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LOCAL ROADS AND BRIDGES IN ILLINOIS: PROBLEMS AND ALTERNATIVES

Norman Walzer

In recent years the deteriorating condition of local roads and bridges, pointed up by bridge failures causing deaths and many injuries, has become a concern in Illinois and many other states. Serious as this problem is, it should be viewed in a broader context, one raising fundamental questions of public finance and political organization. In particular, the viability of small governmental units such as townships is being questioned. Can they raise adequate revenues and administer the services under their control effectively?

The local road and bridge problem was addressed in a study of 186 townships in ten western Illinois counties undertaken during 1975-76.¹ The study region is depicted in Figure 1. In this article, issues deriving from the basic question raised above are examined in light of information gained during the course of the project, particularly from personal interviews with local road commissioners. The advantages and disadvantages of several approaches to solving the problem are then examined

Method of Financing

A major dimension of local road and bridge conditions is the method of financing services. Of special concern is that with recent increases in the prices of construction materials, revenues available for providing services have lagged behind required expenditure levels. To complicate the problem, like many local governments, townships in Illinois in general have not made effective use of improved management practices that might allow existing resources to be used more efficiently.

In light of the scarcity of revenues available for making capital improvements, especially in road districts where structures have been allowed to deteriorate, commissioners are now faced with hard decisions regarding the most effective method for delivering needed services. (In Illinois, road districts are technically distinct from townships, with the road district commissioner responsible for

preparing the budget and maintaining the roads. However, the budget must be approved by the township board.)

Existing road district budgeting systems make use of a number of funds, including a road and bridge fund, a bridge improvement fund, and a gravel fund. Partitioning the levies into these components makes it difficult to compute the unit cost of providing alternative types of roads and bridges.

Local real estate taxes provide a major source of revenue used for the road and bridge fund. In 1974, property taxes represented 41.7 percent of the total revenue. Recently, legislation was enacted altering the method of assessing farmland. Exactly how this will affect the revenue available to local governments is not yet known. However, the rationale for the legislation was to hold down property taxes on farmland or at least make them consistent with the use of the land for agricultural purposes. In this light, one might well expect that changing the assessment procedures will have the effect of either raising tax rates or reducing levies.

Road districts also receive operating funds through a state revenue-sharing program based on motor fuel taxes (MFT). MFT funds are raised through a tax on each gallon of gasoline sold. Because the tax is levied on a per gallon basis rather than as a percentage of sales, recent increases in gasoline prices have not meant additional revenue. In fact, measures to save energy through reducing consumption may decrease revenues further. Because of the nature of rural road traffic, however, a corresponding decrease in road usage would not be expected.

A final issue concerns the management capability of local governments as small as road districts. Since in Illinois townships road district budgets must be approved by the township board of trustees, the level of funding ultimately rests with the board. This means that in cases in which the board does not rely heavily on the judgment of the road commissioner, a significant part of the management function has been transferred to the board. A commissioner faced with such a board probably is inclined to concentrate on keeping as many roads and bridges operational as he can and to postpone large capital projects such as bridge replacements.

Norman Walzer is visiting associate professor, Institute of Government and Public Affairs, on leave from the Department of Economics, Western Illinois University

¹ See Barbara W. Solomon and Norman Walzer, *Rural Roads in Illinois: Township Administration and Finance* (Urbana: Institute of Government and Public Affairs and Illinois Agricultural Experiment Station, 1977). The project was funded through the agricultural experiment station under Title V of the Rural Development Act of 1972.

Facets of the Problem

Virtually all local public officials have difficulty in measuring the quality of services they provide. Since they cannot determine the desired level of service through the market

process, they turn to standards suggested by outside experts. Road and bridge conditions can be rated by engineering standards, and by comparing the deficiencies against these standards, road commissioners can select the projects that should be undertaken. However, it is not always possible to undertake a required project; in recent years inflation has been ravaging road district budgets. At the same time, larger, heavier farm machinery has been placing greater strain on both roads and bridges. To complicate matters, the movement of urban residents into the countryside has increased traffic and raised the expected level of service.

The ten-county, 186-township area in western Illinois was studied to determine both the extent of the road and bridge problem and the practices followed by local road commissioners in providing services. Information provided by the Illinois Department of Transportation showed that during the early 1970s more than 60 percent of the rated roads in the study region had barely adequate, poor, or very poor surface conditions. Only one-third of the bridges have been rated in western Illinois, but of these less than half are above minimum tolerable limits. More than one-quarter do not meet minimum standards. Wide variation in road and bridge conditions was evident among the districts; as will be discussed below, conditions depend on both the resources of the road district and how it is administered by the commissioner.

The road and bridge issue is highlighted by the inadequacy of many local bridges to accommodate school buses. One estimate is that, statewide, more than half of these bridges are capable of bearing less than nine tons — the weight of a loaded school bus. Incidents in which a bus has to stop at a bridge, discharge students, and then reload on the other side are being related with increasing frequency. Another inadequacy of many local bridges is their narrow width, preventing modern farm machinery from crossing even when a bridge is structurally sound. A short-term solution adopted for some bridges has been to remove the side rails, allowing the machinery to overhang the sides. Slow-moving farm machinery can pass with reasonable safety, but automobiles and other vehicles moving at higher speeds are exposed to greater risks, especially in poor weather conditions.

Perhaps the severity of road and bridge conditions can be best understood in terms of the cost of upgrading. Estimates in 1975 by county highway superintendents in western Illinois indicated that bringing roads to adequate

(though less than desirable) standards would cost an average of \$27,100 *per mile*. The cost of upgrading roads on a *per capita* basis was \$731. The estimated cost of bringing bridges in western Illinois to standards considered adequate by the county highway superintendents was \$43,700 per unit, with a total cost of \$47 million. These estimates assume that 5 percent of the bridges could be closed without imposing serious hardship and that 15 percent would not need repair.

Without doubt, resources from outside the road districts will be required if a substantial repair and replacement program is to occur within the reasonable future. The costs cited above are based on conservative estimates; if desired standards were sought, they would be much greater. Although rural residents are entitled to access to adequate basic services such as emergency medical treatment, educational facilities, and fire protection, roads with low traffic volumes may simply be too expensive to maintain at high standards.

Another dimension is the current "return to the countryside" trend, with residents employed in urban areas opting for small acreages in the close hinterland. With this rise in the number of commuters, increased demands are placed on rural roads. Often, however, tax rates and revenues do not rise proportionately with the value of the land in its new use. Interviews with local commissioners suggest that the former urban residents expect better roads than do those who have grown up in the rural areas. The newcomers create pressures on road commissioners for road maintenance expenditures on the roads where they live.

Management Practices

Judging from detailed interviews conducted with thirty road district commissioners in the western Illinois study region, management practices vary considerably. The overall impression from the interviews is that the commissioners are dedicated public servants who work within fairly tight financial constraints but who are very concerned about providing roads in the best condition possible, given the resources available. Many expressed dismay at the impact of recent price increases on future road maintenance costs.

The average road commissioner in the study area has very little formal training in financial and administrative practices. His knowledge about road construction has been gained primarily from his experience on the job. Some commissioners worked for the previous commissioner and "inherited" the position by running for election when the incumbent retired. In many cases, commissioners face town boards reluctant to increase tax levies even though road budgets are being squeezed by the rising prices of construction materials.

Most of the road commissioners are full time (70 percent), but more than half the total (62 percent) have additional employment. On the average, the commissioners in the study area had slightly more than eleven years experience, were fifty-three years old, and had attended but not completed high school. The average full-time road commissioner received an annual salary of \$7,581 in 1975. Less than one-third (30 percent) indicated that they employ part-time help.

Because of differences in demand for road use, road district management practices vary by size of district and by region within the state. As of 1975, the townships in western Illinois were slightly below the state average in

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University of Illinois

1201 West Nevada Street, Urbana, Illinois 61801

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minimally passable. Certainly closing roads or bridges is not a popular option politically since it is difficult to find a rural road on which no one resides or that someone does not find useful as a shortcut. To reduce the number of roads on a rational basis, traffic volumes would have to be examined and roads with extremely low volumes would become candidates for closing. Presumably, some landowners would suffer a capital loss due to reduced access, and they might have to be compensated. If a roadway is convenient (but not essential) for access to farmland, farmers might be given the opportunity to assume its upkeep as a private road.

If this option were chosen, however, a transportation network plan would have to be devised to provide access by emergency vehicles. In addition, consideration must be given to maintaining reasonably efficient access, with rural roads connecting major highways given priority. Without question reducing the number of roads or bridges will not be easy, but given the present situation the possibility at least should be raised.

IMPROVED MANAGEMENT PRACTICES

The commissioners interviewed in western Illinois generally expressed frustration in discussing their financial needs with the town boards. Most felt a need for a greater awareness by the board concerning road conditions and expenditures required to remedy deficiencies.

The management practices discussed above show a relatively simple operating framework: based on his personal knowledge of the roads, the commissioner develops a work program and carries it out until funds have been depleted. Motor fuel tax monies pass through the county highway superintendent's office, and the superintendent coordinates both the purchases and work programs of the commissioners in his county. In western Illinois, cooperation between the county and the townships appears to be fairly common. In the opinion of the township commissioners interviewed, cooperation with the county superintendent is very beneficial both because lower prices for materials can be obtained when larger volumes are purchased and also because infrequently used machinery can be shared among townships.

Herein may lie a major cost-saving improvement for townships statewide, one that could be introduced without significant changes in the existing framework. Periodically there is a movement for consolidation of townships on grounds of efficiency. The reply from road commissioners is that districts of approximately fifty miles of road are appropriate for an essentially one-person operation. If the districts were consolidated, the less frequently travelled roads in more remote sections of the district would not receive adequate attention. According to those opposing consolidation, because some road district tasks (such as snow removal) are labor intensive during critical times, the quality of services would decrease if district size were increased.

Perhaps the greatest potential for cost saving lies in additional cooperative use of large machinery already owned by the districts. The price of motor graders, bulldozers, and large trucks has increased to the point that commissioners are almost unable to replace existing equipment. Several of those interviewed indicated that they were purchasing used equipment whenever possible. Although the maintenance cost is higher, the initial outlay is less. If consolidation of road district operations is not a viable option for political or other reasons, then certainly

a greater sharing of equipment by townships is feasible. Bulk purchasing of supplies and materials also can lower costs.

This discussion is not intended to dismiss the possible benefits of consolidating small contiguous road districts, especially if a number of roads and bridges could be eliminated. The objective might be to achieve a size that could be administered by a full-time commissioner and a full-time assistant without purchasing new equipment. If this policy were adopted, the quality of less travelled roads might be reduced. Given tight budgets, however, it does not seem unreasonable to intentionally maintain roads with low traffic volumes at lower quality than more frequently used roads. The important consideration is that there be an adequate number of well-maintained roads with year-round surfaces so that an efficient transportation system is provided and emergency vehicles can operate without major delays.

Such a program would require long-range planning by both road district commissioners and county superintendents. In fact, achieving an efficient transportation network may require planning at a regional level—for example, a multicounty area. The significant consideration is that without alternative funding arrangements, many road districts may be at a critical point: either the number of roads and bridges must be decreased or the quality at which they can be maintained will deteriorate.

TIGHTER CONTROLS ON USAGE

Most commissioners interviewed felt that heavy machinery, trucks, and loaded school buses cause serious road damage, especially during spring thaws. At present, weight limits are posted by the commissioner, but enforcement is virtually nonexistent. Under this situation, a road can be damaged severely because of a few trips at the wrong time. Given the limited resources for maintaining township roads, commissioners felt that they needed additional powers enabling them to close roads to traffic as needed or to limit their use by heavy vehicles such as loaded school buses. The exact procedure for enforcing limited access would have to be established, although one measure could be to close certain roads to all but local residents for short periods.

Controlled road usage could do much to lower costs and to provide better facilities for the general public. Money saved by this approach could be used to rebuild the roads that are troublesome each year. Presumably, over time the number of roads that could be kept open all year would increase.

General Observations

The problem of local transportation networks is multifaceted and difficult to summarize. Some view it as an example of government units being too small to provide necessary services efficiently. This view has fostered attempts to consolidate townships smaller than a certain population or assessed valuation. Others point to townships as one of the few arenas where citizens have direct input into how their tax dollars are spent. As might be expected, this latter view is held by many local officials who look upon consolidation as leading to "big government" unresponsive to citizens' wishes. Aside from the ideological dispute, the road and bridge problem is serious and demands immediate attention. While poor-quality roads can be travelled at slower speeds and at possibly higher vehicle-operating costs, deteriorated bridges do not allow this option.

construction to understand the extent of funding needed to maintain them adequately. One commissioner indicated that his proposed budget had been reduced repeatedly; road maintenance had suffered to the extent that several large agricultural producers revealed a willingness to pay higher real estate taxes to finance road improvements. This problem is significant given that recently the maximum allowable tax rate (with referendum) has been increased. Although the taxing power exists, a timid town board might be reluctant to take advantage of it.

The practices followed by commissioners, particularly those with tight budgets, can be characterized as a form of crisis management. Rather than developing a long-term program of road construction and maintenance, commissioners are prone to solving immediate problems such as repairing an impassable road or a seriously defective bridge. After the urgent problems are remedied there is little if any money left for a long-term road-upgrading program.

Because of the financial exigencies, in some instances the local commissioners have turned to makeshift repairs such as using a discarded railroad tank car with the ends removed to replace a culvert. In some townships, bridges are renovated by using parts from abandoned structures. While programs of this type reduce costs, they have inherent dangers and are not necessarily the most effective long-term solution. For example, the replacement parts used to renovate bridges may have been seriously weakened over time from previous use.

The situation is so serious in some districts that bridges have been closed. While it may be desirable to have fewer bridges, a long-range plan for traffic flow should be adopted to assure an efficient road system in rural areas. Based on such a plan, certain roads and bridges could be closed if necessary. However, closing a bridge selected only because of its deterioration from past usage does not seem to be an efficient approach.

Possible Solutions

Few obvious and simple solutions exist to the road and bridge problems described above. However, several kinds of approaches are possible, some by road districts directly and some by other levels of government.

ADDITIONAL REVENUE

An obvious solution to the road and bridge problem is to raise additional funds. At issue, however, is the source of these funds. The main revenue source, the property tax, has long been criticized as being inequitable and not as responsive to economic growth as are other revenue sources such as income and sales taxes. Moreover, in the case of local roads and bridges, the taxpayers most likely to receive benefits are those residing on the farms. Therefore a tax on agricultural production or some other base might be more acceptable than the property tax. Because rural roads are used extensively in farming operations, the tax used to provide the transportation system ideally should be incorporated into the cost of producing agricultural output and passed on to consumers.

In 1976, town boards in Illinois were empowered by the state legislature to levy the property tax for road and bridge purposes at .66 percent (sixty-six cents per dollar of assessed valuation) with referendum; the previous rate was .33 percent. Thus additional taxing power at the local level exists if the town board is able and willing to com-

municate its needs to the electorate. Certainly any reasonable solution to the problem will require that this revenue source be used to the fullest extent possible.

The state's interest in an adequate rural transportation network stems both from the need to provide roads for residents and, given the importance of agriculture to the Illinois economy, to transport farm produce. At present, the state provides assistance for the maintenance of local roads and bridges through motor fuel tax reimbursements to local governments. A road district's share of these funds is based on road mileage within the district and is reimbursed to the districts through the county superintendent of highways. Strict standards are in effect governing both the uses of MFT funds and the standards that roads must meet in order to qualify. The rationale behind this tax is that the more gasoline purchased, the more driving and maintenance there is to be done on roads.

The present MFT is 7.5 cents per gallon of gasoline sold, with exemptions for nonroad users, which means that farmers usually qualify for refunds. The interesting situation is that wide, heavy farm equipment is one of the main causes of the local road and bridge dilemma. Certainly one could argue that farmers should be given rebates to the extent that the tax is used to finance major highways, but the argument is less effective in the case of local roads. This is not to deny that a relatively small portion of the total gasoline used by agricultural producers is for road traffic. Perhaps more attention should be paid, however, to including the cost of maintaining local roads within the cost of raising food.

One way to raise additional MFT revenue would be to tie this tax to the price of gasoline rather than to the quantity sold. Assuming constant use, gasoline price increases would generate additional revenue. Moreover, by increasing the price of gasoline, higher taxes might assist in conservation. With the rising costs of constructing and maintaining roads, the justification for a tax based on the number of gallons sold independent of the price per gallon is unclear.

Two recent changes in Illinois law should ameliorate the road and bridge problem. First, taxing limits for building and maintaining road surfaces have been increased, allowing town boards to raise additional revenue if voters can be convinced of the need. Second, beginning July 1, 1977, the state began distributing money from a \$15 million fund to townships that are levying at their maximum rates without referendum. While this amount may be small compared with the estimated needs, it does represent a beginning.

Finally, the bridge problem may be severe enough that federal funds are needed. Although since 1970 a federal bridge inspection program has been in effect and funding has been provided for bridges on secondary highways, these monies have not been available for the majority of locally maintained roads. However, federal revenue-sharing funds provided to townships can be, and have been, used for road maintenance purposes. Bridges are primarily one-time expenditures with minimal annual maintenance. If special bridge reconstruction funds were made available, presumably most districts could provide normal maintenance.

REDUCING THE NUMBER OF ROADS

Another approach to the problem is to eliminate unnecessary roads and bridges; this method may be implemented inadvertently as bridges collapse and roads become

road mileage and number of bridges to be maintained. The average road district in the state included 51.2 miles of roads and thirteen bridges, while in western Illinois the average was 48.9 miles and eleven bridges. A closer examination reveals that more of the western Illinois districts contained earth and gravel roads than did districts statewide; correspondingly, fewer districts reported paved and bituminous roads. Thus, minor deviations in western Illinois commissioners' practices and procedures would be expected from those followed statewide. Over half the road commissioners in the study area (57 percent) reported that at least 40 percent of the bridges in their districts needed repair. The comparable figure statewide was 63 percent.

Because the commissioner is an area resident and a frequent traveler in his district, he has firsthand knowledge of local road conditions. Although the commissioners indicated that they make fairly regular patrols of district roads, little formal monitoring of conditions was evident. Several of those interviewed admitted that their work programs were determined at least in part by complaints of residents about the condition of the road on which they live.

One of the most surprising findings is the informal nature of identifying work to be undertaken in the upcoming year. Selection of which roads and bridges are to be repaired or reconstructed is not based on an analysis of the least cost to bring structures to a satisfactory condition. Further discussions with county highway superintendents in the region reinforced the notion of the absence of a sophisticated procedure for choosing among road maintenance projects. Presumably, at some point it becomes cheaper to rebuild a road than to patch with gravel. When commissioners were asked about the cost of maintaining specific road sections, most exhibited little detailed knowledge about unit costs.

A tendency was noted among several commissioners to follow a work program of upgrading several miles of roads each year with a bituminous surface. With continuing price increases of bituminous-related materials, continuation of this program may be in jeopardy. In wealthier districts bituminous surfaces may be feasible and desirable. Unfortunately, the wealthier districts may not be the same as those in which the costs of construction and maintenance are the greatest. In determining the type of surface and the quality at which a road can be maintained, accurate cost information is necessary. More detailed record-keeping practices and analyses of amounts spent on individual road sections could be useful in obtaining greater returns for the funds available.

The overriding concern many commissioners raised in discussions was that inadequate funds are available to provide the road quality they consider desirable. Several reasons may account for this concern. First, in some instances the condition at which the commissioner sought to maintain roads simply may have been beyond the resources of his district. Also, very little attention was being given to objective standards in the road maintenance program; rather, the selection of work was based on the commissioner's knowledge of and preferences for road conditions.

The bridge situation was handled somewhat differently. Many of the bridges had been rated, and in selecting projects this objective assessment of their condition was considered. The commissioners had a much clearer picture of the need for improvements of bridges than roads. Bridge safety is perceived as critical because a failure can result

in injury or loss of life. However, those commissioners with serious bridge problems (not all districts had major deficiencies) appeared to be frustrated due to a lack of funds.

In addition to the possibility that unrealistic quality standards have been set, a number of commissioners felt that the town board was unwilling to raise taxes to provide the funds needed for road maintenance. This view was expressed most frequently in districts where the road commissioner's budget was routinely reduced by the town board. Certainly in some cases the problem stems from the board's lack of responsiveness to the objectives and financial needs expressed by the commissioner; wide variation was found in western Illinois. In some road districts the commissioner's proposed budget is accepted almost automatically. In these districts the transportation facilities appeared to be more than adequate, and the road commissioners were optimistic about their jobs.

Other commissioners complained that the board tended to respond to voters' pressure to keep tax levies low. The feeling expressed by these commissioners was that the town board was not knowledgeable enough about road

Figure 1
TEN-COUNTY WESTERN ILLINOIS STUDY AREA



Given the critical condition of bridges and the great cost in rehabilitating them, a long-term bridge replacement program is needed, at least for essential routes in rural areas. There is little question but that a feasible solution to the local road and bridge problem is going to require a combination of actions by governments at

different levels. Certainly townships must use their taxing powers to the fullest extent as well as examine carefully the need for the number of roads and bridges they are trying to maintain. Beyond this, an effective solution, especially to the bridge problem, may very well require assistance from higher levels of government.



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