

1974

The Transportation System

David L. Graven
University of Minnesota

Follow this and additional works at: <https://digitalcommons.morris.umn.edu/jmas>



Part of the [Sociology Commons](#), and the [Urban Studies and Planning Commons](#)

Recommended Citation

Graven, D. L. (1974). The Transportation System. *Journal of the Minnesota Academy of Science, Vol. 40 No. 1*, 65-73.

Retrieved from <https://digitalcommons.morris.umn.edu/jmas/vol40/iss1/12>

This Article is brought to you for free and open access by the Journals at University of Minnesota Morris Digital Well. It has been accepted for inclusion in Journal of the Minnesota Academy of Science by an authorized editor of University of Minnesota Morris Digital Well. For more information, please contact skulann@morris.umn.edu.

The Transportation System

Scenario prepared by DAVID L. GRAVEN, Professor of Law, University of Minnesota, and chairman of the Development Guide Committee of the Metropolitan Council.

It is possible to talk about a transportation system and even about subsystems, but it is also true that some parts of the system are very loosely connected, if at all, with the other parts. For example, pipelines are a crucial method of transportation. But they seldom bother anyone except when they leak or when they are being put in. Minnesota has at the present time 1,900 miles of oil pipeline and 2,700 miles of regional natural gas distribution lines. There are a lot of other things underground in Minnesota including regional and local sewer pipe and water pipe; presumably even electrical transmission lines can be looked at as a way of transmitting electricity. I mention these now only to drop them because while there are undoubtedly problems there may be more rather than less pipe in 1985, the connection with the rest of the transportation system is tenuous at best.

Minnesota has more than 10,000 lakes but it also has three rivers that are used for commercial transportation. River barge traffic coupled with the Great Lakes shipping from the ports of Duluth, Taconite Harbor, Silver Bay and Two Harbors make water transportation big business in Minnesota. Growth is easy to predict. Water remains the ideal form of transportation for large numbers of commodities where low transportation costs are important in moving large volumes. Hopes outran reality as to the impact of the St. Lawrence Seaway but the problem is not one of capacity but of economic activity. Restraints on the Mississippi waterway system now seem to include environmental problems arising from the dredging of the Mississippi River and the disposal of the sand. This has flared into a dispute between the Corps of Engineers and the state of Wisconsin, but despite the current rhetoric it would appear that the dispute hardly threatens the water transportation system. The main constraint is the fact that water freezes at 32 degrees fahrenheit. The recreational use of the rivers in the metropolitan area, particularly the St. Croix and Mississippi, are increasing for pleasure travel. The completion of a deep channel to the Port of Savage on the Minnesota and the creation in the "60's" of the Port of Minneapolis above the falls about ended for the foreseeable future the physical expansion of the system.

Water transport cannot be ignored and is an important source of economic livelihood to many, but it will not figure further in this paper. Railroads are still big despite the virtual disappearance of passenger service. There are nine class one railroads in Minnesota. Two are devoted to handling exclusively taconite and iron ore. The question of the future of the rail freight system is of crucial national importance, as witness the Penn Central bankruptcy and subsequent national legislation to attempt to rationalize the floundering eastern railways. Minnesota railroads appear to be in sound financial

shape. Their freight traffic seems destined to go up. The major current problem and one that will be with us for a long period of time is the abandonment of rail lines into parts of the state which are slipping in growth. The problem will continue to capture the energies of desperate local communities and state and local leaders. Having noted the trend towards the abandonment of lines built in a bygone era that are no longer economical from the railroads' point of view, one can only predict a period of slow but certain drop in rail service to the areas which no longer can pay the freight and a steady increase in freight service to the localities where growth is occurring. Rail passenger service is more of a curiosity than a viable means of transport for most Minnesotans and seems likely to remain that way despite the efforts to induce AMTRAK to commence Minneapolis and Duluth passenger service. At the present time, AMTRAK service is available on the main run from Chicago to Minneapolis to Fargo and points west, which is to say, for practical purposes for most Minnesotans now or in the foreseeable future, the passenger train if taken at all will be more for fun and games than as a reliable means of transport. The United States Department of Transportation experiments with the development of high speed trains appear destined to bear fruit in terms of high speed rail service in the Boston-Washington, D.C. corridor and perhaps may make eventual sense for such intermediate length runs as between Minneapolis and Chicago. But within the time frame of this paper, I see little grounds for optimism that rail passenger service will affect air or automobile traffic projections.

And that brings us to the key element in the present Minnesota transportation system — highways. The street and road system in Minnesota is extensive. The car, of course, is the all pervasive method of transportation in Minnesota. It hauls freight in the form of a truck either directly or from rail and air terminals. In the form of the passenger car, it is the basic way in which most Minnesotans get around. There were 2,368,127 motor vehicles in Minnesota in 1972 up 3% from the year before. The Twin City metropolitan area has the highest percentage of 2-car families in the country by metro area — 40% and only 14% of the families in the metro area are without an automobile.

The auto and its use and abuse is what most people are talking about when they talk about the "transportation problem." But to many, particularly those in the metropolitan area, the transportation issue of the 70's is the role of mass transit. There are 3 public transit commissions in Minnesota, the Twin Cities, Duluth and St. Cloud; and there are local bus systems in Mankato, Faribault, Red Wing, Rochester, Austin, Hibbing, Moorhead, and Cloquet. All use buses, and buses use highways. The highway system is a system of sorts,

although to the casual observer it is a complicated and at times illogical hodgepodge of classifications based on historical jurisdictional prerogatives. At the present time, there are some 606 miles completed of an interstate system that is projected at 914 miles. There are 11,494 miles of state trunk highways and 29,610 miles of county and state aid highways. County roads log in at 15,408 miles and the municipal and state-aid street mileage amounts to 1,290. There are an additional 10,867 miles of municipal streets and a surprisingly large figure of 55,255 miles of township roads. State and national park and forest refuge type roads at the present time are listed at 3,220 miles. In short, a lot of Minnesota landscape is dedicated to highway purposes both in and out of urban areas.

There is an intercity bus system. It is the only way that most people living outside of the metropolitan area can get around if they don't have a car or airplane. There are 12 intercity bus companies operating in Minnesota, but Greyhound Lines accounts for some 50% of the total intercity bus miles. They seem to be operating profitably. The problem with bus transportation in Minnesota is basically that all the routes originate in or around the Twin City area. Thus a trip from a place such as Worthington to St. Cloud requires a time consuming detour through Minneapolis. Since the Twin City metropolitan area at the present time is approximately half of the state's population and is projected to grow in percentage, it will require aggressive local action and a better road network if intercity but travel is to resemble something other than the spokes on the wheel of the Twin Cities hub.

The last segment of the transportation system noted here is air transport. The State Aeronautics Department is operating and planning a state aeronautics system. The state airport system consists at the present time of 159 airports classified into key airports, secondary airports and a landing strip system. One hundred thirty-nine of these airports are publicly owned and there are an additional 55 privately owned airports and sea plane bases. The Department reports 336 private-use only airports as well as several heliports, although helicopters for something other than traffic congestion in the Twin Cities seem little in evidence as part of the transportation picture. There are 11 airports which handle regularly scheduled airline service. Air freight is becoming an increasingly important part of air transportation.

For purposes of setting the stage for the 1985 scenario, where we are and where we are going — a look is in order at three crucial elements of transportation, airports, highways and mass transit. We start in the sky. There are a lot more people flying today than there were five years ago and there are going to be a lot more people flying five years hence; that much appears clear. The scheduled airline passenger traffic is up in this state as well as others and this poses a major planning problem for the Twin City area. The State Aeronautics plan is concerned about other matters as well as the future of Wold-Chamberlain. It calls for an increase in flight capability of a number of the airports around the State of Minnesota. The increased use of private planes (general aviation) has been the past trend and will be the

future trend in my judgment regardless of the cost of airplanes or the cost of fuel. Combining business with pleasure, air travel is an increasing way of life for many Minnesotans. The use of corporate airplanes, while temporarily leveling, seems destined to increase insofar as the non-metro communities can attract industry. There will be up-graded air fields to accommodate the business jets of the future, and increased airport capability and expansion across the state appears to be a safe prediction. Federal funding will help but it will be mostly a local effort. At the present time, there is nothing to prevent a Piper Cub from landing in the midst of jet travel at Wold-Chamberlain. However, there are a number of other metropolitan general aviation airports, and Flying Cloud, for example, is one of the heaviest used air fields in the country. The Metropolitan Airports Commission and the Metropolitan Council have laid out a system of expanded general aviation airports, and given the pressures over the ensuing years, there seems every reason to expect the gradual expansion and construction of additional general aviation air fields in the metropolitan area. But when people in the Twin Cities area discuss the airport issue, most are really talking about the future of Wold-Chamberlain and where and if there should be a second major airport. A few years ago, the Metropolitan Airport Commission thought it needed a second airport and attempted to locate it in Ham Lake, north of the Twin Cities. This location was twice vetoed by the Metro Council. Finally, a joint study was conducted by the Council and the Airports Commission.

There are several key issues involved. First, is noise. This is what first activated an articulate segment of South Minneapolis and Highland Park in St. Paul. Hundreds of public meetings later and after a Supreme Court lawsuit which found the airport noise to be a compensable "taking" by inverse condemnation, noise is still an issue. It has abated some due to the different landing and take-off procedure and new type airplanes with noise reduction equipment on them. And a consensus is growing that jet noise is manageable at Wold. The second issue has to do with the capacity of Wold. What, if anything, can be done to increase it. The former Mayor of St. Paul indicated that they could expand the runways into south Minneapolis, but the simple fact is that the physical boundaries of the airport are fixed and there will, in my judgment, be no expansion of Wold including runways across the river in Dakota County. The Metro Council determined that if Wold reached capacity, a new airport should be built and that all air passenger travel should be located at the new airport. The one airport concept is resisted from time to time by members of the MAC staff and some Commissioners, but it is the Council's view that we cannot permit a Dulles-National situation to develop here. The Council's view, in my judgment, will carry the day. That is, if there is a new airport, it will be the sole passenger airport. The real question is whether or not or when Wold will reach capacity. This is a serious question because an airport operating over capacity causes great delay and inconvenience. This paper is not a technical report, so I will not deal with the numbers in any detail.

In the days when the Metropolitan Airports Commission was recommending a new airport at Ham Lake, they were working with traffic passenger projections which showed capacity problems at Wold developing in the 1980's.

These numbers seemed to indicate some haste in developing a new airport. As a result of a leveling of current usage and other things, passenger projections at Wold have been revised substantially downward and there are some people now who will assert today that Wold will never reach capacity, or if it does, it will be such a distant future that new airplane technology will alleviate any of the problems that might arise by virtue of capacity being reached under present technology.

There is little question that the trend in both passenger volume and total airplane operations is up. Wold has substantial capacity left in it, particularly if general aviation is banished and if even larger jets make their appearance. However, the hope for substantial alleviation of noise and capacity problems because of operational VTOL and STOL (vertical takeoff and landing) planes seems misplaced. Help from new technology here is many years away and certainly outside the time frame of this paper. The Metro Council has proposed that if the second airport is built, it be built in a search area in Grow Township north of Anoka and that the 50,000 necessary acres of land be purchased or other reservation of land be commenced at once so that the site is available if needed when Wold reaches capacity. In the legislative session just concluded, a bill was passed which precludes any purchase of the land for a second airport without direct legislative authorization. At the present time, everyone agrees that air travel will be up. It seems clear that the drops in population forecast will not have as much impact on the air travel forecast as one might suspect, because young people fly more today than the upper age groups (and in just a matter of time, the young will be the old) and air travel is a function of income which is steadily rising. Also, the expansion of service type employment (increasing in total employment percentage) leads to more air travel. It is hard to assess the impact of air cargo on the total freight picture. Air cargo moved out of Wold last year was at an all-time high. There were 123,639 tons in 1973, up from 106,982 tons in 1972. There are predictions, perhaps based on hunch by many observers, that air freight is just about to cut loose. A story appeared in a national paper recently concerning the plans of the current General Motors president to join a group upon his retirement from General Motors to construct a cargo plane four times the size of a 747 which would, it is claimed, make air freight competitive economically with other forms of transportation for a large number of items. Other observers are now asserting that a second airport in the Twin City area is needed so it can handle the expected giant cargo planes which are expected.

It is not difficult to assess these possibilities over a 30 or 40 year period. I think the chances are almost certain that air freight will loom very, very large in the state and the nation's transportation picture in the year 2000, but I think that during the time frame of this paper, we will see steady but unspectacular growth not a major breakthrough. It should be obvious that this form of

transportation of freight applies to movements in and out of the Twin Cities because the size of the plane required to make the movement economical will preclude the use in other than Twin Cities, although perhaps Rochester and Duluth and perhaps Moorhead via the Fargo airport will be able to upgrade sufficiently over time to accommodate these air giants.

The next area is highways. Let's start with the interstate system. It's about two-thirds complete and should be done by 1985. The completion dates of interstate segments seem to have a way of getting away from the planners, but the money is there and the plans are there and the demand is there and the interstate system will be completed. In the Twin City urban area and also in Duluth, controversies have erupted of late over the completion of the basic interstate system. The arguments involved are hardly local in nature. All over the country the days when the Commissioner of Highways could lay down concrete in urban areas with impunity are long since gone. In fact, the inability of most urban areas to make decisions on roads is one of the most notable items on the current urban landscape. Citizen participation has become required federal procedure, and as the center lines go down in the corridors yet unbuilt, the threatened homeowners form citizen committees to stop the freeways or, at a minimum, influence its design. The basic urban freeway system in the Twin City area is denominated System 16. System 16 had already been scaled down some 52 miles from what formerly was known as System 14. These figures may not mean much to the non-transportation buff, but they indicate a substantial scaling down of the projections of the last decade as to what is possible or even desirable in a metropolitan area. The cost in the neighborhood disruption, loss of tax base and general concern about air pollution, car quality, air quality and noise have put heavy strains on the decision-making capability of this and other metropolitan regions. I think that one can predict the virtual completion of the present urban freeway system proposed, including I-394 west of Minneapolis, 35E into St. Paul, and even perhaps the north segment of the Minneapolis inner ring which is denominated I-335, as well as the obvious link-up of I-94 going northwest out of Minneapolis. These will not occur, however, without substantial controversy, perhaps substantial design modification, not to mention three or four lawsuits. But the already heavy investment in the urban regional freeway system argues heavily for eventual completion.

The real question is whether or not a regional distribution system of additional limited access highways can be obtained by right of way reservations in the yet undeveloped areas. The Metro Council in 1972 set forth a highway plan attempting to delineate a grid system of potential greenways or parkways in the yet undeveloped parts of its seven-county metro area. The question is whether a metropolitan network can or should be planned and constructed to meet the anticipated highway transportation needs in the area over the next four decades. The answer is unclear. The urban highway builders are paying the price today for design and environmental mistakes of the past and the current disenchantment of the more articulate members of the

American public with the auto, the highway lobby, freeway congestion and energy waste does not make a good political climate for even planning more urban road building. "Mass transit" has become the quick and easy solution to the auto problem. Reflecting on this, the Minnesota Highway Department has proposed a very cautious total highway program which they denominate the Backbone System. It was published in July, 1972 and it was heralded as a limited funding capability approach to state highway system construction. The plan stretches out over the next 30 years at an average annual expenditure of some 40 million. The plan builds on the work of a number of Minnesota planners who have been dealing with the urban clusters and regional development concepts in the out-state area to insure first-class highway access to almost all of the projected Minnesota urban centers outside of the Twin City area. It bears little resemblance to an all out highway program and for those who want better roads — now — it will hardly be satisfactory. It has been my personal view that the Backbone 30 year plan is the present highway department's answer to those who insist on casting road builders as the contemporary American villain. If people in Minnesota want roads and they want to pay for them, then they are going to put heavy pressure on the Highway Department; they won't be rammed down anyone's throat.

What trends can we see in road building in the next 10 or 11 years? Despite all the anti-highway rhetoric, fashionable in many circles today, the car will remain the chief and indispensable means of travel for most. Highways will move almost all of our mass transit through the year 1985 under any conceivable set of circumstances. The major highway problems in this state in the next 10 years will arise from what I think will be a dramatic increase in recreational travel. With the coming of age of the four-day week and more vacation time enabling many people to take one day of vacation a week and thus get away on Thursday night, the stream of cars north out of the metro area is going to approach crushing proportions in the next 10 years. Actually, it will be south on Sunday night and north on Thursday and Friday evenings. At the present time, in my judgment, the State of Minnesota is losing substantial opportunities for recreational use by Minnesotans because of its clogged highways on weekends for vacation travel in and out of the Twin Cities in particular. The fact is that northern Wisconsin is becoming an increasingly favorite spot of Minnesotans, not because they particularly wanted their summer and ski homes in Wisconsin, but because of the shorter travel time from the Twin Cities helped by the relatively free flowing roads east to Wisconsin. The lack of truly good roads running west from the Twin Cities indicates to me sufficient pressure that is going to insure that one major east-west road to the Dakota border will be substantially improved. In addition, the north-south travel problems in west-central Minnesota will increase in the next 10 years, but whether any help will arrive is conjectural.

Lastly, one cannot discuss trends and highway issues without reference to the energy crises, gas shortages and so on. Well, I will refer to it and leave it there since there seems little more useful to do with it. If the issue is how

much is it going to take to price Americans out of their automobiles, the answer is that I don't know nor does anybody. Everyone's been wrong thus far. Did any reader really believe 15 years ago that you would pay as much as you did for your last car or that you would even pay 50 cents a gallon for gas? Europeans for years have been unable to afford cars or \$1.00 gasoline, yet traffic congestions in the face of remarkable transit systems is a major urban problem in most major European cities. I believe that the issue is not supply, except for temporary local shortages, but cost. Naturally the cost of gas influences driving habits and helps mass transit if it is available, but the question is "how much." The trend this last year to smaller but not necessarily less expensive cars and better gas mileage will become the predominant theme in automobile ownership in the next 10 years. The automobile will continue to assume an increasingly larger proportion of the family budget, but Minnesotans will continue to pay the price for what is for most people an absolute necessity.

When the streetcars went, everyone thought mass transit was dead outside the eastern subway cities. Now almost everyone is talking about it. In the urban areas of the country, Congress is doing something about it and so are many states. Mass transit is more than a system. It is a state of mind, it is a movement, it is an idea whose time has come, or will come, depending on who's talking. It is a movement compounded out of nostalgia, frustration and necessity. The next 11 years will see a lot of action in mass transit around the country and in the Twin City metropolitan area. It is essentially a metro phenomenon, although the money must be spread around the state a little for appearances sake. The last legislature appropriated six million dollars to a special emergency transit fund, four and one-half million is slated by Twin Cities for immediate transit improvement, one and one-half million is scheduled for out-state planning. Despite increased government subsidies, I think the trend for mass transit, outside of the metropolitan area is down, not up. The purpose of transit is to carry people. Outside of the metropolitan area despite the fact that there are a number of people who do not or cannot drive an auto, the level of transit service is and will continue to remain such that it will be an unreliable means of transportation for all but a few. As I have pointed out above, there are transit systems operating in Minnesota outside of the Twin Cities and many of them will continue to limp along on local pride, faith and local and federal money. But in my judgment, they will play a very small role in the transportation picture in each one of those communities. Urban sprawl affects St. Cloud as much as Minneapolis, and you cannot both sprawl and have good transit service except at exorbitant cost.

An increased trend toward car pooling, which as a Citizens League in the Twin Cities has pointed out, as a form of transit can be discerned. The Citizens League defined transit as anything which carries people other than the driver of the car, and car pools and multi-passenger vans operating out of the places of employment are off to a reasonably good start in the Twin City area. I think the trend will follow out-state as well. I am perhaps not doing justice to the trends and the potential of transit in the non-metropolitan areas in

Minnesota, but the overwhelming reliance on the auto, the greatly increased numbers of non-work related trips by all members of the family and the continued poor level of service both in terms of timing, intensity, and destination potential project a trend which can only be optimistically described as barely up if not level or down.

In the Twin City metropolitan area, mass transit is the transportation issue and has been for the last several years. It will continue to be the major issue during the time span covered by this paper. The amounts of money involved are substantial. A financial commitment by the State to an extensive mass transit system in the Twin City area will probably affect the level of highway construction in all parts of the state, depending on what occurs in the Twin City area. Legislators still tend to treat the issue as a strictly metropolitan matter, but the sums involved are large and will get larger. The past legislature authorized 109 million dollars in bonding authority for immediate bus improvement programs, for example. Even if a major regional transit system could be developed and capital costs subsidized by 80 or 90% federal funding, mass transit today and in the future must operate at a substantial loss. It cannot operate out of a fare box. This breakthrough in public understanding which has been achieved over the past five years is significant and means that the trend toward increasing the service, capability and patronage of the metro transit system will continue because the public is committed to make mass transit a reality and is prepared to accept the price of heavy operational losses.

For many, transit is a subway or a train. It becomes increasingly clear, however, that transit is something that carries passengers whether it is a private auto or a taxi, a school bus or a regular bus, as well as a train. Given the time factor, it is a safe prediction that by 1985, there will be no subway or train or automated small vehicle system operating even if the argument over hardware was resolved and all systems were go. San Francisco's BART has been 18 years abuilding and it's still not on line. Given environmental impact statements, citizen participation, the federal grants, morass, public projects of any size take longer today, not less. All this raises the cost of public projects, but this is one trend that seems irreversible, given an articulate increasingly educated Minnesota population which insists on input into all major decisions.

The Metropolitan Transit Commission operates the transit facility in the Twin City area. Its buses haul over 55 million people a year and the rate is going up, reversing a trend of declining patronage under the private company. This amounts to a little over 3% of the daily trips in the metro area. There are a number of factors at work here. Better bus service, more buses, more destinations, more times, plus express buse: coupled with increasing congestion on the freeways, rising cost of parking and automobile ownership all are tending to bring patronage up. What are the trends? First of all, there will be increasing freeway congestion. But transit does not unplug the freeways. Freeways inevitably fill to capacity with or without good mass transit. A glance at the freeways in Toronto, Chicago, New York at rush hour, to name three cities with extensive public transportation systems, should convince even the most

fanatic believer in the wonders of transit that given a choice between free-wheeling freeway traffic and mass transit, the average American still opts for his car. In other words, freeways will continue to fill to capacity no matter how many lanes you build. The issue is not transit vs. additional freeway lanes but whether the public has an obligation to provide an alternate for those who do not want to inch along in the 8-lane parking lot. The trends in our metropolitan area make certain increased freeway congestion at rush hours inside the beltway. At the present time, compared to most other metropolitan areas, the metropolitan freeways are hardly in a crisis situation even at rush hours. Nor, assuming as I do the completion of the System 16 freeway system in the metropolitan area, do I anticipate substantial long periods of rush hour congestion on most freeways until sometime after 1985. This statement is at variance with the predictions of some. But given the increased use of the express bus service, car pooling, staggered work hours and opening of some of the parts of the freeway system which presently serve as bottlenecks, I predict congestion in some segments for longer and longer periods of time at the rush hours but still not approaching a situation comparable to what now obtains in most other metropolitan areas until some time after 1985. But eventually our freeways too will fill to nerve-racking capacity. The transit picture in the Twin Cities area is clouded by the low density of the area (24th out of 25 of the nation's metropolitan areas). The two central cities each with 360 degree travel corridors make effective transit a particularly difficult problem to solve.

At the present time, there rages a no holds barred political battle between the Metropolitan Transit Commission, which favors an automated rail subway system costing some one and one-half billion dollars for 57 miles of transit rail, and the Metropolitan Council, which has in effect vetoed a rail system and insisted that the express buses are the way to go until a new technology is tested which will provide a better option. The legislature has ordered the parties into a study of the potential of personalized rapid transit (PRT). As a member of the Metropolitan Council, which is heavily involved in the transportation planning process in the Twin City area and currently at odds with the Metropolitan Transit Commission over its rail plan, I am perhaps not the most disinterested predictor available. However, the current trends can be noted dispassionately. First, the federal government will be of necessity heavily involved in the future of mass transit. It takes that kind of money. Operating subsidies for urban mass transit systems are, I think, a certainty in the next 10 years. Unfortunately, the bulk of the federal money in this area is likely to go to the debt ridden transit systems in the eastern cities such as New York, Boston and Philadelphia. In addition, the federal government has now taken cognizance of the massive capital costs of constructing mass transit systems around the country, particularly of the rail variety or even more so with a new technology system. A trend against encouraging new heavy capital investment can be safely predicted. The costs of San Francisco's BART, the new metro systems in Atlanta and Washington, D.C. are, without exception, higher than estimates.

Air pollution, air quality standards and energy conservation certainly are factors which favor the increase and development of mass transit. But none of these factors makes clear the choice of hardware or system. The Twin Cities area has already spent somewhere over two and one-half million dollars in transit planning and that trend will continue with even more studies ordered. The problem with all the transit planning is that the ultimate transit issues aren't technical at all. All the studies come down to a guess as to how many people will get out of their cars and take a transit vehicle 15 years from now if transit service is provided. Even allowing for artful advocacy in the various projections, the fact is that neither the Metro Council nor the Transit Commission can get much more than 6% of the trips aboard their buses or trains and that still leaves 94% of the trips by car. No wonder PRT with its promise of 40% of trips looks good. But is PRT a realistic possibility from a technological standpoint? The answer is yes, but when? And can we afford it? That is what the studies will be about.

One trend which bears watching is the obvious success of express bus service. It is working well around the country, gaining increased ridership, and it is working here. It will continue to work in the sense that it will attract increasing numbers of riders. The problem with express bus service will arise when the express bus moving in mixed freeway traffic can no longer keep up any sort of time schedule because of congestion. At that point the question becomes whether the need for exclusive right of way will be met. The present trend is exemplified by the recent legislation requiring the highway department to put in transit right of way in all new freeway highway construction in the metropolitan area. This indicates that exclusive right of way either in terms of exclusive bus lanes or reversible lanes will be available.

What sort of trends are discernible in the field of new technology? Interesting things are being done all over the world and the first company to put on line a reliable, safe automated small vehicle fit for regional transit is going to hit it big. So far, it hasn't happened, but not through lack of money or efforts.

There will be, I think, in the next few years, experimentation here with the opening of exclusive bus lanes to car pools to raise the current 1.1 average occupancy.

FOR SCENARIO FORMAT

The year is now 1985 and you and I will briefly examine the Minnesota transportation system as seen through my eyes based on what I consider the probable outcome of present trends and pressures.

Well, first of all, as we travel around the state by air and by car things don't look a great deal different than they did in 1974. But then, how much different did 1974 look in transportation than 1963? There are more cars, more people, more metro concentration of both. There are a lot more people flying airplanes and, as a matter of fact, a number of the general aviation airports in the Twin City areas are reaching capacity. A number of cities in Minnesota who didn't have much in the way of airports 11 years ago, have made significant

improvements and are waiting for the beautiful snarl of the corporate Learjet as it lands loaded with new industry. The big news of course is that there is a major airport crisis on our hands in the Twin City area. They are running out of air space over Wold and there is a lot of hand wringing going on among those concerned about the future of air travel in Minnesota. All because Wold Chamberlain is rapidly approaching capacity faster than they said it would. Already planes are stacking up for landing and takeoff at Wold with increasing frequency. People are saying, if we wanted O'Hare, we should go to Chicago, and there is another study committee being formed to find a place for a new airport. They had a site picked for it out in Grow Township north of Anoka once, but there are about 8,000 people living there now and they will not be moved. The Bloomington Chamber of Commerce claims that the figures are misstated and there is nothing wrong with Wold, and in fact there isn't. It is still fairly noisy, but everyone is fairly used to that by now. But who could have anticipated all that increase in air traffic and passengers. There are already some big air freighters popping in with increasing regularity and no one is quite sure what to do. We have a lot of company around the country though. Seems like nobody knows where to put a new airport except out in the ocean. A preliminary site selection committee reported that the airport would have to be built half way to Duluth or out around Northfield except that Northfield doesn't seem to want it. The town of Cows, Colleges and Contentment still, you know. There was some talk in 1974 about land banking the site in Grow Township, but why spend money for something that might not occur. The legislature didn't, so it never got done. The Metro Council has proposed that it be located up near Princeton and that it be connected with the Twin Cities with one of those fast new automated trains that have finally proved so successful in San Francisco and Atlanta. Northwest Airlines has announced that it is thinking of moving out and is seriously considering moving its maintenance base to Miami.

You have to look closely to note the changes in the road system. The interstate finally got completed a couple years ago. The last segment was I-394 going out old Highway 12 through Golden Valley. That one got hung up in the courts for about four years. The State Highway Department is starting to build some new roads again. They have finally selected Highway 7 as the other major road west. It will be four-lane all the way to Montevideo.

If you fly over the Twin City area, you will see that the freeways during rush hours are clogged full up for traffic just inching along for 45 minute stretches. They never did get around to finishing up that little segment of I-335 in north Minneapolis. The land is all bought but there it sits and they are trying to figure out whether it's going to be a park or a housing project. The big highway problem this year and last year and next year is what to do about the resort industry. It claims it is being conspired against by the Highway Department. There are hordes of people leaving north and west out of the Twin Cities on Thursday night now and that Sunday night traffic jam coming back is unbelievable. Does everyone in the state own a boat and trailer? Interesting thing about the traffic

pattern is that it isn't much better in the winter time. Only instead of a boat trailer, there are skis on top of the car. You can recognize the cars alright — a little smaller and equipped with air bags and they don't pollute. Gas is \$1.00 a gallon. That's for regular and they aren't selling Ethyl anymore. Some people claim that it's almost a relief to get on the freeways, however, when they have been boating on the St. Croix. It's still the prettiest, clearest little body of water around except that it seems like everyone who hasn't got his boat up north has got it on the St. Croix. A couple of interesting things happened legislatively in transportation.

You can't see it on the ground yet, but there are some broad stretches of land around the Twin City area two and three blocks wide which are being planted with trees on both sides of the strip. Transportation corridors someone called them. It's being tried on an experimental basis to see if someone can't get ahold of future transportation routes before the people get there. It's all tied in with some pretty strong controls on growth which the legislature put in a few years ago in the seven-county metropolitan area. In downtown Minneapolis you can see some electric cars running around. Most are being leased out. They run on batteries and they go 60 or 70 miles on a charge, but it still takes an hour or so to charge them up.

The railroads are doing fine, thank you. They are hauling more freight and busier than ever. A citizens group has just marched on the legislature demanding to know why the railroads don't start passenger service to Northfield, Cambridge, Stillwater, Elk River and Hutchinson, but the railroads don't even bother to explain anymore why they aren't about to let their right of ways be used for passenger service. They know what happened to the Long Island R.R. AMTRAK is still there. The federal government has so much money sunk into it now, it doesn't dare quit. It still fills up — at Christmastime. Nobody can get any plane seats without two weeks notice. The trucks are still hauling the freight and are bigger and busier than ever. They seem a lot longer than I used to remember them back in 1974 — triple bottomed even. The railroads must have lost some of their clout in the legislature.

The pollution control agency has just announced for the fourth straight year that it is thinking of banning parking in downtown Minneapolis and St. Paul. The Minneapolis Chamber of Commerce points out that it is willing to ban parking downtown when they ban parking downtown in New York City and along the Bloomington strip.

Some things haven't changed — a grain truck went out of control on a Duluth hill last week after its brakes failed, but no one was seriously injured.

There have been some changes in transit although they are mostly confined to the Twin City metro area. The out-state transit systems have been getting a heavy dose of federal funds. The cities that had bus service in 1974 have still got them, although half of them are now owned by public transit commissions and are getting substantial subsidies from the state and federal government to

maintain what most people still claim is lousy bus service. The buses have found a real market in the elderly highrises and housing projects which are becoming increasingly common in our out-state urban centers. Intercity bus service is improving, but almost all bus routes still lead through the Twin Cities. There have been some interesting developments in the Twin City Transit picture. Back in 1974, about 3% of the daily trips were being handled on buses. It's gone up to about 6% now. We've got about 200 of those fancy modern buses now. We always knew that General Motors could make a decent bus if they put their mind to it, and some people say that it actually gives a comfortable ride. Buses are moving right downtown during rush hours on exclusive bus lanes which have been built in three of the corridors. Most of the bus lanes are on the freeway, but there are a few separate busways like the one on I-394 from Highway 100 in to the Hawthorne Interchange which follows the railway track. Cars with more than passengers in it are moving along that lane too during rush hours. The Twin Cities decided about seven years ago that it was not going to build a rail subway system. They wanted to build a PRT system but couldn't find one that was working yet so they settled on a demonstration project. It's kind of interesting. It's an eight-passenger automated vehicle which zips along on air cushion powered by a linear induction motor. It goes from the West Bank of the University down to the Gateway and then up to the Burlington Northern development.

St. Paul has applied for a demonstration for a similar system connecting the state office complex to downtown St. Paul, but the federal people are still sitting on it. Many people are urging that the PRT project be extended between Minneapolis and St. Paul, but the Metro Council is waiting for the results of a dual mode demonstration project in San Francisco. That's the system where 12-passenger buses pick up people and then go on automated highways and run by themselves with cables in the concrete. They have got it so that private cars can use the thing too. They haven't done it, however, except in test situations, but people are saying that the Twin Cities ought to try it out. It looks like the legislature will be ordering another study. The year 1985 is turning out to be a very crucial year in transportation. It has become clear that something is going to have to be done about the congestion. The Twin City area highways are filling up and there are a lot of problems. The area has been saturated with about as much bus service as the MTC can devise, and still most people are driving their cars. The decision is going to have to be made very shortly as to whether to go with a six billion dollar PRT or an equivalent dual mode system for the Twin City area, but it's clear to some people that the bugs still are not out of technology. Do we take a chance and go or do we sit tight for a few more years?

The year 1985 — many thought that the major technological breakthrough in automated urban transportation would come during the last 10 years. It didn't. But during the next 10 years — well, that's another story

COMPONENT GROUP REPORT

ROBERT SHELDON, workshop leader

As an analysis of the present transportation system, the Transportation Group (TG) felt there were three specific weaknesses in the scenario, resulting in a lack of perspective. The first point of disagreement centered around the obvious neglect of outstate transportation needs. Clearly, half of the state's population was eliminated from the analysis. The second area of disagreement was that too much emphasis was placed on air travel. In terms of relative importance and impact on society as a whole, air travel is much less important than the routine work trip or shopping trip. Third, the transportation scenario assumed the existence of a present value system and left it essentially undefined. With little examination of the values of the traveling public, there was little evaluation of peoples' transportation needs.

The scenario predicted that by 1985, transportation in Minnesota would be essentially "more of the same." That is, more cars, more highways, a few mass transit systems in the Metro area, expanded bus service and more air travel. Within the TG there was disagreement with that conclusion in two major areas. One trend that was almost completely ignored was the energy crisis and the impact it must eventually have on all forms of transportation. The TG asked: "Will there be enough energy available in 1985 for every individual to own and operate a personal mode of transportation?" And: "Even if there is enough energy in fact, will it be morally right for us to consume energy unrestrained?" The scenario touched on neither point. Another trend which was ignored was the possibility of significant advancements in technology which would allow us to decrease our need to travel. For instance: the use of tele-communications for shopping from the home and for doing many other tasks that would normally require an automobile trip — was considered a possible way to reduce the need for travel. An additional possibility was the use of tele-communications to eliminate the work trip for many occupations by allowing a person to work out of his home, conducting business by videophone. We have the technology at present; what is lacking is the implementation and the economic imperative.

The transportation system in 1985 was not envisioned in the scenario as largely changed from the present — a fact which troubled many members of the TG. Five major points of disagreement emerged from group discussions.

1. It was felt that the scenario reached largely negative conclusions. That is, the future that was presented did not seem particularly appealing to many.

2. The scenario ignored possible life-style changes that might occur in the coming decade. (Indeed, we have seen monumental attitudinal changes in the past year as regards energy consumption). The interrelation with the other systems (such as the economic system) was largely ignored. And yet, the future of transportation depends heavily on the future economic feasibility of private car ownership.

3. Viable transportation alternatives were not provided for (i.e. availability of alternate automobile fuels, electric vehicles, etc.)

4. A very important point — no system was envisioned for the systematic and organized change of the transportation system as societal needs changed.

5. More than 80 percent of the TG felt that there was a high probability of the scenario becoming reality. But almost all said, however, that the scenario future was not their desired future. And this desire to change what they obviously perceived as the inevitable future, emerged as the most significant group consensus.

Desirables/Possibles

The TG felt the categories of "desirable" futures and "possible" futures were not mutually exclusive. Since the group could conceive of futures that were desirable but not possible and futures that were possible but certainly not desirable, it decided to present a list of alternatives that were both possible and desirable.

- The TG envisioned the development of an outstate rapid transit system using air, rail and express bus modes, on the assumption that fuel for personal automobiles would be in either critically short supply or be prohibitively expensive for the average person. There was some disagreement on this point. However, the system would not necessarily replace the private auto (upon which outstate Minnesotans exclusively depend) but merely supplement it. One necessity for improving outstate transportation is to halt the migration of people from rural areas to urban areas. Lack of good rural transportation would speed that phenomenon.

- By 1985, the TG sees a reduction in trips of all kinds — but especially the work trip. This could be accomplished through advanced technologies — or more simply, through major employers who could make getting to work one of the fringe benefits available to their employees.

- The demand for recreational trips will be expanding greatly in the coming decade. There should be major encouragement for people to take trains and buses to their recreation destination. Indeed, by 1985, economics may demand it.

- By 1985, there will be a major de-emphasis on the importance of the automobile as the major transportation mode. This may occur for economic reasons or through government propaganda or through public relations programs from private organizations.

- Since the train is an efficient mode of transportation — and is destined to make a comeback — the TG felt that a program to introduce people to train travel in a recreational setting would thereby encourage them to use the train for other travel — perhaps daily commuting.

- The group touched on, but could not come to grips with, the complex educational process needed to "lure" people out of their cars. This would involve a heavy analysis of the American value system as it relates to the auto.

• By 1985, there should be imposed limits to urban sprawl, since it encourages dependence on the automobile. Open space is nice, but it necessitates cheap, fast transportation. High density populations do not necessarily have to experience a lower quality of living, the group felt.

• The prospect of electric autos for urban use appealed to many as a quiet, clean and safe mode of personal transportation. Application of this would depend on technological advances, however.

• Urban transportation systems such as PRTs, subways, fixed rail systems, bus systems, computer-controlled freeways were all regarded as necessary for future transportation needs. But these systems were largely de-emphasized because of the group's shift from an essentially urban oriented mentality to a whole-state concept of transportation.

• The TG attempted to answer the difficult question of WHY these particular futures would be desirable. Four reasons were cited:

1. These envisioned systems would have minimal environmental impact.

2. Fuel conservation and energy saving would result.

3. The systems envisioned would help relieve congestion.

4. A diverse transportation network tends to avert crisis situations.

EDUCATIONAL PROCESS

The educational process involved in changing attitudes about transportation is a complex one. It is complex because it not only involves an issue of overriding importance in everybody's life, but because fast, cheap and flexible transportation has been taken for granted for so long in America (due to the automobile).

Primary to the educational process — that is, the formal structure for communicating alternative transportation futures to the general public — is a guiding organizational body, probably governmental. A Department of Transportation, if you will, designed not only to facilitate implementation of transportation systems but also to coordinate transportation facilities and schedules and the educational process. This would be a central system to facilitate and encourage alternatives, to compile data of transportation needs, to answer the questions of who travels, where, when, how, why.

The educational function of such a department was envisioned as nine-fold:

1. At this time, the major emphasis should be placed on creating an educational system to instill a "desire" factor to build a good transportation system. This would be done primarily through the school systems.

2. There would be a change in emphasis from the traditional "drivers education" to "transportation education," which would deal with values, plus the practical problems of getting from one place to another in the most economical and efficient manner. Mass media would be used to direct this information to the general public.

3. Employers would be educated and given incentives to further create car pool and van pool programs for employees. Employers could be used as a communications network to attack the work trip orientation of most auto owners.

4. By 1985, staggered work hours and work weeks will be necessary to minimize congestion. The four-day work week and increased recreational travel will otherwise put tremendous demands on highways and transportation systems.

5. A main goal of the educational process will be to define in a very precise manner what needs the automobile satisfies beyond the basic need for transportation. A car functions as a status symbol, as a tool for gaining independence, privacy, an aid to socialization and for establishing individuality. The goal of education will be to discover those needs and find other more constructive ways for individuals to fulfill those needs.

6. As an interim measure, mass transit should be offered free to the public to encourage use.

7. Eventually, fare reductions could be offered to students who have passed their transportation classes in much the same way that drivers-ed students are given less costly auto insurance.

8. As part of transportation education, a futures education program would show the possible futures that would result from not improving the transportation system.

9. Grants to higher education would be provided for transportation planning and for college teaching driver education and transportation education.

The process for bringing this system into play would be to provide early and continual education about the various transportation alternatives and to introduce them into the schools and to the general public. Television programs for children would encourage children to develop a practical attitude towards the car and to reduce car's importance as a status symbol.

Transportation has so dominated the formation of our culture and wealth that major attitudinal reforms are needed to bring about a reversal of the trend to more autos. The trend must be reversed — or at least halted — if our environment is to remain healthy, if our people are to remain productive, if our economy is to remain sound, if our lives are to remain meaningful.