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the transit development program:

summary of action, 1973-1990

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STATE OF MINNESOTA

Metropolitan Transit Commission
February, 1973

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introduction

Residents of the Twin Cities Metropolitan Area like it here. They know the region offers a high quality of life that is the envy of other regions. Yet even today the symptoms of serious urban problems are becoming more and more visible: unchecked, disorganized growth, air pollution, decay of older areas, rapidly rising taxes, and traffic congestion.

One vital component of a healthy urban area is a modern, efficient and well-balanced transportation system. Its importance is illustrated by its potential effect on the whole range of urban problems: haphazard land use, traffic congestion, air and noise pollution and inadequate mobility.

To retain the quality of life that has come to characterize this region, to protect it through the coming decades and into the next century, planning is necessary now, to guarantee that all the elements of urban strength,

including transportation, are there when they are needed.

More than planning, DECISIONS are needed now. Time is running out on our ability to solve these problems **before** they overwhelm us.

This report summarizes the Transit Development Program adopted by the Metropolitan Transit Commission, as this agency's response to identified transportation needs.

The MTC's proposed future transit system and all its diverse elements are described, and a step-by-step plan for implementation is outlined.

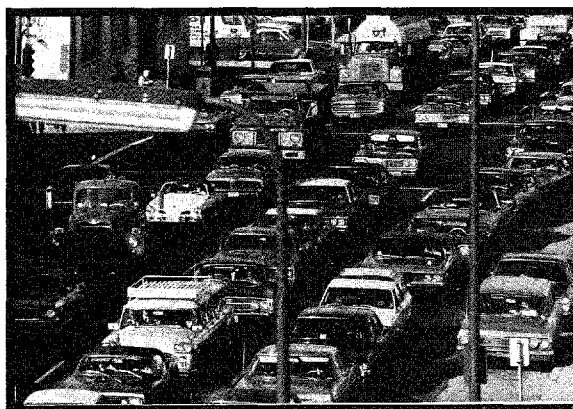
Some key questions are dealt with: what are the benefits of the proposed system? what are its costs? what steps need to be taken immediately?

This report, and the more complete documents it is based on, are intended to assist the community's decision-making.

This report was prepared from a series of transit studies conducted by the Metropolitan Transit Commission and financed in part through grants received from the United States Department of Transportation under the Urban Mass Transportation Act of 1964, as amended.



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some background

The Metropolitan Transit Commission, formed in 1967, immediately initiated short-range and long-range transit improvement studies in cooperation with the Metropolitan Council and the Minnesota Highway Department.

The short-range program is visible everywhere, and is an unqualified success. More than \$30 million in federal grants have been received for purchase of the former Twin City Lines, 607 new buses, 190 heated passenger shelters, and other improvements.

Long-range planning, including bus system demonstrations and extensive appraisals of new transit technology, has been underway since 1968.

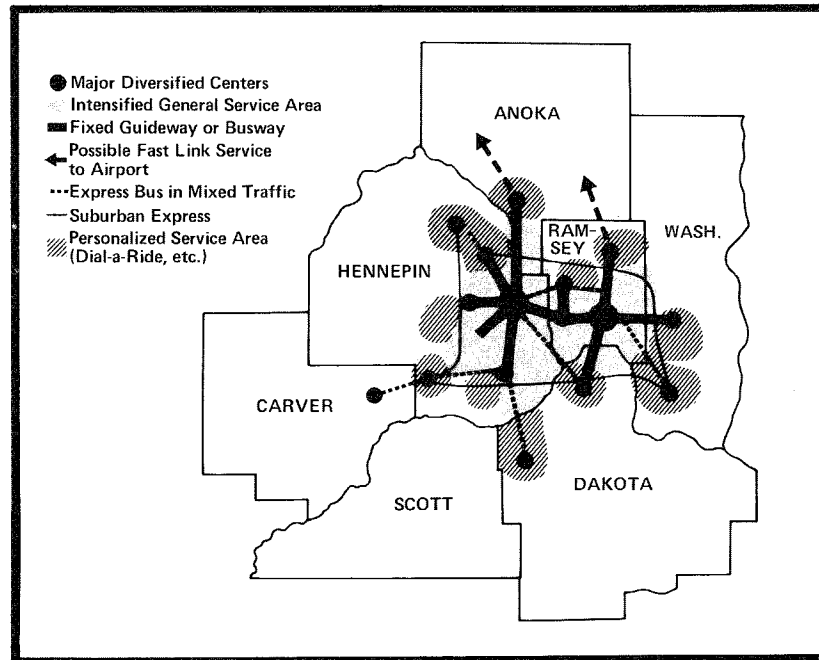
In 1971, the Commission made these determinations about future transit, subsequently approved by the Metropolitan Council:

- Bus transit will play a vital role in any future transit system and will be required to provide the major service for at least the next 10 years.
- All major capital investment for bus service will be compatible with, and look to, a time when fixed guideway transit service will be in operation.
- A regional system including fixed guideway service is deemed necessary.
- The newest and best available technology at the time of construction should be used.

These determinations helped shape a "family of vehicles" system concept plan: a practical means to capture the benefits of new technology, and to recognize the diversity of Twin Cities travel needs. The "family" concept will enlarge the region's public transportation service area, and focus the system to increase employment, shopping, cultural, recreational and other opportunities for the area's residents.



bus improvements



system concept map

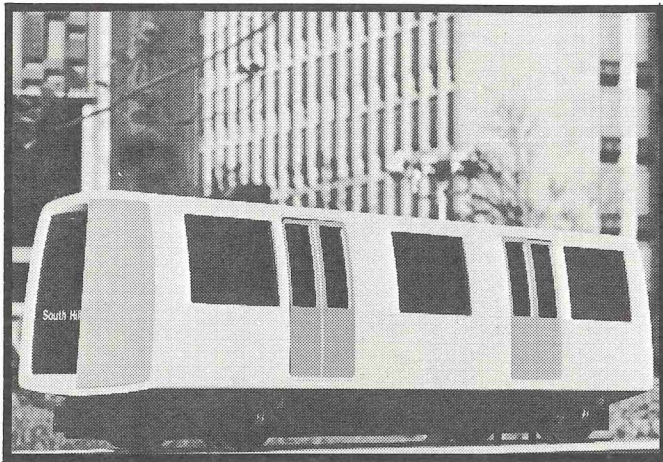
more about system concept

The "family of vehicles" system concept developed by the MTC, and approved by the Metropolitan Council, consists of:

- Rapid transit operating on its exclusive right-of-way (automated fixed guideway) as the backbone of the system to provide fast-link service in the heavily populated corridors between selected major centers. As a supplement, buses operating on exclusive busways are to be considered in those corridors where new or expanded freeways are planned.
- Express buses operating in mixed traffic for fast link service in less-congested corridors.
- Local and feeder bus service to provide service to the major centers as well as along outlying arteries, and to provide maximum access to the fast link service.
- Circulation/distribution service within certain major centers, such as downtowns and new outlying major diversified centers.

Vehicles such as those illustrated on Pages 4 and 5 typify what might actually be used to fulfill the system concept.

To meet regional development goals, to provide increased transit service, to achieve proper integration of all elements of a total transportation system, the transit plan prepared by the MTC is programmed for staged development to the year 1990.



regional fixed guideway



express bus

a closer look at the family

FIXED GUIDEWAY service is proposed between the downtown centers of Minneapolis and St. Paul, with service to adjacent activity centers such as the state government complex, Midway center, industrial concentrations and the University of Minnesota.

Fixed guideway service will be introduced in corridors connecting downtown centers with identified major centers located within the I-494/694 freeway loop. The basic principle is that heavily populated corridors with intense transportation needs and environmental problems can be best served by fixed guideway transit.

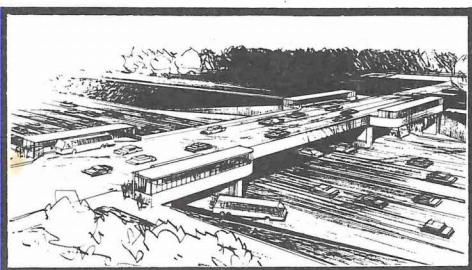
Within corridors served by fixed guideway, transit stations will be provided at major activity areas and at major crosstown thoroughfares to maximize personal mobility and access to area opportunities.

What sort of vehicle should perform this fixed guideway role? After extensive comparative evaluation of all possible alternatives, the MTC determined that for this region, the best answer is automated, 40-passenger vehicles capable of traveling at 60 miles per hour at one-minute intervals. Vehicles could operate individually or in trains of up to ten cars, depending upon demand at any time. Stations would be spaced from one to one-and-a-half miles apart.

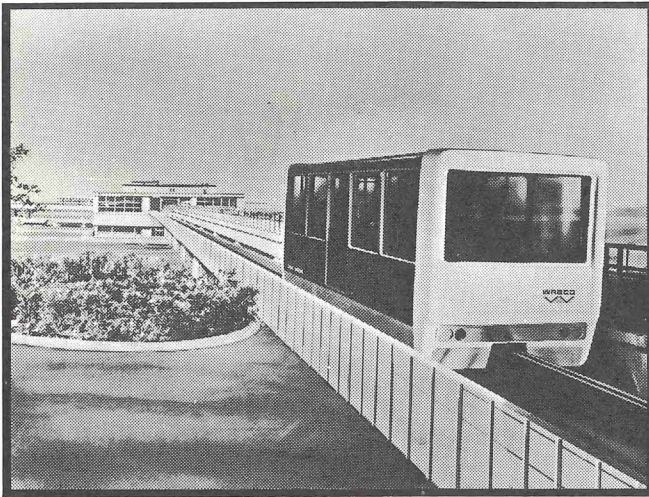
As patronage increases, some stations will be converted to "off-line" operation, whereby vehicles leave the main guideway to enter a station, allowing other vehicles to bypass the station. This permits fewer stops, higher speeds, and shorter intervals between vehicles.

While fixed guideways provide the automated backbone of the family of vehicles system, extensive use of EXPRESS BUS service will serve the outlying lower density residential areas. Improved express bus service can be provided by selective use of exclusive busways, and with innovations for preferential treatment such as reserved lanes for transit vehicles and "metered" freeways. As fixed guideway transit is constructed, express buses will continue to provide fast link service operating in mixed traffic in the less congested corridors.

The MTC has already experimented extensively with express buses, having added some 200 miles of express service over the past year. Additions of about 100 miles of express service a year are envisioned, until a vast network of more than 800 miles has been established.



freeway bus stations



major centers people movers



circulation service

Both fixed guideway and express bus systems depend on STATIONS AND SHELTERS to provide collection points that offer the finest environment. Park-ride and kiss-ride facilities will be provided where appropriate, and designed to avoid restricting pedestrian access or causing vehicular traffic congestion. Stations will be compatible with and supportive of other public facilities for education, cultural and service activities, and major retail and office space.

LOCAL AND FEEDER SERVICE, similar to existing bus routes, will be provided on a scheduled basis and greatly expanded. Some scheduled service focusing on outlying major centers will be required.

Residential areas surrounding outlying centers may be served with small buses operating in flexible circulation patterns. One such "demand" system is Dial-A-Ride, which permits patrons to telephone their desire for service to a dispatcher, who by radio communication will route buses according to the calls received.

Scheduling of feeder services of all types will be closely coordinated with the fast link systems, adding to the reliability of the total transit system.

Bus shelters, neighborhood stations at interchange points, and limited stop stations on or near freeway routes will be designed and developed.

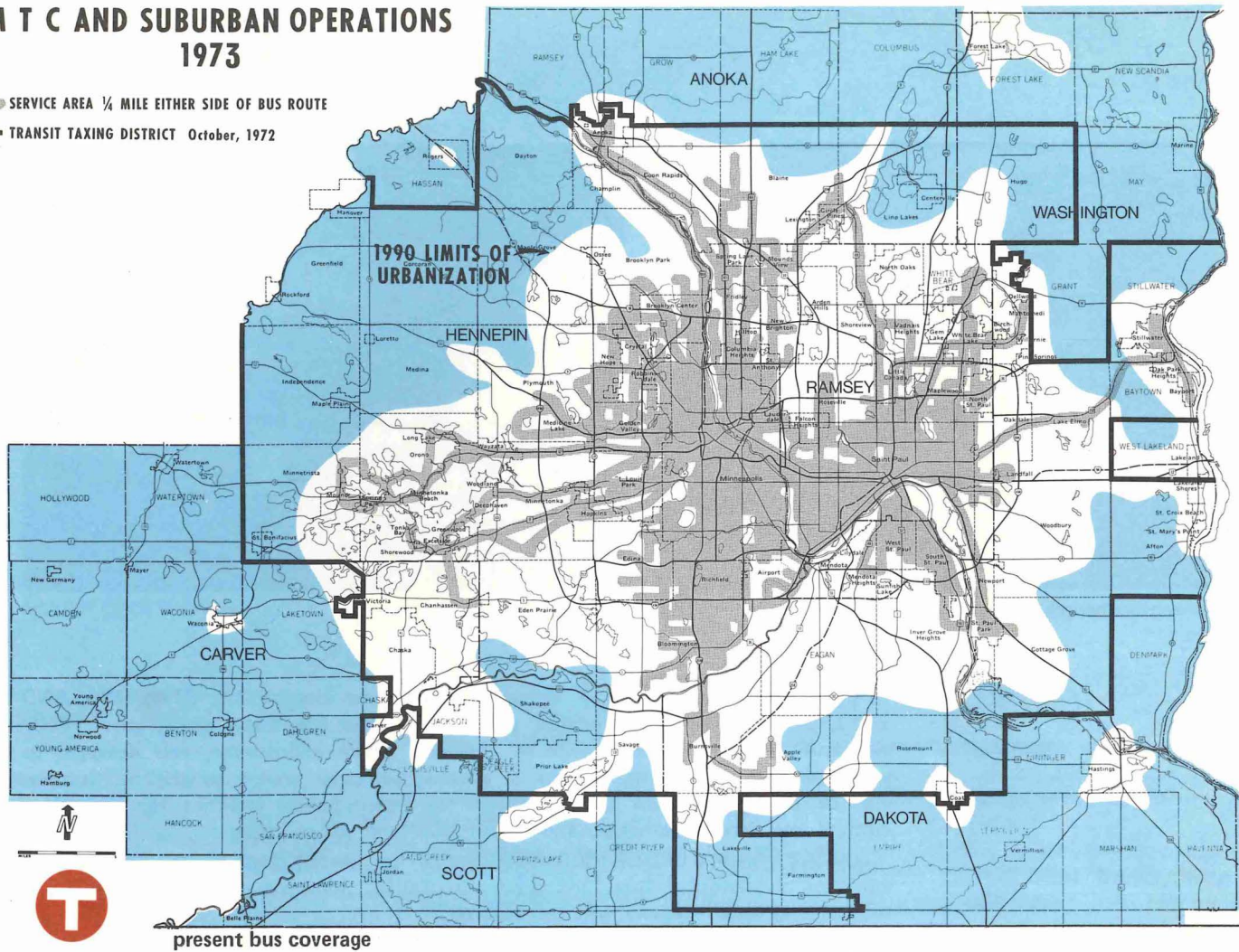
The downtown areas of the central cities and the new major diversified centers should be designed and expanded with SKYWAYS separated from street vehicle movements. Pedestrian skyway systems, in addition to providing for internal circulation within the core of centers, should be compatible with fast link and distribution systems. A good pedestrian system should accommodate up to 20 percent of the total person-trips into and within a major center.

AUTOMATED DISTRIBUTION SYSTEMS will be considered in the downtowns and other centers to minimize short-trip auto usage, encourage perimeter parking to "intercept" autos outside areas of greatest congestion, interconnect office and retail areas in the core of centers with residential and industrial activities on the periphery, and provide easy access to the fast link system.

QT bus routes being operated today in Minneapolis and St. Paul are designed to initiate this type of internal circulation and distribution. Both central cities have undertaken studies to determine how this need can be most satisfactorily met in the mid-'70's and beyond; both have concluded there is promise in using small, automated "people-movers."

M T C AND SUBURBAN OPERATIONS 1973

— SERVICE AREA ¼ MILE EITHER SIDE OF BUS ROUTE
— TRANSIT TAXING DISTRICT October, 1972



the plan and the community: a good match

Major new facilities that have been outlined in the preceding pages are illustrated in the map on Page 7. Service will be provided within the 1990 limits of urbanization, with the outer areas and their lower densities served with express bus systems.

Major transit stations, with kiss-ride and park-ride facilities, and terminals for other local bus services such as Dial-A-Ride, must be strategically located. In dense urban corridors, fixed guideway stations are located to serve major focal points for community activities.

Focusing transit on major activity centers will help guide development in patterns that best meet economic and social goals of the community. It will further the goal of providing access for the most people to these vital destinations.

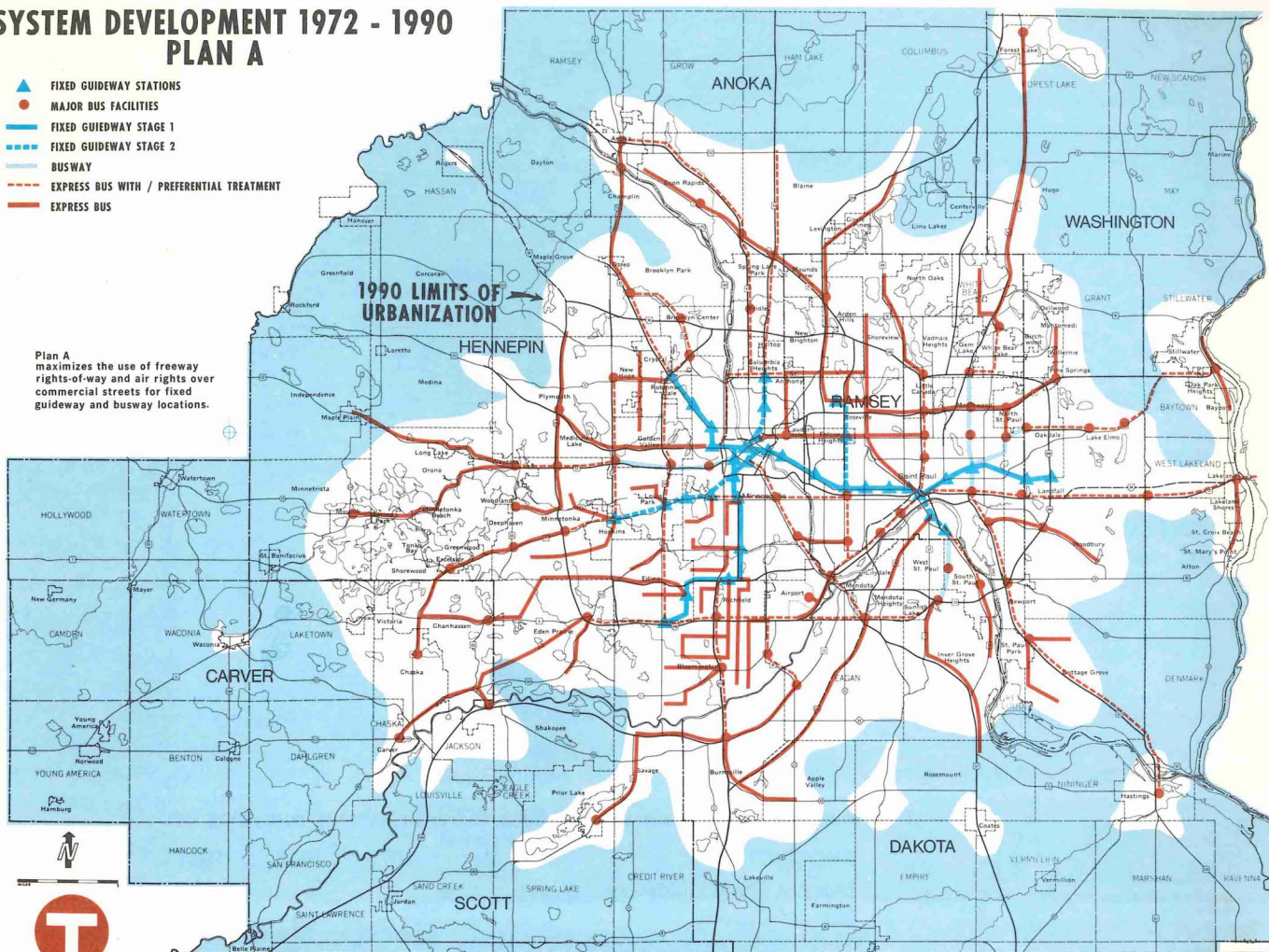
Focusing on centers will also insure that the benefits of transit are shared community-wide. People living in outlying areas who wish to work, shop, or be entertained closer to home will have that option. Likewise, central city residents who wish to have access to suburban job opportunities will not be impeded for lack of transportation.

This system plan "personalizes" transit to the extent that it recognizes that there is a great variety of travel needs to be met in a variety of ways. There are mid-day shopping trips and rush hour work trips, both to the downtowns and suburban centers. There is a broad range of other possibilities; the plan achieves the goal of providing mobility to the entire metropolitan area.

SYSTEM DEVELOPMENT 1972 - 1990 PLAN A

- ▲ FIXED GUIDEWAY STATIONS
- MAJOR BUS FACILITIES
- FIXED GUIDEWAY STAGE 1
- - - FIXED GUIDEWAY STAGE 2
- BUSWAY
- - - EXPRESS BUS WITH / PREFERENTIAL TREATMENT
- EXPRESS BUS

Plan A maximizes the use of freeway rights-of-way and air rights over commercial streets for fixed guideway and busway locations.



plan A — additional express bus and rapid transit services (new local and personalized service not shown)

staged system development

Having identified the medium- and long-term public transportation needs, the MTC has set forth a series of six basic tasks to be completed by 1990 to provide a high level of service, and to assist in sustaining and improving the region's quality of life.

TASK ONE, from 1973-75, calls for immediate improvements to bus systems, with emphasis on highway-related facilities such as 180 shelters, signs, stations, special signals, bus turnouts, and park-ride lots for 2,200 autos.

TASK TWO, in 1973, is to delineate the space needed, including right-of-way, air space and tunnels, for the regional fixed guideway and busway systems.

TASK THREE, from 1973-90, will establish a program for conservation of resources including low-emission diesel engine improvements, internal transit circulation, and other efforts to reduce the number of auto trips.

TASK FOUR, from 1974-81, is to design, construct, equip and place in operation the region's 37-mile first stage of the fixed guideway system.

TASK FIVE, 1976-81, calls for making further major improvements to the bus system consistent with plans for the fixed guideway system.

TASK SIX, 1982-90, calls for expansion of all aspects of the system including completion of the 78-mile system of fixed guideways and busways.

This multi-staged program will produce a transit system consisting of:

PRODUCTS	By:	1972	1975	1981	1990
Miles of Fixed Guideway				37	57
Miles of Busway			<u>6</u>	<u>19</u>	<u>21</u>
Total of Busways and Guideways			6	56	78
Miles of Highway w/Bus Preferential					
Treatment Facilities			40	110	180
Additional Route Miles of Express					
Bus Service	345	650	740	900	
Shelters, Small & Medium	32	180	334	494	
Bus Stations		40	88	100	
Guideway and Busway Stations			32	44	
Parking Spaces	400	2,200	11,000	19,000	
Annual Ridership	55	62	110	137	
		million	million	million	million

cost

To the average taxpayer, the critical question is "How much will it cost me?" The quick answer is, less than \$30 per family per year for the local share of the MTC's proposed transit development program, plus the tax contribution for the two-thirds federal funding that is available to all transit systems in the country.

Since all areas compete for federal funds, it is important to obtain the most federal funding for local transit, by relying on both federal highway and federal urban transportation assistance. In adopting its federal-aid highway programs, Congress has indicated its willingness to fund such transit-related highway facilities as busways, metered freeways, bus lanes, shelters, signs, bus turnouts, and loading areas. Under the urban public transportation assistance programs, Congress has also identified transit needs as including construction of fixed guideway systems and purchase of buses.

Staged development of transit systems as described in the previous section can be achieved at the following costs:

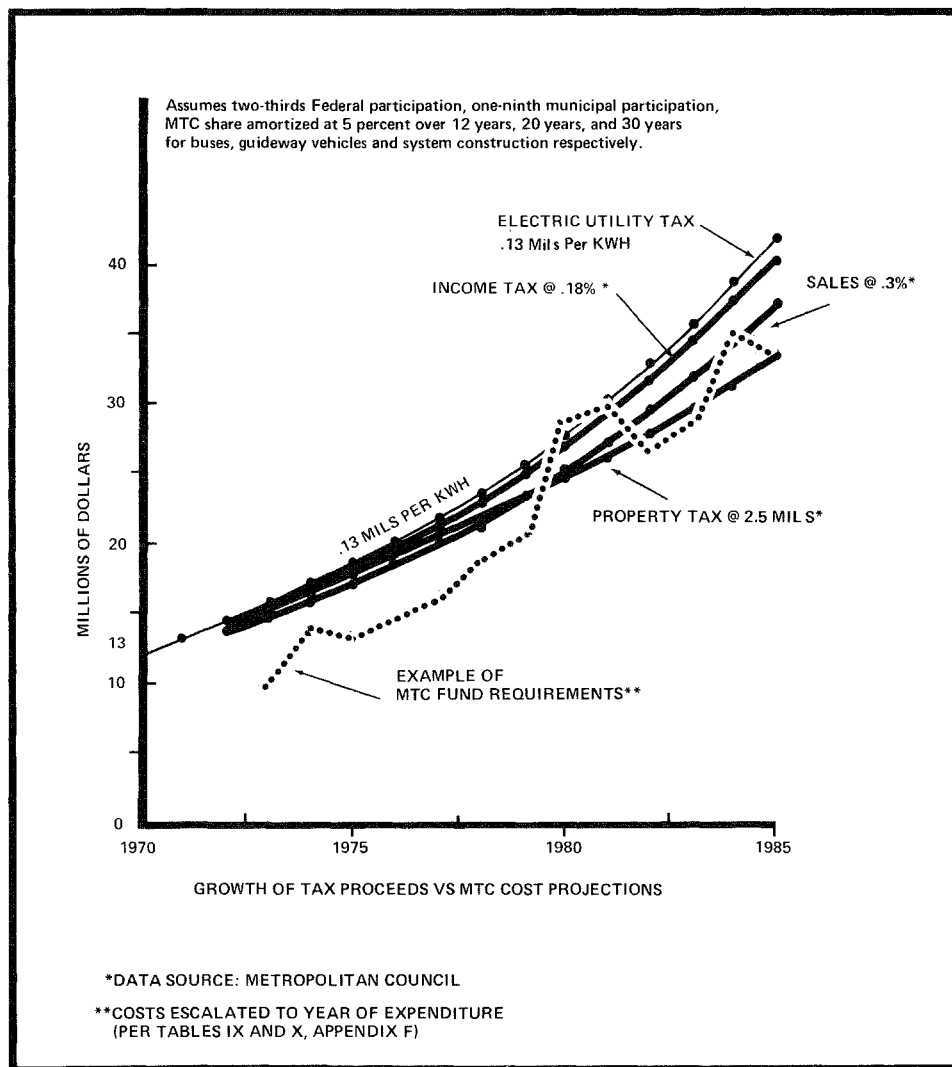
CAPITAL COSTS ¹ (\$ millions)	1973-1975		1976-1981		1982-1990	
	Highway	Transit	Highway	Transit	Highway	Transit
1. Fixed Guideway System	—	31.4	—	519.7	—	331.7
2. Buses & Bus Equipment	—	18.5	—	27.0	—	30.3
3. Busway System	30.0	—	35.7	—	9.2	—
4. Preferential Bus Facilities	7.6	.8	11.6	1.3	6.8	.8
5. Other Highway-Related Transit	18.6	2.1	29.0	3.2	24.1	2.7
	<u>56.2</u>	<u>52.8</u>	<u>76.3</u>	<u>551.2</u>	<u>40.1</u>	<u>365.5</u>
Program Totals	\$109.0		\$627.5		\$405.6	

¹ Costs 1972 price levels

One possible method of allocating costs among federal, state, regional and local agencies is detailed here.

ALLOCATION OF COSTS ¹ (\$ MILLIONS)	1973-1975		1976-1981		1982-1990	
	Highway Program	Transit Program	Highway Program	Transit Program	Highway Program	Transit Program
1. Federal Programs						
a. Transit (UMTA) @ 67%	—	35.4	—	369.3	—	244.9
b. Highway (FHWA) @ 70%	39.3	—	53.4	—	28.1	—
2. State Programs						
a. 50% Contribution for Capitol & U of M Stations	—	—	—	13.0	—	—
b. Highway Program	16.9	—	22.9	—	12.0	—
3. Local Resources						
a. Assume Municipal funding from Benefit Districts	—	3.3	—	47.7	—	32.6
b. MTC Capital Improvement Programs	—	14.1	—	121.2	—	88.0
	<u>56.2</u>	<u>52.8</u>	<u>76.3</u>	<u>551.2</u>	<u>40.1</u>	<u>365.5</u>

¹ Costs 1972 price levels



growth of tax proceeds

On a community scale, initial funding of the major transit development program must be sufficient to carry out the first stage program, and assure its continued operation, providing for a realistic pattern of inflation in future years. The MTC would carry responsibility for all operation costs, unless the federal government begins providing operating assistance at some future date.

Direct benefits to local governments include their share of increased property valuation in districts immediately surrounding the fixed guideway station areas and retail sales improvements in the major centers and other activity areas. Thus, financial participation from municipalities served by major transit facilities would appear justifiable.

To illustrate the impact of this proposal on the region's tax structure, any of the following applied only in the Metropolitan area would produce the MTC share for capital costs plus the projected operating support:

- A 13/100-cent per kilowatt-hour electric utility tax
- A 2/10 percent income tax
- A 3/10 percent sales tax
- A 2.5 mill property tax

Each of these has sufficient yield to support the necessary capital and operating needs, and sufficient growth to offset rising costs because of inflation of 6 percent per year. These potential tax resources would finance the complete transit program through 1985 including all bus systems, the first stage fixed guideway system, and the initial phases of the second stage system.

This combination of capital facilities plus many service improvements will produce the most cost effective system, one capable of attracting 110 million riders by 1982 (compared to 55 million annually today), and one which captures the benefits of practical automation where needed.



the good life

benefits

Many of the benefits to individuals and to the community of a modern, efficient, and balanced transportation system are readily apparent. To cite one obvious example, increased mobility will be achieved for many of the 94,000 households in 1985 without cars, and the 800,000 residents who will be too old, too young, or handicapped and who will not be able to drive.

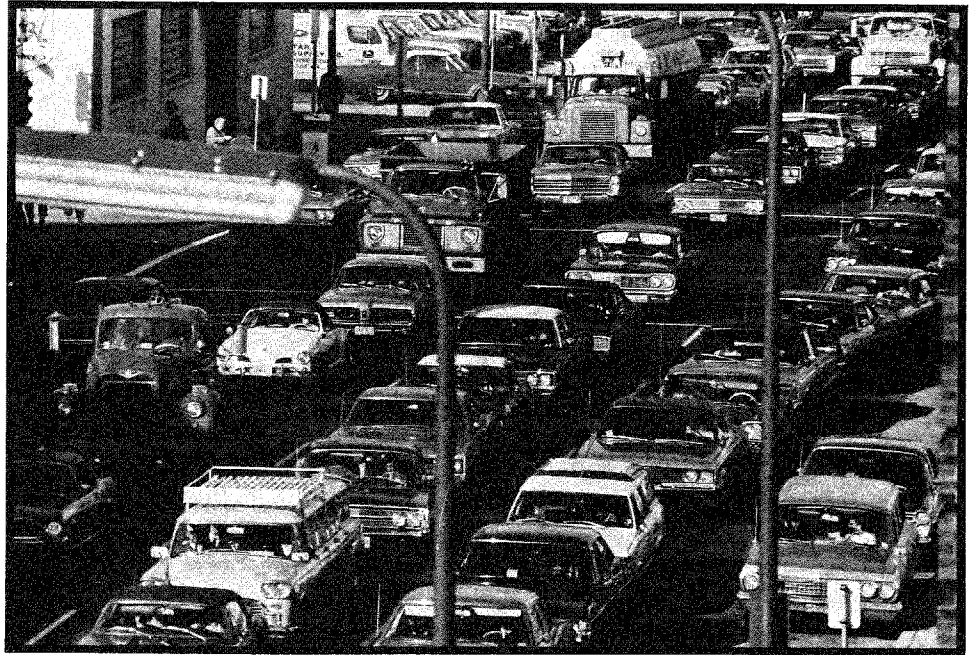
In its transit development program the MTC has identified the major social, environmental and economic benefits that will result from implementation of its system plan, and has grouped them into three categories: increased accessibility, benefits to neighborhoods and communities, and conservation of natural resources.

An improved transit system will **IMPROVE ACCESSIBILITY** for the transit-dependent resident, who will represent about one-third of the area's population.

Those who do have automobiles will, in many instances, for the first time have a choice of transportation mode. Benefits for the transit rider will include more frequent service with better equipment, shelters, and attractive and convenient transfer stations with diverse activities and services. For the traveler who continues to use his automobile, extensive use of the transit system by others means reduced highway congestion.

An important benefit will be better use of time, including reduced travel time. In addition, and less tangible, time spent riding can be used more productively than time spent driving—no one reads a newspaper or composes a letter behind the wheel of his car. Further, businesses will lose fewer productive hours of manpower when inclement weather and congestion slows or blocks commuting on highways.

Finally, and of vital importance to the cost-conscious household, commuters that forsake the region's highways and streets in favor of the transit system stand



the good life?

to save more than \$800 each annually from reduction in car ownership, and lower operating, insurance and parking costs.

A modern and competitive transit system will **BENEFIT NEIGHBORHOODS AND COMMUNITIES** by permitting efficiencies to be gained in urban development, consistent with regional development goals.

More efficient development and better land use will generate potential savings in the cost of providing utility service, including sewer, gas, electricity and telephone, to more compact areas.

Further, a reduction is envisioned in the need for additional freeways within the I-494/694 beltway. The 1972 Metropolitan Development Guide proposes the elimination of four freeways from the 1968 Metropolitan Thoroughfare System Plan, at an estimated present-value cost saving of \$242 million. In practice, this can be accomplished only by developing a viable alternative: good public rapid transit.

With greater transit patronage, traffic safety will be noticeably improved. When the MTC's planned system is fully operative, savings attributed to increased transit usage in lives, injuries and property damage will be appreciable.

CONSERVATION OF NATURAL RESOURCES is a transit benefit whose significance is growing every day. With mounting national concern over the increasing rate of petroleum consumption and shrinkage in the world's known oil reserves, significant decreases in the rate of consumption can be achieved with improved transit and the resulting decline in auto dependency.

Reduced air pollution will be especially important in core areas of fully developed major centers, particularly downtown Minneapolis and St. Paul as well as in major traffic corridors. In these areas, automobiles contribute an estimated 65 percent of the total air pollution.

Ambient noise level reductions, and a decrease in pedestrian conflict are other environmental benefits.

your move

The benefits described here—choice of mobility, cost savings, a cleaner, more comfortable environment—can be realized only when the region is committed to a transit system plan, and its implementation is adequately financed.

Given the resources, the Metropolitan Transit Commission is committed to carrying out the major tasks that have been outlined, and which are described in greater detail in the appendix.

Be aware. Be informed. Be vocal. It's YOUR future.

appendix:

what happens now

The plan outlined in this summary has now been defined in fairly precise terms. Implementation commits the Metropolitan Transit Commission and the region to numerous specific projects within the six broad tasks that were outlined. This section includes an expanded description of those tasks, plus enumeration of many of the projects that will follow:

TASK ONE, 1973-75: IMMEDIATE IMPROVEMENTS. It is desired mass transportation facilities be improved to carry at least 62 million people annually on public transportation in 1975. To achieve this goal, transit operators, public and private, are encouraged to adhere to the Family of Vehicles transit service concept through the use of modern express buses operating in mixed traffic, and additional local and collection service in outlying communities and in the central tributary areas. During this period, capital investments in highway-related facilities such as shelters, signs, stations, special signals, electronic control systems, plus turn-outs and park-ride lots, should average \$10 million annually for the three-year program. Transit investments in buses and other mobile equipment, marketing, operating subsidies, and maintenance expenditures should not exceed \$11 million annually. Such improvements should be made in accordance with the Commission's Service Standards policy.

ACTION REQUIRED, 1973 — Conduct full-scale peak-hour bus demonstration in I-35W corridor over 12 months. In other corridors begin the addition of 100 route miles annually of peak-hour express bus service, and acquire 50 additional express buses. Continue to implement the bus improvement program, providing 60 small shelters and 500 parking spaces for park-ride use. Initiate QT service in outlying major diversified centers as justified by technical studies. Initiate or demonstrate Dial-A-Ride service where appropriate. Modify and expand local bus service and install street related facilities such as shelters and bus turnouts in six specific service areas: North Ramsey County, West suburban Hennepin County, Anoka County, St. Paul Highland Park, Minneapolis Northeast, St. Paul East side and eastern suburbs.

ACTION REQUIRED, 1974 — Continue expansion of peak-hour express bus service. Construct a bus lay-over center in downtown Minneapolis. Construct bus lanes in the two downtowns. Initiate a new and improved network of express bus and limited stop service, including all-day service in certain high patronage locations. Acquire 50 new express buses and 30 small circulation vehicles. Continue bus improvement program, including 43 small shelters, 14 larger neighborhood shelters, and an additional 500 park-ride spaces.

ACTION REQUIRED, 1975 — Continue expansion of peak-hour express bus network. Address a major marketing effort at the reverse commuter, emphasizing job opportunities in outlying areas. Re-orient local bus service in certain outlying areas to provide focus in the more developed outlying major diversified centers. Construct a regional station in an outlying major diversified center and two downtown transportation terminals. Construct, in cooperation with highway agencies, preferential bus treatment facilities including additional bus-metered freeways. Complete bus improvement program, including 20 small shelters, five neighborhood shelters, and 800 additional parking spaces.

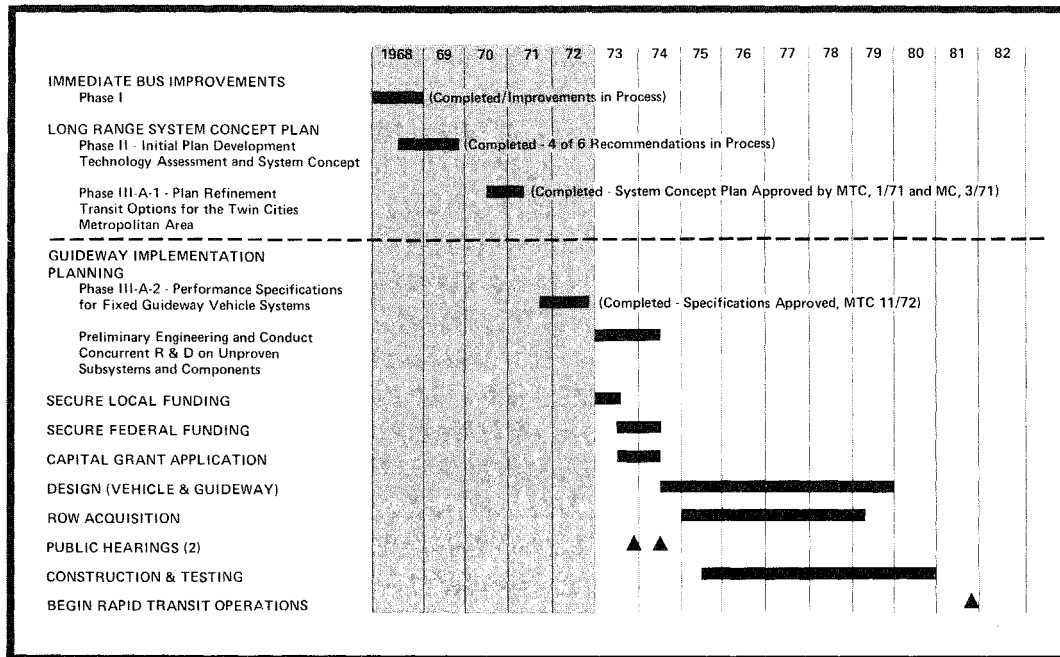
TASK TWO, 1973: DELINEATION OF REGIONAL BACKBONE SYSTEM: The Commission will initiate the necessary economic, social, environmental and preliminary design studies to delineate the space needed (right-of-way, air space, tunnels) for the regional guideway system (fixed guideways and busways). These route and station locations will be determined through a community involvement process culminating in a public hearing. Completion of this task should permit positive orderly urban development to occur in the station areas and permit the Commission to start assembly of the necessary transit space through 1). purchase or lease of transit space (right-of-way, etc.), 2). reservation of transit space through appropriate state and federal programs, or 3). use of the official map process by the appropriate local government.

ACTION REQUIRED, 1973 — Prepare and present to the Minnesota Legislature data supporting the MTC's program. Complete preliminary design of fixed guideway system, including preliminary engineering, economic, social and environmental studies, site planning, ridership forecast and financial plan.

TASK THREE, 1972-90: CONSERVATION OF RESOURCES. Conservation measures should be initiated immediately, particularly in the heavily developed areas, for improving air quality and preservation of petroleum and other natural resources.

ACTION REQUIRED — Complete modernization of bus fleet with the latest low emission features. Develop the transit systems in such a way as to encourage fewer and shorter auto trips. Development of internal transit circulation systems in the two downtowns and outlying major diversified centers, using low polluting small buses and, where feasible, automated people-mover systems. Development of contingency plans for effective use of transit and car pools during periods when shortages of petroleum products prevail.

TASK FOUR, 1974-81: DEVELOPMENT OF THE FIRST STAGE OF THE FIXED GUIDEWAY SYSTEM. Operation of a fixed guideway fast link transit system is desired in 1981 to contribute significantly to the system performance (at least 110 million riders in 1982). Regional and local costs of such a program should not



schedule for development

exceed \$190 million. The system should be financed on a "pay as you go" basis where possible. The system should a). make maximum use of the newest proven technology, b). be continually improved and augmented by the use of new technology and techniques as they become available, and c). meet the goals of the Commission's plan at the lowest achievable cost.

ACTION REQUIRED — See illustration.

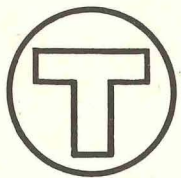
TASK FIVE, 1976-81: INTERMEDIATE BUS SYSTEMS. By 1981, bus systems can be developed to carry at least 75 million people annually. During the period 1976-81, capital investments in highway-related facilities such as shelters, signs, stations, special signals, electronic control systems, planned turn-outs and loading areas for buses, and park-ride lots should average \$8 million annually. Transit investments in buses and other mobile equipment, marketing, operating subsidies and additional maintenance expenditures should average \$8 million annually. All major capital improvements should be compatible with plans for the fixed guideway systems.

ACTION REQUIRED — Extensive operation of preferential bus treatment facilities on highways should begin early in this period. The annual rate for developing parking spaces should be more than double that of the 1973-75 program to accommodate an increasing number of rural and distant suburban commuters.

Install regional bus terminals into major outlying centers as required. Continue installation of shelters and intermediate stations. Acquire additional bus lanes in the two downtowns as needed. Further development of QT bus service in outlying major centers should continue. Expand personalized service such as Dial-A-Ride in neighborhoods and into major diversified centers.

TASK SIX, 1982-1990: EXPANSION OF FAMILY OF VEHICLES SYSTEM. By 1990, the transit system should carry at least 137 million riders annually. A 78-mile backbone system of fixed guideways and busways should serve the heavily populated corridors. Express buses operating in mixed traffic would continue to provide limited stop fast link service in low patronage corridors, for access to employment, cultural, and other activity areas within the corridor. A minimum of 800 route miles should be provided by these express bus services.

ACTION REQUIRED — Review new technology for best solutions for corridors yet to receive fixed guideway or busway transit service. Perform preliminary design for these corridors. Conduct the necessary engineering, administrative and construction assignments to produce incremental additions to the system during the 1982-90 period.



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Transit Commission
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Saint Paul, Minnesota 55101

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