



The Region's Infrastructure:

The Problem Isn't What You Think It Is

*public affairs
research and education
in the Minneapolis-Saint Paul
metropolitan area*

CITIZENS LEAGUE

CITIZENS LEAGUE REPORT

The Region's Infrastructure:
The Problem Isn't What You Think It Is

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INTRODUCTION

The basic mission of this committee as expressed in the charge was to determine when and if prudent spending now might lower future spending needs and maintain needed service levels of public capital facilities.

We learned that the condition of the major regional infrastructure elements has improved in recent years through an infusion of money from the federal government for Interstate highways and wastewater treatment. The structure of government agencies which have responsibility for the infrastructure--decentralized local decisions for local systems, special purpose regional units for sewers, transit, airports, and parks overseen by the general purpose Metropolitan Council--is fundamentally sound and has achieved desired policy goals.

On the regional level, the regional operating agencies function as advocates for building and maintaining infrastructure unfettered by other public concerns, with the Metropolitan Council in a position to tie together all capital planning and make sure it fits in with overall regional goals.

At the local level, decentralized ownership guards against overall system failure and allows municipalities to determine appropriate service levels based on local public sentiment.

Because the major elements of the infrastructure are run on fee-based systems, money is available for upkeep.

The concern that emerges, then, is two-fold. Because so many of the federal grant programs are designed to support construction and upgrade capacity, is the system biased towards building and not maintaining even though maintaining may be a more efficient option? As these relatively built up systems mature, will existing financing and decision-making structures be able to meet the challenge of maintenance and rebuilding as well as they have met the challenges of building up infrastructure in the first place?

Our recommendations are designed to reformulate public policy with regards to the choices about building new versus maintaining. As explained to us by financial experts, borrowing, building and maintaining are situational decisions. Any choice to replace a bridge versus maintain it, to pay cash or to borrow must take into account assumptions about inflation, interest costs, the expected future replacement cost of the facility, how long the existing facility will last, added maintenance costs, and expected service levels. In short, there is no black and white answer to whether building new is a smarter choice than repairing.

Our proposals are designed to help public officials make choices about adding capacity, rebuilding, and maintaining public works as efficiently as possible and not to make a decision to build something new right away--just because a capital grant program exists--and then be in no position to properly maintain the facility or to replace it when the time comes.

By asking ourselves how much we will have to spend on maintenance and making that financial commitment as part of the initial spending decision, as we

propose, the community will understand the true costs of any new public works. Over the long run, this approach should reduce total costs.

We would also urge a more results-oriented approach to the larger question of what facilities are needed. Infrastructure systems exist to support larger policy goals; they are not ends in themselves. Major capital grants programs such as the Interstate Trust Fund and federal wastewater treatment grants may not be the most cost effective ways to enhance mobility and clean the environment. The construction of Interstate highways and the investments in wastewater treatment have been successful, but may not be the best approach to satisfying future needs.

We have therefore recommended more flexibility for local units to propose new approaches to securing policy goals. The debate here should move to a determination of what policy goals are sought and how best to achieve them and away from construction for construction's sake.

BACKGROUND

The maintenance of capital facilities for transportation, health, safety, and other common economic and social activities has long been the province of government in America. During the 200-year history of the nation, the roles of the private and public sectors have changed, as well as the roles of the different levels of government: local, state and federal.

Before the Civil War, various units of government undertook major programs of public works development to spur economic activity in the private sector. Canals and other transportation systems were built at public expense to serve mainly private needs. Later in the century, as the industrial society developed, the federal government assisted in the construction of private railroads through land grants. Railroads, the backbone of the emerging industrial transportation system, were privately owned and capitalized, in contrast to canals and roads.

The emerging industrial economy created an urban society. Cities required enormous public infrastructure systems of water, sewer, mass transit, streets, and public buildings which had not been needed for an agrarian society. These public works were built and owned primarily by cities.

By the 1920s, the automobile was revolutionizing American transportation habits and states built highways to serve new needs of motorists.

As with so many other governmental functions, the depression of the 1930s created an imperative for government action, this time with the federal government spearheading massive public works projects, many of which are still in use today. The creation of projects and organizations such as the Hoover Dam and Tennessee Valley Authority by the federal government were largely attempts to alleviate unemployment, a role thrust upon the government because of economic conditions. Massive sewer projects were undertaken in many cities, including the Twin Cities where the Minneapolis-Saint Paul Sanitary District was established as one of the many federally-financed wastewater treatment projects.

Viewed from the perspective of public works history, the depression was a time of changing roles and activity for the federal government. Federal spending on public works expanded at a time when state and local spending was declining.

The role of all government changed sharply in the 1940s during the Second World War. Smith College history professor Mark Aldrich has demonstrated that federal, state, and local capital spending declined rapidly during the war years with public capital flowing rapidly into the creation of wartime industries. Much of this industrial plant, built at public expense, remained in private hands for peaceful production at the war's end.¹

Throughout the 20s, 30s, and 40s, state and local governments continued to build, maintain, and own roads, highways, bridges, streets, waterworks (although in parts of the country, waterworks are privately owned), sewers, wastewater treatment plants, and, increasingly, mass transit facilities. The federal government took on major new responsibilities in the 1950s with the Interstate highway program, described as the largest single public works project in history, and during the 1970s with initiatives to control water and air pollution.

Federal involvement in highway spending became significant in this century. The Federal Aid System grew from 169,000 miles and five percent of the route miles in 1923 to 820,000 miles and more than 20 percent of the route miles today. Non-interstate projects may receive as much as as a 75 percent match from the federal government.²

Interstate Program's Inception

The seeds of the Interstate Highway system were planted with the report "Toll Roads and Free Roads," prepared by the Bureau of Public Roads in cooperation with the state departments of highways and presented to Congress in 1939. President Roosevelt appointed the National Interregional Highway Committee in 1941 to look into the report's proposed 26,700-mile, non-toll, interregional highway network. Study continued during the 1940s, but it was not until 1952 that Congress authorized \$25 million under the Federal Aid Highway Act for the Interstate highway system.³

Congressional action in 1956, the Highway Revenue Act, established the basic groundrules of the Interstate program as we know it today. The act created the Highway Trust Fund, financed through a four-cent-per-gallon gas tax and a variety of other user taxes, the 90 percent federal financing share for highway projects, and a plan for a system of limited-access highways to be built. Congress continued to modify the basic act during the late 1950s and early 1960s, authorizing increased spending as revenues rose and expanding the uses of the dedicated money.⁴

A summary on the status of the Highway Trust Fund in the Federal Highway Administration "Highway Statistics 1982" shows the opening balance for the fiscal year ending Sept. 30, 1982 to be \$9.3 billion. Total excise taxes received by the fund were \$6.9 billion, including \$4.3 billion in gas taxes. A total of \$7.8 billion was spent on highways and highway-related programs.⁵

A Congressional Budget Office report in 1983 said total highway spending in 1982 was \$37 billion, roughly the same amounts of money (inflation adjusted) as in the late 1950s, down from \$50 billion (in 1982 dollars) in 1969.⁶

Sewers Early Public Responsibility

Building and operating sewers and the treatment of wastewater to safeguard the public health had by and large been the province of cities and other local units of government in partnership with states. Colonial cities such as Boston, Philadelphia, and New York were building sewers as early as the first part of the 18th century.⁷

Scientific techniques began to be applied to solve water pollution problems during the late 19th century and pre-World War I years as the connection between pollution and health problems became generally understood. Following the first World War, state governments, with the help of the federal Public Health Service, constructed many wastewater treatment facilities, but the depression squeezed state-local finances, bringing down water treatment expenditures.

Federal involvement during the depression was centered on job-creation efforts through programs like the Works Progress Administration (WPA), the Civil Works Administration (CWA), and the Public Works Administration (PWA). Through these programs, more than 8,000 communities built or repaired their water and sewer systems, some 500 waste disposal plants were built, and 2,300 miles of sewer lines built.⁸

The federal government became directly involved again in the late 1940s with the passage of the Water Pollution Control Act of 1948 which authorized \$2.3 million in annual low-interest loans for water treatment. The Water Quality Act of 1965 established for the first time roughly uniform national water quality standards. In 1970 Congress passed the National Environmental Policy Act, establishing the Environmental Protection Agency (EPA), and calling for an impact statement for "every recommendation or report on proposals for legislation and other major federal actions significantly affecting the quality of the human environment."⁹

"The entire spectrum of pollution control philosophy was revised in 1972," according to A History of Public Works in the United States 1776-1976. The Water Pollution Control Act of that year established as a national goal the elimination of pollutant discharges into American waters. The "best practicable control technology currently available" and the "best available technology economically achievable" were supposed to be in use by the mid-1980s to clean lakes, rivers, and streams. Congress authorized \$24.6 billion for research and construction grants from 1972 to 1975.¹⁰

The federal government has long been active in supporting the airline industry and plays a role in the financing of airport construction. Under laws dating back to 1933 and 1941, federal grants have been available for airport construction. The current Airport and Airways Trust Fund, created in 1970, is financed by eight percent tax on domestic passenger tickets and a 14-cent-per-gallon tax on general aviation jet fuel. Collections from user fees are distributed to major airports in the form of matching grants determined by a formula based on passenger volume.

In 1982, the federal government was spending \$410 million a year for airport capital improvements. That figure is expected to rise to \$902 million in 1987.¹¹

Mass Transit Development

Mass transit facilities developed as American urbanized. The earliest urban mass transit facilities, horsecars, began to appear during the 1830s. They remained the dominant mass transit mode until electric streetcars became technically possible in the closing decades of the 19th century. The streetcar determined development patterns in American cities during the explosive population growth of the late 19th and early 20th century.

By and large, these early mass transit facilities were privately owned, regulated businesses. Both the nature of the systems and their ownership changed during this century. Transit ridership peaked at 17 billion trips in 1926¹², but burgeoning automobile ownership was challenging the streetcar and other rail systems as the dominant form of transportation even then. Efficient bus operations cut into trolley ridership during the same period.

The public's response was to change the ownership of systems from private regulated monopolies to public agencies. San Francisco was first, taking over street and cablecars in 1912, followed by Seattle in 1919, Detroit in 1922, New York in 1932, Cleveland in 1942, Boston and Chicago in 1947. By 1975, publicly-owned transit carried 91 percent of transit riders.¹³

Federal involvement began in the 1960s with some small demonstration projects, but took on real significance with the creation of the Urban Mass Transit Agency (UMTA) in 1964. Between 1965 and 1982 UMTA transit capital grants grew from \$0.2 billion to roughly \$3.0 billion. Existing federal policy allows 75 percent federal matching grants for mass transit capital facilities and an 80 percent matching grant program for buses.¹⁴

National attention now is focussed on issues of potential disarray in important basic facilities such as roads, bridges, sewers, and wastewater treatment plants. Authors such as Pat Choate in America in Ruins spotlighted declining public investment in capital facilities. Many national magazines and newspapers have published stories about collapsing bridges, impassable roads, and unmet sewer construction.

The opening sentences of Choate's book state eloquently the thesis that there is an infrastructure problem:

"America's public facilities are wearing out faster than they are being replaced. The deteriorated condition of our basic public facilities that underpin the economy presents a major structural barrier to the renewal of our national economy. In hundreds of communities, deteriorated public facilities threaten the continuation of basic community services such as fire protection, public transportation, water supplies, secure prisons and flood protection.

"The United States is seriously underinvesting in public infrastructure. Because of tight budgets and inflation, the maintenance of a growing number of national and local public facilities has been deferred. Replacement and rehabilitation of obsolescent public works have been postponed. New construction has been cancelled, delayed, or 'stretched out.'"

Investment in public capital facilities has declined as a percentage of national income since the mid- and late-1960s as Choate and others have pointed out.

Choate cites a federal report which shows constant dollar investment in infrastructure as a percentage of gross national product in 1977 had declined to 2.21 percent, a drop of more than 40 percent from a peak of 4.08 percent in 1965.

Another way to measure investment in public works is to chart the flow of dollars. Constant dollar (inflation-adjusted) spending nationally on all public works, including public buildings such as schools, has declined from its peak in late 1960s at the height of the Interstate highway program and baby boom generation school construction. In absolute numbers, however, the amount of money spent on public works was higher at the end of the study period than at the beginning by nearly \$6 billion dollars, an increase of 25 percent.

(Note: Detailed tables on many of the statistics discussed here are contained in Appendix A of this report.)

Forecasts for needed public spending have included estimates ranging into the trillions of dollars. A recent report by the Joint Economic Committee (JEC) of Congress surveyed officials from 23 states about their needs for highways, bridges, mass transit, water, and sewers through the year 2000. The experience of these states was generalized to the nation as a whole, and a figure of \$1,157 billion forecast as total spending needed. Revenues were foreseen for \$714 billion of this, leaving an anticipated shortfall of \$443 billion.

Roughly 60 percent of the needs forecast in the JEC study were for highways, 20 percent for other transportation systems including urban mass transit, and the balance for water and sewer systems.¹⁵

The JEC study shows a changing pattern in capital spending with state and local governments increasing their spending with the federal role declining.

At issue is what amount of money should be spent on capital facilities. A major source for Pat Choate's book was A Study of Public Works Investment in the United States, published by the Department of Commerce in 1980. That study analyzed public capital spending for the period 1957 to 1977 (the tables are shown in Appendix A) and is the foundation for Choate's finding that public capital spending as a percentage of gross national product has declined from its mid-1960s peak. The Department of Commerce study determined that the spending dropoff was concentrated in two categories; highways and schools. It attributed the relative spending decline to two factors: 1) declining need for school capital investment as a result of a decline in the school age population; and 2) the approaching completion of the Interstate highway system. After accounting for the dropoff in these two categories, the report says, percentage of gross national product going in public works is more steady.¹⁶

The authors said that no attempt had been made to decide what percentage of gross national product should best be devoted to public capital spending. Another important consideration, according to the report, is that the total value of public capital stock increased during the study period from \$348 billion to \$674 billion (both figures are 1972 constant dollars).¹⁷

The public sector's efforts to accomplish such social goals as cleaning up the air has included measures requiring private companies to make the capital investment for cleanup equipment, prompting the observation that private money is now being spent to pay for what by any reasonable definition are public works, albeit facilities that are owned by the private sector.¹⁸

The private sector may be called upon increasingly to own and operate facilities which amount to public works. In this community, proposals for hazardous waste disposal, and, in some instances, household and commercial solid waste would put facilities in private hands. Proposed new transit systems would in some cases be private as well.

Against this background, a great deal of interest in infrastructure has sprung up in the Twin Cities metropolitan area. Minneapolis and Saint Paul have established special infrastructure task forces to study the condition of their public works. Saint Paul is participating in a national network of cities, coordinated by the Spring Hill Conference Center and the Urban Institute, seeking answers to infrastructure issues. The Minnesota Legislature passed a law requiring the State Planning Agency to study a variety of infrastructure problems and report back to the Legislature.

The Citizens League Infrastructure Committee met with city, county, metropolitan, state and federal officials to solicit their views on the nature of the infrastructure problem in this metropolitan area at this time. Business people familiar with capital spending were also contacted. The report which follows is an attempt to put in proper perspective the many insights and facts which were gained during the course of the study.

Footnotes for Background

¹ U.S. Department of Commerce, A Study of Public Works Investment in the United States, April 1980, p. I.35-37

² Congressional Budget Office, "Public Works Infrastructure: Policy Considerations for the 1980s," p. 27.

³ Ellis L. Armstrong, ed., History of Public Works in the United States, (American Public Works Association, 1976), pp. 91-92

⁴ IBID, pp. 92-93

⁵ U.S. Department of Transportation, Highway Statistics 1982, Highway Statistics Series, p. 47

⁶ Public Works Infrastructure, p. 28.

⁷ Armstrong, p. 399

⁸ IBID, pp. 417-418

⁹ IBID, pp. 419-420

¹⁰ IBID, p. 420

¹¹ Public Works Infrastructure, p. 107.

¹² Armstrong, p. 176.

¹³ IBID, p. 177.

¹⁴ Public Works Infrastructure, p. 41.

¹⁵ Joint Economic Committee of Congress, Hard Choices: A Report on the Increasing Gap Between America's Infrastructure Needs and Our Ability to Pay for Them, p. xv

¹⁶ U.S. Department of Commerce, pp. I.2-3

¹⁷ IBID, p. I.4

¹⁸ IBID, p. I14-15

FINDINGS

- I. No significant element of the region's existing infrastructure now fails to perform its function.

- A. We define infrastructure as those physical structures and facilities developed or acquired by public bodies to provide water, waste disposal, transportation, and similar services needed to facilitate the physical health, safety, and economy of an urban community.

This definition does not include some elements of the infrastructure which may increase in economic significance, such as communications facilities. We did not look carefully at privately-owned infrastructure systems, like electric power or gas lines, which are also vital in supporting urban life.

Public physical facilities, such as schools and public office buildings, which are capital facilities not specifically used for health, safety, and movement of goods and services, are important and expensive facilities but are not central to this study.

School buildings, electric lines, telephone lines, and libraries are undoubtedly important in the community and worthy of attention, but we chose to limit the scope of our inquiry to the largest and most expensive public physical facilities supporting the urban economy because of their central importance and because, for practical reasons, we could not look at all facilities.

- B. Public infrastructure systems, however defined, exist to serve public purposes; sewers protect health, streets allow commerce and movement of people, wastewater treatment plants protect the environment. Infrastructure systems do not exist for their own sake. The usefulness of public infrastructure lies in its ability to carry out public services as determined by elected officials.

The financial value of infrastructure systems as defined is concentrated largely in the transportation systems (state highways, city and county streets and roads, bridges) and in the sewer and water systems. Together, these systems account for the bulk of public money spent on the infrastructure.

TABLE 1
STATE AND LOCAL EXPENDITURE
FOR CAPITAL OUTLAY, BY FUNCTION, 1981-82
(Figures in Millions)

	<u>MN</u>		<u>U.S.</u>	
General Govt. Total	\$1,313.9		\$53,984.4	
All Education	224.8	15.9	10,928.4	16.5%
Primary-Second.	150.5		6,938.6	
Post-Second.	72.0		3,695.2	
Highways	468.0	33.1	18,177.5	27.4
Health & Hospitals	468.0	2.8	2,567.2	3.9
Sewers	170.1	12.0	5,894.1	8.9
Utilities, Total	99.8		12,420.5	
Water	66.6	4.7	3,717.4	5.6
Other, Incl. Transit	33.2	2.3	8,703.1	13.1
TOTAL	\$1,415.5*	100%*	\$66,414.1*	100%*

*Some categories not shown as separate items.

SOURCE: Governmental Finances in 1981-82, U.S. Department of Commerce, Bureau of the Census

- C. We met with representative of federal, state, metropolitan, county and city government and, although some have pointed to pieces of infrastructure systems in disrepair, no one has identified a major system in jeopardy now.

Most of the professionals we spoke with characterized the present condition of their systems as adequate, good, or better, although there is concern that present conditions will not extend into the future.

The cities of Saint Paul and Minneapolis have undertaken efforts recently to ascertain more fully the condition of their systems, and representatives of those cities told us this research had not shown significant deficiencies now.

Infrastructure deterioration would seem more likely to be obvious in the two older central cities than any other place. The absence of deterioration in the central cities suggests no major systemwide problem exists.

Both cities are engaged in significant efforts to protect and enhance their infrastructure. Minneapolis is engaged in a systematic street repavement program which will replace streets, curbs, gutters and the water pipes and sewer pipes below them.

Saint Paul is developing a computer-based inventory of its infrastructure. Once the inventory is complete, the city will be in a position to target maintenance and construction dollars to areas of greatest need.

Minneapolis and Saint Paul city officials said they are concerned that they are not keeping pace with maintenance needs. They said they would like to get preventive maintenance programs and regular rehabilitation efforts underway, but have not yet done so.

In planning resource recovery plants with capital costs in the hundreds of millions of dollars, Hennepin County did not anticipate financial difficulties. Hennepin County is also replacing and expanding the capacity of other infrastructure elements, including new justice and corrections facilities, new library and hospital facilities, and road construction. The county has built major freeways to serve an expanding population.

The expansion of infrastructure systems in Hennepin County indicates managers there do not see the need to replace worn-out or severely deteriorated systems and have the financial ability to expand the capacity of existing systems.

Ramsey County has in recent years replaced many of its capital facilities, including a jail, juvenile justice center, and nursing home. Ramsey and Washington Counties are also working together to develop a resource recovery plant. Ramsey County now owns several major regional parks -- parks acquired with state and regional money -- which it has chosen not to operate at full capacity because of operating costs.

During the enormous expansion of population in Twin Cities suburbs during the 50s, 60s, and 70s, new infrastructure systems were built by suburban municipalities. Most of these systems were paid for by the land developers or through fees on the new housing tracts.

Suburban population, according the Metropolitan Council, increased by 106.7 percent during the 1950s, 55.1 percent during the 1960s, and 19.0 percent in the 1970s requiring streets, sewers, curbs, parks, and other public facilities.

- D. Twin Cities residents are mobile, indicating the transportation system is able to meet the demands imposed upon it. According to the Metropolitan Council's Travel Behavior Inventory Summary Report, the average time spent getting between home and the workplace was 20.8 minutes. Transit passengers spent, on average, 32.2 minutes between home and work. Both figures, and the chart below, are based on travel patterns studied in 1980.

The Metropolitan Council also calculated travel times for home-to-work trips by all modes of transportation (driver, passenger, bus user, and other) and the results are shown in table 2.

TABLE 2

<u>Time (In Minutes)</u>	<u>Percent of Total</u>
0-4	1.68
5-9	9.12
10-14	15.86
15-19	20.55
20-29	21.38
30-44	24.10
45-59	5.29
60+	<u>2.02</u>

100

SOURCE: Metropolitan Council, 1984

The table shows that 68.6 percent of Twin Cities' area workers spend less than a half hour getting to work. Some 47.2 percent spend 20 minutes or less.

According to figures supplied by the Minnesota Department of Transportation, the region's extensive road system is in relatively good condition. The 1,073 miles of trunk highway in the region, accounting for about 55 percent of the traffic, 89 percent of the principal arterial roads were in good or excellent condition. Statewide, 78 percent of the principal arterials are in good or excellent condition. Review of another method of road rating, sufficiency, shows that 52 percent of the metropolitan-area principal arterials are in good or excellent condition and 57 percent of the state's principal arterials fall into the same categories. There are roughly 12,950 miles of streets and roads in the region. (Appendix B contains a more detailed discussion of road condition, including charts on the condition and sufficiency of state and regional roads.)

The Metropolitan Council's Transportation Development Guide/Policy Plan of January 1983 identified 40 major deficiencies on existing and committed metropolitan highways. The Metropolitan Council analysis assumed that the interstate system will be completed, including a version of I-35E, as well as interchanges on Highway 61 in Washington County, and upgrading of County Road 18 in Hennepin County. Many of the deficiencies identified, such as the common section of I-35W and County Road 62, the common section of I-94 and I-35E, and other portions of the freeway system, are well known to area drivers. The deficiencies include safety and structural problems as well as traffic carrying limitations. MNDOT's 1984-85 highway improvement program will address at least six of the deficiencies cited. Of the 40 deficiencies, 18 are on the interstate system. (Appendix B lists the deficiencies cited and the reasons for the problem.)

A total of 78 miles (7.3 percent) of metropolitan-area trunk highways will be resurfaced or reconditioned as part of MNDOT's 1984-85 Highway Improvement Program. Assuming 78 miles are resurfaced or

reconditioned every two years, the 1,073 mile system would be resurfaced or reconditioned every 28 years.

- E. The metropolitan area has achieved a level of wastewater treatment comparable to or better than many other cities. An August 1983 report by the Association of Metropolitan Sewerage Agencies surveyed wastewater treatment financing and treatment practices in 86 cities.* The survey did not include all American cities, but did include agencies in all parts of the country, large and small cities, and older and newer cities.

The systemwide level of treatment for each city was assessed, with the percentage of primary, secondary, and tertiary treatment achieved tabulated. The MWCC is shown to have achieved 100 percent secondary treatment. Sixteen cities are achieving equivalent or higher levels of treatment, measured by having some or all wastewater receiving tertiary treatment. Of the 16 cities exceeding treatment levels here, five had populations greater than one million.

A study by the Minnesota State Planning Agency, "An Assessment of Water Resources Projects Needs," said that about 98 percent of Minnesota's sewered population is served by a wastewater treatment facility capable of secondary treatment. In 1952, only 20 percent of the state's sewered population were served by similar facilities. The same document shows that a 1982 EPA survey of Minnesota wastewater treatment needs (including wastewater treatment plants, interceptors, and collectors) showed a total of \$1.07 billion worth of new construction was needed by the year 2000. Of that, about \$370 million or 37 percent of statewide need was estimated for the MWCC, according to the Planning Agency.

According to the Metropolitan Council's Regional Service and Finance Study, the MWCC put in place 100 miles of major interceptors, including lift stations, meter stations, and river crossings, from 1972 to 1982. The capacity of wastewater treatment plants to meet secondary standards was expanded from 173 million gallons per day to 312 million gallons per day during the same time.

The report states, "The existing 14 treatment plants consist of four completely new plants (Seneca, Blue Lake, Rosemount, and Empire), six expanded and/or upgraded facilities (Metro, Stillwater, Cottage Grove, Chaska, Savage and Bayport) and four plants which have remained essentially unchanged (Anoka, Hastings, Maple Plain and Medina)."

*For reasons of simplicity, this section refers to cities. The survey was actually of sewerage districts, like the MWCC, which do not necessarily conform to municipal boundaries.

More than \$400 million was spent for capital improvements, with more than \$300 million of it expand and upgrade the Pigs Eye plant to meet secondary treatment. Roughly 90 percent of the capital cost was paid by state and federal grants, limiting local debt service, the Metropolitan Council report said.

The MWCC forecasts \$137 million in new capital spending between 1982 and 1986, approximately \$35 million of which will be the local share. The report notes federal grants may be cut, which would increase the local share.

Because Minnesota municipalities outside the metropolitan area have not constructed wastewater treatment facilities as rapidly as has the MWCC, it appears a relatively larger portion of the projected statewide construction need is in outstate Minnesota.

The authors of the State Planning Agency report said the EPA estimated that about half of the needs, collected from municipal and other officials and allowing them to make the determination of what construction was needed, were collected by reliable techniques.

The State Planning Agency report says that local municipal officials, when asked by the EPA about wastewater treatment needs, were likely to overstate needs if they thought federal grants were forthcoming.

The state Pollution Control Agency (PCA) proposed the creation of a \$263 million state-level wastewater treatment capital grants program, largely to make up for projected federal cuts. Beginning in October 1984, wastewater treatment construction projects will be eligible for no more than 55 percent federal financing, compared to 75 percent in the past.

The 1984 Minnesota Legislature approved the PCA program, allocating \$12 million for grants. The program requires grantees to develop financial plans to cover project replacement.

Determination of wastewater treatment needs is dependent on the service capacity desired, engineering standards, and mandated standards set by federal officials. Federal standards for wastewater treatment are stated in statute as "fishable, swimmable" waters and interpreted by the EPA. MWCC Chairman George Frisch told the committee the process of regulation by the EPA over the MWCC was largely one of negotiation.

Waters throughout the state of Minnesota are getting cleaner, according to a report issued by the Association of State and Interstate Water Pollution Control Administrators. The report, "The States' Evaluation of Progress," has chapters describing water quality change between 1972, the year the nation's clean water act was passed, to 1982. The chapter on Minnesota was prepared by the Minnesota Pollution Control Agency.

It showed that the percentage of the state's streams and rivers that can support designated use increased from 54 to 66 percent during the

decade under study, with the percentage unable to support designated usage shrinking from 15 to 6.

For lakes and reservoirs in 1972, 56 percent could support designated use and by 1982 65 percent could. Of great lakes waters, 49 percent could support designated use in 1972 and 100 percent could in 1982.

The report showed the major pollution problem to be non-point pollution, not untreated wastewater from cities. The report estimated that 75 percent of the pollution problems of streams, rivers, lakes and reservoirs were caused by non-point sources, with only 25 percent coming from municipal systems.

A total of \$900,954,269 in public money was invested in wastewater treatment during the decade of which 77.4 percent was federal, 15.3 state and 7.3 local, the report said.

The MTC is about to embark on a program to replace or rehabilitate its bus fleet. It expects to purchase roughly 60 new articulated (extra length) buses and rebuild roughly 300 standard-length buses.

Between 1971 and 1982, the MTC received \$108 million in federal grants for capital projects totalling \$139 million.

The MAC continues to expand commercial airline and parking facilities at Twin Cities International Airport. Through continued development of secondary airports, the MAC expects to be able to handle future needs without the addition of a new airfield.

- F. Major upgrading and expansion of the region's infrastructure took place during the 1960s and 1970s. Those decades saw an expansion of the sewer and wastewater treatment facilities run by the MWCC, the urban interstate freeway system, regional parks, and the purchase of a new public bus fleet to replace the private one taken over when the Metropolitan Transit Commission (MTC) began its transit operations in the early 1970s.

In the case of regional parks, capital grant making has increased system capacity to a point where local officials are reluctant to open facilities because they feel they do not have the financial resources to operate them. The capital has already been spent to acquire and develop many regional parks in Ramsey County, for example, but no money is available for operations and maintenance. In Washington County, local officials are resisting attempts to acquire and develop parks because they do not feel the public wants to see more spending for parks.

The purchase of public parkland or other landbanking measures may in the long run reap financial rewards should future public demand warrant the use of these facilities. Purchasing the land now before it is developed or cut up into smaller parcels may result in a lower price to the buyer.

- G Several proposals for new facilities involve joint public-private ventures. Proposed trash burning plants frequently involve

contracting with private companies to run the facilities. At least one Light Rail Transit (LRT) proposal would have the private sector build the system on contract and turn over a completed system to the region. Proposals for hazardous waste disposal and recycling facilities often project private ownership.

In some cases, proposals for private ownership cite the tax advantages to the owners as an advantage. Private owners of capital facilities can depreciate the property, reducing tax exposure.

H. We have identified several reasons for the relatively good condition of the systems here:

1. History. Compared to east coast cities, the Twin Cities metropolitan area is fairly young. Properly designed, installed, and maintained infrastructure systems last a long time. We were told, for instance, that some of the original pipes in the Minneapolis water system are still in use even though they are almost a century old.

As mentioned above, the region's major systems were put in a place recently during a time when federal grants were available. Substantial portions of primary and secondary wastewater treatment by the MWCC are achieved through the use of equipment purchased largely with federal dollars. MWCC chairman George Frisch told the committee that many other cities did not take advantage of the federal grants and are now facing the prospect of constructing wastewater treatment plants with mainly local money.

2. Economy. The region has had a stable, growing economy in recent decades. Economic strength has made money available for infrastructure spending which is heavily supported by user charges.
3. Population Growth Patterns. As noted earlier, suburban population grew rapidly during the 1950s and 1960s and area municipalities were able to meet those new demands. The region's growth came at a time of significant investment in public works, allowing systems to grow along with population. In addition, infrastructure costs at the urban fringe have in recent years been held down through a policy of requiring new developments to pay for major sewer projects needed to serve them.

The major regional systems in highways, wastewater treatment and mass transit are owned regionwide, not by the older central cities. The financial burden was therefore spread to a larger group of people.

4. Legislative Action. The Legislature has provided responsibilities and authority to local governments to deal with infrastructure needs. Cities can levy outside levy limits for capital spending. State gas tax and other revenues are dedicated for road and highway spending. The Legislature set up special single-purpose agencies in the metropolitan area to run sewers, airports, transit, and help acquire parkland.

5. Tradition of High Level of Public Services. Minnesota has traditionally been a high-tax, high-spending state and this habit has extended to infrastructure systems as well. Public officials have seen fit to develop high quality systems and have acted to keep them at high service levels.

II. We have run across several troubling examples of infrastructure systems in need of attention.

1. Minneapolis' water supply. Minneapolis now relies on a single water source; the Mississippi River. In contrast, Saint Paul has three sources for water: the Mississippi, groundwater, and a storage system of lakes and reservoirs.

Several suburbs get their water from the Minneapolis system. If for one reason or another the Minneapolis Mississippi intake could not be used, a portion of the region would lose its water supply.

We were told that water supply for fire fighting in some portions of downtown Minneapolis is barely sufficient should a major fire occur. As new buildings are built downtown, we were told, larger pipes are being installed.

2. St. Paul's traffic signals and streets. Studies done by the Saint Paul Infrastructure Committee shows the city's traffic signals and streets are approaching a state of disrepair. There has been voter resistance to assessments for street rebuilding in both Saint Paul and Minneapolis, which may mean people are happy with the level of service now being provided insofar as streets are concerned.

Failure to maintain streets in Saint Paul at a high level of service may not have negative long-term financial consequences.

3. Unseparated sewers. Portions of the municipal sewer system in Minneapolis, Saint Paul and South Saint Paul are unseparated. Unseparated sewers are sewer systems in which sanitary sewers from homes and businesses link up with stormwater sewers which collect water directly from streets. Wastewater from sanitary sewers is normally treated by the MWCC but stormwater is not.

Because the sewers are unseparated, when storms increase the flow through the system, the interceptor system which is supposed to carry the wastewater to MWCC treatment plants overloads. As a result, untreated stormwater mixed with sanitary sewer discharge flows directly into the Mississippi.

Federal officials say no untreated sanitary sewer discharge should be dumped into the Mississippi at all although other engineers and environmental specialists say that the discharge, at times of high flow because of the storm creating the interceptor overflow, creates no significant environmental degradation. Some environmentalists say all wastewater -- including stormwater runoff which is now untreated -- should be treated. Existing federal regulations could require stormwater runoff treatment if the stormwater created environmental damage.

Officials from both Minneapolis and Saint Paul expressed concern about unseparated sewers. Both cities, along with South Saint Paul, continue to separate sewers as a part of normal facility rebuilding and have separated sewers as special projects apart from normal rebuilding.

The cost of separating the sewers has been projected at about \$300 million by the Metropolitan Council and the City of Saint Paul. Sewer separation costs represent about half of the construction needs projected by the MWCC for the balance of the century.

The need for sewer separation is largely confined to Minneapolis, Saint Paul and South Saint Paul because when most of the suburbs were built up, separated sewers were put in as a matter of course.

About 55-60 percent of the sewers in Saint Paul are separated, and a much higher percentage in Minneapolis. Sewer officials in Minneapolis estimated about 10 percent of stormwater runoff is ending up in the sanitary sewers as a result of unseparated sewers.

The Minnesota Pollution Control Agency recently issued permits for the continued mixing of sanitary sewage with stormwater overflow in these cities while they continue to separate sewers, but the issue of the speed at which sewers will be separated remains a major public issue. Gov. Perpich has committed the state to solving the problem and Metropolitan Council Chair Sandra Gardebring has identified it as one of the region's major issues.

4. Infiltration and inflow. Poorly maintained sewers may receive water infiltration, often water leaking from water supply pipes nearby, as opposed to the household or other discharge which the sewer was put in place to carry. This water infiltration, which often needs no treatment, is carried by the sewer to wastewater treatment plants and treated, adding to the system costs.

Because of the billing system for the region's sewers, cities have an incentive to cut down on infiltration and inflow because they are billed for the amount of water which enters MWCC interceptors from their municipality. So, a city cutting down on infiltration or any other water improperly entering the system would in theory get a lower bill from the MWCC.

The incentive to the cities to contain infiltration is limited to the collector sewer system they maintain. No similar incentives exist for the larger interceptors run by the MWCC, although infiltration and inflow reduction by the MWCC would reduce treatment costs and prolong the life of MWCC facilities. A 1975 comprehensive inspection of the MWCC system done by a consultant showed infiltration and inflow into the MWCC system which has not yet been corrected. The MWCC corrects infiltration and inflow problems as part of its normal maintenance and repair activities.

No one has sought to do a cost-benefit analysis of how infiltration-inflow repairs on the MWCC system.

5. Urban forest. Shade tree diseases continue to deplete the urban forest. In some cities sanitation programs continue to keep losses to a minimum and replanting keeps up the forest.

We did receive testimony that many shade trees will be lost without sanitation programs. Removal and replacement costs are much higher than sanitation programs so existing practice may lead to higher spending in the future.

6. Highways. The state and regional highway systems are ageing. The League's roads and bridges study raised concerns that the system has outgrown financial resources for maintenance. Recent federal legislation allowing an increase in truck size and weight can only hasten highway deterioration.

III. The major elements of the region's infrastructure are in place. Expanding the capacity of existing systems as was the case in 1960s and 1970s is unlikely.

- A. A distinction should be made between expanding or adding capacity or quality in infrastructure systems, replacing them, and building new systems.

We would regard adding tertiary wastewater treatment to the MWCC's responsibility or upgrading a two-lane highway to a four-lane highway as adding capacity.

An increase in the flow-carrying ability of the sewer interceptor system would also be an increase in capacity.

An example of replacing an infrastructure system would be the Minneapolis street repaving program where older streets and water pipes are replaced with newer facilities of the same capacity.

Examples of building new systems are things like rail transit or trash burners; systems which are not now in existence which are to be built new.

- B. A distinction can be made between infrastructure systems which serve local needs and those that serve regional needs. Although there is some overlap, in general, ownership of the system determines its service level. The MAC, the MWCC, the Metropolitan Parks and Open Space Commission (MPOSC) and the state highways serve regional needs. Municipal and county infrastructure systems are mainly in place to serve local needs.
- C. Some proposed freeway links are still unbuilt, some inner city sewers are unseparated, some sewer interceptors are still needed, but almost all of the regional system is in place..

The local systems are just as important in supporting urban life and a healthy economy as the regional systems are. The financing, maintenance, operations, and, to a large degree, the planning of them is, however, made by a group of disparate governmental units. In fashioning an infrastructure strategy for the region, the distinction between local and regional systems should be kept in mind.

- D. There are several proposals for additions to the infrastructure system, upgrading capacity at existing facilities, or replacing existing systems.

1. Solid waste disposal. As mentioned, Ramsey, Washington, and Hennepin Counties have formal plans for trash incineration plants. The scale of the proposed waste-to-energy plants is large; the Hennepin County Board is considering a facility which would cost \$200 million. The joint Ramsey-Washington project would cost between \$60-80 million.

All of the counties are in the process of developing solid waste disposal plans and most of the plans include proposals for publicly-owned trash incinerators plants or for new landfills, public or private.

The proposals for trash burners represent new infrastructure, although they are designed to replace landfills which are reaching capacity.

2. Hazardous waste disposal. The State Waste Management Board is considering plans for disposal of hazardous wastes. The adopted plan may include a publicly-owned hazardous waste disposal site or waste recycling facility, although these needed facilities may also end up in the private sector.

A hazardous waste disposal facility or treatment facility would represent a new element of the region's infrastructure.

The 1984 Legislature took action to delay the siting and construction of a hazardous waste disposal facility in the state.

3. Rail transit. Several studies are underway on additions of fixed-guideway transit systems. A fixed-guideway system would displace some bus transit but would largely represent new infrastructure.

The 1984 Legislature made it possible for the state Commissioner of Transportation to spend up to \$10.1 million for LRT planning.

4. Tertiary wastewater treatment. The region has basically achieved primary and secondary wastewater treatment, getting 98 percent of pollutants out of wastewater. MWCC chairman George Frisch said federal regulations may include requirements for tertiary wastewater treatment aimed at removing the last two percent of pollutants.

Tertiary treatment may require the installation of equipment as costly as required for primary and secondary treatment. Tertiary treatment would represent an upgrading in the standards an infrastructure system is required to fulfill.

Although tertiary treatment would remove most of the remaining two percent of pollutants which exist in water which is treated by the MWCC, it would not remove all of the pollutants entering the Mississippi River. Most urban stormwater runoff is not treated at all. Non-urban pollutants are now the main environmental problem for the Mississippi. Many question the benefit of continued treatment of waste in the MWCC in the system and contend that a greater return on investment would occur by using the money to solve other pollution problems.

As mentioned, the PCA has proposed a state grant program to build wastewater treatment plants and other sewer system facilities. The 1984 Legislature approved the initial phase of this program.

5. Urban forest. If the urban forest is depleted by shade tree disease, it may be necessary to replace it.
6. Completion of the Interstate system. The Minnesota Department of Transportation plans to complete the interstate freeway system in the region. Some of the last links, such as I-94 through Minneapolis and between Wisconsin and Saint Paul, were recently opened or are under construction. Contracts are being developed for portions of the system through Dakota County.

IV. Financing and decision making for infrastructure systems is done differently than for other public activities. User fees and dedicated funds characterize infrastructure financing. Special purpose, autonomous, or semi-autonomous units of government typically own and operate infrastructure systems.

- A. As a general proposition, infrastructure systems are financed more from user fees and dedicated revenues than are other governmental functions.

The major infrastructure systems--sewers, wastewater treatment plants, waterworks and highways--are financed almost entirely from dedicated funds or user fees. Fees pay for the MAC. User fees are anticipated for resource recovery facilities.

- B. Federal grants for capital spending are available for the largest and most important infrastructure systems, such as airports, bus transit, highways, sewers, and wastewater treatment.

Under existing law, the federal Interstate Highway Trust Fund will reimburse 90 percent of the cost of interstate projects. Federal grants are available for a significant portion of the construction bill for other approved federal highways. For wastewater treatment plants and sewer facilities, the federal government will pay for 55 of the construction cost. The 55 percent figure represents a cut from a former federal share of 75 percent.

An increase in federal spending for highways is anticipated following the increase in the federal gas tax. The JEC report on infrastructure said congressional appropriations will go from \$8 billion in 1982 to \$12.1 billion in 1983 and \$12.5 billion in 1984.

In some cases such as rail transit, it appears that federal capital grants are less forthcoming. Federal money had been used to finance capital costs for new rail systems in many American cities in the past decade. Federal money remains available for a partial share of rail construction costs, but federal officials are seeking a larger local financing role.

Federal grants for 80 percent of the cost of new buses for mass transit systems remain available. The recently announced purchase of new articulated buses by the MTC will qualify for this matching grant. New federal rules allow grants for bus rebuilding, a technique the MTC plans to use for bus fleet replacement. Federal 80/20 matching grants are available for other mass transit capital facilities such as garages.

According to a State Planning Agency working paper on federal capital assistance to the state, the amount of federal money coming to the state for capital outlays increased from \$97.2 million in 1973 to \$206.4 million in 1981. Federal money as a percent of total capital spending rose from 20.5 percent to 39.6 percent during the same period.

No changes are anticipated for the basic structure of the federal trust fund for airport construction.

- C. A distinction can be made between availability of federal money for new capital spending and for maintaining or repairing older systems. Federal grants are used for building highways, sewers, and wastewater treatment plants, but the continuing operations and maintenance of them is paid for locally. Operations and maintenance money is available for transit operations, and federal money in 1982 paid for 10 percent of the operating budget of the MTC, down from 20 percent in 1978.

The use of federal money for transit operations represents an exception to the general rule of categorical support for capital spending, although this may be changing. Some organizations are pressing for flexibility in use of federal money in infrastructure and there is some evidence that financial sources such as the Interstate Highway Trust Fund may be used to pay for rehabilitation and maintenance and not just new construction.

Many officials spoke of a change in the federal role in the future. Federal money for sewer and water treatment facilities may be cut more and continued stringency in rail mass transit capital grants is expected. Federal assistance for buses is expected to remain. Virtually no one expects cutbacks in the Interstate program and other federal highway grants, although new building projects may be eliminated and grants targeted towards rebuilding and keeping up the existing Interstate system. No change is anticipated in airports assistance.

Many general revenue sharing programs between the federal and state-local units have been reduced. These programs, while not directly supplying money for infrastructure systems, did indirectly support infrastructure to the extent that the federal support helped cities, counties, and states generally.

At the same time, Congress is studying several proposals for new types of infrastructure assistance, including low-interest loans through a special bank, new capital grants, and a federal capital budget. Assessing the likelihood of any new spending or any additional cutbacks is problematical.

- D. Many systems -- such as city water departments, the MWCC, the MAC, proposed resource recovery systems -- are operated as autonomous or semi-autonomous enterprises. These systems typically have budgets which are separated from other public budgets. They also have governing bodies charged with a single responsibility, such as running an airport system, which can be distinguished from a general purpose unit which must balance several competing responsibilities.

Some systems, like the MTC, have separate budgets and governing bodies but do not have unrestricted access to a fee-based revenue stream.

In the case of road spending, the presence of a dedicated fund for roads creates a separate budget within a general purpose government.

- E. Levy limits restrict the amount of money which a city can levy through property taxes for general government. In contrast, cities have more flexibility for capital spending. Revenues to repay bonded debt are not limited by levy limits. Because any limit on property tax levies to repay bonded debt would be seen as an infringement on the full faith and credit of the governmental unit issuing the debt, levy limits are not applied.

State statutes do provide that total bonded indebtedness does not exceed a fixed percentage of the local tax base. As a practical matter, bond markets will not carry debt from cities or other governmental units perceived to be high financial risks.

Cities do have alternatives available to direct property tax levies to raise money for infrastructure. Cities can use assessments on property which benefits directly from a street or sewer repair project. City officials noted that this technique is generally unpopular and cities try to avoid it when they can, although in some locations, citizens are willing to pay special assessments for additional services, such as street lighting.

- F. Formal citizen participation systems affect capital spending in Minneapolis, Saint Paul, and Hennepin County. Similar formal systems do not exist for non-capital spending in these units of government.

- G. The comprehensive plans which cities submit to the Metropolitan Council aid in planning and decision making for infrastructure systems. Because cities must decide what future population and land use is likely to be, they are in a position to plan the physical systems which support them.

No similar planning process occurs for other governmental purposes like income support, education, or police protection, although the comprehensive planning can be seen as assisting long-range development of these services as well.

- V. Financial resources for the construction of infrastructure systems are adequate. Many of the existing public programs favor new construction over maintenance.

- A. Federal grants programs for wastewater treatment, highways, buses, and airport construction remain largely intact. Municipal officials have access to property tax levies for new construction and seem to face less budget pressure there than in operating or maintenance budgets.

A natural bias towards building new exists among public officials. A new facility has lower maintenance costs and is a visible symbol of progress.

- B. Federal grants and regulations are a major incentive. We were told, for example, that Hennepin County was willing to build Highway 62, a major freeway, because federal money was available to help pay for it.

Federal grants supported the construction of urban freeways, wastewater treatment plants, airports, and sewer interceptors.

Although grant programs for new infrastructure still exist, a major source of federal money for maintaining existing systems, general revenue sharing, has been cut back. Congress is considering establishing a program to help infrastructure rebuilding, but not for maintenance of existing systems. Almost all of the discussion in Congress focuses on construction, not maintenance.

- C. Indirect financing of infrastructure systems are being used more. Construction costs of resource recovery facilities, for example, are planned to be covered by bonds with the bonds to be paid off by user fees at the facility. Because the resource recovery plants are not economically competitive with landfills, legal authority is available to require trash haulers to bring waste to the plant, passing along the higher costs.

Tax increment revenues in economic development and redevelopment districts are also being used to pay for infrastructure systems.

- VI. Financial resources for maintaining and replacing infrastructure systems may not be adequate.

- A. Deferring maintenance is a relatively easy choice for a public body to make, especially a general purpose unit like a city. Short-term deferral of maintenance does not result in visible deterioration of service. Because the effect of deferred maintenance is not visible quickly, there is no public outcry. Unlike a decision to lay off teachers or police officers, voters are not likely to be aware of any change in maintenance practices.

Deferring maintenance does not create an immediate need to replace a facility, although it hastens the need to do so. According to a variety of news reports, many eastern cities, with New York being the prime example, failed to maintain infrastructure systems when budget problems hit. Public officials in those cities chose to support functions like police and fire first and maintain capital facilities second, leading to severe disrepair of many systems.

- B. Cities must spend money within state-imposed levy limits for maintenance, but may levy outside levy limits for capital projects making it relatively more easy to build new systems than maintain existing ones.
- C. Financing for systems which are user-based are generally healthy, whether the system is public or private. When it is possible to identify the direct beneficiaries of a service and to bill them for unit costs, a natural mechanism exists for financing the infrastructure service.

America in Ruins observes that systems maintained through fees typically generate enough revenues for maintenance. The book says cities that pay through user fees have better maintained facilities than cities which pay through general revenues.

Airports, electricity, natural gas, proposed resource recovery plants, sewer, telephone, and water are financed in this fashion.

- D. The Citizens League Roads and Bridges Committees identified a major potential problem in maintaining the state's roads and bridges. As noted here, the highway and street system is the largest single element of the infrastructure. Federal grants for Interstate highway construction and dedicated funds have led to the creation of a large road system in the region and state. Maintaining the system will require large public expenditures. According to MNDOT Commissioner Richard Braun, the state is failing to maintain the existing system now. It does not repave, repair, or reconstruct as many miles annually as it should, according to Braun, even with recent increases in the gas tax.

If there is a maintenance crisis for the state's highway system, it does not seem to have fully hit home yet, as documented in Appendix B. Minneapolis is continuing with a street repaving program. This program puts the city's residential streets on a schedule of replacement. Hennepin County is expanding its road system, an indication that road system managers in that county are not worried about inadequate maintenance elsewhere. As noted, city officials can assess property owners for street replacement or maintenance.

VII. The technical-managerial problems that are part of building and maintaining infrastructure systems are not insurmountable. Political choices are greater problems.

- A. Infrastructure managers say they know when maintenance is needed and when it makes sense to replace pipes or streets rather than continue to maintain them.

Some managers say ascertaining the condition of underground systems such as water pipes and sewers is more difficult than the condition of streets or parks. New techniques such as television inspection of sewer pipes is making underground inspection more exact.

Underground systems may be more prone to decay because they are invisible and little public pressure exists for their upkeep, unless a crisis occurs.

In general, however, city public works managers say they know when a street needs repaving and when a traffic signal needs replacing. Waterworks directors say they know when pipes should be replaced.

Public works officials say they would like to have better, more exact, more detailed information collected on systematic basis. The existence of such information would make it easier to make a case to the public and to elected officials as to the need for maintaining systems in good repair.

- B. Public pressure is often present for more police or better human services, but very much less so for sewer maintenance or street light replacement, unless the system breaks down completely. Public pressure for rebuilding infrastructure systems or maintaining them is minimal, in the absence of a major crisis.

We were told there are sometimes information problems within public bodies. One manager told us he was not sure he was adequately communicating to elected officials the real need for public works spending in his city.

Street engineers, for example, may have a good idea about which streets need repaving but often this data is not collected systematically or routinely. Minneapolis and Saint Paul, as mentioned, have recently begun new efforts to check the condition of all their capital facilities.

Most cities do not have consistent inventory practices or formal continuing programs to ascertain trends in infrastructure condition. Saint Paul's efforts to develop a computerized inventory system is seen as a state-of-the-art effort.

- C. The Metropolitan Council collects a good idea of information about city and county capital spending in the region. Cities and counties file five-year capital improvement plans, a practice not followed in many other cities. The Council also collects information about borrowing and debt of the region's local units of government.

- D. The state of Minnesota is working on ambitious plans for charting public sector capital spending in the state and determining if and where there are unmet needs.

VIII. An inherent tension exists between infrastructure financing/decision making and planning horizons. Infrastructure systems by their nature last a long time and the decision making framework is usually of shorter duration than system life.

- A. Most government units budget annually or for two-year periods. This budgeting practice in itself need not be a problem. One private transportation company told us that it uses a 15-year planning cycle for capital facilities but annually selects those actual projects which will be built each year.
- B. Some people say the planning horizon for elected officials is the next election. The lifecycles of infrastructure systems are much longer than the tenure of the typical public official. The life of a street or sewer may exceed the career of an infrastructure manager.

Infrastructure managers we spoke with had a high opinion of the decisionmaking ability of elected officials. Although aware of the inherent structural problem, they said elected officials, if presented with good information, more often than not make the right choice.

By the same token, elected officials seem to have a high degree of respect for the professional competence of infrastructure managers. Elected officials think managers understand and know their systems well.

CONCLUSIONS

- I. No infrastructure crisis now exists in the Twin Cities metropolitan area. Unlike New York City and other older, eastern cities with documented infrastructure problems, the Twin Cities metropolitan area does not now need to replace or add major portions of infrastructure.

- A. As documented in the findings, efforts by local officials to ascertain the condition of the various infrastructure systems have turned up little evidence of systems which are unable to accomplish their basic functions of supporting urban life.

Engineering and planning surveys of infrastructure in Minneapolis and Saint Paul have not found major systems crumbling. Engineering surveys of the MWCC have not shown major disrepair. The regional revenues task force study of the Metropolitan Council did not cite disrepair in the major regional systems as a problem, although it did express concern about the future. Although these documents do not say there are no bridges or buses which need to be replaced, no water infiltration into sewers, or no potholes in the roads, they do not, taken as a whole, present a pattern of systematic disrepair and decay.

Some segments of the urban freeway are still unbuilt, but most, including I-394, I-35E through Saint Paul, and I-494 through Dakota County, are planned and project adequate financial resources. The MWCC is building a major new sewer project to serve Anoka, Champlin and Brooklyn Park, but few projects of similar magnitude are anticipated. Existing airport capacity continues to be upgraded, but the region does not need to duplicate Twin Cities International Airport.

Problems in the condition of existing systems are concentrated in the local systems, not the regional ones.

- B. We now find ourselves at a point following a period of significant investment in regional infrastructure systems. During the 1960s and 1970s, major construction efforts were undertaken in facilities such as airports, regional sewer interceptors and wastewater treatment plants, parks, and the urban interstate freeway system. A study in the early 1960s--before the construction of the interstate system and the consolidation of municipal wastewater systems into the MWCC--would probably have found a need for significant investment in new construction.
 - C. Unlike fast-growing cities, such as Dallas and Denver, the region will not face the need to provide new roads and sewers to substantial numbers of new citizens. Population growth in the 50s, 60s, and 70s, was well served by suburban municipalities and there is no evidence growing municipalities will be unable to meet future local needs.

- D. Service standards for existing infrastructure systems will continue to be public issues. As noted, mobility in the metropolitan area is already quite high, but there are always traffic bottlenecks. Will the public increase pressure to make all traffic flow swiftly all the time? Do citizens want every pothole filled as quickly as possible?

The treatment of wastewater has increased significantly in the past two decades, but many environmental groups would like to see continued progress. Federal laws, as they currently stand, require continued investment in water cleanup efforts.

Attempts to increase service capacity or to meet higher engineering standards should be understood as separate considerations from maintaining existing systems at current service levels.

- II. Maintaining existing systems is the major infrastructure public policy challenge to the region. Existing capital grantmaking policies favor construction over maintenance.

- A. Maintenance means routine inspection, cleaning, patching, repairing, painting, and small scale construction to keep facilities operating at existing service levels. It refers to those steps necessary to keep infrastructure in good condition, functions analogous to replacing the tires and changing the oil of a car. The type of maintenance we refer to here is not upgrading to expand capacity, as might occur if tertiary wastewater treatment capacity is put into place. It does not refer to a system replacement program, such as the Minneapolis street repaving program, although the region needs to be planning now for the replacement of infrastructure systems.

It is easier to find money to build new than to maintain existing systems. Political incentives favor new building over maintaining existing facilities. Maintenance is not a glamorous topic which excites the public.

Relying on public pressure and existing policy incentives to achieve efficient maintenance is not a realistic strategy.

- B. With a system largely built and in place, continuing efforts are needed to maintain it so that it does not fall into disrepair, as has happened over time in many eastern cities.

Failure to maintain existing infrastructure systems could result in increased spending needs later on as appears to be the case elsewhere. Failure to maintain systems will also lead to decreased service capacity. Roads on which cars cannot travel safely will add to vehicle maintenance costs and decrease carrying capacity of roads. Sewers into which water leaks, increasing wastewater treatment costs, will result if systems are not maintained.

The overall coordination and planning of regional capital facilities is the responsibility of the Metropolitan Council. The Metropolitan Council has a regionwide development plan. It coordinates capital spending by regional agencies. It also has a strong voice in planning regional highways owned by MNDOT.

- C. Because of the recent spate of interest in infrastructure deterioration, many system managers are asking themselves how well they are doing at maintenance. Although our committee has not exhaustively investigated engineering practices in the major infrastructure systems, we have seen little evidence that systems are being inadequately maintained. The challenge seems to be to continue to do as well as has been done so far in keeping infrastructure systems up.

The greatest return on the maintenance dollar probably comes through spending to keep a facility in top shape, preventing the initial deterioration which may lead to a need for replacement. Current public policies are not geared towards preventive maintenance, but rather are geared to new construction or upgrading capacity.

- D. Some of the infrastructure maintenance financing mechanisms may be inadequate.

The gas tax, for example, was an excellent mechanism for financing the construction of an impressive state-local highway system. Recent changes, specifically more fuel efficient cars, has thrown this equation out of balance. Minnesota and other states have had to increase gas taxes just to keep tax collections constant.

Pressure on revenue sources of this type are likely to continue. The 1984 Minnesota Legislature speeded up the already planned transfer of the sales taxes on cars into the dedicated fund for highways, out of the general fund. This action may be a harbinger of larger scale debates about infrastructure needs versus general public needs.

Fee-based systems, which seemingly offer an easy way to finance infrastructure maintenance or expansion, may come under close scrutiny. In theory, fees could meet all money needs for regional infrastructure systems. The levels of fees would have to be adjusted to do so.

The MWCC, for example, is projected to be in good financial shape in decades to come because it can pass system costs along to users through fees. Once these fees reach a certain threshold, however, access becomes a problem and a political debate begins. When natural gas costs, charged by private infrastructure utilities, rose swiftly during the 1970s and access to gas for home heating became a problem for low-income people, the public sector intervened. A similar debate is now occurring in advance of phone fee increases.

If the public debates access questions with regards to private infrastructure systems, it seems likely similar questions will be raised in the public sector if water or sewer fees rise quickly or gas taxes continue to go up.

Regardless of how the public responsibility for access to vital services such as sewer and water is allocated, a fee-based system, when fairly established, will develop a revenue sufficient to recover the cost of operation, maintenance, and replacement of its operations.

- E. Public officials seeking to tap different financial sources for infrastructure maintenance have run into problems, as was the case in Saint Paul where assessments were proposed as a means to pay for street maintenance. Voters resisted paying for street maintenance out of assessments as opposed to general fund financing.

Municipal public works departments -- which perform maintenance functions -- are in budget competition with police and fire departments for limited resources, unlike infrastructure systems maintained by autonomous or semi-autonomous agencies, like water departments, the MWCC, or the MAC.

- F. Maintenance budgets, in contrast to capital budgets, are frequently not documented and debated as a separate entity. By its nature, maintenance is less visible than capital spending.

A good deal of maintenance spending can be found and categorized in public budgets, however. City public works departments, for example, could be categorized as a maintenance organization. Within the budgets of sewer and water departments, maintenance functions could be identified and budget totals calculated. The Minnesota Department of Transportation already keeps separate maintenance budgets.

In some areas, the distinction between maintenance and operations may be blurred. For example, some people might see street sweeping as operations and others as maintenance, but in general the maintenance function can be identified, categorized, and spending for it tabulated.

In general, maintenance budgets are not clearly identified as such and are not given the same visibility as capital or operations spending. Moreover, declines in either capital or operations spending will be visible. The same cannot be said for maintenance spending, where deferral of maintenance will not result in visible differences in service delivered for many years.

- G. A parallel set of problems would be created if the region ends up with privately-owned infrastructure. A privately-owned hazardous waste disposal facility, if not properly managed over time, could become a public liability. Current experience with private landfills points up the problems which can occur. The facilities are left to the public sector when pollution problems crop up. Another example of a poorly-managed private facility was the region's streetcar company. When it could not develop a sufficient return on investment, it was left to atrophy and eventually the public sector had to come in and rebuild the region's transit system.

An advantage of private ownership is that system owners have an incentive to maintain systems and plan their replacement because of depreciation.

There is no clear answer as to when private or public ownership is superior. What is necessary is that the public's interests be well represented in any arrangement involving private ownership of an infrastructure system.

- III. The public sector needs to plan the replacement and the financing of replacement of infrastructure systems.

Keeping clear the distinction between building new capacity or building new systems, we see a need for planning the orderly replacement of infrastructure systems.

The public sector right now does not save money or plan for major system replacement the same way a family might plan the purchase of a replacement car or the way a business might depreciate and plan for the replacement of a factory.

As state and regional policy makers continue to make choices about building new roads, sewer systems, and wastewater treatment plants, they should consciously choose between adding capacity or replacing existing systems. If new capacity is to be added, the maintenance and replacement of it should be part of the initial construction decision, and financial responsibility determined at the time the decision is made to build.

- IV. Local government and metropolitan operating agencies will be the focal points for maintenance of local and regional infrastructure. No matter what the state and federal governments do, planning, deciding about, and paying for future infrastructure maintenance is almost certainly going to be the responsibility of cities, counties, and metropolitan government.

The current planning and decision making structures appear sufficient to do the job. Area cities have responded well to pressures about infrastructure deterioration and are on their way to understanding the scope and nature of any problems they may have. City officials are taking the time and making the effort to find out just what engineering problems they may have. The same can be said for the counties.

State- and federal-level debates on the infrastructure frequently overlook the extensive capital programs already in place. Most of these programs--in highways, airports, mass transit, wastewater treatment--are unlikely to be changed drastically.

The decisions on roads, airports, parks, and waterworks will remain basically local and regional. The upkeep of these facilities will almost certainly remain local and regional.

Wastewater treatment, where the federal Environmental Protection Agency and the state Pollution Control Agency may determine standards of treatment, represents an exception.

- V. Giving responsibility for an infrastructure system to an autonomous, fee-based utility makes adequate upkeep and attention to the system more likely. Leaving infrastructure systems in competition with other public budget demands is risky.
- A. Most of the major regional infrastructure systems, the airports, sewers, parks, and transit systems, are run by independent operating entities responsible to the Metropolitan Council.

At the regional level the presence of the operating agencies as single-purpose advocates for infrastructure systems puts in place a strong force to push for planning and upkeep of the various systems. The MAC has basically two responsibilities: the operation and maintenance of the airport system. It seems logical, therefore, that the needs of this system will be heard and become part of the regional agenda well in advance of severe deterioration.

The presence of single-purpose units at the regional level and autonomous or semi-autonomous units at the city and county level puts in place a planning and engineering staff to represent infrastructure needs.

The region is well-served by this arrangement. It keeps at the regional level responsibility for regional facilities. The single-purpose, autonomous or semi-autonomous unit responsible for a single infrastructure system allows the infrastructure system to be the main purpose of existence for the governmental entity, in contrast to general purpose governments, which must address many agendas.

- B. At the municipal level, water supply systems are typically operated as enterprise centers with separate revenues and administrators. Local city councils oversee the water systems, but operating decisions are mainly left to people working for the water department.
- C. The urban freeway system, as well as arterial highways, bridges, and residential streets, are overseen by a variety of public entities. The presence of a major dedicated source of revenue in the Highway Users Trust Fund gives highway operations a semi-autonomous status with less independence than regional operating agencies like the MAC or municipal enterprise operations like waterworks. The dedication of a substantial flow of tax dollars helps make the upkeep of roads possible.
- D. In all of these types of arrangements, the incentive systems favor upkeep of systems and opportunities to obtain adequate revenues through user fees or dedicated funds. An issue is how to balance adequate revenue and operating authority with the public's need to have money spent wisely.

RECOMMENDATIONS

- I. Local units of government should have separate budgets for maintenance spending and for replacement of capital facilities. Maintenance budgets should be separate from capital and operating budgets and understood as a separate responsibility.
 - A. When any capital spending is anticipated by a city, county, or regional agency, whether the spending is for upgrading, a new system, or replacement of an existing system, a maintenance impact statement should be included. The projected maintenance expenses should become part of a new budget kept separate from other budgets.

Separate budgets would force greater recognition by both the public and elected officials of the importance of maintenance. If maintenance budgets were kept separately, attempts to cut back on maintenance would be visible and understood. The long-term financial consequences of maintenance reductions would become part of the overall debate, something which does not now take place automatically.

By clarifying the long-term relationship between immediate maintenance costs compared to long-term capital costs for rebuilding, decision-makers should be in a position to make better choices about rebuilding versus repairing an existing system.

- II. Local units of government should prepare system audits of condition and trend as part of the capital improvement planning process. Now that the comprehensive planning process is almost complete, the Metropolitan Council and cities should work cooperatively to safeguard against a systematic failure of local infrastructure systems.

Municipalities and the council should work together to develop a process which would allow the council to monitor the condition and trend of local systems. The council could be updated on system condition as part of the five-year capital plans which municipalities now submit to the council. The Metropolitan Council would then be in a position to evaluate whether or not any major regional infrastructure system failures were developing.

By coordinating planning efforts by area municipalities, the council could develop a good deal of expertise in how best to inventory local systems and share these techniques with all area municipalities. It could also function as a clearinghouse for other sorts of municipal planning and engineering techniques and thus serve as a resource for area cities.

Although we recommend that the Metropolitan Council take a lead role on acting on a clearinghouse on municipal infrastructure maintenance efforts, other organizations, such as the League of Minnesota Cities, the Association of Metropolitan Municipalities, or the Metropolitan Inter-County Association, may also undertake similar functions.

In effect, the council would serve a dual role: 1) To be in a position to project and warn of a major regionwide problem should one develop; and 2) To assist municipalities in their efforts to build, maintain, and operate infrastructure systems.

Determination of system quality and service levels for purely local facilities would be continue to the responsibility of local elected officials.

Metropolitan Council planners should work cooperatively with city and county officials to determine what sorts of information should be collected to allow an objective determination of whether investment in capital facilities was being made at an adequate rate or not.

- III. As part of any proposal for replacement, capacity expansion, or new capital facilities, units of government should project maintenance and system replacement costs.

- A. The obligation to maintain and replace any capital facility should be fully understood by a governmental unit to be as much its responsibility as making the bond debt payments.

Because maintenance and upkeep are likely to continue to be the critical challenge to the region in coming years, the maintenance obligation must be built into the initial construction decision and any decision about system upgrading or replacement. Projections of maintenance costs should be anticipated and included in future budgets in much the same way that debt service is.

This discipline should extend to any new capital facilities which are to be privately owned.

This discipline will help insure that public investment in the infrastructure is kept up. Local and regional government will recognize their financial obligation of adequate maintenance and understand that failure to commit money for it will require greater future capital spending.

Planning the maintenance and system replacement will also encourage elected officials to be prudent in deciding to build capital facilities in the first place. If the future financial obligation of the local unit is clearly stated and understood, local units may have less incentive to seek grants from higher units simply because they are available.

- IV. In any infrastructure grant program, the state should require financial projections for maintenance and system replacement projections. The state should require the same projections for use of federal grants by local and regional units.

- A. The state is in a unique position to insure maximum return on future infrastructure spending. It is in a position now to control any new federal grants and set the rules on any grant program involving state money.

A system with incentives for preventive maintenance and cautious spending behavior will be more efficient than a system without them.

The state took this approach in 1984 when it increased state grantmaking responsibility for wastewater treatment. The new PCA grant program which replaces the declining federal commitment requires grantees to have a plan for system replacement. We would urge that in addition to a system replacement plan, grantees have maintenance and operations cost projects agreed to in advance.

- B. The major state-local partnership in infrastructure right now is for roads and bridges. The basic framework of the program functions well. The state collects gas taxes and registration fees which are dedicated for the construction and maintenance of state and local roads. The money flows to local units under the constitutional appropriation formula and can be used for construction or certain maintenance functions such as resurfacing at the discretion of cities and counties. The League's roads and bridges study identified a major problem ahead in maintaining the existing system.

We urge the state Department of Transportation to make a determination of systemwide maintenance and replacement costs and make this information available to the Legislature and the Legislative Commission on Highways.

- C. Cities, counties, and metropolitan agencies should continue to be responsible for local and regional infrastructure. Maintenance and operations spending as well as system replacement should continue to be the responsibility of users and local officials.

The state should continue to provide general financial support to cities and counties through programs like the homestead credit and local government aids. It should also consider capital grant programs, but should avoid any categorical aid to local and regional government for infrastructure maintenance and operations unless it first develops a coherent policy with regards to infrastructure, making clear the responsibility of the state and the responsibility of the regional and local units. Additional incentives to expand systems for which no replacement has been planned and for which maintenance dollars might not be available would be a mistake.

- V. State and federal grantmaking programs for new or upgraded infrastructure systems should be reoriented towards performance standards. Instead of making money available for construction for types of facilities, money should be made available to perform specific functions.

Current grantmaking programs are oriented towards construction of facilities meeting specified criteria. These programs should instead specify those goals sought by policy makers. Such a system would allow local flexibility in solving problems, such as cleaning up water pollution.

A specific application of this would apply to the resolution of the combined sewer overflow issue and continuing construction of wastewater treatment capacity by the MWCC. Before the cities in the region or the MWCC continue to apply for capital grants for sewer separation or wastewater treatment construction, a determination should be made as to whether the additional money is being spent optimally. It appears that the hundreds of millions of dollars which could be spent for sewer separation and tertiary treatment could be better spent on alternative pollution control measures such as curbing non-point pollution.

Capital grants are available for additional treatment of sewage, but not for other steps which might clean up the Mississippi. Vast amounts of money may well be used to attain minimal results in additional environmental quality while lower cost, higher return options cannot be considered because they do not involve construction which meets federal criteria.

Non-point pollutants are now a more significant cause of environmental degradation than treated wastewater. The water entering the Mississippi River from the discharge pipe at the wastewater treatment plant at Pigs Eye is cleaner than the river.

Reorienting federal involvement away from its exclusive focus on construction towards attainment of policy goals would allow the money to be used in a more efficient manner to address the real pollution problem. Doing so would require a substantial revision of federal policy.

- VI. To complement state and federal grant programs oriented towards standards, local units should develop infrastructure proposals based on program goals.

The system we envision would work in the following way: to meet the state policy goal of clean waters the MWCC would develop proposals for wastewater cleanup, non-point pollution control, and any other issues which it thinks need to be addressed. The proposal would be submitted to the state agency with authority to grant money. The proposal would be modified, accepted, or rejected.

For example, on the combined sewer overflow issue, Saint Paul, South Saint Paul, and Minneapolis should be allowed to propose alternative means to protect the Mississippi. The Metropolitan Council should determine if construction of tertiary treatment by the MWCC is a better anti-pollution buy than alternative regional strategies to achieve a cleaner Mississippi.

A system of this type would be more flexible and more likely to encourage creative solutions. It would reorient infrastructure policy towards achievement and away from construction for construction's sake. It would require a reorientation of both federal and state policies away from construction grant programs.

WORK OF THE COMMITTEE

COMMITTEE ASSIGNMENT

The Infrastructure Committee was called upon by the League's Board to find out if there are opportunities in current policy to reduce future expenditures through prudent action now. In order to accomplish this, the committee first undertook a review of what public facilities exist in the region, who owns and sets policy for them, and what their condition was.

The charge to the committee is as follows:

Determine whether, in preserving certain public capital investments, the metropolitan community is failing to take timely steps now that could avoid much large expense later.

We would identify those areas of public investment that are in jeopardy because action is not being taken now. Areas to be investigated for such possible problems would include preventive action for stormwater runoff, replacement of water and sewer pipes, protection of shade trees, maintenance and replacement of transit vehicles, and preservation of open space. (This list is intended to be illustrative, not all inclusive.) We also will identify those areas where higher expense now is occurring because action wasn't taken earlier, where changing definitions of "need" account for growing capital investment demand, and where alternative actions may enable such needs to be satisfied without capital investment. Having identified areas where expenses are likely to be greater in the future because action is not being taken today, we would develop conclusions and recommendations about how to assure that the region's infrastructure will be preserved, including recommendations on pay-as-you-go versus bonding and other financing questions. It will also be necessary for us to spell out the consequences of not taking such action.

COMMITTEE MEMBERSHIP

The following people participated in the committee on a regular basis:

Judith Alnes Chairman
Mary Anderson
Dixon Bond
Olin Bray
Jan Lifson Bray
J. H. Fonkert
Ruth Hass
A. Edward Hunter
Lawrence Kaufman
Robert Lewis

Allen Lovejoy
Gordon Ortler
Richard Person
E. H. Ross
Glenn Speidel
Jordana Tatar
Erling Weiberg
Norman Werner
James Willis

COMMITTEE WORK

The committee began work in February 1983 and met 31 times. The last meeting was held on April 25, 1984. It met with representatives of city, county, metropolitan, state and federal government, as well as business people and academics.

The committee alternated meetings between Saint Paul and Minneapolis meeting roughly every two weeks.

Minutes are available of each of the sessions are available from the League office.

In order to fulfill the charge, the committee first attempted to understand the condition of existing public facilities and the policies which govern them. As noted in the findings section, the committee did not commit itself to an exhaustive review of the condition of every element of the public's capital stock, confining its inquiry to the largest, most expensive, and most significant systems.

It also did not study many important privately-owned infrastructure systems, such as utilities and the communications infrastructure.

Two reasons dictated this approach. First, the committee understood the charge to mean a study of those public systems--roads, sewers, streets, wastewater treatment plants, mass transit, and airports--most commonly referred to in the larger debate about infrastructure.

Secondly, to have attempted a more detailed or more inclusive study would have been beyond the means of a volunteer study committee.

COMMITTEE RESOURCE GUESTS

The following people appeared before the committee. The Infrastructure and the Citizens League would like to thank them for their assistance to this study.

John Adams, professor of geography, University of Minnesota
Marcia Bennett, member, Metropolitan Council
John Bohan, assistant treasurer, Pillsbury Company
Richard Braun, commissioner, MN Department of Transportation
Arne Carlson, state auditor
Michelle Cooper, director, investment analysis, Pillsbury Company
Tom Eggum, deputy director, Department of Public Works, City of Saint Paul
Alan Fitzwater, assistant vice president for public affairs, Burlington Northern Railroad
George Frisch, chair, Metropolitan Waste Control Commission
Charles Hanna, executive secretary, Mpls. Capital Long-Range Improvement Committee
Richard Haskett, director, marketing & international trade division, MN Department of Agriculture
Jim Hayek, director, Minneapolis Waterworks
Tom Johnson, assistant to chair, MN Waste Management Board
Ray Lappegaard, assistant to president, J. L. Shiely Company
David Parsons, chief of construction brach, Army Corps of Engineers
Perry Thorvig, planner, Minneapolis Planning Department
Tom Triplett, director, State Planning Agency
Jim Van Hout, director of budget and accounting, Ramsey County
Peter Vanderpoel, chair, Citizens League Roads & Bridges Committee
Douglas Wallace, vice president for program and policy, Norwest Bank Mpls.
Charles Weaver, former Metropolitan Council chair
Gerald Weiszhaar, assistant director of budget & finance, Hennepin County

In addition, several members of the Metropolitan Council, Metropolitan Waste Control Commission, and state Department of Transportation supplied background and supplementary material which is included in this report.

The committee and League would like to thank them also for their invaluable help.

The committee was assisted in its work by Robert de la Vega, Donna Keller and Joann Latulippe of the Citizens League staff.

APPENDIX A

This appendix contains several charts and tables with information about capital spending trends and levels across the nation.

Table 3

Constant Dollar Investment in Public Works, Selected Years

Figures show percent of Gross National Product (GNP)
represented by Public Works Investment (PWI)

<u>Year</u>	<u>Federal PWI%GNP</u>	<u>State PWI%GNP</u>	<u>Local PWI%GNP</u>	<u>Total PWI%GNP¹</u>
1957	0.49	2.95	(1)	3.44
1958	0.57	3.24	(1)	3.81
1959	0.47	1.42	1.65	3.54
1960	0.48	1.28	1.75	3.51
1961	0.58	1.43	1.75	3.76
1962	0.62	1.41	1.71	3.74
1963	0.69	1.51	1.74	3.94
1964	0.75	1.50	1.80	4.05
1965	0.75	1.47	1.86	4.08
1966	0.72	1.51	1.84	4.07
1967	0.57	1.52	1.93	4.02
1968	0.44	1.45	2.02	3.91
1969	0.37	1.40	1.82	3.59
1970	0.34	1.40	1.64	3.38
1971	0.34	1.34	1.54	3.22
1972	0.32	1.25	1.39	2.96
1973	0.31	1.14	1.37	2.82
1974	0.31	1.06	1.55	2.92
1975	0.32	0.97	1.50	2.79
1976	0.30	0.82	1.31	2.43
1977	0.33	0.70	1.18	2.21

¹Total PWI-GNP is the sum of Federal PWI-GNP plus State PWI-GNP plus Local PWI-GNP

Source: U.S. Department of Commerce. A Study of Public Works Investment in the United States, April 1980, p. I.35-37.

Table 4

Constant Dollar Investment in Public Works

<u>Year</u>	<u>Federal PWI[1]</u>	<u>State PWI[2]</u>	<u>Local PWI[3]</u>	<u>Total PWI</u>
1957	\$3,327	\$20,075	(3)	\$23,402
1958	3,873	22,030	(3)	25,903
1959	3,397	10,221	11,860	23,478
1960	3,573	9,422	12,876	25,871
1961	4,359	10,829	13,189	28,377
1962	4,965	11,230	13,650	29,845
1963	5,764	12,567	14,443	32,774
1964	6,529	13,108	15,761	33,398
1965	6,960	13,565	17,242	37,767
1966	7,111	14,797	18,079	39,987
1967	5,746	15,306	19,482	40,534
1968	4,660	15,231	21,235	41,126
1969	3,982	15,157	19,613	38,752
1970	3,660	15,085	17,605	36,350
1971	3,751	14,792	17,082	35,625
1972	3,751	14,641	16,224	34,616
1973	3,816	14,125	16,891	34,832
1974	3,767	12,904	18,821	35,492
1975	3,860	11,700	18,074	33,634
1976	3,863	10,401	16,648	30,912
1977	4,332	9,272	15,785	29,389

¹Survey of Current Business, National Income and Product Accounts, 1929-1974, Table 3.9 used for 1957-1972. Survey of Current Business, July 1977, Table 3.9 used for 1973 and 1974 and Survey of Current Business, July 1978, Table 3.9 used for 1975-1977. The following exceptions should be noted: current dollars for 1974 and constant dollars for 1957-77 were obtained from an unpublished update provided by John Welles, BEA, Government Division.

²State and local series are from a special tabulation made by BEA and provided for this study.

³Included in state PWI.

SOURCE: U.S. Department of Commerce. A Study of Public Works Investment in the United States, April 1980, p. I. 35-37.

Table 5

Federal Investment in Infrastructure

<u>Year</u>	<u>Direct Capital Investment For Nondefense Purposes</u>	<u>Grants to States and Local Government</u>	<u>Indirect Aid Via Tax Exemption of Interest Earned On Municipal Bonds^[1]</u>
1952	1.5	0.6	2
1960	1.9	3.3	2
1965	3.0	5.0	2
1970	2.5	7.0	2
1971	3.0	7.9	2
1972	3.6	8.4	2
1973	3.7	8.8	2
1974	4.0	9.8	2
1975	4.8	10.8	3.8
1976	5.2	13.5	4.4
1977	5.8	16.1	4.8
1978	6.6	18.3	4.8
1979	7.3	20.0	5.4
1980	7.7	22.4	4.9
1981	8.4	22.1	6.1
1982	8.5	20.2	6.9
1983 (est.)	8.7	20.3	
1984 (prop.)	7.8	23.7	

Average Annual Percentage Change

1952 to 1960	3.0	23.8
1960 to 1970	2.8	7.8
1970 to 1978	12.9	12.8
1978 to 1984	2.8	4.4

Average Percentage Change After Inflation

1952 to 1960	1.0	22.9
1960 to 1970	.7	4.7
1970 to 1978	5.8	3.7
1978 to 1984	-5.2	-3.3

¹ This is the estimate of revenues foregone by the federal government as a result of the provision excluding interest on general obligation bonds from the income tax. The actual savings to state and local governments is somewhat less as the subsidy mechanism is relatively inefficient with some of the benefit going to the highest income taxpayers.

² Tax expenditures were not calculated until 1975.

SOURCE: Office of Management and Budget, Federal Outlays for Major Physical Capital Investment, Feb. 1983 (unpublished tables); Office of Management and Budget "Tax Expenditures," Special Analysis Budget of the U.S. Government, various years; Joint Economic Committee, Congress of U.S., Feb. 25, 1984 report.

Table 6

Capital Outlays by State and Local Governments

<u>Year</u>	<u>Highways and bridges</u>	<u>Transit</u>	<u>Air Transit</u>	<u>Sewer</u>	<u>Water supply</u>	<u>Total these functions</u>	<u>Local schools</u>	<u>All others</u>	<u>Total capital outlays</u>
1952	2,700	67	49	442	406	3,664	1,421	2,351	7,436
1960	6,340	94	243	767	843	8,287	2,903	3,914	15,104
1965	8,324	242	261	1,107	1,138	11,072	3,287	6,176	20,535
1970	10,762	366	691	1,385	1,201	14,405	4,658	10,587	29,650
1971	11,888	446	734	1,744	1,247	16,059	4,845	12,233	33,137
1972	12,317	435	906	2,091	1,343	17,092	4,759	12,776	34,627
1973	11,459	920	1,011	2,428	1,435	17,243	4,856	13,173	35,272
1974	12,152	926	812	2,640	1,743	18,273	5,108	14,703	38,084
1975	13,646	1,203	852	3,569	2,111	21,381	6,532	16,911	44,824
1976	14,209	1,339	802	3,955	2,208	22,513	6,547	17,471	46,531
1977	12,497	1,573	599	4,208	2,302	21,179	5,982	23,393	45,154
1978	12,898	1,407	777	4,366	2,141	21,589	5,709	17,471	44,769
1979	15,567	1,168	966	5,619	2,701	26,471	6,370	20,335	53,196
1980	19,133	1,921	1,391	6,272	3,335	32,052	7,362	23,480	62,894
1981	19,334	2,617	1,438	6,911	3,784	34,084	7,441	26,071	67,596

Average Annual Percentage Change in Nominal Dollars

1952 to 1960	11.3	4.3	22.2	7.1	9.6	10.7	9.3	6.6	9.3
1960 to 1970	5.4	14.6	11.0	6.1	3.6	5.7	4.8	10.5	7.0
1970 to 1978	2.3	18.3	1.5	15.4	7.5	5.2	2.6	6.5	5.3
1978 to 1981	14.4	22.9	22.8	16.5	20.9	16.4	9.2	14.3	14.7

Average Annual Percentage Change Corrected for Inflation¹

1952 to 1960	8.5	1.8	19.1	4.5	6.9	81.	6.6	4.0	6.7
1960 to 1970	3.5	12.5	9.0	4.2	1.7	3.8	2.9	8.6	5.1
1970 to 1978	-4.2	10.9	-4.9	8.1	.7	-2.2	-3.9	-.8	-2.0
1978 to 1981	5.4	13.3	13.1	7.4	11.4	7.2	.1	5.3	5.7

¹ Capital outlays were deflated using the special GNP deflator for gross private domestic fixed investment for non-residential purposes.

SOURCE: Expenditure data from U.S. Bureau of the Census, Government finances various years. Deflator from Economic Report of the President, January 1981; Joint Economic Committee, Congress of U.S. Feb. 25, 1984 report.

Table 7

PER CAPITA AMOUNTS OF FINANCIAL ITEMS
FOR STATE & LOCAL GOVERNMENT
MINNESOTA COMPARED TO U.S. AVERAGE, 1981-82

	<u>MN</u>	<u>U.S.</u>
TOTAL SPENDING	\$2,372.74	\$1,913.63
All purposes		
TOTAL CAPITAL SPENDING	322.34	238.29
Primary-Secondary Education,		
Operating	572.77	468.34
Primary-Secondary Education,		
Capital	36.92	30.63
Post-Secondary Education,		
Operating	211.11	183.28
Post-Secondary Education,		
Capital	17.66	16.31
Other Education	27.11	36.68
Libraries	12.36	8.81
Welfare	351.15	248.32
Health & Hospitals, All	209.08	177.70
Health & Hospitals, Capital	9.79	11.33
Veterans Services	.27	.28
Highways, All	219.69	152.48
Highways, Capital	114.83	80.24
Airports	13.28	12.44
Police	62.76	72.66
Fire	22.13	30.57
Corrections	28.40	37.44
Sewer	78.86	47.66
Housing/Urban Redevelopment	30.34	35.74
Natural Resources	91.11	61.45
Public Buildings	16.63	14.63
Debt Interest	149.15	88.15
Total Debt	2,555.10	1,762.50

SOURCE: Governmental Finances in 1981-82, U.S. Department of Commerce, Bureau of Census.

Appendix B

The Metropolitan Council's Transportation Development Guide/Policy Plan is a planning document which describes highway plans for the region. A draft of the plan was approved by the Council in January 1983. Some charts and tables from it are reproduced here.

The Council's plan, based on anticipated population and economic growth, identified 40 deficiencies in the regional highway system. Attached is the discussion about the nature of the deficiencies (some are safety or design related, others have to do with carrying capacity) and a list of them. An additional table describes in more detail just what the projects consist of, how serious the need is, and, again, a description of whether the problem is capacity, safety, or something else.

DEFICIENCIES

The transportation chapter is intended to present a plan and policies for a future system of highways and transit services that will meet the needs of the metropolitan area. Therefore, the plan process must consider what deficiencies exist or may occur in the future. Deficiencies in a highway or transit system are of many kinds. The following analysis addresses in detail only those of regional significance, especially in implementing the transportation system support for the Development Framework. This means that the metropolitan highways and the fixed-route transit system are the two major systems whose deficiencies are evaluated, as they represent regional accessibility for residents of the seven counties.

This leaves some kinds of deficiencies out of the analysis, such as the condition of buses or road surfaces on the metropolitan highways. An inventory of such factors is too large and the results too quickly dated to belong in a regional policy plan. However, the basic system capacity of existing facilities and services can be measured and compared to longer-term estimates of demand as well as to current demand for travel. The dollars needed to keep up with the smaller, short-term deficiencies may in the aggregate use funds needed for those larger projects that alone can handle serious capacity shortages. Therefore, as the deficiencies are translated into a list of needs, a general list of other needs is also acknowledged.

The assumption is that the detailed list of highway and transit needs along with general needs should be met over the next two decades but not that they will be met, primarily because of revenue shortfall. Shorter-term actions, especially those to maintain the existing highway and transit systems, will be programmed by the appropriate implementing agencies subject to required review under the policies of this transportation policy plan. The system deficiencies identified in the following analysis form the basis for longer-term implementation actions to fully meet the plans and policies of this chapter.

An existing transportation system facility is judged deficient if it cannot, under future conditions, perform so as to meet policy or goals. So that highway and transit deficiencies could be identified and needs for future facilities assessed, Council policies on safety, land use compatibility, travel time and capacity were applied to the existing highway and transit systems. So that capacity deficiencies could be determined, the 2000 travel was assigned to the 1980 network.

Metropolitan Highway Deficiencies

Metropolitan highway deficiencies were identified by determining the capacity of existing and committed metropolitan highways. ("Committed" metropolitan highways are those highway links that had received location and design approval and that had assured funding as of April 1982. Committed metropolitan highways are listed in Table 8). Present and future travel demand volumes on the existing and committed metropolitan highways were then compared with system capacity in the peak hour (expressed in vehicle-trips per hour). For the major travel segments identified in policy 14, the further condition of 35 percent transit and 1.6-person auto occupancy was applied. The resulting comparison was expressed as a ratio of demand over capacity, and where the ratio exceeded 1.1 (that is, 110 percent of capacity), a major deficiency was identified. In general, the comparison of 2000 travel demand with existing and committed highway capacity illustrates that there will be several "capacity" deficiencies in the peak hour inside the urban service area. Also, major and well-defined continuing deficiencies relating to safety, land use conflicts, roadway conditions and design were identified. These deficiencies are identified in Table 9.

Table 8

COMMITTED PROJECTS ON THE METROPOLITAN HIGHWAYS

<u>Highway</u>	<u>Specific Location</u>	<u>General Location</u>	<u>Improvement</u>
I-35E	+Cedar Av. to C.R. 31	NW Dakota Cty.	Freeway (6)*
	C.R. 31 to I-494	NW Dakota Cty.	Freeway (6)
	I-494 to TH 110	NW Dakota Cty.	Freeway (4)
I-94	I-494/694 interchange area	W. Central Washington Cty.	Freeway (8)
	I-494/694 to C.R. 19	Central Washington Cty.	Freeway (6)
	C.R. 19 to TH 95	E. Central Washington Cty.	Freeway (4)
I-494	+TH 5 to I-35E	N. Dakota Cty./S. Henn. Cty.	Freeway (6)
	I-35E to TH 52	N. Dakota Cty.	Freeway (6)
	TH 52 to TH 110	N. Dakota Cty.	Freeway (6)
	TH 110 to 7th Street	N. Dakota Cty.	Freeway (6)
TH 61	+Belden & Jamaca intersections	S. Washington Cty.	Interchanges
CR 18	+C.R. 3 to TH 7	E. Central Hennepin Cty.	Freeway (4)
	+TH 7 to C.R. 5	E. Central Hennepin Cty.	Freeway (4)

+Under construction in 1982

() * Number of lanes

SOURCE: Transportation Development Guide/Policy Plan, Metropolitan Council, January 1983

Table 9

MAJOR DEFICIENCIES ON EXISTING & COMMITTED METROPOLITAN HIGHWAYS

<u>Highway</u>	<u>Location</u>	<u>Deficiency Index</u>		<u>Vehicle Demand</u>	
		<u>1980</u>	<u>2000</u>	<u>Not Met</u>	<u>2000</u>
I-35W	TH 13 to I-494	1.32	1.14	1152	504
I-35W	Minnesota River Bridge	1.23	1.18	828	665
I-35W/ CSAH 62	"Common Section" Richfield	(Safety/Design) .84		--	-- 407*
I-35W	CSAH 62 to 46th Street	1.24	1.22	1290	1193
Shepard Rd. (I-35E)	Lexington Bridge to Randolph Street	(Safety/Design)		--	--
Shepard Rd. (I-35E)	Randolph St. to Jackson/ Sibley	0.83	1.27	--	432
I-94	Lowry Tunnel to River Rd.	(Safety/Structural)		--	--
I-94	E. River Rd. to TH 280	1.30	1.30	1080	1098
I-94	TH 280 to Snelling Ave.	(Safety/Structural)		--	--
I-94/I-35E	"Common Section" Saint Paul	(Safety/Design)		--	--
		1.32	1.24	1298	953*
I-94	Lafayette Freeway to Mounds Blvd.	(Safety/Design) 1.11		-- 390	-- 25*
I-494	TH 77 to CSAH 1	0.60	1.37	--	1992
I-494	TH 169/212 to TH 100	0.94	1.25	--	892
I-494	Th 61 to Farwell Ave.	0.58	1.17	--	624
I-694	I-94 to TH 47	1.37	1.66	1320	2371
I-694	TH 65 to CSAH 44	0.97	1.10	--	366
I-694	TH 10 to TH 49	0.79	1.26	--	924
I-694	CSAH 45 to I-35W	0.94	1.10	--	370
TH 7	I-494 to Williston Rd.	1.00	1.44	10	877
TH 10	TH 65 to I-35W	0.95	1.63	--	1378
TH 12	CSAH 101 to I-494	1.12	1.11	264	235
TH 12	I-494 to CSAH 18	1.15	1.50	320	1094
TH 12	CSAH 18 to TH 100	1.43	2.04	950	2290
TH 12	TH 100 to Washington Ave.	1.37	1.32	1350	1140
TH 13	Cty. Rd. 7 to CSAH 32	2.35	3.80	746	1547
TH 36	TH 61 to CSAH 64	0.98	1.12	--	273
TH 55	CSAH 6 to CSAH 154	0.68	1.23	--	502
TH 55	Wirth Pkwy. to I-94	0.79	1.59	--	1068
TH 55	S. end of Mendota bridge	0.90	0.99	--	--
TH 55	CSAH 62 to 42nd Street (Hiawatha Ave.)	0.92	1.99	--	1085
TH 55	42nd Street to I-94 (Hiawatha Ave.)	1.08	1.91	88	1000

TABLE 9 Contd.

<u>Highway</u>	<u>Location</u>	Deficiency Index		Vehicle Demand	
		<u>1980</u>	<u>2000</u>	<u>Not Met</u> <u>1980</u>	<u>2000</u>
TH 61	From I-494 to CSAH 22 in Newport	0.86	1.61	--	1339
TH 77	I-494 to E. 90th Street in Bloomington	0.82	1.61	--	1818
TH 100	TH 7 to 36th Street	(Design/Safety)		--	--
TH 212	CSAH 43 to I-494	2.08	2.22	540	610
TH 101	TH 169 Intersection Shakopee CBD	(Land Use Conflict)		--	--
TH 169	TH 52 to Champlin Osseo/Brooklyn Park	1.97	2.43	487	717
TH 169	Mississippi River Bridge Champlin-Anoka	0.71	1.22	--	484
TH 252	I-694 to TH 610	1.02	1.62	22	686

CSAH: County State Aid Highway

*Assumes that policy 14 is in force

SOURCE: Transportation Development Guide/Policy Plan, Metropolitan Council,
January 1983

TABLE 10
METROPOLITAN HIGHWAY NEEDS

HIGHWAY	SPECIFIC LOCATION	GENERAL LOCATION	NEED	COMMENTS
I-35E	W. 7th St. to I-94/I-35E	St. Paul	Construct parkway in Pleasant Av. corridor	Assumes a parkway without truck traffic.
I-35W	TH 13 to I-494	Bloomington	Construct additional lanes	Entire segment 46th to TH 13 has capacity deficiency. Some traffic may be diverted to Cedar Av. which has capacity surplus. However, in long term, I-35W will need upgrading--especially existing Minnesota River bridge.
I-35W	Minnesota River bridge	Bloomington	Repair and widen existing bridge	I-35W bridge may be special case in terms of timing for any required structural repair and widening (see comment above).
I-35W/CSAH 62	"Common section"	Richfield	Reconstruct	Seriously deficient. Needs revamping of ramps and through lanes to improve safety and capacity. Closing of access ramps should be considered.
I-35W	CSAH 62 to 46th St.	Minneapolis	Construct new lanes	Needs one additional lane in each direction.
I-94	Lowry tunnel to W. River Rd.	Central Minneapolis	Reconstruct	Structural deficiency due to deteriorating continuous reinforced concrete (CRC). This deficiency has been identified by Mn/DOT as among worst in Metro Area.
I-94	E. River Rd. to TH 280	Minneapolis	Reconstruct	Bottleneck at Dartmouth interchange assumed to be removed when CRC project is undertaken. Capacity deficiency exists from River Rd. through interchange at TH 280.
I-94	TH 280 to Snelling Av.	St. Paul	Reconstruct	Structural deficiency due to deteriorating CRC. This deficiency has been identified by Mn/DOT as among worst in Metro Area. Revamping of ramps and through lanes to improve safety and capacity. Closing of access ramps should be considered.
I-94/I-35E	"Common section"	St. Paul	Construct additional lanes	Both lane capacity and traffic continuity require upgrading.
I-94	Lafayette Freeway to Mounds Blvd.	St. Paul	Reconstruct	Roadway geometrics and lane configuration create safety problems and reduce effective capacity.
I-394	I-494 to Washington Av.	Minnetonka Golden Valley Minneapolis	New construction	Removes major system deficiency. Assumes implementation of I-394 diamond and reversible lanes solution as recommended to Mn/DOT by Metropolitan Council.

TABLE 10 (Contd.)

METROPOLITAN HIGHWAY NEEDS

HIGHWAY	SPECIFIC LOCATION	GENERAL LOCATION	NEED	COMMENTS
I-494	TH 169/212 to TH 100	Eden Prairie/ Bloomington	Upgrade existing road	Assumes eventual widening to six lanes.
I-494	TH 77 to CSAH 1	Bloomington	Upgrade interchange area	To be further evaluated in airport south study.
I-494	TH 61 to Farwell Av.	South St. Paul/ Newport	Upgrade bridge	Eventually need increased capacity across Mississippi River at this or a parallel location.
I-694	I-94 to TH 47	Fridley	Construct additional lanes	Assumes rebuilding of BN railroad bridge and eventual widening to six lanes. TH 610 is also needed to relieve I-694 Mississippi River bridge congestion.
I-694	TH 47 to I-35W	Arden Hills, Fridley, New Brighton	Construct additional lanes	Assumes eventual widening to six lanes.
TH 3	I-494 to TH 52	Inver Grove Heights	Right-of-way (ROW) acq./ construct new road	Complete system link between Lafayette Freeway and outstate route to Rochester; also helps reduce traffic pressure on I-494 Mississippi River bridge to Newport at TH 61.
TH 7	I-494 to Williston Rd.	Minnetonka	Reconstruct existing road	Approach improvement, including control of access or added lane.
TH 10	TH 65 to I-35W	Blaine	Construct new road	Alignment shifts to north; relieves deficiency on old TH 10.
TH 12	CSAH 101 to I-494	Minnetonka	Construct new lanes	Removes safety deficiency. Completes design continuity between proposed I-394 and existing TH 12 which is access controlled west of CSAH 101.
TH 13	Co. Rd. 7 to CSAH 32	Burnsville	Construct intersection improvements	Turn movement adversely affects capacity and safety.
TH 36	TH 61 to CSAH 64	Maplewood	Construct safety/capacity improvement	Assumes intersection and traffic improvements to increase capacity and safety.
TH 55	South end of Mendota bridge	Mendota Heights	Reconstruct intersection	Bridge segment shows capacity deficiency resulting from signal with TH 13. Assumed to be removed by reconstruction of intersection.
TH 55	Hiawatha Av. from I-94 to CSAH 62	Minneapolis	Reconstruct existing road	Final design to be determined in 1984.
TH 55	CSAH 6 to CSAH 154	Plymouth	Construct safety/capacity improvement	Assumes intersection and traffic improvements to increase capacity.

TABLE 10 (Contd.)

METROPOLITAN HIGHWAY NEEDS

HIGHWAY	SPECIFIC LOCATION	GENERAL LOCATION	NEED	COMMENTS
TH 55	I-94 to CSAH 62	Minneapolis (Hiawatha)	Reconstruct existing road	Final design depends on results of environmental impact statement in process.
TH 55	Hwy. 100 to I-94	Minneapolis (Olson Memorial Hwy.)	Improve level of service	Assumes minor improvements of operating characteristics to provide higher average speeds.
TH 61	I-494 to CSAH 22	Newport	Construct traffic improvements.	Assumes intersection and traffic improvements to increase capacity.
TH 77	I-494 to E. 90th St.	Bloomington - Airport	Construct new interchange	Segment from I-494 to 90th St. is deficient due to an at-grade intersection. Grade separation is assumed to provide capacity in corridor to help relieve I-35W.
TH 100	TH 7 to S. 36th St.	St. Louis Park	Construct grade-separated interchange	Remove an at-grade signalized intersection on access-controlled major arterial.
TH 101	TH 169 to TH 101	South Shakopee/ Jackson Twp.	ROW acquisition/construct new bypass	Removes truck and auto traffic from downtown Shakopee.
TH 169	Mississippi River bridge	Champlin-Anoka	Additional capacity over Mississippi River	No improvement. TH 610 bridge is expected to meet this need.
TH 169	"Osseo Bypass"	Osseo/Brooklyn Park	Construct new bypass	Inadequate older highway traversing community causes safety and congestion problems.
New TH 212	CSAH 43 to CSAH 41	Dahlgren/Chaska	ROW acquisition	Hold corridor for future system completion.
New TH 212	CSAH 41 to I-494	Chaska/Chanhassen/	ROW acquisition and construction	Removes corridor deficiency for both TH 169 and TH 212.
TH 252	I-694 to CSAH 130	Brooklyn Center	Construction capacity safety improvements	Road to be rebuilt on partial new alignment as part of TH 610 improvement.
TH 610	TH 10 to TH 252	Brooklyn Park	ROW acquisition	TH 610 is needed to relieve I-694 Mississippi River bridge congestion. Mississippi River crossing and connection to TH 10 needed by 2000 to respond to Development Framework plan (includes 252 connection).
TH 610	TH 252 to I-94	Brooklyn Park/ Maple Grove	ROW acquisition	Hold ROW between TH 252 and I-94.
CSAH 32	TH 3 to TH 52	Inver Grove Heights	ROW acquisition and construction	Assumes completion of CSAH 32 (two lanes) from TH 3 to TH 52. The present segment is an unimproved dirt road from TH 3 to CSAH 71 and also terminates at CSAH 71.
CSAH 62	CSAH 18 to I-494	Eden Prairie/ Minnetonka	Construct new road	Assumes four to six lanes to complete this portion of metro highway system and to relieve capacity deficiency on I-494, from CSAH 18 to TH 212.

The Minnesota Department of Transportation has detailed information about the condition of roads and highways in the seven-county metropolitan area and the state. Several tables shown here describe both the current condition and the trends of the system.

Two terms recur in these descriptions: condition and sufficiency. Highway engineers rate roads in both of these categories. Condition refers to just what it seems to; the condition of the road surface and that alone. The sufficiency ratings include condition, but also the load-carrying capacity, width, clearance, sight and stopping distance, and traffic carrying capacity. So, a road could be smooth and therefore in good condition, but have a lower sufficiency rating because it did not meet assigned load-carrying capacity (e.g., if the road were expected to carry 10-ton traffic but was built to carry only nine-ton traffic), or was not wide enough to meet design standards.

Table 11 shows the road mileage of the various systems in the region. County State Aid and Municipal State Aid streets are roads which are maintained with dedicated funds from the Highway User Trust Fund. State gas taxes, registration fees, and other taxes on users go into this fund. Of the money in the trust fund, 62 percent goes to the state, 29 percent to the counties, and nine percent to the cities. In the chart below, the roads shown as County State Aid and Municipal State Aid are financed with state-collected money. The categories of city and county roads are maintained with locally-collected money.

Table 11

TWIN CITY METRO AREA ROUTE SYSTEM MILEAGE

Interstate	192
Trunk Highway	907
County State Aid Highway	1,805
Municipal State Aid Streets	1,181
County Roads	752
City Streets	6,753
Township	<u>1,432</u>
TOTAL	13,022

SOURCE: Highway Studies Unit, MN Dept. of Transportation, February 1984

Table 12 shows the trunk highway mileage compared to the total road mileage in all systems. The share of travel is different from the mileage totals. Only 8.5 percent of the total system is represented in trunk highway miles, but 57.9 percent of miles traveled are carried on these roads.

Table 12

SEVEN-COUNTY METRO AREA
MILES & TRAVEL

<u>T. H. ONLY</u>	<u>ALL METRO</u>
1,100 Miles	12,950 Miles
19,600,000 DVMT*	33,094,000 DVMT
57.9 Percent	

*DVMT = Daily Vehicle Miles Traveled

SOURCE: Highway Studies Unit, MN Dept. of Transportation, February 1984

Table 13 shows the condition of these highly-traveled roads. As can be seen, almost nine of ten of the principal arterial miles are in good or excellent condition. By contrast, 36 percent of the minor arterials are in poor condition, three times the percentage of the principal arterials.

Table 13

1983 METRO AREA TRUNK HIGHWAY CONDITION RATINGS
BY FUNCTIONAL CLASSIFICATION

<u>ROADWAY</u> <u>CLASSIFICATION</u>	<u>TOTAL</u> <u>MILES</u>	<u>EXCELLENT</u> <u>3.6 & ABOVE</u>	<u>GOOD</u> <u>2.9 - 3.5</u>	<u>POOR</u> <u>2.8 & LESS</u>
Principal Arterial				
Interstate				
Urban	171	37%	57%	6%
Rural	20	9%	91%	--
Total	191	34%	60%	6%
Non-Interstate				
Urban	223	18%	68%	14%
Rural	101	22%	60%	18%
Total	324	19%	66%	15%
Total Principal Arterial	<u>515</u>	<u>25%</u>	<u>64%</u>	<u>11%</u>
Minor Arterial				
Urban	247	12%	45%	43%
Rural	199	11%	60%	29%
Total	446	12%	52%	36%
Collector				
Urban	16	19%	54%	27%
Rural	92	13%	80%	7%
Total	108	14%	76%	10%
Local Roads				
Urban	2	25%	75%	--
Rural	1	--	--	100%
Total	3	15%	55%	30%

SOURCE: Highway Studies Unit, MN Dept. of Transportation, February 1984

Table 14 shows similar figures for the state as a whole. The statewide figures include the metropolitan-area mileage. A higher proportion of the state's principal arterials are in poor condition, 22 percent compared to 11 percent for the metropolitan area. Roughly the same percentage of minor arterials are in poor condition.

Table 14

ROADWAY CLASSIFICATION	1983 STATEWIDE TRUNK HIGHWAY CONDITION RATINGS			
	BY FUNCTIONAL CLASSIFICATION			
	TOTAL MILES	EXCELLENT 3.6 & ABOVE	GOOD 2.9 - 3.5	POOR 2.8 & LESS
Principal Arterial				
Interstate				
Urban	186	34%	57%	9%
Rural	686	12%	71%	17%
Total	872	16%	68%	16%
Non-Interstate				
Urban	510	21%	56%	23%
Rural	3,462	28%	48%	24%
Total	3,972	27%	49%	24%
Total Principal Arterial	4,844	25%	53%	22%
Minor Arterial				
Urban	278	13%	45%	42%
Rural	5,364	25%	55%	20%
Total	5,642	25%	54%	21%
Collector				
Urban	19	23%	54%	23%
Rural	1,560	29%	58%	13%
Total	1,579	29%	58%	13%
Local Roads				
Urban	9	15%	47%	38%
Rural	13	3%	82%	15%
Total	22	6%	67%	25%

SOURCE: Highway Studies Unit, MN Dept. of Transportation, February 1984

Table 15 shows sufficiency ratings for metropolitan area highways. An extra category has been added in sufficiency ratings, fair, so it is difficult to compare sufficiency ratings as one element in determining the rating. The table shows that interstate roads have very high sufficiency ratings, with more than 72 percent good or excellent and only seven percent in the poor category. A much higher percentage of minor arterials, 48 percent, fall into the poor category. A much higher percentage of minor arterials, 48 percent, fall into the poor category.

Table 15

1983 METRO AREA TRUNK HIGHWAY SUFFICIENCY RATINGS					
ROADWAY CLASSIFICATION	TOTAL MILES	BY FUNCTIONAL CLASSIFICATION			
		EXCEL. 80 & ABOVE	GOOD 70 - 79	FAIR 60 - 69	POOR 0 - 59
Principal Arterial					
Interstate					
Urban	171	36%	34%	23%	7%
Rural	20	56%	42%	1%	1%
Total	191	37%	35%	21%	7%
Non-Interstate					
Urban	223	19%	37%	23%	21%
Rural	101	22%	42%	29%	7%
Total	324	20%	35%	25%	17%
Total Principal Arterial	515	26%	26%	24%	13%
Minor Arterial					
Urban	247	11%	21%	23%	45%
Rural	199	11%	11%	26%	52%
Total	446	11%	17%	24%	48%
Collector					
Urban	16	1%	5%	36%	58%
Rural	92	18%	14%	6%	62%
Total	108	16%	12%	11%	61%
Local Roads					
Urban	2	75%	--	--	25%
Rural	1	--	100%	--	--
Total	3	55%	30%	--	15%

SOURCE: Highway Studies Unit, MN Dept. of Transportation, February 1984

Table 16 shows sufficiency ratings for the state, with relatively better ratings for minor arterials and principal arterials.

Table 16

1983 STATEWIDE TRUNK HIGHWAY SUFFICIENCY RATINGS
BY FUNCTIONAL CLASSIFICATION

<u>ROADWAY</u> <u>CLASSIFICATION</u>	<u>TOTAL</u> <u>MILES</u>	<u>EXCEL.</u> <u>80 & ABOVE</u>	<u>GOOD</u> <u>70 - 79</u>	<u>FAIR</u> <u>60 - 69</u>	<u>POOR</u> <u>0 - 59</u>
Principal Arterial					
Interstate					
Urban	186	34%	28%	29%	9%
Rural	686	80%	19%	9%	--
Total	872	70%	21%	7%	2%
Non-Interstate					
Urban	510	25%	32%	24%	19%
Rural	3,462	41%	22%	18%	19%
Total	3,972	39%	23%	19%	19%
<u>Total Principal</u> <u>Arterial</u>	<u>4,844</u>	<u>45%</u>	<u>22%</u>	<u>17%</u>	<u>16%</u>
Minor Arterial					
Urban	278	10%	23%	25%	41%
Rural	5,364	31%	29%	25%	15%
Total	5,642	31%	28%	25%	16%
Collector					
Urban	19	10%	4%	31%	55%
Rural	1,560	27%	27%	28%	18%
Total	1,579	27%	27%	28%	18%
Local Roads					
Urban	9	68%	13%	13%	6%
Rural	13	21%	29%	50%	--
Total	22	41%	22%	35%	2%

SOURCE: Highway Studies Unit, MN Dept. of Transportation, February 1984

Tables 17 and 18 show trends in condition and sufficiency for the region and state as a whole.

Table 17

STATEWIDE TRUNK HIGHWAY CONDITION RATINGS

<u>YEAR</u>	<u>EXCELLENT</u> <u>3.6 & ABOVE</u>		<u>GOOD</u> <u>2.9 TO 3.5</u>		<u>POOR</u> <u>2.8 OR LESS</u>		<u>TOTAL</u> <u>MILES</u>
1975	2,760	(23%)	6,940	(57%)	2,420	(20%)	12,120
1980	1,850	(15%)	7,920	(66%)	2,310	(19%)	12,080
1981	2,240	(18%)	7,570	(63%)	2,290	(19%)	12,100
1982	2,921	(25%)	7,024	(58%)	2,235	(17%)	12,082
1983	3,052	(25%)	6,552	(54%)	2,483	(21%)	12,087

METRO AREA TRUNK HIGHWAY CONDITION RATINGS

<u>YEAR</u>	<u>EXCELLENT</u> <u>3.6 & ABOVE</u>		<u>GOOD</u> <u>2.9 TO 3.5</u>		<u>POOR</u> <u>2.8 OR LESS</u>		<u>TOTAL</u> <u>MILES</u>
1975	210	(19%)	695	(64%)	190	(17%)	1,095
1980	137	(13%)	780	(73%)	145	(14%)	1,062
1981	147	(14%)	707	(67%)	208	(19%)	1,062
1982	188	(18%)	672	(63%)	207	(19%)	1,067
1983	196	(18%)	638	(60%)	239	(22%)	1,073

SOURCE: Highway Studies Unit, MN Dept. of Transportation, February 1984

Table 18

STATEWIDE TRUNK HIGHWAY SUFFICIENCY RATINGS

<u>YEAR</u>	<u>EXCELLENT</u> <u>80 & ABOVE</u>		<u>GOOD</u> <u>70 - 79</u>		<u>FAIR</u> <u>60 - 69</u>		<u>POOR</u> <u>0 - 59</u>		<u>TOTAL</u> <u>MILES</u>
1975	3,830	(32%)	3,660	(30%)	2,890	(24%)	1,740	(14%)	12,120
1980	3,720	(31%)	3,230	(27%)	2,820	(23%)	2,310	(19%)	12,080
1981	4,000	(33%)	3,090	(26%)	2,790	(23%)	2,220	(18%)	12,100
1982	4,349	(36%)	2,990	(25%)	2,696	(22%)	2,037	(17%)	12,082
1983	4,320	(36%)	3,117	(26%)	2,692	(22%)	1,958	(16%)	12,087

METRO AREA TRUNK HIGHWAY SUFFICIENCY RATINGS

<u>YEAR</u>	<u>EXCELLENT</u> <u>80 & ABOVE</u>		<u>GOOD</u> <u>70 - 79</u>		<u>FAIR</u> <u>60 - 69</u>		<u>POOR</u> <u>0 - 59</u>		<u>TOTAL</u> <u>MILES</u>
1975	142	(13%)	258	(23%)	247	(23%)	448	(41%)	1,095
1980	198	(19%)	295	(25%)	215	(23%)	354	(33%)	1,062
1981	197	(19%)	264	(25%)	247	(23%)	354	(33%)	1,062
1982	211	(20%)	271	(25%)	241	(23%)	344	(32%)	1,067
1983	212	(20%)	263	(24%)	253	(24%)	345	(32%)	1,073

SOURCE: Highway Studies Unit, MN Dept. of Transportation, February 1984

Over the eight-year period measured, five percent of the metropolitan area's trunk highways have fallen from the good or excellent categories into the poor category. Statewide, the poor condition category grew by only one percent, and the excellent category grew by two percent. Regarding sufficiency, the poor category shrunk from 41 to 32 percent for the metropolitan area and grew from 14 to 16 percent for the state as a whole. In both the region and the state, the excellent category expanded its sufficiency share, from 13 to 20 and 32 to 32 respectively.

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For titles and availability of earlier reports, contact the CL office.

RECENT CITIZENS LEAGUE STATEMENTS

(Statements, when available, are free)

Statement to Legislative Study Committee on Metropolitan Transit	12/15/83
Statement to Governor's Tax Study Commission	11/22/83
Statement to Minnesota's Highway Study Commission	9/29/83
Statement on the Metropolitan Council's Proposed Interim Economic Policies	8/29/83
Statement to Mpls. Charter Commission: Proposal to have Mayor as non-voting member of Council	8/11/83
Statement to Metropolitan Council and Richard P. Braun, Commission of Transportation on Preferential Treatment for Transit in Expansion of I-35W	7/21/83
Statement to Members, Steering Committee on Southwest/University Avenue Corridor Study	7/19/83
Statement to Commission on the Future of Post-Secondary Education in Minnesota	6/22/83
Statement to the Metropolitan Health Board	6/20/83
Appeal to the Legislature and the Governor	4/26/83
Citizens League Opposes Unfunded Shifts to Balance Budget	12/1/82
Longer-Term Spending Issues Which the Governor and Legislature Should Face in 1982	1/18/82
Statement Concerning Alternatives to Solid Waste Flow Control	1/12/82
Amicus Curiae Brief in Fiscal Disparities Case	filed 12/17/81
Statement to the Minnesota State Legislature Regarding the University of Minnesota Hospitals Reconstruction Project	12/14/81
Letter to the Joint Legislative Commission on Metropolitan Governance	11/13/81
Statement to Metropolitan Health Board re Phase IV Report	11/4/81
Statement to Metropolitan Council on I-35E	9/24/81
Statement to Minneapolis Charter Commission	7/6/81
Letter to Metropolitan Council re CL Recommendations on I-394	6/23/81
Statement to the Governor and Legislature as They Prepare for a Special Session	5-26-81
Statement to the Minnesota State Legislature Regarding the University of Minnesota Hospitals Reconstruction Bill, as Amended	5/8/81
Statement to the Governor and Legislature Concerning Expenditures/Taxation for 1981-83. Issued by Tax and Finance Task Force	4/28/81
Statement Concerning Proposed Legislative Study of the Metropolitan Council. Issued by the Structure Task Force	4/27/81
Statement to the Governor and Legislature Opposing Abolition of the Coordinating Function in Post-Secondary Education	4/24/81
Citizens League Statement on I-394	3/31/81
Statement on Budget & Property Tax Issues Facing the Governor and Legislature in 1981. Issued by Tax & Finance Force	3/31/81
Statement to the Minnesota State Legislature Regarding the University of Minnesota Hospitals Reconstruction Project	2/25/81
Toward a Better Understanding of Policy Choices in the Biennial State Budget. Issued by the Tax & Finance Task Force	1/28/81
Statement: Status Report on Spending—Tax Decisions Facing the Governor and Legislature in 1981. Issued by the Tax & Finance Task Force	12/3/80
CL Statement to the Metropolitan Health Board, Concerning the Rebuilding Proposal of University Hospitals	11/19/80
CL Statement on Three Proposed Amendments to the Minnesota Constitution	8/20/80
CL Statement to the Metro Health Board Re Phase III of the Metropolitan Hospital Plan	7/31/80
Letter for CL President to Mayor Latimer, St. Paul, Re St. Paul Refuse Disposal System	6-5-80
CL Recommendations on Housing & Neighborhood Maintenance	5/21/80
Statement on Veterans Administration Hospital, presented to the Metropolitan Health Board	4/30/80
Property Tax Relief	3-12-80
Letters from CL President, Re VA Hospital Replacement, to Max Cleland, Director, Veterans Administration; Patricia Roberts Harris, Secretary, Department of Health, Education & Welfare; & James McIntyre, Director, Office of Management & Budget	3/3/80
Ride-Sharing and Capital Facilities for Transit	2/27/80
Next Steps Toward the Implementation of our Recommendations about Hospitals	2-27-80
CL Letter to Metropolitan Councils Re Hospitals	12/12/79
Statement on Emergency Energy Assistance	11/2/79
Statement to the Metropolitan Health Board, re Fairview Hospitals	9/19/79
Comments by the Citizens League on the 1980 Metropolitan Council Work Program, given by Allan R. Boyce	9/13/79

For titles and availability of earlier statements, contact the CL office.

WHAT THE CITIZENS LEAGUE IS

Formed in 1952, the Citizens League is an independent, nonpartisan, nonprofit, educational corporation dedicated to understanding and helping to solve complex public problems of our metropolitan area.

Volunteer research committees of the Citizens League develop recommendations for solutions after months of intensive work.

Over the years, the League's research reports have been among the most helpful and reliable sources of information for governmental and civic leaders, and others concerned with the problems of our area.

The League is supported by membership dues of individual members and membership contributions from businesses, foundations and other organizations throughout the metropolitan area.

You are invited to join the League, or, if already a member, invite a friend to join. An application blank is provided for your convenience on the reverse side.

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WHAT THE CITIZENS LEAGUE DOES

RESEARCH PROGRAM

- Four major studies are in progress regularly.
- Each committee works 2½ hours every other week, normally for 6-10 months.
- Annually over 250 resource persons made presentations to an average of 25 members per session.
- A fulltime professional staff of eight provides direct committee assistance.
- An average in excess of 100 persons follow committee hearings with summary minutes prepared by staff.
- Full reports (normally 40-75 pages) are distributed to 1,000-3,000 persons, in addition to 3,000 summaries provided through the CL NEWS.

CL NEWS

- Four pages; published every two weeks; mailed to all members.
- Reports activities of the Citizens League, meetings, publications, studies in progress, pending appointments.
- Analysis data and general background information on public affairs issues in the Twin Cities metropolitan area.

PUBLIC AFFAIRS ACTION PROGRAM

- Members of League study committees have been called on frequently to pursue the work further with governmental or nongovernmental agencies.
- The League routinely follows up on its reports to transfer, out to the larger group of persons involved in public life, an understanding of current community problems and League solutions.

PUBLIC AFFAIRS DIRECTORY

- A 40-page directory containing listings of Twin Cities area agencies, organizations and public officials.

COMMUNITY LEADERSHIP BREAKFASTS LANDMARK LUNCHEONS QUESTION-AND-ANSWER LUNCHEONS

- Public officials and community leaders discuss timely subjects in the areas of their competence and expertise for the benefit of the general public.
- Held from September through May.
- Minneapolis breakfasts are held each Tuesday from 7:30 - 8:30 a.m. at the Lutheran Brotherhood.
- St. Paul luncheons are held every other Thursday from noon to 1 p.m. at the Landmark Center.
- South Suburban breakfasts are held the last Thursday of each month from 7:30 - 8:30 a.m. at the Lincoln Del, 494 and France Avenue South, Bloomington.
- An average of 35 persons attend the 64 breakfasts and luncheons each year.
- Each year several Q & A luncheons are held throughout the metropolitan area featuring national or local authorities, who respond to questions from a panel on key public policy issues.
- The programs attract good news coverage in the daily press, television and radio.

SEMINARS

- At least six single-evening meetings a year.
- Opportunity for individuals to participate in background presentations and discussions on major public policy issues.
- An average of 75 person attend each session.

INFORMATION ASSISTANCE

- The League responds to many requests for information and provides speakers to community groups on topics studied.
- A clearinghouse for local public affairs information.

Citizens League non-partisan public affairs research and education in the St. Paul-Minneapolis metropolitan area. **84 S. 6th St., Minneapolis, Mn. 55402 (612) 338-0791**

Application for Membership (C.L. Membership Contributions are tax deductible)

Please check one: ☐ Individual (\$25) ☐ Family (\$35) ☐ Contributing (\$45-\$99) ☐ Sustaining (\$100 and up)
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