

REPORT OF SUBCOMMITTEE
ON
ROADSIDE DEVELOPMENT ECONOMICS

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The Project Committee on Roadside Economics was appointed for the purpose of assembling data supporting the beliefs that roadside development adds to highway safety, decreases maintenance cost, and enhances property values.

Since the accident records are not available for a sufficient period of time, and since there are extreme variations in accounting practices, only case history methods of study could be used on selected highway mileages instead of collecting comprehensive data based on entire State highway systems.

Greater Safety

As examples of the type of information being collected pertaining to roadside development's contribution to highway safety, two abbreviated case histories are given herewith.

In Rhode Island there was one intersection where 21 accidents had occurred in one year. This intersection was planted in 1929 with low plants which outlined the numerous lanes and connections without obstructing vision and in the four years that followed only one accident occurred.

Indiana reports a dangerous intersection at which two fatalities and several accidents occurred early in 1937. It was planted in the fall of 1937 and there have been no serious accidents since.

These two examples illustrate the manner in which proper planting can bring orderliness and safety to intersections. There have been numerous reports of incidents where wide rounded ditches and flat fill slopes have prevented accidents or made accidents less serious, but since there is insufficient factual data, no report can be made on this phase of increased safety until the improved methods of recording accident statistics now being used by practically all States have been continued for several more years.

To compare the number of accidents under varying roadside conditions is not sufficient however. Seriousness of accidents must be considered. For reasons not attributable to roadside conditions in any way, there may be as many cars leave the roadway on sections having flat fill slopes as on sections with steep fill slopes, and because of this possibility, the seriousness of such accidents becomes the important factor.

Decreased Maintenance Cost

Due to extreme variation in accounting practices in the various States, collection of data dealing with the reduction of maintenance costs due to roadside development work has proven to be slow and complicated, but should be continued. The following information should be considered as preliminary, but it serves as a general indication of the effect of roadside development on maintenance costs.

1. A middle western State reports that maintenance cost per mile has decreased steadily since the inception of the roadside development program until it is now about 50 per cent less per mile per year than it was during the period preceding 1933.

2. A saving of 40 per cent in maintenance of 125 miles where slopes were flattened and Bermuda grass established is reported by a southwestern State.

3. A southwestern and a southeastern State have had increases in maintenance costs on roadside development projects, in one extreme case amounting to more than 400 per cent increase. These increases, however, are directly traceable to excessive ornamental plantings on early projects, a practice since corrected.

4. A southeastern State reports decreases in maintenance costs varying from 6 per cent to 65 per cent on various individual roadside development projects, with the weighted average being a decrease of approximately 47 per cent.

5. In a middle western State, maintenance costs remained approximately the same after roadside development work. In this case, the increased cost occasioned by plant care was offset by easier roadside mowing.

Data collected to date indicate that, in general, the greater the expenditure per mile for roadside development, the greater the savings in maintenance cost. Because of this apparent relation-

ship, it is important to consider not only how much is saved each year, but also how long it will be before the accumulated savings will pay off the original roadside development cost and become an actual "profit".

It can be stated definitely that the greatest decreases in maintenance costs through roadside improvement work have come from the development of "streamlined" cross-sections and the control of roadside erosion. All of the large reductions in maintenance costs mentioned above are directly traceable to slope flattening or rounding and to the establishment of ground cover.

Therefore, increases or decreases in maintenance costs following roadside development projects cannot be compared fairly among the various States without knowledge of the types of work performed by each State in its roadside development program. In States where slope flattening and erosion control take up the greater part of a roadside development project allotment, subsequent decreases in maintenance costs will be most pronounced.

On the other hand, States that have progressed to the point where streamlined cross-sections and provisions for erosion control have become an integral part of regular construction standards, subsequent roadside development projects -- dealing only with judicious ornamental planting, selective cutting and trimming, safety turnouts, waysides, etc. -- will naturally increase maintenance costs slightly. However, in such cases savings in maintenance cost are still being accomplished because of the previous logical incorporation of roadside development principles into a modern highway construction program.

Increased Property Values

Work of the project committee has indicated that increases of property values is too intangible and source material too limited to offer any opportunity for collection of comprehensive data. The subcommittee has held this phase of its work in abeyance and directed its attention to the study of increased safety and decreased maintenance cost.

Types of Work Using Roadside Development Funds

There also fall within the scope of the project committee's work two other classes of statistics which are of considerable interest. The first of these is the determination of percentages of Federal Aid roadside improvement funds spent on various types or classifications of work. The following tables present the information collected to date:

Kentucky

(15 F. A. Roadside Projects, Completed or under construction in the calendar year 1939)

	<u>Per cent of Whole</u>
Grading, and Rounding Tops of Slopes	21.2
Excavation	14.5
Topsoil Borrow	7.8
Sod	13.1
Honeysuckle Vines	3.3
Seed and Fertilizer	15.4
Trees, Shrubs and Vines (Other than honeysuckle)	9.7
Other Items*	15.0

*(The amount listed as "Other Items" includes Paving, Curb and Gutter, Riprap, Moving and Resetting Fence, Drain Pipe, etc.)

North Carolina

	<u>1934 N.R.</u>	<u>1935 N.R.</u>	<u>W. P.</u>	<u>1936 F.A.</u>	<u>1937 F.A.</u>
	%	%	%	%	%
Excavation (Rough grading, slope flattening and rounding)	14.1	50.5	71.1	51.0	51.2
Non-roadside-improvement construction (headwalls, pipe extensions, paved ditches, sub-drains, riprap, etc.)	2.4	6.8	1.5	8.6	10.8
Grass or legume ground cover (Fine grading, topsoiling, seeding, sodding, mulching, etc.)	26.3	18.9	10.7	23.0	20.1
Planting primarily for erosion control (Vine and shrub ground cover)	25.4	2.4	2.5	3.9	--
Planting for landscape effect (Trees, shrubs, etc. for ornamental value)	22.8	7.8	--	0.7	0.4

North Carolina - (continued)

	1934 N.R.	1935 N.R.	W.P.	1936 F.A.	1937 F.A.
	%	%	%	%	%
Treatment of existing growth (Clean-up, selective cutting and trimming, opening vistas)	6.9	12.1	11.6	10.6	13.2
Feature points and recreational facilities (intersection areas, safety turnouts, fireplaces, wells, etc.)	0.8				
Engineering	1.3	1.5	2.6	2.2	4.3
<u>Virginia</u>					
			W.P.	1936 F.A.	1937 F.A.
			%	%	%
Excavation (Rough grading, slope flattening and rounding)			45.3	49.1	47.5
Non-roadside-improvement construction (headwalls, pipe extensions, paved ditches, sub-drains, riprap, etc.)			1.4		3.6
Grass or legume ground cover (Fine grading, topsoiling, seeding, sodding, mulching, etc.)			29.2	32.0	31.3
Planting primarily for erosion control (Vine and shrub ground cover)			16.3	11.7	15.6
Planting for landscape effect (Trees, shrubs, etc. for ornamental value)			2.0	3.9	
Treatment of existing growth (Clean-up, selective cutting and trimming, opening vistas)			2.6	2.3	1.9
Feature points and recreational facilities (intersection areas, safety turnouts, fireplaces, wells, etc.)			3.2	1.0	0.1

Comparison of Mowing Costs

The following table gives comparative costs for roadside mowing, costs being based upon the unit of a swath mile.

<u>Equipment</u>	<u>North Carolina</u>		<u>Virginia</u>
	<u>Fiscal Year</u>		
	<u>1938-1939</u>		<u>1938</u>
Horse-drawn mower	\$	----	\$ 0.50
Truck and Mower		0.59	0.70
Truck and two mowers tandem		0.40	--
Tractor and mower		--	0.65
Tractor with sickle bar attached		--	0.30

A comparison of mowing costs per swath mile between States is unimportant, due to incalculable variations in wages, fuel consumption, equipment rental or depreciation charges, etc. The point to be considered is that, when better roadside conditions have been obtained by "streamlined" cross-sections and an even and uniform grass cover, there is greater opportunity for using more efficient mowing equipment, such as tandem mowers covering wider areas in one trip, or tractor mowers that are rapid and require less personal for operation.

There is a distinct service to be rendered by a certain form of research in the fields of these kinds of work. Each expert in the way of government naturally has a purpose in research which is limited to his own field. It is highly important that the data which are sought should especially serve all the agencies having an interest in them. There is to be no concern not only the highway department but the agencies operating in the fields of agriculture, forestry, recreation, education, welfare and others. A far reaching use of account to all governmental agencies. A State Planning Board should serve as a coordinating agency in the field of research. The Virginia State Planning Board is thus serving by its active participation in the work of the Virginia Council of Public Administration. This Council, established by the Governor, represents the various State agencies which are

Presented at Group Meeting on "Highway Development" on October 1, 1939, as part of Twenty-Fifth Anniversary Convention of American Association of State Highway Officials, Richmond, Virginia.