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SUBJECT: MICHIGAN'S DETERIORATED INFRASTRUCTURE

#### Introduction

Infrastructure consists of the permanent installations required to support operational programs and activities. Infrastructure includes the buildings, utilities, airports, roads, bridges, prisons, colleges, hospitals, and other physical installations necessary for the administration, operation, and support of the activities of government and society.

A problem of infrastructure is that it begins to deteriorate from the moment of construction, due to the effects of age, usage, environment, or neglect. If unchecked, this deterioration will eventually imperil the safety and health of the users and the public and adversely affect the economical operation of the facility. Lack of maintenance accelerates breakdown and, if uncorrected, will lead to the ultimate failure of the installation.

An awareness of the deteriorated state of our nation's infrastructure has been growing for the past ten years. In Michigan, state government is just now beginning to address its problem.

## The Problem

In the postwar building boom, when the entire economy was redirected from wartime requirements toward catching up with the accumulation of needs in a peacetime society, the nation devoted 5% of the gross national product to improving its infrastructure. Colleges were expanded to make room for returning veterans; and new schools, interstate highways, airports, dams, and other public works were constructed. Many deteriorated installations were upgraded or replaced. The private sector joined in the construction boom, building new power plants, communications systems, housing developments, and industrial facilities. This activity declined, however, until, in the late 1970s, less than 2% of the gross national product was being invested in the nation's infrastructure. In Michigan, by 1980, when many of the "new" public facilities were 20-to-40 years old, little funding was being allocated for the maintenance of the state's physical plant. In fact, Michigan ranked 40th of the 50 states in infrastructure expenditures.

In the mid-1970s, concern about the condition of the nation's infrastructure stimulated studies and surveys, and various groups called attention to the dangers of neglect. In 1977, the American Council on Education, the Association of Governing Boards, and the National Association of College and

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University Business Officers published their findings about infrastructure problems at the nation's institutions of higher education. They found that America's colleges and universities had a backlog of unaccomplished maintenance costing as much as \$35 billion, for a total physical plant valued at \$126 billion.<sup>1</sup> Michigan's schools certainly had their share (perhaps \$1-1.5 billion) of this stunning backlog. Other widely circulated reports emphasized the gravity of the situation even in their titles: Mortgaging the Future, Before the Roof Caves In, and America in Ruins.<sup>2</sup>

The Department of Management and Budget, in 1983, surveyed the major needs of all state agencies for reducing the deferred maintenance backlog on state-owned buildings. The approximately \$200 million that would be needed to perform the identified repairs constituted only the "tip of the iceberg." Many state building projects were not identified; nothing was included for the support of new or expanded state programs; and nothing was considered for the infrastructures of local or county governments, school districts, and other governmental or public entities. Nor were projects included involving highways, bridges, airports, public transportation, utilities, energy, housing, economic development, or other public programs. All of these involve immense backlogs. Recently, for example, the U.S. Department of Transportation announced that 34% of the highway bridges in Michigan are deficient.<sup>3</sup>

How could the situation have become so critical in the public sector, when the private sector does not appear to be experiencing any such universal crisis? Installations operated by private sector entities deteriorate for the same reasons as do those operated by the public. The difference is that private business must show a profit and their managers are accountable for operations. Private sector budgets include funds for maintenance, repairs, and replacement. Constant monitoring and audits measure conditions and functions against specified standards.

Public budgets, in contrast, are set by legislators and administered by government employees, few of whom are truly expert in the intricacies of the infrastructure. The appropriation of public funds is influenced by the state of the economy, competing demands, politics, public relations, and other factors. There is need for greater centralized coordination in the public sector and for development and use of standards of physical condition, performance, operation, maintenance, and repair. Infrastructure deterioration is insidious and not necessarily discernible--especially to the untrained eye. Directors or managers of public institutions are customarily preoccupied with the problems of funding and running the operations of the institutional program, be it mental health, education, or corrections and may not have had extensive business administration training; thus, it is easy to see why adequate funding often is not directed to facility maintenance.

### Solutions

Solving the problem of deteriorating, or deteriorated, infrastructure basically requires preventive maintenance, repair, or replacement of existing facilities. In addition, infrastructure must be supplied for expanding, changing, and new programs. A total infrastructure maintenance program, in order of magnitude, includes the following:

- 1. Continuous, programmed preventive maintenance
- 2. Repair and replacement of parts
- 3. Elimination of backlogs of deferred maintenance
- 4. Renovation and renewal of facilities for the same or different uses
- 5. Expansion and new construction for new or larger programs
- 6. Disposal of unusable facilities before they constitute a hazard or become wasteful of resources

An all-inclusive program of maintenance of state government infrastructure, centrally coordinated and comprehensively funded on a long-term basis, is the best way to assure that ongoing public programs will be economically supported by the necessary physical installations.

### Moving Forward

Other public entities have long recognized the problem. Nebraska enacted, in 1977, a law providing for the renewal and restoration of state-owned facilities to their original condition and for maintenance at that level. New Jersey has adopted a comprehensive program to maintain public facilities and developed a computerized preventive maintenance program. New York has enacted a continuing maintenance funding program. Maryland has taken steps to adopt a coordinated facility improvement program. The City of Los Angeles, with an infrastructure considerably larger than the State of Michigan's, has adopted a maintenance management system.

While considerable interest has been directed toward the problems of state-owned infrastructure in Michigan during the past five years, little has yet been accomplished due to severe budgetary constraints. Lately, however, the picture has brightened. Governor Blanchard appointed a Coordinator of Public Investment and established two study groups to investigate the situation and recommend solutions. Their combined report, From Crisis to Opportunity: Rebuilding Michigan's Infrastructure, was recently published. Based on statewide hearings and expert testimony, the report contains recommendations to ameliorate the State's infrastructure problems in six general program areas:

- 1. <u>Economic</u> agriculture, economic development, tourism, and recreation
- 2. Education primary, secondary, and higher education
- <u>Government</u> corrections and military affairs (although not administration)
- 4. <u>Health</u> mental and public health, waste management, and water supply
- 5. Societal energy and housing
- Transportation airports, highways, public transportation, and railroads 4

The report concentrates on facilities that involve significant state capital funding. The findings were used by the Governor to develop his fiscal year 1985-86 capital outlay budget recommendations. In addition, the basic strategy proposed by the report is a five-step program commonly adopted to resolve such problems:

- 1. Data base formulation: information gathering
- 2. Problem identification: needs survey
- 3. Long-range program development: five-to-ten-year strategy and priorities
- 4. Resource acquisition: financial options
- 5. Detailed annual plans and operations: budgets and schedules<sup>5</sup>

In response to the report, <u>The Governor's 1985 Program to Rebuild Michigan</u> was issued. The Governor focused attention on the problem and laid out a detailed program for each concerned state department (see attached). In addition, he has recommended appropriations at a considerably higher level than in previous years to provide for stepped-up maintenance and repairs as well as for new construction.<sup>6</sup> Also under consideration is a proposal by the Governor to provide funds derived from state bond issues to local units of government to assist them in meeting their infrastructure needs.

The legislation to establish a municipal bond bank authority was introduced concurrently in both houses of the Legislature. The six-bill packages were identical and would enable local governments to save millions of dollars in costs by sharing the state's lower interest rates. Each package passed in its house of origin, but because of reported personal differences among certain legislators and rivalry between the two chambers, the cornerstone bills--creating a Michigan Municipal Bond Authority--of both packages are locked in committee in the opposite house. Senate Bill 85 has been in the House Appropriations Committee since it passed the Senate on May 2; and House Bill 4216, which passed the House on April 23, is tied up in the Senate Local Government Committee. If this legislation is delayed much longer, an entire year will be lost because the construction season will be too far advanced.

## Public Sector Consultants, Inc. Commentary

The normal useful life of a building, before it must be replaced or renovated, is 50 years. Other facilities in the infrastructure also have finite lives: streets and roads are normally considered to last 25 to 35 years; steam and condensate lines for 25 years; water and sewer mains, 50 and 75 years, respectively. A vast majority of all public facilities are 20-years old, probably half are nearing 40. Buildings more than 100-years old are being used today at Michigan's public institutions.

Bringing the infrastructure back to its optimal condition will be as complex as is the mixture of facilities which comprise society's physical plant. Inadequate funding is the primary cause of today's problem. Inattention, lack of concern, and lack of expertise also play a part. The combined study group report, the Governor's response, and the legislative consideration of the issue are substantial steps forward. We hope an assured, continuous program of funding, oversight, and coordination for infrastructure maintenance will result.

It must be pointed out that to counteract deterioration affecting safety, efficiency, and the useful life of public facilities other costly factors must be considered. Complying with modernized building codes and new fire safety

measures that are legally mandated or rationally required, providing access for the physically handicapped, preventing the waste of energy, preserving historic structures, and ameliorating environmental impact concerns will drastically increase the cost of renovated, rehabilitated, or newly constructed buildings. Generally, older buildings, even if not in need of repair, must be altered to meet these modern requirements. The cost of eliminating the backlog and restoring the infrastructure to full operational efficiency is so enormous that sufficient funds are never likely to be available to completely accomplish the task.

There will never, realistically, be sufficient funds to "catch up" with all of the needs. Long-term plans must be made for each segment of the infrastructure to assure that available funds are used to maintain the best facilities in excellent condition, rather than using them for facilities that could be more economically replaced than repaired. Assured funding, at some level, is a prerequisite for such planning. Excessive maintenance expenditures must not be made on facilities that are soon to be abandoned.

Ultimately, then, when the old facilities have been replaced with new and the modern ones maintained at the proper level, the infrastructure will again be able to render safe and efficient service at an economical cost. (For buildings, the general rule is that 1.5% of replacement value is required annually for full current maintenance. In 1985 dollars, this equates to \$105 million yearly to maintain just the \$7 billion dollars worth of state owned/operated buildings.) If current maintenance is again permitted to accumulate and repairs are not accomplished on a timely basis, the situation will never improve, indeed, we will be moving at an accelerated rate toward very serious problems.

The infrastructure needs of all public entities and levels of government must be addressed. The state public sector consists of many parts yet its whole is greater than the sum of its parts. The entire community has an interest in the rehabilitation of the infrastructure. It is everyone's safety, everyone's environment which is affected. Everyone's taxes build, maintain, and operate the infrastructure. The quantity and quality of public services supplied are greatly dependent on the condition of the infrastructure, as are the conditions of the economy and employment in the state.

The state must provide continuous and effective leadership--visible, vocal, and substantive--to public agencies at all levels to stimulate interest, initiative, and activity and to coordinate the use of available resources for maximum efficiency, safety, and service to the public.

# THE GOVERNOR'S PUBLIC INVESTMENT PROGRAM FOR 1985

# (in Millions of Dollars)

AGRICULTURE		HIGHER EDUCATION	
Soil Conservation	.7	New Construction	.2
State Fair/Agriculture Lab	.7	Maintenance & Repair	8.0
PCB Silo Clean-up	2.0	Community Colleges	-0-
		Remodeling & Addition	-0-
COMMERCE	~		
Liquor Control	-0-	MENTAL HEALTH	-
Michigan Strategic Fund	6.0	Building & Grounds Maintenance	3.0
Community Development Grants	8.8	Patient Treatment Areas	2.0
Energy Administration	4.5	MITITADY APPATEC	
MICHICAN STATE HOUSING		Milliari Arraiko	2 1
DEVELODMENT AUTHODITY		Air National Guard	3.1
Single Family Housing	200 0	Armories	2.2
Pental Housing Pehabilitation	200.0	Army Logistics	.0
Housing for the Disabled	2.0	Army Training	1.4
Energy Conservation	Ψ./ Ω		
Pental Housing	155 6	Parks & Pecreation	1 0
Home Improvement Loans	7 0	Wastewater Treatment	165 0
Small Cities C/D Grants	8.0	Waterways	1 6
Competitive Grants	.3	Hazardous Waste Management	64.0
	• •	Solid Waste Management	30.0
CORRECTIONS			
Correctional Facility Operations	1.4	PUBLIC HEALTH	
Consent Decree Settlements	5.6	Veterans Facilities	2.9
New Prisons	31.0		
		TRANSPORTATION	
EDUCATION		Airports	27.0
Schools for the Blind & Deaf	.3	Existing Highways Rehab	180.7
Vocational Centers	3.4	New Freeway Construction	96.0
		Bridge Construction & Repair	59.0
LABOR		Other Highway Improvements	61.5
Weatherization	22.2	Local Road Projects	<b>90.</b> 0
		Public Transportation	26.7
MANAGEMENT & BUDGET			
Maintenance & Repair	8.0		
Remodeling & Additions	2.0		
Fire Protection	2.0		
Energy Conservation	1.0		
New Construction	29.7		
Open Space Conversion	.4		
Planning & Special Studies	2.6		
Services to the Aging	1.3		
		TOTAL	1,342.2

NOTE: Dollar amounts include federal and state expenditures as well as the required local matching funds.

SOURCE: Public Investment Task Force, <u>The Governor's 1985 Program to Rebuild Mich-</u><u>igan</u> (Lansing: State of Michigan, Department of Management and Budget, 1985), p.44.

#### NOTES

<sup>1</sup>Robert L. Jacobson, "Deteriorating Physical Plants: Colleges May Pay Dearly for Delaying Maintenance," <u>Chronicle of Higher Education</u>, November 14, 1977, p. 7.

<sup>2</sup>Harvey H. Kaiser, <u>Mortgaging the Future: The Cost of Deferring</u> <u>Maintenance</u> (Washington, D.C.: Association of Physical Plant Administrators, 1979; Robert Hutson and Frederick Biedenweg, "Before the Roof Caves In: A Predictive Model for Physical Plant Renewal," <u>Association of Physical Plant</u> <u>Administrators Newsletter</u> July/August 1982; Pat Choate and Susan Walter, <u>America in Ruins: Beyond the Public Works Pork Barrel</u> (Washington, D.C.: Council of State Planning Agencies, 1981).

<sup>3</sup>Nancy Benac, Associated Press, "34% of State Bridges Called Deficient," Lansing State Journal, May 31, 1985, pp. 1B-2B.

<sup>4</sup>From Crisis to Opportunity: Rebuilding Michigan's Infrastructure, A Report of the Michigan Infrastructure and the Public Investment Task Force (Lansing: State of Michigan, Department of Management and Budget, April 1985).

<sup>5</sup>Ibid.

<sup>6</sup>Public Investment Task Force, <u>The Governor's 1985 Program to Rebuild</u> <u>Michigan</u> (Lansing: State of Michigan, Department of Management and Budget, 1985).