# The 1956 Rhode Island Highway Finance Study

## A PRAGMATIC APPROACH IN A "GENERAL FUND" STATE

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The 1956 Rhode Island highway finance study was directed primarily toward providing answers to two broad questions important for state fiscal planning, as follows:

1. What method of financing the proposed long-range state highway program would require the lowest additional revenue requirements consistent with sound financial practice, and what would the additional revenue requirements be?

2. Should the state provide additional assistance to local communities for highway purposes, and if so, on what basis could it best be allotted to assure adequate local highways?

The study was a pragmatic approach in a "general fund" state, for determination of the additional revenue requirements and selection of the financing method, three basic elements were needed — engineering data, revenue projections, and assumptions as to the pattern of federal aid. Engineering data compiled by the Rhode Island Department of Public Works under the guidance of the Automotive Safety Foundation provided total costs of the proposed highway program over a 34-year period under alternative assumptions of a 10- and a 15-year catch-up program. It was assumed that federal aid would represent 90 percent of construction costs on the interstate system, and would remain unchanged on other federal aid systems. Revenue projections were based on highway user taxes only.

It was immediately obvious that the only way revenue requirements could be kept down during the critical catch-up period would be to cover peak construction costs by borrowing, to be repaid later when program costs were lower and projected revenues higher.

In Rhode Island, city arterial streets, as defined in the engineering study, have customarily been a city rather than a state responsibility. Because of their obvious importance to the state highway system, however, it was felt that additional aid to cities should be related to program requirements for city arterial streets. Nevertheless, in general it appeared that ability to pay should be the measure of highway aid to local communities.

A formula was tested based on aid to the cities, as a group, at 50 percent of average annual program costs for city arterial streets; and aid to the towns, as a group, in an amount which equalized the net remaining average annual program costs to the cities and to the towns in terms of mills per dollar of equalized valuations. The effect of this was to reduce city requirements for highways during the catch-up period 7.5 percent below recent expenditure levels, and to require a 6.5 percent average increase for the towns. This was considered a satisfactory result, since the cities had been spending relatively heavily on highways in recent years, while the towns had spent relatively little. Both cities and towns in Rhode Island are hard pressed for additional funds. Without such state aid, the cities would have had to increase highway expenditures by 7.4 percent, and the towns by 24.8 percent. Equalization of the cost burden seemed fair in view of the importance to the state as a whole of a modern integrated highway system throughout the state.

If additional state aid to cities and towns were made on such a basis, additional state revenue requirements for a 15-year catch-up would be in-

creased to 26.4 percent above the base curve, according to the "20-year bond amortization" plan, as compared with the 16.5 percent increase required for highways of direct state responsibility alone.

●IN RHODE ISLAND, for most practical purposes, there are only two levels of government—state on the one hand, and the cities and towns, on the other. Except for county courts, county government does not exist. Motor vehicle user revenues are all paid into the State General Fund, where their identity is lost. State highway expenditures are made from the general fund. In addition, from about 27 to 28 percent of net tax revenues of the general fund are furnished to cities and towns as state aid, in an amount which is roughly double combined city and town highway expenditures. From 1945 through 1954, Rhode Island expenditures from current state and local tax revenues for state and local highways combined exceeded total highway user taxes by 7 percent.

Since there is no necessary and direct relationship between highway user taxes and highway expenditures in Rhode Island, determination of any definite relationship must be based on working hypotheses or assumptions. The assumption that direct state expenditures for highways from current tax revenues represent an expenditure of highway user taxes appears a reasonable starting point. The further assumption that at least some portion of local highway expenditures is derived from highway user taxes also appears reasonable, in view of the substantial grants from general funds to local communities, even where such grants are not earmarked for highways. However, any assumption which attempts to set a definite value on local highway expenditures from highway user revenues through the medium of the general fund appears debatable.

Because the existing relationship between highway user tax revenues and highway expenditures is so difficult to define satisfactorily, determination of what that relationship ought to be seemed of less immediate practical importance that it would in a state where a precisely defined present relationship could be compared with study findings on that point. Moreover, it was felt that an adequate value judgment on what the relationship should be would require a far more extensive study of this complex question than the time and personnel available for this study would permit. Consequently, it was recommended that further study be made of the question, including, though not necessarily limited to, such techniques as earnings credit and incremental analyses.

Thus the 1956 Rhode Island Highway Finance Study was directed primarily towards providing answers to two broad questions—those raised by state fiscal officers as most important for state fiscal planning: (a) What method of financing the proposed long range state highway program would call for the lowest additional revenue requirements consistent with sound financial practice, and what would those additional requirements be; and (b) Should the state provide additional assistance to local communities for highway purposes, and if so, in what amounts and on what basis could it best be allotted to assure adequate local highways?

To determine additional revenue requirements, three basic elements were needed—engineering data, revenue projections, and assumptions as to the pattern of federal aid (see Fig. 1).

Engineering data were compiled by staff of the Rhode Island Department of Public Works, with the advice and guidance of the Automotive Safety Foundation. These provided annual costs of the proposed highway program over a 34-yr period, under alternative assumptions of a 10- and 15-yr catch-up program. At the time this was done, the provisions of the 1956 Federal Aid Highway Act had not been finally drafted.

As to Federal aid, it was assumed that this would cover 90 percent of the costs of new construction on the interstate system, and would remain unchanged on other Federal aid systems.

The first real problem of the highway finance study itself was the basis to be used for revenue projections. In a general fund state, the most logical approach would appear to be projection of total net tax revenues of the general fund. This was rejected for two main reasons: (a) there appeared to be a greater probability of error in projection of net total tax revenues—a trend existed, but it was less consistent and less

clearly defined than the trend in highway user tax revenues; and (b) to be entirely con-
sistent, a projection of total state revenue requirements would also be needed to deter-
mine what would be available for highways. In brief, a projection of the total state
fiscal picture over a 34-yr period appeared impractical for present purposes.

Because of the well defined trend in highway user revenues, and because there is a
general relationship between the need for highway expenditures and highway user reve-
nues, even if that relationship is not precisely defined, it was decided to project high-
way user revenues only.

To determine additional state revenue requirements for the proposed program, it
was first necessary to ascertain the level of recent highway expenditures from current
state tax revenues.

The year 1954 represented the most recent year in which the General State Budget
was balanced without use of surplus funds, and it was used for the determinations. Thus,
it could be safely assumed that all state highway expenditures, except federal aid and
bond funds, were derived from current state tax revenues. For 1955, on the other
hand, it could not be stated definitely how much of increased expenditures for highways
were derived from current tax revenues and how much directly or indirectly from surplus

Revenues which would be available for future highway purposes from present state
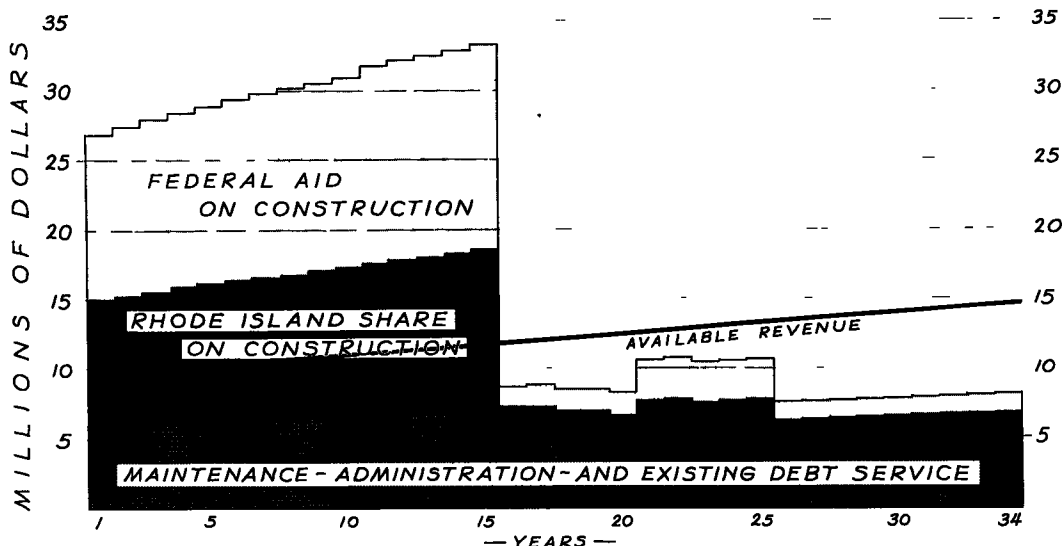


Figure 1. Total 15-year catch-up program on state trunklines and secondaries.

tax sources were taken as the same proportion of the amount of total motor vehicle
taxes as was explicitly expended by the state for highway purposes from current tax
revenues in 1954, that is, 60 percent. The function of this percentage was to establish
a projected base line for comparison with the projected level of revenues required to
meet a particular program of financing.

The interval between this base curve—representing "available revenue" in terms of
recent levels of expenditure— and the "required revenue" curve represented the addi-
tional revenue requirement. Furthermore, since each curve was established as a uni-
form percentage of projected motor vehicle taxes throughout, the interval between
curves in the first year represented the dollar amount by which tax revenues would have
to be increased at the present time to provide required revenues for the full 34-yr
period, without need for later increases in tax rates. The first year therefore provided
the key to revenue requirements for the entire program.

The next major question was the type of financing to be employed. The only way
revenue requirements could be kept down during the critical catch-up period would be
to cover peak construction costs by borrowing, to be repaid later when program costs
were lower and projected revenues higher. This cut-and-fill approach appeared sche-

matically sound, but as directly applied would require bonds with no principal payments in the early years; and tests showed that, as applied to the Rhode Island program, the bulk of principal repayments would fall 25 years or more in the future. Moreover, revenue requirements, although mathematically sufficient, in practice would be 'tight' —that is, there was no leeway allowed for errors of estimate, or for unanticipated cost increases, for example, the recent rises in costs of structural steel and interest rates.

It was decided, therefore, to test a modification of the cut-and-fill approach. Bonds were assumed to be issued in accordance with the established conservative practice in Rhode Island, that is, the bonds would be serial bonds to be amortized in equal installments over 20 years. This, of course, meant that principal payments would be required each year after the first, and would somewhat raise the level of the curve of required revenue. The required revenue curve was set at the level which would just cover all current expenses for the peak year, including interest and principal payments. Thus, a portion of the costs of new construction in the early years would be met from current state revenues, and in no year would borrowings exceed the state share of new construction.

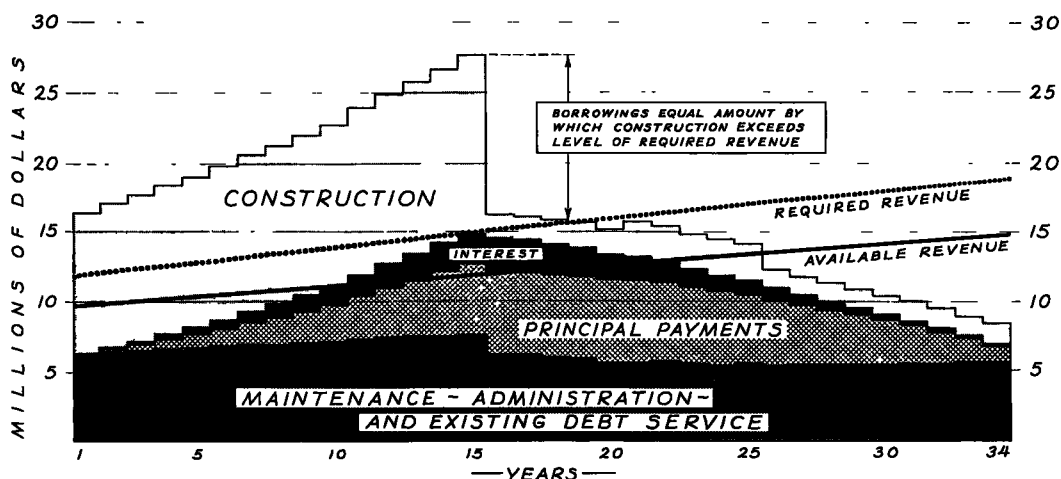After the initial catch-up period, total highway costs, including interest and princi-



Figure 2. Twenty-year bond amortization method, 15-year catch-up program, state trunk-line and state secondary with state aid to cities and towns.

pal payments, would progressively decline. This provided a steadily widening margin between costs and the required revenue curve—a margin which would yield a substantial surplus by the end of the 34-yr period. This surplus provided the leeway considered necessary for sound long-term financing. It could be used to absorb unanticipated cost increases, or to retire the outstanding debt in a shorter period, or to reduce taxes after the catch-up period, if circumstances warranted. Figure 2 and Table 1 illustrate this approach, and include allowances for additional state aid to cities and towns.

This form of financing would reduce total interest costs by about 40 percent, and reduce the peak debt incurred by over 20 percent, as compared with the straight cut-and-fill approach. If the surplus which accumulates after the catch-up period were entirely applied to bond retirement, it would permit complete retirement of new highway debt within 25 to 28 years, depending on the particular program adopted.

The increase in revenue requirements resulting from the use of this approach would be relatively moderate, in view of the size of the program to be undertaken. For the state trunklines and secondary system alone, revenue requirements for the proposed 15-yr catch-up program would be 4.8 percent above the base curve according to the

TABLE 1

15-YEAR CATCH-UP ON STATE TRUNKLINES AND RURAL SECONDARY SYSTEMS WITH STATE AID TO CITIES AND TOWNS,

20-YEAR BOND AMORTIZATION PLAN

(Amounts in thousands)

| Year | Construction Minus Federal Aid[a] | State Share of Total Program Costs[b] | Available Revenue[c] | Required Revenue | Actual Program Cost[d] | "Surplus" | Cumulative Surplus | Annual Borrowing | Cumulative Debt[e] | Principal Payments[f] | Net Outstanding Debt | Interest Payments[g] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1956 | 10,049 | 16,325 | 9,456 | 11,956 | | | | 4,369 | 4,369 | | 4,369 | |
| 57 | 10,281 | 16,683 | 9,760 | 12,342 | | | | 4,690 | 9,059 | 218 | 8,841 | 131 |
| 58 | 10,500 | 17,007 | 10,008 | 12,654 | | | | 5,071 | 14,130 | 453 | 13,459 | 265 |
| 59 | 10,693 | 17,290 | 10,229 | 12,934 | | | | 5,467 | 19,597 | 707 | 18,219 | 404 |
| 1960 | 10,850 | 17,533 | 10,427 | 13,185 | | | | 5,875 | 25,472 | 980 | 23,114 | 547 |
| 61 | 11,073 | 17,868 | 10,606 | 13,411 | | | | 6,424 | 31,896 | 1,274 | 28,264 | 693 |
| 62 | 11,240 | 18,104 | 10,768 | 13,616 | | | | 6,931 | 38,827 | 1,595 | 33,600 | 848 |
| 63 | 11,384 | 18,321 | 10,922 | 13,810 | | | | 7,460 | 46,287 | 1,941 | 39,119 | 1,008 |
| 64 | 11,514 | 18,516 | 11,077 | 14,006 | | | | 7,998 | 54,285 | 2,314 | 44,803 | 1,174 |
| 1965 | 11,669 | 18,738 | 11,232 | 14,202 | | | | 8,594 | 62,879 | 2,714 | 50,683 | 1,344 |
| 66 | 12,004 | 19,322 | 11,388 | 14,399 | | | | 9,587 | 72,466 | 3,144 | 57,126 | 1,520 |
| 67 | 12,139 | 19,529 | 11,544 | 14,597 | | | | 10,269 | 82,735 | 3,623 | 63,772 | 1,714 |
| 68 | 12,276 | 19,723 | 11,701 | 14,795 | | | | 10,978 | 93,713 | 4,137 | 70,613 | 1,913 |
| 69 | 12,411 | 19,927 | 11,859 | 14,995 | | | | 11,736 | 105,449 | 4,686 | 77,663 | 2,118 |
| 1970 | 12,583 | 20,172 | 12,018 | 15,195 | | | | 12,579 | 118,028 | 5,272 | 84,970 | 2,330 |
| 71 | 1,689 | 7,657 | 12,168 | 15,385 | | | | 922 | 118,950 | 5,901 | 79,991 | 2,549 |
| 72 | 1,697 | 7,881 | 12,318 | 15,575 | | | | 654 | 119,604 | 5,948 | 74,697 | 2,400 |
| 73 | 1,707 | 7,657 | 12,469 | 15,766 | | | | 112 | 119,716 | 5,980 | 68,829 | 2,241 |
| 74 | 1,740 | 7,678 | 12,621 | 15,959 | 15,729 | 230 | | | 119,716 | 5,986 | 62,843 | 2,065 |
| 1975 | 1,748 | 7,359 | 12,773 | 16,150 | 15,230 | 920 | 1,150 | | 119,716 | 5,986 | 56,857 | 1,885 |
| 76 | 2,478 | 8,085 | 12,925 | 16,343 | 15,777 | 566 | 1,716 | | 115,347 | 5,986 | 50,871 | 1,706 |
| 77 | 2,486 | 8,122 | 13,078 | 16,536 | 15,415 | 1,121 | 2,837 | | 110,657 | 5,767 | 45,104 | 1,526 |
| 78 | 2,516 | 7,951 | 13,231 | 16,730 | 14,837 | 1,893 | 4,730 | | 105,586 | 5,533 | 39,571 | 1,353 |
| 79 | 2,547 | 8,007 | 13,385 | 16,925 | 14,473 | 2,452 | 7,182 | | 100,119 | 5,279 | 34,292 | 1,187 |
| 1980 | 2,578 | 8,062 | 13,539 | 17,120 | 14,097 | 3,023 | 10,205 | | 94,244 | 5,006 | 29,286 | 1,029 |
| 81 | 1,227 | 6,568 | 13,694 | 17,316 | 12,159 | 5,157 | 15,362 | | 87,820 | 4,712 | 24,574 | 879 |
| 82 | 1,227 | 6,592 | 13,849 | 17,511 | 11,720 | 5,791 | 21,153 | | 80,889 | 4,391 | 20,183 | 737 |
| 83 | 1,253 | 6,641 | 14,005 | 17,708 | 11,290 | 6,418 | 27,571 | | 73,429 | 4,044 | 16,139 | 605 |
| 84 | 1,256 | 6,668 | 14,161 | 17,906 | 10,823 | 7,083 | 34,654 | | 65,431 | 3,671 | 12,468 | 484 |
| 1985 | 1,283 | 6,720 | 14,318 | 18,104 | 10,366 | 7,738 | 42,392 | | 56,837 | 3,272 | 9,196 | 374 |
| 86 | 1,401 | 6,887 | 14,473 | 18,301 | 10,005 | 8,296 | 50,688 | | 47,250 | 2,842 | 6,354 | 276 |
| 87 | 1,408 | 6,919 | 14,628 | 18,497 | 9,473 | 9,024 | 59,712 | | 36,981 | 2,363 | 3,991 | 191 |
| 88 | 1,413 | 6,950 | 14,783 | 18,693 | 8,919 | 9,774 | 69,486 | | 26,003 | 1,849 | 2,142 | 120 |
| 89 | 1,442 | 7,001 | 14,938 | 18,888 | 8,365 | 10,523 | 80,009 | | 14,267 | 1,300 | 842 | 64 |
| Totals | 203,762 | 414,663 | 420,346 | 531,510 | 451,501 | | | | | | | 37,680 |

[a] Includes state trunklines and secondary system plus 50 percent of city arterial streets

[b] Includes state aid to cities and towns, but not costs of new financing

[c] Revenue considered available from present tax sources

[d] For years not shown, actual costs equal required revenue

[e] Total of original amounts of annual bond issues not fully amortized at end of year

[f] Computed at 5 percent of previous line in "Cumulative Debt" column

[g] Computed at 3 percent of previous line in "Net Outstanding Debt" column

simple cut-and-fill approach, and 16.5 percent above according to the modified "20-yr bond amortization" plan. In other words, the 20-year bond amortization plan would raise the required revenue curve an additional 11.7 percent above available revenue. On a pay-as-you-go basis, the average increase in state revenue requirements for the catch-up period would be 55 percent.

If the catch-up period is reduced from 15 years to 10 years, the additional revenue requirements are sharply higher. For a 10-yr catch-up on a pay-as-you-go basis revenue requirements would be 103 percent above the base curve; under the modified 20-year bond amortization plan revenue requirements would be up 27.9 percent; and according to the simple cut-and-fill approach, 8.7 percent (Table 2).

In view of the recent sharp rise in interest rates on state and municipal bonds, it should be noted that the interest rate assumed for financing projections was 3 percent on general obligation state bonds. At the time this assumption was made, comparable bonds were yielding about 2.75 percent, so that some allowance was made for increasing rates. With municipal bond yields now generally averaging above 3 percent, it is evident that continuation of recent trends in interest rates will call for a redetermination of this element of cost.

The highway problems of Rhode Island cities and towns are in several respects quite different from those of the state. The great bulk of locally derived revenues comes from assessments on real estate and tangible personal property. There are no local motor-vehicle user taxes, as such, though ad valorem property taxes are levied on motor vehicles. Furthermore, local property tax levies are limited by state law to not more than $25 per $1,000 of assessed valuation, plus debt service charges—a factor which has contributed to the need for state grants to help meet the mounting costs of local services.

Towns, in general, are responsible for maintenance of only purely local town roads; and the rural secondary system, which roughly corresponds to county road systems in other states, is a state responsibility.

Cities, on the other hand, are responsible not only for purely local access streets, but also for those arterial streets which are not part of the state trunkline system. These city arterial streets are comparable in function to the state rural secondary system; that is, they provide the major links between the basic local systems and the state trunklines.

It might appear that the towns are in a favored position. Actually, however, when long range highway program requirements were compared with local financial resources, in terms of their primary tax base, it was found that the relative financial burdens of the proposed highway programs for the cities and the towns were substantially equal.

In determining the primary tax base for Rhode Island cities and towns, assessed valuations of real and tangible personal property were not in themselves adequate. This was because assessment practices vary considerably from one community to another. Available information indicated that the ratio of assessed to market values of property in different cities and towns ranges from about 30 percent up to 85 percent. It was clear that no valid comparison of tax bases could be made without adjustment to compensate for such differences.

In 1956 the Rhode Island General Assembly established a tax equalization board to determine a sound basis for adjusting local assessed valuations to reflect more accurately actual local property values. The specific purpose of such tax equalization was to develop a factor for use in a formula to allocate state aid to local educational systems. However, once such equalized valuations are properly established, they can be applied to other problems of state and local fiscal relationships.

At the time of the study, no official equalized valuations had been established. Consequently, adjustments based on informed local judgments of the average assessment ratios in each community were made.

A weighted average of these estimates indicated that in 1955 Rhode Island's seven

TABLE 2

ADDED INITIAL REVENUE REQUIREMENTS[a]

For 5 Alternative 34-Yr State Programs, by Length of Catch-Up Program and Type of Financing

| Program | Type of Financing | | | |
| | Cut and Fill | | 20-Yr Bond Amortization | |
| | (Dollars) | (Percent) | (Dollars) | (Percent) |
|---|---|---|---|---|
| **State Trunklines and Rural Secondary only** | | | | |
| 10-yr catch-up over-all | 819,000 | 8.7 | 2,637,000 | 27.9 |
| 10-yr state trunks 15-yr secondary | 726,000 | 7.7 | 2,288,000 | 24.2 |
| 15-yr catch-up over-all | 450,000 | 4.8 | 1,559,000 | 16.5 |
| **State Trunklines and Rural Secondary Plus State Aid to Cities and Towns** | | | | |
| 10-yr state trunks 15-yr other | 1,528,000 | 16.2 | 3,110,000 | 32.9 |
| 15-yr catch-up over-all | 1,255,000 | 13.3 | 2,500,000 | 26.4 |

[a]Requirements above revenues considered available from present tax base.

cities, as a group, assessed at about 70.9 percent of current market values; and the state's thirty-two towns, at about 59.2 percent. The two group averages are probably fairly representative of the general differences in assessment practices.

Adjusting assessed valuations for these assessment ratios, and comparing the results with the 34-yr average local program costs for the cities and towns, respectively, it was found that for both cities and towns the average annual cost would be approximately 2.3 mills per dollar of current real and tangible property values. In other words, the higher program costs for the cities resulting from city responsibility for arterial streets were offset by a correspondingly higher tax base.

If ability to pay is taken as a criterion, these facts indicate that additional state aid to cities should be matched by proportionate state aid to towns to preserve a fair balance. If ability to pay is not recognized, the practical effect would be to discourage adequate local highway development in those communities with the greatest needs relative to their financial resources. This would tend to defeat the purpose of the proposed highway program, which was designed to assure a complete and adequate highway network throughout the state. The value of adequate state trunklines would be materially reduced by subordinate and local highways which were not up to standard.

However, regardless of questions of financial equity and primary responsibility, the state has a particular interest in adequate development of city arterial streets. City arterial streets, as defined in the engineering study, perform the same major function as state rural secondary highways—both serve as collectors and distributors of traffic to and from the state trunklines. Because they constitute important links in the overall state system, it appeared desirable that the state should have a voice in their design standards and the timing of improvements.

Consequently, it was decided that additional state highway aid to cities should be geared to program requirements for city arterial streets, and that a formula based on state aid to cities in the amount of 50 percent of programmed construction costs for city arterial streets should be tested. This was found to represent 12.2 percent of the 34-yr cost of the cities' highway programs, exclusive of financing.

To preserve the balance between cities and towns, in terms of ability to pay, the formula allowed the same 12.2 percent of the 34-yr program costs to the towns. Thus, assuming that original program costs for the cities, in relation to their tax base, were equal to those for the towns, the net program costs after allowing for this state aid would also be equal. The guiding principle was that net program costs to local communities should be substantially equal in terms of their principal tax base, or ability to pay.

The engineering study grouped cities and towns for purposes of analysis, so that detailed highway programs for each individual city and town were not available for the finance study. Moreover, proper evaluation of the relationship between individual community highway programs and the respective tax bases could not be made until the recently established tax equalization board provides a more satisfactory basis for adjustment of assessed valuations. However, the study explored the problem of how state aid to individual communities might be allocated sufficiently to demonstrate that a satisfactory formula could be developed to distribute any desired total amount of state highway aid among individual communities on the principle of equalizing, or substantially equalizing, net program costs as related to the tax base.

Analysis of city and town highway program costs for a 15-yr catch-up period, as compared with projected available revenues, indicated that without state aid local program costs would exceed available revenue by 24.8 percent in the towns, and by 7.4 percent in the cities. This wide discrepancy is because in recent years city highway expenditures have been considerably higher, proportionally, than the towns. These relatively high city expenditures had the effect of both raising the level of revenues considered available and decreasing somewhat future program costs.

Without state aid the towns would experience considerable difficulty in increasing local revenues for highways by almost 25 percent for the next 15 years. For the cities, which as a group have been spending substantial sums for highway work, and which are already close to their legal tax ceiling, an average increase of even 7.4 percent for 15 years would also be very difficult. With relatively limited tax resources, and the increasing need for major capital outlays for schools, particularly, additional local bor-

TABLE 3

COMPARISON OF 15-YR NET PROGRAM COSTS
WITH PROJECTED AVAILABLE REVENUES

| | 15-Yr Totals | | Percentage Above |
| Cities and Towns | Available Revenues (thousands of dollars) | Net Program Costs (thousands of dollars) | or Below Available Revenues |
|---|---|---|---|
| 32 Towns | | | |
|   Without state aid | 42,884 | 53,521 | +24.8 |
|   With state aid | 42,884 | 45,692 | + 6.5 |
| 7 Cities | | | |
|   Without state aid | 94,227 | 101,184 | + 7.4 |
|   With state aid | 94,227 | 87,147 | - 7.5 |

rowing for highway purposes would seem, in general, unwise.

However, with state aid on the basis previously outlined, representing 50 percent of construction costs of arterial streets in cities and a proportionate amount of total program costs in the towns, Rhode Island cities could meet their highway needs for a 15-yr catch-up program with a 7.5 percent reduction in available revenue, while the towns would require an increase of only 6.5 percent (Table 3). In view of the relatively low rate of town highway expenditures in recent years, such an increase for the towns should prove feasible from current tax sources. The state aid formula is designed to provide residual, or net highway costs for both cities and towns which are equal in terms of their respective tax bases.

From the standpoint of providing adequate and effective highway aid to local communities, the proposed formula thus appeared to be satisfactory. It would provide financial aid to local communities in a manner which would make possible adequate local highway programs without additional local borrowing, and without placing an unfair or unrealistic burden on any single community.

From the standpoint of the state, such aid to local communities would, of course, increase revenue requirements for highway purposes. For a 15-yr catch-up, total state revenue requirements would be increased to 26.4 percent above the base curve, according to the 20-yr bond amortization plan, as compared with the 16.5 percent increase required for highways of direct state responsibility alone. Thus the cost of aid to cities and towns on the proposed basis would amount to 9.9 percent of revenues presently considered available.

Again, in terms of a 15-yr catch-up, according to the 20-yr bond amortization plan, and including state aid to cities and towns on the basis proposed, the additional state revenue requirements in the key first year were estimated at $2,500,000 (See Fig. 2 and Tables 1 and 2). Analysis of Rhode Island's motor vehicle tax structure indicated that this amount could be raised by an increase in the gasoline tax of 1 cent per gallon (from 4 cents to 5 cents) plus increases in registration fees for the heavier commercial vehicles, and that both these increases could be made without placing Rhode Island levies out of line with other states, particularly Massachusetts and Connecticut.

However, because Rhode Island is a general fund state, with no necessary tie-in between particular tax revenues and particular expenditures, it was not positively recommended that additional revenues be raised in this manner. The possibility was merely pointed out. It might well be that a review of total state budgetary requirements and the existing tax structure would indicate that another tax or combination of taxes would better serve total needs.

One special problem which developed from a review of the engineering program was the acquisition of rights-of-way. The annual programming of construction costs showed a relatively high percentage of early construction costs representing right-of-way purchases. The practical effect of this would be to hold back actual physical construction, particularly in the first five years. To permit major construction to start as soon as

possible and to assure a more even level of construction throughout the catch-up period, it was recommended that a special revolving fund of from $5,000,000 to $10,000,000 be established for advance acquisition of rights-of-way on Federal aid systems. Such a fund would be, in effect, replenished as Federal aid is received at the time of actual construction, and would ultimately be absorbed into regularly programmed construction costs. It could probably be financed by relatively short term bonds, or notes, without the necessity for annual amortization, so that the additional annual costs involved would represent primarily interest charges. It appeared probable that long range savings resulting from early acquisition of rights-of-way would more than offset the relatively small additional cost resulting from the use of such a fund.

TABLE 4

STATE FUNDS REQUIRED TO MATCH FEDERAL AID[a]

| Funds | 1st year | 2nd year | 3rd year | |
|---|---|---|---|---|
| State funds required to match new federal program | 5,943 | 5,878 | 6,289 | 18,110 |
| State funds required to match assumed federal aid under proposed state programs | | | | |
| 10-yr catch-up on state trunks and secondary | 7,164 | 7,345 | 7,496 | 22,005 |
| 10-yr on state trunks 15-yr on state secondary | 7,003 | 7,185 | 7,338 | 21,526 |
| 15-yr catch-up on state trunks and secondary | 5,137 | 5,260 | 5,373 | 15,770 |
| For construction on state trunks and secondary under proposed 15-yr catch-up | 9,228 | 9,441 | 9,642 | 28,311 |

[a]Under revised Federal aid allocations and proposed state programs, amounts in thousands of dollars.

The finance study was largely completed before the passage of the 1956 Federal Aid Highway Act. When the provisions of that act became available, however, it was obviously important to determine how well the proposed 10- and 15-yr catch-up programs would fit in with those provisions. The key question here was whether sufficient state matching funds would be available to take full advantage of Federal aid.

Analysis showed that for the first three years under the 10-yr catch-up, state funds available to match Federal aid would be more than sufficient, but that the amount of Federal aid itself would fall short of requirements. For the 15-yr catch-up, the amounts scheduled for state funds to match Federal aid would fall short of the requirement by about 13 percent. However, the total allowance for new state construction exceeded requirements for state matching funds by 56 percent, so that the 15-yr catch-up could be adapted to the new Federal program by a cut-back in purely state construction of slightly less than 19 percent (see Table 4).

It was clear that a 13-yr catch-up program would come closest to fitting existing Federal provisions, but since such an analysis would have required complete re-working of the engineering data, probably involving several months delay; and since the results of the finance study were needed as soon as possible, it was recommended that the 15-yr catch-up program be used as the basis for provisional planning, until such time as data for a 13-yr catch-up could be properly worked out.