MICHIGAN HIGHWAY FINANCE AND GOVERNANCE

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Summary

This report, which was summarized in ***CRC** Memorandum 1046*, addresses the question of the extent to which highway revenues in Michigan, whether increased or not, could be more efficiently spent.

The Introduction shows that Michigan ranks high in relative measures of general expenditures, but near the bottom in relative measures of spending on highways. The state has a growing percentage of roads rated poor and bridges rated fair or worse. Federal Highway Administration statistics show Michigan to be among the worst of the states. Over 40 percent of the interstates are considered congested.

The Michigan highway system is dominated by the counties in terms of jurisdictional control, with 75 percent of the highway miles and 53 percent of the bridges. Roads under state control account for only 8 percent of the highway miles, but carry over 53 percent of the vehicle miles traveled. Cities and villages have jurisdiction over the remaining 17 percent of the highway miles.

State-collected motor-fuel and motor vehicle registration taxes are the primary sources of revenue not only for the state, but also for the counties and municipalities. Property taxes are the primary source of locally-collected tax revenues. Additionally, federal funding plays a major role in funding new construction and reconstruction of old roads and bridges. This section describes the organization of the Michigan highway system and gives a brief description and history of each of the participants in providing highways

Revenue Issues notes that both highway-user and non-highway-user taxes may play a legitimate role in funding roads. Motor-fuel tax rates in Michigan are relatively low by themselves, but they are about equal to the national average when the cost of paying the sales tax is included. Included in this discussion are the evaporation allowance, the tax credits and exemptions provided, the levy of the sales tax on motor-vehicle related sales, and the motor carrier fuel tax. Motor vehicle registration fees, license fees, and certificate of title fees are explored and the rates are compared to several other states. Finally, several alternate methods of taxing motor-fuels are discussed, such as introducing the price of fuel as a determinant of the tax rate on motor fuel tax revenues.

Non-highway-user taxes also play a role in highway funding for both the state and local levels of government. The Michigan Constitution precludes the use of highway-user taxes for purposes not related to transportation, it does not specify that only these taxes can be used for transportation. Property taxes are the primary tax source for road funding by local levels of government. The only revenue source that could raise sufficient revenues to displace property taxes as the primary funding source is local motor-fuel taxation. There are some problems with this option, mostly tax collection problems, but because they have the greatest connection to highway use and the benefits derived from a strong highway system, these taxes might provide a means for local governments to raise revenues for highway funding.

It is clear that increased revenues could be put to productive use. The remainder of the report concentrates on five recommeded reforms that must be addressed if increased revenues are to be more efficiently spent and if there is to be adequate local responsibility for funding road construction and maintenance.

Jurisdictional Control shows how population growth, urban sprawl, and highway use have changed the character of Michigan. Many roads no longer serving the purposes they once did. These factors should be used to determine jurisdictional control of roads and bridges. However, the division of responsibility for most roads and bridges remains close to what the state, counties and municipalities had assumed by the end of the 1930s. The result is a mismatch of roads to jurisdiction, which creates accountability and funding problems.

Because jurisdictional control is perhaps the most critical link in establishing a strong, efficiently-funded highway system, an assessment of the proper assignment of jurisdictional control is a key element in addressing the overall efficiency of the highway finance and governance system.

Any consideration of jurisdictional control should be based on an understanding that having one unit of government administer the entire stretch of a road is no longer as important as it was when highway construction was paramont. Maintaining the roads currently in place and making them operate efficiently, the new focus in highway administration, can be accomplished at a more local level than was necessary for their construction.

Prioritizing Highway Needs discusses the lack of a statewide needs assessment since 1983. There are several factors that have make a needs assessment difficult under the current statute. First, there is no uniform methodology among the many units of government for assessing road and bridge conditions. Second, there is the perception that parochial bias of each unit of government can lead to the creation of a "wish list" of funding needs. Finally, there is no statutory provision for prioritizing roads according to their functional classification. Until a needs assessment is completed, it is not possible to accurately estimate the level of highway funding needs or to prioritize those needs in a systematic manner.

Physical Structure discusses the standards used in highway construction and the level of resources devoted to highway maintenance. Michigan must give greater attention to factors that affect highway condition. These include the age of the highway system, Michigan's terrain and weather, the use of road salt, and the use of the highway system by trucks. For years, the standards used for constructing roads and bridges have been based on assumptions adopted by the American Association of State Highway Transportation Officials (AASHTO) some 40 years ago. In light of the demands on the Michigan roads and bridges, a debate on these standards is overdue.

It may be more expensive to build roads to higher standards. But any additional cost might be low enough to warrant such a move, and the additional costs may be offset by reduced maintenance costs in the long run. Irrespective of construction standards, if roads are not maintained, their lifespans will be shorter than they should be. Fixing poor roads is three to five times more expensive than keeping them in good, or at least fair condition. If done properly, a greater initial investment could result in reduced taxpayer cost over the life of the road or bridge.

Administrative Issues discusses the benefits of privatization and intergovernmental cooperation. One state government, 83 counties, and 534 municipalities are involved in administration of the Michigan highway system. Since both privatization and intergovernmental cooperation lend themselves to efficiency gains, reduced duplication, and taxpayer savings, future utilization of these tools should be encouraged. This section concludes with a discussion of county road commissions that lays out the current status of road commissions, the options available under the three forms of county government, and a brief interstate comparison of county road governance.

Finally, State Highway-User Tax Allocations discusses the formulas used to disburse funding through the Michigan Transportation Fund. State highway-user tax revenues, deposited into this fund, are used to pay for administrative and collection costs and to fund recreational transportation projects, bridge repairs, rail grade crossing repairs, projects related to economic development, comprehensive transportation projects. The remainder (almost three quarters of the revenues) is divided among the state, the county road commissions, and the municipalities for snow removal and care for the highway systems under their jurisdiction.

Because current formulas for funding county and municipal roads do not take highway usage into account, if the needs of heavily traveled highways are to be addressed, excessive amounts of funding will be directed to the lightly used roads. Conversely, appropriate funding in rural areas will mean a shortfall in urban areas. For example, Oakland County has 2.7 percent of the county road mileage in Michigan, but these roads carry 13.6 percent of the traffic. Other urban counties are in similar circumstances. By contrast, rural Newago County has 1.7 percent of the road miles, but carries only 0.4 percent of the traffic.

Unless the Michigan highway system is restructured both financially and administratively, it is very likely that any additional dollars and will purchase a lower level of transportation services than they should.

MICHIGAN HIGHWAY FINANCE AND GOVERNANCE

I. Introduction

Highway funding has received a great deal of attention in recent times. The public debate so far has concentrated largely on the questions of whether and by how much to increase motor-fuel taxes to finance additional road and bridge construction and maintenance. This paper attempts to ask and answer the question, "If taxes are increased to raise additional revenues for highways, will additional revenues, at any level, address the ills of the highway system, or are other reforms needed to make this system operate economically and efficiently?"

A strong highway system is important to the economic well-being of a state. Every sector of the economy is affected by the highway system. Workers travel to their places of employment. Residents run errands to schools, stores, doctors' offices, and office buildings. Sales representatives peddle their wares. Suppliers transport parts to manufacturers. Manufacturers transport their final products to market places. Consumers travel to market places to purchase these goods. Finally, with the role that tourism plays in the Michigan economy, a strong highway system is vital to allow for efficient access to tourist destinations.

Despite its importance, the Michigan highway system was allowed to deteriorate. In parts of the state, many roads are in need of repair. In other parts of the state, new roads need to be built. This report will consider whether the current Michigan highway finance and governance structure will be able to address these needs systematically and efficiently.

A. Highways as a Government Priority

This report uses several states for comparison purposes (See **Table 1**). These states were chosen either due to their population or their geographic proximity to Michigan. They are the same states used in the 1996 Michigan Tax Climate, a *CRC Report* which compares state tax burdens.

Michigan ranks sixth among the comparison states in

Table 1
Interstate Comparison of State and Local Spending -- 1993

	Per Capita Expenditures				Expenditures Per $1,000 of Personal Income					
State	General Expenditures	Nat'l Rank	Highway Expenditures	Nat'l Rank	Direct General Expenditures	Nat'l Rank	Direct Highway Expenditures	Nat'l Rank	Highway Expenditures as Percent of Total Spending	Nat'l Rank
California	$4,301.66	12	$198.97	49	$215.58	18	$9.97	49	4.6%	50
Illinois	3,645.12	28	285.93	22	166.78	46	13.08	34	7.8%	23
Indiana	3,482.13	36	236.21	42	190.91	36	12.95	35	6.8%	36
Iowa	3,869.02	21	430.51	7	208.96	22	23.25	7	11.1%	5
Kentucky	3,270.27	44	275.27	26	195.87	30	16.49	22	8.4%	18
Michigan	**4,027.62**	**19**	**210.59**	**48**	**205.55**	**23**	**10.75**	**48**	**5.2%**	**48**
Minnesota	4,783.04	6	403.09	10	236.09	7	19.90	11	8.4%	17
Missouri	2,893.02	50	227.69	44	153.01	50	12.04	40	7.9%	22
New Jersey	4,576.53	9	285.67	23	173.16	45	10.81	47	6.2%	41
New York	5,881.45	2	272.51	29	247.74	5	11.48	43	4.6%	49
N. Carolina	3,324.45	42	239.89	41	187.60	39	13.54	32	7.2%	29
Ohio	3,588.39	31	231.86	43	191.55	35	12.38	38	6.5%	38
Pennsylvania	3,742.41	25	227.65	45	184.17	41	11.20	46	6.1%	43
Texas	3,408.82	39	245.95	37	189.89	38	13.70	31	7.2%	30
Wisconsin	4,240.10	13	350.28	15	222.67	13	18.39	16	8.3%	19
U.S. Average	$3,975.21		$264.20		$201.45		$13.39		6.6%	

Source: U.S. Bureau of the Census, Government Finances in 1992-93, Internet.

general expenditures on all functions, whether the states are compared on a per capita basis or per $1,000 of personal income. **Table 1** (based on the latest year for which data is available), notes that for most functions, Michigan ranks high in comparisons of spending. However, Michigan ranks low for highway spending. Michigan was 14th among the 15 states in per capita highway spending and in highway spending per $1,000 of personal income. Michigan state and local governments spent 5.2 percent of all spending for highways; compared to the U.S. average of 6.6 percent. This ranks 13th among the 15 comparison states.

B. Michigan Road Conditions

The Federal Highway Administration (FHWA) of the U.S. Department of Transportation compiles highway statistics that indicate the condition of major Michigan roads -- interstates, arterial routes, and collector routes. Local access roads are not included.

Michigan roads have been deteriorating over time with more and more miles receiving unsatisfactory ratings. In 1985, only 4.9 percent of major paved roads were rated in poor condition. As of 1994, 13.3 percent, over 4,077 miles, of the major paved roads were rated poor (See **Chart 1**).

Interestingly, the percentage of major paved roads in good or very good condition also increased over this period. The proportion of roads in fair and mediocre condition declined over this period by almost 15 percentage points, from 57.0 percent to 42.4 percent.

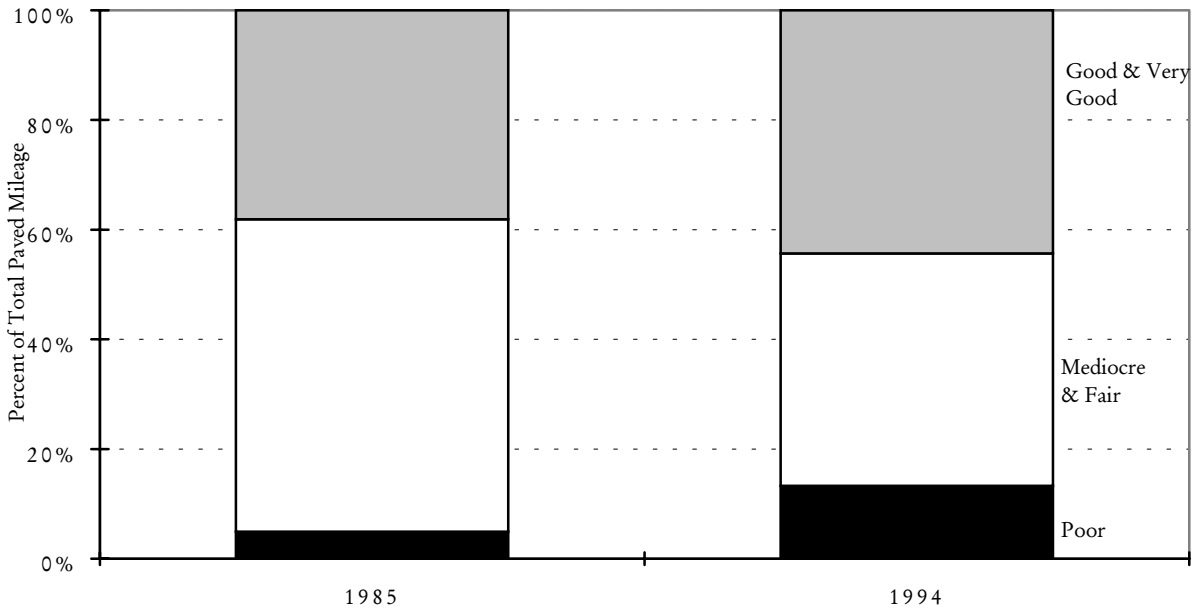
1. Interstate Comparison of Road Conditions

Among the comparison states, only Minnesota has a greater percentage of roads either unpaved or rated poor. At the same time, only Texas, New Jersey, Ohio, and Indiana had a greater percentage of major roads rated good or very good. Michigan has a smaller percentage of major roads rated in fair condition than most of these other states (See **Chart 2**).

2. Michigan Bridge Conditions

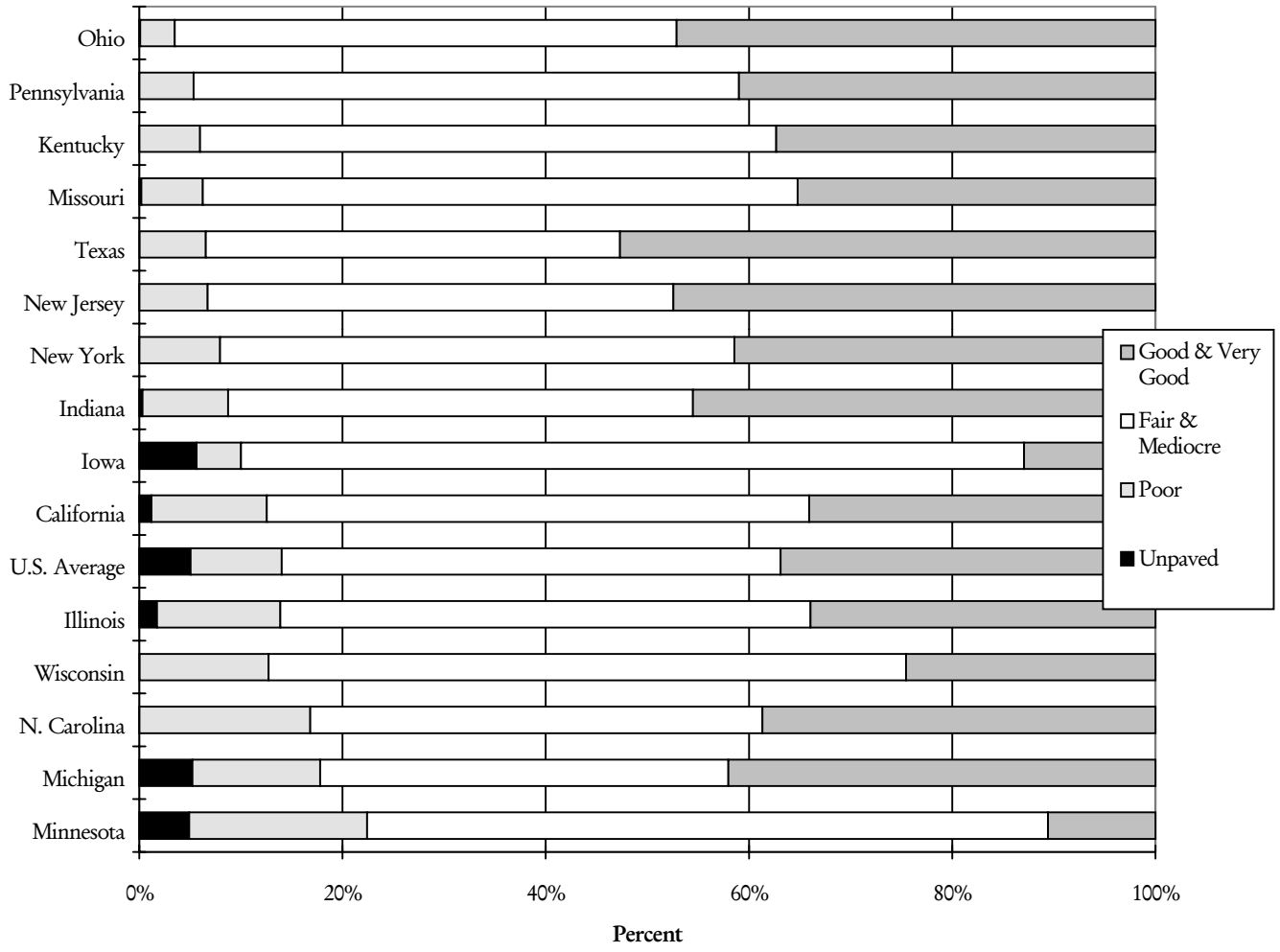
The FHWA reports that 42 percent of the nation's 577,481 highway bridges need repair and are considered obsolete. Estimates put the cumulative repair bill at $50 billion by the year 2010.

Chart 1
Pavement Ratings of Michigan Roads: 1985 and 1994



Source: Federal Highway Administration, 1994 Highway Statistics, (Washington, D.C.: Government Printing Office, 1995).

Chart 2
Federal Pavement Ratings of Major Roads in Michigan and Comparison States -- 1994



Source: Federal Highway Administration, 1994 Highway Statistics, (Washington, D.C.: Government Printing Office, 1995).

The Michigan highway system contains 10,511 bridges totaling over 36.4 billion square feet. The Michigan Department of Transportation (MDOT) reports that 2,196 (21.0 percent) of these bridges are in fair condition or worse (See **Chart 3**).

3. Congestion

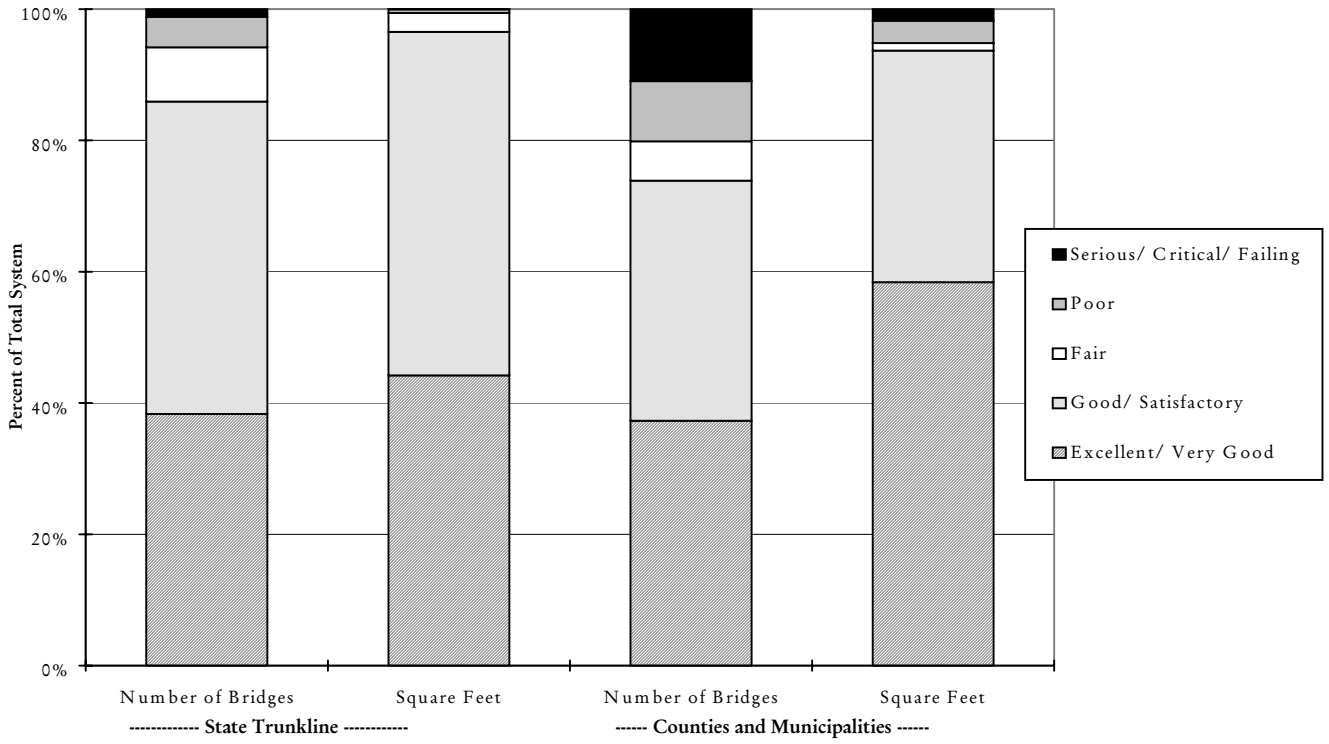
While roads and bridges in some parts of the state are deteriorating in quality, the primary concern in other parts of the state is expanding and enhancing the highway system to better serve existing and growing traffic needs. The FHWA considers 43.5 percent of the Michigan urban interstates, freeways, and expressways to be congested, and more than 28 percent of the urban arterial routes are considered congested.

There were 26 percent more vehicle miles traveled in Michigan in 1994 than were traveled a decade ago. This increase in traffic has occurred on a static highway system. The Michigan highway system gained less than one percent of new mileage during this period.

4. Regional Disparities

It is noteworthy from **Chart 2** that in addition to a large percentage of roads in poor condition, a large percentage is in good condition. This reflects disparities in road quality among functional classifications and among regions of the state. Pavement condition data is not available at the county or municipal levels, but it is possible to look at another study to illustrate the existence of disparities. In 1994, Citizens for Im-

Chart 3
Bridge Condition in Michigan by Jurisdiction -- 1994



Source: Michigan Department of Transportation.

proved Transportation commissioned The Road Information Program (TRIP) to study county highway needs. Based on the numbers reported in this study, MDOT has calculated that the current funding formula would require some county road commissions only 10 to 20 years to meet their identified highway needs, while other counties would require in excess of 100 years to meet their needs. While there are many problems with the data (different definitions of needs were used and all numbers were self-reported), it does illustrate disparities in road quality throughout the state.

C. Highway Organization

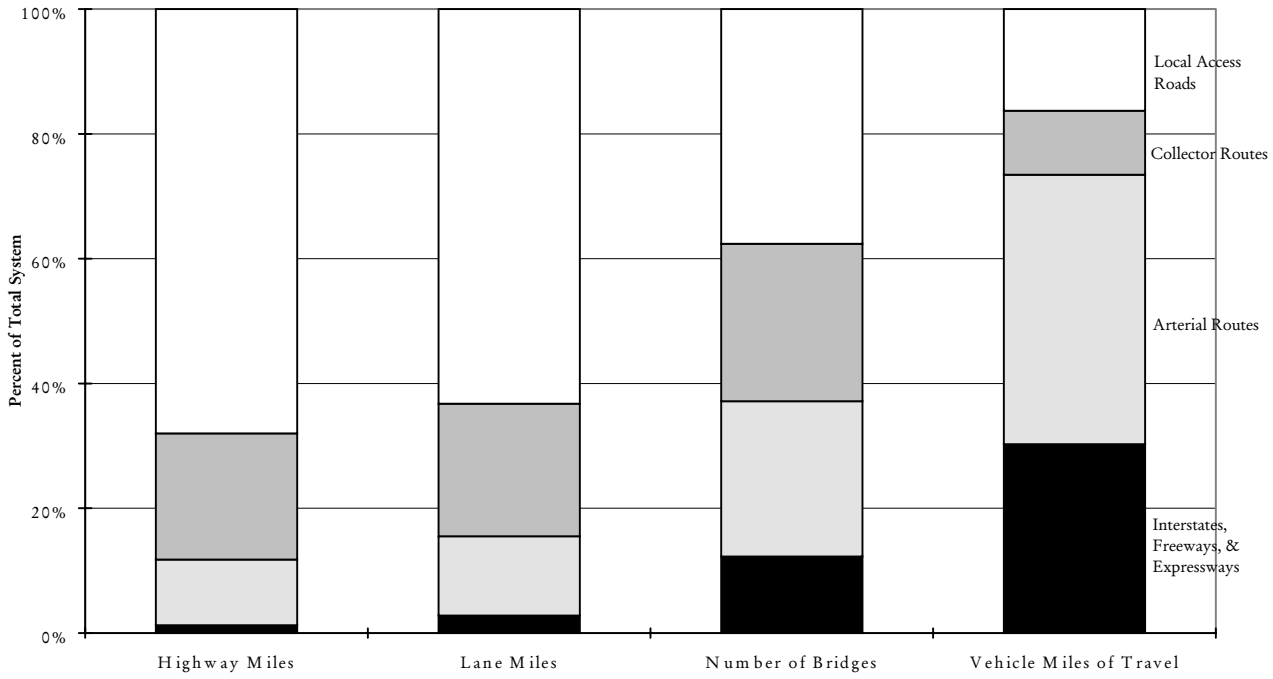
Highway organization involves functional classification -- the role each road plays in the overall highway system -- and jurisdictional control -- the level of government responsible for construction and maintenance of each road.

1. Functional Classification

Functional classification of roads is determined according to the purpose each road serves in providing mobility or accessibility in the overall highway system. Interstates, freeways and expressways are major, limited-access, multi-lane roads that provide for long distance travel and connect major population centers. These roads account for the smallest portion of Michigan highway mileage, only 1.3 percent. When lane mileage is considered instead of simple mileage, interstates account for 2.8 percent of the total system. Additionally, 12.8 percent of the bridges 20 feet in length or longer are on interstates. However, due to the nature of these roads, 30.3 percent of the vehicle miles traveled in the state are on interstates.

Arterial roads also connect major population centers, but they have greater access and serve travel of lesser distances than interstates. Arterial routes account for 10.5 percent of the highway mileage; 12.7 percent of the lane mileage; 24.9 percent of the bridges; and 43.2 percent of the vehicle miles traveled.

Chart 4
Michigan Highway System Characteristics by Functional Classification -- 1994



Source: Federal Highway Administration, 1994 Highway Statistics, (Washington, D.C.: Government Printing Office, 1995).

Collector routes are lesser traveled roads that serve traffic between population and economic centers close to one another, link interstates and arterial routes with local access roads and provide some access to property and business. Collector routes account for 20.2 percent of the highway mileage; 21.2 percent of the lane mileage; 25.2 percent of the bridges; and 10.2 percent of the vehicle miles traveled.

Local access roads provide passage to abutting properties. These roads account for the largest proportion of the highway mileage, 68.0 percent, but only 63.3 percent of the lane mileage, 37.6 percent of the bridges, and 16.3 percent of the vehicle miles traveled (See **Chart 4**).

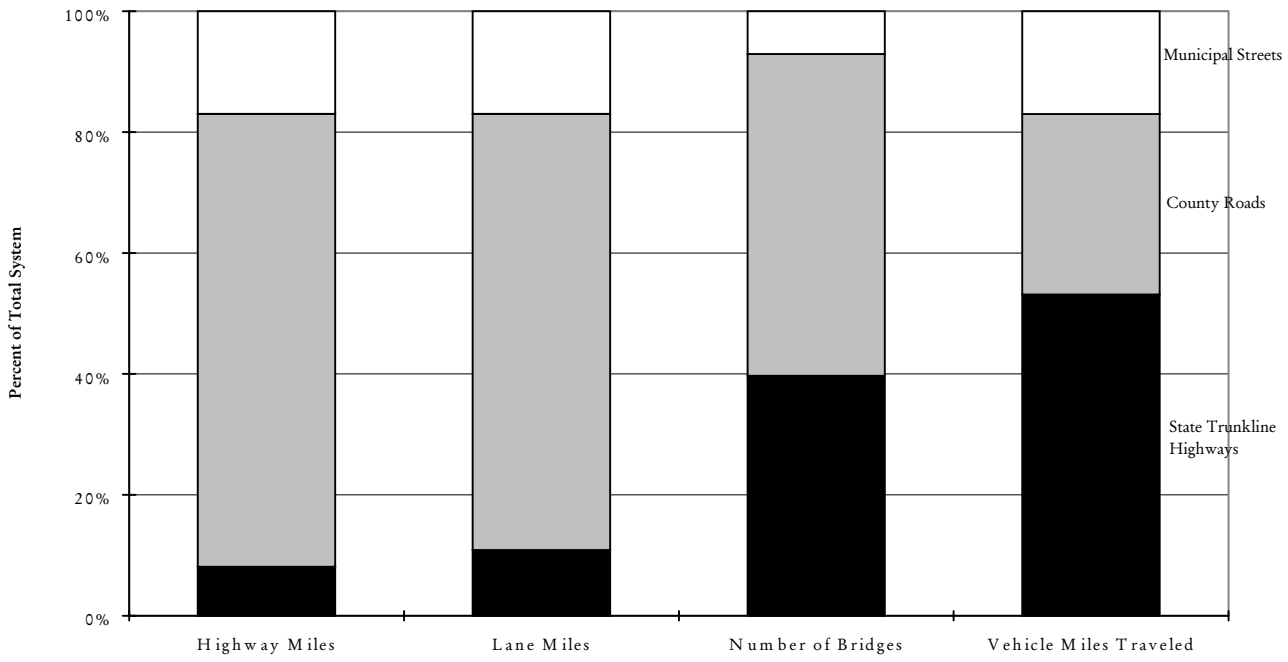
2. Jurisdictional Control

In Michigan, roads under the state's jurisdiction, "state trunkline highways," include all highways designated with an "I," "US," or "M," and 4,300 miles of "priority commercial network" highways, routes considered important to the state's economy. Priority commercial network highways receive special maintenance and reconstruction attention to meet the needs of industry and commerce. The state trunkline system accounts for 8.1 percent of the highway miles. Because most of the trunkline system is composed of interstates and arterial routes, which are usually multi-lane roads, it accounts for 10.9 percent of the lane miles, and 39.7 percent of the bridges. Finally, 53.2 percent of the vehicle miles traveled are on the state trunkline system.

The county road system consists of the primary and local access roads that connect smaller municipalities and provide access to homes, businesses, and industrial sites. County road commissions are responsible for township roads and major county roads, including some roadways that lie within the corporate limits of municipalities. County roads account for 74.9 percent of the highway miles; 72.2 percent of the lane miles; 53.2 percent of the bridges; and 29.8 percent of the vehicle miles traveled.

City and village streets consist of major and local streets that provide access to homes, businesses, and industrial sites within the jurisdictional boundaries of the 534 incorporated cities and villages of Michigan. Municipal streets account for 17.0 percent of the highway miles; 17.0 percent of the lane miles; 7.1 per-

Chart 5
Michigan Highway System Characteristics by Jurisdictional Control -- 1994



Source: Michigan Department of Transportation.

cent of the bridges; and 17.0 percent of the vehicle miles traveled (See **Chart 5**).

It should be noted, that just as lane mileage is more accurate than highway mileage as a measure of total pavement, the deck area of bridges is a more accurate measure of the bridge size than the number of bridges. While only 40 percent of the bridges are in the state trunkline system, almost 75 percent of the bridge deck area is in this system.

D. The Michigan Highway System

The governmental units responsible for the construction and maintenance of the Michigan highway system include

- the Michigan Department of Transportation (MDOT),
- 82 county road commissions and Wayne County government,
- 534 cities and villages, and
- one charter township (West Bloomfield Township in Oakland County).

While funding of the Michigan highway system is currently dominated by the state, and jurisdictional control is dominated by the counties, this has not always been the case. Before the turn of the century, cities and villages were responsible for the construction and maintenance of roads in incorporated areas. In rural areas, road care was largely the responsibility of townships. With the growth of automobile travel and longer travel patterns, the state and federal governments began to play a more direct role in highway system. Still, township and municipal roads dominated the Michigan highway system until "the Great Depression" forced transfer of the township roads to the county road commissions. Several characteristics of the Michigan highway system today reflects the ways it was molded over 60 years ago. [1]

[1] The following histories of county road commissions, municipalities, and state government summarize findings in Michigan Highway System, Robert S. Ford and Marvin A. Bacon, (University of Michigan Press, Ann Arbor, 1943).

Early History of the Michigan Highway System

The framework for a township-dominated highway system was established during the territorial period before Michigan statehood. During the period Michigan was part of the Northwest Territory, travel was very regional and was done either on foot or by horse. Cities, as they had from the earliest settlements in Michigan, provided streets within their boundaries. Roads outside the cities were built and maintained by road districts, established by the territorial governor as authorized under an 1805 territorial act. The territorial government was not responsible for any part of the road system. Most of these roads were constructed to provide local "farm-to-market" routes designed to accommodate the needs of the predominately agrarian society. Road work at this time was financed by the imposition of a tax, payable in labor, assessed on each male freeholder who was not less than 21 years of age. The tax was limited to 30 days of work on the roads annually, or it could be satisfied by paying at the rate of 62.5 cents for each day's labor.

An 1820 law provided for the division of counties into townships to conform to the Northwest Ordinance. County commissioners -- comparable to the county board of supervisors created under statehood -- were given authority and responsibility for the roads in each county. The actual administration of road repair and development was entrusted to a township supervisor of highways. Thus, roads outside municipalities were built and maintained by either townships or road districts created within the townships, with administration performed by a township supervisor or road district overseer appointed by the county commissioners.

In 1827, two laws were enacted creating the administrative organization for township highways that survived until 1931. The first of these laws provided for the election of certain township officers, including township highway commissioners and an overseer of highways in each road district. Each township elected three commissioners of highways and each road district elected one overseer of highways. Thus, the highway function was placed definitely within the township. The second act passed the responsibilities formerly held by the county commissioners to the township highway commissioners, and the functions of the township highway commissioners were passed to the overseers. This local highway system was written into the Michigan Constitutions of 1835 and 1850.

During the early stages of statehood, the Michigan state government dabbled in financial assistance for roads, but this practice was short lived. Article XII, Section 3, of the 1835 Constitution required the state to encourage road building and other internal improvements. However, carrying out this mandate resulted in heavy debts and the near bankruptcy of the state in 1841. This power to engage in highway construction was circumscribed by Article XIV, Section 9, of the 1850 Constitution, which prohibited the state from engaging in any work of internal improvement, except in the expenditure of funds obtained from federal grants.

In 1881, the various legislative acts affecting highways were consolidated. Highway repairs and improvements continued to be financed by a highway tax payable either in labor or money, depending on the choice made by the taxpayer. The amount of the tax levy was determined by the electors of the township in a general meeting. All highway taxes levied had to be spent for highway purposes within the township in which they had been levied.

1. County Road Systems

County road commissions were originally created to provide roads between population centers where municipalities were not available and townships had proven unwilling.

a) Background.

Public Act 149 of 1893, the County Road Act, established county road commissions and made adoption of a county road system permissive for all counties. This act became necessary when it became apparent that townships, who were the primary providers of rural roads, were not able to provide necessary intercommunity roads. Upon adoption of this system, county road commissioners assumed exclusive jurisdiction over all county roads. It was the duty of the commissioners to keep these roads in a proper state of repair and to make such improvements as were deemed advisable. County road commissioners were first elected to office, but a 1911 amendment to Act

149 permitted appointment in counties having over 30 surveyed townships, providing this method of selection was approved by the county board of supervisors. [It should be noted, that at this time the county road commissioners were the only policy-making county officers elected in county-wide elections.] After 1917, appointment of county road commissioners was made optional in all counties with more than 12 surveyed townships.

County roads were selected from existing township, city, and village streets, with the permission of local authorities, or county road commissioners could lay out new roads. Reflective of the regional nature of the county road system at this time, these roads were financed by a county road tax levied on the property of the county at large. Bond issues by county road commissions had to be authorized by a majority vote of the electors at general county elections. By 1920, county road commissions were established in every county except Benzie and Oceana.

State funding was a revenue source for county road commissions from very early in their history. In 1905, counties and townships began receiving state "reward" grants for rural roads constructed according to legislated specifications. Streets within the limits of cities and incorporated villages were not eligible for these "reward" grants. These grants were to provide an impetus for construction of inter-community roads where they would not otherwise be built. The "reward" grant was a set sum of money, ranging from $250 to $1,000, paid to a township or county that had built a mile of road that met state specified standards of construction. Between 1906 and 1913, these grants averaged 24 percent of the costs of constructing reward roads, ranging from five to 79 percent of the costs. The township or county remained responsible for future maintenance on the reward road. The state rewards grant program lasted until 1929.

In 1915, when the state began collecting motor vehicle weight taxes, part of the receipts was made available to county road commissions. Much of the money allotted to counties and townships at this time was for the development of the state trunkline system.

Roads receiving state and federal money had to be built to uniform standards, and often spanned township, municipal, or county lines. However, until the 1930s, the highway system was still very much dominated by township, city, and village roads and funded primarily through the property tax (See **Chart 18** on page 64).

b) Consolidation Under County Road Commissions.

Domination of the highway system by local government changed with the Great Depression. The decline in assessed valuation of taxable property, adoption of the 15-mill property tax rate limitation in 1932, and the large volume of property tax delinquencies left many local governments unable to meet their debt service requirements from the property tax levy. Local governments in Michigan were in a position to default on highway bonds if action was not taken. The adopted solutions consolidated governance of the township highway systems into the county road commissions and assisted local governments in meeting payments of principal and interest on highway debt. These solutions were achieved through two acts, the "McNitt Act" and "Horton Act."

1) McNitt Act of 1931.

Public Act 130 of 1931, the McNitt-Holbeck-Smith Act, limited highway appropriations by township boards after June 1, 1932, except for the operation of the Covert Act (which provided for financing a portion of county road construction costs with special assessments) and existing township obligations, and eventually eliminated all township highway taxes. Township roads were consolidated into county road systems at the rate of 20 percent of their mileage annually during the years 1932 through 1936. The McNitt Act established the composition of county road systems as they exist today. To finance this transfer, proceeds of state gasoline and weight taxes were apportioned on a pro rata basis among the counties according to their respective township road mileage. Future financial support for local roads was made possible through the Horton Act.

2) Horton Act of 1932.

Public Act 41 of 1932 (Extra Session), the Horton Act, was enacted to deal with existing highway debt. The entire proceeds of the weight tax and $2.6 million of gasoline tax revenues were distributed among the counties. Seven-eighths of these proceeds were distributed according to weight tax collections in each

county and one-eighth was divided equally among the 83 counties, with restrictions on how this money could be spent. Fifty percent was to be spent on county roads, including the McNitt (formerly township) roads, and the other half was apportioned for specific purposes in the following order of priority:

(1) Covert road debt relief;

(2) County road debt relief;

(3) Township road debt relief;

(4) Up to 50 percent of the remainder for additional McNitt road maintenance; and

(5) The balance, if any, was divided among the county road commission for general road purposes and the cities and incorporated villages on a pro rata basis according to population.

The McNitt and Horton Acts altered the highway governance and funding systems in Michigan and facilitated the creation of the current highway system. As a result of these solutions, the property tax was abandoned as the primary means of rural road support except in a few counties where it remained for highway debt service. The tax levy on property for highway purposes was restricted to amounts necessary for the retirement of previously incurred debt, and for the improvement of local roads within a three-mill tax limit. The chief purposes of these acts were to facilitate consolidation of the county and township road systems and to assist local governments in paying their highway debt. However, this system became institutionalized and lasted far beyond the need for such assistance. The current Michigan highway funding system, as laid out in Public Act 51 of 1951, was created in reaction to the shortcomings of the Horton Act, which included an inefficient allocation of state tax revenues and provisions which favored highway funding in less populated areas over heavily populated areas.

c) Current County Road Administration.

Public Act 51 of 1951 continued the practice of giving county road commissions jurisdiction over all public roads and major streets within their boundaries, except state highways and those roads that have been released to city or village jurisdiction. County road commissions are authorized under Act 51 to lay out, construct, repair, and maintain county roads and bridges. They can buy and hold property and contract for services. County road commissions continue to be entities that operate separate from actual county government in all non-charter counties in Michigan. Wayne County voted to abolish its county road commission through a change in its charter in 1984. (For purposes of this paper, references to county road commissions are meant as reference to all county road bodies including Wayne County, unless otherwise noted.)

The boards of the county road commissions are composed of three members serving six-year, staggered terms. The method of selection is decided by the board of county commissioners by resolution. County road commissioners are elected by the voters of the county in 30 counties and appointed by the board of county commissioners in 52 counties.

Money in county road funds comes from the Michigan Transportation Fund, federal aid, transfers from the county general fund, county-wide property taxes, and township contributions. These funds are used for constructing and maintaining county primary and local road systems. County road commissions are not permitted to operate solely on money received from the state. County road commissions usually require townships to pay the requisite matching funds.

2. Municipal Streets

Cities and villages in Michigan are responsible for most roads and streets within their jurisdiction.

a) Background.

Cities and incorporated villages were authorized under early provisions of Michigan territorial law to open, improve, and repair streets. This authorization continued when Michigan received statehood. To carry out these activities, municipalities were permitted to use property taxes and special assessments as their primary sources of street funding.

Until fairly current times, funding of municipal streets come out of local tax sources. Unlike counties and townships, there was little perceived need for the state to aid the funding of municipal streets, either through grants or through the apportionment of state weight or gasoline tax receipts. Initially, county road commissions were restricted from spending state "reward" dollars on roads within municipal boundaries. This policy became more flexible over time.

Even before the Horton Act, limitations on state disbursements for trunklines within cities and villages resulted in the allocation of small amounts to municipalities from gasoline and weight taxes.

The Great Depression adversely affected the ability of cities and villages to fund street construction and maintenance, just like many other municipal services. Unlike township roads however, jurisdictional control for municipal streets remained with municipalities. Consistent with municipal streets having a low priority for state funding, municipalities fell relatively low in the state funding priorities laid out by the Horton Act. The debt service requirements of county road commissions and townships, and the funding needs of McNitt roads all came before city and village needs.

State highway-user tax revenues were directly allotted to municipalities for the first time under Public Act 51 of 1951. Prior to 1951, state money for municipal streets had to be approved by the county road commission. This Act changed the funding of municipal streets from a system predominantly funded with local funds to a system dependent on the state for a significant portion of its revenues.

b) Current Municipal Street Administration.

Three acts give municipalities jurisdiction over municipal streets: Public Act 51 of 1951, Public Act 279 of 1909, the Home Rule Cities Act, and Public Act 278 of 1909, the Home Rule Village Act. Under these provisions, municipalities may construct, repair, and maintain major roads and local access streets within their boundaries. These road services are provided by the municipal government itself, as contrasted with counties in which county road commissions are separate from county government. Municipal street decisions are made by the council, mayor, or city/village manager, depending on the process adopted with each municipal charter.

The 534 cities and villages in Michigan, which together have a population of over 5.4 million, administer funds for the construction and maintenance of roads and streets within their borders. The money used for this purpose comes from the Michigan Transportation Fund, federal aid, property taxes, and other city and village revenues.

3. The State Highway System

The state government in Michigan raises most of the money for highway funding and is responsible for the state trunkline highway system. This role has grown as motor vehicle use has grown.

a) Background.

The 1850 Michigan Constitution included a provision that prohibited the state from engaging in any work of internal improvement, except in the expenditure of funds obtained from federal grants. In 1903, the state initiated an advisory program for local governments creating a state highway department. This department was empowered to provide instruction in road building to local highway officials and to obtain such reports from them as the state highway commissioner should deem proper.

By 1905, only 18 of the 83 counties had established county road commissions, and of these 18 counties, 10 were in the northern part of the Lower Peninsula and 8 were in the Upper Peninsula. County road commissions were not being established to provide intercommunity roads as the 1893 legislation had anticipated. Therefore, the task of providing improved road facilities among population centers fell to the state. A 1905 constitutional amendment removed the prohibition on state spending for capital improvements and authorized state financial assistance for local highway construction.[2] The Legislature formalized the Michigan Highway Department and state "rewards" were made available to townships and counties for road construction carried out in accordance with specifications prescribed by the Legislature and the state highway commissioner.

During the first quarter century of existence, the role of the Highway Department grew from oversight and

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[2] "The State shall not be a party to nor interested in any work or internal improvement, nor engaged in carrying on any such work *except in the improvement of or aiding in the improvement of the public wagon roads and in the expenditure of grants to the State of land or other property. . . .*" Amendment (in italics) to the 1850 Michigan Constitution, Article XIV, Section 9.

engineering to a role of direct involvement, financial allocation, planning, and research. In 1913, township "reward" roads were placed directly under state control for the first time and designated as the state trunkline system. This designation involved additional grants for the local improvement of selected trunkline road mileage. Prior to this transfer, roads constructed and maintained under the reward system received state funding, but remained within township or county jurisdiction. By 1913, 1,754 road miles were built under the "reward system."

From 1919 to 1924, the state assumed direct control over the construction of trunkline roads, as well as a majority of the financial burden. This period was marked by the addition of 4,000 road miles as the result of a 1919 constitutional amendment by which $50 million in bonds were issued for construction purposes.[3]

After 1924, the state assumed full responsibility for the development of the trunkline system. Additionally, the state assumed full responsibility for the financing of the rural trunkline construction and a large part of the urban trunkline construction. By 1930, there were approximately 8,900 miles of road in the state trunkline system.

b) Current State Highway Governance.

The Michigan Department of Transportation (MDOT) is the state agency responsible for the construction, maintenance, and improvement of the state trunkline highway system, and primarily responsible for administration of all other state transportation programs. The Department is under the direction of a director and commission. Administration of the Michigan highway system also involves the Departments of State, Treasury, Management and Budget, Civil Service, Environmental Quality, State Police, and Auditor General. These departments perform tasks external to the central workings of MDOT.

1) Transportation Director.

In 1978, Article V, Section 28, of the 1963 Michigan Constitution was amended to provide that the Director of MDOT shall be appointed by the Governor, with the advice and consent of the Senate. The Director is the principal executive officer of MDOT, responsible for executing the policies of the State Transportation Commission.

2) State Transportation Commission.

As established by Article V, Section 28, of the 1963 Constitution, the policies of MDOT are determined by the State Transportation Commission. The Commission consists of six persons, appointed by the Governor, with the advice and consent of the Senate, to serve three-year, staggered terms. Only three State Transportation Commissioners may be from the same political party.

4. Federal Government

The federal government has a long history of providing funds for highway construction.

a) Background.

In 1916, the U.S. Congress passed the Federal-Aid Road Act, which authorized grants-in-aid to be used in public rural road improvement. The Secretary of Agriculture of the United States was authorized to cooperate with the states through their respective highway departments for that purpose. This act required each state designate an adequate and connected system of highways, interstate in character and not to exceed seven percent of the total highway mileage of the state. This system was then divided into a federal-aid primary system, which connected the principal population centers within the borders of the state and integrated the federal-aid systems of adjoining states, and a federal-aid secondary system, which connected or correlated with the primary system.

In 1956, the Federal-Aid Highway Act was enacted, continuing the federal-aid road program. This program initiated the interstate highway system and significantly increased the amount of federal highway funding available to the states. Federal aid was pro-

[3] The 1919 amendment to Article X, Section 10, of the 1908 Michigan Constitution, which read ". . . The State may borrow not to exceed 50,000,000 dollars for the improvement of highways and pledge its credit, and issue bonds therefore on such terms as shall be provided by law," was necessary because a $250,000 debt limit was included in the 1908 Constitution due to financial difficulties experienced early in Michigan statehood and associated with excessive state borrowing and bad credit management.

vided for interstates, primary, secondary, and urban highway systems.

b) Federal Highway Funding Today.

The Federal Highway Administration (FHWA) is the principal federal agency responsible for funding highways. The FHWA receives its revenues from motor-fuel taxes and tire, truck and tractor, and federal use taxes. In FY1994, these sources yielded $15.6 billion, 60 percent of which was from gasoline taxes.

In 1991, Congress enacted the Intermodal Surface Transportation Enhancement Act (ISTEA). Along with other provisions dealing with mass transportation, new transportation technologies, the environmental impact of transportation, highway safety programs, and interstate cooperation in the financing and administration of highway use, this act established a "national highway system." This system consists primarily of interstate routes, a large percentage of urban and rural principal arterial routes, the strategic defense highway network, and strategic highway connectors. These are the highway miles that are eligible for federal aid through the federal block grant program. While ISTEA continued to fund highway construction and reconstruction, one of the important considerations was how to better utilize the infrastructure that was in place. ISTEA expires at the end of FY1997.

States receive apportioned amounts and allocated amounts from the Federal Highway Trust Fund. Apportioned amounts are determined according to several formulas prescribed by federal law that take into account such factors as the population, land area, road mileage, and needs. Allocated amounts are distributed to the states at the discretion of the U.S. Department of Transportation.

Although the receipt of federal dollars means extra funds for state and local governments, these dollars are linked to federal standards and guidelines which must be met. To receive federal funds, a matching amount is required from state funds (funds that otherwise could be used at the state's discretion). These funds are tied to the federal road standards, which are often more restrictive than state standards and guidelines.

The allocation of federal funds within the state is decided at the state level. In addition to state planning, ISTEA requires that local governments and the public play a significant role in planning which projects are to receive federal funding.

Roads remain under state or local control, but receive a portion of their funding from the federal government. The state or local governments make up-front payments for completed work on pre-approved activities and bill the FHWA for its share of the costs.

E. The Relationship of Functional Classification to Jurisdictional Control.

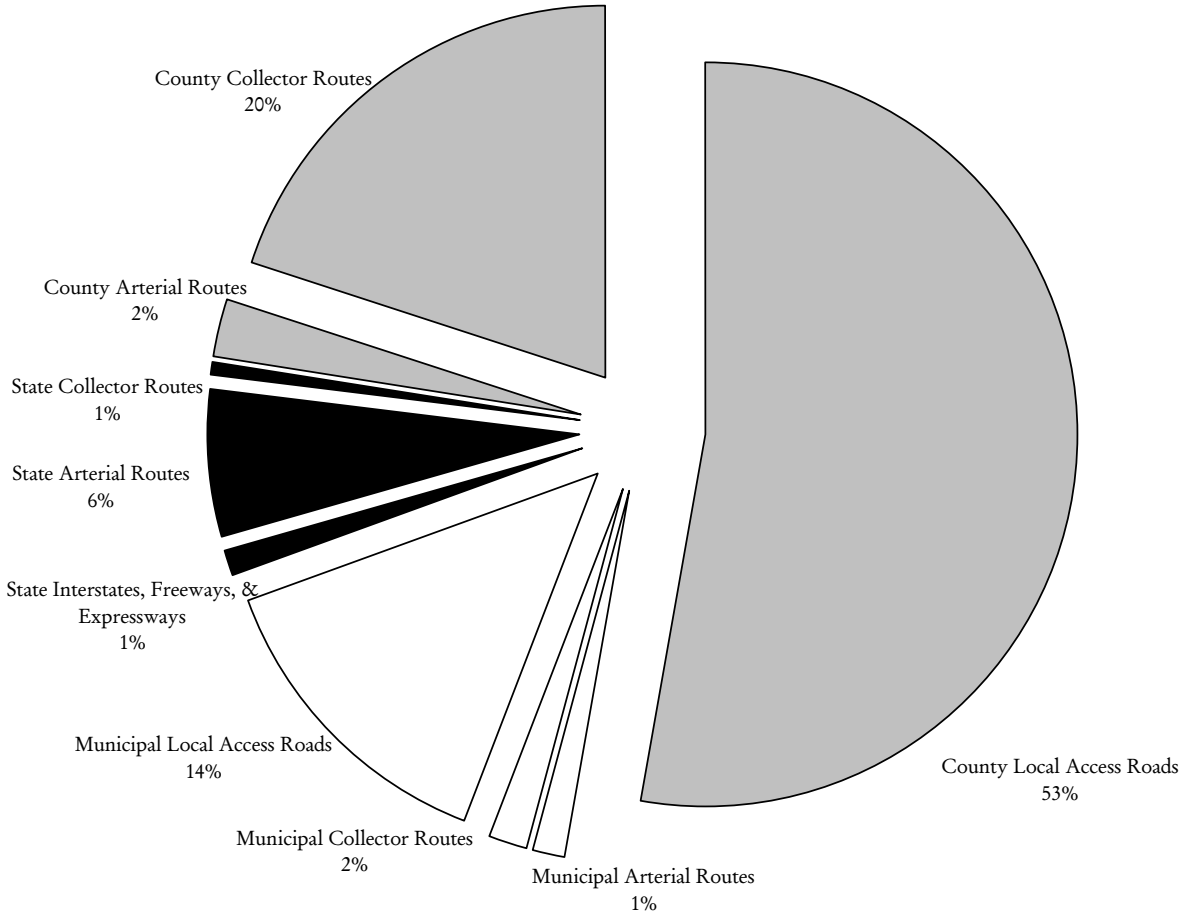
Chart 6 brings together **Chart 4 -- Michigan Highway System Characteristics by Functional Classification**, and **Chart 5 -- Michigan Highway System Characteristics by Jurisdictional Control**. In the past, the relationship of functional classification to jurisdictional control was determined by the role that the roads served in serving traffic flow and property access. Those roads that primarily served traffic flow -- interstates, freeways, expressways, and some arterial routes -- were thought to be best served under state jurisdiction. Roads that serve traffic flow and provide some access to local properties -- arterial and collector routes -- were thought to be best served under the jurisdiction of a regional unit of government. Streets serving only as access to residential, industrial, or commercial properties which are not on major roads, were thought to be best served under the jurisdiction of the most local unit of government.

This relationship between functional classification and jurisdictional control was important for the construction and maintenance, financing, and priority setting in highway spending. It served to meet the needs of the different highway classifications and the needs of the highway users. As the factors that affect func-tional classification are constantly changing, jurisdictional control should be constantly evolving to reflect these changes.

1. Jurisdictional Control by Functional Classification

In Michigan, the state trunkline system consists of all of the interstates, freeways and expressways (15.2 percent), most of the arterial routes (78.1 percent), and a few collector routes (6.6 percent) and local access roads (0.2 percent).

Chart 6
Jurisdictional Control of Michigan Highway Mileage by Functional Classification -- 1994



Source: Federal Highway Administration, 1994 Highway Statistics, (Washington, D.C.: Government Printing Office, 1995).

The county road system is composed of arterial routes (3.3 percent), collector routes (26.5 percent), and a majority of the local access roads (70.2 percent).

Municipalities have jurisdiction over arterial routes (8.7 percent), collector routes (9.5 percent), and a great deal of the local streets (81.8 percent).

2. Functional Classification by Jurisdictional Control

The state trunkline system is completely under the jurisdiction of the state.

Arterial routes are controlled by the state (61.9 percent); county road commissions (24.0 percent); and municipalities (14.1 percent).

Collector routes are controlled by county road commissions (90.3 percent); municipalities (7.2 percent); and the state (2.4 percent).

Because most of Michigan is considered rural and county road commissions have jurisdiction over local access roads in townships, 79.4 percent of these roads are under county road commission jurisdiction. Another 20.6 percent of these roads are within municipal boundaries. The 15 miles of state controlled local access roads equal 0.02 percent of the entire system. For the most part, the organization of the highway system in this way is based on the highway organization resulting from the McNitt Act, enacted 66 years ago.

II. Revenue Issues

The prospect of increasing revenues for highways raises at least five questions:

(1) What level of government should be responsible for raising additional highway revenues?

(2) What tax sources should be used to raise additional highway revenues, and what tax sources should be available to the different levels of government?

(3) How should any additional tax burden be spread among different classes of taxpayers?

(4) How will increased tax rates affect Michigan's competitiveness relative to other states?

(5) If it is decided to raise revenues primarily from state-levied highway-user taxes, how should the revenues be allocated for use by local governments?

A. Appropriate Funding Among Levels of Government

Because highway construction and maintenance is a state, county, and municipal government program, highway revenues are raised from several different sources at all levels of government. There are two philosophical views on the appropriate means of funding highways. The first view holds that the highway system serves motor-vehicle operators. Highway users derive most of the benefits from the highway system. As such, it is appropriate to expect that the funding necessary to facilitate highway construction and maintenance should come from highway users.

The opposing view is that a strong highway system provides social and economic benefits to the region and state. Given this view, non-highway-user taxes are as appropriate as highway-user taxes for funding highways. A comparison of these approaches illustrates their differences and their appropriateness for state and local governments.

1. Highway-User Taxes

The state trunkline system, serving long-distance travel between population centers, may be viewed as a public utility, similar to electricity or natural gas. Because of the infrastructure costs involved, there is no competition in the form of a parallel highway system. Leaving the trunkline system to travel on alternative routes is possible, but tends to be less efficient. Like public utility customers, everyone is expected to pay in some proportion to the use of the system. While those other than direct highway users benefit from the availability of goods brought to local markets on the highway system, the cost of using the highway system is reflected in the final market price of these goods. As a result, highway-user taxes are the appropriate funding mechanism. Although highway-user taxes do not precisely reflect highway use, they unobtrusively approximate usage better than most other taxes.

2. Non-Highway-User Taxes

The opposing point of view sees highways as a local government service, comparable to police, fire, or sewage. While road systems serve road users, everyone benefits from their provision. Not only do they provide access to properties, roads provide a means for commerce and access to the state highway system.

Public roads also provide public benefits. They enable the provision of government functions, such as police and fire protection, public schools, and other general services, which benefit all communities. Local roads are often used for non-transportation purposes, such as leisure walks, playing street hockey, and providing additional parking to residential property owners. Urban streets often include street lighting, which provides a secondary benefit in the forms of safety and crime prevention. All of these social benefits would suggest that non-highway-user taxes are as appropriate as highway-user taxes.

3. The Michigan Highway Funding System

Funding of the Michigan highway system falls somewhere between these two extremes. The immediate highway user experiences primary benefits, and society, as a whole, experiences secondary benefits from highway provision. Thus, it is appropriate that Michigan relies on a combination of highway-user taxes and non-highway-user taxes, such as property taxes, to fund county and municipal roads.

By definition, functional classification reflects the degree to which each road serves traffic flow or provides access to property. Thus, it is reasonable to expect the roads facilitating traffic flow, those most resembling public utilities, should be funded by highway-user taxes. It also is reasonable that roads providing property access could be funded by other tax source, because they provide the greatest degree of social benefits.

B. Highway-User Tax Revenue Options

While Michigan levies other minor highway-user taxes, motor-fuel taxes and motor-vehicle weight and ad valorem taxes are the primary revenue sources for highways.

1. Motor-Fuel Taxes

Motor-fuel taxes include the gas tax, diesel-fuel tax, and liquid petroleum fuel tax. These taxes are payable by the wholesale fuel distributors. The cost of the tax is passed on to retailers, who in turn pass it on to consumers as part of the cost per gallon of fuel. Tax revenues are deposited in the Michigan Transportation Fund, the primary receiving fund for the tax revenues dedicated to highway funding purposes.

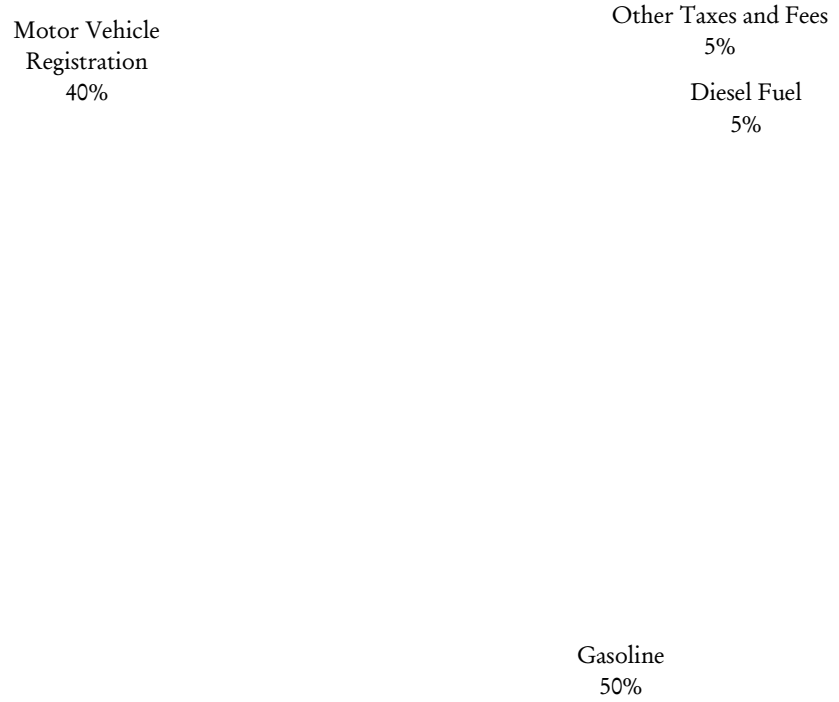
The gas tax is the most significant of the motor-fuel taxes, and the largest revenue source to the Michigan Transportation Fund (See **Chart 7**). The rates of the diesel-fuel and liquid petroleum fuel taxes are based on the gas tax rate. Every one cent per gallon of motor-fuel tax produces about $45 million in state revenues.

a) Interstate Comparison of Motor-Fuel Tax Rates.

There are two ways of comparing the Michigan motor-fuel tax rate to tax rates in other states. Motor fuel consumers are concerned with the total addition to the price of the fuel that is caused by taxes. From the consumer's perspective, any comparisons must reflect the fact that motor fuel sales are included in the base of the sales tax in Michigan. This tax rate, which currently adds six to ten cents to fuel prices, places Michigan eighth among the 15 comparison states and 23rd in the nation (See **Chart 8**).

On the other hand, governmental providers of transportation services are concerned with tax revenues

Chart 7
Major Transportation Revenue Sources in Michigan: FY1996



Source: Michigan Department of Management and Budget.

that actually contribute to highways. The sales tax revenues yielded from motor-fuel sales are used for school aid, unrestricted state revenue sharing, and general fund purposes, with only a minor proportion used for comprehensive transportation purposes. This leaves only the motor-fuel tax, levied at 15 cents per gallon, as a revenue source for highway funding. On this basis, Michigan is tied for 12th among the 15 comparison states and tied for the 44th among the 50 states (See **Chart 8**).

Michigan, like many other states, levies the same tax rate on diesel fuel as is levied on gasoline. Another common practice is to tax diesel fuel at a higher rate than gasoline: 16 states in the nation levy a higher tax rate on diesel fuel than gasoline. Several states levy add-on taxes on motor carrier diesel fuel, including Illinois, Indiana, Kentucky, New York, Ohio, and Pennsylvania among the 15 comparison states. While the Michigan diesel fuel tax rate is 15 cents per gallon, the "Effective Tax Rate" in **Chart 9** is calculated using the Motor Carrier Fuel Tax explained later in this paper, which gives Michigan a 21 cent per gallon tax rate. The 15 cent per gallon tax rate levied as the diesel fuel tax or on in-state fuel purchases taxed under the Motor Carrier Fuel Tax is 11th among the 15 comparison states and is tied for 42nd among the 50 states. The 21 cent per gallon tax rate levied as the effective tax rate, including the sales tax, or on fuel taxed under the Motor Carrier Fuel Tax that is purchased in another state is 10th among the 15 comparison states and is tied for 20th among the 50 states.

b) Motor-Fuel Tax Issues.

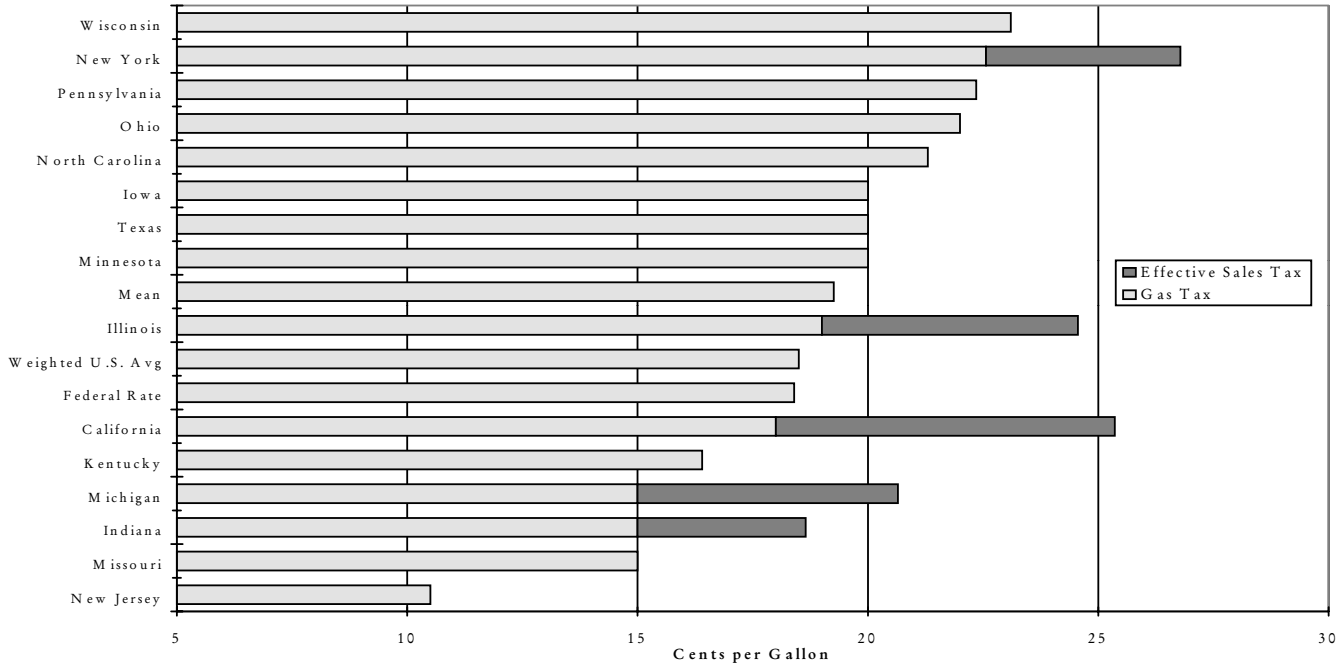
Four issues are of concern relative to motor-fuel taxes:

1. The evaporation allowance provided to fuel wholesalers and retailers,
2. The provision of credits and exemptions to certain classes of motor-fuel purchasers,
3. The levy of the sales tax on automotive-related purchases, and
4. The Motor Carrier Fuel Tax.

1) Evaporation Allowance.

Not all fuel inventoried in wholesale distributors' tanks is ultimately used to propel motor vehicles. Because of motor fuel's propensity to expand or contract with temperature variations and to evaporate, there

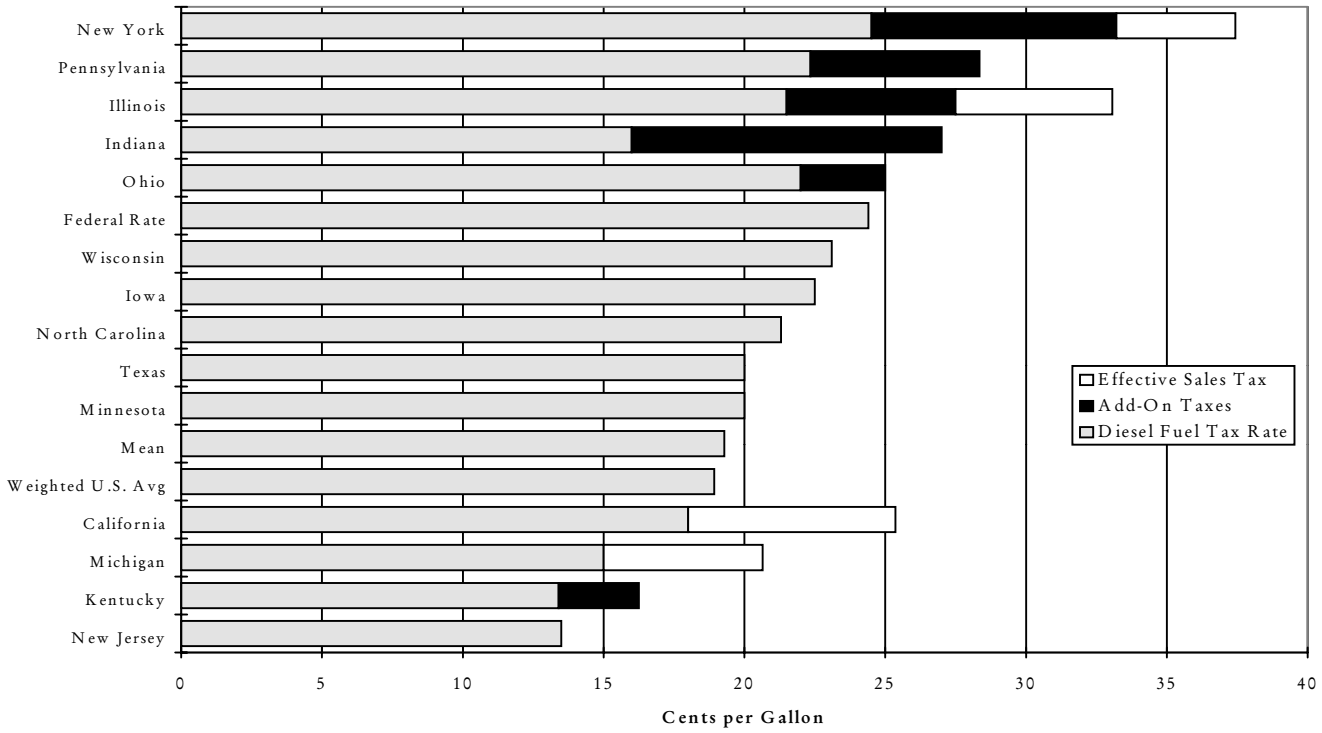
Chart 8
Effective Gas Tax Rates in Michigan and Comparison States -- 1996



"Effective Sales Tax" converts a sales tax rate (percentage) into "cents per gallon" based on an assumed price of fuel.

Source: Senate Fiscal Agency.

Chart 9
Effective Diesel Fuel Tax Rates in Michigan and Comparison States -- 1996



"Effective Sales Tax" converts a sales tax rate (percentage) into "cents per gallon" based on an assumed price of fuel.

Source: Associated Petroleum Industries of Michigan.

was a need to compensate wholesalers and retailers under older methods of storing and transporting motor fuels. Therefore, each wholesale distributor, in computing the tax due to the state, can claim a deduction of two percent of the gasoline received to allow for evaporation. Fuel wholesalers receive two-thirds of the value of this allowance, with retailers receiving the other third. MDOT estimates the loss to the treasury at about $15.9 million due to this allowance.

There is little need for this allowance given its original purpose. When this allowance was crafted, motor fuel was typically loaded and unloaded into and out of tank trucks. Today, most fuel moves through pipelines.

Motor-fuel distributors see this provision as necessary for several different reasons. The petroleum industry argues that this allowance provides compensation for administrative efforts in collecting motor-fuel taxes on behalf of the state and it provides compensation for "uncollectible" prepaid taxes. For example, some gas stations experience "drive offs," which occur when the consumer does not pay for the fuel. Because the tax is paid to the state by distributors before it is shipped to retailers, the distributors and retailers, not the state, lose revenues when taxes are not paid.

If the purpose of this allowance has changed, the name and calculation of the tax should change accordingly. If the state is to reimburse motor-fuel distributors for these claimed expenses, the Motor-Fuel Tax Act should be amended to clearly define these purposes. There should be strong correlation between the costs associated with an activity, administering motor fuel tax collections, and the credits given for that activity.

2) Credits and Exemptions.

The aim of this tax is to tax for the privilege of using of the public highways. But some fuel is purchased for reasons other than consumption on the public highways. This issue is complicated by the fact that motor-fuel taxes are collected from distributors, rather than at the point of final purchase. Since it is not possible to differentiate among the various users of fuel at the point of tax collection, exceptions permit anyone purchasing motor fuel for purposes other

than the operation of motor vehicles on public roads to receive tax credits. Through a certification process, farmers, lumberjacks, and construction companies are excluded from paying motor-fuel taxes for non highway use.

Government vehicles are exempt from paying motor-fuel taxes. Requiring government vehicles to pay motor fuel taxes would simply be a transfer of government funds among agencies or levels of government. However, it should be noted that school buses and garbage trucks are among the heaviest vehicles that drive on many local access roads.

3) Sales Tax Collections on Automotive-Related Sales.

Michigan is one of a few states that levies a sales tax on motor fuels. In Michigan, state and federal motor-fuel taxes form part of the sales tax base.

Transportation officials argue that while the sales tax is levied on automobile-related sales, only a small proportion of these tax revenues is used for transportation purposes. They argue that because sales taxes are levied on motor fuel sales, the state is precluded from levying additional motor-fuel taxes if competitiveness with surrounding states is to be maintained.

(a) How Are Sales Tax Revenues Used?

In Michigan, sales tax revenues are the primary funding source for the state School Aid Fund, the sole funding source for unrestricted state revenue sharing, as well as a significant contributor to the General Fund and the Comprehensive Transportation Fund. In 1978, Article IX, Section 9, of the Michigan Constitution was amended by the voters to limit the amount of sales tax revenues that could be used for comprehensive transportation purposes. Currently, the Comprehensive Transportation Fund receives "not less than" 27.9 percent of the revenues from automotive-related sales not used for school aid or state revenue sharing, including the sale of motor fuels, automobiles, and automotive parts. These funds are used for "the planning and development" of public transportation systems in the state (Public Act 440 of 1982). In FY1995, this was equal to $55.0 million.

(b) Interstate Comparisons of Sales Tax Levies.

Sales taxes are levied by 45 state governments in the nation (and by only local governments in Alaska). They are levied on the sale of motor fuel in 32 of these states. In 21 states, the sales tax is collected only if the fuel is not subject to motor fuel taxes, including Iowa, Kentucky, Minnesota, Ohio, Pennsylvania, Texas, and Wisconsin among the comparison states. Gasoline is exempt in Arkansas, but other motor fuels are taxed. South Carolina and Tennessee levy the tax only on aviation fuel. That leaves eight of the 32 states that levy sales taxes on a regular basis on motor fuel. California, Georgia, New York, and Virginia, among the comparison states, all levy the tax, like Michigan, on the sale price which includes federal and state motor-fuel taxes. Hawaii, Illinois, and Indiana, among the comparison states, levy the tax on the sales price excluding federal and state motor-fuel taxes.

All 45 states levy a sales tax, or a tax in lieu of the sales tax, on motor vehicle purchases and motor vehicle-related parts and supplies. As is the case for the sales tax rate in general, the six percent sales tax rate levied on automobile-related sales in Michigan is about average relative to the several comparison states. A few states have local sales taxes that are levied on automobile-related sales (See **Table 2**).

(c) Exempting Motor Fuel Sales from the Sales Tax Base.

The levy of a six percent tax on the sale of 5.3 billion gallons of fuel taxed at the statewide average retail price of $1.13 in 1995 yielded about $360 million. Exempting motor fuel sales from the base of the sales tax would require an alternate funding source for each of the functions to which sales tax revenues are dedicated.

Beyond the financial issues relative to exempting motor fuels from the sales tax base, there are policy issues. What kind of precedent would be set by exempting the sale of such a commonly purchased item from the sales tax base? Food and drugs were exempted from the sales tax base in 1974 to deal with issues of equity and fairness. Could the same arguments be made in this case? Are there societal gains associated with exempting motor fuel from the tax base?

There is little reason for treating motor fuels differently than other motor vehicle-related sales for purposes of taxation. The sales tax is levied on the retail sale of tangible items in Michigan. Other fluids necessary for the operation of a motor vehicle -- motor oil,

Table 2
Sales Tax Levies on Motor Vehicle-Related Purchases

	State Tax on Motor Fuels	Sales Tax on Purchases	
		State	Local
California	6.00% [B]	7.25%-8.5%	1.25-2.25%
Illinois	6.25% [C]	6.25%	0.25-1.00%
Indiana	5.00% [C]	5.00%	No Tax
Iowa	[A]	5.00%	Tax May Apply
Kentucky	[A]	6.00%	Tax May Apply
Michigan	**6.00%** [B]	**6.00%**	**No Tax**
Minnesota	[A]	Excise Tax in lieu of sales tax	Tax May Apply
Missouri	---	4.225%	Combined city and county 0.375-3.00%
New Jersey	---	7.00%	No Tax
New York	4.00% [B]	4.00%	Counties and Cities 0-4.50%
North Carolina	---	Highway Use Tax in lieu of sales tax	
Ohio	[A]	5.00%	County 0.25-2.00%
Pennsylvania	[A]	6.00%	1.00% Philadelphia
Texas	[A]	6.25%	6.00%
Wisconsin	[A]	5.00%	County 0.50%

[A] -- Applies to fuel uses not taxable under the volume tax laws, such as farmers or construction companies. Levied at a rate of 5% in Iowa, Ohio, and Wisconsin, 6% in Kentucky, Minnesota, and Pennsylvania, and 6.25% in Texas.

[B] -- Applies to sales price including federal volume tax.

[C] -- Applies to sales price excluding federal volume tax.

Source: Federal Highway Administration, 1994 Highway Statistics, (Washington, D.C.: Government Printing Office, 1995), and Advisory Commission on Intergovernmental Relations, Significant Features of Fiscal Federalism, Volume 1, (Washington, D.C., 1994).

brake fluid, anti-freeze, and transmission fluid -- are all subject to the sales tax. Motor fuel, because it is needed in great quantities to operate motor vehicles, is subject to both motor fuel taxes -- as a proxy for highway use -- and the sales tax.

An alternative to exempting motor fuels from the sales tax base is to dedicate resulting revenues to transportation. Either revenues from the taxation of automotive related sales could be completely earmarked for transportation purposes, or these sales could be exempted from the general sales tax and a new tax could be levied on these sales. This would would introduce a blend of different factors, price and the number of gallons consumed, to the determination of tax revenues. This could protect tax revenues from reduced consumption caused by increased prices As can be seen in **Chart 13** on page 26, an ad valorem motor-fuel tax would be more volatile than the current consumption based tax.

Georgia has some experience in relying on both consumption-based and ad valorem motor fuel taxes. In the late 1970s, the Georgia courts ruled that because the state sales tax was levied on motor fuel, the state's constitution required these revenues to be used only for transportation. Revenue from the ad valorem, three percent sales tax on motor fuel is added to the 7.5 cent per gallon consumption-based motor-fuel tax. Both tax rates have not changed since 1971.

Because large portions of the sales tax revenues are

constitutionally dedicated, a vote of the people is required to amend the Constitution to allow sales tax revenue levied on motor fuels to be used solely for transportation purposes.

4) Motor Carrier Fuel Tax.

In 1980, the Motor Carrier Fuel Tax was enacted to provide a substitute means of taxing diesel fuel. At that time, Michigan had a relatively high diesel-fuel tax rate and an additional four percent sales tax was levied on motor-fuel sales. Michigan truck-stop operators and diesel-fuel distributors felt that they were uncompetitive with surrounding states. Motor carriers were able to avoid Michigan or were able to fill their tanks before entering Michigan and travel into and out of the state without buying fuel. A discount was established to encourage the purchase of motor fuel in Michigan, thus benefiting truck-stop operators and diesel-fuel distributors and increasing purchases taxable under the Michigan sales tax.

Table 3
Diesel Fuel Tax Rate in Michigan and Surrounding States
Cents per Gallon

State	1980	1997
Illinois	7.5	21.5
Indiana	8.5	16.0
Michigan	**11.0**	**21.0**
Ohio	7.0	22.0
Wisconsin	9.0	23.7

Source: Senate Fiscal Agency.

(a) Motor Carrier Fuel Tax Rate.

In contrast to motor-fuel taxes charged for every gallon of fuel purchased in Michigan, motor carrier fuel taxes are paid for every mile a motor carrier operates on Michigan highways. This tax provides a credit for taxes paid on diesel fuel purchased within the state but used for operation on another state's highways. Additional taxes may be due for miles traveled on Michigan highways using fuel purchased in another state.

The motor carrier fuel tax rate, as amended by Public Act 584 of 1996, is 21 cents per gallon. This tax affords motor carriers a 6 cent per gallon credit against the motor carrier fuel tax for each gallon of fuel purchased in Michigan. This credit offsets the 6 percent sales tax paid when purchasing diesel fuel in Michigan. The net effect is that motor carriers purchasing diesel fuel in other states, but driving in Michigan, pay the 21 cent tax for miles traveled in Michigan. And motor carriers purchasing fuel in Michigan pay an equal 21 cent tax comprised of a 15-cent per gallon diesel fuel tax (21 cents minus 6-cent credit) and approximately 6 cents per gallon in sales tax. Until it was amended in 1996, the Motor Carrier Fuel Tax required motor carriers to purchase a decal that permitted receipt of the diesel discount. Act 584 eliminated these decals.

(b) Revenue Issues.

In 1996, Michigan joined the International Fuel Tax Agreement (IFTA), a prorationing agreement that allows states to benefit from commercial vehicles driving into their state even though fuel was not purchased in that state. Reciprocity and prorationing agreements allow states to apportion fuel tax and registration fee revenues to participating states in proportion to the total miles traveled in that state.

Membership in IFTA reduces the need for a Motor Carrier Fuel Tax separate from the diesel-fuel tax. Because motor carriers pay fuel taxes to each state according to the distance traveled in that state, Michigan receives revenues for operation in the state regardless of the location that the fuel was purchase. The Motor Carrier Fuel Tax was conceived prior to membership in IFTA, when there were financial incentives for motor carriers to purchase fuel in some states. These incentives no longer exist relative to motor fuel taxes.

However, some feel the Motor Carrier Fuel Tax is still necessary to protect sales tax revenues. Since most other states do not levy a sales tax on motor fuel, levying the sales tax artificially increases the price of fuel in Michigan in a way not common to most other states. The Motor Carrier Fuel Tax, with a credit to offset the cost of the sales tax when fuel is purchased in Michigan, negates any extra costs to encourage the in-state purchase of fuel. As a result, tax revenues resulting from the purchase of diesel fuel are deposited into the School Aid Fund and General Fund rather than the Michigan Transportation Fund.

2. Motor-Vehicle Weight and Ad Valorem Taxes

Motor-vehicle weight and ad valorem (price-based) taxes are the second largest source of state highway-

user tax revenue in Michigan. When the first Michigan motor-vehicle weight tax was enacted -- a $2-per-automobile license plate fee in 1905 -- it was designed to cover only the costs incidental to registration and protection of motor vehicle titles. In the 1920s, the state increased these tax rates to provide revenues for highway construction and maintenance. Weight tax rates have been increased many times since the 1920s, always at rates that have provided revenues above the level needed to cover administrative costs.

a) Automotive Registration Fees.

Until 1983, automobile registration fees were based on the weight and age of the vehicle. These fees were determined using a schedule of fees that required occasional revision to reflect inflation, changing funding needs, and automobile market changes. Automobile registration fees were not a high growth item prior to 1983 (See **Chart 11** on page 24).

Public Act 439 of 1982 changed the basis for collecting automobile registration fees from weight-based to price-based. Individual owners of motor vehicles built since 1984 pay an initial registration fee of 0.5 percent of the list price of the vehicle (the base sticker price) for the first registration, with a minimum fee of $30. The fees decrease by 10 percent for each of the next three years and then remain constant.

Registration fee amounts for owners of used automobiles depend on the model year of the vehicle. Registration fees on automobiles of model years prior to 1984 continue to be based on weight. Registration fees on automobiles of model years 1984 or later are price- and age-based.

Changing registration fees from a weight-based system to a price-based system fairly effectively protects the state from the erosion of revenues experienced as cars became lighter. As the price of automobiles increases, revenues increase to keep pace with inflation.

Because they are based on the vehicle price, motor vehicle ad valorem tax revenues depend on the number of vehicle registrations, the age of the autos, and the price of the vehicles. In 1995, the state collected over $337.4 million from the registration of the 6.0 million passenger vehicles. These revenues are credited to the Michigan Transportation Fund.

b) Truck Registration Fees.

The level of truck fees is a contentious matter in Michigan and nationwide. Critics argue that, in a tax system designed as a measure of the use and wear caused by individual users, trucks are not paying their fair share in transportation taxes relative to the usage and benefits received. Motor carriers argue that the total tax burden should be considered, rather than considering only highway-user taxes, since motor carriers pay business taxes in addition to highway-user taxes. However, it is only the highway-user taxes that affect the ability of the state and local governments to construct and maintain the highway system. Commercial motor carriers in Michigan pay a number of fees to this end: a registration fee; a fee accompanying the permit to receive a diesel fuel discount; and a fee accompanying the permit to operate in Michigan.

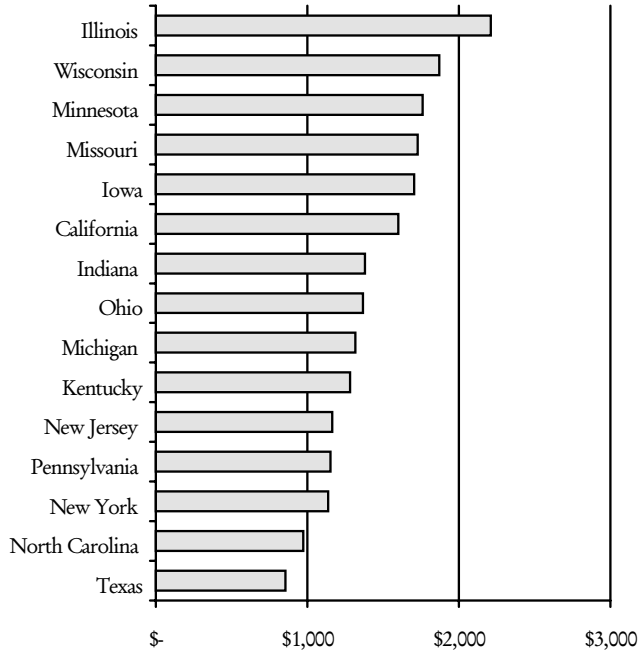
Critics also argue that trucks are not taxed in proportion to the damage they cause to the road and bridge surfaces. Cost-allocation studies, which try to ascribe proportions of costs for road and bridge repair to various classes of vehicles, have found that the average fully loaded truck does as much damage to the road surface as about 9,600 cars.[4] Axle weights, the key determinant of how much stress and deterioration a vehicle imposes upon road pavement, range from 12,000 to 17,000 pounds for the average 80,000 pound truck and from 13,000 to 18,000 pounds for a 154,000 pound truck. Since taxes levied in proportion to the damage caused would not be politically feasible, other highway users subsidize highway use for trucks.

2) Motor-Carrier Sizes, Taxes, and Fees.

The size limits for trucks are similar among most states. Each of the comparison states permits a maximum truck width of 102 inches. A maximum height of 13 feet six inches is permitted in each state except California and Missouri, which allow a maximum height of 14 feet. The common length allowed, with some exceptions, is 40 feet for straight trucks and 53 feet for semi-trailers. Finally, the maximum gross ve-

[4] Statistic based on the AASHTO Road Test at Ottawa, Illinois. Cited in Our Highways: Why Do They Wear Out? Who Pays For Their Upkeep?, American Association of State Highway and Transportation Officials, (Washington, D.C., 1984).

Chart 10
Annual Registration and Weight Taxes on an 80,000 Pound, Five-Axle Tractor-Semi-Trailer



Source: American Trucking Association.

hicle weight allowed without special permits is 80,000 pounds in every state except Michigan, which allows a maximum gross vehicle weight of 164,000 pounds.

While registration fees for trucks in every state are based on the weight of the truck, different weight systems are used. Michigan is one of 40 states that base registration fees on the "gross vehicle weight" of the vehicle. The other comparison states that use some form of gross vehicle weight include Indiana, Illinois, Missouri, New Jersey, New York, North Carolina, Pennsylvania, Texas, and Wisconsin. Minnesota is one of three states that base registration fees on a combination of the gross vehicle weight and age. California, Ohio, and four other states base registration fees on the "empty weight" of the vehicle.

According to the American Trucking Association, truck registration and weight taxes in Michigan are low relative to the comparison states (See **Chart 10**). Michigan does not collect weight-distance taxes, gross receipt taxes, certificate of convenience fees, or any form of property taxes on the trucks. Additionally, revenues collected from state diesel fuel taxes, local motor fuel taxes, or taxes added on as a percent of diesel fuel sales are relatively low in Michigan. Registration and weight taxes on an 80,000-pound vehicle in Michigan were the 9th highest among the 15 states and 23rd highest among all 50 states.

3) Reciprocity and Prorationing.

In 1985, Michigan entered into the International Registration Plan. This agreement allows vehicles permitted to operate in one state to operate in another without purchasing additional permits or licenses. It also allows states to share registration fee revenues based on the miles operated in each state. This agreement is designed to promote commerce and interstate trade by lessening the financial and administrative burdens placed on interstate motor carriers. In the absence of this agreement, motor-carrier operators would be required to obtain a full-year license or, in the case of states such as Michigan, one-week permits for each state in which they operate. Given the cost of these licenses or permits, many motor-carrier operators might choose not to report their operations in states outside their residence. States benefit from reduced administrative costs associated with registration fees and from increased compliance by motor carriers in reporting operations between states, both resulting in an increase to net revenues. Membership in this agreement has resulted in increased revenues relative to the period prior to membership.

4) Truck Revenues.

In 1995, $197.7 million was collected from commercial plate, trailer plate, and International Registration Plan Plate fees on 1.6 million commercial trucks and almost one million trailers. These funds were deposited into the Michigan Transportation Fund.

3. Other Highway-User Revenue Sources

State taxes on highway users also include certificate of title fees, license fees, and taxes levied in lieu of common highway-user taxes in other states.

a) Certification of Title.

Public Act 300 of 1949, as amended by Public Act 492 of 1978, established a $10.50 certificate of title fee. The Michigan Transportation Fund is credited with $10.00 of this fee and $0.50 is credited to the Scrap Tire Regulatory Fund. In 1995, over $36.6 million was received from fees accompanying the issuance of

1.4 million certificates of title and the processing of 1.7 million title transfers.

b) License Fees.

The fees that accompany a driver's license application are set by Public Act 300 of 1949, as amended by Public Act 232 of 1987, as follows:

$12 -- for a four-year operator's license,
$20 -- for a four-year chauffeur's license, and
$5 -- for a four-year restricted minor's license.

In 1995, the issuance or renewal of almost 2.3 million licenses of various classes produced fee revenues totaling over $40.4 million. Only the proportion of the driver's license fee revenues credited to the Transportation Economic Development Fund are actually used for highway funding purposes.

c) Interstate Comparison of Other Taxes and Fees.

Table 4 provides an interstate comparison of registration fees, certificate of title fees, operator's license fees, property taxes, and other fees.

The method of levying motor-vehicle registration fees varies from state to state. Most states levy a flat fee. Nine states, including New Jersey and Texas among the comparison states, base the registration fee on the weight of the vehicle. Finally, Michigan, like Louisiana and Minnesota, bases the fee on the value and age of the vehicle.

Several states levy property taxes on the value of the mo-

Table 4
Automobile Taxes and Fees -- 1994

State	Registration Fees	Other Fees	Certificate of Title	Operator's License	Property Tax
California	$27.00	Annual license fee, 2% of market value	$10.00	$12.00 (4 yrs.)	License fee in lieu of property tax
Illinois	$48.00	---	$13.00	$10.00 (4 yrs.)	Exempt
Indiana	$13.00	Annual vehicle excise tax Annual county surtax	$5.00	$6.00 (4 yrs.)	Excise tax in lieu of property tax
Iowa	$20.00	---	$10.00	$8.00 (2 yrs.)	Exempt
Kentucky	$12.00	$2 clerks fee for registration	$6.00	$8.00 (4 yrs.)	State and local
Michigan	**price based**	**---**	**$11.00**	**$12.00 (4 yrs.)**	**Exempt**
Minnesota	$10+1.25% of base value	---	$2.00	$22.50 (4 yrs.)	Exempt
Missouri	$18.00-$51.00	---	$8.50	$7.50 (3 yrs.)	Local
New Jersey	$16.50-$53.50 by weight and age	Temporary additional registration fee	$5.00	$17.50 (4 yrs.)	Exempt
New York	86 cents per 100 lbs. up to 3,500; $1.25 per each additional 100 lbs.	$15 additional for New York City Residents	$5.00	$10.00 (4 yrs.)	Exempt
North Carolina	$20.00	Annual highway use tax	$35.00	$15.00 (4 yrs.)	No tax
Ohio	$22.75	---	$5.00	$9.75 (4 yrs.)	No tax
Pennsylvania	$24.00	---	$15.00	$27.00 (4 yrs.)	Exempt
Texas	$40.50-$58.50 by weight and age	$0.30 reflectorize fee	$13.00	$16.00 (4 yrs.)	Local
Wisconsin	$40.00	---	$12.50	$15.00 (4 yrs.)	Exempt

Source: Advisory Commission on Intergovernmental Relations, Significant Features of Fiscal Federalism, Volume 1, (Washington, D.C., 1994).

tor vehicle. Motor vehicle owners pay property taxes to the state government in three states, to the local governments in 12 states, including Missouri and Texas among the comparison state, and to both the state and local governments in four states, including Kentucky. Eight states, including California and Indiana, collect a fee or tax in lieu of the property tax. Motor vehicles are exempt from property taxes in 20 states, including Illinois, Iowa, Michigan, Minnesota, New Jersey, New York, Pennsylvania, and Wisconsin. The levy of these taxes does not guarantee that the revenues will be used for highway purposes.

Charging $10.50 for a certificate of title puts Michigan in line with the comparison states. These states range from a low of $2.00 in Minnesota to a high of $35.00 in North Carolina.

Additionally, the $12.00 fee for an operator's license in Michigan is about average compared to the other states. The fees in these states range from $6.00 in Indiana to $27.00 in Pennsylvania for a four-year license.

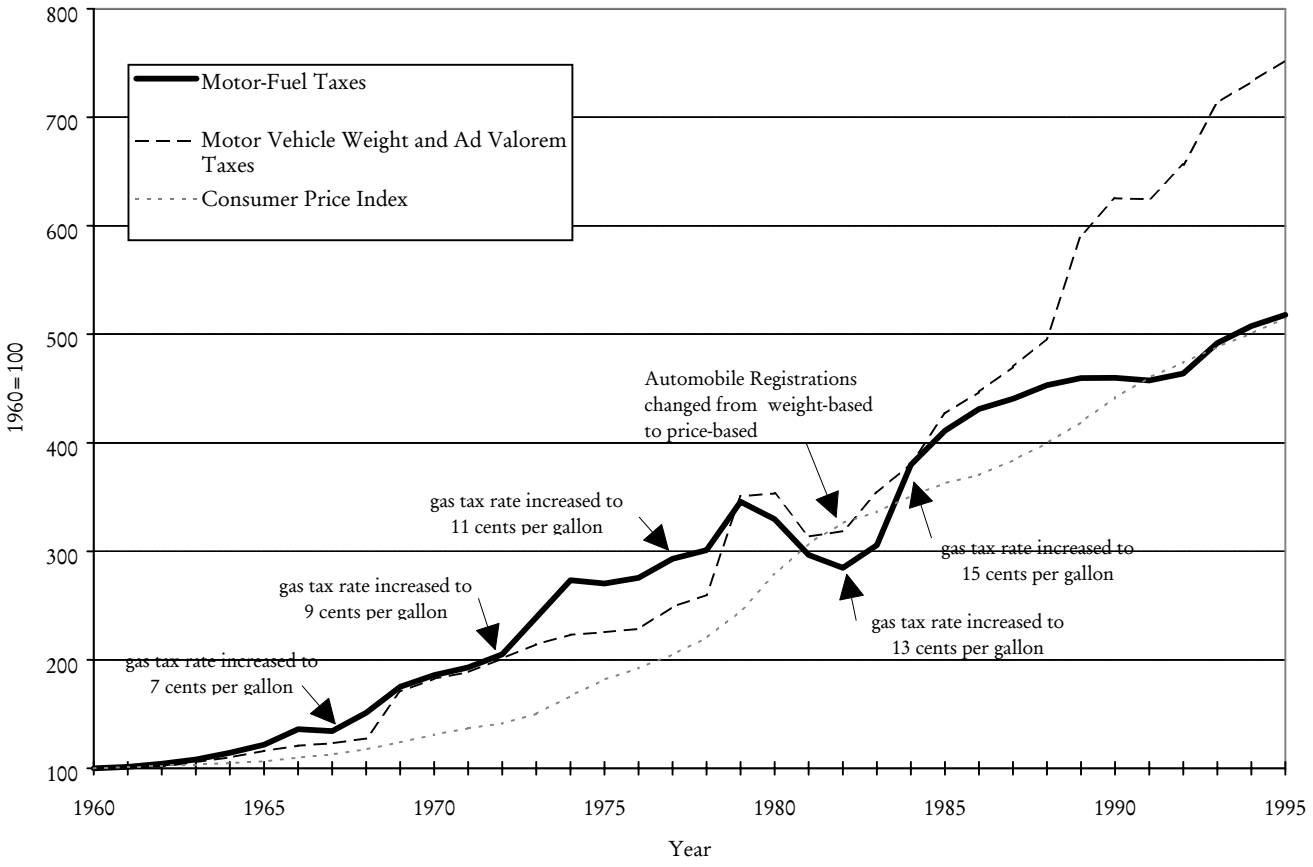
4. Highway-User Taxes as a Revenue Source

Highway-user taxes have proven to be a reliable source of revenues in Michigan. As a result of several tax rate increases and changing the base of automobile registration taxes, highway-user taxes have grown at or above the rate of inflation since 1960. Motor vehicle weight and ad valorem tax revenues have experienced greater growth than motor fuel tax revenues since the registration tax base was changed in 1982.

a) Automotive Registration Tax Revenues.

The last time action was taken to account for the lack of growth in highway-user tax revenues, efforts were made to allow the tax revenues to grow with changes

Chart 11
Index of Change in Michigan Highway-User Tax Revenues: 1960-95



Source: Annual Report of the State Treasurer, Michigan Department of Treasury, Annual and Public and Local Acts, Michigan Department of Management and Budget, Annual.

Figure 1
Highway Maintenance and Operations Cost (HMOC) Index in Michigan

$$\left(\left(\frac{\text{Gallonage 1980}}{\text{Latest Year Gallonage}}\right) \times \left(\frac{\text{Latest Year OMI}}{\text{OMI 1980}}\right)\right) \times 12 \text{ cents} = \text{Present Year Michigan Motor Fuel Tax Rate}$$

in the economy. **Chart 11** is an index of revenue growth for these taxes since 1960. This chart shows that motor-vehicle weight tax revenues, with several increases to the fee schedules, kept pace with inflation in the years prior to 1982. Since the tax base was changed, these revenues have experienced growth relative to inflation. At a time when automobiles were becoming lighter but more expensive, the change from a weight to a price-based tax maintained registration fee revenues without needing to resort to periodic increases in the fee schedule.

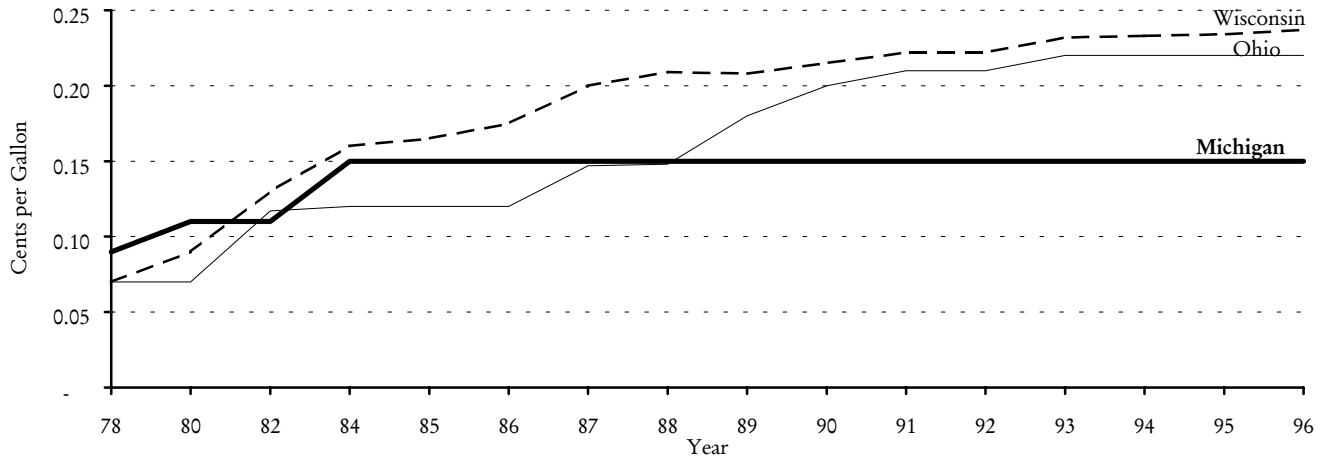
b) Motor-Fuel Tax Rate Indexing.

Because motor-fuel taxes are levied as cents per gallon, the tax yield is determined solely by consumption levels. Substantial price increases and improvements to fuel efficiency have resulted in reduced consumption levels over the years. As a result, occasional tax rate increases have been necessary (See **Chart 10**).

Instead of changing the tax base, as was done for automotive registration taxes, the motor-fuel tax rate was indexed in 1982 using the HMOC index. This index is the product of two indexes that calculate changes in maintenance prices and fuel consumption since the base year, 1980. One index calculates the changes in taxable fuel consumption (gallonage in **Figure 1**). The other index calculates the changes in maintenance costs using the national highway operations and maintenance index (OMI in **Figure 1**), which is based on the cost information in government highway maintenance and traffic service contracts. The product of these indexes is multiplied by the 12 cent base motor fuel tax. This index was constructed so that any decreases in the number of taxable gallons consumed or any increases in the cost of highway maintenance would increase the tax rate and avoid the erosion of motor fuel tax revenues.

However, the index was only permitted to affect the tax rate one time. Public Act 437 of 1982, the act that indexed the tax rate, also capped the tax at the rate effective December 31, 1984. The tax has remained at 15 cents per gallon since that time. If the cap had not been placed on the gas tax, the gas tax rate in 1996 would likely be about 19 cents per gallon, increasing state motor-fuel tax revenue by at least $180 million per year. Act 437 limited any tax rate increases to a

Chart 12
Comparison of State Motor Fuel Tax Rate Experiences With HMOC



Source: Advisory Commission on Intergovernmental Relations, Significant Features of Fiscal Federalism -- 1994, Volume 12, June 1994.

rate no more than "2 cents greater than the tax rate imposed for the previous 12-month period." Thus, simply removing the cap today would only increase the gas tax rate to 17 cents per gallon in the first year, increasing revenues by approximately $90 million.

The danger with an index automatically determining the gas tax rate, is the potential creation of a continuous upward cycle. The gas tax rate increases to affect the tax yield. The additional tax revenues are invested in increased construction, improvement, or maintenance. This increased investment creates a greater demand for the units of production, including labor, equipment, and supplies. Increased demand may increase the cost of obtaining them. If it does increase the cost, this would cause an increase in the index, which would cause the motor-fuel tax rates to increase. And the cycle continues indefinitely.

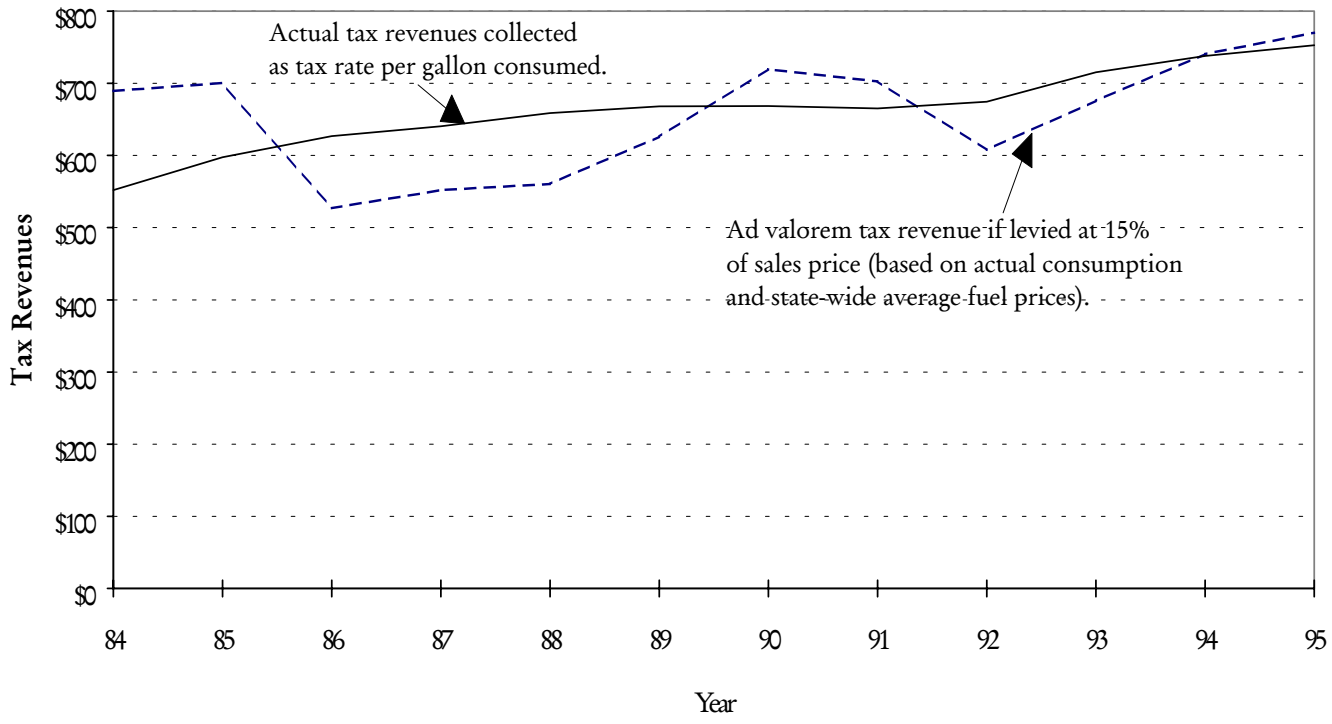
While it is possible to retrospectively estimate what the motor-fuel tax rate would have been had it not been capped, such an estimation is based on years of under investment in Michigan roads. Increased investment would affect the operations and maintenance index component, which measures the cost of the units of production. Because the HMOC index is not based on highway needs, an index such as this has great potential to end up costing the taxpayers more in the long run than would ultimately be necessary under ideal revenue raising conditions.

Ohio was the first state to use the federal highway maintenance and operations cost (HMOC) index to determine their motor-fuel tax rate. Michigan modeled its index after that used in Ohio. Wisconsin also adopted this formula. The motor-fuel tax rate in Ohio is currently 22 cents per gallon. The motor-fuel tax rate in Wisconsin is 23.4 cents per gallon. **Chart 12** illustrates the experience of motor-fuel tax rates in these two neighboring states. Other states have adopted different methods of indexing their tax rates.

c) Changing the Motor-Fuel Tax Base.

An often mentioned alternative to motor-fuel tax indexing is an ad valorem motor-fuel tax. The hope with such an alternative would be to emulate what

Chart 13
Motor Fuel Tax Revenues: Consumption Based v. Ad Valorem Taxation
(millions of dollars)



Source: Michigan Department of Transportation; CRC Calculations.

was successfully accomplished with the automotive registration taxes. An ad valorem tax would change the tax base so that increasing fuel prices would result in greater tax revenues.

As can be seen in **Chart 13**, the problem with ad valorem motor-fuel taxes is that the tax base also decreases with reduced fuel prices. Motor fuel prices have proven to be fairly volatile in recent years. This chart compares a hypothetical, 15 percent ad valorem tax to actual motor-fuel tax revenues from 1984 to 1995. While the total revenue yield of the ad valorem taxes would have been $85 million less than was actually collected, the real problems arise in year to year collections and the planning necessary in highway construction and maintenance.

5. Federal Funding

Funding through the Federal Highway Trust Fund is available to every state for construction, improvement, or enhancement projects. Receipt of these federal funds requires a matching amount from state or local revenue sources. In Michigan, about 75 percent of the federal funds received are used for state trunkline purposes and 25 percent is passed on to local governments. This allocation is statutorily determined.

a) The Diversion of Federal Motor Fuel Taxes.

In recent years, the federal government has regularly held large amounts of federally collected motor-fuel tax revenues as surplus in the Federal Highway Trust Fund. The federal government's unified budget is constructed in such a way that surplus trust funds, even though inaccessible for general spending, are considered to reduce the amount by which the budget is in deficit. As of September 30, 1995, over $19 billion collected for highway construction and maintenance was held in the trust fund to offset the federal budget deficit.

Additionally, the basis of funding highways through the benefit principle has been violated in recent years. This principle suggests that highway users should contribute to its enhancement, and the money collected from their use should be used only for highway purposes. The last two increases of the federal motor-fuel tax rate -- a temporary 2.5 cent per gallon levy in 1990 and the 4.3 cent per gallon increase in 1993 -- have been for deficit reduction. From 1990 to 1996,

Table 5

Michigan Contributions to, and Returns from Federal Highway Trust Fund and Contributions to Deficit Reduction
(millions of dollars)

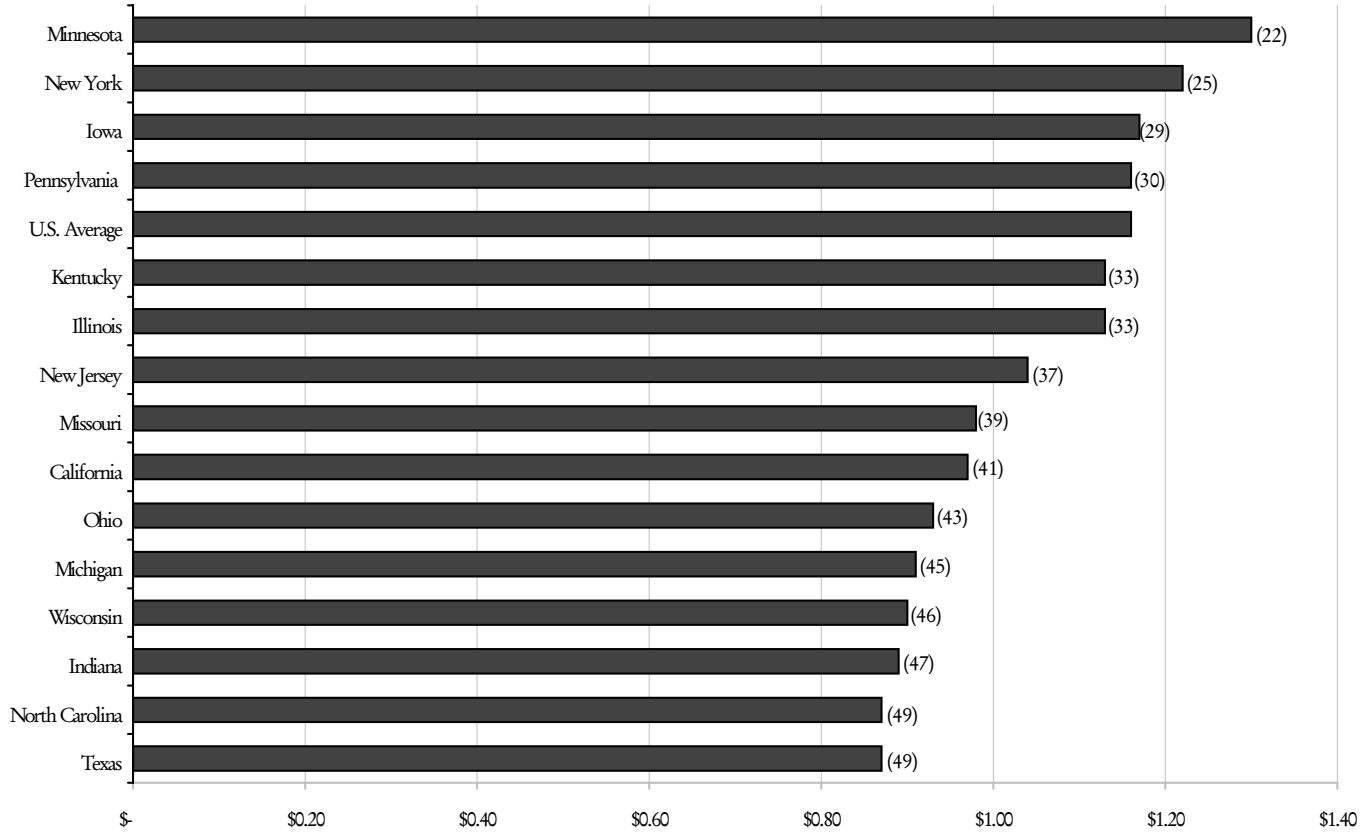
Fiscal Year	Payments to Highway & Transit Accounts	Returns	Net Loss or Gain	Tax Revenue Lost as Payments for Deficit Reduction	Net Diversion to Other States or Deficit Reduction
1990	$ 449.0	$ 376.7	($ 72.3)	($ 91.7)	($ 164.0)
1991	558.7	469.9	(88.8)	(117.4)	(206.2)
1992	562.2	563.7	1.6	(118.8)	(117.2)
1993	610.9	520.1	(90.8)	(122.8)	(213.6)
1994*	592.5	624.4	32.0	(359.8)	(327.8)
1995	766.7	724.1	(42.6)	(358.1)	(400.7)
1996**	760.2	569.1	(191.0)	(243.4)	(434.4)
Total***	$ 4,300.2	$ 3,848.0	($451.9)	($1,412.0)	($1,864.1)

In addition to funds lost, Michigan has approximately $200.4 million in highway funds being withheld because of congressional spending limits (as of October 1, 1996).

* Some 1994 payments to Michigan were credited to 1995.
** Authorizations were cut across the board.
*** Total may not add due to rounding.

Source: Michigan Department of Transportation.

Chart 14
Comparison of Federal Highway Trust Fund Receipts Attributable to the States and Federal-Aid Apportionments and Allocations to the States from 1957 to 1994 with National Ranking (in quotes)



Source: Federal Highway Administration, 1994 Highway Statistics, (Washington, D.C.: Government Printing Office, 1995).

fuel purchasers in Michigan paid over $1.4 billion in motor fuel taxes for deficit reduction.

b) Donor State Issue.

Since the Federal Highway Trust Fund was created in 1956, Michigan has received 91 cents of every dollar of federal tax paid into this fund. Fuel purchasers in Michigan have paid in 3.7 percent of all receipts, while Michigan state and local governments have received 2.9 percent of all apportionments or allocations.

As can be seen in **Chart 14**, the other leading industrial states and states in the Midwest also have not fared well in achieving a return on the dollars sent to Washington. Minnesota is the only state in the top 25 states in the national ranking of the ratio of receipts to apportionments and allocations. Several of the states surrounding Michigan have faired no better than Michigan over the life of the Federal Highway Trust Fund. Indiana has received 89 cents for every dollar paid into the trust fund; Wisconsin received 90 cents; and Ohio received 93 cents.

c) Research And Development.

The lack of Federal Highway Trust Fund dollars coming to Michigan also reflects the lack of research and development being undertaken within MDOT. Grants for research into intelligent vehicles, traffic flow solutions, cold-weather highways, and highway construction methods are going to other states. Research and development has become less of a priority. Other functions, such as the actual construction and maintenance of highways, were deemed more important.

C. Non-Highway-User Tax Revenue Sources

In addition to state and federal highway-user tax revenues, revenues from other tax sources can be used for highways. This is true at both the state and local levels of government.

1. State Government

State tax revenues in Michigan are above average relative to the other states (See CRC Report #317, 1996 Michigan Tax Climate). However, because highway-user taxes are not deposited into the General Fund, and highways do not compete with other state functions for financing, only a few tax levels matter relative to highways. The result is a skewed way of analyzing highway funding: If highway funding levels are not sufficient, it is because the gas tax is too low, not because of any legislative or executive branch budgeting decisions.

The 1908 Michigan Constitution was amended in 1938 to place restrictions on the use of gas and weight tax revenues for highway purposes. (This provision was continued in the 1963 Michigan Constitution.) This provision, often referred to as the "anti-diversion amendment," was brought about because of the use of moneys derived from gasoline and weight taxes for other than highway purposes by the state Legislature, particularly during the depression years in the early 1930s. This provision specifies that gas and weight taxes cannot be used for anything other than highways. It does not specify that only gas and weight taxes can be used for highways. Instead of making difficult policy decisions prioritizing how all state resources should be divided among highways and other state functions, policymakers are left with equally difficult political decisions relative to supporting a gas tax increase in the face of an already high tax burden.

As will be explored later in this report, a number of factors are creating an increased need for highway funding. Current transportation revenues are not adequate to meet these increased needs. The typical response to a revenue source that has not grown at a rate sufficient to keep pace with increased needs is either to increase the tax rate or to supplement the tax revenues with General Fund revenues. Michigan has done neither, except that recent proposals would allow some non-highway revenues to be used for roads.

2. Local Government

Local governments are required to contribute revenues from their own sources for highway funding. Property taxes are the primary revenue source for local governments. While 22 cities levy a local income tax under Public Act 284 of 1964, the Uniform City Income Tax Act, counties, villages, and townships are not authorized to levy local income taxes. Local sales taxes are not authorized in Michigan. Additionally, local motor vehicle registration taxes or motor fuel taxes currently are not authorized. That leaves property taxes as the primary revenue source for local highway funding.

a) Property Taxes.

Prior to the Great Depression, property taxes were the most common means of funding local highway construction and maintenance. The Great Depression resulted in a decline in the assessed valuation of taxable property, the adoption of the 15-mill property tax rate limitation in 1932, and a large volume of property tax delinquencies. The Horton Act was adopted to ease the road funding burden on the property tax. As a result of the Horton Act, allocations from state motor vehicle taxes replaced township and county property taxes for road improvement, maintenance, or debt service, which were practically eliminated (See **Chart 18** on page 64).

Property taxes are used as a revenue source for transportation by counties, cities, villages, and townships. The ability to levy property taxes for road improvement purposes is diminished by the use of property tax levies for school operating purposes, as well as other local government purposes. Some local governments levy property taxes specifically for highway funding. Others use general fund revenues resulting from the regular operating millage. Money from property taxes and special assessments specifically authorized for road improvements comprised about 10 percent of money in county road funds and about 15 percent of locally raised funds in municipalities in 1994 (see **Tables 6 and 7**).

Five counties in Michigan have dedicated millages for road purposes, as do numerous cities, villages, and townships.

1) County Property Taxes.

County road commissions do not have taxing authority. They are dependent upon the county commissioners and townships to raise revenues for transportation purposes on their behalf. The county board of commissioners may set a tax rate based on a recommendation of the county road commission. If the board of commissioners sets a tax rate other than that recommended by the road commission, it may also allow or reject any or all of the projects for the sections of roads submitted for consideration.

Article VII, Section 16, of the 1963 Constitution states that, ". . . the ad-valorem property tax imposed for road purposes by any county shall not exceed in any year one-half of one percent of the assessed valuation for the preceding year" (a maximum of five mills).

County highway taxes are subject to the 15 and 50 mill property tax limitations provided for in the Michigan Constitution. Unless otherwise agreed to by the townships, cities, and villages, these taxes are disbursed among the cities, villages, and county based on a formula that takes into account property valuations and the street mileage within each governmental unit.

2) Township Property Tax Levies.

Over 70 percent of the county road system is local access roads. These were township roads until the 1931 McNitt Act merged them into the county road systems. While the care for these roads is provided by county road commissions, townships are still expected to contribute to the funding of this effort.

Over 1,000 of the 1,242 townships in Michigan levied property tax millage for road purposes in 1994 (See **Table 8**). These levies yielded over $52.6 million, the third largest revenue source for county road commissions. Note that information from some fairly major counties in **Table 8** were not available.

3) City and Village Property Taxes.

Municipal revenues reported strictly as property tax revenues tend to reflect dedicated millages for streets. For cities, villages, and townships, the procedures and laws affecting the use of property taxes for transportation purposes are the same as for most other purposes.

Table 6
County Road Commission Revenue Sources for Highway Funding in Michigan -- 1994
(thousands of dollars)

Revenues & Transfers	Amount	Percent
Transfers from an Outside Unit:		
Michigan Transportation Fund (Act 51)	$ 445,258.3	65.3%
Transportation Economic Development Fund	33,671.5	4.9%
State Critical Bridge	10,598.2	1.6%
Federal Aid	88,365.5	13.0%
Taxes, Licenses, & Permits		
County Wide Millage	6,883.9	1.0%
Other	30.6	0.0%
Licenses & Permits	4,824.8	0.7%
Contributions from Local Units		
County Appropriation	3,065.5	0.4%
Township Contribution	53,605.1	7.9%
City & Village	11,526.5	1.7%
Other	3,842.7	0.6%
Other Revenues:		
Special Assessments	3,707.9	0.5%
Interest	6,364.8	0.9%
Bond & Note Proceeds	9,954.0	1.5%
Other	30,400.0	4.3%
TOTAL REVENUES	$ 712,099.3	

Source: Michigan Department of Transportation, Statements of Receipts of County Road Funds as submitted by the County Road Commissions; CRC Calculations.

Table 7
City and Village Revenue Sources for Highway Funding in Michigan -- 1994
(thousands of dollars)

Revenues & Transfers	Amount	Percent
Transfers from an Outside Unit:		
Michigan Transportation Fund (Act 51)	$247,115.9	55.3%
Transportation Economic Development Fund	3,242.2	0.7%
State Funds -- Other	2,482.8	0.6%
Federal Aid	30,894.5	6.9%
Grants from Counties	1,257.9	0.3%
Contributions from Adjacent Municipalities	253.1	0.1%
Funds for Maintenance of Roads of Another Unit:		
State Trunkline Maintenance	8,878.7	2.0%
Maintenance of County Road	549.0	0.1%
Maintenance in Adjacent Municipalities	253.0	0.1%
Internal Transfers:		
General Fund	30,109.5	6.7%
Municipal Street Fund	7,900.4	1.8%
Capital Improvement Fund	37,272.1	8.3%
Other Revenues:		
Tax Levies	12,115.4	2.7%
Special Assessments	1,703.7	0.4%
Excess Debt Retirement	115.7	0.0%
Interest	7,666.3	1.7%
Bond Construction Fund	20,783.0	4.6%
Miscellaneous & Other	34,393.0	7.7%
TOTAL REVENUES	$446,986.1	

Source: Michigan Department of Transportation, 1994 Cities and Villages Summary Report of Revenues and Expenditures: CRC Calculations.

4) Property Tax Problems.

Prior to 1994, property taxes were heavily depended on to finance many functions of local government. Proposal A of 1994 and the legislative changes that became effective with its passage changed the school financing system from a local to a state funded system. The process that resulted in Proposal A was initiated as an effort to provide property tax relief.

The resulting changes provide greater ability to use property taxes for government functions other than schools. Among these functions is road improvement. However, many people assumed that approving Proposal A would not result in replacing school operating millages with millages for other purposes, at the same time state taxes are increased to fund schools.

Additionally, some counties do not have an extensive tax base to benefit from property taxes. The agricultural nature of parts of Michigan means that much of the property tax burden for roads would fall on a few property owners. This problem is compounded by large portions of some counties in the upper Lower Peninsula and in the Upper Peninsula being owned by the state and federal governments. With these properties removed from the tax base, a larger burden falls on those parts of these counties that are privately owned.

b) Special Assessments.

Special assessments are a means of financing construction and maintenance projects commonly used by local governments. Creation of a special assessment district allows a governmental body to apportion the costs of road improvements among the benefiting property owners. This includes properties that are either adjacent to or in close proximity to the improved road and will derive direct benefits from the road improvement.

Special assessments are levied on the basis of proportionate front footage or land area of the properties, as opposed to the value of the property used for

Table 8
Township Contributions To County Road Funds -- 1994

County	Number of Townships	Number Contributing to Road Funding	Total Township Contributions	MTF Revenue	Township Percent
Alcona	11	4	$316,259	$1,748,409	18.1%
Alger	8	4	25,506	1,488,692	1.7%
Allegan	24	24	3,068,321	5,538,411	55.4%
Alpena	8	8	152,291	2,374,045	6.4%
Antrim	15	7	311,672	2,305,978	13.5%
Arenac	12	11	126,378	1,760,794	7.2%
Baraga	5	4	62,364	1,470,764	4.2%
Barry	16	16	758,686	3,245,764	23.4%
Bay	14	14	797,060	5,895,590	13.5%
Benzie	12	12	67,861	1,698,148	4.0%
Berrien	22	22	532,778	7,862,135	6.8%
Branch	16	16	437,592	2,997,310	14.6%
Calhoun	19	7	6,673	6,212,589	0.1%
Cass	15	15	579,240	3,192,561	18.1%
Charlevoix	15	5	154,886	2,119,173	7.3%
Cheboygan	19	16	421,473	2,656,057	15.9%
Chippewa	16	14	592,477	3,147,879	18.8%
Clare	16	7	449,517	2,575,681	17.5%
Clinton	16	16	856,825	3,965,702	21.6%
Crawford	6	2	23,084	1,728,800	1.3%
Delta	14	10	128,485	2,840,724	4.5%
Dickinson	7	5	189,465	2,023,542	9.4%
Eaton	16	16	1,648,332	5,768,852	28.6%
Emmet	16	12	269,439	2,454,173	11.0%
Genesee	17	17	2,460,581	17,122,358	14.4%
Gladwin	15	15	803,347	2,248,869	35.7%
Gogebic	6	6	152,587	1,823,425	8.4%
Grand Traverse	13	8	341,673	4,339,210	7.9%
Gratiot	16	16	564,588	3,113,936	18.1%
Hillsdale	18	18	389,202	3,169,711	12.3%
Houghton	14	10	326,441	2,723,788	12.0%
Huron	28	27	2,099,421	3,561,555	58.9%
Ingham	16	16	653,170	10,165,840	6.4%
Ionia	16	16	810,821	3,339,194	24.3%
Iosco	11	9	205,826	2,591,448	7.9%
Iron	7	6	151,376	1,651,609	9.2%
Isabella	16	16	336,865	3,488,534	9.7%
Jackson	19	16	437,525	7,881,400	5.6%
Kalamazoo	15	14	979,775	9,267,671	10.6%
Kalkaska	12	4	155,064	2,321,654	6.7%
Kent	21	21	$1,332,092	$20,435,015	6.5%
Keweenaw	5	1	10,506	839,896	1.3%
Lake	15	15	136,609	1,957,104	7.0%
Lapeer	18	18	2,222,243	4,570,116	48.6%
Leelanau	11	8	93,028	1,900,709	4.9%
Lenawee	22	22	1,720,713	5,113,429	33.7%
Livingston	16	10	105,907	6,887,140	1.5%
Luce	4	3	173,814	1,257,318	13.8%
Mackinac	11	10	237,398	1,639,829	14.5%
Macomb	12	N/A	N/A	25,263,286	N/A
Manistee	14	8	189,674	2,577,614	7.4%
Marquette	19	15	378,357	4,215,867	9.0%
Mason	15	14	318,146	2,505,143	12.7%
Mecosta	16	13	337,930	2,796,787	12.1%
Menominee	14	14	149,660	2,586,460	5.8%
Midland	16	16	204,289	3,816,011	5.4%
Missaukee	15	11	438,925	2,016,013	21.8%
Monroe	15	N/A	1,596,206	6,989,027	22.8%
Montcalm	20	20	1,064,137	3,838,780	27.7%
Montmorency	8	7	68,222	1,598,835	4.3%
Muskegon	16	14	323,960	6,573,379	4.9%
Newaygo	24	16	349,720	3,449,298	10.1%
Oakland	21	N/A	1,256,509	42,023,062	3.0%
Oceana	16	16	477,123	2,593,586	18.4%
Ogemaw	14	14	422,763	2,137,411	19.8%
Ontonagon	11	8	72,972	1,635,854	4.5%
Osceola	16	11	185,571	2,411,982	7.7%
Oscoda	6	3	21,792	1,638,852	1.3%
Otsego	9	8	221,139	2,317,950	9.5%
Ottawa	17	17	3,095,308	9,873,533	31.3%
Presque Isle	14	12	142,750	1,910,839	7.5%
Roscommon	11	8	208,055	2,246,355	9.3%
Saginaw	27	26	1,067,186	9,995,533	10.7%
St. Clair	26	26	863,085	3,876,026	22.3%
St. Joseph	8	4	308,721	1,336,301	23.1%
Sanilac	16	16	1,377,171	3,881,203	35.5%
Schoolcraft	23	23	1,808,435	7,321,146	24.7%
Shiawassee	16	11	457,120	3,402,511	13.4%
Tuscola	23	22	1,622,847	4,044,561	40.1%
Van Buren	18	18	1,671,450	3,950,632	42.3%
Washtenaw	20	20	2,681,933	10,968,319	24.5%
Wayne	10	N/A	277,343	53,069,899	0.5%
Wexford	16	3	29,935	2,643,349	1.1%
Total	1,242	1,003	$52,565,670	$441,987,935	11.9%

MTF is the Michigan Transportation Fund
N/A -- indicates that the information was not available.

Source: Michigan Township Association, in-house survey.

property taxes. Special assessments are levied only upon land and premises, as opposed to property taxes which also tax real property. They may be initiated by petition of the affected property owners or by the local unit of government. Special assessments are not subject to the constitutional tax limitations on general ad valorem property taxes. Once approved, road improvements can be expedited by selling tax anticipation bonds repayable from future special assessment collections.

D. Additional Highway Revenue Options

Three additional revenue options for highway funding have been discussed recently. One option would affect state trunkline roads -- toll roads -- and two options would provide local option highway-user taxes for local governments to raise local revenues -- local registration taxes and local gas taxes.

1. Toll Roads

Theoretically, toll roads could be authorized in Michigan. It would be unrealistic to expect that they would solve the state's transportation revenue problems. Toll roads are most viable where exclusion is possible -- such as interstates. (Although federal restrictions would make it difficult to turn existing interstates into toll roads.) Interstates, freeways, and expressways comprise only six percent of the Michigan highway system, and not all of this mileage would be well suited for toll roads.

Toll roads tend to be attractive to highway-users because they provide the most direct access to certain locations with smaller traffic volumes. An unintended consequence of toll roads can be greater wear and tear on roads running parallel to toll roads. These roads usually end up with greater traffic volumes because some highway users will not wish to pay the tolls. Thus, while it is possible that toll road revenues could free up additional funding for local government allocation, it is unlikely that these additional revenues will be enough to solve the existing and new problems experienced on the rest of the highway system.

Toll road revenues play a minor role in highway funding in states with toll roads. For example, New Jersey, which relies fairly heavily on toll road revenues, receives only 17 percent of its revenues for state administered highways from tolls. When toll roads are instituted, it is expected that those roads will become self supporting. It is not expected that the toll roads will become a revenue source, subsidizing other roads.

2. Local Registration Fees

Public Act 237 of 1987, the Local Road Improvement and Operations Revenue Act, granted counties authority to impose local registration fees up to $25, upon approval of a majority of the electors voting on the issue. (See Oakland County Vehicle Registration Fee Ballot Issue, *Council Comments No. 975*). This law was repealed by sunset in 1992. No county was able to gain voter authorization to collect local registration fees. Voters in six counties -- Alpena, Eaton, Monroe, Montcalm, Oakland, and Tuscola -- defeated proposals to impose annual $25 registration fees. No county requested voter authority to impose a local registration fee of less than $25 per year.

Local registration taxes, especially when they are levied at a flat rate for all types of vehicles, do not reflect highway use, the damage done to the road surface, or the fact that highway users from throughout the state travel on that community's roads.

3. Local Motor-Fuel Taxes

Local motor-fuel taxes are a potential revenue source that would alleviate pressures on state-collected taxes, and would allow local governments, or regions of the state, to raise revenues from highway users. A major advantage of such a system is that revenue yield would be highly correlated with use of the roads and the needs of the communities. However, there are potential problems that would have to be overcome if local motor-fuel taxes are authorized.

a) Collection Problems.

One problem is that motor-fuel taxes currently are collected from motor fuel distributors. The cost of the tax is passed on to gas stations, who in turn pass it on to customers. This system was established to create administrative efficiencies in tax collections and to reduce the potential for tax evasion. Local motor-fuel taxes would either have to be collected at the gas sta-

tions or new reporting requirements would have to be placed on distributors. Any system with local collection and reporting, and therefore a larger number of taxpayers, increases the potential for tax evasion.

b) Voter Approval Requirements for Local Taxes.

If local highway-user taxes are authorized, local governments would need voter approval before levying a new tax. Article IX, Section 31, of the Michigan Constitution requires voter approval for local governments to impose new taxes or to increase the rate of an existing tax.

c) Who Wants To Go First?

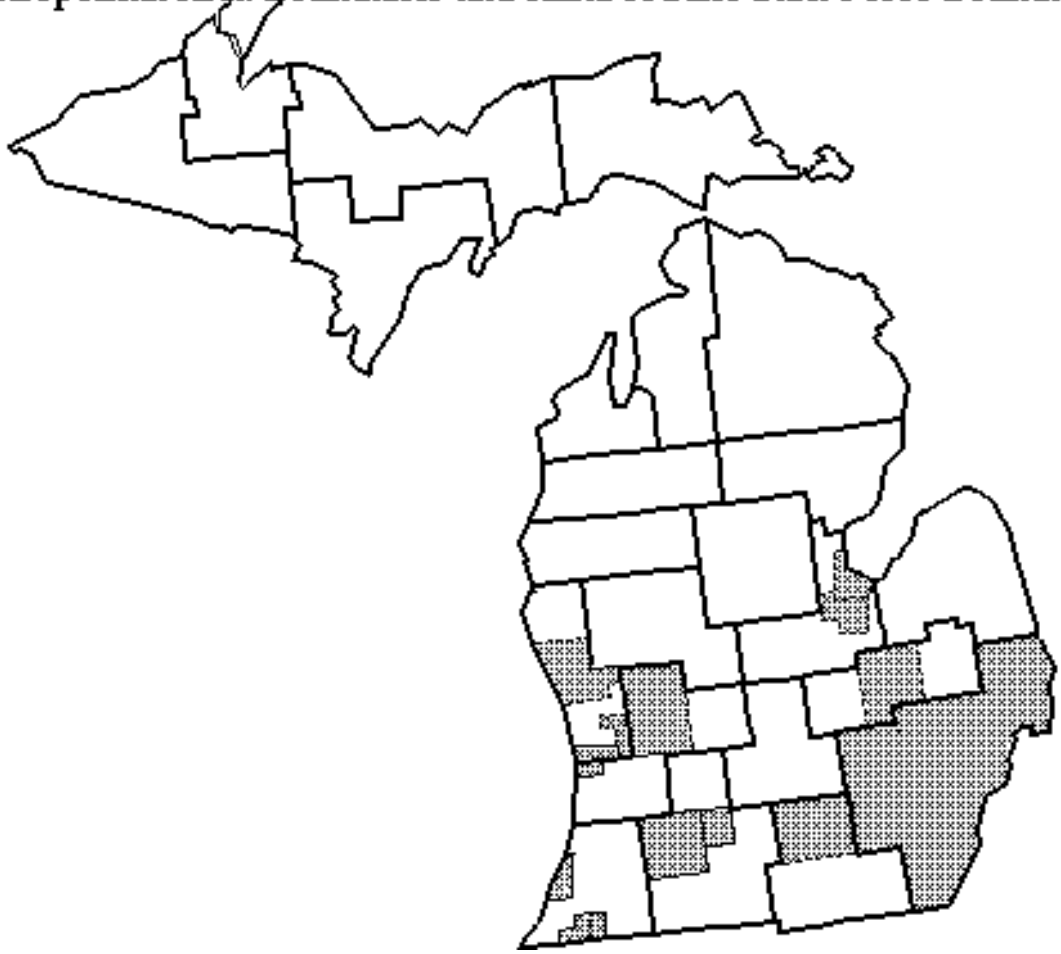
If these taxes were authorized at the city and village level, it is possible that few municipalities would willingly be the first to levy these higher taxes, unless they thought neighboring communities would also be receptive to these higher taxes. Some fear that creating a tax differential in the price of fuel would lead consumers to travel to those communities without these additional taxes to purchase fuel. The potential exists that local motor-fuel taxes, levied only in one community, could adversely affect gas stations in that community.

d) An Alternative -- A Regional Tax.

One alternative that might overcome these potential problems is to allow local taxes to be levied on a regional basis. Regions as small as a county or as large as multi-county areas could be authorized to levy these taxes. One method of defining a multi-county area could be to use the federally-defined metropolitan planning areas or transportation management areas in urban parts of the state, and the Rural ISTEA Task Force areas in rural parts of the state (See Figure 2).

Figure 2

Michigan Metropolitan Area Boundaries and Rural ISTEA Task Force Boundaries



The characteristics of the local governments and the roads in these areas are generally similar enough that a common objective could be served if these governmental units united to levy local motor-fuel taxes. Levying taxes on a regional basis, rather than within each municipality, would reduce disparities in the tax base, create economies of scale in administering and collecting the tax, and reduce the potential for consumers to shop by community in search of lower tax rates. Additionally, local motor-fuel taxes would alleviate some of the disparities in allocation of the Michigan Transportation Fund.

E. Conclusions: Taxes

1. State Taxes

A strong case can be made that additional revenues are needed for highways. Motor-fuel taxes or motor-vehicle registration taxes are the only state tax sources available that raise revenues sufficient to meet current highway needs. Motor-vehicle registration taxes bear much less relationship to highway use. Therefore, motor-fuel taxes should continue as the primary state-collected highway funding source. Additionally, policymakers should not feel precluded from using non-highway-user taxes for highway purposes.

2. Local Taxes

Local government needs and government accountability are met to a greater degree when local revenues play a significant role in funding local roads. The taxes that could raise significant revenues to meet local highway needs are property taxes, special assessments, and regional motor-fuel taxes. While these taxes have their problems, they have the greatest connection to highway use and the benefits derived from a strong highway system. These local taxes should be explored to provide more local highway revenues.

Should state policymakers decide not to grant authorization for local highway-user taxes, Michigan must move forward with state-collected highway-user taxes allocated to local governments to fund some proportion of the cost of local road construction and maintenance.

III. Are Additional Revenues the Entire Answer?

It is clear that increased revenues could be put to productive use in the Michigan highway system. Accordingly, much of the debate on this issue has concerned not whether revenues should be increased, but instead, 1) the magnitude of any increase in state revenues, and 2) the allocation of that increase to either the state or its local units.

Equally important, however, are the questions of whether increased revenues would be efficiently spent and whether the current local responsibility for funding road construction and maintenance is adequate. Unless the system is restructured both financially and administratively, it is very likely that any additional dollars will be inefficiently allocated and will purchase a lower level of highway services than they should.

The remainder of this report will concentrate on five areas in which changes could be made in order to make the most of transportation revenues:

1. *Jurisdictional Control.* The jurisdictional responsibilities for roads in Michigan were initially determined in or before the 1930s and have received little alteration since then. Roads that were once links in interstate travel may now serve largely local purposes, yet they continue to be maintained by the state, which may not be receptive to local wishes regarding their future disposition. Proper alignment of jurisdictional control and road functions would help to assure greater accountability in the construction and maintenance of roads in Michigan.

2. *Priority Determinations.* State law calls for a highway needs assessment every four years. The last needs assessment was carried out in 1983. As a consequence, the state has no systematic structure for prioritizing construction or maintenance projects or determining how needs relate to jurisdictional control. If projects are carried out that should be of lower priority than some that are not, inefficiency will occur.

3. *Physical Structure.* The climate and soil structure in Michigan are conducive to premature break-up of the road structures. Moreover, highways constructed and maintained elsewhere (such as Germany and Japan) have been built to higher standards and have been found to last much longer. It is argued that Michigan taxpayers would be unwilling to pay the up-front costs of constructing highways that would last significantly longer and be cheaper in the long run. This is an unanalyzed assumption and a serious examination of the possibilities of constructing roads to higher standards should be undertaken before significant rebuilding of the current system takes place.

In addition, incentives built into highway finance over the years have resulted in a lower level of maintenance than is desirable to retard the deterioration of roads and bridges. Because new highway construction in Michigan is much less significant than it once was, maintenance can now receive greater emphasis.

4. *Administrative Efficiency.* Although some privatization and intergovernmental cooperation have taken place, there are opportunities to achieve greater efficiency and to reduce overlap and duplication through further pursuit of these approaches.

5. *Highway Funding Allocation.* State distribution of highway revenues to local governments is based primarily on motor vehicle registrations and highway mileage. The result is that a little-used road in a rural area counts just as much as a heavily used urban road in determining the allocation of highway dollars. Unless the formula is changed to reflect highway usage, dollars will continue to be maldistributed and result in unnecessarily high expenditures statewide in order to meet the needs of heavily used roads.

While some level of increase in highway revenues can be defended, it is certainly less easy than it would be if these five issues were adequately addressed. Their magnitude provides a strong justification for a phase-in of any tax increase and a means of reassessing that increase in light of future restructuring of the administration and finance of highway construction and maintenance in Michigan.

IV. Jurisdictional Control

The following was written by the Michigan Department of State Highways in 1967 in discussing how the Michigan highway system had failed to adjust to changes in use:

> Highway classification is an essential element in highway administration because it provides a framework for projection of needs, construction, and financing at each level of government. After the state, county and municipal road and street systems are determined by classification, studies are conducted to determine the administrative, maintenance, and construction needs, both physical and financial, of each system. Using the financial needs of each system as guidelines, the State Legislature can then make whatever fiscal adjustments are necessary for sound highway financing.

Jurisdictional control remains as essential to highway administration today as it was in 1967. Yet while highway use and the factors that affect functional classification have changed, jurisdictional control largely has remained unchanged.

Two elements constitute the organization of a highway system: 1) functional classification – what purpose the road serves, and 2) jurisdictional control – what type of governmental unit is responsible for construction and maintenance of the road.

Functional classification is the starting point for determining jurisdictional control. Each classification -- interstate, arterial route, collector route, and local access road – is built to different specifications and has different maintenance needs. Each classification serves different purposes, carries different types of vehicles, and provides varying degrees of property access. As such, each classification requires a different level of financing.

Roads in urban areas are constructed and maintained differently than roads in rural areas due to differences in use and characteristics. In large part, functional classification is determined by the highway users, but policymakers also play a role in its determination – in determining the specifications to which each road is constructed. Thus, while functional classification is the starting point for determining jurisdictional control, issues such as population density, the location of each road relative to other types of roads, and the use of each road, also affect jurisdictional control.

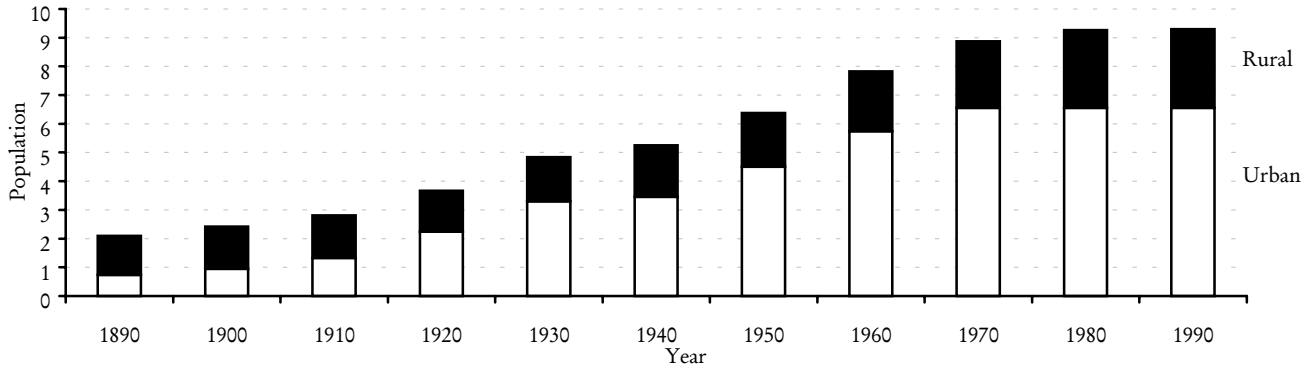
As the determining factors for functional classification change, as is prone to happen over time, the jurisdictional control of each road should be revisited and changed if necessary. Again, quoting the 1967 report from the Department of State Highways:

> Continuing review is axiomatic to the highway classification process and is fundamental to its theory. To ignore review is to assume that conditions which directly influence highway classifications remain static. The process of review and updating should encompass not only physical changes in the criteria used to evaluate the jurisdictional status of our road network but also the methods employed in such classification.

In many ways, highway organization can be considered the weakest link in the Michigan highway system. Jurisdictional control and the governance structures of the governmental units involved in the care of the highway system in the 1990s reflects a 1930s' model of Michigan.

Because the organization of the Michigan highway system has not changed, it has failed to maintain sufficient rationality, consistency, and stability in highway planning, financing, and governance. Rationality would dictate that there be a logical assignment of jurisdiction to the proper level of government based on the nature of the services each road provides. Consistency would dictate that the logic applied in assigning jurisdiction to one road be clearly laid out and uniformly applied in assigning jurisdiction to all other roads of like character. Stability would dictate that the factors used to apply jurisdictional control remain unchanged over time. If these factors are applied in organizing the highway system, the organization should be acceptable to all levels of government and easily understood by all highway users.

Chart **15**
Michigan Population Growth: **1890--1990**
(in millions)



Source: Bureau of the Census, U.S. Census of Population: Number of Inhabitants, Summary, (Washington, D.C.: 1991).

A. How Michigan Has Changed

Michigan has undergone a great deal of change relative to the factors that determine the organization of the highway system ways, including population growth and urban sprawl. State and county government have changed in many. Finally, highway use has undergone major changes.

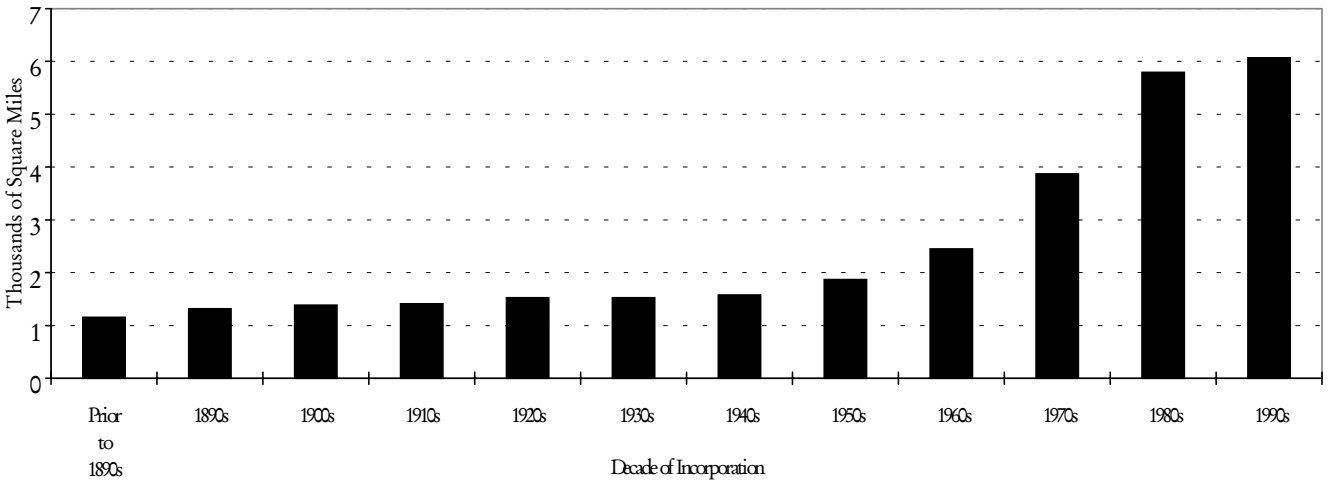
1. Population Growth

Over the past century, the population of Michigan has grown from approximately 2 million to about 9.6 million people. A century ago, when the Michigan highway system was in its infancy, only 35 percent of the population resided in urban areas. By 1950, over 70 percent of the state population resided in urban areas. While the urban population has remained about 70 percent of the total population, the state population has grown 46 percent since 1950 (See Chart **15**). This growth has come through urban sprawl. These changes should affect jurisdictional control as well as the sources of funding for road mileage within these urban areas.

2. Urban Sprawl

As an area's population grows, the tendency is for citizens to organize local governments to provide a greater number of services. Since 1930, 216 local units of gov-

Chart **16**
Land Area of Incorporated Governmental **U**nits in Michigan by Decade of Incorporation



Source: U.S. Bureau of Census, Michigan Legislative Service Bureau, Michigan Manual, and Michigan Municipal League. CRC Calculations.

ernment in Michigan have incorporated, 124 of which have been charter townships. In 1930, about 1,500 square miles (less than three percent of the total state land area of 56,809 square miles) were part of a city or village. By 1990, the total land encompassed by cities, villages, or charter townships had increased to 6,073 square miles (11 percent). Chart 16 illustrates how much more land area in Michigan has come to lie within incorporated areas. (Not all land area was initially incorporated in each of these decades. Some land area became incorporated due to annexation. However, this chart approximates as near as possible the trend that has occurred in Michigan.)

3. Highway Use

Use of the highway system has also changed. Development of the interstate highway system, with urban freeways and expressways, is a recent phenomenon. This development has shifted traffic away from arterial routes that were previously used for long distance travel and has enabled a greater degree of urban sprawl. State trunkline use has evolved from facilitating commerce and enabling travel between population centers, to providing a means for workers to travel to places of employment. These changes have had implications on all facets of the highway system.

Additionally, the types of vehicles using the highways have changed. Businesses' dependence on railroads has declined and been replaced with a greater dependence on long-haul truck shipping. Moreover, automobiles have become lighter and fuel economy has improved. More families have more than one automobile. In addition to affecting functional classification, these changes affect highway finance.

B. Jurisdictional Control Has Remained Unchanged

While all of these changes have been occurring, organization of the system has changed very little. The roads over which the state, county road commissions, and municipalities had jurisdiction 60 years ago, following implementation of the McNitt Act, for the most part, continue to fall under the jurisdiction of these same units of government.

1. Roads No Longer Serving the Same Purposes

Examples can be found throughout the state, at all levels of government, where the purpose and use of a section of road has changed to such an extent that the governmental body with jurisdiction over that section of road is no longer the body best suited to care for that road.

a) The State Trunkline System.

Interstates, freeways, and expressways account for only 15 percent of the state trunkline system. The balance of the mileage is arterial routes and collector routes. Many instances can be found of arterial and collector routes under state jurisdiction serving much the same purpose as the county or municipal roads running parallel or intersecting them.

Prior to the advent of the interstate system, the state trunkline system consisted of arterial routes connecting major population centers. With the evolution of the interstates, these arterial routes have taken on a secondary purpose in terms of long distance travel. They have come to serve traffic that is primarily regional, often providing access to private property.

The Michigan Department of Transportation has identified over 267 miles (2.8 percent of the current state trunkline system) of potential "turn-back mileage" – roads under state control that should be returned to county or municipal control. A re-examination of the role some roads serve in the state system could lead to a much more extensive list. For instance, Grand River Avenue was once the primary route for traveling between Detroit and Lansing or Grand Rapids. Now I-96 is the primary route and Grand River serves local and regional traffic. Michigan Avenue was once the primary route between Detroit and Chicago. Now I-94 serves that purpose. M-37, M-66, and M-52 were once primary north-south routes. Now US-131, US-27, and I-75 are the primary north-south routes. Many other examples can be identified where the need to have certain roads under state jurisdiction no longer exists.

b) Urban Counties.

Often the role that functional classification plays in determining the jurisdictional control of a road is complicated by the urban or rural nature of the road. Basic differences in highway use and highway characteristics stem from the fact that urban areas commonly have a higher density of buildings and popula-

tion than rural areas. While most rural road systems exist in open spaces, urban systems tend to have few open spaces. While rural road systems tend not to have many curbs and have few driveways, urban road systems tend to have curbs and frequent driveways. While most urban roads are paved, rural areas often are adequately served with gravel roads. Finally, the typical users of rural roads often are different from the typical users of urban roads. Rural roads carry more agriculture-related vehicles, while urban roads carry more service, delivery, and commuter vehicles.

These differences have implications for the equipment, method of care, and staffing requirements placed on the governmental units maintaining the different road types. Urban characteristics require road care equipment to be smaller and more maneuverable than the equipment used in rural areas. With higher traffic volumes and more intersections requiring more frequent stopping and starting, it is necessary to embark on more intensive winter storm maintenance in urban areas. In the majority of the counties, these differences are evident in comparing the larger vehicles used by county road commissions, which typically have jurisdiction over non-urban areas, to the smaller vehicles used by municipal public works departments.

The exceptions to these observations are county road commissions that maintain urban county road systems. The original role of county road commissions was to provide roads in low-density, unincorporated areas, where a municipality was not available to provide them. As municipalities have incorporated in areas that were once the low-density and unincorporated, urban county road commissions have continued to maintain the roads that once were properly county roads. Jurisdictional control has not changed to reflect this growth and incorporation. County roads have come to serve the same purposes, and carry much of the same traffic, as the municipal streets intersecting them. Failure to adapt to change has resulted in county road commissions and municipalities both investing in similar equipment to maintain roads of like characteristics.

Table **9** lists the 19 Michigan counties that have at least 10 percent of their county road systems running through urban areas. As defined by the U.S. Bureau of the Census, urban areas are areas with at least 50,000 persons and a population density of at least 1,000 persons per square mile. The county road commissions serving the most urban counties of the state have a large percentage of their primary county roads serving much the same purpose as municipal streets. Further, a large percentage of local access streets in these counties continues to be maintained by county road commissions.

Additionally, there have been instances in recent years, of cities and villages undertaking the improvement of county roads with municipal resources. This has become necessary because the urban county road commissions do not have sufficient resources to meet all of their needs. If county roads are important enough to the municipalities that they would spend their own resources to improve them, they should be under municipal jurisdiction. If jurisdictional control were addressed, having municipalities spend money to improve county roads would not be an issue, and county road commissions would have resources available to care for roads that properly fall within their jurisdiction.

Municipalities should be expected to have jurisdiction over urban arterial, collector and local access roads. County road commissions should be expected to care for rural roads. Elimination of overlap would reduce duplication and reduce what many perceive as inequities in the allotment of Michigan Transportation Fund dollars among urban and rural county road commissions.

2. Should Townships Control Their Own Roads?

The composition of county road systems continues to reflect the effects that the Great Depression had on local road funding. An inability to finance road care forced townships to transfer jurisdiction to the counties. To this day, a majority of the county road system is local access roads that were once township roads.

Many townships levy a road millage to fund care of these roads (See Table **8** on page 32). In some counties, every township levies this millage, but in other counties, only a few townships levy a road millage. This creates an inequitable situation in which the county road commission is expected to maintain all local roads to a uniform standard, without full financial participation from the townships. Regardless of the number of townships raising local millage, the ultimate decision to perform work on these roads rests

Table 9
County Road System Miles -- 1994
(Counties With At Least Ten Percent of Total County Road Mileage in Urban Areas)

County	County Primary Mileage	County Urban Primary	Urban as a % of All Primary	County Local Mileage	County Urban Local	Urban as a % of All Local	Urban as a % of Total County
Wayne	719.2	652.4	90.7%	749.7	640.7	85.5%	88.0%
Macomb	407.7	280.8	68.9%	979.3	628.5	64.2%	65.6%
Oakland	821.4	551.8	67.2%	1,670.0	1,067.5	63.9%	65.0%
Genesee	474.1	274.1	57.8%	1,068.0	576.0	53.9%	55.1%
Kent	664.8	237.0	35.6%	1,242.5	404.1	32.5%	33.6%
Ottawa	372.3	100.5	27.0%	1,174.3	413.4	35.2%	33.2%
Kalamazoo	436.0	126.6	29.0%	751.9	223.8	29.8%	29.5%
Ingham	428.6	113.1	26.4%	773.8	235.3	30.4%	29.0%
Washtenaw	519.4	135.0	26.0%	1,007.8	298.6	29.6%	28.4%
Berrien	474.0	76.0	16.0%	985.7	251.4	25.5%	22.4%
Saginaw	480.8	95.5	19.9%	1,339.6	299.8	22.4%	21.7%
Jackson	540.5	94.3	17.4%	1,023.3	240.2	23.5%	21.4%
Bay	357.1	81.1	22.7%	665.3	116.1	17.5%	19.3%
Muskegon	371.4	60.9	16.4%	750.1	152.1	20.3%	19.0%
Monroe	430.3	75.6	17.6%	872.7	170.5	19.5%	18.9%
Eaton	356.3	60.2	16.9%	786.4	113.3	14.4%	15.2%
Calhoun	498.1	57.9	11.6%	834.3	138.4	16.6%	14.7%
St. Clair	466.8	53.5	11.5%	1,032.3	148.3	14.4%	13.5%
Livingston	364.9	39.1	10.7%	915.4	104.0	11.4%	11.2%
All 83 Counties	26,322.2	3,499.2	13.3%	62,555.4	7,424.9	11.9%	11.7%

Source: Michigan Department of Transportation, CRC calculations.

not with the township, but with the county road commission.

This situation raises the question, "Should county road commissions take care of local access roads?" Does an arrangement dictated by circumstances of 60 years ago apply today? There are two aspects to this question: 1) should all townships, charter and general law, have responsibility for local roads? and 2) should charter townships have responsibility for roads equal to that required of cities and villages?

a) Townships.

A number of issues have been raised about the responsiveness and accountability of county road commissions. Often these issues regard local access roads, because they are 70 percent of the county road system. The problems arise from expecting county road commissions, an inherently regional body, to be responsive to local needs. In instances where county road commissions have poor relationships with townships, the townships often object to having revenue-raising requirements without having input on how the money is spent. Because townships have zoning responsibilities, coordination of zoning plans with road plans would be simplified if the townships controlled their roads. One possible remedy to these complaints is not to eliminate county road commissions, with the expectation that county government will be more responsive, but to return local roads to township jurisdiction. This would return county road commissions to the purpose for which they were intended: care of roads serving county-wide purposes.

Townships can play a role in highway care under current law. Act 51 provides that in counties with populations over 500,000 people, townships with populations of 40,000 or more may contract with the county road commissions to maintain the roads within that township. The contracting township is eligible to re-

ceive only 75 percent of the funds received by the county road commission due to the roads in that township. State law would have to be amended to provide for townships -- whether general law or charter townships -- to gain jurisdiction over their local roads independent of county road commissions.

b) Charter Townships.

The growth in the number of charter townships has resulted in many county road commissions being involved in the maintenance of urban local access roads in incorporated areas (See Table **9**). As illustrated in Table **10** , most of the charter townships are located in the more populated counties: Bay, Berrien, Clinton, Eaton, Genesee, Ingham, Kalamazoo, Kent, Macomb, Oakland, Ottawa, St. Clair, Washtenaw, and Wayne.

Public Act 359 of 1947, the Charter Township Act, has allowed 124 townships to incorporate to provide an enhanced level of services and to protect against annexation by adjacent cities or villages. Any general law township with 2,000 or more residents is authorized to adopt the Charter Township Act and incorporate as a charter township. The result is that while areas have grown to require a greater level of services, township status has been maintained and road care has remained with the county road commissions.

County road commission resources are being used to maintain streets that appear very much the same in character as the streets that neighboring cities and villages maintain with much more of their own resources. These municipalities compete with charter townships for economic development and for the resources of the county and state. Charter townships contribute resources to county road commissions, but by relying on counties to maintain their roads, they

Table **10**

Charter Townships in Michigan by County -- **1996**

Allegan
- Gun Plain

Barry
- Hastings
- Rutland

Bay
- Bangor
- Hampton
- Monitor
- Portsmouth
- Williams

Berrien
- Benton
- Coloma
- Lake
- Lincoln
- Oronoko
- St. Joseph

Calhoun
- Bedford
- Emmett
- Pennfield

Chippewa
- Kinross

Clinton
- Bath
- De Witt
- Watertown

Dickinson
- Breitung

Eaton
- Delta
- Oneida
- Windsor

Genesee
- Clayton
- Fenton
- Flint
- Flushing
- Genesee
- Grand Blanc
- Montrose
- Mt. Morris
- Mundy
- Vienna

Gogebic
- Ironwood

Grand Traverse
- Garfield

Houghton
- Calumet
- Portage

Ingham
- Delhi
- Lansing
- Meridian

Ionia
- North Plains

Iosco
- Au Sable
- Oscoda

Isabella
- Union

Jackson
- Blackman

Kalamazoo
- Comstock
- Cooper
- Kalamazoo
- Oshtemo
- Texas

Kent
- Alpine
- Caledonia
- Cascade
- Gaines
- Grand Rapids
- Lowell
- Plainfield

Leelanau
- Elmwood

Lenawee
- Madison
- Raisin

Macomb
- Chesterfield
- Clinton
- Harrison
- Shelby

Marquette
- Chocolay
- Marquette

Mason
- Pere Marquette

Mecosta
- Big Rapids
- Green

Midland
- Homer
- Larkin
- Midland

Monroe
- Berlin
- Frenchtown
- Monroe

Montcalm
- Eureka

Muskegon
- Fruitport
- Muskegon

Newaygo
- Sheridan

Oakland
- Bloomfield
- Brandon
- Commerce
- Highland
- Independence
- Lyon
- Milford
- Oakland
- Orion
- Oxford
- Royal Oak
- Springfield
- Waterford
- West Bloomfield
- White Lake

Ottawa
- Allendale
- Georgetown
- Grand Haven
- Holland
- Jamestown
- Polkton
- Tallmadge
- Zeeland

Saginaw
- Bridgeport
- Buena Vista
- Saginaw

St. Clair
- China
- East China
- Fort Gratiot
- Port Huron

Van Buren
- South Haven

Washtenaw
- Ann Arbor
- Augusta
- Pittsfield
- Scio
- Superior
- York
- Ypsilanti

Wayne
- Brownstown
- Canton
- Grosse Pointe
- Huron
- Northville
- Plymouth
- Redford
- Van Buren

Wexford
- Haring

Source: Michigan Township Association.

have resources available to perform other functions that would otherwise be needed for road care if roads were their responsibility.

There are at least two potential remedies to this situation. First, charter townships could be required to become more involved in the maintenance of their own roads. Second, the annexation laws in Michigan could be revisited to allow easier annexation of areas that have grown in commerce and population to require an enhanced level of highway services.

1) Greater Involvement in Road Care.

Charter townships could be expected to play a more active role in maintaining the streets within their boundaries. This ability already exists under Public Act 359 of 1947, the Charter Township Act:

> Section 10. The township board in each charter township shall have power to appoint a township superintendent and may delegate to him any or all of the following functions and duties which functions and duties, unless so delegated, shall be exercised by the supervisor:
>
> Section 10(b). To manage and supervise all public improvements, works, and undertakings of the township;
>
> Section 10(c). To have charge of the construction, repair, maintenance, lighting and cleaning of streets, sidewalks, bridges, pavements, sewers, and of all the public buildings or other property belonging to the township.

The above mention provisions of Act 51 pertaining to township control of roads would have to be amended.

This option would require charter townships to invest in additional staff and equipment. However, options such as contracting might be a greater possibility for charter townships than it is for current highway providers. Since most charter townships would be starting from scratch, there would not be the ingrained bureaucracies and previously owned equipment that confronts many local governments when considering the privatization of street maintenance.

Such an option would bring greater accountability to the care of roads within charter townships. The township supervisors, representing only that township, ultimately would be responsible for the care of the roads within that township, rather than county road commissioners.

2) Annexation Laws.

Many townships have become highly populated due to spill-over from neighboring municipalities. As sections of townships have grown in population, the demand for services has increased. Township residents are left with the choice of incorporation or annexation to neighboring municipalities.

If annexation were made easier, it would fall upon an annexing municipality to provide services to these areas such as road care. Economies of scale could be achieved in utilizing resources already owned by the annexing municipality to serve a wider area.

C. A New Era in Jurisdictional Control.

In addition to the need for changes in jurisdictional organization, policymakers must recognize that jurisdictional control carries a slightly different significance than it once did. During construction of the highway system, jurisdictional control was important for achieving continuity and uniformity. From an engineering standpoint, roads serving statewide or regional traffic needed to be built with like physical characteristics among different communities to provide efficient traffic flow. From a financial standpoint, funding was needed to construct roads to like standards among different communities. This period is summarized as an era when location and construction were the primary determinants of jurisdictional control. During this era, jurisdictional control tended to come under regional or state government to meet these needs, with construction of the entire road funded by a single governmental unit. This is reflected by the role federal and state funding assumed in highway funding.

Today, however, the highway system is leaving the era of location and construction and entering an era of maintenance and operational efficiency. The Michigan and national highway systems are largely in place, and additions to the current system will be only incremental. Jurisdictional control is best served today with

roads under the control of the governmental unit best suited to monitor and respond to the needs of that road. Many roads can be transferred to a level of government more local than the level with current jurisdiction. Because the roads are already in place, it is possible to manage continuity and uniformity of the highway system at a more local level in this new era.

D. Conclusions: Re-Assigning Jurisdictional Control

Comprehensive highway finance and governance reform must include addressing the jurisdictional control of each road in the highway system. Major changes to highway jurisdiction have not occurred since 1932 when the McNitt Act consolidated township roads into the county road commissions. Since then, the factors that determine jurisdictional control have changed in many ways. Many roads do not serve the same purposes today that they once did. If there is to be rationality, consistency, and stability in the financing and governance of the highway system, it is necessary to tie together functional classification and jurisdictional control.

1. Determining Factors

The highway system will operate most effectively when jurisdictional control is organized in a rational, consistent, stable manner that is acceptable at all levels of government.

a) Rational Organization.

A rationally organized highway system requires a logical assignment of jurisdiction to the proper level of government based on the nature of the services each road provides. It is this factor that ties together functional classification and jurisdictional control. Fundamental in tying together functional classification and jurisdictional control should be the role that each road currently serves in the overall highway system instead of the role they formerly played.

b) Consistent Organization.

The logic applied in assigning jurisdictional control to one road should be clearly laid out and uniformly applied in assigning jurisdictional control to all other roads of like character. There should be no parallel or overlapping patterns of responsibility. Neither the governing units nor the taxpayers are well served if a road performing a particular kind of service is in one instance a state responsibility, and in another instance a county or municipal responsibility.

A foremost reason why consistency should be applied in jurisdictional control is accountability. The governmental unit responsible for a particular road should be as clear to highway users as it is to the engineers caring for the roads. Accountability is important in holding the governing bodies responsible for inadequacies in road conditions and in the funding of roads.

Inconsistency in jurisdictional control is one of the fundamental reasons for the controversy over the Act 51 distribution formula. Because consistency is lacking in the current organization of jurisdictional control, it is not clear what roads would be affected by changing the percentage distribution to any level of government.

It is also not clear what roads would be affected by changes to local road taxes. This inconsistency creates confusion, making it illogical that some roads will be fixed because they are city roads, while others of seemingly equal purpose and importance within the municipal boundaries will not be fixed because they are under another level of government's jurisdiction.

c) Stable Organization.

The factors used to organize jurisdictional control should remain unchanged over time. Functional usage and travel patterns should remain the primary determinant of jurisdictional control. Jurisdictional control should not be based on the ability or willingness of a governmental unit to fund that road. That is to say, changes in jurisdictional control should result in, but never be the result of, fiscal adjustments.

d) Acceptable at All Levels.

The application of rationality, consistency, and stability should create a system of functional classification and jurisdictional control that is acceptable at all levels of government. If it is acceptable to all levels of government, there is likely to be greater intergovernmental cooperation.

2. Re-assignment to the State vs. Reassignment to Local Units

Thus far, this section has made the case that effective control of most roads would be achieved best by shifting jurisdictional control down to a more local level. This might entail transferring some state roads to county road commissions and some county roads to municipalities. It might include returning control of local access roads to townships. Another approach might be for the state to directly assume jurisdiction over some of the roads that are currently under local government control.

This approach would shift all primary roads that are not local access roads to the state's jurisdiction. Because this approach would address the factors of rationality, consistency, and stability in organizing jurisdictional control, accountability would, in one sense, be addressed. All primary roads would be the responsibility of one unit of government, and it would be clear to highway users whom to hold accountable for the condition of those roads. This would simplify allocation of state funds among the different levels of government and, because it would breakdown the boundaries of local governments, it also would create economies and efficiencies in highway spending.

On another level, this approach would create new problems of accountability. The focus of the Michigan Department of Transportation in maintaining the current state trunkline system is to facilitate traffic flow. Local governments tend to have a different focus in maintaining their road systems: providing access to properties as well as facilitating traffic flow. The state might not place as much importance on providing access to local properties, such as providing curbside parking on municipal streets, providing new turn lanes for access to new development, or responding in any other ways to needs that are strictly local?

Similarly, keeping zoning responsibilities with local governments, while highway jurisdiction is transferred to the state, creates problems of accountability. Because road capacity affects urban development, the state would have to play a much greater role in managing economic development. This could require local governments to consult with the state in making any zoning decisions that create new road funding needs. Problems that currently exist due to this mismatch of zoning and road care responsibilities between townships and county road commissions might be duplicated on a much larger scale if the state had jurisdiction over all primary roads.

3. Impediments to Change

One impediment to addressing jurisdictional control is the issue of tort liability. Tort liability deals with the issue of personal injury and negligence suits being brought against the providers of highways. Highway providers face large insurance costs and court settlement costs from the liability involved with accidents on the Michigan highway system. Without tort reform, any transfer in jurisdictional control of roads -- whether the issue is merging county road commissions with county government, allowing townships to take control of local access streets, or transferring control from one level of government to another -- will be impeded by the legal liability that accompanies it. Governments must be prepared to finance the additional cost of assuming control of these highway miles. In some cases, this additional cost may dwarf the liability costs these units pay for the provision of other services.

Incremental changes to jurisdictional control are made difficult by current law. Public Act 296 of 1969 provides for the transfer of roads between levels of government. This process is complicated by requirements for the governmental unit ceding control to continue funding maintenance of that road to provide any renovation, repair, or reconstruction. It must also provide the estimated cost necessary to bring the road up to reasonable acceptable standards. Many people involved with highway administration feel this act goes too far in protecting governments from being stuck with the financial burden involved in assuming control of roads.

Very few miles actually are transferred under this law. Since 1973, about 100 miles of primary or major roads and only about six miles of local roads (less than 0.1 percent of the roads under local jurisdiction) have been transferred from county road commissions and municipalities to the state.

During this period, almost 200 miles of primary or major roads and 6.5 miles of local roads (approximately two percent of the state trunkline system)

have been "turned-back" from the state to counties and municipalities. The state has identified over 267 miles of potential turn-back that are not being acted upon.

Many additional miles could be identified for transfer with a rethinking of the proper government level for maintaining some of the state's arterial and collector routes. Determination of the exact number of miles that should change jurisdiction should result from a professional, comprehensive analysis of the entire highway system. Because the allocation of state funds would need to be altered to reflect major changes in jurisdictional control, an all encompassing approach to determining jurisdictional control would be preferable to a piecemeal, incremental approach.

4. Benefits of Addressing Jurisdictional Control

Jurisdictional control is perhaps the most critical link in establishing a strong, efficiently funded highway system. Jurisdictional control affects all other aspects of highway finance and governance. Once jurisdictional control is determined and agreed to at all levels of government, it is possible to a greater extent to:

- Address the accountability of the highway providers to highway users and to property owners;
- Arrange for a meaningful allocation of state funding among the different levels and units of government; and
- Address economy and efficiency in the expenditure of highway dollars.

Without effective jurisdictional control of the highway system, relying on more than one level of government to provide highways cannot be done in an economical, efficient manner.

V. Prioritizing Highway Needs

It is fairly clear that major portions of the highway system have deteriorated, but it is impossible without a system-wide needs assessment to accurately put a price on the cost of addressing this deterioration. State government has failed in recent years to comprehensively assess needs. The state has not:

- convened a needs assessment committee since 1983;
- created a uniform ratings method for use by all highway providers;
- audited the pavement ratings reported by local governments; or
- independently assessed the needs of the entire highway system.

State-collected motor-fuel taxes and vehicle registration taxes are the primary highway revenue source not only for the state, but also for county road commissions and municipalities. These revenues are allocated from the Michigan Transportation Fund to each level of government through a formula in Act 51. This formula extends only through Fiscal Year 1998, and will have to be amended to provide for allocations beyond that date. However, there has not been a statewide needs assessment to pull together needs from the different levels of government and regions of the state since 1984. As a result, highway needs are not clear relative to the different levels of government and it is not clear what the highest priority highway needs are at any level.

A. Current Needs Assessment Provisions

An instrument for performing a needs assessment exists under current law. Public Act 51 of 1951 requires the State Transportation Commission to maintain a continuing study of transportation needs. In order to carry out these provisions, the governor was to appoint a needs study committee – with at least one representative from manufacturing, commerce, agriculture, tourism, and labor – and a citizens advisory committee in 1987 and every four years thereafter. In the past, these studies have identified deficiencies in the highway system, identified the actions and costs necessary to address deficiencies, and prioritized the manner in which needs should be addressed.

A needs study has not been performed since 1983. This provision of the law has been ignored. Simply stated, the problem lies in the lack of enforceability in this law. While the law mandates that a needs assessment takes place, it does not provide a means of recourse should a needs assessment not be conducted.

The Governor recently issued Executive Order No. 1997-6, which transferred the responsibilities of this needs study committee to the State Transportation Commission.

B. The Problem

There are 83 counties, 271 cities, and 263 incorporated villages in Michigan, all operating independently in the assessment of highway needs. Every governmental unit assesses the conditions of roads and bridges within its jurisdiction and prioritizes the funding needs of these roads for their own purposes. But there is not a uniform methodology for judging road and bridge conditions across units or levels of government. While each governmental unit uses professional standards, the implementation of these standards, the needs assessment methodology, and final use of road condition measures varies among highway providers.

An additional complication is the perception of a parochial bias, which causes an inability to view local needs in the context of an overall, statewide highway system. The result is perceived as a system with incentives for each governmental unit to create a "wish list" of funding needs. Each governmental unit is aware of these incentives to exaggerate needs, knows of the lack of uniformity in measuring needs, and tends to view the reported needs of the other governmental units as inflated. This system has created distrust and competitiveness among units and levels of government.

Finally, because there are no statutory provisions to prioritize roads according to their functional classification and contribution to the overall system for the purpose of assessing needs, all roads are given equal

Why Have Separate Efforts to Assess Needs Been Conducted?

Failure on the part of the state to conduct a needs assessment has caused the different levels of government to take steps on their own to assess needs as they have attempted to make the case for additional funding resources. MDOT has developed a detailed needs assessment methodology for the state trunkline system. This program was formulated to help the department prioritize projects using a combination of judgments, scores, and estimated benefits. Rather than judging all needs on an equal footing, road needs are divided into expansion (new roads), improvement (additions to capacity), preservation (repair or reconstruction substantially in kind), and maintenance. MDOT estimates the cost of addressing state trunkline needs based on results from this program.

A separate effort was undertaken to assess the needs of the county road systems. In November of 1994, The Road Information Program (TRIP), a Washington, D.C. based research organization, was contracted to assess the funding needs of the county roads and bridges. TRIP estimated the funding needs of the county roads and bridges based on their findings in this study. Local governments were frustrated with the lack of a statewide needs assessment or increased finding. They felt that because the state is not involved in the care for these local roads, it was not proper for the state to make assessments of the quality of the roads maintained by these local governments or for funding needs to be determined based on a state evaluation.

The failure of the different levels of government to cooperate in assessing needs has created distrust. State government, the unit ultimately responsible for allocating Michigan Transportation Fund dollars, is not involved in the evaluation of the roads of local highway agencies. As a result, MDOT tends to distrust the estimates reported by local governments. On the other hand, local governments tend to distrust the numbers used by the state and resent any idea of the state entering their jurisdiction for assessment purposes. For the ordinary, everyday operations of the highway system this distrust is not of great importance. However, when decisions must be made about how highway resources could best be used, this distrust becomes a burden that must be overcome.

importance. The needs of a rural road with little daily traffic is judged on an equal footing with the needs of an urban road with heavy daily traffic volumes, even though they clearly play different roles in the overall highway system. A prioritization of needs must recognize the different roles that roads play in the overall highway system.

A commonly expressed goal of the Michigan highway system is uniformity -- uniformity among geographic areas and among functional classifications of roads. Supporters of this goal argue that since highway-user taxes are levied uniformly throughout the state, the resulting revenues should provide roads of uniform quality throughout the state. And, since taxes are levied on vehicles driving on all types of roads -- state, county, and municipal -- the resulting revenues should maintain these roads at a uniform quality. If such a goal is to be achieved, a uniform measure of road and bridge condition must be established and shared with all highway providers, and highway-user tax revenues must be allocated based on these measures of need.

C. Why a Needs Assessment is Important

A meaningful allocation of state highway revenues requires the collection of information about the magnitude and location of road needs. Currently, the state allocates highway revenues based on vehicle registrations, highway mileage, and population. When roads are in good condition, revenue allocations based on these factors provide funding for preventive maintenance to avoid deterioration to bad roads. When roads have deteriorated beyond good condition, and some roads are in worse condition than others, revenue allocations based on highway use and some measures of highway needs, such as the number of potholes, congestion, or bridge deterioration, are needed to optimally address needs.

In order for such a change to occur, a standard, uniform method of assessing road condition quality needs to be established and shared with every governmental unit involved. The measure created should balance the economic values of the highway system with engineering values of what is required to create a strong highway system. It should create geographic

balance by recognizing differences between urban and rural parts of the state and between the southern and northern parts of the state. Finally, it should prioritize highway needs. The beginnings of such a measure are already in place with MDOT's road evaluation program used for state trunkline roads. However, the state has not passed this methodology down to local units of government. Instead, each local unit remains responsible for rating the quality of its own roads and bridges with its own methodology.

D. An Alternative Needs Assessment Methodology -- An Oversight System

The following is a needs assessment process that would create an alternative means to involve local governments in a meaningful way and allow the state government to be involved unobtrusively.

Because of the perceived parochial bias in assessing local values or needs, it is necessary for a single governmental body to be the final judge of uniformity. This necessity is true across a wide spectrum of government issues, highways and otherwise. For years in the levy of property taxes, the standard assessment measure, state equalized value (SEV), has negated parochial biases and attempted to make property assessments uniform throughout the state. Property assessments are reported by each local government to an assessment and equalization unit in county government. This unit acts to bring uniformity (to equalize) to the assessments throughout the county. County equalized assessments are then reported to the State Tax Commission where they are equalized throughout the state. The Tax Commission does not enter into any local government to assess property. Rather, it provides a uniform methodology of property assessment for every local government. Such a system provides taxpayers assurances that they are not asked to pay more than their fair share of the property tax burden.

It would be possible to implement a system for measuring highway needs using similar methodology. The state would establish a standard, uniform method of assessing road and bridge condition. Each local government would rate road and bridge quality and report this information to the county, who would prioritize these needs among the local units and include county roads. This information would be reported it to the state, who would act as auditor and equalizer of road quality ratings. The needs assessment committee structure outlined in Act 51 -- including representatives from manufacturing, commerce, agriculture, tourism, and labor -- could act as the final equalizer of needs across the state.

It would be necessary for MDOT to play a strong role in assessing highway needs at all levels: state, county, and municipal. Because the state and county road commissions are also involved in the care of the highway system, these units would have to disclose their records to other highway providers to a greater extent than is currently the case. This would allow local road agencies to be satisfied that relative road quality is what it purports to be among levels of government, among units of government on the same level, and among regions of the state.

This system could address many local government concerns and many of the weaknesses of the current needs assessment structure. A road condition reporting system, using a statewide, uniform methodology, would avoid intrusion into local governments and it would allow for a standard comparison of local needs. It would also allow for:

- informed discussions about the level of funding needed to address needs;
- an informed, systematic division of the Michigan Transportation Fund for state trunkline, county roads, and municipal streets; and
- an on-going prioritization of highway needs so that funds can be allocated to those roads in the worst condition.

Until a needs assessment is completed, it is not possible to accurately estimate highway funding needs or to say whether Michigan has a revenue or an expenditure problem relative to highways.

VI. Physical Structure

Two issues are of concern relative to the physical structure of the Michigan highway system: 1) road construction standards, and 2) the level of maintenance devoted to the highway system. These issues involve the quality of product constructed with taxpayer dollars and the maintenance performed on the system to extend use of the highway system for as long as possible and minimize expenditures.

A. Road Construction Standards

The issue of road construction standards pertains to the materials, engineering, and financial assumptions that go into road and bridge construction. Michigan, as a northern state, must give greater attention to several factors that affect highway conditions.

1. Highway Condition Factors

Most highway problems in Michigan stem weather and terrain. Other factors, including the age of the highway system, a relatively heavy reliance on road salt, and truck use, also play important roles in road quality. How Michigan deals with these factors is key to the strength of its highway system. If these factors are taken into consideration at the design stage, constructing roads and bridges to a higher standard than is currently used might make greater economic sense.

a) Age of the Michigan Highway System.

By the time that the McNitt Act was fully implemented in 1937, much of the current Michigan highway system (104,974 miles) was in place. Other than the interstate system, which currently comprises six percent of the Michigan highway system, there has been very little addition to the road system since 1937.

Additionally, Michigan was a leading state in paving roads and designing its interstate system. On average, Michigan interstates are seven years older than those in other states. With a relatively old highway system, Michigan is facing the cost of reconstruction a little earlier than most other states.

b) Michigan Terrain and Weather.

Much of the Michigan terrain has soil types that are difficult for effective road construction, including a strong subgrade. The road subgrade is the soil bed upon which the road surface is placed. Soil quality is judged based on the performance of soil material according to gradation, liquid limit, and a plasticity index. The best soils for a road subgrade are gravels with a high bearing strength. The poorest soils have high amounts of clay, with low strength when wet. Parts of Michigan tend to have high amounts of clay. Soils in other parts of the state are a result of glacial deposits. Additionally, the state is home to a lot of wetlands. All of these soils make it difficult to create a strong subgrade.

Like many other northern states, deciduous trees -- trees that drop their leaves -- are common in Michigan. Leaves that fall on the road surface often end up in the drainage systems. Without proper maintenance, the accumulation of leaves prevents proper drainage. This affects road beds, compounds any subgrade problems caused by the soil types, and allows water to accumulate, weakening the road surface.

Michigan also is subject to relatively harsh freeze-thaw cycles. A freeze-thaw cycle occurs when temperatures fluctuate above and below the point of freezing (32 degrees). Because parts of the Upper Pen-

How Other States Deal With The Environment

Other states provide examples in which higher construction standards are imposed on infrastructure projects to account for conditions common to that state. In California, infrastructure construction costs are high relative to other states because of the danger of earthquakes. Infrastructure in Gulf Coast states is built to deal with the annual threat of hurricanes. Michigan residents do not have to deal with single event disasters of this sort. Instead, they have to deal with ongoing environmental conditions that negatively affect the highway infrastructure. The freeze and thaw cycle and winter weather conditions wreak havoc on the highway system. Like the additional costs incurred because of the high standards of construction in California and Florida for different reasons, standards of highway construction and maintenance appropriate to Michigan conditions should be applied.

insula and much of Canada experience a permanent freeze during the winter and states to the south remain much warmer, most other states experience few freeze-thaw cycles. The Lower Peninsula, however, experiences fluctuations above and below freezing several times during the winter.

Freezing and thawing causes expansions and contractions in road and bridge surfaces and pressure from the ground around the road pushes the concrete up out of the ground, creating cracks in the road surface. These cracks allow water to sink in and pockets to form around the reinforcing rods. With roads subject to this cycle, a higher initial investment in materials is required in Michigan to withstand this freeze-thaw cycle. Some of this investment currently is taking place, such as the use of a higher quality, densely packed aggregate.

Roads in Michigan are typically constructed 13 to 15 inches thick, with 9 to 11 inches of concrete on top of a 4 inch base. In order to properly account for the freeze-thaw cycles, roads like buildings, should be constructed with a foundation that reaches below the freeze-thaw line. This could require roads to be constructed as much as twice the current thickness, with a much deeper base.

Finally, winter maintenance creates conditions that accelerate the process of road deterioration. There are two means of winter highway maintenance: removing the snow and ice with a plow or "burning off" (melting) the ice and snow with road salt. While plowing causes wear and tear on the road surfaces, more significant damage is done to road surfaces with the use of road salt.

c) Road Salt.

Age, terrain, weather, and motor vehicles all contribute to road deterioration. However, the principal reason for the deterioration of Michigan roads is road salt. Road salt is used as a deicing agent, to keep snow and ice from bonding to the pavement and to allow snowplows to quickly and efficiently remove accumulations. When road salt is applied to ice and snow, it creates a brine that has a lower freezing temperature than ice or snow. Road salt is used as the principal deicer because of its abundance, low price, cost-effectiveness, and safety.

Today, salt is a necessary and generally accepted part of winter maintenance. It provides safety and essential mobility for motorists, commercial vehicles, and police, fire, and other emergency vehicles. Without road salt, there would often be hazardous conditions and greater expense in removing snow and ice solely with snow plows.

Michigan relies more heavily on the use of road salt than do other states. Road salt use grew common during the 1950s and 1960s when highway departments changed from a strategy of plowing snow to melting the snow and ice. Since the 1970s, aggregate road salt use has been fairly steady in the United States at about 10 million tons per year. Information about road salt use by different states is not kept regularly, however, the Transportation Research Board reports that only New York and Pennsylvania used more road salt per mile than Michigan did in 1989.[5]

d) Trucks.

Age, weather, terrain, and road salt all combine to create the conditions for deterioration of roads and bridges, but ultimately it is contact with the surface by motor vehicles that causes roads to deteriorate.

Michigan has historically allowed larger and heavier trucks to operate on its highways than those allowed to operate without a special permit in other states. Most states limit truck weights to 80,000 pounds, the federal limits, unless a special permit is obtained to carry heavier weights. Michigan law, because it was "grandfathered" in when the federal standards were adopted, allow commercial vehicles with a gross vehicle weight up to 164,000 pounds. These weight limits have been permitted since the 1950s.

Trucks weighing double the federal standards are permitted because weight limits are based on the axle load and the axle spacing, rather than the gross vehicle weight. This methodology is based on engineering analyses, which show that pavement design and load induced distress is related to axle loading rather than

[5] Highway Deicing: Comparing Salt and Calcium Magnesium Acetate, Special Report 235, Transportation Research Board, National Research Council, (Washington, D.C., 1991).

The **U**se of Alternative Technologies in Road and Bridge Construction

Steel and salt do not mix well. The aggregate used to construct Michigan roads and bridges surrounds steel. Roads are designed with a tightly packed aggregate to provide compression. Steel rods and steel I-beams provide tension that gives roads their structural integrity that holds roads together and gives bridges their strength. Salt is commonly used as a deicing material because it is readily available, the least expensive deicer, easy to store and handle, easy to spread, non-toxic, and harmless to skin and clothing.

Driving over the road or bridge surface causes flexing in the concrete. When road salt is applied to keep the roads clear of snow and ice, it is absorbed into the concrete or if there is an asphalt overlay, the road salt finds its way into cracks in the asphalt. The expansion and contraction caused by winter freezing and thawing, combined with the corrosion of the steel rods caused by salt, causes the aggregate to pull away from the steel. Eventually, pockets of ice, water, and air are created within the cement. When the steel is exposed to water and salt, the result is rust and the steel is weakened. It is only after the aggregate is weakened and road salt has corroded the steel that damage is reflected from the pounding caused by vehicles driving on top of the road surface. When vehicles drive over the air and water pockets, the aggregate comes loose from its surroundings and causes potholes.

Sand and Other Corrosives.

Other states use sand, or other friction agents, to deal with ice and snow. While these agents are less harmful to the road surface, their application tends to be more expensive. The use of abrasives requires at least seven times more material to treat a given distance of roadway. A loaded salt truck, spreading at the generally accepted rate of 500 pounds per two-lane mile for general storm conditions, can treat a 22.5 mile stretch of roadway, traveling a total of 45 miles on the round trip. A sand truck requires seven loads and must travel a total distance of 187 miles to treat the same section of road that a salt truck can treat with a single load, thus sand trucks require four times more fuel. The result is a greater use of fuel, increased staff, and more time spent treating roads during a storm.

Additionally, other states may have some advantage in using alternative corrosives. Much of Michigan receives a wet snow due to the number of freeze thaw cycles and the proximity of the Great Lakes. Rather than creating friction on the road surface, applying sand on a wet snow creates mud. Instead of snow and ice causing safety problems, mud would create different traction and safety problems.

Alternative Concrete Mixes.

One solution to the incompatibility of salt and steel is to use construction standards that do not expose the steel bars to water and other materials. Engineers employed by the State of New York Department of Transportation have developed a "High Performance" concrete (designated Class HP). Class HP concrete substitutes "Class F" fly ash and microsilica for a proportion of the cement used in conventional concrete and a lower water-to-cementitious ratio. Fly ash is industrial waste material from smoke stacks. Tests have shown this mix results in lower permeabilities of water, air, and chlorides, reduces cracking potential, creates a comparable strength gain rate, and is easier to handle and place than conventional concrete mixes. In 1996, this mix was established as the required class of concrete for all bridge deck construction and the department is now implementing its use in substructures. The New York DOT estimates the use of Class HP concrete will increase construction costs by about ten percent over construction costs using conventional concrete. However, this cost is offset by a projected life of two to three times longer than the expected life of conventional concrete and the benefit of finding a productive use for the fly ash that would otherwise require space for storage.

Materials That Do Not Rust .

A second solution is to use materials that do not rust as reinforcing rods. The automobile industry has had to face the same basic problem that road constructors face; namely that salt and steel do not mix well in the long run. The solution in the automobile industry was to work with stainless steel, plastics, and other materials not susceptible to the effects of salt. This solution might cost slightly more to consumers at their time of purchase, but in the long

run, the automobile lasts longer than if steel were still used. Similarly, in road construction, an alternative to deicing or friction agents is the use of something other than steel in road and bridge construction. Some applications that are less susceptible to rust are already being used in road construction, such as epoxy-coating the steel rods.

Research is being done on alternative technologies that would replace steel in roads and bridges. For example, Lawrence Technological University (LTU), in Southfield, Michigan, is researching the possible use of glass and carbon composites -- materials that are lighter and stronger than steel, and not susceptible to rust -- for use in bridge construction. This technology has been utilized in Japan and Canada, and the City of Southfield is cooperating with LTU in the reconstruction of a bridge in that city using this technology.

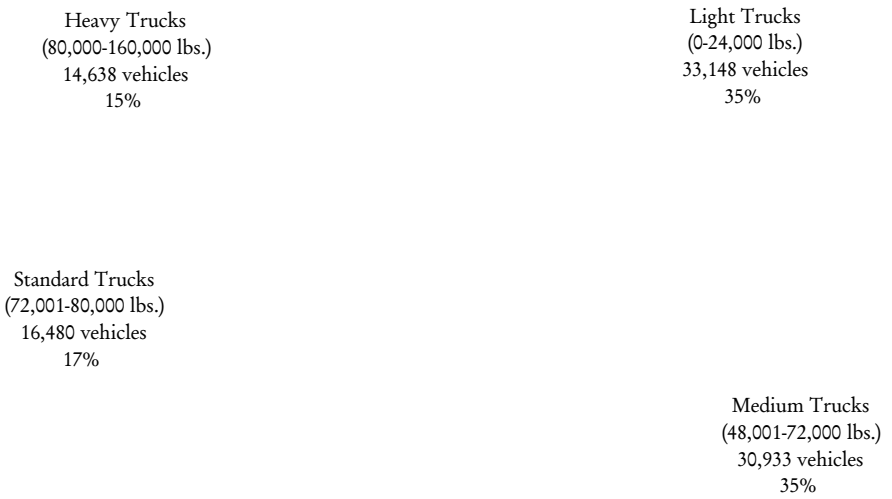
According to LTU, these alternatives could add to initial road construction costs, but they should reduce costs over the life of a bridge. Steel bars comprise about ten percent of bridge construction costs. Using carbon or glass composites currently costs about five times as much as steel bars. However, if this technology proves feasible, this extra cost would be more than offset by lower maintenance and repair costs over the long term. LTU hopes to demonstrate that a bridge constructed using this technology could have a design life of 200 years, a period in which a bridge constructed using steel bars would have to be replaced four times.

to vehicle gross weights. Trucks weighing 164,000 pounds must have the load weight spread over 11 axles. Because the heavier load is dispersed over more axles, the axle-weight is lower than the axle weight of an 80,000 pound truck spread over five axles.

Highways must be constructed to withstand the weight of trucks. According to MDOT, because axle-weight is the determining factor for damage to the road surface, heavier trucks do not add costs to road construction in Michigan. The same is not true for bridge construction. Because the total weight of a truck must be wholly absorbed by the bridge structure, the axle-weight bears little significance. MDOT reports that heavier trucks on Michigan highways add four percent to the cost of bridge construction.

The majority of the commercial trucks weigh less than 72,000 pounds. Of the 109,199 trucks registered in Michigan in 1994, only 14,638 (12 percent) were

Chart **17**
Number and Size of Trucks on Michigan Roads -- **1994**



Source: 1995 Facts and Figures, Michigan Department of Transportation.

registered with gross vehicle weights greater than 80,000 pounds. These vehicles generally carry bulk commodities such as steel, gravel, fuel, grain, and forest products -- commodities historically considered important to Michigan commerce (see Chart 17).

Prohibiting heavier trucks on the Michigan highways has the potential of increasing wear on the road surface. Transportation for these commodities would remain important. There would need to be more trucks on the highways to carry these commodities, making more trips to carry the same aggregate weights, with 20,000 pounds per axle rather than the 18,000 pounds per axle of the heavy trucks.

2. Re-Addressing Highway Construction Assumptions

Roads and bridges can be constructed to different standards that will result in different durations of usefulness; however, higher construction standards result in higher costs. Currently, roads are designed to last 25 years, and bridges are designed to last 50 years. This design life is expected to be extended with proper maintenance. These standards are based on American Association of State Highway Transportation Officials (AASHTO) assumptions on what taxpayers would be willing to pay for infrastructure that were developed some 40 years ago. Traffic patterns, upon which these standards are primarily based, have increased in volumes since that time, with much more truck traffic.

Because a number of Michigan roads and bridges are in need of replacement, the opportunity is at hand to reevaluate construction standards. Road and bridge usefulness under the current assumptions fall short when compared to those built in Germany or Japan, where greater initial investments have been made in highways so that they are less prone to deterioration and last longer.

A cost-benefit analysis of road and bridge construction and maintenance costs over the entire period of usefulness should consider whether constructing highways to higher standards could result in lower costs over the life of a road or bridge, because the road or bridge would not need to be replaced as often. A number of factors might affect these assumptions, including the advancement of highway construction technology since the AASHTO assumptions were formulated. The focus in reassessing these assumptions should be the long-term costs -- how much it will cost to construct and maintain a section of road or a bridge over its life of usefulness.

3. Effect on Road Construction Costs

Acknowledging that these factors all increase the cost of highway construction in Michigan, the question becomes, "How much more will it cost to build roads to a higher standard?" Some experimentation is currently underway in constructing Michigan highways to higher quality standards. A 2.1 mile stretch of I-75 in downtown Detroit recently was reconstructed using European construction standards. Reconstruction of this stretch of road used different techniques in the form of thicker concrete, shorter joint spacing, doweled joints, a deep foundation, and a denser, graded, drainable base. This stretch is expected to last 40 years rather than the 20 year design life roads have with commonly used construction techniques.

In addition to the higher construction standards, extraneous factors -- the level of contractor experience, lack of proper equipment, the small size of the section to be reconstructed, the importation of a superior grade of aggregate from Canada, and use of a special patented surface coat -- all contributed to increase the cost per mile of reconstructing this road to roughly double the average Michigan freeway construction costs of $3.5 million per mile. These extraneous factors mean that constructing other roads using these standards should cost less per mile than it cost to construct this experimental stretch of I-75.

Highway User Costs in Michigan

Any cost-benefit analyses must consider what costs current highway conditions impose on highway users. The highway system relies on the public provision of roads and bridges, but this infrastructure cannot be used without a private investment in motor vehicles. The Road Information Program estimates that substandard roads in Michigan cause motorists in the state to spend $679 million per year more than if they were traveling on roads in good or fair condition. This translates to $105.43 per driver per year for vehicle repairs (replace bent rims, align front ends, and other automobile maintenance) due to substandard roads.

Cold Patching and Plowing the Same Roads

Cold patching is the practice of taking a shovel full of asphalt from the bed of a truck and dumping it into a pothole. Usually, excess asphalt is put into the potholes because the proper equipment is not readily available to pack down the asphalt. The expectation is that vehicles will drive over the cold patch to pack it into the pothole. In general, this "throw and go" method of cold patching is fairly effective in filling the pothole.

However, problems often arise the next time there is a snowfall. Because excess cold patch is placed into potholes, and the cold patch is never completely packed down, the result is often a bump in the road. For vehicles on the road, this is often an annoyance. For snowplows, plowing the original road surface, this excess cold patch is something for the blade of the plow to remove from the road surface. The result is not shaving off the excess cold patch. It removes all, or almost all, of the cold patch. In the end, patching crews often are brought back again and again to patch the same hole.

Other methods of patching potholes require more time and effort, but last longer and have lower costs in the long term. Ideally, potholes would be patched by cleaning it of water and loose materials, squaring it, putting in tack coat, and filling it with a hot asphalt and aggregate mix, and then rolling it smooth. There are two alternative patching methods that are not as cumbersome as the ideal method. The "spray injection" approach involves cleaning water and loose material out of a pothole, treating the clean pothole with a tack coat, and then blowing a hot mix of asphalt and aggregate into the hole. The "throw and roll" approach is much like the common throw and go approach, except that the road crews do not leave excess aggregate to be patted down by passing vehicles. Rather, crews use their own truck to run back and forth over the newly filled pothole several times to settle and smooth the patch.

B. Investment in Maintenance

Because a very extensive system is already in place, it is not likely that there will not be a great deal of new mileage added to the Michigan highway system. The emphasis in highway administration is shifting away from the location and construction to a new emphasis on maintenance and operational efficiency. The resources and attention of the engineers charged with the care of this system must change accordingly to reflect this shift in emphasis. Directing the attention and resources of highway providers to this new focus is fundamental in providing economies and efficiencies to Michigan taxpayers. Part of this shift must include greater attention to capital maintenance.

A capital maintenance program requires that preventive actions take place before damage is done to the road or bridge structure. Maintenance of roads involves such activities as keeping drains clear and making sure that expansion joints are in working order. A properly funded and executed capital maintenance program is one-third to one-fifth the cost of replacing roads that are in poor condition because they have not been properly maintained.

Kansas provides an example of how effective maintenance can reduce costs in the long run. Rather than dealing with potholes in a crisis manner, the state has decided to invest in maintaining roads that are sill in fairly good condition, sealing and redoing overlays so water cannot get in. An American Public Works Association study has found that after four years, the state has begun to see a regular annual drop in the amount of aggregate and asphalt used for pothole patching.

Capital maintenance has not been properly funded in recent years. MDOT has found that road repairs have been underfunded. With limited resources, highway providers have had to choose between construction and maintenance. With a greater return on investment when resources are committed to construction, maintenance has been delayed.

1. Effect of Federal Funding on Maintenance

Efforts to maximize the federal funds available to the state have tended to crowd out funding available for capital maintenance projects. Federal highway funds can be used only for construction, reconstruction, or enhancement. For every $10 expended by the state on roads eligible for federal funding, the Federal Highway Administration contributes $90. Efforts to put state resources into projects eligible for federal

funding, because they deliver a greater return on investment, have left few resources available for the capital maintenance projects.

Restrictions on the use of these funds for construction, reconstruction, and enhancement are based on the intended role of federal funding. It was meant to assist the states in constructing a uniform national highway system. Once the system was built, it was up to the state and local governments to maintain it.

Because construction of the Michigan highway system is nearly complete, reliance on federal funds should diminish over the coming years. Additionally, because this incentive has had a crowding out effect on maintenance funding, reducing the federal gas tax or changing the role of federal funding could affect how priorities are set for maintenance funding.

VII. Administrative Issues

A commonly perceived problem in the provision of highway services is the duplication of services among units and levels of government. Addressing the jurisdictional control of roads will provide opportunities for these governments to become a little more specialized in the highway services they provide. The next step toward reducing duplication is the realization that there are 83 counties, 534 cities and villages, and one state government, all constructing and maintaining roads throughout the state. There are two ways for governments to use specialization to their advantage: privatization and intergovernmental cooperation.

A. Privatization

Privatization is a much-heralded means of achieving economies and efficiencies in the delivery of a wide variety of government services, including highways. Privatization of government services occurs when the government contracts with an outside interest to provide a service on behalf of the government.

The privatization, however, is not panacea. Labor, machinery, and supplies are required to perform highway construction and maintenance, whether these tasks are performed by a public or private body. There is little to show that a private body is better suited to care for highways than is a public body. What privatization brings is competition and a strong incentive to eliminate waste and duplication.

Operations of the private sector are not always less ex-pensive than the operations of the public sector, but the private sector can often position itself to take advantage of economies and efficiencies. For example, the private sector can make changes in personnel more easily than the public sector. Additionally, private companies are not confined by the boundaries of a single unit of government. Private companies can contract with several units of government, thus allowing the company to take advantage of the economies-of-scale inherent in the care of highways.

For the typical unit of government in Michigan to care for highways, staff and equipment must be maintained in sufficient levels to handle a "worse-case" scenario. However, the need for this level of staffing and equipment does not remain uniform throughout the year. Periods of over-staffing would result from maintaining this staff year-round. Because a private company can utilize its staff and equipment over a wider geographical area than the typical unit of government, it can avoid many of the problems of over-staffing.

Finally, by serving a wider geographical area, private companies are able to position themselves to enjoy the savings of purchasing in larger quantities. Many suppliers offer lower unit prices if the supplies are purchased in large quantities. Unless governments engage in intergovernmental cooperation or joint purchasing arrangements, they cannot position themselves to enjoy economies-of-scale that the private sector enjoys.

B. Intergovernmental Cooperation

In order to take advantage of economies-of-scale in highway provision, local governments must think of themselves less as independent, autonomous bodies and more as a part of an integrated system. Local control of roads will facilitate decisionmaking that is in the best interest of individual communities, but efforts to work together with other highway providers in the actual road construction and maintenance will bring greater economy and efficiency.

Michigan law is very permissive in this regard, allowing governments to enter into cooperative agreements to maintain, enhance, or provide services in any way possible. All governmental units in Michigan are authorized to cooperate with one another in the provision of any functions that each would have the power to perform separately. Article VII, Section 28, of the 1963 Michigan Constitution, as implemented by the "Urban Cooperation Act," authorizes all governmental units to:

> . . . enter into contractual undertakings or agreements with one another. . . for the joint administration of any functions or powers which each would have the power to perform separately; share the costs and responsibilities of

> functions and services with one another. . . which each would have the power to perform separately; transfer functions or responsibilities to one another. . . upon the consent of each unit involved; cooperate with one another. . . ; lend their credit to one another or any combination thereof as provided by law in connection with any authorized publicly owned undertaking.

C. Experience with Privatization and Intergovernmental Cooperation

The state, counties, and municipalities have different experiences and different potential for utilizing privatization and intergovernmental cooperation.

1. Michigan Department of Transportation

The Michigan Department of Transportation has experience in both intergovernmental cooperation and, more recently, privatization.

a) Privatization.

MDOT does very few of the physical tasks involved in construction and maintenance of the highway system. Act 51 requires all federal-aid construction projects, and all other projects concerning highways, streets, roads, and bridges exceeding $20,000 for construction or maintenance, to be performed on contract ". . . unless the department shall affirmatively find that under the circumstances relating to those projects, some other method is in the public interest."

In recent years, MDOT has experimented with competitively bidding the maintenance contracts of entire stretches of highways. Maintenance of a section of I-94 in Wayne County and I-496 in Ingham County was contracted competitively. In the case of I-94, the Wayne County Department of Public Works won the contract both years in which they have had to compete. Wayne County had been maintaining this section of road prior to the competitive bidding process, but now does so at a reduced cost to the state. In the case of I-496, a private company, ABC Paving Company, won the contract. This is the first experiment with a private firm having full-time responsibility for a state road. In both cases, the state is paying less than it previously had to provide maintenance for these sections of the trunkline system.

b) Intergovernmental Cooperation.

MDOT also has experience in intergovernmental cooperation. MDOT contracts with 62 of the 83 counties and 125 of the 534 municipalities for state trunkline maintenance within their boundaries. The state has written agreements with these counties and municipalities that defines what services are to be provided. If the state directly maintained its own roads, it would have to keep on hand at all times, staff and equipment sufficient in size to cope with any worst case needs. It is more economical to have somewhat larger county garages, than to place additional staff directly on the state payroll, either rent or build additional garages, and purchase additional equipment for the state to maintain these sections of road itself.

Many of these local governments have been maintaining the highway system within their unit by contract since the state trunkline system was first constructed. When state roads came into being, they were merely a specially designated system of township and county roads. While the state provided some "rewards" to fund construction of these roads, maintenance of these roads remained with the local government. As travel increased, state roads grew in importance and the state assumed a more direct responsibility for the maintenance of some roads, the practice of local governments maintaining state roads was continued in many other counties and municipalities.

Reimbursements to local governments for the care of state trunklines are based on cost accounting for all road operations of the county road commission or municipality. The state benefits from the efforts of county road commissions or municipalities in controlling costs under this arrangement. The advantages to the state with this maintenance agreement are that it has staff and machinery set aside for its use and can call for, and get, more staff and equipment for emergency use.

This arrangement is also advantageous to the counties and municipalities. Many local governments could not afford to keep their regular staff employed full-time or to purchase essential machinery for use only on their own roads. By contracting with the state, there is more work to be performed by the staff throughout the year. By leasing this machinery to the

state on a part-time basis, they also get the part-time use of it. The extra work and costs, that might otherwise be of marginal use, are justifiable with the greater workload.

Not all counties, cities, and villages contract with the state to maintain state trunkline roads. MDOT performs the maintenance work on the state highways in 21 counties, and in some cities. The state has chosen to do this itself either because some local governments do not wish to contract with the state, because the local unit does not have the necessary staff or equipment to carry out such tasks, or because the state has opted to keep the maintenance in-house for its own purposes. Because the counties with which the state does not have contracts are located throughout the state, MDOT has maintenance equipment located throughout the state. This allows the Department to perform tasks in the counties that are under contract if the road commissions cannot, or will not, perform those tasks.

MDOT could achieve some savings by carrying the logic of contracting one step short of a full contract for maintenance work. MDOT maintains garages in each of nine districts throughout the state. Not far from each of these garages is a county road commission garage. These garages are performing the same functions, often with the same kind of support staff. Rather than maintaining separate garages in each of the districts, the state could lease space from the county road commissions and share some support services.

It is possible that the maintenance work of some counties or municipalities is better than others, but it is also likely that differences are found between different state maintenance districts where the state maintains the roads directly. The present system of maintaining the state road system by use of the counties and municipalities works satisfactorily and economically. No gain would be made by changing to direct state maintenance.

2. County Road Commissions

Like MDOT, most county road commissions have experience with privatization. Unlike MDOT and most municipalities, however, county road commissions have not capitalized on using other resources available at that level of government, such as county accounting, personnel, or vehicle maintenance departments.

a) Privatization.

County road commissions have not privatized maintenance of stretches of roads as MDOT has done. Rather, they have privatized specialized and individual functions. These functions cover the whole gamut of road commission functions, ranging from asphalt paving and bridge construction to street sweeping and roadside mowing.

b) Intergovernmental Cooperation.

Construction and maintenance of the local highway system would seem inherently well suited for intergovernmental cooperation. Because every county road commission and every municipality receive funding from the Michigan Transportation Fund, the system created for highway maintenance tends to be very decentralized. Unlike other services that are provided by all or most units of local government, care of the highway system has not experienced a great deal of intergovernmental cooperation.

The entire state is covered by county road commissions. These county road commissions share borders with at least one, often four, in some cases six other county road commissions. County roads usually end where city roads begin, but in some larger urban areas the road system is intermixed with state highways, county roads, and city or village streets.

County road commissions could create opportunities for savings if more commissions engaged in intergovernmental cooperation. County road commissions have used their separation from the actual county government as a barrier to utilizing the kinds of specialization utilized at the state level. Most functions are kept in-house. They have not broadened to perform tasks other than road functions as is common with municipalities. County governments and county road commissions operate parallel administrative functions: including accounting departments and personnel office systems. Many counties are involved to some extent in maintaining vehicles for county use. However, county governments and county road commissions use separate garages and personnel to maintain these vehicles. Like municipalities, many counties have parks and recreation departments that perform tasks similar to those performed by county road commissions, but the counties have their own personnel and vehicles to tend to these parks. A great deal of duplication could be

avoided with intergovernmental cooperation. This would allow county governments to share the available resources whenever possible to provide more resources with fewer dollars.

3. Municipalities

While most cities and villages tend to contract for construction or major street functions, routine maintenance tends to be performed in-house. One advantage municipalities have over county road commissions is that resources are spread over several functions. Many municipalities have combined road maintenance with other services of like content: parks, cemeteries, and grounds' maintenance.

Intergovernmental cooperation has not been as readily adopted by municipalities. As with county road commissions, there is great opportunity for intergovernmental cooperation and potential for savings in the maintenance of municipal street systems. The state has a number of urban areas in which several municipalities border each other. The nature of these urban municipalities is that they were created as the larger cities grew and people desired residences in less urban areas, while still depending on the larger cities for employment and shopping. Consequently, a network of roads exists inter-linking the larger cities with their outlying municipalities. Yet, in nearly every case, care for the municipal roads ends at the borders between the municipalities.

Cities and villages tend to be fairly compact, often with land areas of only a few square miles. In suburban areas, they usually have common roads running through them. In many cases, these municipalities have already cooperated to some extent for care of roads that serve as the municipal border. These municipalities all perform the same street tasks, in the same general way. They all use staff with the same basic skills. They all own the same basic equipment. They all have garages of like purpose. They all buy the same types of supplies to perform maintenance tasks. All of these factors would seem to indicate that road and street maintenance would lend itself well to intergovernmental cooperation. If implemented properly, there is opportunity for savings through cooperation in highway care. The Urban Cooperation Act provides for such cooperation.

D. Conclusions: Administrative Issues

Any ability to gain efficiencies, reduce duplication, and save taxpayer dollars should be encouraged. Both privatization and intergovernmental cooperation lend themselves to this end. For the most part, state and local governments have successfully implemented privatization and further efforts should be pursued. However, privatization, when adopted, should be implemented in a manner that promotes effective contract management. Contract management involves different staffing requirements than acting as the actual service provider. Namely, contract management requires the ability to analyze proposals and award contracts on a competitive basis, to monitor work performance, and to audit the services provided. As the actual provider, the staff must have the skills to perform these tasks.

Intergovernmental cooperation does not require a change in the focus of the government highway providers. Instead, it involves consolidating the funds, staff, and equipment from more than one unit of government to provide highway services over a wider geographic area. Since every city, village, county, and potentially, some townships provide highway services, cooperation could yield sufficient benefits and taxpayer savings.

Additionally, administrative and system delivery efficiencies would result from addressing the assignment of jurisdictional control over the roads. This would allow each unit of government to concentrate its efforts on the roads and bridges that best reflect the regional or local nature of that unit of government.

The Need for County Road Commissions

Because many of the conditions that made establishment of county road commissions necessary have subsided, it is often suggested that county road commissions be abolished. Irrespective of any arguments for or against the faults and merits of county road commissions, the gains from abolishing county road commissions may be less than anticipated under the current county governance structure. It is not clear that county commissions in the general law form of county government, under which county road functions would fall with the elimination of county road commissions, are better suited to administer roads than are county road commissions.

Background.

County road commissions were established to fill a void. Townships had proven incapable of creating extensive, uniform highway systems to connect the state's population centers. Additionally, the legislative, policymaking bodies for county government prior to the late 1960s were county boards of supervisors, consisting of one representative from each organized township, cities, and village. Supervisors were not elected by county voters, but were selected from local units of government. Community funding needs were the highest priority in the eyes of the people in that community, and the votes of the supervisors tended to reflect this bias. Thus, without an autonomous governing body making road decisions, funding and priority decisions for county roads would reflect this parochial bias. In this context, it made sense to create an independent body for care of regional roads.

The regional nature of the county road systems was reduced by the McNitt Act, Public Act 130 of 1931, which merged township roads into the county road systems. After this merger, local access roads accounted for a majority of the county road system. A local access road serves a very narrow purpose; access to the properties abutting the road. This Act changed the significance of having an autonomous body to deal with regional roads.

Courts ruled that the provisions for a county board of supervisors, Article VII, Section 7, of the 1963 Michigan Constitution, violated federal constitutional provisions. This was addressed by Public Act 266 of 1966, which ended the system of selecting county supervisors from local governmental units and replaced it with a general election of county commissioners. This change gave county boards of commissioners a county-wide focus that had not been previously possessed by the boards of supervisors.

It is arguable, given the effects of the McNitt Act and Public Act 266 of 1966, that the void that county road commissions were created to fill no longer exists. County road commissions are no longer making decisions solely about constructing roads between population centers, administering only major, inter-community roads, or filling a void as a policymaking body elected solely for county government purposes. Given these factors, perhaps the niche filled county road commissions no longer exists, and they could be eliminated.

County Government Options.

In Michigan, there are three kinds of county government. These include the general law county, the optional unified form, and the charter county. Under the general law and the optional unified forms of county government, road responsibilities rest with the county boards of commissioners. Road responsibilities rest with the county executive in charter counties.

If the county road commission were to be eliminate in a general law county, the road function would fall directly under the county board of commissioners. County road commissions consist of three commissioners who have both administrative and policymaking powers and duties over the road functions. County boards of commissioners in general law counties range in number from 7 to 35 commissioners, depending on the county population. They have both legislative and administrative powers and duties over all county functions. It is not clear what advantage would be achieved under such an arrangement.

Thus, unless counties move away from operating as a general law county, it is not clear that many of the claimed weaknesses of county road commissions -- such as, political decisionmaking, lack of accountability, and lack of connection with local needs -- would be addressed simply by transferring the powers and duties of the road commission to the county boards of commissioners.

The second option for county government is the optional unified form of county government as provided for in Public Act 139 of 1973. Only Oakland and Bay counties have adopted this form of government, which provides for either election of a county executive or appointment of a county manager. Both of these counties have opted for the elected county executive, whose powers are much more limited than the county executive under a county charter. Act 139 would need to be amended to provide for the road function to fall under the county executive. Therefore, responsibility for roads would fall upon the board of commissioners, with many of the problems that would face a general law county if it were to eliminate its county road commission.

The principal benefit of moving away from operating as a general law county is the county executive position. The Home Rule Charter County Act, Public Act 293 of 1966, is the option that most clearly allows for and grants the most powers in a county executive. In 1980, Wayne County became the first Michigan county to adopt a charter. That charter established a strong county executive form of government. Among the aims of this charter revision was a reduction in the number of independent bodies in county government. The Wayne County Road Commission subsequently was abolished and the road functions were placed in the Department of Public Service under the county executive. While budgets, contracts, and revenue raising responsibilities rest with the county board of commissioners, responsibility for priority setting and execution of the road construction and maintenance rests with the executive branch. The experience of Wayne County has established the precedent that the county charter may provide for abolishment of the county road commission. The arrangement in Wayne County has worked with apparent success.

Interstate Comparisons.

Highway provision is a prime example of how the federal form of government allows states to act as laboratories for experimenting with how to best provide a service. Each state has adopted a system of highway jurisdiction and governance that reflects the state's history and character. Because of the politics involved, many of these systems could not be transferred easily to another state.

Some states have highway jurisdiction systems that are drastically different from the Michigan system. For instance, 13 states either do not have county roads or the counties play a limited role in road care. These include: Alaska, Connecticut, Delaware, Maine, Massachusetts, New Hampshire, North Carolina, North Dakota, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia.

Other states have taken different approaches to organizing their county road functions. Each state has provided different levels of autonomy to local governments in the decision-making processes. The following are brief descriptions of how county roads are governed in a few surrounding states. These states have a county government history similar to Michigan, having been created from the Northwest Territory.

The services and functions provided by county governments are performed as agents of the state. The states that surround Michigan have systems of sharing state-collected highway-user tax revenues with the counties. Each state has taken a slightly different approach to organizing governance of the county roads and bridges. The physical construction and maintenance of roads and bridges in Illinois, Indiana, and Wisconsin are performed by the county government, similar to the services provided by county road commissions in Michigan. Ohio counties have county engineer offices, but all major construction and maintenance is contracted out. Unlike Michigan, Illinois, Ohio, and Wisconsin have maintained township road systems, which tend to consist of rural local access roads.

Illinois counties are responsible for rural primary roads, such as arterial and collector routes. Townships are responsible for rural access roads. Illinois county highway departments are run by county engineers appointed to serve six-year terms. Township roads are maintained by elected township road commissioners. Both of these levels of government receive some state motor fuel tax revenues to supplement revenues raised from local taxes. County engineers make recommendations on which roads to fix and how much money to spend in a year, but the final approval must come from the elected county board of commissioners. Township road commissioners make the spending and priority decisions for township roads. County highway departments are sometimes asked to maintain county landfills, to serve as the plat officer, or to take part in zoning. Township road commissioners are responsible only for roads and bridges.

In Indiana, county roads and bridges are secondary roads in rural areas. Any roads within a municipal boundary are, by definition, the responsibility of the municipality. Responsibility for setting funding levels for county roads and bridges rests with the boards of county commissioners, the executive branch of county government. Beyond this, county road administration varies widely from county to county. The boards appoint county highway supervisors, to have general supervision of the maintenance and repair of all county roads and bridges. Some counties have one supervisor. Some have more than one. Some counties have hired county highway engineers to oversee roads. Some counties have employed one individual as both the highway supervisor and the highway engineer. The supervisors or engineers are responsible for priority setting in most counties. Sometimes the boards of commissioners reserve priority setting for themselves in their own districts. Like Michigan, Indiana does not have township roads.

Like Michigan, Wisconsin counties have optional home rule provisions. Almost one-half of the counties have adopted these provisions and currently operate with a county executive. Each county has a highway or transportation committee, depending on the number of modes of transportation provided, that makes program recommendations on the amount of spending and the road priorities. These committees tend to have more responsibilities in non-home-rule counties. The recommendations of the county executives tend to carry more weight in home rule counties. It has become common for counties to have departments of public works, instead of highway departments, that provide landfills, airports, parks, and other services in addition to constructing and maintaining roads and bridges. County roads tend to be rural primary roads, although urban counties tend to have county roads intersecting and serving the same purposes as municipal streets. Township roads, governed by township boards, tend to be rural local access roads. County highway departments often provide a wide array of road services to townships, ranging from piecemeal services such as bridge inspection, technical expertise, and routine maintenance, to a contract to service all township roads.

While Ohio counties have responsibility for roads and bridges, the physical activities involved in constructing and maintaining these roads are primarily contracted out. All road work with aggregate costs in excess of $10,000, bridge work in excess of $40,000, and purchasing over a year in excess of $15,000 must be let by contract. These dollar requirements have not been revised over the years to reflect changes in purchasing power and there is some pressure to revise these amounts upward. The county boards of commissioners are responsible for approving all contracts, approving the dedication of new roads or vacating roads that no longer serve public purposes. Ohio has township roads also, and the county commissioners have the authority to decide when a new road is dedicated whether it should be a county or township road. County highway departments, referred to as county engineers' offices, are managed by independently elected county engineers. County engineers are responsible for overseeing the roads, preparing the engineering work in the preparation stages, presenting a plan of road work every year to the boards of commissioners, and performing the actual work on forced account projects (minor projects that do not exceed the limits requiring a project be let by contract). As independently elected officers, county engineers have autonomy to perform some work independently, but they must work hand in hand with the county boards of commissioners to make this system work.

VIII. State Highway-User Tax Allocations

Over the years in Michigan, increasing raising revenues responsibility have been given to the state government, not only to fund state highways, but also to fund a portion of the local street costs. There are two reasons for this. First, the state is the unit of government best suited to levy most highway-user taxes. Second, tax policy has evolved over the years, leading state revenues to supplant local taxes, particularly property taxes, as the primary source of local highway revenues.

The sharing of state revenues with local governments for highway purposes predated any active state involvement in the construction and maintenance of the highway system in Michigan. Initially, this involvement entailed "reward" dollars to encourage a uniform highway system between population centers of the state. This involvement eventually grew into the state trunkline system and a direct state involvement in highway construction.

State highway-user tax revenue allocations to local governments were a minor proportion of local government's highway funding until the Great Depression and the subsequent passage of the McNitt and Horton Acts. (See **Chart 18**.)

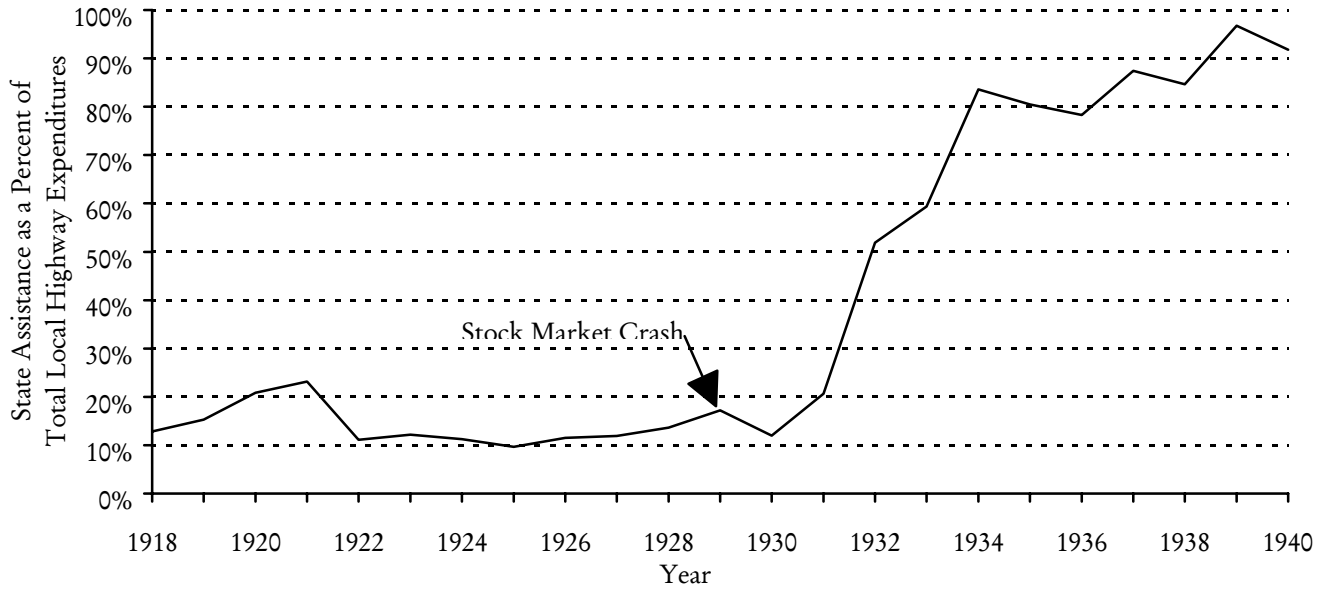
A. The McNitt and Horton Acts

The Great Depression resulted in a decline in the assessed valuation of taxable property, the adoption of the 15-mill property tax rate limitation in 1932, and a large volume of property tax delinquencies. This left many local governments unable to meet debt service requirements from the property tax levy.

The first step toward addressing these problems was passage of the McNitt Act in 1931. This Act merged township road systems with county road systems to allow local highway agencies to capitalize on the remaining tax base. Given the circumstances of the time and the enactment of the McNitt Act, a means was needed to fund local roads and fill the void created by departure from the use of the property tax. This void was filled by the Horton Act.

The Horton Act affected financial support at all levels of government by changing the allocation of motor-vehicle weight and motor-fuel tax proceeds. As a re-

Chart 18
State Highway Assistance to Local Governments in Michigan: 1918-40



Source: Michigan Highway Finance, Robert S. Ford and Marvin A. Bacon, (University of Michigan Press, Ann Arbor, 1943).

sult, township and county property taxes for road improvement, maintenance, or debt service were practically eliminated. State-levied, highway-user taxes became the chief bases of rural highway finance in Michigan.

Public Act 51 in 1951 now governs highway governance and finance. Its enactment was a reaction to the shortcomings of the Horton Act. Among other things, the Horton Act resulted in an inefficient allocation of state tax revenues. The Horton Act included specific provisions that one-half of the money available for state trunkline construction had to be spent in the forest and mineral sections of the state (i.e., the northern Lower Peninsula and the Upper Peninsula). Additionally, very few state dollars found their way to municipalities under provisions of the Horton Act.

B. Michigan Transportation Fund

The Michigan Transportation Fund is the primary receiving fund for the tax revenues and user fees dedicated to highway purposes, including motor-fuel tax revenues, motor-vehicle weight and ad valorem tax revenues, other revenues from the Michigan Vehicle Code, and the Motor Carrier tax revenues. In FY1995, the Michigan Transportation Fund received nearly $1.4 billion from these revenue sources (See **Charts 18** and **19**).

Expenditures are not made directly from the Michigan Transportation Fund to finance transportation projects. Instead, appropriations or transfers are made from the fund to various state transportation funds, county road commissions, and cities and villages to finance various transportation projects in accordance with statutory formulas (See **Charts 18** and **19**). In a nutshell, the formula requires that:

1. The principal and interest on outstanding bonds and notes, administrative costs, and collection costs are paid.

2. Appropriations are made to finance special-need transportation projects through various funds, including:

- the Recreation Improvement Fund,
- the Critical Bridge Fund,
- the Raid Grade Crossing Account, and
- the Transportation Economic Development Fund.

3. Ten percent of the remaining funds are provided to the Comprehensive Transportation Fund for mass-transportation purposes.

4. The remainder of the funds (almost three quarters of the Michigan Transportation Fund revenues) are divided among the state, counties, and municipalities to be spent for snow removal and the "maintenance, improvement, construction, reconstruction, acquisition, and extension" of the highway systems under their jurisdiction. This division is based on the following percentages:

- The State Trunkline Fund (39.1 percent),
- County road funds (39.1 percent), divided among the 83 counties using a formula described below; and
- Cities and villages (21.8 percent), divided among the cities and villages using a formula described below.

1. Administrative and Collection Costs and Transfers to Other Departments

In FY1995, seven state departments relied in part on Michigan Transportation Fund grants totaling $76.6 million for their funding. These grants were for:

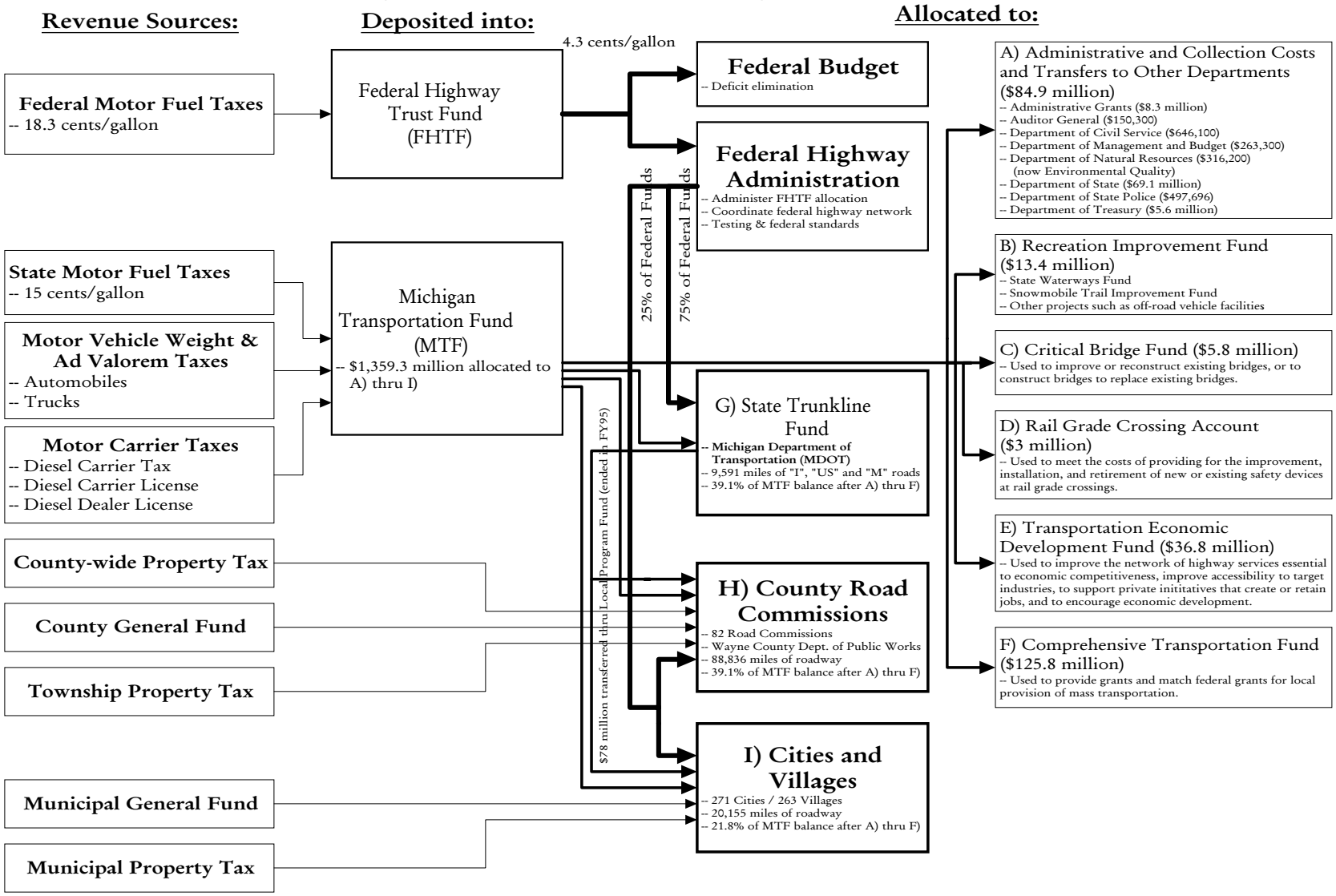
- Collection costs for the performance of revenue raising tasks on behalf of MDOT,
- Specialized tasks performed on behalf of MDOT by other departments, and
- The performance of tasks germane to the general conduct of government business.

a) Collection Costs.

Article IX, Section 9, of the Michigan Constitution restricts certain taxes, *after the payment of collection expenses*, solely for transportation-related purposes. Pursuant to this, a portion of the transportation-related taxes deposited into the Michigan Transportation Fund are transferred to the General Fund to finance collection activities performed by the Departments of State and Treasury.

Chart 19

Basic Organization and FY95 Funding of Michigan Highway System



Source: Michigan Department of Transportation, Annual Report, Michigan Transportation Fund Fiscal Year Ending September 30, 1995, (Lansing, MI: 1995).

Determining the proper amount of these grants has been a continuing point of controversy. Reports of the State Auditor General show that these departments have not been able to consistently identify their collection expenses or how much of their operations are transportation related. This inability has consistently led to both overcharges and undercharges to the Michigan Transportation Fund.

In many ways, it is nearly impossible to identify the proper amount of grants between departments such as these. If it were only an administrative task, with no external benefits, MDOT could perform that task itself. However, these departments perform many tasks and the transportation-related tasks serve other non-transportation-related purposes. The tasks performed for MDOT happen to fit most logically with these other departments. The problem arises in determining where a task stops serving MDOT and begins serving the other purposes.

For example, the Department of State directs services and programs in four major areas: traffic safety and motor vehicle-related activities; the election process and voter registration; housing the chief historian of the state; and keeper of the most important records of state and local government. The Department of State issues drivers licenses; administers the driver point system; titles and registers motor vehicles; and licenses automobile-related businesses such as car dealerships, repair facilities, automotive mechanics, and driver-training schools. The Department also registers snowmobiles, mopeds, and watercraft, and administers the state personal identification card program. The problem comes in determining how much of these efforts are related to its overall mission and how much it does on behalf of MDOT.

Additionally, there are other benefits associated with many of these tasks. Drivers licenses are issued for transportation purposes, but they also serve as a means of identifying people of drinking age. The Department of State reaffirms that vehicle registrants have the vehicle insured before the registration is issued. This has social implications beyond MDOT's concern. Tracking of vehicle identification numbers and title holders is used by police agencies. How should the costs of providing these services be allocated? In attempting to determine the proper compensation for collecting fees that go into the Michigan Transportation Fund, the state is attempting to draw a fine line in an area that is mostly gray.

A significant proportion of total taxes on a gallon of gasoline is destined not to be used for highway construction or maintenance, or for mass transit. If the price of a gallon of gasoline to the consumer is $1.20, total taxes would be approximately $0.40. Of this total however, seven cents would be attributable to the general sales tax and 4.3 cents is levied by the federal government for deficit reduction. In addition, the equivalent of two cents is transferred from the Transportation Fund to the Departments of State, Treasury, State Police, and Environmental Quality for highway-related functions that they perform. As a result, only about 26.7 cents of the 40 cents is directed toward highway construction and maintenance, or to mass transit.

b) **Transfers for Services of Direct Benefit to MDOT.**

The transfer of funds from the Michigan Transportation Fund to the Department of Environmental Quality (DEQ) is based on a memorandum of agreement with MDOT that provides for prompt processing of state, county, and municipal applications for wetland, stream-crossing, and water-discharge permits, and preliminary review of proposed projects. This transfer supports 11 employee positions in DEQ.

Likewise, the transfer to the Department of State Police is to cover matching funds for federal aid to the Office of Highway Safety Planning.

These transfers avoid duplication of knowledge and efforts. MDOT requires a staff person familiar with environmental issues to help steer through the maze of environmental requirements. It could hire and train someone to do this in-house, or it could take advantage of the fact that DEQ's function is the enforcement of these laws. The knowledge base is already in place, and a grant to DEQ allows MDOT to take advantage of this knowledge base.

c) Funding Other State Departments.

Dedication of Michigan Transportation Fund revenues to other departments can have the effect of distorting the funding needs of some state departments. While some departments have successfully earmarked

revenues for their own purposes, other functions, including welfare, higher education, corrections, and general government administration have to compete for General Fund dollars, which now has fewer revenue sources, for their funding.

Some functions, such as the Auditor General and the Civil Service Commission, span all of state government. The tasks performed are germane to the everyday operation of government, creating an economical, efficient government that benefits the entire state. Should these departments be funded out of the General Fund, or should they require grants from each department that is funded with a special revenue fund?

Article XI, Section 5, of the Michigan Constitution, specifies that the Civil Service Commission shall receive ". . . a sum not less than one percent of the aggregate payroll of the classified service for the preceding fiscal year. . . ." This provision was not meant as a vehicle for tapping into special funds. It was meant as a means of ensuring that the Civil Service Commission does not become under funded. Reliance on grants such as these creates a perception that the sole purpose of the Michigan Transportation Fund grants is funding these departments at a greater level than would be the case if the General Fund was their sole funding source.

d) Assessment of Problems and Recommendations.

MDOT is required to obtain a contract with other departments prior to any transfer of funds. These contracts require the departments to provide cost allocation plans to MDOT and to participate, if requested, with MDOT in an annual review of the services and programs financed from constitutionally restricted transportation funds. However, the Auditor General has found that effective processes have not been established by the Department of Management and Budget (DMB), in conjunction with MDOT, to ensure that the other departments are providing current cost allocation plans in order to properly allocate the cost of transportation-related activities to transportation-related funding sources.

While a study is currently being performed of the allocation of costs between the Department of State and MDOT, such studies are the exception rather than the norm. It has been several years since such a study last was conducted. The Auditor General repeatedly has recommended that each department involved in transportation-related activities and receiving grants from the Michigan Transportation Fund, should develop a time and effort cost allocation methodology to better identify transportation-related costs. Since the types of services, activities, technology, and programs conducted by each department, and the laws are constantly in flux, efforts to identify transportation-related costs should be an ongoing process for the departments receiving Michigan Transportation Fund dollars. With constant changes occurring, it is possible that such studies could be out-dated before the information collected actually is utilized in the appropriations process. A decade after conducting such a study, there is little chance that a grant will reflect actual costs.

2. Special Revenue Funds

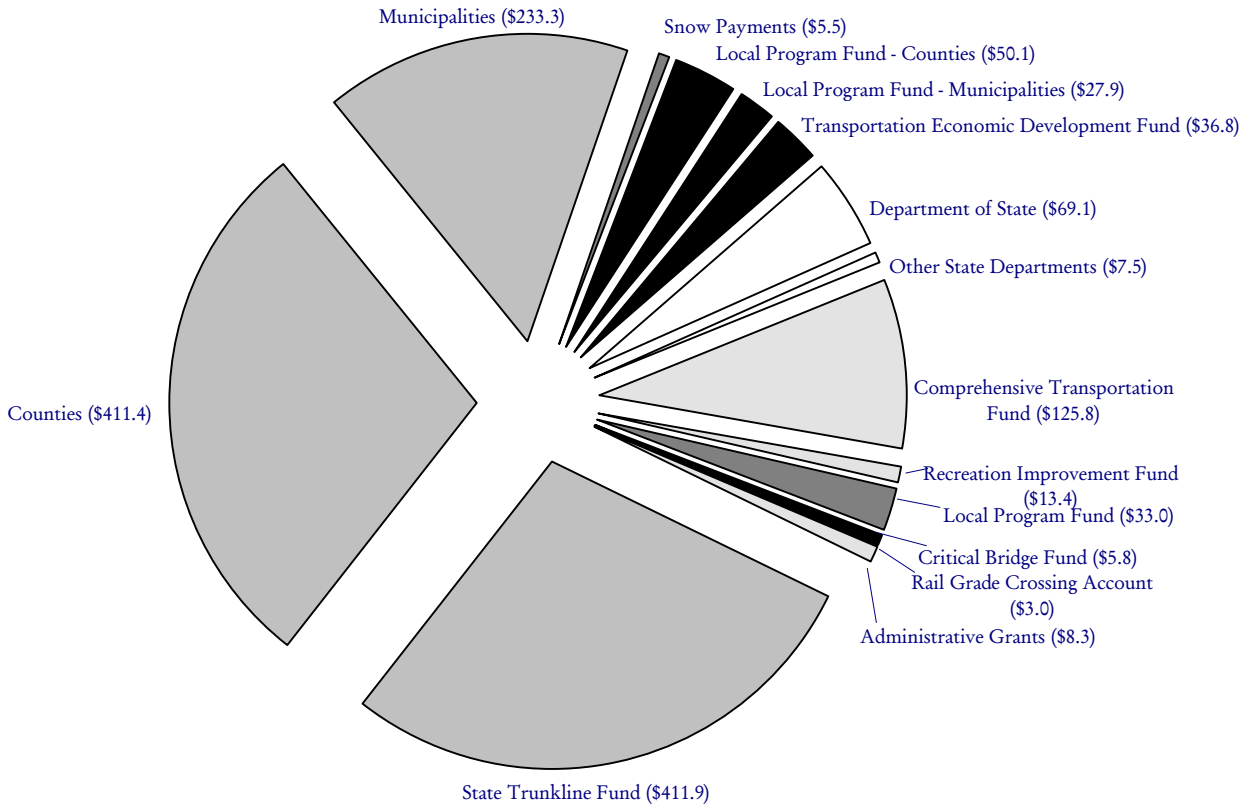
In order to aid Michigan highway authorities with the financing of special transportation and highway improvement projects, several special revenue funds have been created. These include the Recreation Improvement Fund, the Rail Grade Crossing Account, the Critical Bridge Fund, and the Transportation Economic Development Fund. The Michigan Transportation Fund remains the most logical fund to finance the needs met through these funds. In any case, the allocation of funds for each of these purposes should be revisited occasionally to ensure that the amount of the allotment maintains some relationship to need.

3. Comprehensive Transportation Fund

After dollars have been allocated from the Michigan Transportation Fund to each of these purposes, 10 percent of the balance is deposited into the Comprehensive Transportation Fund. This allocation is supplemented by the deposit into this fund of up to 25 percent of the general sales tax revenues on motor-vehicle related sales.

The Michigan Constitution was amended in 1978, at a time when more and more highway-user taxes were being diverted for comprehensive transportation purposes, to provide a limit on how much revenue from these sources could be used for comprehensive transportation purposes. These provisions permit, but do not require, the legislature to dedicate a portion of these taxes. Over time, these limits have evolved into a mandate, automatically making funds available for

Chart 20
Michigan Transportation Fund: Summary of Distributions -- FY1995



Source: Annual Report, Michigan Transportation Fund and Local Program Fund, Michigan Department of Transportation.

comprehensive transportation purposes. Comprehensive transportation is important and highway-user taxes remain a logical source of revenues. However, this fund should not be above review.

4. Highway Funds

After administrative and collection costs have been paid and funds have been set aside for funding special transportation-related needs, the balance of funds is used for highway purposes by each of the three levels of government involved in providing highways. Public Act 51 of 1951, as amended, provides for the allocation Michigan Transportation Fund dollars for these purposes through the end of the 1998 fiscal year. After September 30, 1998, the law provides only for apportionments and appropriations to each level of government sufficient to pay the principal and interest payments due on outstanding bonds and notes.

a) State Trunkline Fund.

The State Trunkline Fund receives 39.1 percent of balance. This fund is used for funding the construction and maintenance of state administered roads. MDOT and State Transportation Commission determine how and where these funds are spent.

b) County Road Funds.

Another 39.1 percent of the balance is allocated to the county road commissions. Internal formulas in Act 51 provide for the division of this money among the 83 counties. This formula first provides funding for specific programs:

(1) An amount equal to one percent of the total funds distributed to counties in the previous year is deposited into a snow removal account to assist those counties with measured snowfalls of 80 inches or more.

(2) In order to encourage each county to employ a licensed engineer, $830,000 is set aside for distribution of $10,000 to each county.

(3) Ten percent of the balance of county funds is distributed to counties having "urban" primary or local roads.

The remainder of the funds is distributed among the counties for use on primary (75 percent) and local roads (25 percent) based on the following factors:

- Counties receive funds for county primary roads based primarily on the proportion of registered motor vehicle taxes collected in each county under the Michigan vehicle code and, to a lesser extent, the proportion of total county primary mileage located in each county.

- Counties receive funds for county local roads based primarily on the county share of the total state population residing outside incorporated municipalities.

County road commissions cannot rely solely on Michigan Transportation Fund revenues for their funding. State aid for local road construction projects is limited to half of the costs on roads and three quarters of the cost on bridges (except if a bridge is included in the "critical" bridge program).

c) Municipal Funds.

The final 21.8 percent of the balance is transferred to municipalities. The formulas used for dividing the Michigan Transportation Fund money among the cities and villages include the following factors:

(1) The population of each city or village relative to the total urban population in the state;

(2) The miles of major roads in each city or village relative to the mileage in every city and village; and,

(3) The miles of local street roads in each city or village relative to the mileage in every city and village.

5. Implications of the Current Formulas

First, these formulas allocate funds to care for a highway system based on a 1930s model of Michigan. As discussed previously, much has changed since the 1930s. Jurisdictional control should be reorganized, and the Michigan Transportation Fund allocation formula dividing the money among the state, county road commissions, and municipalities should be revised to reflect that reorganization.

Second, the formulas dividing the county road funds among the county road commissions and the municipal funds among the cities and villages are favorable to rural areas of the state. The formulas recognize highway miles in such a way that a mile of highway in one location is equivalent to a mile of highway in any other location, regardless of the amount of usage. A two-lane road in a rural county holds the same weight in the formula as a six-lane road in an urban county. A proportion of the county road funds is set aside for urban roads, but as **Chart 15** shows (see page 38), more than 70 percent of the state population resides in urban areas. While a majority of the highway miles in Michigan are in rural areas of the state, a smaller majority of lane miles are in rural areas. Furthermore, a majority of the vehicle miles are traveled in urban areas (See **Chart 21**). Thus, measures that better reflect the cost burden on highway providers and highway use should be adopted.

C. The Role of Needs Assessment in Allocating Revenues

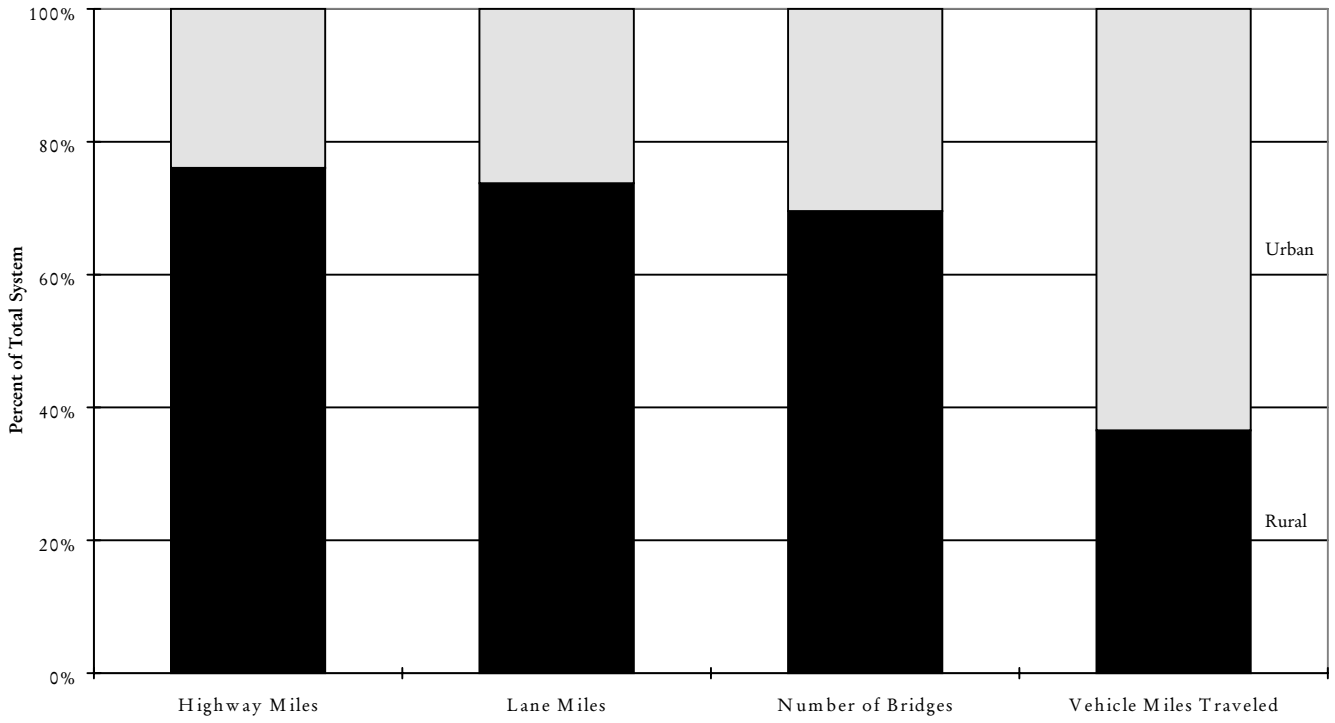
Conducting a needs assessment to prioritize highway needs is important for a proper allocation of state and federal tax revenues.

1. State-Collected Revenues

Revenue sharing programs, whether restricted or unrestricted, violate a fundamental and sound principle of government, that responsibility for raising money should accompany the pleasure of spending it. Despite violation of this principle, there are at least two justifications for such programs. First, some local government programs are of enough importance that the state should encourage their provision. Second, it is necessary for a state role in funding some services to minimize the potential inequities that would result from relying solely on local tax effort. Both of these justifications point to a need for state funding to be directed in a meaningful way to the local governments that are least capable of meeting local needs with local funding.

As long as state tax dollars are allocated for local spending, the state is responsible to taxpayers in:

Chart 21
Rural/Urban Nature of Michigan Highway System -- 1994



Source: Federal Highway Administration, 1994 Highway Statistics, (Washington, D.C.: Government Printing Office, 1995).

- allocating funds in a meaningful way;
- overseeing the local spending of these funds;
- auditing the information provided by local governments; and
- accounting for the expenditure of this money.

Michigan has a long history of sharing state-collected highway-user tax revenues with local levels of government for highway construction and maintenance. As the collector of these revenues, it falls upon the state to direct these dollars to the roads in a manner that recognizes needs. This holds true whether making decisions about priorities among state trunklines or in prioritizing needs among the different levels of government. It should also hold true in assessing priorities among regions of the state. Such an allocation system is lacking in highway funding.

2. Federally-Collected Revenues

The Intermodal Surface Transportation Efficiency Act (ISTEA) increases the need for a strong statewide needs assessment process. ISTEA requires greater local participation in planning and project selection than had previously been the case, thus emphasizing the need for a comprehensive investment strategy. To carry this out requires allocation decisions prioritizing state and local projects. These decisions are made more difficult and less informed without a statewide needs assessment.

3. Incorporating Use and Needs into the Allocation Formulas

The Michigan Transportation Fund distribution would be significantly affected if utilization and a measure of needs were factored into the formula. **Table 11**, which compares county highway miles to vehicle miles traveled by county, illustrates how using highway miles in the current allocation formula helps rural counties.

Oakland County, for example, comprises 2.7 percent of the county primary and local mileage in Michigan, but 13.6 percent of the total county vehicle miles are in Oakland County. Wayne County has 1.6 percent of the mileage, but 15.9 percent of the vehicle miles. Kent County has 2.1 percent of the mileage, but 5.1

Table 11

Comparison of County Highway Miles to Vehicle Miles Traveled by County -- 1995

County	Highway Miles	Percent of Total County Mileage	Vehicle Miles Traveled	Percent of Total County VMT	Percentage Point Diff. btw Mileage and VMT
Alcona	766.9	0.9	65.7	0.3	-0.6
Alger	497.4	0.6	16.8	0.1	-0.5
Allegan	1,825.8	2.1	273.3	1.2	-0.8
Alpena	658.6	0.7	70.6	0.3	-0.4
Antrim	879.5	1.0	93.4	0.4	-0.6
Arenac	655.8	0.7	43.3	0.2	-0.5
Baraga	498.8	0.6	10.6	0.0	-0.5
Barry	1,081.9	1.2	145.1	0.7	-0.6
Bay	1,022.6	1.2	324.4	1.5	0.3
Benzie	622.5	0.7	42.2	0.2	-0.5
Berrien	1,456.2	1.6	472.2	2.1	0.5
Branch	1,009.3	1.1	78.7	0.4	-0.8
Calhoun	1,328.3	1.5	270.0	1.2	-0.3
Cass	1,000.0	1.1	146.4	0.7	-0.5
Charlevoix	726.9	0.8	33.7	0.2	-0.7
Cheboygan	1,124.4	1.3	31.7	0.1	-1.1
Chippewa	1,285.8	1.4	71.8	0.3	-1.1
Clare	997.5	1.1	67.4	0.3	-0.8
Clinton	1,130.1	1.3	228.6	1.0	-0.2
Crawford	718.1	0.8	27.6	0.1	-0.7
Delta	859.9	1.0	64.9	0.3	-0.7
Dickinson	542.5	0.6	38.2	0.2	-0.4
Eaton	1,134.2	1.3	223.5	1.0	-0.3
Emmet	825.1	0.9	47.7	0.2	-0.7
Genesee	1,521.0	1.7	1,356.3	6.1	4.4
Gladwin	582.1	0.7	24.3	0.1	-0.5
Gogebic	951.5	1.1	56.6	0.3	-0.8
Grand. Traverse	1,301.5	1.5	375.0	1.7	0.2
Gratiot	1,182.0	1.3	126.0	0.6	-0.8
Hillsdale	1,208.5	1.4	134.0	0.6	-0.8
Houghton	878.2	1.0	20.3	0.1	-0.9
Huron	1,612.9	1.8	103.0	0.5	-1.4
Ingham	1,154.8	1.3	534.8	2.4	1.1
Ionia	1,077.7	1.2	95.9	0.4	-0.8
Iosco	867.7	1.0	62.0	0.3	-0.7
Iron	629.5	0.7	25.4	0.1	-0.6
Isabella	1,173.5	1.3	125.5	0.6	-0.8
Jackson	1,548.5	1.7	429.8	1.9	0.2
Kalamazoo	1,169.4	1.3	548.1	2.5	1.1
Kalkaska	838.4	0.9	39.8	0.2	-0.8
Kent	1,843.0	2.1	1,135.3	5.1	3.0
Keweenaw	173.8	0.2	7.0	0.0	-0.2
Lake	990.3	1.1	52.0	0.2	-0.9
Lapeer	1,298.2	1.5	206.6	0.9	-0.5
Leelanau	626.9	0.7	88.8	0.4	-0.3
Lenawee	1,510.3	1.7	255.1	1.1	-0.6
Livingston	1,209.4	1.4	326.6	1.5	0.1
Luce	371.6	0.4	12.8	0.1	-0.4
Mackinac	649.5	0.7	50.8	0.2	-0.5
Macomb	1,247.5	1.4	1,678.6	7.6	6.2
Manistee	1,040.0	1.2	56.3	0.3	-0.9
Marquette	1,278.1	1.4	126.5	0.6	-0.9
Mason	946.9	1.1	57.3	0.3	-0.8
Mecosta	1,135.2	1.3	56.3	0.3	-1.0
Menominee	1,198.8	1.4	47.0	0.2	-1.1
Midland	873.1	1.0	163.5	0.7	-0.2
Missaukee	845.6	1.0	24.7	0.1	-0.8
Monroe	1,286.4	1.5	371.7	1.7	0.2
Montcalm	1,523.7	1.7	135.3	0.6	-1.1
Montmorency	639.7	0.7	16.0	0.1	-0.6
Muskegon	1,117.0	1.3	228.4	1.0	-0.2
Newaygo	1,529.7	1.7	92.4	0.4	-1.3
Oakland	2,351.3	2.7	3,029.1	13.6	11.0
Oceana	1,159.0	1.3	48.0	0.2	-1.1
Ogemaw	848.1	1.0	76.2	0.3	-0.6
Ontonagon	588.6	0.7	27.1	0.1	-0.5
Osceola	944.1	1.1	74.7	0.3	-0.7
Oscoda	731.6	0.8	35.0	0.2	-0.7
Otsego	829.3	0.9	51.2	0.2	-0.7
Ottawa	1,486.1	1.7	489.0	2.2	0.5
Presque Isle	775.2	0.9	63.1	0.3	-0.6
Roscommon	841.6	0.9	66.6	0.3	-0.6
Saginaw	1,803.3	2.0	607.7	2.7	0.7
St. Clair	1,519.5	1.7	459.5	2.1	0.4
St. Joseph	1,010.0	1.1	146.0	0.7	-0.5
Sanilac	1,814.6	2.0	83.8	0.4	-1.7
Schoolcraft	433.3	0.5	16.7	0.1	-0.4
Shiawassee	1,076.3	1.2	161.5	0.7	-0.5
Tuscola	1,630.1	1.8	181.6	0.8	-1.0
Van Buren	1,291.7	1.5	214.6	1.0	-0.5
Washtenaw	1,486.7	1.7	673.7	3.0	1.4
Wayne	1,392.8	1.6	3,538.6	15.9	14.4
Wexford	985.4	1.1	35.2	0.2	-1.0
Total County	88,678.6	100.0	22,212.5	100.0	

Source: Michigan Department of Transportation.

percent of the vehicle miles. On the other hand, Houghton County has 1.0 percent of the mileage, but only 0.1 percent of the vehicle miles. Other rural counties show similar relationships.

Clearly, if transportation in lightly populated areas is to be made possible, some subsidization from more heavily populated parts of the state is necessary. On the other hand, to ignore highway utilization in the formula means that inefficient distribution will occur. Under the current formula, if the needs of heavily traveled highways are to be addressed, excessive amounts of funding will be directed to the lightly used roads. Conversely, appropriate funding in rural areas will mean a shortfall in urban areas. To the extent that a reorganization returns county road commissions to their original purpose, providing primary roads where municipalities are not available to provide such roads, the significance of this problem will be diminished. In any event, the internal formula should be changed to reflect more accurately the different costs imposed on county road commissions by multiple lane roads. Lane miles or vehicle miles traveled would be better measures than population and highway miles.

Finally, it should be recognized that the current measures act as proxies for the direct measurement of road needs. These measures approximate highway use, but they do not measure potholes, congestion, or roads at the end of their lifespan. When the highway system is receiving proper care and maintenance, use of proxy measures is suitable to fund future care and maintenance. In such a case, money needs to be allocated to those roads that are most heavily used. However, in many instances the roads in Michigan have not been properly maintained. Measures that more directly reflect needs should be considered, such as road quality, congestion, or funding prioritization based on a statewide needs assessment.

Past suggestions for alternative allocation formulas have not gone far, because they create winners and losers relative to the current formula. As long as these suggested formulas are based on proxy measures that approximate needs, based on road miles, vehicle registrations, or population, any reallocation creating winners and losers will be hard to justify. However, if a formula can be created that directly addresses the needs of the state, the "winners" will be the actual highway users, and the end result will be a highway system that is more uniform in quality than is currently the case.

IX. Conclusion

Although state and local spending in Michigan for most functions ranks high in nationwide comparisons, Michigan ranks near the bottom in most rankings of highway spending. This low level of spending shows up in a disproportionately high number of miles of road being rated as poor.

Increased funding for highways, therefore, can be justified. Part of this increase could come from state-levied highway-user taxes, but locally raised taxes need to play a greater role in funding local road needs. More money, however, is only a part of the solution and, in the long run, if the only response is increased dollars to highways, the transportation needs of the state will not be well served.

The basic system by which Michigan roads are constructed and maintained was adopted, for the most part, in an earlier era. It has been adjusted and modified over the years, but a thoroughgoing reassessment of the ways in which the state finances and administers its road system is overdue. At a minimum, such a reassessment should address these issues:

- *Jurisdictional Control.* The jurisdictional responsibilities for roads should be aligned with the functions that those roads perform. If a road that was once a major link between population centers is now a regional or local road, responsibility for maintaining it should be reassigned accordingly to either the counties or municipalities. Municipalities should be responsible for roads within their boundaries and county road commissions should be responsible for roads outside municipalities.

The exact purpose for which their tax dollars will be used should be clear to the taxpayers asked to support revenue enhancements -- whether at the state or local level. Without a rational, consistent, and relatively stable organization of roads, it is illogical that some roads will be fixed because they are state or county roads, while others of seemingly equal purpose and importance will not be fixed because they are under the jurisdiction of a different level of government.

- *Priority Determination.* The state has no structure for systematically determining which construction or maintenance projects should be carried out in what order. If projects of lesser importance take precedence, inefficiencies will result.

Taxpayers should not be expected to fund highways when there is no assessment of road conditions, the total cost of construction and maintenance, or the priority with which work will be undertaken.

- *Physical Structure.* Whether Michigan builds its highways to standards high enough to deal satisfactorily with the terrain, weather and types of vehicles to which they are subject, is an open question. Although some experiments with higher quality roads are underway, a major rebuilding of Michigan roads should be done in the light of a thorough understanding of the potential costs and benefits of higher construction standards.

In addition, incentives to increase the level of highway maintenance should be incorporated into the funding structure.

- *Administrative Efficiency.* Although some privatization and intergovernmental cooperation have occurred, there remain substantial opportunities to minimize overlap and duplication through further pursuit of these approaches.

- *Highway Funding Allocation.* Unless the mechanism by which dollars are distributed reflects utilization of the roads, dollars will continue to be maldistributed and result in unnecessarily high expenditures. In addition, a means of aligning funding with functional classification and appropriate jurisdictional control should be incorporated into the allocation formula.

So, in response to the question, "If taxes are increased to raise additional revenues for highways, will additional revenues, at any level, address the ills of the highway system, or are other reforms needed to make this system operate economically and efficiently," this report concludes that the answer is no. Unless the system is restructured, any additional dollars will be inefficiently allocated, purchasing a lower level of transportation services than they should, and highway expenditures will be unnecessarily inefficient irrespective of any increase in revenues.