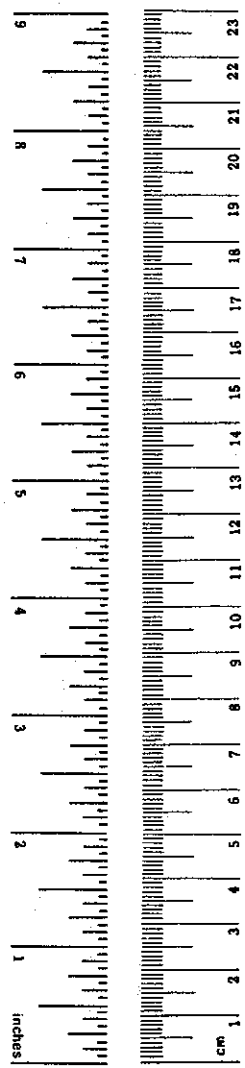
APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
in	inches	2.54	millimetres	mm
ft	feet	0.3048	metres	m
yd	yards	0.914	metres	m
mi	miles	1.61	kilometres	km
AREA				
in²	square inches	645.2	millimetres squared	mm²
ft²	square feet	0.0929	metres squared	m²
yd²	square yards	0.836	metres squared	m²
mi²	square miles	2.59	kilometres squared	km²
ac	acres	0.395	hectares	ha
MASS (weight)				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams	Mg
VOLUME				
fl oz	fluid ounces	29.57	millilitres	mL
gal	gallons	3.785	litres	L
ft³	cubic feet	0.0328	metres cubed	m³
yd³	cubic yards	0.0765	metres cubed	m³

NOTE: Volumes greater than 1000 L shall be shown in m³.

TEMPERATURE (exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

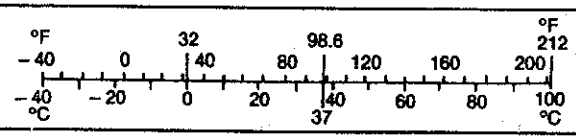


APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
mm	millimetres	0.039	inches	in
m	metres	3.28	feet	ft
m	metres	1.09	yards	yd
km	kilometres	0.621	miles	mi
AREA				
mm²	millimetres squared	0.0016	square inches	in²
m²	metres squared	10.764	square feet	ft²
km²	kilometres squared	0.39	square miles	mi²
ha	hectores (10 000 m²)	2.53	acres	ac
MASS (weight)				
g	grams	0.0353	ounces	oz
kg	kilograms	2.205	pounds	lb
Mg	megagrams (1 000 kg)	1.103	short tons	T
VOLUME				
mL	millilitres	0.034	fluid ounces	fl oz
L	litres	0.264	gallons	gal
m³	metres cubed	35.315	cubic feet	ft³
m³	metres cubed	1.308	cubic yards	yd³

TEMPERATURE (exact)

°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



These factors conform to the requirement of FHWA Order 5190.1A.

* SI is the symbol for the International System of Measurements

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DISCLAIMER

ABSTRACT

A very important decision for District Engineers to make is which routine maintenance activities should be assigned to either SDHPT forces or private contractors. Many times this decision is not fully supported from the point of view of cost-effectiveness. The purpose of this Study is the economical evaluation of the two options concerning the following types of projects: seal coats, pavement markers, guardrail repair and rest areas. The fundamental objective of this research is to investigate and document all the important components of the cost of using State forces or private contractors. The most significant costs associated with the use of State forces were: direct cost (material, labor and equipment), overhead, insurance, building use, and downtime. The most important cost components of the use of contractors were: bid price, materials, contract administration and supervision. Total average costs are documented for both in-house and contractor projects on the basis of 403 projects conducted in six Districts. It is recommended that a more complete database be developed for more extensive comparisons.

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1. INTRODUCTION

This Introduction provides some general background information and reiterates the motivation behind the research conducted in Study 2-18-86-380. This introductory section consists of four subsections : (a) project definition, (b) project significance, (c) project objective, and (d) project scope.

1.1 Project Definition

Routine maintenance activities performed by the State Department of Highways and Public Transportation (SDHPT) are currently being contracted out partly due to manpower and equipment limitations. To insure that SDHPT makes efficient use of its monetary, human and physical (i.e. equipment and material) resources a cost-comparison study is needed to:

- o Evaluate the economic impact of assigning routine maintenance projects to private contractors.
- o Evaluate the economic impact of assigning routine maintenance projects to in-house technical personnel.
- o Identify the type of routine maintenance activities that can be assigned to contractors on a cost-effective basis.

1.2 Project Significance

A report entitled "Maintenance Activities Accomplished by Contract" [1] notes that the overall problem of contracting vs. in-house treatment of maintenance activities is of major concern for virtually all state and municipal agencies. However, the experience of these agencies is mixed. Proponents of contracting point to such benefits as:

- o Improved scheduling of maintenance activities.
- o Improved project quality.
- o Less use of government personnel and therefore retirement costs.
- o Reduced uncertainty in budgeting maintenance operations.
- o Reduced capital expenditures for equipment and facilities.

On the other hand, opponents point out the following disadvantages :

- o Questionable ability of contractors to adequately handle emergency situations.
- o Increased administrative costs as a result of monitoring contracts.
- o Cost-effectiveness of contracting not always fully supported.
- o Insufficiencies of various types (technical, administrative, etc.) inherent to the contract process.

According to the same report, sixteen agencies affirmed contractor cost-effectiveness; four agencies indicated that contracting was not cost-effective; three agencies replied that cost-effectiveness depends on the type of maintenance activity; three agencies said that cost-effectiveness was not considered; one agency was unsure; and forty-five agencies did not comment on cost-effectiveness.

The primary reason behind the diversity of responses would be the manner in which cost comparisons are made with respect to maintenance activities. The report revealed nine cost comparison factors used by 57 respondents: Direct Labor, Fringe Benefits, Federal Insurance Contribution Act (FICA) and Retirement Benefits, Equipment Rental, Shop and Office Rental, Utilities, Insurance, Support Services, and Depreciation of Capital Assets. A vast majority (at least 88%) reported using the first four factors previously listed above. The remaining five factors were only used by one-third to one-half of the responding agencies.

The report identified an approximate range (variation) in cost proportions for a typical maintenance organization, as shown in Table 1. It concluded that agencies not considering the last five factors of Table 1 in computing their cost estimates could be significantly under estimating their true costs.

A complete analysis of the in-house and contracting costs would at least include other aspects such as SDHPT personnel/equipment availability, contracting firms available, types of projects, and degree of SDHPT planning and supervision needed.

Table 1. Agency Cost Proportions

Factor	Approximate Range of Proportional Costs (excluding materials)
Direct Labor	35%-50%
Fringe Benefits	7%-15%
FICA & Retirement	7%-15%
Equipment Rental	10%-20%
Office/Shop Rental	2%-5%
Utilities	0%-1%
Insurance	0%-1%
Support Services	2%-5%
Depreciation of Capital Assets	10%-15%

1.3 Project Objective

The specific objective of this Study is to perform a cost comparison of four routine maintenance activities by contractors and in-house forces. The following activities were investigated in this Study : seal coats, pavement markings (striping and markers), guardrail repair and rest area maintenance. Table 2 summarizes the unit costs used in the comparison of each routine maintenance activity.

Table 2. Unit Costs for Activities Included in the Study

Activity	Unit Costs
Seal Coat	$ / S.Y.
Rest Area	$ / Month
Pavement Marking (Stripes)	$ / Solid mile
Pavement Marking (Buttons)	$ / Button
Guardrail Repairs	$ / L.F.

1.4 Project Scope

The overall Study was divided into two main research efforts. The first one was aimed at a cost comparison of using contractors and in-house forces. The purpose of the second part of the Study was an analysis of the mowing practices and other vegetation control measures.

Report 380-1F, Vol. I documents the methodology and findings of the cost comparison portion of the Study. Report 380-1F, Vol. II has been separately submitted to document the mowing and vegetation case study. The Cost Comparison Study was subdivided into the following tasks :

- o Data Collection
- o Cost-Comparison and Documentation
- o Results of the Study
- o Summary, Conclusions and Recommendations

2. DATA COLLECTION

One of the major difficulties in conducting this research has been the collection of accurate data. The willingness and helpfulness of SDHPT personnel allowed a satisfactory analysis of important economic items, such as the in-house overhead costs and administrative costs associated with the utilization of contractors. Data needed for this Study were collected by personnel interviews and detailed questionnaires sent to six Districts. Additional data came directly from SDHPT accounting records and field visitations. Most cost data collected for this Study correspond to the 1984-85 Fiscal Year.

As recommended by SDHPT representatives, six Districts and four Divisions were visited in order to collect data for the four routine maintenance activities selected for the Study. The six Districts visited will be referred to in this report as Districts A, B, C, D, E and F. The four SDHPT Divisions contacted for data collection purposes were:

- o Finance Division (D-3)
- o Equipment and Procurement Division (D-4)
- o Safety & Maintenance Operation Division (D-18)
- o Insurance Division (D-20)

The initial database developed for seal coat projects consisted of 143 projects conducted by state forces and 260 by contractors. These projects were distributed among the six Districts as shown in Table 3. Appendix A shows the seal coat project database used in this research Study.

Projects with more than one type of asphalt or aggregate were not considered for this Study. When a District uses one type of aggregate or asphalt for projects given to contractors and another type for in-house projects, a cost comparison is not valid for the two alternatives within that District. For this reason the initial database of Table 3 was reduced to only those projects in Districts A, E and F.

Table 3. District Distribution of Seal Coat Projects

District	State Forces		Contractors	
	No. of projects	No. of S. Y.	No. of projects	No. of S. Y.
A	37	2,756,258	56	6,565,572
B	29	1,240,183	80	7,488,930
C	27	1,693,917	42	3,742,724
D	8	788,109	25	3,243,735
E	21	924,408	28	3,180,776
F	21	1,755,793	29	4,726,080
Total	143	9,158,673	260	28,947,817

The scope of the database used in the analysis of striping, pavement markers, and guardrail repair costs, is indicated in Table 4. This table summarizes the number of miles striped, number of buttons placed, and number of linear feet of guardrail repair in Districts A, B, C, D, and E. Some Districts could not provide this information since they keep records on the amount of dollars spent but not on the amount of work done. As requested by SDHPT, we collected cost information on all projects assigned to contractors through the entire State.

No contractor-performed breakdown by District is shown in the results of Table 4, due to the fact that only a few Districts had sufficient data for conducting this type of analysis. The Study Technical Coordinators recommended that an average for the State be calculated as a result of the limitation described herein.

Concerning rest areas, in-house data were also collected from Districts A, B, C, D and E. Set-Aside programs were not considered in this Study. The average computed for contractors was based on a sample of twelve 12-month rest area maintenance projects located in Districts A, D and F, plus two additional Districts G and H. Table 5 indicates the number of projects in each of these Districts.

Table 4. General Data on Striping, Markers, and Guardrail

Data Source	No. of miles striped	No. of Markers placed	Total No. of Linear Foot
A (in-house)	3,101	26,082	--
B (in-house)	2,560	--	--
C (in-house)	4,817	--	--
D (in-house)	4,644	104,474	37,000
E (in-house)	4,265	1,270	49,000
Statewide (contractors)	9,861	357,376	1,157,395

Table 5. Rest Area Maintenance Projects for Contractors

District	Year	No. of Projects
A	1984	1
D	1984, 86	5
E	1984	1
G	1984, 86	2
H	1984, 86	3

3. COST-COMPARISON AND DOCUMENTATION

Although cost comparisons are important to decide whether a project should be assigned to private contractors or to State engineers, a complete comparison should include other factors such as quality, reliability, complexity and timely completion. Ideally, the choice should be based on what costs less and provides the best performance. Surprisingly, we could not find in the literature studies that look at the total picture. The SDHPT Research Study "Quality Appraisal Procedures for Effective Utilization of Consultants in Pre-Construction Highway Engineering", recently conducted at the Texas Transportation Institute, investigated the evaluation of project quality and cost . However, in Study 2-18-86-380 we have examined only costs. The important issue of quality should be examined in further research studies.

In determining the cost of a project, either for State forces or contractors, all items that affect the actual cost should be included. The cost in the accounting records is perhaps the most significant portion of the total cost, but it does not include other components that may be also significant. In this section we will look into the different components of the total cost of a routine maintenance project.

3.1 Cost Components for In-house Maintenance Projects.

The components of the total cost of a project given to state engineers are:

- o Direct Cost.
- o Overhead Cost (Maintenance Management and Labor Additives).
- o Insurance Cost.
- o Building Use Cost.
- o Downtime Cost.

Direct costs are items such as direct labor, direct equipment rental, and direct material costs that are charged to a specific project. Data for these elements can be found directly from accounting records.

Overhead cost items are more numerous and difficult to quantify. Since, by definition, these costs are not charged to any specific project, they have to be estimated. Figure 1 shows the general procedure followed to estimate the overhead cost for the maintenance activities being studied in this research. In summary, the overhead rate was calculated as the ratio of the total administration cost (Maintenance Management and labor additives)to the total routine maintenance expenditures (Maintenance Work). Using raw data given in Appendix B, the overhead rate was computed as 23.56% for all maintenance activities. The details of this calculation are shown below:

(a) Total Roadway Maintenance Expenditures = $364,871,874
(b) Total Project Maintenance Expenditures = $66,986,584
(c) Total Maintenance Cost = $431,858,458
(d) Total Administration and Management = $59,978,239
(e) Labor Additives = $41,766,650
(f) Overhead Rate = (59,978,239 + 41,766,650) / 431,858,458 = 0.2356

The above total of $364,871,874, as can be verified with the information given in Appendix B, includes an amount of $141,246,705 for Budget Objects 111

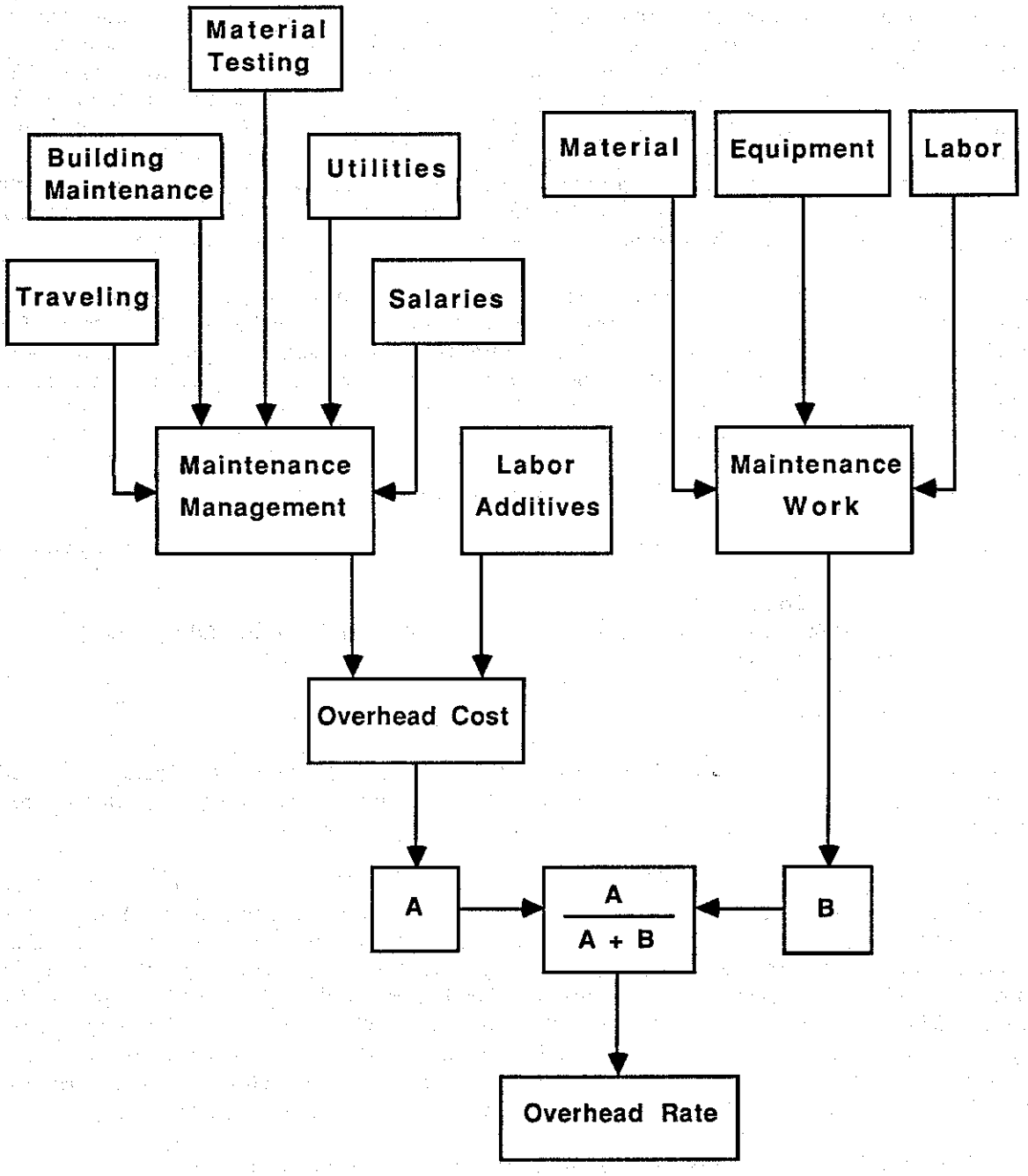

Figure 1. Overhead Computation

and 112. The SDHPT Finance Division (D-3) has calculated average labor additives of 42% of an employee's gross salary. For this reason, we will use a multiplier of 0.42/1.42 = 0.2957 to compute the labor additives included in the total for classified salaries and hourly wages. Proceeding accordingly, the labor additives are estimated as 0.2957 X $141,246,705 = $41,766,650.

If the labor additives were not included as part of the total overhead cost, the overhead rate would be equal to 59,978,239/431,858,458 = 0.1389 or 13.89%. Thus, the overhead rate may be at least equal to 13.89% but more likely 23.56%. Additionally if the labor additives ($2,750,401) corresponding to Budget Objects 111 and 112 in the Project Maintenance Management expenditures (Activity 201, Appendix B) are subtracted from the total administration cost $59,978,239, the overhead rate can be recomputed as 22.92%.

The insurance cost was estimated as the ratio of the total premium paid for liability and motor vehicle insurance ($1,035,000 as can be seen in Appendix C) to the total routine maintenance cost ($431,858,458). It can be easily verified that this ratio is equal to 0.0024, or 0.24%.

The building use cost was computed on the basis of the data summarized in Table 6 provided by three Districts (B,D,E). For each District the total building area (in square feet) was multiplied by the average space occupied by maintenance personnel and facilities, and this result further multiplied by an average cost per square foot and per month. This information was then used to estimate the total cost per year, which was divided by the total maintenance cost. Using the results in Table 6, a weighted average of 4.7% was obtained for the three Districts considered for studying building use costs.

Table 6. Building Use Costs

District	Building Area (SF)	Percent of Maintenance Building Area	Monthly Cost ($/SF)	Total Maint. Cost	Building Cost Percent
B	110,303	50%	0.55	$12,461,688	2.92%
D	341,187	55%	0.65	$26,147,633	5.66%
E	171,896	53%	0.60	$14,217,969	4.61%

The construction industry is a seasonal one. Projects such as seal coats, striping, and pavement marking, are sensitive to climatic conditions. However, because of the limited time available for this Study, an in-depth analysis of the downtime cost was not possible. Further research work is needed to properly quantify the effect of downtime. In the present cost analysis it was necessary to consider the downtime in a rather simple and perhaps not very accurate manner.

The downtime cost was estimated on the basis of an average of 70 rainy days per year, computed for the State using the climatic data of Appendix E. This Appendix shows the number of days with precipitation (DP) in 254 locations in Texas.

Assuming that the in-house worker was assigned to other type of work less qualified than the one for which he/she was hired, it is possible to estimate the in-house downtime cost per person by multiplying the average number of rainy days by the cost of the downtime per day. If the salary of the intended work is $14.75 per hour, and that of the work actually done is $10.00 per hour, the downtime cost would be $4.75 per hour. Therefore, the downtime cost per year would be equal to $4.75 X 8 X 70 = $2660. The annual salary of the intended work will be equal to $14.75 x 8 x 260 = $ 30,680, using an average of 260 days per year. As a result of this analysis, a gross estimate of the downtime rate would be 2660/30680 = 0.0867 or 8.67%.

Based on accounting records for Budget Objects 111, 112, 221 and 223, a Statewide average was computed for labor, materials and equipment costs. The definitions of the Budget Objects used are given below:

111 Classified Salaries
112 Hourly Wages
221 Equipment Rental
223 Material Cost

The corresponding results are summarized in Table 7, where the percents given are computed on the basis of total direct costs.

Table 7. Distribution of Direct Costs

Activity	Labor Cost (A)	Labor Minus Labor Additives (B)	Material Cost (C)	Equipment Cost (D)	Total Direct Cost E = B+C+D
Seal Coat	$1,693,456	$1,192,701	$12,181,087	$785,911	$14,159,699
Percent	-	(8.4%)	(86.0%)	(5.6%)	
Striping	$517,461	$364,447	$816,279	$130,677	$1,311,403
Percent	-	(27.8%)	(62.2%)	(10%)	
Markers	$512,756	$361,134	$806,797	$137,766	$1,305,697
Percent	-	(27.7%)	(61.7%)	(10.6%)	
Guard Rail	$1,208,867	$851,264	$614,935	$275,660	$1,741,859
Percent	-	(48.8%)	(35.3%)	(15.9%)	
Rest Area	$358,302	$252,352	$38,511	$36,653	$327,516
Percent	-	(77.1%)	(11.8%)	(11.21)	

Using the results given in Table 6 and Table 7, as well as the cost estimates of overhead, insurance and downtime previously obtained, it is possible to find the distribution for the total cost (direct plus indirect costs) given in Table 8. As an illustration, for seal coats we have 8.4% of labor cost, 86% of material cost, 5.6% of equipment cost, 23.56% of overhead cost, 0.24% of insurance cost, 4.7% of building use cost and 8.67% of downtime cost. Normalizing these percents so that they would add up to 100% it is possible to obtain the results shown in Table 8 for seal coats.

As illustrated in Figure 2, the two most important components for all activities are labor and materials. Moreover, when activities are considered according to the sequence seal coats, striping, markers, guardrail repair, and rest areas maintenance, the material cost decreases as the labor cost increases. The word "sequence" refers to the order in which the activities are listed in Table 8, not the order in which they are conducted. This part of the report simply remarks that the material cost percent would increase when there is a decrease in the labor cost percent.

Table 8. In-house Percents of Total Cost

Item	Seal coat	Striping	Markers	Guardrail	Rest Area
Labor	6.12	20.27	20.19	35.58	60.00
Materials	62.69	45.35	44.98	25.73	9.18
Equipment	4.08	7.29	7.72	11.59	8.72
Overhead	17.17	17.17	17.17	17.17	18.33
Insurance	0.17	0.17	0.17	0.17	0.19
Building Use	3.42	3.42	3.42	3.42	3.65
Downtime	6.32	6.32	6.32	6.32	0.00

3.2 Cost Components for Contractor Maintenance Projects.

The following components were identified as the most important ones affecting the actual cost of a project given to contractors:

- o Bid Price.
- o Materials Cost.
- o Administrative Cost.
- o Supervision (E & C).

The bid price is the amount that the State agrees to pay to the contractor. This bid price is quoted by unit of work and includes labor, materials (only in the case of seal coats), equipment, insurance, profit, etc.

The materials cost has to be estimated since there are not direct records of the amount of materials that the State provides to the contractors for striping, markers, guardrail repair and rest areas. This cost has to be included in the comparison between in-house forces and contractors since it is an important part of the direct cost of in-house projects.

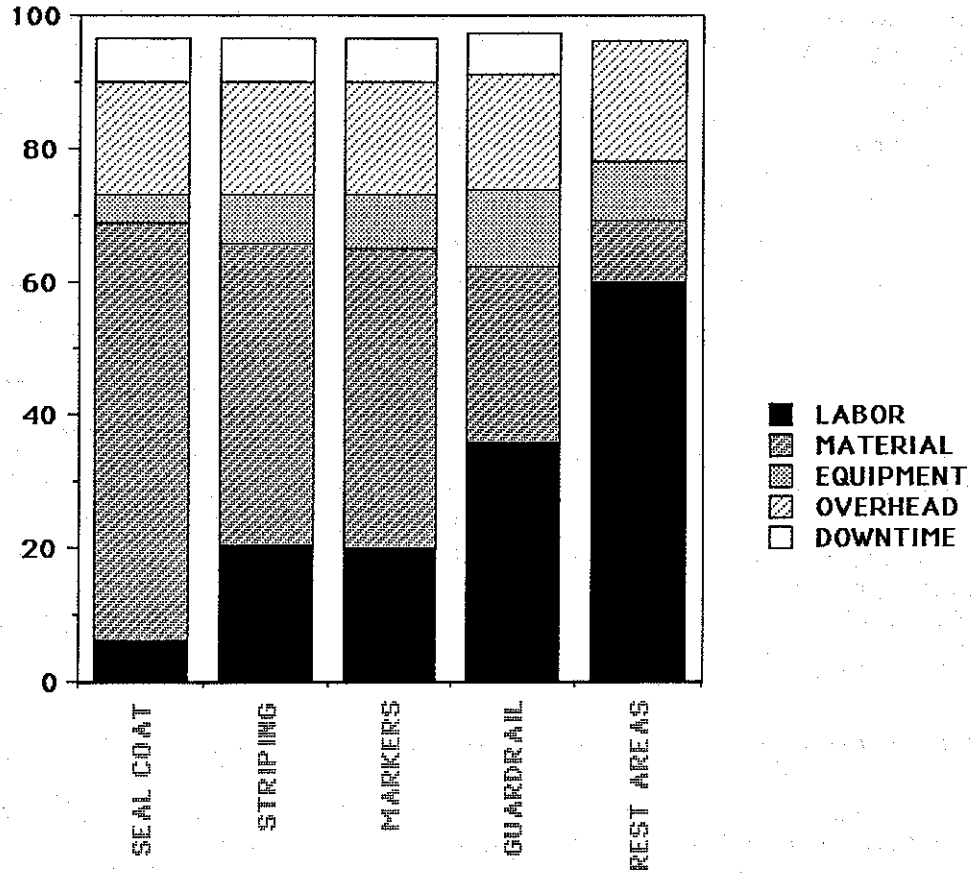

Figure 2. Cost Components for In-house Maintenance Projects

Another important cost incurred by SDHPT is related to the amount of supervision and other administrative functions required by projects done by contractors. In order to estimate the total cost to SDHPT, not only in-house costs should be calculated, but also all these additional supervision and administrative costs resulting from the use of contractors.

Supervising, bill paying, and monitoring (on-site) require considerable time and labor. The cost of these activities are "hidden costs", since they are part of neither the overhead cost nor of the specific costs charged to individual projects. Based on questionnaires and personal interviews (see Appendix D), it was estimated that the administrative costs involved in utilizing contractors ranges from 1.6% to 6.7% of the total project cost. To estimate the administrative cost it was needed to have a clear understanding of the contractual process. The overall contractual process is represented in Figure 3 and can be subdivided into ten basic steps. Each step is briefly described as shown below :

(1) **Program Call.** Initial implementation of the program begins with an Administrative Order from the State Engineer and Highway Commission.
(2) **List of Proposed Projects.** The District Maintenance Personnel will compile a list of projects based on historical data and on site inspections.
(3) **Project Identification.** The list of projects is sent to the Maintenance Division in Austin for the identification of project characteristics such as length, width, skid resistance, ADT, etc.
(4) **Prioritization of Projects.** Maintenance personnel will prioritize the list of projects based on the relative need of the improvement.
(5) **Approval by District Engineer.** District Engineer and Maintenance program approve the projects under consideration.
(6) **Preparations of Plans.** Plan sheets showing the locations of the projects along with the estimated cost of the projects are sent to the Maintenance Division in Austin for approval. If approved, an authorization letter is sent to the District allowing it to proceed with letting the work.
(7) **Revision of Contracts and Bids (Austin).** After receiving the documents,the Maintenance Division in Austin will give a recommendation for award or rejection to the Highway Commission.
(8) **Finance Division (Austin).** If award is recommended, the Maintenance Division will forward to the Finance Division the proposal guaranty, if applicable, and the accumulated contract packets to be bound into booklet form. If the contract exceeds $25,000, the Finance Division will send two bound contract packages plus a conformed copy and bond forms directly to the contractor. The conformed copy and bond forms will be retained by the surety company.
(9) **Consideration by Highway Commission.** The Highway Commission makes the official award of the contract and sends it to the Maintenance Division for a final revision.
(10) **Contract Management.** Upon notification from the Maintenance Division in Austin that the contract has been executed, the District may issue a work order to the contractor, making sure that the Certificate of Insurance is on file prior to authorizing the contractor to begin the work.

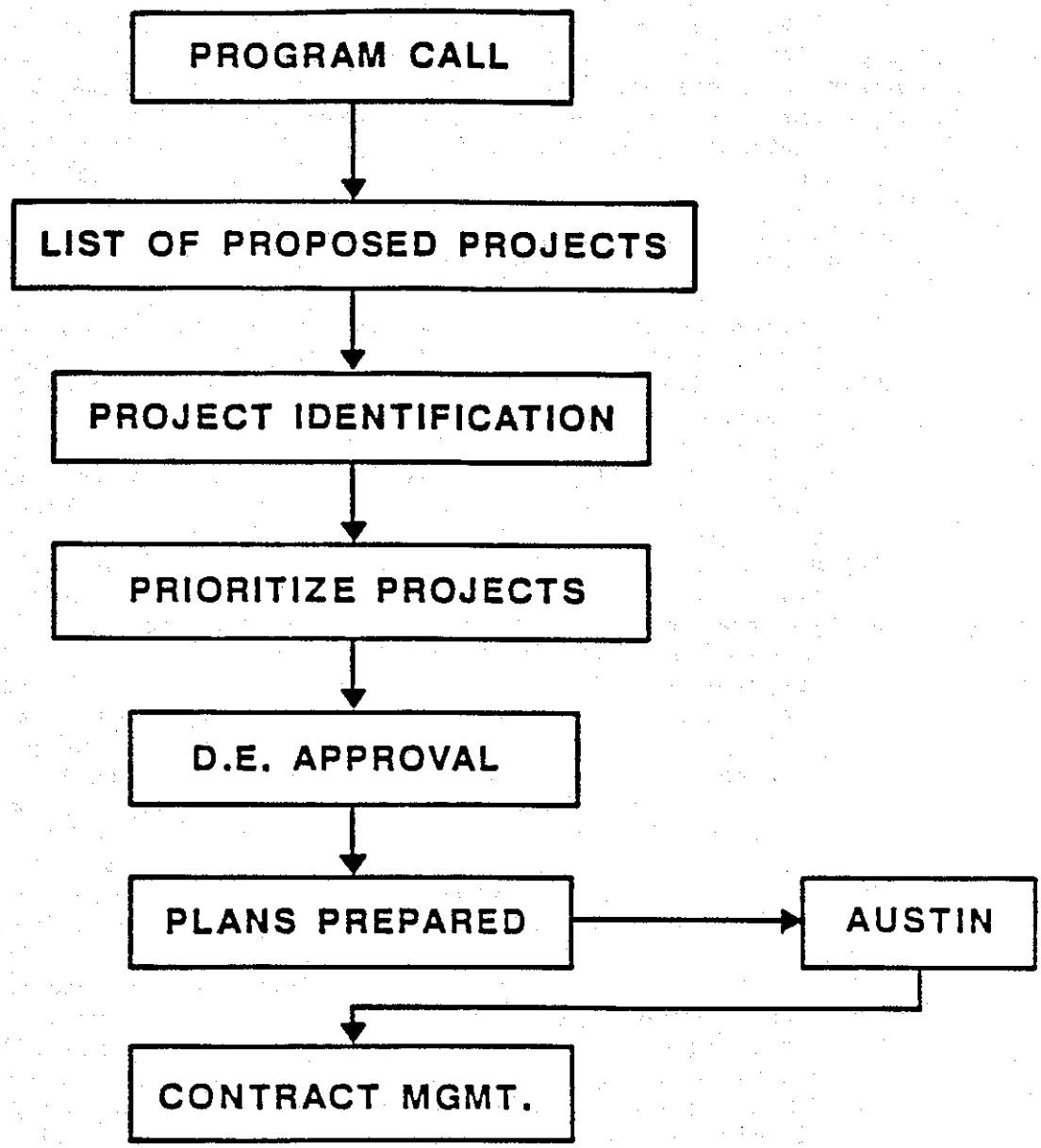

Figure 3. Contractual Process at District Level.

Table 9 shows the percentage of administrative and supervision costs for seal coat projects in Districts A, B, C, D, and E. The administrative cost for District F was computed as the average of the other five Districts. All Districts have basically the same procedure for the contractual process. However, in some Districts the amount of time spent in pre-bid meetings, monitoring contractors, and other related activities causes the administration costs to be higher.

The administrative cost for the other maintenance activities was calculated using the procedure described for the computation of State forces' overhead.

Table 9. Administrative and Supervision Costs

District	% Administrative Cost	% Supervision Cost
A	1.6	7.8
B	5.2	6.1
C	6.7	5.8
D	2.0	6.6
E	2.1	6.6
F	3.3	6.6

Proceeding in fashion similar to that followed for the analysis of in- house projects, cost components were computed for all activities as a percent of the total project cost. The results for the analysis of contractor projects are summarized in Figure 4 and Table 10.

Table 10. Distribution of Total Cost for Contractors

Item	Seal Coat	Striping	Markers	Guardrail	Rest Area
Bid Price	90.00	51.00	56.00	46.00	72.00
Materials	-	45.00	40.00	50.00	24.00
Administrative Cost	3.68	0.71	0.63	0.90	0.84
Supervision	6.32	3.15	3.16	3.10	3.15

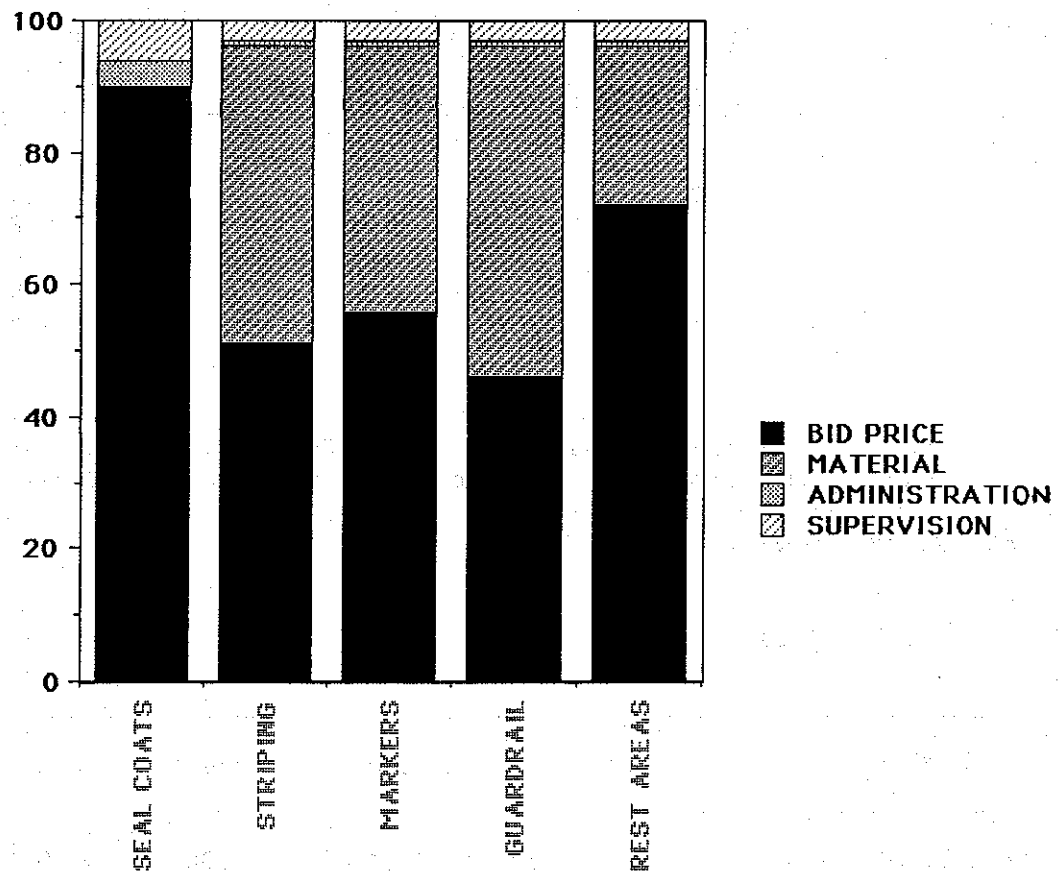

Figure 4. Cost Components for Maintenance Activities Assigned to Contractors

4. RESULTS FROM THE ROUTINE MAINTENANCE COST COMPARISON

This section summarizes the results for the four maintenance activities considered in this Study: seal coats, striping, markers, guardrail repair and rest areas. For each maintenance activity the actual total cost per unit has been computed by adding the cost components identified and estimated in Section 3. This section is divided in two subsections: the first subsection summarizes maintenance costs for seal cost projects, and the second one summarizes the same information for the remaining activities.

4.1 Seal Coat Projects

The cost of seal coats per square yard are first presented in Table 11 without taking into consideration the type of asphalt and aggregate used. These results are average costs computed for the six Districts considering U.S., S.H., and F.M. highways first separately and then combined.

It is noted that in general the projects done by State forces were smaller (overall average 63,000 S.Y.) than projects done by contractors (overall average 110,490 S.Y.) Size in itself, however, is not the important factor that can invalidate the comparison between the two options for developing a project. Perhaps complexity, quality, timelines, etc., are more meaningful factors to be considered. Due to the limited time provided for this Study these factors were not addressed. It is recommended that work be continued in order to investigate these and other factors.

Table 11. Average Costs for Seal Coats

Type of Highway	State $/S.Y.	Contractors $/S.Y.
All highways	0.88	0.73
U.S.	0.90	0.76
S.H.	0.87	0.72
F.M.	0.87	0.63

Table 12 shows the cost comparison for each District by type of highway. In this table, the symbols ST and CT are used to represent state forces and contractors. In order to properly consider possible differences due to the materials used in seal coats, the projects were classified into 14 groups, each group representing a combination of a type of aggregate and a type of asphalt. The combinations chosen for this Study are given in Table 13.

After subdividing the available data into the 14 groups shown in Table 13 it was noted that only in-house projects or only contractor projects appeared in some groups. Table 14 shows the cost comparison results for those groups (material combinations) with data available for both options in the same District. The need exists for developing a more extensive database that would include seal coat projects which correspond to all those material combinations not shown in Table 14.

Table 12. Cost Comparison of Seal Coat Projects by District and Type of Highway

Highway	Dist. A		Dist. B		Dist. C		Dist. D		Dist. E		Dist. F	
Type	ST	CT	ST	CT	ST	CT	ST	CT	ST	CT	ST	CT
ALL	0.94	0.77	0.84	0.69	0.85	0.63	0.96	0.75	0.82	0.74	0.85	0.85
U.S.	0.88	0.77	0.87	0.81	0.87	0.66	-	-	0.84	0.71	0.82	0.79
S.H.	0.94	0.74	0.96	0.72	0.88	0.66	0.75	0.80	0.91	0.78	0.78	0.71
F.M.	0.96	0.73	0.81	0.60	0.81	0.57	0.76	0.64	0.82	0.68	0.87	0.82

Table 13. Material Combinations for Seal Coat Projects

Material Combination	Type of Aggregate	Type of Asphalt
1	PF-3	AC-5 Latex
2	PF-3	AC-5
3	PB-3	AC-5
4	B-3	CRS-2
5	PB-4	AC-5
6	PB-3	CRS-2
7	PB-4	HFRS-2
8	PF-4	AC-10
9	PF-4	HFRS-2
10	LW-4	AC-10
11	LW-4	CRS-2
12	B-4	CRS-2
13	PB-3	AC-5 Latex
14	B-3	AC-10

Table 14. Cost Comparison for Specific Types of Asphalt and Aggregate

Type of Highway	Dist A		Dist E		Dist E		Dist F	
	ST.	CT.	ST.	CT.	ST.	CT.	ST.	CT.
All	0.94	0.75	0.80	0.77	0.85	0.78	1.03	0.82
U.S.	0.88	0.76	-	-	0.84	0.77	-	-
S.H.	0.93	0.73	-	-	0.91	0.75	-	-
F.M.	0.97	0.68	-	-	-	-	0.80	0.82
Aggregate	PF-3		PB-4		PF-4		PB-3	
Asphalt	AC-5		HFRS-2		HFRS-2		AC-5	

4.2 Striping, Markers, Guardrail and Rest Areas.

The results for these activities are summarized in Table 15. This table includes total average costs for Districts A, B, C, D and E for each of the following activities: striping, pavement markers, guardrail repair and maintenance of rest areas. No data were available for those entries in Table 15 with no numerical value. The results given for contractors are average costs computed on the basis of twelve 12-month maintenance projects conducted in six Districts during 1984 and 1986.

Table 15. Cost comparison for Striping, Markers, Guardrail and Rest Areas

Source	Striping $/Solid mile	Markers $/Marker	Guardrail $/Linear Foot	Rest area $/Month
Dist. A	223	4.01	-	-
Dist. B	223	3.08	-	8,137
Dist. C	193	-	-	-
Dist. D	272	-	13.57	9,817
Dist. E	181	3.55	11.01	12,343
Contractors	217	3.26	6.75	6,587*

(*) Total Cost includes contract labor.

The average computed for contractors is based on data available for Districts A, D, and E, plus two additional Districts here referred to as Districts G and H. A summary of the basic data is given below in Table 16.

Table 16. Rest Area Maintenance Costs with Maintenance Contracts

District	Year	Annual Cost Including Contract Labor	Contract Labor Cost (Budget Object 454)
D	1986	$70,567	$23,526
D	1986	63,664	41,316
D	1986	73,449	46,518
A	1984	94,604	34,458
G	1984	99,103	40,250
G	1986	97,014	40,716
H	1984	58,373	28,906
H	1986	63,988	31,710
H	1984	76,677	34,903
D	1984	83,497	24,400
D	1986	77,339	43,321
E	1984	90,358	37,213

5.SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this Study has been the economic evaluation of the two options available to SDHPT concerning routine maintenance projects, that is, using contractors or State forces. Data collection efforts involved numerous trips to six Districts (here referred to as A, B, C, D, E, F) and Divisions 3, 4, 18 and 20. Due to the one-year limit of the Study and the great variability of project data, only a partial database could be built to include the following routine maintenance activities : seal coats, striping, pavement markers and rest areas.

The total cost for in-house projects was computed as the sum of labor, material, equipment, overhead, insurance, downtime and building use. For projects given to contractors, supervision and administrative costs were estimated and added to the bid price. A total of number of 403 projects was used in this Study (143 in-house and 260 State).

Materials have a direct effect on the total cost, since different types of aggregates and asphalts have different costs. Also, the rate of application is important, since it affects the final quantity of asphalt needed for the project. For this reason, only partial evidence of the attractiveness of using either contractors or in-house forces can be claimed for some Districts.

A summary of the conclusions derived from the Study is given below :

(1) **Seal Coats** : Examining the results in Tables 11 and 12 there is some evidence that the use of contractors is more economic in all Districts. When a more homogeneous comparison is made on the basis of type of materials used, as shown in Table 14, a clear advantage of choosing contractors option is evident. However, more data are required before a sound conclusion can be made. The selection of an optimal mix of in-house and contractor projects could be investigated if more data were available.

(2) **Pavement Markers** : Table 15 shows the comparison for this type of activities. From the data presented in this table it is not possible to conclude that a single alternative is more economical, since the cost for the contractors is a state-wide average while in-house costs are averages computed for each of six Districts. Additionally, the number of miles striped and buttons placed are rough estimates for some Districts. On the basis of the data available there is not a clear cost advantage of using either alternative. More Districts should be included in the analysis to have a more meaningful comparison.

(3) **Guardrail Repair** : For this activity the choice of contractors is more cost-effective. The difference between the two options ranges between $4.26 and $6.82 per linear foot. The data for this activity were very limited for the in-house group. More Districts must be included and data collected for the analysis of this activity in order to have more reliable costs for state forces.

(4) **Rest Areas** : The results in Table 15 suggest that it is more cost-effective to use contractors to maintain rest areas. The average cost

computed for the three Districts included in the comparison is $10029 which is about 34.7% higher than the average of $6587 calculated for contractors.

Based on the work conducted in this Study we recommend that further work will be done in order to achieve the following objectives:

(a) Expand data collection effort to include more Districts in the and to make more strict comparison between projects.
(b) Incorporate the complexity of the projects as one factor in the comparative analysis of costs.
(c) Develop a methodology to estimate more accurately the downtime for in-house projects.
(d) To identify the in-house and contractor project mix that results in minimal costs for each District.
(e) To include the Set-Aside program as one of the options to be studied.

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2. Ronk, C. O. "A Look at Using Contractors and Government Employees on Public Work Projects", Michigan Road Builders Association, Inc.

3. Department of Transportation, Division of Maintenance. "Report on Use of Private Contractors to Perform Maintenance Activities for the Florida Department of Transportation", Februry 1982.

4. Markow M. J., Brademeyer B. D. "EAROMAR Version 2. Technical Report". U.S. Department of Transportation, Federal Highway Administration, April 1984.

APPENDIX A

DATA BASE FOR SEAL COAT PROJECTS

DT = DISTRICT NO.
CT = COUNTY NO.
HW = HIGHWAY TYPE : 1 = U.S. 2 = S.H. 5 = F.M.
ADT = AVERAGE DAILY TRAFFIC
DONE = 0 (CONTRACTORS), = 1 (STATE FORCES)
GOFA = GALONS OF ASPHALT USED
CYA = TOTAL NUMBER OF CUBIC YARDS OF AGGREGATE
MIL = TOTAL LENGTH OF THE PROJECT (MILES)
T#SY = TOTAL AREA SEALED
TCOS = TOTAL DIRECT COST OF THE PROJECT
C/SY = COST PER SQUARE YARD

DT	CT	HW	ADT	DONE	GOFA	CYA	MIL	T#SY	TCOS	C/SY
10	108	2	5866	0	11950	336	.8250	32270	26009	.81
10	108	2	10980	0	20045	574	1.5040	55286	44152	.80
10	212	1	3688	0	43225	1148	5.5540	122641	81482	.66
10	108	1	3347	0	19540	518	3.7150	56098	41614	.74
10	37	1	6731	0	23515	644	1.8940	68764	45519	.66
10	37	1	5404	0	128535	3374	14.0710	365715	271611	.74
10	93	3	7675	0	33505	938	4.4200	92815	78101	.84
10	1	2	5627	0	28180	784	1.5950	77746	61083	.79
10	201	2	2891	0	141140	3822	13.6100	411655	297992	.72
10	234	1	3846	0	85635	2472	6.5140	242767	214947	.89
10	212	1	4020	0	18000	582	1.3380	53775	34908	.65
10	250	1	6873	0	60465	1914	4.5230	178170	115822	.65
10	250	1	3488	0	64990	1818	4.6420	174577	116151	.67
10	250	1	3318	0	99300	2376	6.1080	257959	171704	.67
10	1	5	1303	0	3380	88	.3630	7848	5815	.74
10	234	5	1270	0	50015	1440	12.2580	157092	94129	.60
10	108	2	2843	0	32945	912	6.5370	98840	58549	.59
10	108	5	724	0	20730	600	5.2430	65137	37742	.58
10	234	5	606	0	22230	600	5.1750	63323	38977	.62
10	234	5	440	0	10595	288	2.7300	32000	18647	.58
10	1	5	713	0	35140	880	7.4920	87866	59253	.67
10	212	3	7100	0	14135	400	1.0660	42124	25420	.60
10	212	1	11918	0	43835	1280	2.1940	130670	86385	.66
10	212	1	19272	0	36065	976	1.6800	103347	63323	.61
10	212	3	17400	0	34770	936	1.5490	97939	60879	.62
10	201	1	2813	0	118845	3318	12.2120	295369	212177	.72
10	212	2	2700	0	4220	120	.5130	10600	7609	.72
10	37	2	1044	0	32420	832	5.9780	82794	55361	.67
10	37	5	470	0	8060	224	1.6950	20000	14355	.72
10	37	5	5557	0	27925	736	2.5590	69381	52398	.76
10	212	2	11358	0	17080	488	2.3310	48156	31019	.64
10	212	5	740	0	13460	352	3.1490	39382	23211	.59
10	212	5	903	0	35460	968	8.6340	102885	62396	.61
10	37	5	322	0	31075	812	6.1070	75245	59395	.79
10	37	5	470	0	13700	376	3.3280	40356	24236	.60
10	37	5	160	0	14370	368	2.9520	36130	24511	.68
10	212	2	11309	0	18445	520	1.4790	51822	38519	.74
10	212	2	9636	0	80480	2184	4.8550	236291	143764	.61
10	37	2	1448	0	35955	1008	6.0490	107156	69810	.65
10	212	5	2708	0	52115	1368	10.8500	149037	90044	.60
10	234	1	5478	0	92570	2551	6.1310	265838	178193	.67
10	108	2	7486	0	51627	1667	6.1300	173930	107617	.62
10	108	2	6839	0	73948	2406	7.9200	236976	154822	.65
10	93	2	9802	0	79150	2305	4.5960	232975	157210	.67

DT	CT	HW	ADT	DONE	GOFA	CYA	MIL	T#SY	TCOS	C/SY
10	37	2	1269	0	28610	816	5.9110	84458	56190	.67
10	201	2	1246	0	28610	816	5.9110	84458	56190	.67
10	93	2	1712	0	32345	900	7.1720	97640	62796	.64
10	201	5	384	0	32345	900	7.1720	91936	62796	.68
10	201	5	453	0	31450	852	6.5030	89096	60203	.68
10	1	5	986	0	20625	588	5.1000	59833	40773	.68
10	212	3	11274	0	48415	1536	2.8790	147367	114529	.78
10	212	3	16155	0	45990	1665	2.8200	146220	115524	.79
10	1	5	1303	0	3380	88	.3630	7848	5863	.75
10	212	5	2708	0	52115	1368	10.8500	149037	90793	.61
10	234	2	1827	1	34413	967	6.7090	98398	57032	.58
10	234	5	769	1	16204	463	3.9580	46441	38743	.83
10	234	5	353	1	34560	1080	7.9540	93280	60561	.65
10	234	5	460	1	12023	350	2.9290	34367	22691	.66
10	234	5	216	1	13148	390	3.1630	37113	28617	.77
10	234	5	244	1	12340	356	3.3500	35376	24213	.68
10	234	5	530	1	1381	53	.3520	4130	3400	.82
10	234	5	360	1	27366	772	6.6720	78285	49960	.64
10	108	1	3600	1	4373	136	.8990	12658	9623	.76
10	108	5	935	1	29666	836	7.2300	84832	66900	.78
10	108	5	346	1	17637	503	4.3050	50512	38500	.76
10	1	1	2624	1	34596	979	4.0000	98560	50144	.51
10	1	1	3703	1	58652	1638	6.6350	167552	117200	.69
10	1	1	6100	1	10881	321	1.0560	30976	19819	.64
10	1	5	479	1	36151	1021	8.8510	103052	85600	.83
10	1	5	320	1	21244	601	5.1900	60896	39149	.64
10	1	5	1020	1	14288	420	3.4480	40457	32400	.80
10	37	2	1008	1	23715	671	4.8200	67865	50171	.74
10	37	5	568	1	18092	510	4.0940	52096	42800	.82
10	93	2	11942	1	21100	605	1.6000	60075	39558	.65
10	93	5	1507	1	20640	585	4.4690	59136	36643	.62
10	93	1	5864	1	40647	1140	4.2870	116160	77103	.66
10	93	5	1814	1	25920	1365	6.6650	113446	81092	.71
10	250	2	2429	1	39480	1244	6.0940	105248	71944	.68
10	250	5	326	1	33350	935	8.1360	95509	69006	.72
10	250	5	1613	1	45168	1265	8.4820	129067	96400	.74
10	250	5	548	1	15554	445	3.8000	44587	36100	.80
10	212	2	12424	1	34475	969	4.0380	98560	83500	.84
10	212	1	7100	1	5462	166	.5600	15770	6500	.41
10	212	1	5500	1	61956	1703	9.4490	178347	135648	.76
10	212	2	4000	1	3450	117	.6730	9686	7912	.81
10	201	5	623	1	30031	839	7.4620	86240	66952	.77
10	201	5	468	1	51840	1620	11.8060	139861	98556	.70
10	201	1	6872	1	66705	1870	6.7600	190362	126900	.66
10	201	5	223	1	9440	281	2.2900	26870	20500	.76
10	201	5	440	1	12900	378	3.2120	37688	30200	.80
10	201	5	485	1	18558	535	3.8930	52800	36600	.69
11	174	2	3680	0	28735	841	5.0050	81189	43659	.54
11	210	2	2834	0	57460	1755	13.1830	178487	101099	.57
11	210	2	3695	0	62735	1808	6.7710	179518	124154	.69
11	203	2	590	0	6530	196	1.3730	17723	11267	.64

DT	CT	HW	ADT	DONE	GOFA	CYA	MIL	T#SY	TCOS	C/SY
11	202	2	500	0	19135	550	4.3640	56332	32266	.57
11	202	2	442	0	19445	583	3.7610	57657	33546	.58
11	210	2	836	0	48995	1440	12.2670	143933	83695	.58
11	202	5	1780	0	53865	1596	10.4100	158863	92218	.58
11	202	5	840	0	10455	296	2.5140	29642	17495	.59
11	3	2	2100	0	18710	559	3.8110	58343	31408	.54
11	3	3	6975	0	27540	774	2.1600	69404	44935	.65
11	187	2	1896	0	62510	1884	13.2270	184456	128811	.70
11	114	5	348	0	9935	240	3.1850	33636	12763	.38
11	187	5	1543	0	14400	422	3.0770	42494	23996	.56
11	204	5	323	0	15360	377	4.5130	53019	20249	.38
11	114	5	308	0	42763	994	11.8860	140069	54971	.39
11	204	5	826	0	23810	552	6.4560	76965	30568	.40
11	114	3	2057	0	16780	468	2.9840	46264	29538	.64
11	187	5	6265	0	24720	675	4.6400	66842	43075	.64
11	228	2	2000	0	99760	2714	16.2250	260285	178048	.68
11	114	1	1696	0	102050	2786	15.4350	282418	237262	.84
11	114	5	330	0	6535	196	1.7000	19947	11678	.59
11	187	1	2233	0	79090	2187	11.9140	217113	139214	.64
11	187	5	2797	0	28070	788	5.7510	79333	50319	.63
11	114	5	689	0	15350	344	3.9670	47503	23441	.49
11	228	5	251	0	24290	548	7.2790	76621	39020	.51
11	204	5	492	0	22230	623	5.2850	62011	41714	.67
11	114	5	152	0	36650	868	10.3280	118022	56438	.48
11	114	5	380	0	16040	390	4.5900	55259	25503	.46
11	204	5	407	0	32470	747	8.8190	104231	49374	.47
11	228	5	1914	0	65240	1940	14.3400	192094	140227	.73
11	114	5	380	0	26250	613	7.1840	84362	39855	.47
11	3	5	1354	0	43940	1410	8.6070	121580	81951	.67
11	3	5	823	0	24695	578	6.7610	79520	37337	.47
11	3	5	645	0	19200	444	5.2040	61211	29095	.48
11	114	5	780	0	58665	1362	16.1570	189642	85460	.45
11	114	5	354	0	40145	943	11.1160	130626	62736	.48
11	114	5	104	0	30305	690	8.1050	95450	43788	.46
11	3	5	290	0	17605	397	4.5450	53333	25777	.48
11	114	5	347	0	13575	302	3.9460	41732	19453	.47
11	114	5	500	0	47355	1107	12.7880	150941	69163	.46
11	3	5	1035	0	21690	662	5.3830	65675	40684	.62
11	228	5	322	0	9405	222	2.4660	28945	14022	.48
11	228	5	420	0	12220	284	3.3730	39701	18139	.46
11	114	5	120	0	15810	373	4.4100	51957	23186	.45
11	228	5	338	0	18140	426	4.7820	57049	26537	.47
11	174	2	2879	0	66460	1848	9.7080	177176	123098	.69
11	174	1	4200	0	38900	1042	3.6930	104019	70803	.68
11	114	1	4660	0	74225	2009	7.0250	197297	139889	.71
11	3	1	10355	0	59200	1654	5.4370	204178	147397	.72
11	202	2	1370	0	56420	1522	10.3750	152150	103586	.68
11	204	5	292	0	14275	333	3.8700	46258	24241	.52
11	210	5	261	0	26505	610	6.9700	82614	44999	.54
11	228	5	230	0	34282	825	9.8650	115755	60417	.52
11	204	5	142	0	22869	565	6.6870	78727	39886	.51

DT	CT	HW	ADT	DONE	GOFA	CYA	MIL	T#SY	TCOS	C/SY
11	187	5	278	0	22740	498	5.8230	70006	37974	.54
11	210	5	767	0	9855	274	2.2410	26635	18262	.69
11	204	5	220	0	13217	310	3.5750	43204	22628	.52
11	202	5	450	0	18780	464	4.1960	49355	32783	.66
11	202	5	447	0	19220	417	5.0090	59292	31682	.53
11	210	5	162	0	14260	318	3.6810	44373	23848	.54
11	203	5	455	0	25771	605	7.0050	82244	41688	.51
11	203	2	1200	0	5675	167	.8950	18573	10390	.56
11	202	2	1252	0	21740	636	4.0840	62305	39776	.64
11	174	2	1600	0	14515	427	1.4210	38980	26174	.67
11	210	5	592	0	45615	1082	12.3580	151073	74131	.49
11	210	5	270	0	27970	634	7.8870	88809	44569	.50
11	202	5	250	0	13795	324	3.7940	44675	22323	.50
11	174	5	400	0	36520	840	10.9340	115710	58620	.51
11	174	5	210	0	23925	566	6.6660	78300	38849	.50
11	203	5	265	0	37585	892	10.2430	120494	61100	.51
11	203	5	188	0	25160	593	6.9990	82131	40785	.50
11	210	5	201	0	13075	303	3.4540	40650	21021	.52
11	202	5	602	0	26060	764	6.1990	73503	46794	.64
11	203	5	280	0	14040	318	3.6010	42372	22336	.53
11	174	5	1389	0	53015	1588	13.2300	158211	119377	.75
11	210	5	444	0	37715	892	10.4740	123036	61231	.50
11	174	5	174	0	23425	535	6.2540	73424	40454	.55
11	174	1	12552	0	45980	1357	4.1990	124075	83708	.66
11	174	3	6204	0	27445	859	3.3750	77929	50871	.65
11	210	5	70	1	9500	290	2.3110	27116	13023	.48
11	3	2	1430	1	26721	635	2.4740	69668	51076	.73
11	3	5	336	1	18050	343	4.0000	46933	32497	.69
11	187	5	897	1	12200	305	2.6020	30530	18334	.60
11	210	1	3450	1	55668	1320	9.6500	145141	93942	.65
11	187	5	193	1	19950	601	6.1650	72336	35197	.49
11	187	3	260	1	5475	115	.9070	10642	9964	.94
11	187	5	1039	1	29925	634	5.4660	64134	44364	.69
11	187	5	30	1	3750	120	.7830	8268	6355	.77
11	187	5	426	1	43273	996	9.2890	108991	61059	.56
11	187	1	2712	1	6150	200	.5130	15650	11472	.73
11	202	5	1738	1	7000	164	1.7000	20181	14397	.71
11	203	3	50	1	5341	90	1.0700	15065	7520	.50
11	187	5	310	1	30530	666	6.5140	76431	40285	.53
11	174	5	2127	1	7400	180	1.7610	20663	16712	.81
11	187	5	3000	1	12000	333	2.3350	32877	22531	.69
11	3	5	952	1	9639	225	2.1490	25125	13210	.52
11	3	5	1152	1	17327	410	3.8500	45173	16783	.37
11	3	5	850	1	7127	190	1.5830	18574	12301	.66
11	187	3	401	1	12850	224	2.9550	34672	20606	.59
11	202	5	1738	1	7653	185	1.7000	19947	15100	.75
11	202	5	356	1	4211	120	.9350	10971	7500	.68
11	203	5	190	1	10218	250	2.2700	26635	13500	.51
11	203	5	1995	1	6978	160	1.0000	18186	12900	.71
11	204	5	543	1	34800	840	7.7380	90792	62000	.68

DT	CT	HW	ADT	DONE	GOFA	CYA	MIL	T#SY	TCOS	C/SY
11	204	5	530	1	5540	150	1.3720	14488	11000	.76
11	204	5	10	1	2730	75	.6060	7110	5400	.76
11	204	5	20	1	3032	88	.6730	7897	5400	.68
11	228	5	654	1	59825	1390	14.0230	155987	112000	.72
13	235	5	1006	0	19830	490	4.9760	68181	33109	.49
13	235	5	330	0	3700	70	.7660	10452	5467	.52
13	235	1	4874	0	27420	816	7.4350	107276	52944	.49
13	235	1	2120	0	14020	432	3.8520	57215	27632	.48
13	235	5	9135	0	18340	504	1.9140	68874	32306	.47
13	235	1	5908	0	24915	664	6.5300	95161	45164	.47
13	235	5	1314	0	7310	196	1.9500	27249	12715	.47
13	143	5	231	0	17430	406	4.2660	52822	28283	.54
13	143	5	360	0	19280	434	4.8280	56826	30784	.54
13	143	5	190	0	19680	420	4.9420	58205	30718	.53
13	143	1	4225	0	94860	2388	12.8260	328456	233974	.71
13	143	1	1750	0	10070	308	2.6810	37829	18776	.50
13	143	5	496	0	53100	1332	14.4730	179677	88821	.49
13	143	5	411	0	47830	1140	10.6780	148092	78092	.53
13	143	5	170	0	15330	336	3.9740	47091	24176	.51
13	143	5	649	0	17680	408	4.2770	54872	29648	.54
13	29	2	390	0	18910	420	4.6370	54416	29892	.55
13	29	5	1114	0	43740	1162	11.2180	157330	75728	.48
13	29	5	195	0	14410	312	3.5040	41723	22521	.54
13	29	5	195	0	8030	168	3.5040	22344	12362	.55
13	29	5	440	0	6150	144	.9870	19460	9959	.51
13	62	1	1882	0	40925	1160	11.9350	153085	76820	.50
13	62	2	1136	0	25300	714	6.5680	92490	45188	.49
13	62	2	1800	0	39560	1080	8.8610	140652	68977	.49
13	62	5	90	0	12610	322	3.3900	38157	21399	.56
13	62	5	369	0	71320	1680	18.2020	218944	116348	.53
13	62	5	928	0	36440	966	10.1900	127755	63016	.49
13	62	5	1150	0	16860	476	5.0010	59378	30120	.51
13	62	5	169	0	23300	552	6.4750	72157	37935	.53
13	241	2	2063	0	18570	574	5.0470	71318	34824	.49
13	241	5	951	0	21400	564	5.6880	77166	36666	.48
13	241	5	620	0	14240	364	3.3530	46808	24176	.52
13	241	5	240	0	21970	528	6.1650	71228	36009	.51
13	241	5	522	0	20820	564	6.0100	69938	36161	.50
13	76	5	103	0	17710	420	4.5450	53659	28985	.54
13	158	5	918	0	36460	784	8.2270	115619	56996	.49
13	158	5	3436	0	30790	924	8.0030	119093	56821	.48
13	121	3	3337	0	16800	456	3.4560	61102	29208	.48
13	121	3	1689	0	9150	264	2.4250	33870	16408	.48
13	121	2	1841	0	67130	1708	16.0490	226573	113715	.50
13	121	5	985	0	32740	924	9.6180	119586	58052	.49
13	121	5	1100	0	20890	624	5.4150	80595	38142	.47
13	143	2	2400	1	13375	340	3.2000	45384	31540	.69
13	143	2	3677	1	5640	145	.6140	18761	14112	.75
13	143	5	560	1	10216	260	2.8610	34462	26087	.76
13	235	5	1875	1	20000	518	5.2000	67972	37905	.56

DT	CT	HW	ADT	DONE	GOFA	CYA	MIL	T#SY	TCOS	C/SY
13	235	5	2507	1	10600	270	2.3000	35778	17269	.48
13	235	5	190	1	8150	220	2.3320	27362	17800	.65
13	235	1	6600	1	3050	89	.7000	9798	5297	.54
13	29	2	5885	1	29180	760	2.9600	99660	61913	.62
13	62	5	63	1	15349	390	4.4400	52096	42900	.82
13	62	5	573	1	42380	1080	13.6800	144977	120900	.83
13	62	5	70	1	7500	210	2.1700	25500	21700	.85
13	62	5	370	1	11231	292	3.0990	37951	29536	.78
13	62	5	70	1	9208	241	2.6400	30999	23400	.75
13	241	5	474	1	56650	1430	7.2500	194036	54023	.30
13	241	5	336	1	26368	650	7.5090	89967	56684	.63
13	45	2	3317	1	41005	1060	9.6900	141402	95270	.67
13	45	5	360	1	10291	268	3.2880	34721	26200	.75
13	45	5	110	1	1240	40	.3100	3613	2700	.75
13	90	3	3778	1	5853	160	1.4400	19469	16800	.86
13	90	5	272	1	32746	595	9.5160	111885	79018	.71
13	8	2	3800	1	14116	340	2.0300	47864	42555	.89
13	8	2	4274	1	17200	450	3.1800	58730	42047	.72
13	76	1	6404	1	15986	414	7.6600	54290	36280	.67
13	76	5	100	1	17650	460	4.3100	60034	33555	.56
13	76	5	310	1	10300	279	2.5000	35090	21965	.63
13	76	1	12200	1	28510	750	5.6000	97357	65308	.67
13	121	2	2246	1	33450	860	8.0100	114759	68890	.60
15	133	1	580	0	43572	1368	6.4250	120633	77537	.64
15	133	1	560	0	55654	2090	7.9880	149966	109651	.73
15	133	5	200	0	7090	204	.9460	15556	10814	.70
15	131	5	3000	0	6310	288	1.0030	21120	12652	.60
15	131	5	350	0	17050	747	4.0150	56533	34243	.61
15	95	1	5000	0	5720	182	.4500	15708	11268	.72
15	133	2	3760	0	130785	3906	12.6000	335454	250415	.75
15	95	2	7500	0	193965	6216	15.6360	526798	382165	.73
15	10	5	350	0	32825	1008	9.3620	110820	59953	.54
15	7	5	1100	0	17290	518	3.6540	44510	33213	.75
15	163	5	550	0	18105	560	4.9800	60822	33182	.55
15	15	5	1200	0	28005	854	6.0600	73046	54132	.74
15	83	1	1350	0	46275	1750	13.3010	132000	96465	.73
15	232	1	12000	0	82885	2831	8.1540	270440	171959	.64
15	254	1	3000	0	59315	1896	6.3690	161971	120241	.74
15	142	5	620	0	32300	1106	5.0960	87300	67095	.77
15	159	1	2400	0	67225	2292	8.7190	216060	139346	.64
15	64	5	250	0	14385	490	4.2130	55953	29804	.53
15	142	5	100	0	15170	647	3.9170	48367	34709	.72
15	142	5	520	0	15285	504	2.2920	46490	31169	.67
15	83	5	1500	0	97441	2950	18.9950	269908	125588	.47
15	83	5	450	0	68300	2200	13.5240	190417	97367	.51
15	95	5	800	0	40217	1359	9.9230	116429	77363	.66
15	46	1	8000	0	8900	430	.9660	27998	24000	.86
15	46	5	2600	0	31400	1074	6.3520	89436	58273	.65
15	254	5	1500	1	10550	483	2.3200	32560	9924	.30
15	15	3	1000	1	79800	2448	12.5300	221519	168402	.76
15	247	1	2300	1	65800	2050	8.9700	183680	187099	1.02

DT	CT	HW	ADT	DONE	GOFA	CYA	MIL	T#SY	TCOS	C/SY
15	247	2	600	1	55490	1700	10.8900	155280	77590	.50
15	254	5	180	1	41687	1367	9.8300	117555	73036	.62
15	64	5	180	1	2124	242	.8000	9444	5855	.62
15	232	2	750	1	6814	375	.9500	22260	22205	1.00
15	232	5	1400	1	15433	620	1.8900	45811	29340	.64
17	21	1	4800	0	61350	1764	6.7550	175887	104380	.59
17	198	5	700	0	52250	1330	11.8190	140772	86537	.62
17	236	3	450	0	23250	560	4.8170	58664	40833	.70
17	198	5	320	0	58550	1465	12.0160	153785	101989	.66
17	198	5	300	0	48150	1204	10.6690	126468	82887	.65
17	166	5	310	0	33550	840	7.3930	87313	59761	.68
17	154	5	400	0	46000	1232	10.2430	122498	80390	.66
17	154	5	330	0	43200	1204	10.2900	120742	70432	.58
17	154	2	1000	0	45700	1218	10.3750	122044	81154	.67
17	94	2	3500	0	45120	1572	3.8570	96661	97268	1.00
17	145	1	6200	0	67150	1788	7.8530	195028	115134	.59
17	94	5	280	0	30070	720	6.0980	72881	50772	.70
17	82	5	650	0	17950	420	3.9620	46658	32022	.69
17	26	5	1250	0	49800	1302	11.6830	139782	78786	.56
17	26	5	160	0	8050	210	1.7800	21239	12722	.60
17	21	1	4500	0	33450	980	3.7730	97601	58544	.60
17	21	2	5950	0	25525	658	2.8500	67530	46419	.69
17	198	1	3300	0	32780	812	2.9000	84294	60117	.71
17	145	1	7500	0	7709	196	.8000	21601	14582	.68
17	82	5	450	0	41580	980	7.8000	92820	58906	.63
17	94	5	900	0	75525	1638	14.8000	189341	136593	.72
17	154	5	1100	0	71550	1792	13.8100	183271	107987	.59
17	82	5	260	0	35693	840	6.9390	83179	50138	.60
17	82	3	50	0	3620	84	.6600	8844	5054	.57
17	21	5	210	0	27600	658	5.7800	69769	39188	.56
17	198	5	350	0	56650	1560	11.7800	40069	79849	.57
17	82	5	220	0	12250	294	2.5800	30792	17352	.56
17	198	5	150	0	27450	658	5.7000	67880	38682	.57
17	82	1	2800	0	52350	1296	9.3570	147256	113320	.77
17	21	5	1000	1	17866	428	3.5000	47168	29373	.62
17	26	5	330	1	3082	110	.7000	8213	5225	.64
17	26	5	450	1	11462	394	2.0310	28600	16710	.58
17	82	5	495	1	41141	113	9.4800	11232	71240	.64
17	82	1	4900	1	23355	550	2.5300	53454	35064	.66
17	94	2	330	1	7125	194	1.5080	20352	13820	.68
17	94	5	340	1	25855	707	4.9400	69555	49348	.71
17	94	5	1800	1	1305	43	.2840	4000	2676	.67
17	154	1	3200	1	63800	1735	12.7000	185886	115457	.62
17	166	5	310	1	11225	333	2.6000	30507	17017	.56
17	166	5	800	1	6737	141	1.5000	17600	9803	.56
17	166	5	2000	1	20996	674	4.1000	57728	33730	.58
17	236	5	260	1	12385	281	2.6290	30845	22337	.72
17	236	5	290	1	11300	285	2.6540	31142	18447	.59
17	236	5	800	1	4650	120	1.1600	12055	9203	.76
17	236	5	950	1	10225	255	2.3030	27023	17845	.66
17	236	5	1000	1	12700	368	3.3130	38876	21832	.56

DT	CT	HW	ADT	DONE	GOFA	CYA	MIL	T#SY	TCOS	C/SY
17	236	1	400	1	5725	165	1.2120	17064	11070	.65
17	236	2	4800	1	3883	110	.8240	11598	7960	.69
17	239	5	400	1	40673	965	8.8000	103000	60090	.58
17	239	5	6000	1	17029	515	3.6000	42240	18642	.44
21	240	1	1258	0	84760	2892	16.4790	232036	173637	.75
21	67	2	1196	0	63970	2124	12.0420	169563	123393	.73
21	67	2	1400	0	51310	1716	9.4590	132249	99393	.75
21	67	2	1700	0	15590	522	2.9660	41776	29956	.72
21	125	2	1750	0	19555	672	3.8000	53514	38492	.72
21	67	2	1000	0	46070	1632	9.2500	130241	92344	.71
21	253	1	3036	0	50045	1624	9.8010	138000	97253	.70
21	253	1	4014	0	105080	3339	15.6450	280816	272053	.97
21	253	1	2129	0	90990	2940	17.7300	249640	176437	.71
21	253	1	3249	0	55915	1820	10.8890	153322	108827	.71
21	214	1	2600	0	81010	2849	15.9720	231810	164098	.71
21	67	2	780	0	58455	1694	18.1250	212666	100165	.47
21	125	2	930	0	8675	266	2.7820	32646	15245	.47
21	67	2	850	0	48955	1442	15.1990	178340	84492	.47
21	240	1	3649	0	53011	2101	11.9170	168000	108160	.64
21	67	2	2000	0	68501	2548	14.2260	203852	135341	.66
21	125	2	1300	0	58840	1904	9.2680	152250	102427	.67
21	24	2	720	0	53692	1740	9.3950	139160	93525	.67
21	214	1	2500	0	29635	1420	8.0680	113600	66971	.59
21	66	1	4900	0	13140	480	2.8400	40691	28575	.70
21	66	1	4850	0	36010	1476	8.4710	129211	80316	.62
21	109	5	2400	0	31185	1248	7.5400	110398	68697	.62
21	109	5	1000	0	6590	168	2.0820	22200	9452	.43
21	66	1	4700	0	42090	1572	9.5620	145863	88680	.61
21	240	5	392	0	173035	4624	29.6680	418854	326492	.78
21	109	1	5600	0	71155	2564	15.4900	218104	154638	.71
21	109	1	7500	0	1445	50	.2520	4184	3064	.73
21	109	1	7900	0	21785	768	4.6860	65418	46715	.71
21	125	2	890	0	97882	3274	21.2670	300778	203359	.68
21	253	2	1311	0	89863	3016	23.7270	279098	187077	.67
21	109	2	1750	1	13000	575	3.0650	43155	25900	.60
21	109	5	1800	1	28470	1100	6.4000	86474	52565	.61
21	67	2	2896	1	11060	520	1.5110	37714	19538	.52
21	67	5	570	1	46350	1500	9.6970	136533	55000	.41
21	67	2	844	1	1500	245	.8050	10791	6570	.61
21	240	5	310	1	38550	1320	9.6200	114318	85000	.74
21	240	1	2500	1	56234	1800	10.0000	164267	144700	.88
21	214	5	380	1	15600	654	4.8000	50688	38000	.75
21	214	5	650	1	24544	915	6.6500	75473	39012	.52
21	24	1	5700	1	30550	1100	6.0400	92130	46000	.50
21	24	1	5600	1	57469	1884	10.9660	167725	82700	.49
21	24	2	730	1	52890	1850	7.4000	157445	95000	.60
21	24	5	1150	1	26059	960	6.5660	79712	47000	.59
21	31	5	2600	1	32362	1150	6.7250	97377	86000	.88
21	109	5	2700	1	6050	370	1.6780	23626	16538	.70
21	109	5	1350	1	38305	1350	8.2400	114030	83500	.73

DT	CT	HW	ADT	DONE	GOFA	CYA	MIL	T#SY	TCOS	C/SY
21	109	1	1750	1	27251	994	4.7550	50234	25000	.50
21	109	5	6300	1	21668	850	4.7880	67415	53900	.80
21	109	5	1550	1	2075	254	1.0670	12519	7500	.60
21	109	5	600	1	29019	1030	6.2510	88014	53000	.60
21	109	5	450	1	28357	1026	7.3430	86158	69100	.80

APPENDIX B

ROUTINE MAINTENANCE EXPENDITURES FY 84-85

ACTIVITY 201 — ACTIVITY NAME: MAINTENANCE MANAGEMENT

THRU AUG 85 100 % OF YEAR LAPSED

	DISTRICT/ DIVISION	BUDGET AMOUNT	YEAR TO DATE SPENT	CURRENT MONTH SPENT	YTD PERCENT SPENT	REMAINING BALANCE
	01	296,511	287,856	23,867	97.0%	8,655
	02	366,618	331,948	29,973	90.5%	34,670
	03	299,467	297,122	23,574	99.2%	2,345
	04	417,955	369,559	44,641	88.4%	48,396
	05	442,573	422,044	37,661	95.3%	20,529
	06	221,026	201,669	19,961	91.2%	19,357
	07	318,379	293,004	24,579	92.0%	25,375
	08	252,740	202,732	17,710	80.2%	50,008
	09	194,888	190,992	17,272	98.0%	3,896
	10	362,910	354,411	29,391	97.6%	8,499
	11	287,406	287,786	11,910	100.1%	-380
	12	965,070	939,049	84,597	97.3%	26,021
	13	381,955	357,287	31,255	93.5%	24,668
	14	384,992	373,511	37,546	97.0%	11,481
	15	417,286	414,068	41,642	99.2%	3,218
	16	275,535	268,326	23,294	97.3%	7,209
	17	263,057	257,457	21,980	97.8%	5,600
	18	463,105	448,694	37,637	96.8%	14,411
	19	576,871	547,784	54,164	94.9%	29,087
	20	468,152	459,623	55,875	98.1%	8,529
	21	462,797	439,315	44,959	94.9%	23,482
	23	229,318	201,225	21,937	87.7%	28,093
	24	445,528	442,414	42,705	99.3%	3,114
	25	139,221	131,893	11,434	94.7%	7,328
SUB TOTAL		8,933,360	8,519,769	789,564	95.3%	413,591
	43	99	103			-99
	44	370,843	85,658	24,370	23.0%	285,185
	58	1,762,529	1,798,672	183,105	102.0%	-36,143
	65	352,096			0.0%	352,096
SUB TOTAL		2,485,468	1,884,429	207,578	75.8%	601,039
TOTAL, ACTIVITY		11,418,828	10,404,198	997,142	91.1%	1,014,630

NOTE: REPORT CONTAINS RECEIPTS FROM SEGMENTS 9 & 10, CASH VOUCHERS FROM SEGMENTS 2, 29, 70 - 79

ACTIVITY 201 ACTIVITY NAME MAINTENANCE MANAGEMENT — THRU AUG 85 100 OF YEAR LAPSED

OBJECT DESCRIPTION	BUDGET OBJECT	BUDGET AMOUNT	YEAR TO DATE SPENT	CURRENT MONTH SPENT	YTD PERCENT SPENT	REMAINING BALANCE
CLASSIFIED SALARIES	111	9,143,029	8,938,459	790,008	97.7	204,570
HOURLY WAGES	112	299,070	362,863	34,009	121.3	-63,793
EXEMPT SALARIES	118	102,200	98,174	8,517	96.0	4,026
LONGEVITY	122	256,121	243,820	20,420	95.1	12,301
TRAVEL, PRIVATE CAR MILEAGE	181	349,602	268,286	42,021	76.7	81,316
TRAVEL, PER DIEM	182	120,597	107,376	16,702	89.0	13,221
TRAVEL, PUBLIC TRANSPORTATION	183	27,635	26,769	3,053	96.8	866
OTHER TRAVEL EXPENSE	184	1,094	1,525	333	139.3	-431
TRAVEL,PRIVATE AIRPLANE	189	3,000	379		12.6	2,621
CAPITALIZED EQUIPMENT PURCHASES	305	213,887	73,888	12,367	34.5	139,999
OTHER CAPITAL OUTLAY	306	13,522	24,848	10,913	183.7	-11,326
GRANTS OTHER	380		2,531	1,706		-2,531
OTHER OPERATING COSTS	400	476,579	102,682	16,009	21.5	373,897
BOOKS	401	200	2,815	869	+	-2,615
PERIODICALS	414		273	97		-273
TEX-AN	429	44,490			0.0	44,490
PROFESSIONAL SERVICES	432	93,000	73,091	18,768	78.5	19,909
INTERAGENCY CONTRACTS	436		137	6		-137
RENT OR LEASE OF EQUIPMENT	448	10,146	16,461	5,352	162.2	-6,315
BUILDING REPAIR	461	6,100	77	18	1.2	6,023
UTILITIES	483	56,783	42,395	14,129	74.6	14,388
POSTAGE	485		36	2		-36
TELEPHONE (OTHER THAN TEX-AN & CENTREX)	486	14,612	9,407	870	64.3	5,205
RENTAL OF BUILDINGS AND LAND	493		125			-125
ROADWAY MATERIALS	500	3,000	1,823	9	60.7	1,177
GOODS AND SUPPLIES	600	182,634	6,742	1,748	3.6	175,892
CENTER STRIP BEADS AND SIGNS	661		18	18		-18
EQUIPMENT SUPPLIES	700		-275	-275		275
FUEL, OIL, AND GREASE	704	1,527	-527	-527	-34.5	2,054
TOTAL, ACTIVITY		11,418,828	10,404,198	997,142	91.1	1,014,630

NOTE REPORT CONTAINS RECEIPTS FROM SEGMENTS 9 & 10, CASH VOUCHERS FROM SEGMENTS 2, 29, 70 - 79

ACTIVITY 202 — ACTIVITY NAME: MAINTENANCE WORK — THRU AUG 85 100 % OF YEAR LAPSED

DISTRICT/ DIVISION	BUDGET AMOUNT	YEAR TO DATE SPENT	CURRENT MONTH SPENT	YTD PERCENT SPENT	REMAINING BALANCE
01	13,353,648	13,056,549	2,736,061	97.7%	297,099
02	20,829,974	21,577,492	2,951,009	103.5%	-747,518
03	9,906,557	9,878,609	1,334,763	99.7%	27,948
04	13,144,023	13,026,330	1,778,717	99.1%	117,693
05	16,940,768	16,954,715	2,049,402	100.0%	-13,947
06	9,280,909	9,310,206	1,886,527	100.3%	-29,297
07	11,600,015	11,832,331	1,555,649	102.0%	-232,316
08	12,899,122	12,468,141	21,630	96.6%	430,981
09	13,152,770	13,409,075	1,512,993	101.9%	-256,305
10	16,228,865	16,729,194	2,557,078	103.0%	-500,329
11	12,458,430	12,173,904	1,450,191	97.7%	284,526
12	42,055,044	44,261,081	6,569,333	105.2%	-2,206,037
13	16,716,936	16,721,268	3,006,004	100.0%	-4,330
14	14,806,070	14,061,100	2,805,000	94.9%	744,970
15	25,731,458	25,733,565	2,255,511	100.0%	-2,107
16	14,342,288	13,715,031	2,337,028	95.6%	627,257
17	14,200,806	13,960,512	2,282,851	98.3%	240,294
18	28,190,912	29,991,084	5,713,510	106.3%	-1,800,172
19	12,206,937	12,248,531	3,019,651	100.3%	-41,594
20	14,023,237	13,317,815	1,707,289	94.9%	705,422
21	13,920,000	14,518,901	2,013,165	104.3%	-598,901
23	7,870,031	8,021,930	1,331,615	101.9%	-151,899
24	7,467,698	6,788,075	1,751,444	90.8%	679,623
25	6,356,976	6,428,803	483,779	101.1%	-71,827
SUB TOTAL	367,683,476	370,184,242	55,110,200	100.6%	-2,500,766 *
43		11,461	39,462		-11,461
44	-66,239,069	59,435,119	18,861,967	89.7%	6,803,950
45		89	1		-89
50	10,000	1,265		12.6%	8,735
58	3,481,072	2,335,234	925,200	67.0%	1,145,838
59	322,332			0.0%	322,332
65	88,876			0.0%	88,876
SUB TOTAL	70,141,349	61,783,168	19,826,630	88.0%	8,358,181 *
TOTAL, ACTIVITY	437,824,825	431,967,410	74,936,830	98.6%	5,857,415 *

NOTE: REPORT CONTAINS RECEIPTS FROM SEGMENTS 9 & 10, CASH VOUCHERS FROM SEGMENTS 2, 29, 70 - 79

ACTIVITY 202 ACTIVITY NAME MAINTENANCE WORK — THRU AUG 85 100 OF YEAR LAPSED

OBJECT DESCRIPTION	BUDGET OBJECT	BUDGET AMOUNT	YEAR TO DATE SPENT	CURRENT MONTH SPENT	YTD PERCENT SPENT	REMAINING BALANCE
CLASSIFIED SALARIES	111	17,773,857	18,223,375	1,608,823	102.5	-449,518
HOURLY WAGES	112	127,709,567	123,023,330	11,098,623	96.3	4,686,237
LONGEVITY	122	3,969,400	3,681,780	306,320	92.7	287,620
OVERTIME FOR HOURLY EMPLOYEES	127					
TRAVEL, PRIVATE CAR MILEAGE	181	155,927	127,776	19,128	81.9	28,151
TRAVEL, PER DIEM	182	685,125	497,351	87,891	72.5	187,774
TRAVEL, PUBLIC TRANSPORTATION	183	9,450	4,911	1,977	51.9	4,539
OTHER TRAVEL EXPENSE	184	150	24		16.0	126
TRAVEL,PRIVATE AIRPLANE	189	800	400		50.0	400
CAPITAL OUTLAY - BUILDINGS AND LAND	301		43,881			-43,881
CAPITALIZED EQUIPMENT PURCHASES	305	33,184,202	28,322,888	16,077,194	85.3	4,861,314
OTHER CAPITAL OUTLAY	306	233,007	880,538	185,653	377.9	-647,531
CONTRACTOR PAYMENTS	353	36,378,263	37,329,301	10,614,273	102.6	-951,038
GRANTS OTHER	380		13,840	13,840		-13,840
OTHER OPERATING COSTS	400	3,904,778	2,523,281	909,727	64.6	1,381,497
BOOKS	401	88,832	43,425	-70	48.8	45,407
PERIODICALS	414		1,799	668		-1,799
PROFESSIONAL SERVICES	432	477,500	377,425	223,639	79.0	100,075
INTERAGENCY CONTRACTS	436	239,300	2,871	153	1.1	236,429
RENT OR LEASE OF EQUIPMENT	448	2,574,502	1,542,371	242,952	59.9	1,032,131
PAY TO CONTRACTORS-MOWING & OTHER MAINT.	454	37,753,816	38,143,691	8,434,539	101.0	-389,875
BUILDING REPAIR	461	42,065	72,526	11,317	172.4	-30,461
UTILITIES	483	7,916,363	8,415,094	2,020,812	106.3	-498,731
POSTAGE	485	13,756	6,646	84	48.3	7,110
TELEPHONE (OTHER THAN TEX-AN & CENTREX)	486	349,573	422,835	71,395	120.9	-73,262
RENTAL OF BUILDINGS AND LAND	493	10,300	3,368	90	32.6	6,932
ROADWAY MATERIALS	500	116,175,195	126,630,182	18,520,777	108.9	-10,454,987
GOODS AND SUPPLIES	600	3,149,941	307,763	57,877	9.7	2,842,178
CENTER STRIP BEADS AND SIGNS	661	12,117,820	12,558,066	1,495,450	103.6	-440,246
SIGNS &MARKERS PURCHASED FROM TDC	675	3,250,500	2,791,488	434,846	85.8	459,012
LICENSE PLATES D-12	699		17			-17
EQUIPMENT SUPPLIES	700	11,543,990	10,805,234	748,770	93.6	738,756
FUEL, OIL, AND GREASE	704	18,016,846	15,218,540	1,749,526	84.4	2,798,306
EQUIPMENT SUPPLIES-MARINE	751	100,000	25,421	381	25.4	74,579
FUEL, OIL, & GREASE-MARINE	755		-74,721	175		74,721
FUEL, OIL, & GREASE - AVAITION	781		693			-693
PRIOR YEARS ADJUSTMENTS	990					
TOTAL, ACTIVITY		437,824,825	431,967,410	74,936,830	98.6	5,857,415

NOTE REPORT CONTAINS RECEIPTS FROM SEGMENTS 9 & 10, CASH VOUCHERS FROM SEGMENTS 2, 29, 70 - 79

MIS.BUD.R15 STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION PAGE 1

DATE 03/13/86 BUDGET MONITORING REPORT FOR FISCAL YEAR 1985 TIME 15.30.26

ACTIVITY	DISTRICT/DIVISION	ACTIVITY NAME	THRU AUG 85 100 % OF YEAR LAPSED
201	01	MAINTENANCE MANAGEMENT	

BUDGET OBJECT DESCRIPTION	BUDGET OBJECT	BUDGET AMOUNT	YEAR TO DATE SPENT	CURRENT MONTH SPENT	YTD PERCENT SPENT	REMAINING BALANCE
CLASSIFIED SALARIES	111	281,405	270,207	22,420	96.0%	11,198
HOURLY WAGES	112		1,760			-1,760
LONGEVITY	122	9,740	8,040	680	82.5%	1,700
TRAVEL, PRIVATE CAR MILEAGE	181	2,866	4,507	661	157.2%	-1,641
TRAVEL, PER DIEM	182	800	207		25.8%	593
CAPITALIZED EQUIPMENT PURCHASES	305	250	33		13.2%	217
OT CAPITAL OUTLAY	306	200	2,176		+	-1,976
OTHER OPERATING COSTS	400	200	173		86.5%	27
BOOKS	401		176			-176
RENT OR LEASE OF EQUIPMENT	448	300	522	81	174.0%	-222
TELEPHONE (OTHER THAN TEX-AN & CENTREX)	486	200	53	25	26.5%	147
GOODS AND SUPPLIES	600	550	277	275	50.3%	273
EQUIPMENT SUPPLIES	700		-275	-275		275
TOTAL, ACTIVITY		296,511	287,856	23,867	97.0%	8,655

NOTE: REPORT CONTAINS RECEIPTS FROM SEGMENTS 9 & 10, CASH VOUCHERS FROM SEGMENTS 2, 29, 70 - 79

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
FINANCIAL INFORMATION MANAGEMENT SYSTEM

1984-5 ROUTINE MAINTENANCE

STATE SUMMARY BY PRIMARY FUNCTION
AS OF SEPTEMBER 10, 1985

MAINTENANCE		
110	REMOVAL AND REPLACEMENT	10,963,198.73
120	IN PLACE REPAIR	4,241,322.88
210	LEVELING OR OVERLAY	50,970,992.39
220	SEALING CRACKS AND JOINTS	1,533,394.37
231	AGGREGATE SEAL COAT	17,226,785.31
232	STRIP OR SPOT SEAL COAT	11,035,508.53
233	FOG OR SKEET SEALING	4,321,602.70
234	SEAL CRACKS, SQUEEJEE	2,412,922.34
240	POTHOLES	13,194,982.30
260	TREAT BLEEDING PAVEMENT	1,152,465.09
270	EDGE REPAIR	4,940,039.88
310	LEVELING OR OVERLAY	817,011.89
320	SEALING CRACKS AND JOINTS	392,334.16
330	BLOWUPS AND STRESS RELIEF	590,879.67
340	REPAIR SPALLING	439,391.26
350	IMPROVE TEXTURE	121,027.77
360	REMOVE AND REPLACE	2,584,592.76
410	LEVELING OR OVERLAY	1,800,778.12
420	SEALING CRACKS AND JOINTS	88,630.75
431	AGGREGATE SEAL COAT	3,193,952.20
432	STRIP OR SPOT SEAL COAT	667,251.19
433	FOG OR SKEET SEALING	457,656.81
440	POTHOLES AND EDGE REPAIR	2,127,243.68
451	RECONDITION SOD SHOULDERS	3,982,927.22
452	BLADE FLEXIBLE BASE SHOULDERS	4,704,795.85
460	BASE OR SUBGRADE REPAIRS	1,340,641.19
470	SIDE ROAD APPROACHES AND DRIVEWAYS	6,579,292.17
511	MOWING, STATE OWNED MOWERS	8,499,117.69
512	MOWING, CONTRACT MOWERS	10,230,299.13
521	LITTER REMOVED BY STATE FORCES	6,852,426.97
522	ROUTINE STREET SWEEPING	6,522,387.62
523	REMOVAL & DISPOSAL OF LITTER-BY CONTRACT	7,410,868.01
531	PICNIC AREA STATE MAINTENANCE FORCES	3,379,047.44
532	REST AREA STATE MAINTENANCE FORCES	2,919,072.38
534	CONTRACT PICNIC AREA MAINTENANCE	495,374.38
544	CONTRACT REST AREA MAINTENANCE	782,074.02
543	CHEMICAL VEGETATION CONTROL	7,539,002.50
550	LANDSCAPING	3,225,505.14
560	SILT AND EROSION CONTROL	12,195,498.79
570	CULVERT AND STORM DRAIN MAINTENANCE	4,326,764.96
581	INSPECTION OF INSTALLATION UTLY/DRWYS	1,170,004.99
592	MISCELLANEOUS ROADSIDE MAINTENANCE	3,735,865.14
	TOTAL MAINTENANCE	231,166,840.37
BRIDGE MAINTENANCE & INSPECTION		
611	REPAIR BRIDGES OTHER THAN MOVEABLE SPAN	3,744,302.10
612	OPERATION & MAINT. - MOVEABLE SPAN BRDG	584,544.85
629	CHANNEL MAINTENANCE	1,100,908.85
	TOTAL BRIDGE MAINTENANCE & INSPECTION	5,429,755.00

REQUESTED BY MARK ASHLEY

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
FINANCIAL INFORMATION MANAGEMENT SYSTEM
1984-5 ROUTINE MAINTENANCE
STATE SUMMARY BY PRIMARY FUNCTION
AS OF SEPTEMBER 10, 1985

TRAFFIC SERVICES		
711	PAINT AND BEAD STRIPING	14,478,360.89
712	THERMOPLASTIC STRIPING	318,938.72
713	SPECIALTY MARKINGS, PAINT	968,380.33
714	SPECIALTY MARKINGS, OTHER	1,065,863.47
715	REMOVING STRIPE	123,864.47
721	DELINEATORS	3,273,039.32
722	GUARD FENCE MAINTENANCE BY STATE FORCES	2,445,066.83
723	MEDIAN BARRIER	619,058.19
724	ACCESS CONTROL	241,861.23
725	MAINTAIN VEHICLE ATTENUATORS	442,406.18
726	GUARD FENCE CONTRACTED	1,521,477.25
731	SPECIAL SIGN STUDIES	42,619.99
732	INSTALL,REPAIR/REPLACE SIGNS	18,621,609.29
733	MAINTAIN VANDALIZED SIGNS	704,304.79
736	MAILBOXES	1,490,607.55
741	MAINTAIN SIGNALS	4,409,442.85
742	MAINTAIN ILLUMINATION	3,761,543.11
743	CONTRACT SIGNAL MAINTENANCE	73,969.13
744	CONTRACT ILLUMINATION MAINTENANCE	70,701.23
750	RAISED PAVEMENT MARKINGS	1,705,034.28
793	MISCELLANEOUS TRAFFIC SERVICES	594,141.00
	TOTAL TRAFFIC SERVICES	60,167,289.60
EXTRAORDINARY MAINTENANCE		
810	ASSISTANCE TO TRAFFIC	10,361,243.76
820	EMERGENCY REPAIRS	2,322,889.84
821	EMERGENCY REPAIRS TO BASE & SUBGRADE	214,024.54
822	EMERGENCY REPAIRS TO BITUMINOUS SURFACES	1,789,347.04
823	EMERGENCY REPAIRS TO CONCRETE PAVEMENT	26,354.51
826	EMERGENCY REPAIRS TO BRIDGES	854,765.56
827	EMERGENCY REPAIRS TO TRAFFIC SERVICES	111,146.32
	TOTAL EXTRAORDINARY MAINTENANCE	15,679,771.57
SECTION ADMINISTRATION & MANAGEMENT		
910	SECTION ADMINISTRATION	29,092,595.90
920	SECTION HEADQUARTERS' OPERATIONS	10,217,150.50
931	SKID TESTING	85,526.67
932	DYNAFLECT	43,052.11
934	VISUAL SURVEY	425,891.02
961	MISCELLANEOUS SECTION EXPENSE	9,180,273.54
970	BRIDGE INSPECTION	434,905.04
	TOTAL SECTION ADMINISTRATION & MANAGEMENT	49,397,435.18
MAINTENANCE		
252	[illegible] SAVING	1,134,193.73
434	[illegible] SHOULDER	69,690.70
438	CONCRETE SHOULDERS	27,128.39
	TOTAL MAINTENANCE	1,231,012.82

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
FINANCIAL INFORMATION MANAGEMENT SYSTEM

1984-5 ROUTINE MAINTENANCE

STATE SUMMARY BY PRIMARY FUNCTION
AS OF SEPTEMBER 10, 1985

TRAFFIC SERVICES		
734	WASH SIGNS	30,280.64
735	CLEAR COATING	1,197.32
791	FREEWAY COURTESY PATROL	865,992.83
TOTAL TRAFFIC SERVICES		897,470.79
EXTRAORDINARY MAINTENANCE		
824	EMERGENCY REPAIRS TO SHRDS & APPROACH	133,599.89
825	EMERGENCY REPAIRS TO ROADSIDES	40,852.32
TOTAL EXTRAORDINARY MAINTENANCE		174,452.21
SECTION ADMINISTRATION & MANAGEMENT		
932	PROFILOMETER	163,493.76
935	PHOTOLOGGING	13,112.84
TOTAL SECTION ADMINISTRATION & MANAGEMENT		176,606.60
MAINTENANCE		
130	INSTALL AND/OR MAINTAIN SUB-DRAINS	142,483.10
241	SPRINKLE TREATMENT	8,761.74
TOTAL ROUTINE ROADWAY MAINTENANCE EXPENDITURES		3,841,878.98

MAINTENANCE EXPENDITURES
MAINTENANCE PROJECTS PERFORMED BY STATE FORCES
BY FUNCTION CODE

1984-5

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
110-REMOVE AND REPLACE	
ASPHALTIC CONCRETE	236.90
CEMENT	496.80
EQUIPMENT RENTAL	111,279.93
FLEX. BASE MATRL - CRUSHED ROCK, SL	17,548.99
HOURLY WAGES/FULL TIME	171,474.01
LIME AND ALLIED STABILIZER MATERIAL	8.34
RESIDENT ENGINEER INDIRECT COST	392.45
SALARIES/FULL TIME	1,958.50
WAREHOUSE STOCK ISSUES/TRANSFERS	232,790.84
	536,096.46
120-IN PLACE REPAIR	
CEMENT	1,512.00
EQUIPMENT RENTAL	86,393.18
FLEX. BASE MATRL - CRUSHED ROCK, SL	1,078.22
FLEXIBLE BASE MATERIALS - GRAVEL	63.20
HOURLY WAGES/FULL TIME	104,089.37
RESIDENT ENGINEER INDIRECT COST	12.76
SALARIES/FULL TIME	106.35
WAREHOUSE STOCK ISSUES/TRANSFERS	109,977.29
	303,231.32
210-LEVELING OR OVERLAY	
ASPHALT, OIL AND EMULSION	-1[illegible].72
ASPHALTIC CONCRETE	547,[illegible]62.61
BUTANE & ALLIED GAS, NOT FOR HEAT	6.00

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
CONTRACT MAINTENANCE - MOWING, ETC.	16,200.00
EQUIPMENT RENTAL	94,617.71
HOURLY WAGES/FULL TIME	199,360.31
PAYMENTS TO CONTRACTORS - OTHERS	1,455.00
PER DIEM - IN STATE	1,495.00
RENT HIGHWAY EQUIPMENT 32 DAYS OR M	4,606.00
RENT OF TOOLS AND EQUIP, INCL ICE M	70.50
RESIDENT ENGINEER INDIRECT COST	288.21
SALARIES/FULL TIME	5,450.73
TESTING SERV.	1,665.00
WAREHOUSE STOCK ISSUES/TRANSFERS	890,598.62
WATER	75.60
	1,863,482.57
220-SEAL CRACKS & JOINTS	
EQUIPMENT RENTAL	144.00
	144.00
231.AGGREGATE SEAL COAT	
AGGREGATE FOR SURFACE TREATMENT - O	1,741.48
ASPHALT, OIL AND EMULSION	1,699,786.76
ASPHALTIC CONCRETE	17,559.29
BASE AND FILL MATERIALS NOT CLASSIF	7.89
BUTANE & ALLIED PROD, NOT FOR HEAT	634.48
CLEARANCE OF EXPENDITURE ACCUMULATI	48,617.71
CLERICAL PARTS AND SUPPLIES	42.36
EQUIPMENT RENTAL	785,911.52

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
FREIGHT & DELIVERY IF BY FREIGHT CO	8,908.04
HOURLY WAGES/FULL TIME	1,604,000.18
IN-STATE PER DIEM RECEIPT REQUIRED	.00
KEROSENE, SOLVASOL AND ALLIED PRODU	71.50
PER DIEM - IN STATE	39,357.71
PRIVATE CAR MILEAGE - IN STATE	25.53
REGULAR SUSPENSE	4,533.74
RESIDENT ENGINEER INDIRECT COST	6,803.20
SALARIES/FULL TIME	89,456.56
SHOP EQUIPMENT REPAIRS	230.00
TELEPHONE - LONG DIST EXCL MOB TEX	44.00
TELEPHONE, MONTHLY BASE CHARGE ONLY	90.76
TESTING SERV.	4,340.00
TRAVEL, IN-STATE PARTIAL PER DIEM	.00
WAREHOUSE STOCK ISSUES/TRANSFERS	10,463,742.57
WATER	40.00
	14,775,945.20

232-STRIP/SPOT SEAL COAT

EQUIPMENT RENTAL	5,619.73
HOURLY WAGES/FULL TIME	10,217.10
KEROSENE, SOLVASOL AND ALLIED PRODU	71.50
SALARIES/FULL TIME	.00
WAREHOUSE STOCK ISSUES/TRANSFERS	31,052.46
	46,960.79

MAINTENANCE EXPENDITURES
MAINTENANCE PROJECTS PERFORMED BY STATE FORCES
BY FUNCTION CODE

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
233-FOG OR SKEET SEALING	
EQUIPMENT RENTAL	2,367.97
HOURLY WAGES/FULL TIME	7,039.05
SALARIES/FULL TIME	216.48
WAREHOUSE STOCK ISSUES/TRANSFERS	11,815.68
	21,439.18
234-SEAL CRACKS	
EQUIPMENT RENTAL	11.85
WAREHOUSE STOCK ISSUES/TRANSFERS	1,530.00
	1,541.85
240-POTHOLES	
ASPHALTIC CONCRETE	1,850.95
EQUIPMENT RENTAL	8,689.82
HOURLY WAGES/FULL TIME	8,409.92
WAREHOUSE STOCK ISSUES/TRANSFERS	718.99
	19,669.68
252-KILLING OR SAWING	
ASPHALTIC CONCRETE	27,540.49
EQUIPMENT RENTAL	5,695.35
HOURLY WAGES/FULL TIME	8,900.14
WAREHOUSE STOCK ISSUES/TRANSFERS	299.17
	42,435.15

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
260-TREAT BLEADING PVMNT	
EQUIPMENT RENTAL	8,964.82
FREIGHT & DELIVERY IF BY FREIGHT CO	28.37
HOURLY WAGES/FULL TIME	15,182.85
SALARIES/FULL TIME	.00
WAREHOUSE STOCK ISSUES/TRANSFERS	46,125.29
	70,350.53
270-EDGE REPAIR	
CONTRACT MAINTENANCE - MOWING, ETC.	633.25
EQUIPMENT RENTAL	1,680.69
HEAT, INCL NATURAL AND BOTTLED GAS	42.03
HOURLY WAGES/FULL TIME	8,030.21
PER DIEM - IN STATE	300.00
TRAFFIC SIGNALS AND REPAIR PARTS	25.73
WAREHOUSE STOCK ISSUES/TRANSFERS	5,732.37
	16,444.28
310-LEVELING OR OVERLAY	
ASPHALTIC CONCRETE	4,724.55
EQUIPMENT RENTAL	4,451.94
HOURLY WAGES/FULL TIME	8,528.35
PRIVATE CAR MILEAGE - IN STATE	486.45
SALARIES/FULL TIME	2,272.82
WAREHOUSE STOCK ISSUES/TRANSFERS	400.62
	20,864.73

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
320-SEAL CRACKS & JOINTS	
EQUIPMENT RENTAL	12.25
WAREHOUSE STOCK ISSUES/TRANSFERS	5,320.59
	5,332.84
330-BLOWUP/STRESS RELIEF	
TESTING SERV.	100.00
	100.00
350-IMPROVE TEXTURE	
EQUIPMENT RENTAL	17.20
SALARIES/FULL TIME	355.44
	372.64
360-REMOVE & REPLACE	
EQUIPMENT RENTAL	3,559.31
HOURLY WAGES/FULL TIME	9,199.52
SALARIES/FULL TIME	90.80
WAREHOUSE STOCK ISSUES/TRANSFERS	1,431.01
	14,280.64
431-AGGREGATE SEAL COAT	
EQUIPMENT RENTAL	45,970.46
FEES AND SPECIAL COSTS NOT ITEMIZED	14.00
HOURLY WAGES/FULL TIME	116,010.42
PER DIEM - IN STATE	5,480.00
SALARIES/FULL TIME	1,842.00
WAREHOUSE STOCK ISSUES/TRANSFERS	806,151.87

MAINTENANCE PROJECTS PERFORMED BY STATE FORCES
BY FUNCTION CODE

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
WATER	18.40
	813,487.86
432-STRIP/SPOT SEAL COAT	
EQUIPMENT RENTAL	16.77
	16.77
434-SQUEEJEE OLAL CRACKS	
HOURLY WAGES/FULL TIME	592.42
	592.42
440-POTHOLES/EDGE REPAIR	
HOURLY WAGES/FULL TIME	1,064.32
	1,064.32
451-RECOND. SOD SHOULDER	
HOURLY WAGES/FULL TIME	332.75
	332.75
452 BLADE FLEXIBLE BASE	
EQUIPMENT RENTAL	142.75
HOURLY WAGES/FULL TIME	210.08
	352.83
460-BASE/SUBGRADE REPAIR	
EQUIPMENT RENTAL	2,906.20
HOURLY WAGES/FULL TIME	3,930.07
WAREHOUSE STOCK ISSUES/TRANSFERS	5,016.66
WATER	253.09

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
	12,095.87
473-APPROACHES/DRIVEWAYS	
EQUIPMENT RENTAL	2,653.79
HOURLY WAGES/FULL TIME	5,670.55
WAREHOUSE STOCK ISSUES/TRANSFERS	4,917.44
	13,241.78
521-LITTER REMOVAL	
ASPHALT, OIL AND EMULSION	3,664.55
HOURLY WAGES/FULL TIME	234.72
	3,899.27
522-STREET SWEEPING	
EQUIPMENT RENTAL	-6.90
HOURLY WAGES/FULL TIME	23.16
	16.26
531-REST AREA MAINT.	
CEMENT	13.25
CONCRETE, READY MIX	-17.60
EQUIPMENT RENTAL	11,423.11
FREIGHT & DELIVERY BY MV FREIGHT CO	10.50
HOURLY WAGES/FULL TIME	48,629.35
PRIVATE CAR MILEAGE - TO STATE	212.75
SALARIES/FULL TIME	5,885.92
WAREHOUSE STOCK ISSUES/TRANSFERS	17,654.13
	83,951.41

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
532-COMFORT STATION MNT.	
WAREHOUSE STOCK ISSUES/TRANSFERS	1,539.20
	1,539.20
550-LANDSCAPING	
EQUIPMENT RENTAL	13.00
	13.00
560-SILT/EROSION CONTROL	
EQUIPMENT RENTAL	3,131.46
HOURLY WAGES/FULL TIME	7,441.64
	10,573.10
570-CULVERT/STORM DRAINS	
EQUIPMENT RENTAL	580.83
HOURLY WAGES/FULL TIME	2,640.62
WAREHOUSE STOCK ISSUES/TRANSFERS	47.98
	3,269.43
591-UTIL & DRIVEWAY INSP	
EQUIPMENT RENTAL	197.00
HOURLY WAGES/FULL TIME	480.35
WAREHOUSE STOCK ISSUES/TRANSFERS	64.65
	743.00
592-MISC. ROADSIDE MAINT	
EQUIPMENT RENTAL	56.11
WAREHOUSE STOCK ISSUES/TRANSFERS	495.60

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
	551.71
620-CHANNEL MAINTENANCE	
CONTRACT MAINTENANCE - MOWING, ETC.	.00
EQUIPMENT RENTAL	337.99
	337.99
711-PAINT/ROAD STRIPING	
EQUIPMENT RENTAL	534.81
HOURLY WAGES/FULL TIME	737.28
SALARIES/FULL TIME	2,451.38
	3,723.47
725-MAINTAIN ATTENUATORS	
CORE DRILL SERVICE	585.20
	585.20
732-INSTALL/REPAIR SIGNS	
BUILDING AND CUSTODIAL SUPPLIES	5.91
EQUIPMENT RENTAL	739.38
HOURLY WAGES/FULL TIME	7,645.67
SALARIES/FULL TIME	1,303.31
WAREHOUSE STOCK ISSUES/TRANSFERS	19,350.38
	29,044.65
741-MAINTAIN SIGNALS	
AGGREGATE, BULK ITEMS 703.4.1	630.00
CEMENT	421.00

MAINTENANCE EXPENDITURES
MAINTENANCE PROJECTS PERFORMED BY STATE FORCES
BY FUNCTION CODE

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
CLEARANCE OF EXPENDITURE ACCUMULATI	7,842.10
CONCRETE, READY MIX	1,441.50
CONTRACT MAINTENANCE - MOWING, ETC.	2,003.50
CORE DRILL SERVICE	488.00
ELECTRICAL SUPPLIES NOT OTHERWISE C	72.84
EQUIPMENT RENTAL	53,139.89
HARDWARE	16.30
HOURLY WAGES/FULL TIME	161,405.30
LUMBER - UNTREATED	11.88
MISC SHOP SUPPLIES, INCLUDING ICE	23.33
PER DIEM - IN STATE	1,700.00
PRIVATE CAR MILEAGE - IN STATE	116.84
REGULAR SUSPENSE	6,695.51
RENT HIGHWAY EQUIPMENT LESS THAN 32	280.00
RENT OF TOOLS AND EQUIP, INCL ICE M	369.00
SALARIES/FULL TIME	4,939.94
TESTING SERV.	830.00
TRAFFIC SIGNALS AND REPAIR PARTS	1,599.25
WAREHOUSE STOCK ISSUES/TRANSFERS	237,099.16
	481,126.12

742-MAINT. ILLUMINATION

CLEARANCE OF EXPENDITURE ACCUMULATI	210.00
CONCRETE, READY MIX	-18.00
CONTRACT MAINTENANCE - MOWING, ETC.	250.00
EQUIPMENT RENTAL	2,281.97
HIGHWAY FIXTURES NOT OTHERWISE CLAS	272.82

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
HOURLY WAGES/FULL TIME	4,617.55
RENT OF TOOLS AND EQUIP, INCL ICC M	300.00
SALARIES/FULL TIME	918.80
WAREHOUSE STOCK ISSUES/TRANSFERS	9,854.62
	18,691.99
743-MNT VANDALIZED ILLUM	
HOURLY WAGES/FULL TIME	124.53
	124.53
744-CONTRACT ILLUM.	
CONTRACT MAINTENANCE - MOWING, ETC.	447.00
	447.00
791-FWY. COURTESY PATROL	
EQUIPMENT RENTAL	22.75
HOURLY WAGES/FULL TIME	223.44
	246.19
793-MISC. TRAFFIC SERVIC	
EQUIPMENT RENTAL	5,267.13
EXTRAORD. MAINT. CLEARANCES	66.24
HOURLY WAGES/FULL TIME	8,566.38
LIGHT AND POWER	126.42
SALARIES/FULL TIME	11,293.96
TELEPHONE - LONG DIST EXCL [illegible] TEX	2.76
TELEPHONE, MONTHLY BASE CHARGE ONLY	25.93
WAREHOUSE STOCK ISSUES/TRANSFERS	2,775.77

MAINTENANCE EXPENDITURES
MAINTENANCE PROJECTS PERFORMED BY STATE FORCES
BY FUNCTION CODE

OBJECT OF EXPENDITURE	EXPENDITURES TO DATE
WASTE DISPOSAL	77.77
WATER	26.49
WELDING SUPPLIES	169.95
	35,197.26
	10,253,085.24

APPENDIX C

INSURANCE PREMIUMS

INSURANCE DIVISION - STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

POLICY PERIOD	TOTAL NUMBER OF CLAIMS	AUTO POL. NET PREMIUM	GEN. LIAB. POL. NET PREMIUM	TOTAL NET PREMIUM	AUTO POL. TOTAL INCURRED LOSSES	GEN. LIAB. TOTAL INCURRED LOSSES	TOTAL INCURRED LOSSES	TOTAL INCURRED LOSSES DIVIDED BY TOTAL NET PREMIUM	=	LOSS RATIO
"R" FY 85 EFF. 9/84	1,007	$ 826,000	$ 420,000	$1,246,000	$ 354,000	$ 121,000	$ 475,000	$ 475,000 / $1,246,000	=	38%
"Q" FY 84 EFF. 9/83	998	733,000	302,000	1,035,000	419,000	224,000	643,000	643,000 / 1,035,000	=	62%
"P" FY 83 EFF. 9/82	945	580,936	222,611	803,547	982,000	371,000	1,353,000	1,353,000 / 803,547	=	168%
"N" FY 82 EFF. 9/81	905	489,331	197,889	687,220	579,000	98,000	677,000	677,000 / 687,220	=	99%
"M" FY 81 EFF. 9/80	859	484,056	209,507	693,563	481,000	73,000	554,000	554,000 / 693,563	=	80%
"L" FY 80 EFF. 9/79	813	425,905	239,126	665,031	516,000	58,425	574,425	574,425 / 665,031	=	86%
"K" FY 79 EFF. 9/78	930	383,955	258,309	642,264	269,000	71,592	340,592	340,592 / 642,264	=	53%
"J" FY 78 EFF. 9/77	898	323,654	119,587	443,241	294,021	89,028	383,049	383,049 / 443,241	=	86%
"I" FY 77 EFF. 9/76	720	273,461	75,633	349,094	318,750	72,879	391,629	391,629 / 349,094	=	121%
"H" FY 76 EFF. 9/75	699	205,807	114,136	319,943	265,006	41,834	306,840	306,840 / 319,943	=	96%
"G" FY 75 EFF. 9/74	716	--------	--------	349,130	203,278	64,132	267,410	267,410 / 349,130	=	77%
"F" FY 74 EFF. 9/73	614	--------	--------	348,592	304,751	36,247	340,998	340,998 / 348,592	=	98%
"E" FY 73 EFF. 8/73	842	--------	--------	317,999	140,917	25,457	166,374	166,374 / 317,999	=	52%
"D" ONE MO. EFF. 8/72	85	--------	--------	35,015	31,255	3,957	35,212	35,212 / 35,015	=	101%
"C" 12 MO. EFF. 8/71	705	--------	--------	262,072	100,515	204,207	304,722	304,722 / 262,072	=	116%
"B" 12 MO. EFF. 9/70	669	--------	--------	498,980	404,784	51,371	456,155	456,155 / 498,980	=	91%
"A" 7 MO. EFF. 2/70	433	--------	--------	307,352	90,516	20,708	111,224	111,224 / 307,352	=	36%
TOTALS:	12,838	--------	--------	$9,004,043	$5,753,793	$1,626,837	$7,380,630	$7,380,630 / $9,004,043	=	82%

Report Done 9/30/85 Based Upon
E.C.C. Statistics Dated 9/7/85

APPENDIX D

DISTRICT QUESTIONNAIRE

Resource Commitment To
Seal Coat Contracts

Total Budget for 84-85 year (Seal Coat Projects): $_____

Total number of projects for 84-85: _____

Activity	Time Required per Individual	Personnel Required	Monthly Salary
1. Program Call			
2. Submission (List of proposed projects)			
3. Project Identification (limits, length, width, etc)			
4. Generate Report			
5. Prioritize Projects			
6. Approval			
7. Plans Prepared			
8. Advertising			
9. Contract Management			
10. Bill Paying			
11. On-Site Monitoring			
12. Clerical			

APPENDIX E

CLIMATIC DATA

OBS = OBSERVATION NO.
DN = DISTRICT NO.
DP = DAYS WITH PRECIITATION
MDPC = NUMBER OF DAYS WITH CONTINUOUS PRECIPITATION

OBS	DN	CN	DP	MDPC
55	24	055	42.797	20.224
56	04	056	55.302	23.513
57	18	057	79.300	31.850
58	05	058	47.644	23.698
59	04	059	56.729	26.100
60	01	060	87.853	35.045
61	18	061	73.350	30.850
62	13	062	79.705	34.186
63	25	063	51.668	24.007
64	22	064	49.302	23.868
65	25	065	57.084	25.821
66	21	066	59.550	29.100
67	21	067	48.992	25.001
68	23	068	58.904	25.625
69	06	069	44.047	21.721
70	22	070	43.785	20.790
71	18	071	72.571	29.445
72	24	072	35.475	17.684
73	02	073	77.229	32.858
74	09	074	82.737	35.774
75	01	075	72.587	29.640
76	13	076	79.016	32.758
77	08	077	53.450	24.100
78	05	078	55.747	26.523
79	25	079	66.297	28.963
80	12	080	101.421	39.103
81	01	081	88.300	35.550
82	17	082	83.074	34.684
83	15	083	65.224	30.403
84	05	084	56.679	27.587
85	12	085	89.250	35.100
86	05	086	56.750	26.500
87	14	087	72.300	32.050
88	07	088	46.679	22.416
89	16	089	81.945	34.768
90	13	090	75.650	32.300
91	04	091	59.179	26.037
92	01	092	78.200	31.600
93	10	093	84.932	34.503
94	17	094	74.178	29.700
95	15	095	80.600	33.300
96	05	096	54.084	24.724
97	25	097	41.005	18.993
98	09	098	67.463	29.940
99	04	099	56.650	24.400
100	25	100	66.297	28.963
101	20	101	110.550	42.650
102	12	102	103.750	39.100
103	19	103	92.650	36.447
104	04	104	61.800	26.050
105	08	105	68.508	29.527
106	14	106	80.271	34.136
107	04	107	52.400	23.982
108	10	108	82.848	34.524

OBS	DN	CN	DP	MDPC
1	10	001	87.389	35.741
2	06	002	45.205	22.329
3	11	003	102.456	39.878
4	16	004	76.682	32.924
5	03	005	68.413	30.061
6	04	006	49.393	23.269
7	15	007	72.558	32.268
8	12	008	94.168	37.076
9	05	009	56.750	25.850
10	15	010	61.829	26.621
11	14	011	66.771	29.423
12	03	012	59.750	27.050
13	16	013	68.606	30.624
14	09	014	62.364	28.226
15	15	015	82.350	34.050
16	14	016	71.603	31.947
17	08	017	48.331	22.471
18	09	018	74.300	31.250
19	19	019	88.119	35.016
20	12	020	92.248	37.065
21	17	021	85.350	34.450
22	24	022	55.700	25.750
23	25	023	52.421	23.308
24	21	024	67.325	31.421
25	23	025	60.500	27.800
26	17	026	83.300	33.150
27	14	027	70.500	29.650
28	14	028	79.770	33.470
29	13	029	77.626	32.568
30	08	030	62.400	27.950
31	21	031	71.653	34.139
32	19	032	92.500	37.650
33	04	033	64.924	27.337
34	19	034	91.750	36.622
35	05	035	53.292	24.454
36	20	036	85.750	32.700
37	10	037	73.645	30.453
38	25	038	61.382	27.333
39	03	039	65.484	28.408
40	05	040	52.855	24.890
41	07	041	55.424	26.171
42	23	042	61.937	28.661
43	18	043	83.286	33.258
44	25	044	53.763	24.679
45	13	045	95.847	38.769
46	15	046	75.950	33.050
47	23	047	68.450	30.087
48	07	048	61.429	28.134
49	03	049	80.200	32.150
50	09	050	68.606	29.095
51	25	051	53.471	25.879
52	06	052	45.497	22.179
53	07	053	47.389	22.653
54	05	054	58.350	27.100

OBS	DN	CN	DP	MDPC
109	21	109	59.739	30.635
110	09	110	69.600	28.921
111	05	111	56.059	26.316
112	02	112	79.150	33.750
113	01	113	76.553	30.785
114	11	114	86.762	35.736
115	08	115	54.455	26.350
116	24	116	43.200	20.550
117	01	117	86.224	33.650
118	04	118	59.542	26.508
119	07	119	58.152	26.674
120	02	120	60.663	26.803
121	13	121	100.992	38.234
122	20	122	79.496	30.024
123	24	123	66.276	29.534
124	20	124	105.900	39.650
125	21	125	62.474	31.152
126	16	126	67.574	31.855
127	02	127	79.950	33.400
128	08	128	50.428	23.046
129	16	129	76.674	33.832
130	18	130	84.587	34.266
131	15	131	84.600	35.900
132	08	132	42.916	20.200
133	15	133	90.126	38.195
134	07	134	59.131	27.002
135	25	135	51.772	24.008
136	22	136	51.966	25.706
137	16	137	65.503	31.276
138	25	138	54.300	25.450
139	01	139	92.979	37.074
140	05	140	56.861	26.994
141	23	141	61.275	26.353
142	15	142	52.813	25.908
143	13	143	77.990	32.858
144	14	144	70.105	28.801
145	17	145	100.200	41.450
146	20	146	92.898	36.074
147	09	147	71.576	29.990
148	04	148	51.320	22.655
149	16	149	67.081	30.113
150	14	150	63.397	29.213
151	06	151	40.187	20.700
152	05	152	61.300	26.550
153	05	153	58.250	26.550
154	17	154	74.178	29.700
155	19	155	92.300	35.997
156	06	156	49.421	24.032
157	14	157	57.181	26.400
158	12	158	74.884	30.198
159	22	159	58.689	29.050
160	23	160	61.293	27.805
161	09	161	73.297	30.544
162	15	162	62.985	29.509

OBS	DN	CN	DP	MDPC
163	15	163	67.032	30.637
164	07	164	59.137	26.587
165	06	165	53.100	25.400
166	17	166	75.200	32.350
167	23	167	62.889	28.076
168	08	168	56.113	25.734
169	03	169	67.050	28.100
170	12	170	99.250	38.600
171	04	171	48.797	21.566
172	19	172	90.279	35.695
173	25	173	57.258	26.542
174	11	174	89.363	32.382
175	18	175	81.500	34.000
176	20	176	103.300	39.350
177	08	177	55.050	26.200
178	16	178	76.850	34.350
179	04	179	58.218	25.455
180	04	180	61.624	27.387
181	20	181	102.863	39.061
182	02	182	73.376	31.061
183	19	183	92.674	35.761
184	02	184	79.750	33.850
185	05	185	58.300	26.050
186	06	186	46.390	22.940
187	11	187	104.992	42.863
188	04	188	68.950	28.850
189	24	189	47.637	22.363
190	01	190	81.840	32.368
191	04	191	55.353	25.684
192	07	192	53.687	25.695
193	22	193	55.416	25.800
194	01	194	87.194	34.855
195	06	195	35.048	18.540
196	16	196	80.360	33.037
197	04	197	58.585	25.508
198	17	198	90.560	38.700
199	18	199	76.242	33.137
200	07	200	58.805	27.505
201	10	201	74.197	28.781
202	11	202	85.003	32.477
203	11	203	80.519	30.029
204	11	204	104.900	41.650
205	16	205	73.409	34.226
206	23	206	58.562	26.401
207	07	207	52.106	24.966
208	08	208	48.166	22.616
209	08	209	69.727	30.858
210	11	210	89.213	32.518
211	04	211	55.302	23.513
212	10	212	54.127	25.432
213	02	213	75.500	31.900
214	21	214	55.633	28.806
215	23	215	66.650	29.300
216	07	216	54.400	25.950

OBS	DN	CN	DP	MDPC
217	08	217	56.650	26.600
218	07	218	55.922	26.102
219	05	219	56.350	26.150
220	02	220	81.800	34.400
221	08	221	66.350	28.850
222	06	222	41.056	21.050
223	05	223	51.818	24.972
224	03	224	60.700	28.000
225	19	225	86.439	34.133
226	07	226	58.795	27.747
227	14	227	80.995	33.203
228	11	228	101.495	40.237
229	20	229	111.179	43.111
230	19	230	93.000	37.600
231	06	231	40.618	19.921
232	22	232	70.458	31.847
233	22	233	51.175	25.114
234	10	234	77.818	32.121
235	13	235	85.600	34.550
236	17	236	90.797	35.626
237	12	237	80.504	34.242
238	06	238	42.947	21.605
239	17	239	94.168	37.076
240	21	240	55.631	27.568
241	13	241	94.376	35.360
242	25	242	58.297	26.839
243	03	243	68.950	29.050
244	03	244	58.787	25.592
245	21	245	74.799	34.733
246	14	246	82.587	35.344
247	15	247	68.892	29.855
248	06	248	45.192	22.255
249	02	249	65.800	27.750
250	10	250	69.148	29.518
251	05	251	48.631	22.555
252	03	252	64.300	27.800
253	21	253	61.518	29.173
254	22	254	61.816	28.697