SECTION TITLE: HIGHWAY OPERATIONS

CHAPTER TITLE: ALLOCATION SUBSYSTEM

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I. **INTRODUCTION**

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A very vital subsystem of the DOH Highway Operations Management System, is the allocation of Routine Maintenance funds to the Annual Plan Organizations. The Allocation Sub- system is actually a computer model comprised of a series of complex formulae which make the equitable distribution of Routine Maintenance Funds.

II. **RESPONSIBILITIES**

The Commissioner and the Business Manager present the Legislature with a proposed Budget Request for all Highways operations prior to the start of a Fiscal Year. Included in this proposed budget document is the proposed Routine Maintenance Budget as well as the requested funding for other maintenance projects. Upon approval by the Legislature, the Director of Highway Operations Division is advised of the total amount designated for Annual Plan Routine Maintenance and of any funding requirements desired by upper management.

Highway Operations Division Staff inputs the total Routine Maintenance Amount and the requested funding requirements into the Allocation Subsystem. The resultant output is the Maintenance Allocation of Routine Maintenance Funds. Once this allocation is approved by upper management at Central Headquarters, the Maintenance Allocation funding will be transmitted via memorandum to the organizational maintenance supervisors through the District Administrator's Office. The organizational supervisors, upon receipt of maintenance allocation funding, begin the development of the Maintenance Plan. Refer to Section V, Chapter 6 for the detailed procedures dealing with the Maintenance Plan.

III. **MAINTENANCE ALLOCATION**

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As a method of identification, the Maintenance Allocation is grouped into five separate categories of Annual Plan Organizations:

- County Organizations

- Expressway Organizations

- District Sign Shops

- District Bridge Departments

- Traffic Engineering Division

The computer model (formula) has a pre-set percentage factor assigned to each of the five categories. The combined sum of these percentages will <u>always</u> equal the whole or 100 percent. These pre-set percentages for the five categories, are generally <u>not</u> changed from one fiscal year to another unless a change is dictated by upper management's funding requirements. Since County Maintenance Organizations in total have the bulk of the maintenance responsibility, this category's assigned percentage is generally in the eighty (80) percentile range. The other categories share the remaining twenty (20) percentage points.

All of the individual percentages for County Organizations and the District Sign Shops and Bridge Departments must total 100 percent within each category. The Expressway Organization's individual lane mileage numbers, must equal the total lane mileage number as updated by Highway Operations Division. None of these individual organizational factors can be changed or updated without the approval of Highway Operations Division. The Routine Maintenance Allocation amount for Traffic Engineering Division is administrated by that Division in the operation of the Expressway Sign Maintenance and the Signal and Lighting Maintenance Crews.

Certain organizations and/or organizational categories must be given special funding consideration. An example of this is the Interstate Organizations with Roadside Rest Area(s). The basic funding method for Interstates as described earlier, is by lane mileage; however those Interstate Organizations having rest area(s) will naturally require additional funding over the Interstate Organizations not having the rest area(s). This additional funding for Interstate Rest Areas must be considered, and usually a funding requirement is developed by upper management to accomplish this. Another special funding requirement is made for the smallest county organizations, which based on the computer formula alone, would <u>not</u> receive adequate funding for a minimum county maintenance work force. These eight county organizations receive additional funding to support the minimum county work force through the allocation subsystem.

Another special funding requirement has been management's desire to maintain Bridge Department funding at a certain level, whenever other maintenance organizations experienced funding reductions due to economic conditions experienced by the DOH as a whole. This too can be accomplished via the allocation subsystem's ability to supplement designated organizations.

All special funding requirements <u>must</u> be handled as the first step in processing the Maintenance Allocation. The computer model requires that these special funding amounts be deducted from the total first, and slotted into the appropriate special funding distribution blocks of the formula. Once this is accomplished, the formula will apply the specific organizational percentages and/or factors against the remaining total for the proper distribution of maintenance funds. The special funding amounts are then added to the specific organizations' allocation yielding the final sum of routine maintenance funds.

The Maintenance Allocation formula also derives an estimated Man Power Quota figure for each organization's allocated funds. This is accomplished by updating three input fields of the formula.

These fields are: Average Hourly Rate; Number of Working Hours in the Current Year; and Percent of Allocated Funds to Cover Labor Expenses.

Each of these three input fields are updated by Highway Operations Division. The percent of Allocated Funds to cover labor is generally maintained at 49 percent. The other two fields are updated with current data each year. With this data, the Allocation Subsystem generates an estimated Man Power Quota. These quotas are not the official quotas but certainly provide an accurate indicator of the quota that can be supported by the allocated funds.

The equitable distribution or allocation of Routine Maintenance Funds is a very important task assigned to Highway Operations Division. This task is easily accomplished with the aid of the Maintenance Allocation Subsystem of the Highway Operations Management System along with guidelines from upper management. Before the development of the computer model, the task of allocating Routine Maintenance Funds was a tedious, time consuming task performed with the aid of a calculator. More often than not, several "runs" of the allocation are required to satisfy management. In the days before the computer model was developed this meant much manual calculations; today the task is as simple as changing one or more inputs via the computer terminal and a new output is available within minutes or even seconds.

IV. **METHODS AND CALCULATIONS OF THE ROUTINE MAINTENANCE ALLOCATION**

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The following example is a simplified version of the methods and calculations used by the Routine Maintenance Allocation. These guidelines have been given by upper management:

$100,000,000	Total Amount of Routine Maintenance Funds
500,000	Total Amount of Supplement - 8 County Orgs.
1,500,000	Total Amount of Supplement - Interstate Rest Area(s)
$ 98,000,000	Amount to be allocated to all organizations
.8000	County Organization Category Allocation Percent
.0900	Expressway Organization Category Allocation Percent
.0500	Sign Shop Orgainzation Category Allocation Percent
.0550	Bridge Dept. Organization Category Allocation Percent
.0050	Traffic Engineering Division Category Allocation Percent
100.0000	

NOTE: The Category Percents Total 100.00 Percent

Utilizing the organizational category Percents as noted above, with total Routine Maintenance Funds (after deducting supplements) of $98,000,000 the following amounts are available by category.

County Category	Expressway Category	Sign Shop Category	Bridge Category	Traffic Eng. Category
$78,400,000	$8,820,000	$4,900,000	$5,390,000	$490,000

NOTE: The allocated funds total the $98,000,000 figure. The $2,000,000 in supplements will not be distributed until all organizations receive their share of the $98,000,000.

The next step of the allocation formula involves the allocation of each category's funds to the individual organizations within that category. The following examples demonstrate this calculation for each category.

County Category

County A's individual factor or percent is: .0109

The County Category Total Amount ($78,400,000) multiplied by County A's percent (.0109) equals County A's Allocated Routine Maintenance Funds of $854,560.

Expressway Category

Expressway B's lane mileage of responsibility is: 125 lane miles

Total Statewide Expressway lane mileage of responsibility is: 2,520 lane miles.

To calculate Expressway Organization's Allocated Funds, remember the formula first performs the calculation based on statewide lane mileage for Expressways.

The Expressway Category total amount ($8,820,000) divided by statewide lane mileage (2,520) equals Routine Maintenance Allocation for all Expressways by lane mile is $3500 per lane mile.

Expressway B's individual lane mileage (125 lane miles) multiplied by allocated figure per lane mile ($3500) equals Expressway B's allocated Routine Maintenance funds of $437,500.

Sign Shop Category

Sign Shop X's individual factor or percent is: .0791

The Sign Shop Category Total Amount ($4,900,000) multiplied by Sign Shop X's Percent (.0791) equals Sign Shop X's Allocated Routine Maintenance Funds of: $387,590.

Bridge Department Category

Bridge Department Y's individual factor or percent is: .0911

The Bridge Department Category Total Amount ($5,390,000) multiplied by Bridge Department Y's Percent (.0911) equals Bridge Department Y's Allocated Routine Maintenance Funds of: $491,029.

Once the calculations for all individual organizations within each category are completed, the formula next will calculate the specific amounts of the supplements to be distributed to the affected organizations.

If, for example Expressway B in the example is to receive $200,000 of the $1,500,000 Expressway Supplement Amount, then Expressway B's final Allocation of Routine Maintenance Funds will be: $637,500 or ($437,500 + $200,000 = $637,500.)

The Maintenance Allocation also generates a Man Power Quota figure for each Annual Plan Organization. Three data fields in the formula must be updated by Highway Operations Division staff for this output to be accurate.

Number of Work Hours in Current Year	=	1741
Average Hourly Wage Rate	=	11.23
Percent of Allocation Required for Labor:	=	49%

NOTE: The actual average work-hours in a year is 2080. The number 1741 does not include leave of all types including an average of sick and annual since leave is not charged to the Routine Maintenance Budget. The Hourly Wage rate is incremented to cover the additive costs.

With the noted, data a Man Power Quota (MPQ) figure would be generated for each of the example organizations as noted below:

MPQ County A	MPQ Expressway B*	MPQ Sign Shop X	MPQ Bridge Dept. Y
21	16	10	12

* Using the last example with the supplement amount of $200,000.