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August 20, 2018

REGIONAL TRANSIT BOARD

Record of Attendance and Vote

Date 2/19/85

Board May

Dist.	Member Name	Present	Vote	#5 Vote	Vote	Vote	Vote
Chair	Elliott Perovich	✓		Resolution Yes ✓			
A	Todd Lefko	✓		✓			
B	Ruben Acosta	✓		✓			
C	Bernard Skrebes	✓		✓			
D	Doris Caranicas	✓		✓			
E	John Doyle, Sr.	✓		✓			
F	Gail Marks Jarvis	✓		✓			
G	James Newland	✓		✓			
H	Margaret Snesrud	✓		✓			
I	Alison Fuhr	✓		✓			
J	Juanita Collins	✓		✓			
K	Steve Loeding	✓		✓			
L	Ruth Franklin	✓		✓			
M	Paul Joyce	✓		✓			
N	Edward Kranz	✓		✓			

REGIONAL TRANSIT BOARD

270 Metro Square Building, St. Paul, Minnesota 55101

Minutes of the Meeting of the
REGIONAL TRANSIT BOARD
Metropolitan Council Chambers
February 4, 1985

BOARD MEMBERS PRESENT: Elliott Perovich, Chairman; Ruben Acosta; Doris Caranicas; Juanita Collins; John Doyle; Ruth Franklin; Alison Fuhr; Paul Joyce; Edward Kranz; Todd Lefko; Steve Loeding; Gail MarksJarvis; Bernard Skrebes; Peg Snesrud

STAFF PRESENT: Ghaleb Abdul-Rahman, Mary Fitzgerald, Judy Hollander and Leslie Johnson

The meeting was called to order in Room E at 4:30 p.m. and roll taken. The chairman explained that the Board would conduct its business and then go to Chambers at 5:00 p.m. for a joint meeting with the Metropolitan Council's Metropolitan Systems Committee to hear presentations by the consultants. He noted that an amended agenda had been distributed to the Board, adding Items 8 and 9. Skrebes moved approval of the amended agenda; Snesrud seconded the motion. Motion carried unanimously. (Lefko, Acosta, Caranicas, Doyle, Collins, Loeding and Kranz not present.)

REGIONAL TRANSIT BOARD 1985 WORK PROGRAM AND BUDGET

Franklin reviewed the committee report dated January 30, 1985 and moved that the Regional Transit Board approve the 1985 Work Program and Budget. Skrebes motion. Motion carried unanimously. (Lefko, Acosta, Caranicas, Doyle, Collins, Loeding and Kranz not present.)

INTERIM IMPLEMENTATION PLAN

A memorandum from Strgar-Roscoe-Fausch, dated January 29, 1985, outlines the proposed changes to the Draft Interim Implementation Plan. Fuhr moved that the Regional Transit Board approve the Interim Transit Service Implementation Plan, as amended, for transmittal to the Metropolitan Council for its review and approval.

EVALUATION CRITERIA

Abdul-Rahman discussed the memorandum prepared by Abdul-Rahman and Hollander, dated January 31, 1985, regarding the schedule for LRT Evaluation and Decision-Making Aids. The staff report will be available on February 11, 1985. A press conference is planned for February 8 to describe what the draft report contains. Members will react to it at the Policy Committee meeting and the meeting of the Committee of the Whole on Wednesday, February 13. It will be discussed again on February 19 and the Board will hold a special meeting on February 25 to adopt its final report. If members still feel the 25th is too early, they have the option of going to March 4. Franklin expressed concern that the press will portray the recommendations as being those of the Board. Abdul-Rahman said the document becomes a public one as soon as it is mailed.

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It will be identified as "for discussion only." Perovich said the press has been very responsible on this issue. Abdul-Rahman said Doyle had suggested this process because it would allow staff to explain the procedure.

INTRODUCTION OF ALTON GASPER, CHAIRMAN OF TRANSPORTATION ADVISORY BOARD (TAB)

The chairman introduced Alton Gasper. Gasper said the TAB is the advice-giver to the policy making bodies, the Regional Transit Board and Metropolitan Council. Its membership consists mainly of elected officials. Other members are appointees of bodies involved in transportation. The Board's representatives are Ruth Franklin and Steve Loeding. In the next three months there will be a lot of activity involving FAU funding, Light Rail Transit, and a reorganization plan to make relationships more effective. Input will be sought from a great many organizations and TAB will seek the advice of the Regional Transit Board. There was discussion of the future of TAB if federal funding disappears. When concensus on an issue is reached at TAB, the Council generally views it as an indication of general public acceptance. The Technical Advisory Committee (TAC) is involved with TAB and the Board depends upon its expertise. The chairman thanked Gasper and said he looks forward to a worthwhile relationship.

The meeting was recessed in order to move into Chambers for the joint portion of the meeting. Gary Grosch, Director, Joint Center for Urban Mobility Research; and Dr. Kevin Neels, Charles Rivers Associates, had been retained to make a presentation on the Alternatives Analysis Study. Perovich called the joint meeting to order. Larry Dallam introduced the consultants. In a 1981 Metropolitan Council study it was determined that LRT would make a minimal impact on such factors as air quality and urban sprawl, but would make a difference in development. Another major finding was that the highest potential for LRT was in those corridors where a large number of people are located and as a development tool. On that basis the Council agreed to proceed with those two elements. The study recently completed basically confirms the results of the first study although it provides more detail. It also provides more detailed forecasts of development in the corridors. Forecasting development is an area in which there is less confidence.

Gary Brosch congratulated the group on its process. He will discuss the impacts of the alternatives on development and Neels will talk about specific technologies and their conclusions. From a historical perspective, the technology does not show dramatic impact on accessibility and the results on development are mixed. There is little clear evidence on the impact of LRT. It depends on local conditions. The members must examine what the goals for development are and whether transporation serves or shapes it.

Looking at application in the Twin Cities, the report states the central business district (CBD) would realize a capture rate in St. Paul of 20-percent and 30-percent in Minneapolis, which is the net result of a 10-percent increase in employment. In the University Corridor the total ridership in the year 2000 will be 44,000. The difference in ridership in doing nothing and the bus is 6,000 riders. That 6,000 amounts to less than 20-percent difference across the alternatives and in impact on the CBD. That 6,000 is not going to make a big difference. Looking across modes, the difference is less than half of that and it will not effect a 10-percent increase in employment. The alternatives will have different impacts, but the magnitude will be less than the magnitude of the impacts of the study.

Kevin Neels said the question of choice of technologies is whether to go with buses or LRT. LRT was expected to have a greater impact than buses, but the question is the kind of impact. CBDs depend upon access to the regional labor force. A firm considering locating in a downtown area does not care how its workers get there. Choices can affect specific sites. LRT will generate smaller volumes of traffic but because of specific station locations there will be more traffic generated.

Market image is an important concept. A lot of development decision-making revolves around these soft issues. LRT would have a greater effect than the busway. Buses do not have a good market image. In that sense, technology makes a difference. There will be greater impact along the corridors than in the CBDs. To make site specific development happen would require other kinds of public action. If you only install improvement and keep hands off you would have little impact. The development process must be expedited. The public sector can do a lot to make that happen. Make sure people also back joint development along with LRT. Expedite the approval process. This timeliness creates extra profit for the development and helps to attract developers. It may be necessary to coordinate transit improvements with different things. In some cases direct incentives may be necessary. You might need an understanding on the part of public agencies of the realities of the market. Putting this together, he concluded that the analysis indicates the alternatives have promise from a transportation standpoint, especially on University. It gives you freedom to regard development impacts as frosting on the cake. The effect of alternatives on the CBD would be smaller than projects. The improvements are not major enough to make a difference. The choice of technology will shape the effects the improvements have on specific corridors. The choice of LRT may create an opportunity for development that would not be there otherwise. It is important to recognize this is not an area where there are hard results to go on. It is hard to prove what will happen. The choice may come to what vision you have for the region. The system may change the image of the downtowns, but that will take time. You cannot depend upon it happening immediately. Brosch commented that the basic transportation work in the study is excellent.

The chairman opened the question and answer period and said the consultants would now answer questions under four categories.

<u>Analysis Demonstrates Strengths of Alternatives from a Transportation Standpoint</u>

Fuhr asked if transit is viewed as a utility. Neels said in the sense water and telephones are utilities, transit is also. It serves two roles: mobility of last resort and it provides increased capacity to areas where automobile systems are reaching their limit. The region may have gone the last mile in highway imrprovements.

Franklin asked, regarding the forecast, is it correct that UMTA requires that forecasts be on the low rather than middle or high end. Neels said they tend to be conservative. There is no policy on it. Perovich asked Diaz if he had experience with that. Diaz was the project director on the Alternatives Analysis. Diaz said there is no written policy, but at this point UMTA has tried to be as conservative as possible. With respect to development, UMTA will not allow ridership forecasts based on increased development; in that sense they are low.

In response to Lefko's question, Neels said office space per employee has tended to go upward. More space is required to serve the same population.

Don Stein asked, in connection with the ridership issue, for comments on increased employment and potential for flexible hours as it affects utilization of the system. Neels said the system capacity is constrained. With flexible hours people can leave at varied times. Dealing with congestion is good for the region over the long-term. Congestion here is low compared to Los Angeles or Washington D.C., but if people here perceive that getting downtown is too hard they will opt to go to Bloomington. Brosch added that when forecasting economic development or growth for a region, you do not look at traffic constraint. An important question is not just "will this induce development or will this affect growth you hope to attain?"

Carruthers asked, on the analysis of ridership, is the key concept the new riders this system attracts? The Citizens League is saying that if you look at the number of new riders, this is an expensive way to attract them. Is that fair? Neels said this takes you to the question of what you are trying to do. Other changes in service may buy you more riders but it is not clear that is the best goal to pursue. Another goal is capacity to the downtowns to assist growth of the two downtowns. Another question is where do you want to go in the future? There will be high start-up costs. It is a value question. Brosch said you need to look at equivalent annual cost. There is a more valid way to look at the issue. It is still expensive, but not of the same magnitude.

Carruthers said even people who are not new transit riders will derive the benefits. Brosch added that he feels strongly that as a group the members must look at transit improvements not only in the short-term but up to 50 years. That must be put in perspective.

Stein asked for an explanation of the reference to technology in terms of market image. Neels said image is specific to times and places. Both downtowns seem to be doing quite well and have not spent a dime on transit. In evaluating the affects of the alternatives, you have to look at the downtowns and ask what is missing. Baltimore spend a lot of money on Pederson Plaza and for a long time nothing happened, but eventually it worked for them. You have to ask what is working and what is needed right now. Stein asked if the new technology is primarily to serve development or be creator of development? Brosch said it is there to serve development. No one is making major decisions on transit investment thinking it will stimulate development. There were decisions made on stations that way. Neels said it depends what scale you are talking about. No one could prove a rail system would change groth of the regional economy. You are talking about moving things around. The question is whether you are changing the shape of development within the central business district. At that level there is evidence it can have a big effect.

MarksJarvis asked how the ridership increase here compared to other areas. Neels said they are relatively modest. They range from the low side in the Southwest Corridor to modest to high for LRT in the University Avenue Corridor. Brosch said there is significant traffic in that corridor now.

<u>Effect of the Alternatives from a Transportation Standpoint</u>

Lefko said members have been told people will decide that LRT is more permanent. How is that quantified? Brosch said in trying to quantify, you cannot do that but you can take the basic premise that people would prefer the security that comes from the LRT system. The United States has little experience with fixed route systems. The evidence so far is inconclusive. Lefko said part of the issue is not the question of whether development will happen, but the cost of development. Is the transit-related development worth it as a benefit relative to the other types of regional decisions? How do these things get sorted out? Brosch said he believes a transportation decision should be made. This is a decision on the impact on road patterns. It would be a poor decision to build because of the ten-percent impact on downtown employment. However, if you believe LRT will help the downtowns, will be a positive image for the CBDs and believe riders will like it, it is a good improvement and will help meet the goals in transit, then it is a fine decision.

Neels added that as a primarily transportation decision, staff could develop the cost of carrying riders by bus and the cost by LRT, the questions are, if you did not put money in LRT, do you have something else that will do the trick? There may be some other kind of public improvement that would have an impact. Another thing is it may not be possible to divert that money to another use.

Regarding the effect of LRT on the CBDs, Liz Anderson, Metropolitan Council member, asked if they are referring to the three corridors. If there were more corridors, would there be a greater impact? Brosch said it certainly could have greater impact. This particular system would not have that great an impact. Neels said taking a broad view on assembling the work force to run the CBD, this will not make that great a difference. If you start to change the question to "How easy is it to get downtown?" you have a greater impact.

Carruthers asked what are the alternatives to spend that money on. Perhaps the money may not be particularly fungible. If you were a downtown businessman and could spend $300 million on three LRT lines or a substantial amount of money in improving the overall transportation system of the region by other means, not just those three corridors, how would you analyze that? Neels said it depends on improving access in reasonable commuting range. How far would $300 million go in improving the system?

Loeding said he heard a suggestion that if we are going to do this, we might consider going more sophisticated as though LRT is not attractive enough to bring people and we should go one step further to attract higher volume. Neels said a more elaborate system would have greater impact.

MarksJarvis asked if, in other communities, has LRT had a mimimal impact on economic development and employment? Brosch said in other communities you cannot separate the impact of one of the sources. There is not enough evidence to draw cause and effect. Neels said if you go back you can find enormous impact from streetcars. It did have a great effect. One issue is that one corridor does not give a lot of leverage. This is indicative of the incremental approach.

Perovich said Brosch mentioned that not separating the 30-percent capture rate of DART, but riding is tied to that. There was discussion about getting momentum going and the community does a lot of other things along with that. The rail may have been partly a catalyst. Brosch said it is always hard to decide which plum made a deal work. He would like to leave the impression that it would have a positive effect on the community. There is momentum going now. The community certainly needs to keep it going.

Carruthers asked how sophisticated the 10-percent increase in employment or the 30-percent capture rate was in other systems. Brosch said it is his judgment that those results were inconclusive and the impact of the system could not be stated.

Acosta said University Avenue was once a flourishing center. He asked if they looked at the development impact on that corridor and will that detract from the CBD. Brosch said he did not have analysis of that but from looking at the corridor, it seems compatible development but not the kind that will steal from the CBD. A lot of that retail area seems to serve residential communities around it. The type of stores are quite different from the CBD.

Kranz asked if the consultants reviewed the public hearing information. Brosch said they saw the document that went to the public hearing. Kranz said business representatives from the Midway District recommended that a fixed busway system be considered and LRT be abandoned. There was concern from the Citizens League about ridership and the cost for a limited amount of ridership. He asked the consultants to react to that. Perovich said that leads to the next category.

The Choice of Technology Will Shape the Effect of the Improvements on Corridors and Related CBD Sites:

Neels said it is true that you can get the same kind of service. However, people like LRT better. If Midway merchants feel differently he will not argue. The service characteristics are not significantly different. On the question of cost-effectiveness raised by the Citizens League, there is an upfront cost that is more capital-intensive. That is an unfair comparison because they have lower operating cost and total annual operating cost. Probably LRT is more expensive so you get to the question of whether you want to buy that kind of system. You will get more service out of the LRT system than the bus system. You will have a much nicer downtown area because of LRT. Over the long-term LRT has the edge. In the short-term it has an adge because people like to have it around. If the Citizens League is looking at rider-per-dollar it is impossible to argue. It is up to the people if that is as much as you will consider.

Carruthers said if you analyze the cost and the busway is cheaper and for a given amount you can have twice as many miles of busway as LRT, in terms of improvements in corridors and the CBDs, would you be better off having twice as many busways or three LRT corridors? Neels said that from reading the draft Environmental Impact Statement (EIS), he gathers high cost is the subway system. In terms of whether you would be better off, it provides more capacity within one classification. At some point you have to ask about the capacity of the downtowns to handle more buses. People downtown are getting concerned

about that. At some point there is a capacity constraint that buses reach faster than LRT. St. Paul is not there yet, but Minneapolis may be. That forces the question of what you will do with these things when they get downtown. Brosch said from a transportation standpoint, in looking at movement of people, busways may do more but if the only decision were moving more people you could leave it to the chief engineer. The question is how to shape the region's future. That is why the Board and Council are making these decisions. The 50-year perspective and the current momentum have to be separated out.

Lefko asked if it would be possible to play out a scenario of the 50-year impact of the decision. Brosch said one constraint is capacity. Certainly in 50 years LRT would be better. It might mean that the system should be carefully phased. These things cannot be played out. Neels said the nature of development would be different. Downtowns would fill up with buses. It is probably fair to say development might be more diffused in a busway system. Lefko said we assume concentration of development is good. Is diffusion of development also good? Brosch said the community can decide on its character. It seems this community believes CBDs should remain strong. Other communities can decide differently. Lefko said it is a relative question of what level of downtown development and what role transportation will play. Brosch said he is impressed with the desire to keep strong CBDs and also the commitment to the regional system.

Acosta said, getting back to alternative choices, in two specific corridors, if you go with busways, would ridership increase. Neels said in the Southwest Corridor, there is a problem with alignment because the tracks are not near very much. In terms of providing access you plan the access differently. In that sense from the ridership standpoint, there may be an edge for busways. Hiwawatha is more limited. Brosch said the decision to purchase right-of-way in Southwest Corridor was an excellent one to perserve options. Acosta asked if development can be shaped in Hiawatha and Southwest Corridors. Brosch said there is some long-range opportunity that will require other activity to occur there. Neels said there is relatively little concentration in the Southwest area.

Doyle asked if looking at transportation as a prime determinant is misguided. You must look at the relationship of transportation to development and look at the two together to make a rational decision. Brosch said the important thing about developing corridors is that transit is definitely needed to work. For it to work, it needs corridors. Whatever you can do to support development of these corridors will raise the benefits.

MarksJarvis said the Board heard the argument that it does not make sense for a community like ours to approach transit from the corridor standpoint because only 10-percent of the people work downtown. Brosch said you have to look at which model split you are talking about. In Minneapolis it is 50 percent as opposed to 8 percent in other areas. It serves a major role in CBDs, which are important components of the community.

Anderson asked about the process of looking at individual corridors without the opportunity to look at the whole system. We have not been able to examine the best corridors. Brosch said UMTA required that specific corridors be considered. It may be frustrating to do that. If UMTA money is not used, you can do whatever you wish. Neels said he assumes that some sort of screening process led to this selection. Some early region-wide planning studies were done and are now being analyzed in greater level of detail. There is not enough time and staff to carry out a region-wide study. You have to zero in on a promising possibility.

In response to Carruthers' question, Neels said the system can be done without a subway in Minneapolis. A little more time would be spent getting to the final destination. There would be considerable cost saving. Brosch said this phase of the study has identified some conflicts but the next step will identify those much better in order to make that decision. Carruthers asked, if you do not have a subway, is there much difference in the problems with LRT and the busway system. Neels said the capacity of LRT is much greater and the impact on downtown is quite different. Concentration of buses is an environmental problem in itself. If you are doing low grade separations, it is easier to keep people out of LRT lanes.

Don Stein asked, with the uniqueness of the situation here with two Central Business Districts, how does that cause decision-making to be different from a community with a single CBD? Brosch said that factor influences some objective judgments the members have to make. In moving people you will have the capability of joining the two districts with all alternatives but the joining of those is a greater with a physical link of a rail system. You cannot quantify how much that is. Brosch said the ridership forecast presented nothing special. There seems to be reasonable assumptions. The ridership numbers were low. Stein asked if there was an indication that St. Paul does not have the problems in its environment that Minneapolis has. Brosch said you will have to make one solution for that corridor.

Lefko asked what kind of report the consultants would give. Perovich said the Board had agreed they would make this presentation. Lefko said any type of memorandum would be useful. Abdul-Rahman said the Board will be receiving some sort of memo.

Realizing Development Potential Will Require Long-Term Commitment and Vision:

Neels said it is good to have a concensus ready to speed development. The process would be slowed down with long debate. Acosta asked what could go wrong if the decision is made to go ahead. Could we be developing a disasterous system? Brosch said one possibility is bad cost forecasting. In Houston they once made an $800 million arithmetic error. That kind of thing could be disasterous in the management of the system. There could be problems with construction. There is a low probability on that. Another possibility is that ridership is not there. Neels said with the remoteness of the line in the Southwest corridor, the access problem will have to be handled carefully. Park and ride routes will be needed, but he does not see a disaster in that.

Snesrud asked if that means ridership figures are wrong or have the potential to be wrong. Neels said they assume a level of access that can be added. Some fiscal problems have to be resolved. That level of detail is not captured in computer models. In this case you must make sure that happens.

Carruthers said these are costs not necessarily reflected in the cost estimates. Neels said it is a question of planning.

The chairman thanked Neels and Brosch for coming to share their comments and perceptions. Abdul-Rahman said staff will be meeting with the consultants tomorrow to analyze the information and will report to the members.

LEGISLATIVE PROGRAM

Franklin moved that the Regional Transit Board adopt the legislative proposals attached to the chairman's January 29, 1985 memorandum as the Board's program for 1985. Joyce seconded the motion. The chairman noted that this position is amendable during the next few months. Vote was taken; motion carried unanimously.

RESOLUTION RECOGNIZING GENE HILL

Joyce said Gene Hill had generously offered to create the Board's logo. Joyce read a resolution into the record recognizing Mr. Hills's contribution and moved approval. Snesrud seconded the motion. Motion carried unanimously. The chairman explained that the resolution will be etched onto a plaque.

CHANGE OF BOARD MEETING TIME AND DATE

After discussion about which day the Board should hold the meeting that would ordinarily fall on February 18, which is a holiday, Franklin moved that the next meeting be February 19 at 4:30 p.m. Snesrud seconded the motion. Motion carried unanimously.

Franklin noted that the Administration and Finance Committee meeting of February 21 will be cancelled because there will not be a quorum since some members will be out of town. The chairman said the trips on February 20 to February 22 will be very structured. Four members will be sent to Portland/San Diego and four to Edmonton/Calgary to study those LRT systems, along with four Council people and one staff person to each area. He asked that members notify Abdul-Rahman if they are able to go. He asked that people who have already seen the area not volunteer.

The chairman cautioned members that during the legislative session they should be very careful in discussions of issues with legislators. He met with the Senate Transportation Committee this morning for two hours and felt it went well. There were many questions on the budget and where we are going. The legislators have a lot of misunderstandings to resolve. The chairman is trying to lay out what the Board's tasks are. Caranicas said it is important that the chairman be the spokesperson and members should not talk with the legislators. THe official position should come from the chairman.

There being no further business, Acosta moved to adjourn. Fuhr seconded the motion. Motion carried unanimously. The meeting adjourned at 7:20 p.m.

Respectfully submitted,

Mary Fitzgerald

REGIONAL TRANSIT BOARD

270 Metro Square Building, St. Paul, Minnesota 55101

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BOARD MEMBERS PRESENT: Elliott Perovich, Chairman; Ruben Acosta; Doris Caranicas; Juanita Collins; John Doyle; Ruth Franklin; Alison Fuhr; Paul Joyce; Edward Kranz; Todd Lefko; Steve Loeding; Gail MarksJarvis; Jim Newland; Bernard Skrebes; Peg Snesrud

STAFF PRESENT: Ghaleb Abdul-Rahman, Mary Fitzgerald, Judith Hollander and Leslie Johnson

The chairman called the meeting to order at 4:30 p.m. Roll was taken. He told the members that if they had not received a formal invitation, they were invited to the Minnesota Public Transit Association reception for legislators at the Sheraton Midway Hotel at 5:30 this evening. Caranicas moved approval of the agenda; Snesrud seconded the motion. Motion carried unanimously.

Joyce moved approval of the minutes of the January 7 and January 21, 1985 meetings; Caranicas seconded the motion. Motion carried unanimously. Minutes of the Committee of the Whole meeting of February 4 were passed out but not approved. Those minutes contain the remarks of the consultants and will be approved at a later meeting.

REPORT OF THE POLICY COMMITTEE

Lefko said there are no action items from the Policy Committee. The committee has held meetings on the elderly and handicapped transit and on I-394. The next meeting is on Wednesday, February 27.

REPORT OF THE ADMINISTRATION AND FINANCE COMMITTEE

METROPOLITAN TRANSIT COMMISSION TAX ANTICIPATION BOND ISSUE

Leslie Johnson introduced Robert Pulscher of Springsted, Inc. and Bob Thompson of Metropolitan Transit Commission (MTC). Franklin referred to the memorandum dated February 15, 1985. The committee discussed this matter at length at its last meeting and unanimously approved the recommendation. Franklin moved and Acosta seconded the motion that:

> The Regional Transit Board approved the attached resolution authorizing the public sale of $16,500,000 Tax Anticipation Certificates of Indebtedness and that, in the event we fail to attain a MIG 1 rating from Moody's, Chairman Elliott Perovich be authorized to decide to proceed to sale with a MIG 2 rating or without a rating.

Fuhr asked why this is being done; is a shortfall expected? Pulscher responded that both Regional Transit Board and Metropolitan Council have the authority to issue tax anticipation certificates. MTC issued them last year because of a $3.6 million shortfall. It is happening earlier this year and growing to $9 million at the end of June 1985. The deficiency can be borrowed. MTC must operate for six months before it receives tax levy funds. Lefko said the committee talked about fiscal relationships and options. The trend lines are not good and they should be analyzed. Motion carried unanimously. Roll call was taken on the resolution, which was approved unanimously.

STRGAR-ROSECOE-FAUSCH CONTRACT AMENDMENT NO. 3

Franklin moved that the above contract be amended as noted in the February 18 memorandum from the committee, extending the amount and timeframe. Lefko seconded the motion. Motion carried unanimously.

FINANCIAL STATEMENT, DECEMBER 31, 1984

The financial statement for the period ended December 31, 1984 is for information only. No action was taken. It was noted that the dates should be corrected from 1985 to 1984.

REPORT OF THE COMMITTEE OF THE WHOLE

TRANSIT IMPROVEMENTS ON UNIVERSITY AVENUE, SOUTHWEST AND HIAWATHA AVENUE CORRIDORS

Abdul-Rahman noted that the Transportation Advisory Board's Policy Committee adopted approximately the same recommendations as the RTB staff with the exception of University Avenue, where they recommended that a busway also be studied. A great many comments have been received from interested parties. Included in the handouts is the staff report of the Metropolitan Council entitled Summary, Southwest/University Avenue Corridors Study, Transit Alternatives Analysis and Draft Environmental Impact Statement, dated January 1985.

Franklin asked if the Board will have an opportunity to compare the two staffs' recommendations. She asked if staff will prepare a report comparing them. While she did not feel the RTB staff report was negative, a reporter had called her and told her he was surprised at how negative it was.

Joyce agreed that he would like to see more of the information that has flowed back and forth. Where does the steering committee enter the process? One county has been upfront for many years, they put up most of the money and were excluded from the final analysis. This will hurt the concensus that has been building. The process was to consider a system, not individual components. Joyce recommended preliminary engineering on all the corridors. Lefko asked when the board will get the report of the steering committee. Abdul-Rahman said the packet contains a summary of the steering committee report.

Lekfo said it is difficult to assimilate all the information. He had hoped that during the meeting the board would have followup background material split out as part of the decision process. The chairman said at each meeting the board had the information used to support the recommendations. Lefko said he had assumed there was additional material that went beyond that.

Reacting to Joyce's comment, Loeding said he thinks this is a system and he favors the staff recommendation in that University will be critical to any metro-wide system. Beyond that, it says Southwest and Hiawatha is a justifiable arm. The report says the first thing we should do is a service needs assessment, which is needed to establish what the system should be and what priorities are within that system, recognizing that University corridor is central to that.

Acosta agreed that we owe a lot to Hennepin County, but we are talking about the system and the staff recommendation keeps that in mind. Hennepin County should be aware that University and Hiawatha, as well as Southwest, have an effect on the county. It was understood early on that we have to look at corridors specifically as well. Each of them must reach a threshold number and be measured against the others. Unfortunately, they cannot all meet the criteria. Hennepin County is upset that Southwest will not get top priority at this time, but having a right-of-way does not justify other standards. Joyce said he did not want to sound parochial; he supports a balanced system and has an open mind. It is not important where we start, as long as a start is made. However, regarding threshold numbers, those will not be known until the preliminary engineering is done. It is needed on all three corridors. Acosta said preliminary engineering is part of the "build/no-build" process. The next step is to decide if we should pursue building anything. That is what the preliminary engineering establishes. University should be pursued as well as, to a limited extent, Hiawatha, but Southwest has not shown indicators that we should proceed further.

Doyle said we need clarification. Apparently one interpretation of the staff report is that in essence the report is identifying two corridors that meet some preliminary screening and one is a "no go" and is knocked out of consideration. He asked if that is an accurate summary. Perovich said the staff report does not eliminate any corridors. Doyle said we must be precise. If preliminary engineering is not appropriate for Southwest, what will we do with respect to it? Perovich said do the preliminary engineering on University. Included with that is a leg of Hiawatha needed to reach the yards and shops and any other planning for the roadway for the City of Minneapolis. The report also says we need to do some preliminary engineering in both downtown areas for a potential connection to other corridors which would include Southwest and possible other corridors identified once the service needs assessment is completed.

Skrebes said he was concerned about the newspaper reports of the reaction of the Hennepin County commissioners. He asked if staff has contacted them to straighten this out. Abdul-Rahman said staff of the City of Minneapolis and Hennepin County was contacted and the chairman has had discussions with some of the commissioners. Abdul-Rahman emphasized that this is a staff report; it is up to the board to amend it.

The chairman said he had discussions with both Commissioners Sivanich and Spartz, regarding the recommendations and Perovich offered to meet with them at their discretion. Every effort is being made to make sure there are no misunderstandings.

Franklin said it seems apparent we are not sure where we are. She asked for a list of all of the reports that are available on the subject. Staff should tell the board which of them we have, which we do not have, and set a time to go through them with a memo stating where the differences are.

Caranicas said the Findings and Recommendations in the staff report are positive regarding all three corridors. No. 2 selects LRT for all three corridors. As far as timing for preliminary engineering and design, it seems when planning was considered, members agreed there would be staged engineering and design. The report makes excellent sense.

Doyle asked if the board is locked into the present timetable. The chairman said there is no reason not to make a decision unless something unusual comes up. The board should not expect any major presentations. It has had all those meetings and all the information in one form or antoher. The staff report is a summary for the board which is what the board asked for. The chairman thinks it is critical that the board stay on schedule. Doyle asked at which meeting the members will go through the report in detail. The chairman said he thought that was done last week. The board can do it again now. Doyle said it would be in the board's best interest to provide an opportunity for the chairman to meet with those individuals. However, that takes time and should be done in a timely manner. Perovich said the board will get the information and take time to discuss it. In August 1984 it was agreed that this would not be an easy decision. Regardless of what decision is made by the board, some people will be unhappy with it. The board is alone when it gets down to the final decision. It will take input from everyone, but at the end the board must decide and justify the decision it makes.

Collins said the second point in the Findings on Page 7 of the report is the one causing trouble. She suggested deleting that portion "...it is not apparent that the Southwest corridor should have a higher priority than other corridors in the region not included in this analysis." Perovich said the board was always uncomfortable with only three corridors. People said other corridors should be considered. The board has to make a decision on a priority corridor but it will also do a service needs assessment before it decides on these three. We need to find out if there are others. Collins said you have to start and stop somewhere. Hennepin County is concerned because they bought the right-of-way.

The chairman said the legislators are concerned that we are focusing on LRT and forgetting other needs in the area. He has reassured them that the board would not limit itself to transit in these areas only. That is a big concern for legislators and of this board.

Lefko said the issue of whether we should build was lost. Some members feel most of the basic information is there. There are two decisions: one is political and one is transit. If a choice must be made, it better be a transportation decision. A political solution is not to make any decision at all or include everyone. The first question is what should be built and the second is timing. Not everything should be considered at the same point. Some things have higher priority. The board should go ahead, make the decision, and accept the political impacts.

Loeding said the preliminary engineering is the next logical step that has to take place regardless of what decision is made to build any or all the corridors. It is the next thing that must be done. Any information received from studies will not make a big difference. He wants to make a decision from hard facts that come from preliminary engineering so that we know what the costs for an informed decision.

Snesrud said she hopes politics will be set aside and that Hennepin County will not go ahead on its own. Doyle asked if Southwest is in or out. If it is in, what next? If it is out, we should say so. It is implied that Southwest is a toss-up. If you stated three corridors and collected some data and selected to move forward with one and you will not do anything else, what does that tell you? It implies it is not being seriously considered. Snesrud said she interprets the report to say that University is the major link between the two cities. The need for preliminary engineering study on Hiawatha seems sensible since we are in the process of putting a highway through there and we should look at LRT along with it. Regarding Southwest, we have a primary corridor and a chance to do something from the very beginning. The board should now look at the whole seven-county area and identify those other corridors and bring them up to the point where Southwest is now. The chairman asked Abdul-Rahman to respond. Abdul-Rahman said staff discussed Southwest throughout the report. Recommendation No. 2 said LRT is recommended on all three corridors and 4.a. said LRT should connect to other corridors going through downtown, which includes a connection to Southwest. The total package of preliminary engineering will be completed in December of 1986. At that time the board can conduct other work for Southwest or Hiawatha. Another issue to consider is whether staff can deliver all the requested preliminary engineering studies in a year and a half.

MarksJarvis said Doyle asked if Southwest was in or out; she thinks the jury is still out on that. If it turns out that Southwest is a viable transit corridor it will be in. The board must choose what is best for the region. Acosta agreed that trying to say yes or no to a system like LRT is not as easy as we would like. The board will not know about the performance of some lines until ten years down the road. We are looking at the year 2000 and beyond We may find other lines make sense. Southwest should be compared with other potential corridors.

Collins said she did not remember talking about where other corridors would go. The chairman said the board did not discuss any specific corridor except through people expressing concern that there might be others out there. Abdul-Rahman had mentioned that a 1980 Metropolitan Council study dealt with other possible corridors; however, the study considered corridors separately but not as a system. This report calls for a system study. Beyond discussion of LRT, system analysis is very important. Collins asked if Southwest was considered because it was dropped on us. Perovich said that is true of all three corridors, and the members have to deal with that.

Fuhr said Urban Mass Transit Agency should be left out of it and we should go ahead on our own. The report as written is giving mixed signals. She asked Abdul-Rahman if, when the downtown penetration is completed, how far out would it go. Perovich said the preliminary engineering would determine that. It is not a policy decision. The report states specifically that downtown connections will be studied. He reminded the board that this is a staff recommendation. The board will modify it and the product will be the board's recommendation. Going to the $10.6 million, she said there had been some discussion about 10-percent of the $10.6 million to arrive at the cost of preliminary engineering. She asked if there is a shortage of personnel to do that. It seems reasonable to do three preliminary engineering studies at the same time. Then the balance of the $10.6 million could be used for needs assessment. The chairman said you should not do preliminary engineering 10 years before going to construction because circumstances can change considerably. Fuhr said that is where we are giving mixed signals. Perovich said we are saying in that report there may be other corridors that merit consideration. The transit needs analysis will look for those before we stick rails out there without knowing if people want to ride them. Fuhr asked if needs assessment can be done concurrently. Perovich said that is the whole idea. We would like to have done that before having to make any decisions. We must get away from the idea of saying there is $10 million and we should spend it.

Fuhr asked at what point in time will the private sector be solicited. Perovich said the service needs assessment should determine that. We may find out we need to spend money on a different transit system before developing another LRT line. The whole federal situation on transit operation subsidies is questionable.

Perovich said he understands that some Hennepin County commissioners are upset. They have years invested in this. He would like to explain the staff position and give them a chance to air their concerns. The board has not made its decision. He wants to know where this board is going before he talks to Hennepin County. Kranz said when Neels and Brosch made their presentation they reflected on some of these numbers and said that they are very hard to predict and evaluate. They spoke strongly about image and overall community involvement in creating a new type of transit that people like. Unfortunately, we cannot compare it to anything but the buses. Kranz asked Abdul-Rahman if their input was that LRT would be good for the Metropolitan Area and if dropping Southwest would take some air out of that. Abdul-Rahman said in the discussions they indicated that Southwest is far out in the future. They indicated

to staff that the existing ridership shows University is clearly the best corridor. This is the first time any agency has said clearly that LRT is the answer to a need established in this region and we are using University as a means of showing the region at large that this will work. The written report from Neels and Brosch is not yet available. Perovich said Neels and Brosch said Southwest runs out into the country side and needs a lot of work. The board should work through the process and understand that not everyone in Hennepin County is unhappy with this.

Kranz said this is a whole new type of transportation from what we are comparing it to and the dollars are limited. He said the staff report is a good report.

Acosta said the bottom line is ridership. It is true that Southwest already has acquired the right-of-way. It would be easy to construct. However, again, the question is ridership. The only sound reason to build in Southwest now is that they have the right-of-way.

Fuhr asked if outside participation in this discussion will be allowed. The chairman said he has told people who asked to testify on the staff report that they cannot. They were asked to submit written comments and they can lobby the members. It should not be done during the time scheduled for discussion among the members.

Doyle asked if it would be appropriate to talk about ways to suggest changes to the report at the next meeting. The chairman said everyone has had a chance to express their concerns. He asked that the members put them in writing and bring them in. They can be submitted as amendments to the report.

OTHER BUSINESS

In response to Franklin's question, Perovich said Greg Failor, Tom Todd and our attorney are working on the proposed legislation bills and copies will be available shortly.

There being no other business, Fuhr moved to adjourn; Doyle seconded the motion. Motion carried unanimously. The meeting adjourned at 6:30 p.m.

Respectfully submitted,

Mary Fitzgerald
Secretary

METROPOLITAN TRANSIT COMMISSION

RESOLUTION NO 85-17

RESOLUTION REQUESTING AUTHORIZATION TO PROCEED
WITH SHORT TERM FINANCING FOR 1985

WHEREAS, based upon a projection of the commission's cash flow during 1985, there will be a need for additional short term financing in an amount up to $16,500,000 in tax anticipation notes; and

WHEREAS, because the Regional Transit Board is the taxing authority for levying property taxes in the Metropolitan Transit Taxing District, it is the opinion of MTC bound counsel that the Regional Transit Board should sell the tax anticipation notes required by the Metropolitan Transit Commission; and

WHEREAS the commission has determined it necessary and desirable to retain the services of the commission's bond counsel and financial consultant to assist in the sale of said tax anticipation notes; and

WHEREAS, by resolution 83-27, the commission authorized a 3 year contract with Springsted Inc for the provision of financial advisory services, with contract amendments for specific services during the contract period to be based on the original proposal of Springsted Inc;

BE IT THEREFORE RESOLVED that the Metropolitan Transit Commission requests the Regional Transit Board to sell tax anticipation notes in an amount up to $16,500,000 on behalf of the Metropolitan Transit Commission; and

BE IT FURTHER RESOLVED that the chief administrator is authorized to negotiate and execute an amendment to the contract with Springsted Inc for financial advisory services in connection with the sale of tax anticipation notes for 1985, based on the hourly rates quoted in the original proposal of Springsted Inc, providing for an aggregate total amount; and

BE IT FURTHER RESOLVED that the chief administrator is authorized to engage the services of MTC bond counsel, Holmes & Graven, for necessary advice and services related to the sale of tax anticipation notes for 1985.

****

MOVED BY Commissioner Nawrocki; SECONDED BY Commissioner Cochrane

ROLL CALL VOTE: Yea: Commissioners Cochrane, Nawrocki, and Chairman Snowden
Nay: none
Absent at the time: none

ADOPTED: February 7, 1985

Memorandum

To: Chairman and Members of the
Finance and Administration Committee

From: Gregory L. Andrews
Director of Finance

Date: February 4, 1985

Subject: Authority to Proceed with Short-Term Financing Program

Background:

On March 7, 1984, the Metropolitan Transit Commission awarded the sale of $11,000,000 of one year Tax Anticipation Notes based upon an analysis of cash flows prepared by Commission staff and reviewed by our financial advisor, Springsted, Inc. and bond counsel, Holmes and Graven. This sale was the first of its kind for the MTC and was necessitated by the negative cash balance of $3.6 million we were projecting at the end of June, 1984. The Commission has historically experienced its lowest cash balances just prior to receipt of property tax revenue in July and December. This situation has been worsened by the fact that we have become increasingly more dependent on the property tax which currently accounts for in excess of 40% of our total revenues. Another contributing factor is that our receipt of federal operating assistance has been delayed into the second half of the year.

The cost of the borrowing in 1984 was $710,090 which includes interest at 6.14% ($675,400) and issuance costs of $34,690. This cost, however, will be more than offset by the estimated investment earnings of $1,245,365 which results from investment of note proceeds not currently needed to pay our liabilities. Therefore it is our estimate that the MTC will net approximately $535,275 from the 1984 Tax Anticipation Note borrowing while providing the necessary cash to meet our financial obligations in a timely manner through March, 1985.

For 1985, based upon our cash flow projection, we anticipate the need for ~~$13 million~~ 16.5 in additional short-term financing. We have reviewed this projection with Springsted, Inc. and the Director of Administration of the Regional Transit Board. Because the RTB has assumed the taxing authority for taxes certified in 1984 collectible in 1985, it is the opinion of our bond counsel that the RTB will be selling the notes and passing the proceeds on to the MTC. Because cash projections justifying the issue will be those of the MTC, the MTC will prepare the necessary documentation with the assistance of Springsted, Inc. and Holmes and Graven, with the official action to be taken by the Regional Transit Board.

Recommendation:

It is recommended that the Commission request that the Regional Transit Board take the required actions necessary to sell $13 million of Tax Anticipation Notes to provide adequate cash resources for the Metropolitan Transit Commission to meet its financial obligations through March, 1986. It is further recommended that the Chief Administrator be authorized to amend our agreements with Springsted, Inc. and Holmes and Graven to provide the necessary professional services for the issuance of the short-term notes.

cc: Lou Olsen
John Capell
Bob Thompson
Dick Bunde

GLA:de/ml

RECOMMENDATIONS

FOR

REGIONAL TRANSIT BOARD
MINNEAPOLIS-SAINT PAUL METROPOLITAN AREA, MINNESOTA
$16,500,000
TAX ANTICIPATION CERTIFICATES OF INDEBTEDNESS, SERIES 1985

STUDY NO. 2922
15 February 1985
SPRINGSTED Incorporated

SPRINGSTED
INCORPORATED
PUBLIC FINANCE
ADVISORS

15 February 1985

Mr. Elliott Perovich, Chair
Members, Regional Transit Board
Mr. Ghaleb Abdul-Rahman, Executive Director
Mr. Leslie Johnson, Director of Administration
Regional Transit Board
276 Metro Square Building
Saint Paul, Minnesota 55101

RE: Recommendations for Issuance of $16,500,000 Tax Anticipation Certificates of Indebtedness, Series 1985

The Metropolitan Transit Commission relies extensively on ad valorem property tax income which currently accounts for more than 40% of that agency's total revenue. As a result the agency must operate for approximately a six-month period each calendar year before receipt of approximately 50% of that income. The result is monthly operating deficits as the agency spends down its cash balances in providing service during that initial six-month period.

In 1984 the Metropolitan Transit Commission for the first time, issued $11,000,000 of tax anticipation certificates in order to fund a June, 1984 deficit balance of $3,600,000. In 1985 the Commission anticipates a negative balance appearing first in May in the amount of $4,183,648, increasing at the end of June to a deficit of $9,059,401.

Federal arbitrage restrictions limit the borrowing of tax-exempt agencies for the purpose of funding operating deficits. That restriction, most simply stated, limits the maxmimum borrowing to the lowest month operating balance, plus the next month's anticipated expenditures. In the case of the Commission's projected 1985 experience that would permit a $9,059,401 borrowing for the June deficit, together with the projected July expenditures of $8,361,404, for a total of $17,420,805. That projection is shown in attached Exhibit I.

An additional arbitrage restriction further limits the amount of borrowing to an amount computed as described above, after taking into account the additional interest income which will be earned from reinvesting portions of the proceeds of the tax anticipation certificates. We have shown in Exhibit III attached, the anticipated impact of that interest income. The income reduces the maximum deficiency to $8,743,105 in June, which together with the $8,361,404 of projected operating expenses in July would permit a borrowing of not to exceed $17,104,509. The Metropolitan Transit Commission has requested the Regional Transit Board to issue certificates not to exceed $16,500,000 and these recommendations reflect that size borrowing program. We understand you have received a copy of their request, and a memorandum explaining their 1984 experience with the certificates.

In addition to being able to fund operating deficits a second benefit can be realized by the issuance of these certificates. We have assumed the certificates can be sold at an interest coupon rate of 5½%. The availability of the certificate proceeds dramatically increases the amount of available cash balances for reinvestment by the Metropolitan Transit Commission. We have assumed in all schedules attached a reinvestment rate of 8½%, for a 3% spread between the rate on the certificates and the reinvestment rate. That arbitrage benefit over the term of the certificates is expected to produce a favorable financial benefit to the Commission of $458,439.

The computation of that benefit is illustrated in Exhibit II attached. You will note the total anticipated reinvestment income will increase from a net $247,657 as shown in Exhibit I without the availability of the certificate proceeds, to $1,698,596 as illustrated in Exhibit II. We reduced that interest income by the net $247,657 of potential earned income without the borrowing, further reduced the interest income by the $907,500 of interest expected to be paid on the certificates at maturity, and further reduced the income by $85,000 of expected discount and issuance cost expenses.

As indicated the Metropolitan Transit Commission issued $11,000,000 of these certificates last year. At that time we estimated a net investment return of $330,000. Their actual experience projected through March 31, 1985 indicates a net income of $535,275. That increase was the result of an aggressive investment program by MTC staff, and increases in reinvestment interest rates beyond the level expected in April, 1984.

The Metropolitan Transit Commission retains the authority to issue these obligations. However, there are several reasons why issuance by the Regional Transit Board is preferred. First, you levy and control the tax income and if MTC issued the obligations they would have to be called revenue anticipation rather the tax anticipation certificates. That designation would represent a marketing disadvantage.

Secondly, Springsted Incorporated feels it is desirable for the Regional Transit Board at this time, and with this issue, to establish its preserve as a creditable borrower with both the national bond market and the rating agency. You will be asked later this year to issue long-term capital bonds for MTC and in our opinion that issue would be more difficult to market and rate if it were the first program brought to market by the Board. Obviously, the Board will have future requirements to gain access to capital markets and the better known your name, the better the response by that market.

These certificates if issued would be dated April 1, 1985 and will mature in one payment on April 1, 1986. We are recommending that a discount of not more than $50,000 be allowed as profit for the successful purchaser of the certificates. That level of discount represents $3.03 per bond which we think is adequate for this issue. The purchaser, assuming this discount is adequate, will then reoffer the certificates at par to the retail purchaser, rather than having to offer them at a premium to produce underwriting profit. We believe this will assist in the successful sale of these obligations.

We are also recommending you enter into an escrow agreement with the First Trust Company of Saint Paul which will require that the Regional Transit Board deposit from property tax revenues received after July, 1985 an amount sufficient to guarantee the availability of funds for the payment of principal and interest on the certificates on April 1, 1986. The Metropolitan Transit Commission entered into a like agreement last year, and the existence of an escrow agreement will be required by the rating agencies should they decide to rate this issue.

We are recommending you authorize us to seek a rating on this issue on your behalf from Moody's Investors Service of New York. Last year's certificate issue received a "MIG 1" rating which is Moody's highest rating for short-term debt. We are hopeful we can obtain that same rating on this issue but we have some concern about that possibility because of the following factors:

1. The Regional Transit Board represents a new issuer and it will be necessary to establish the credibility of the Board as a borrower for this purpose.

2. As indicated by Exhibit II upon payment of the principal and interest on the certificates on March 31, 1986, the Board will have a negative cash balance in its operating account of $2,094,000. As indicated this first deficit has previously occurred in June of 1984, will occur first this year in May and is expected to occur in March, 1986. This indicates a deterioration in MTC's cash position.

3. The Moody's evaluation may take into account the potential reductions during the balance of 1985, and into 1986, in the level of State and federal operating grant assistance. MTC staff has indicated to us that any such reductions will have a minimal impact in 1985 but will have a more significant negative impact in later years.

We believe it will be necessary to make a formal presentation to Moody's Investors Service on this issue since it is the first program offered for sale by the Regional Transit Board. We further believe it will be necessary for Mr. Perovich, or his designee, to attend that presentation to explain the Regional Transit Board, its role in transit planning and more specifically its role as it relates to the Metropolitan Transit Commission.

If we cannot develop reasonable assurance from Moody's that a "MIG 1" rating is attainable for this issue, we recommend the obligations be offered without a rating which we would consider more desirable than receiving the second level of rating quality of "MIG 2." We recommend you authorize Mr. Perovich to make that decision if it becomes necessary. If the obligations are sold without a rating it will increase the interest cost beyond the rate we have estimated.

We are recommending bids be taken on this issue on Monday, March 18, 1985, at 12:00 Noon. Bids received for the obligations will be tabulated and submitted to you for consideration for award at your regular meeting at 4:30 P.M. that same day. A member of our firm will be in attendance at that meeting to assist you in the details of the sale.

Respectfully submitted,

SPRINGSTED Incorporated

15 February 1985

BY Robert D. Pulscher

Robert D. Pulscher
President

/kup

REGIONAL TRANSIT BOARD
$16,500,000 TAX ANTICIPATION CERTIFICATES
CASH FLOW PROJECTION OF NON-RESTRICTED FUNDS

Month Ending (1)	Estimated Receipts (2)	Estimated Disbursements (3)	Interest Earned @ 8.50% (4)	Interest Paid @ 8.50% (5)	Cumulative Balance (6)
Beginning Balance (3/31/85)					8,343,003
April 30, 1985	4,582,460	8,692,245	44,541	0	4,277,759
May 31, 1985	3,583,710	12,045,449	332	0	-4,183,648
June 30, 1985	3,906,460	8,735,476	0	46,737	-9,059,401
July 31, 1985	27,848,125	8,361,404	4,845	0	10,432,165
August 31, 1985	6,404,625	9,180,454	64,063	0	7,720,399
September 30, 1985	5,808,875	8,587,554	44,845	0	4,986,565
October 31, 1985	5,414,625	8,881,854	23,042	0	1,542,378
November 30, 1985	5,440,625	8,976,254	0	1,597	-1,994,848
December 31, 1985	20,539,625	8,704,414	27,786	0	9,868,149
January 31, 1986	6,558,700	10,071,825	57,457	0	6,412,481
February 28, 1986	4,649,700	8,902,575	30,359	0	2,189,965
March 31, 1986	5,317,450	10,058,575	0	1,279	-2,552,439
TOTALS:	100,054,980	111,198,079	297,270(a)	49,613(b)	

(a) Assumes interest earned on the average of beginning and ending monthly balances at a rate of 8.50%.

(b) Assumes interest paid on the average of beginning and ending monthly deficit balances based on internal borrowing at a rate of 8.50%.

Prepared by:
SPRINGSTED Incorporated
February 13, 1985

EXHIBIT I

REGIONAL TRANSIT BOARD
$16,500,000 TAX ANTICIPATION CERTIFICATES
CASH FLOW PROJECTION OF NON-RESTRICTED FUNDS
(WITH TAX ANTICIPATION CERTIFICATES)

Tax Certificate Closing: 4/ 1/85
Maturity: 3/31/86

Month Ending (1)	Estimated Receipts (2)	Estimated Disbursements (3)	Interest Earned @ 8.50% (4)	Interest Paid @ 8.50% (5)	Cumulative Balance (6)
Beginning Balance (3/31/85)					8,343,003
April 30, 1985	21,032,460(a)	8,727,245(b)	160,814	0	20,809,032
May 31, 1985	3,583,710	12,045,449	117,429	0	12,464,722
June 30, 1985	3,906,460	8,735,476	71,189	0	7,706,895
July 31, 1985	27,848,125	8,361,404	123,606	0	27,317,222
August 31, 1985	6,404,625	9,180,454	183,666	0	24,725,059
September 30, 1985	5,808,875	8,587,554	165,295	0	22,111,675
October 31, 1985	5,414,625	8,881,854	144,345	0	18,788,791
November 30, 1985	5,440,625	8,976,254	120,565	0	15,373,727
December 31, 1985	20,539,625	8,704,414	150,814	0	27,359,752
January 31, 1986	6,558,700	10,071,825	181,356	0	24,027,983
February 28, 1986	4,649,700	8,902,575	155,136	0	19,930,244
March 31, 1986	5,317,450	27,466,075(c)	124,381	0	-2,094,000(d)
TOTALS:	116,504,980	128,640,579	1,698,596	0	

(a) Includes net proceeds of Tax Anticipation Certificates
Principal of 16,500,000 less: 50,000 discount

(b) Includes issuance cost for Tax Anticipation Certificates of 35,000

(c) Includes repayment of Tax Anticipation Certificates
Principal of 16,500,000 plus: 907,500 interest @ 5.50%

(d) This cash position represents an improvement of 458,439
vs. Exhibit I due to the following:

Interest Earnings (Ex. II, Column 4)	1,698,596	
Less: Interest Earnings (Ex. I, Column 4)	-297,270	
Net Increase in Interest Earnings		1,401,326
Plus: Avoided Interest Cost of Internal Borrowing (Ex. I, Column 5)		49,613
Less: Costs of Borrowing:		
Coupon Interest @ 5.50%	907,500	
Discount and Issuance Costs	85,000	
Total Cost of Borrowing		-992,500
Estimated Favorable Effect Versus Internal Borrowing		458,439

Prepared by:
SPRINGSTED Incorporated
February 13, 1985

EXHIBIT II

REGIONAL TRANSIT BOARD
$16,500,000 TAX ANTICIPATION CERTIFICATES
ARBITRAGE WORKSHEET OF NON-RESTRICTED FUNDS
(WITH TAX ANTICIPATION CERTIFICATES)

Tax Certificate Closing: 4/ 1/85
Maturity: 3/31/86

Month Ending (1)	Estimated Receipts (2)	Estimated Disbursements (3)	Interest Earned @ 8.50% (4)	Interest Paid @ 8.50% (5)	Cumulative Balance (6)
Beginning Balance (3/31/85)					8,343,003
April 30, 1985	4,582,460	8,727,245(a)	160,814	0	4,359,032
May 31, 1985	3,583,710	12,045,449	117,429	0	-3,985,278
June 30, 1985	3,906,460	8,735,476	71,189	0	-8,743,105
July 31, 1985	27,848,125	8,361,404	123,606	0	10,867,222
August 31, 1985	6,404,625	9,180,454	183,666	0	8,275,059
September 30, 1985	5,808,875	8,587,554	165,295	0	5,661,675
October 31, 1985	5,414,625	8,881,854	144,345	0	2,338,791
November 30, 1985	5,440,625	8,976,254	120,565	0	-1,076,273
December 31, 1985	20,539,625	8,704,414	150,814	0	10,909,752
January 31, 1986	6,558,700	10,071,825	181,356	0	7,577,983
February 28, 1986	4,649,700	8,902,575	155,136	0	3,480,244
March 31, 1986	5,317,450	11,016,075(b)	124,381	0	-2,094,000
TOTALS:	100,054,980	112,190,579	1,698,596	0	

Includes interest earned and interest avoided due to the inclusion of the Certificates shown on Exhibit II. Does not include the proceeds or repayment of principal on these Certificates.

(a) Includes issuance cost for Tax Anticipation Certificates of 35,000

(b) Includes interest cost for Tax Anticipation Certificates Coupon Interest of 907,500 plus 50,000 discount

Prepared by:
SPRINGSTED Incorporated
February 13, 1985

EXHIBIT III

OFFICIAL TERMS OF OFFERING

$16,500,000
REGIONAL TRANSIT BOARD
MINNEAPOLIS-SAINT PAUL METROPOLITAN AREA, MINNESOTA
TAX ANTICIPATION CERTIFICATES OF INDEBTEDNESS, SERIES 1985

Sealed bids for the Certificates will be opened by the Director of Administration or his designee, on Monday, March 18, 1985, at 12:00 Noon, Central Time, at the offices of SPRINGSTED Incorporated, 800 Osborn Building, Saint Paul, Minnesota, 55102. Consideration for award of the Certificates will be by the Regional Transit Board at 4:30 P.M., Central Time, of the same day.

DETAILS OF THE CERTIFICATES

The Certificates will be dated April 1, 1985 and will bear interest payable at maturity. Interest will be computed upon the basis of a 360-day year of twelve 30-day months and will be rounded pursuant to rules of the MSRB. The Certificates will be issued in bearer form in the denomination of $5,000 each, or in integral multiples thereof as requested by the Purchaser by 12:00 Noon, Central Time, March 19, 1986, without interest coupons attached but will have the amount of interest due on the interest payment date thereof stated in the text of the Certificates.

The Certificates will mature April 1, 1986.

The Certificates will not be subject to payment in advance of their respective stated maturity date.

SECURITY AND PURPOSE

The Certificates will be obligations of the Regional Transit Board for which the Regional Transit Board will pledge proceeds of current taxes levied for general operating requirements of the Metropolitan Transit Commission in 1984 for collection in 1985. The proceeds of the Certificates except for accrued interest, will be used for the same purposes for which taxes payable in 1985 were levied.

TYPE OF BID

A sealed bid for not less than $16,450,000 and accrued interest on the total principal amount of the Certificates shall be filed with the undersigned prior to the time set for the opening of bids. Also prior to the time set for bid opening, a certified or cashier's check in the amount of $100,000, payable to the order of the Regional Transit Board, shall have been filed with the undersigned or SPRINGSTED Incorporated, the Regional Transit Board's Financial Advisor. No bid will be considered for which said check has not been filed. The check of the Purchaser will be retained by the Regional Transit Board as liquidated damages in the event the Purchaser fails to comply with the accepted bid. The Regional Transit Board will deposit the check of the Purchaser, the amount of which will be deducted at settlement. No bid shall be withdrawn after the time set for opening bids, unless the meeting of the Regional Transit Board scheduled for consideration of the bids is adjourned, recessed, or continued to another date without award of the Certificates having been made. Bidders shall specify a single rate which shall not exceed the maximum rate permitted by law.

AWARD

The Certificates will be awarded to the Bidder offering the lowest dollar interest cost to be determined by the deduction of the premium, if any, from, or the addition of any amount less than par, to, the total dollar interest on the Certificates from their date to their final scheduled

maturity. The Regional Transit Board's computation of the total net dollar interest cost of each bid, in accordance with customary practice, will be controlling.

The Regional Transit Board will reserve the right to: (i) waive non-substantive informalities of any bid or of matters relating to the receipt of bids and award of the Certificates, (ii) reject all bids without cause, and, (iii) reject any bid which the Regional Transit Board determines to have failed to comply with the terms herein.

PAYING AGENT

The Paying Agent shall be First Trust Company of Saint Paul. The Regional Transit Board will pay for the services of the Paying Agent.

CUSIP NUMBERS

If the Certificates qualify for assignment of CUSIP numbers such numbers will be printed on the Certificates, but neither the failure to print such numbers on any Certificate nor any error with respect thereto will constitute cause for failure or refusal by the Purchaser to accept delivery of the Certificates. The CUSIP Service Bureau charge for the assignment of CUSIP identification numbers shall be paid by the Purchaser.

SETTLEMENT

In approximately 30 days following the date of their award, the Certificates will be delivered without cost to the Purchaser at a place mutually satisfactory to the Regional Transit Board and the Purchaser. Delivery will be subject to receipt by the Purchaser of an approving legal opinion of Holmes & Graven, Chartered of Minneapolis, Minnesota, which opinion will be printed on the Certificates, and of customary closing papers, including a no-litigation certificate. On the date of settlement payment for the Certificates shall be made in federal, or equivalent, funds which shall be received at the offices of the Regional Transit Board, or its designee, not later than 1:00 P.M., Central Time of the day of settlement. Except as compliance with the terms of payment for the Certificates shall have been made impossible by action of the Regional Transit Board, or its agents, the Purchaser shall be liable to the Regional Transit Board for any loss suffered by the Regional Transit Board by reason of the Purchaser's non-compliance with said terms for payment.

At settlement the Purchaser will be furnished with a certificate, signed by appropriate officers of the Regional Transit Board, to the effect that the Official Statement did not as of the date of the Official Statement, and does not as of the date of settlement, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading.

OFFICIAL STATEMENT

Underwriters may obtain a copy of the Official Statement by request to the Regional Transit Board's Financial Advisor prior to the bid opening. The Purchaser will be provided with 25 copies of the Official Statement.

Dated February 19, 1985

BY ORDER OF THE REGIONAL TRANSIT BOARD

/s/ Elliott Perovich
Chair

REGIONAL TRANSIT BOARD

Suite 270 Metro Square Building, Saint Paul, Minnesota 55101

DATE: February 15, 1985

TO: Regional Transit Board

FROM: Administration and Finance Committee

SUBJECT: Metropolitan Transit Commission Tax Anticipation Bond Issue

At its meeting of February 14, 1985, the Administration and Finance Committee discussed Metropolitan Transit Commission (MTC) Resolution No. 85-17, attached, asking the RTB to sell tax anticipation notes in an amount up to $16,500,000 on behalf of the Metropolitan Transit Commission. Attached is a copy of the requesting MTC Resolution No. 85-17, an MTC memorandum regarding the request, and the Recommendations (Study No. 2922) of financial advisor, Springsted, Incorporated. The Springsted study is the material document detailing the necessity of short-term financing to cover a projected MTC mid-year cash flow shortfall. It also outlines the interest income benefit to the MTC and discusses a need to authorize Chairman Perovich to make a rating, no rating sale decision in the event we are unable to attain a Moody's "MIG 1" rating. Bob Pulscher of Springsted will make the formal board presentation.

RECOMMENDATION

That the Regional Transit Board approve the attached resolution authorizing public sale of $16,500,000 Tax Anticipation Certificates of Indebtedness and that, in the event we fail to attain a "MIG 1" rating from Moody's, Chairman Elliott Perovich be authorized to decide to proceed to sale with a "MIG 2" rating or without a rating.

Ruth Franklin
Chair

RF:LMJ:jmo

Attachments: RTB Resolution and supporting documents
MTC Resolution No. 85-17 and memorandum
Springsted Study No. 2922

REGIONAL TRANSIT BOARD

Suite 270 Metro Square Building, Saint Paul, Minnesota 55101

DATE: February 13, 1985

TO: Regional Transit Board Members

FROM: Leslie M. Johnson, RTB

SUBJECT: MTC "Tax Anticipation Notes"

Members of the Board, as is on your agenda, you will be asked to approve at next Tuesday's Board meeting, a "Notice of Sale" for approximately 16 plus million in tax anticipation notes to cover a projected shortfall in MTC's cash flow mid-1985. This memo is to advise you that the documents for this action--namely a "Notice of Sale" resolution and back-up cash flow projections--will only be available for you at the Board meeting. Bob Pulscher, MTC's financial adviser with Springsted, Inc., will, however, be present to brief you and thoroughly discuss the documents and issuance with you. Springsted and Holmes and Graven are preparing the documents.

The time problem in preparing this matter for the Board is that of a squeeze between resolving bonding authority and marketing strategy issues resulting because of the new RTB plus preparing cash flows which must include our recently-approved budget versus a state statutorial requirement that 12-month bonds must be paid off no later than three months after the year in which the retiring taxes are levied, 1985. This dictated that the Board must approve the "Notice of Sale" no later than your second February meeting; i.e., next Tuesday. MTC staff, Springsted, Holmes and Graven and myself have been and are truckin' to have the documents for you Tuesday.

Tax Anticipation Notes are a common public cash flow funding device, were used by MTC last year, and because of reinvestment "earned interest," are advantageous to the MTC. Nevertheless, I will be happy to respond to any questions Board members may wish to pre-address to me. This matter will be discussed at the Administration and Finance Committee meeting 5:00 p.m., February 14, 1985.

LMJ:jmo

REGIONAL TRANSIT BOARD

Suite 270 Metro Square Building, Saint Paul, Minnesota 55101

DATE: February 13, 1985

TO: Regional Transit Board Members

FROM: Leslie M. Johnson, RTB

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LMJ:jmo

REGIONAL TRANSIT BOARD
Financial Statements
For the Period Ended December 31, 1984

Cash and Investment Balance
December 31, 1984

Cash -	
RTB Account	$(34,360.36)
Council Investment Account	585.55
Investments	436,000.00
TOTAL	$ 458,757.52

Revenue and Expenditure Statement
For the Period Ended December 31, 1984

	December	Year-to-Date
Revenues:		
State Grant ($219,900 initial)	$87,960.00	$571,740.00
Interest	3,725.16	13,162.83
Miscellaneous	(29.01)	214.00
	$91,656.15	$585,116.83
Expenditures:		
Salaries -		
Chairman	$ 3,813.24	$ 9,432.56
Executive Director	4,227.25	10,192.00
Executive Secretary	2,720.05	5,602.33
Director of Administration	913.97	913.97
Benefits	3,573.22	4,508.18
Per Diems	4,050.00	10,750.00
Travel -		
Registrations - Empl.	0.00	30.75
Local - Members	873.58	1,936.16
Local - Empl.	17.50	1,019.55
Non-local - Empl.	864.00	864.00
Committee Meetings	312.80	365.18
Recruitment	495.06	495.06
Office Supplies	400.71	1,479.99
Fixed Assets	596.00	596.00
Miscellaneous	147.68	1,461.69
Legal Services	0.00	3,394.40
Consultants	14,530.32	18,950.32
Contractual Services - Others	246.40	492.80
TOTAL	$ 37,781.78	$ 72,484.94
Council Reim.*	110,406.70	110,406.70
Total Expenditures	$148,188.48	$182,891.64
Excess of Revenues Over Expenditures	($ 56,532.33)	$402,225.19

*Costs Through Sept. Only

Oct. - Nov. - Non-Planning	$34,449.47	
December Est.	15,000.00	Balance Available
Oct. - Dec. Planning (Est.)	50,000.00	$302,775.72

METROPOLITAN COUNCIL
Suite 300 Metro Square Building, Saint Paul, Minnesota 55101

DATE: February 12, 1985

TO: Metropolitan Systems Committee

FROM: Transportation Department

SUBJECT: Review of the Transit Alternatives Analysis and Draft Environmental Impact Statement, Southwest/University Avenue Corridors Study (AA/DEIS)

INTRODUCTION

This provides the Transportation Policy Plan (TPP) evaluation of the transit alternatives studied in the AA/DEIS and the Minneapolis/Mn/DOT Hiawatha Avenue Corridor Study (HA/EIS). Both the AA/DEIS and the HA/EIS studied existing service alternatives (Null) system management service alternatives (TSM) and light rail service alternatives (LRT). The two studies differ in that busways were removed as an alternative at an early stage in the HA/EIS and High Occupancy Vehicle (HOV) lanes were retained as a transit alternative. Also, Minneapolis and Mn/DOT have chosen LRT as the preferred transit alternative. In the following analysis, two approaches are used:

1. A Technical Evaluation has been prepared of the AA/DEIS.

2. A Policy Analysis has been made of the AA/DEIs and HA/EIS.

The HA/EIS has not yet been technically evaluated on a comparative basis to the AA/DEIS because its data was prepared some time ago and is not comparable in assumptions or procedures. An update of key data in the HA/EIS is underway and will be evaluated as soon as it is submitted.

PART I TECHNICAL EVALUATION

Overall Technical Adequacy

The appropriate information has been used in developing the AA/DEIS in most major areas of concern. The work done to forecast transit demand used current development framework inputs available at the time. The basic assumptions regarding population and employment distribution are still valid. New regional travel projections have been prepared since the AA/DEIS (known as the 2000A series). The newer forecasts are known as the 2000B series. The one difference between the 2000B travel projections and the AA/DEIS travel projections is that the newer forecasts show more auto drivers by 2000. Transit projections are basically unchanged so there is no significant effect on the AA/DEIS. The AA/DEIS evaluation uses data inputs consistent with our latest information from the 1980 census and the 1982 TBI Update. Data regarding vehicle characteristics, operating performance, speeds, costs and other system parameters needed to identify and analyze transit alternatives is also current and accurate. The numbers in various analytical tables are substantiated by experience elsewhere and prior comparable studies in this region.

Use of the data in the analysis has been made with the proper expertise and professional methods. Both local and consultant staff are broadly experienced in the analysis of transit alternatives and their environmental, social and financial impacts. Taken as a whole, the methods used and data applied support the findings and conclusions of the study. The most important findings and conclusions are those regarding impacts on ridership and the costs to implement the proposed alternates.

The only major drawback in the analysis is the relative lack of data on highway operations in the corridors as affected by transit alternates. The work has been done, as mentioned in the AA/DEIS, but is not as well documented in the AA/DEIS as it could be. The other change in procedure that could be suggested is to extend the time period for the impacts of the financial analysis on operating cost savings and capital cost recovery.

These two shortcomings are important to the Council's regional decision and are discussed below at the appropriate places.

Evaluation of Technical Results

The order of presentation is to discuss first the AA/DEIS. Following, there is a discussion of the HA/EIS.

This is a system evaluation. It looks at the AA/DEIS primarily from the perspective of transportation, more specifically the Metropolitan Highway System and Metropolitan Transit System. The discussion follows the order of problems listed in chapter 1 of the AA/DEIS, the purpose of the AA/DEIS is to analyze problems and solutions in the subject corridors. This is done but such analysis does not always include all regional information to help decide the regional merits of the proposed solutions. To the extent possible in the limited time of this review regional data and perspective has been added.

Page1-10 Specific Transportation Problems in the Study Area A summary of the most important problems the alternatives analysis seeks to evaluate is offered on pages 1-10 to 1-12. To a major degree, the transportation benefits derived from transportation investments in any corridor will depend on the ability of an alternative to solve these problems. The approach in this evaluation has been to extract significant AA/DEIS findings for each problem and to provide added comment or interpretation as appropriate.

University Corridor Problem 1 Deteriorating access to the downtowns via I-94 due to increasing traffic and congestion especially from the Lowry tunnel to Snelling.

Evaluation The primary finding is found relative to the LRT-1 alternative contained on page 4-24 where it is estimated that the auto trip reduction by driver diversions to LRT would effect daily traffic on I-94 by 1.5% and peak hour traffic by 2.0%. All other alternates in the corridor would divert fewer autos. This estimated percentage difference is not significant in the statistical meaning of significance because the forecast models used are only precise to about plus or minus 10% over 15 years. However the reduction is logically what would be expected. In any event 2.0% of peak traffic is less than 200 cars out of a total year 2000 demand running over 9500 vehicles per hour (5200 one way) on the I-94 bridge, for example.

Comment This small an impact may seem surprizing given the 5000 plus auto driver diversions by LRT on a daily basis, however those diversions are for trips oriented to all destinations in the corridor with the most going to one destination being 1900 daily trips to the Minneapolis CBD. When only a one way, one hour portion of that volume is considered the impact is reduced to the 200 or so cars mentioned.

Major traffic increases (over 25 percent) have occurred in the past six years on I-94 and the common section with I-35W . These traffic increases are creating congestion from the Lowry Tunnel to Snelling. They are the result of opening I-94 north of US Highway 12 and of increases on 12 itself. The traffic involved is bypassing downtown Minneapolis. Without the I-335 route north of the Minneapolis CBD and, in part due to congestion on I-694, travel from west and nortwest Hennepin County is using I-94 then going north via Minn. 280 or east along I-94 itself. The vast majority of traffic on this section of I-94 is not oriented to either the Minneapolis or St. Paul, CBD. Therefore transit service between the CBD's in the University Ave corridor has a lesser impact on congestion. While that finding is clear in the AA/DEIS it is given further emphasis here because some comments supportive of major changes in transit assume that a corridor transit facility between the two downtowns is a long term solution to the highway needs in the corridor. Such does not appear to be the finding of the AA/DEIS.

University Ave Problem 2 The second problem cited for this corridor is that low speeds on Bus Route 16A result in low transit accessibilty to the downtowns for corridor residents. This is true and potentially effects about 5 to 10 percent of all travel generated in the corridor. 94B bus service does provide good speeds but due to lack of connections to north-south movements in the corridor this level of service is only available to passengers traveling between the two downtowns and to persons boarding at Snelling.

Evaluation The fixed guideway alternatives all provide effective travel time reductions compared to the Null alternative. (Page 6-6 and Table 4-1). LRT-3 is the best, offering speeds equal to express bus on the freeway and much improved speeds compared to the 16A line. LRT-1 offers a time savings of 20 minutes compared to the Null alternative and is only 7 minutes slower than the express 94D service. In point of fact, since the express buses experience delays due to I-94 congestion during peak hour operations, all fixed guideway alternatives would likely outperform buses during the peak, the AA/DEIS does not comment on that detail, but its probable.

Comment This means that very real transportation benefits from fixed guideway alternatives derive to the University Avenue corridor itself. As long as the alternative offers better service in speed, frequency and quality it is superior to present service especially to users of the 16A buses. When compared to the Null alternative this means a probable increase in patronage of from 2000 daily riders with the TSM alternative to as much as 9,100 with the LRT-1 alternative which attracts the most. The 2000 rider projection increase for TSM is only 5.3% more than the projected 37,200 riders for the Null. By the model's statistical accuracy criteria mentioned before, this is not statistically significant. In that sense, in terms of ridership, this evaluation considers the Null and TSM alternatives to be the same in terms of ridership benefits. The fixed guideway ridership increases above the Null are large enough to be judged significant, even the smallest estimated increase (LRT-2) is 15%.

University Ave Problem 3 The problem statement found on page 1-10 indicates that insufficient transit capacity "will" exist in the corridor. This statement is better understood as an assumption that the current service in the corridor will not handle projected demands. Given a projected 9000 or greater daily transit trip increase in the corridor this would be correct. In the final EIS this problem statement should be made more clear. The use of the term "will" is confusing.

Evaluation The AA/DEIS indicates that service increases would be required to handle future volumes with each alternative. The costs of each are also estimated. Meeting increased demand increases costs under all alternatives. The data required to understand the implications of meeting increased demand in the corridor has been provided. The major concern should be with cost effectiveness. This is discussed below.

Comment This problem is more or less implied by the whole study and is not a significant issue in evaluation. The question is whether future demand requires a change in service technology and approach.

Page 1-11. Southwest corridor transportation problems there are five problems identified, each deserves discussion.

SW Corridor Problem 1 The first problem is limited access to downtown from the Southwest Corridor area especially east of France Ave. This is generally true, traffic from Excelsior Blvd, Highway 7 and Minnetonka Blvd. in particular, funnels down at the bridge connecting to Lake street. In fact the capacity at the bridge is enough less than the three routes feeding into it that traffic diverts north on France Ave., then around Cedar Lake eventually joining Highway 12 at Wirth Parkway. This route is predominantly through a residential area.

Evaluation Each of the fixed guideway alternatives would provide additional access to downtown from the same travel shed served by the above roads. The increase in access would be primarily attributed to the capacity of the transit alternative itself. Relief of congestion on the roads in the corridor is estimated at five to six percent, (p. 4-24).

Comment The six percent reduction in traffic on the arterials in the corridor would not substantially change the current situation for drivers. About 10,000 trips approach the bottleneck on the bridge over the railroad tracks on Lake street and divert north via France. Six percent would remove 600 cars daily which would not be enough to improve highway access in the corridor.

SW Corridor Problem 2 The second problem is that the use of local streets is perceived as a burden and hazard by residents. That is true, it is an issue discussed with those residents and Minneapolis planners for years.

Evaluation The AA/DEIS does not include documentation to indicate if the hazards are real and if the alternates would remove the hazards. The projections include the finding (p. 4-24) that diversion of drivers to transit would reduce traffic by six percent on mentioned local streets.

Comment Again that prediction, given the model reliability, falls into the range of statistically insignificant. Given the modest traffic impact it is

doubtful if the transit alternatives will substantially effect hazards in the area. Genuinely hazardous traffic conditions are normally not effected by traffic changes of only six percent. All streets and highways experience more than 10% variation in traffic volumes on a weekly and/or seasonal basis.

SW Corridor Problem 3 The third southwest corridor problem is that transit regional accessibility standards are not being met west of Hopkins. This statement is based upon the travel time policies of the TPP, Policy 16.

Evaluation The AA/DEIS is in error on this point when the definition of travel time in the policy is correctly applied. The definition of travel time included with Policy 16 of the TPP, (p. 8 TPP) indicates that "in vehicle time plus transfer time", is the measure of the policy. According to the AA/DEIS in-vehicle time is 44 minutes with the null alternative as far as TH 101, and there are no transfers on the alternative routes in the corridor.

Comment That several of the alternatives do substantially reduce travel time is true, LRT-1A in this corridor gets total travel time from Hopkins down to 42.3 minutes with 'in-vehicle' time a very low 20 minutes. The standard set by the policy is 45 minutes in vehicle time and even the null alternate does better than that from Highway 101. If the AA/DEIS still considers this a critical issue the problem statement needs to be modified somehow. As shown in Table 4-2, the travel times reported for the null (which represents existing conditions) do not exceed the policy guidelines.

SW Corridor Problem 4 The fourth southwest corridor transportation problem is the finding that no new highway will be built in the corridor due to lack of right of way, community opposition and geographic constraints.

Evaluation Improved transit in the Southwest corridor would provide some assistance in meeting unmet demand for a highway in the same general corridor. Projections in the AA/DEIS show an increase of from 4300 daily riders (TSM alternative) to as much as 13,400 (LRT-2B). At an average of 1.3 persons per car this could effectively reduce vehicle demand in the corridor from 3300 to 10,000 cars per day. This is not the equivalent of the auto traffic which would be in the corridor if a highway could be provided, but it can reduce some the problems in other corridors (see the comment below). The AA/DEIS states that the number of auto diversions attributed strictly to fixed guideway alternates ranges from 3,200 to 5,600. The peak hour component of this demand would be no more than 40% of that value which when distributed to several different routes would be less than the equivalent of one lane on a freeway.

Comment A very strong regional travel demand exists from the Minneapolis CBD southwestward out as far as Carver County. This Southwest travel demand has shown up in three origin destination studies and all forecasts. In 1962-64 it was generally assumed that Highway 7 would be made into a freeway and connected to the CBD through the parade stadium area somehow. It won't happen. Where is the system need when you can't meet demand on a diagonal highway alignment in a regional system? It shows up in movements elsewhere, in this case east and north on Hennepin County 62 and I-35W and also north and east on Highway 100 and Highway 12. The reverse movements occur at the opposite peak of the day. The regional travel models include this basic travel pattern when forecasting and the plans and design for I-394 (and for I-35W in the future) will include the travel so generated. While the Southwest Diagonal will not be built as a highway, capacity will be provided in other corridors to relieve the pent up demand. Improvements are likely to be needed in addition to any transit improvements in the Southwest corridor itself.

SW Corridor Problem 5 The fifth problem is that the concentration of buses on Hennepin Ave creates conflicts with parking and other modes.

Evaluation Any alternate that moves through transit trips off Hennepin Ave. can reduce the numbers of buses on Hennepin Ave. The fixed guideway alternates all do this by providing alternate alignments for busways or LRT. On page 6-9 is stated "Bus requirements for the busway alternatives would remain approximately the some than for the Null alternative but would not be routed along Hennepin Avenue which is the most conflictive arterial. They would either use the CNW right-of-way or Nicollet ave. LRT alternatives would require a much smaller number of vehicles than the Null, TSM and corresponding busway alternative." This does not make it clear if there would still be local buses on Hennepin or not. Some buses might still operate on the street because the walking distance to the other alternate alignments would be too great to serve the concentration of transit trips along Hennepin itself, but the total volume of buses would be reduced. On page 6-9 these are judged to be modest but positive reductions in traffic along with a six percent reduction in auto traffic.

Comment This impact is not fully explained in the AA/DEIS. In the final EIS it could be made more clear. The problem of bus conflicts on busy Hennepin is in large part a city traffic problem which the transit alternatives will only partly alleviate.

In addition to the specific corridor problems listed above, the AA/DEIS lists two other significant problems which the alternatives might help to alleviate.

The Downtown Areas The problem discussion cites recent downtown growth and states that increasing numbers of buses create some congestion in peak hours, especially in Minneapolis where the exclsive bus lanes concentrate the buses on a few streets.

Evaluation The AA/DEIS indicates that the Universty Ave LRT alternatives will reduce buses in the downtown by 18-27 vehicles (p. 6-6). The Southwest fixed guideway alternatives would .."produce modest but positive reductions in neighborhood and downtown traffic" (p. 6-9). With a current volume of 500 buses in the peak hour in downtown Minneapolis this reduction is equivalent to a 5% reduction in numbers of transit vehicles.

Comment From council data sources and from Minneapolis own long term cordon counts, it appears there were fewer trips going to down town Minneapolis in 1982 than in previous years. This been a long term trend, and it results in a a capacity surplus on most downtown streets as documented in the traffic projected for each of the new proposed tower offices, which Minneapolis has recently submitted in EAW studies, specifically the Norwest Center and the proposed twin towers of the Lincoln Properties site adjacent to Government Center. At the same time these studies show that congestion exists on the Marquette-2nd street bus lanes. The bus lanes have worked well to increase the speed of bus operations but are reaching capacity for some hours of the day.

The number of persons going down town by bus is the one travel statistic that has gone up in the same period that total trips and total auto trips have declined. The need to better handle transit vehicles especially in downtown Minneapolis is a real need, but lack of space to do it in is not the real

problem, and the AA/DEIS does not indicate how the problem is solved. Except for the above brief mention, chapter 6, which evaluates benefits and costs, does not address the downtowns. The problem statement says that up to 20% more buses will be needed. That would be 100 more buses minus the 18-27 mentioned above. For downtown St Paul it is not as easy to evaluate the trends because there is no long term data on trips similar to the Minneapolis cordon counts, but bus congestion is not presently a problem. If the same assumptions are applied, 50 more buses would be needed.

The future of transit operations in the two downtowns is a significant issue. The AA/DEIS shows a positive impact on the problem with the LRT alternatives, but does not detail impacts of increased transit ridership on the other lines into the downtowns. The net result is therefore not fully documented. In the final EIS this issue should receive additional analysis.

Transit Cost Effectiveness The final problem listed is transit cost effectiveness and this is very significant. Transit cost escalation has exceeded inflation for more than a decade due to labor costs and increases in the ratio of peak to off peak service. The contribution of alternatives to potential for transit cost containment should weigh heavily in the choice of preferred alternatives.

Evaluation Due to different levels of productivity, the alternatives show some significant differences in cost effectiveness. In the University Avenue corridor the Bus-1 and all LRT alteratives are more productive in terms of ridership, time savings to travelers and operating and maintainance expenses compared to the null or TSM alternatives. The predicted differences exceed the 10% significance level mentioned earlier and can therefore be judged significant. The same conclusion is reached in the Southwest corridor except each alternative's transit ridership is about 50-60 percent of the ridership predicted for the comparable alternative in the University Ave. corridor. The AA/DEIS indicates that the LRT-1 and LRT-3 alternatives will not need operating subsidies but will earn money. Even if that does not turn out, the savings coompared to losses to be expected with the null and TSM alternates is still significant and thus shows a more effective use of labor.

When capital costs of the fixed guideway alternates are added in and annualized the picture changes and annual capital costs added to the operating costs make total costs for LRT greater than the Null, TSM or Busway. Capital and operating maintance cost savings balance one another in different ways for different alternatives and thus the combined annual cost of both is a better overall measure of cost. To obtain a true measure of cost effectiveness the total estimated annual cost per corridor passenger (EAC), (Tables 6-1 and 6-2), is the best indicator of cost effectiveness. These values are summarized in Table T-1.

TABLE T-1
Summary of Cost Effectiveness for University and Southwest Corridors

Alternative	EAC Per Corridor Passenger ($)
Univ. TSM	0.93
Univ. Null	0.95
Univ. Bus-1	0.97
Univ. LRT-3	1.41
Univ. LRT-1	1.47
Univ. LRT-2	1.54
SW Null	1.60
SW TSM	1.80
SW. Bus-3A Woodale	2.05
SW. Bus-3B Woodale	2.07
SW. LRT-2B Hopkins	2.24
Univ. LRT-3S	2.28
SW. Bus-2A Hopkins	2.28
SW. Bus-2B Hopkins	2.32
SW. LRT-1B Minnetonka	2.40
SW. LRT-2A Hopkins	2.42
SW. Bus-1A Minnetonka	2.49
SW. Bus-1B Minnetonka	2.49
SW. LRT-1A Minnetonka	2.56

Comment The Regional Service and Finance Study on Transit shows that from 1971 to 1983 both costs per mile and costs per passenger on MTC buses, increased by more than 450%. Even adjusted for inflation the real cost increases were over 200%. By some non-dollar factors there were also decreases in productivity, passengers per bus mile decreased 10% in the same time period and bus miles of service per MTC employee decreased 18%. These are real losses in productivity and need to be addressed.

It is also important to consider how the comparative values of capital cost and annual operating costs are treated in the AA/DEIS. As the period from 1970 to the present indicates, the Operating and Maintenance (O&M) costs tend to keep up an expanding rate of increase exceeding inflation. Capital costs would, however, become a fixed cost once incurred or maintain a constant interest rate if treated as debt retirement. The present analysis does not look at that scenario, but holds operating costs to a noninflating dollar value (Tables 6-1 and 6-2). Keeping this relationship constant for a short period of time, to 2000, leads to the conclusion that LRT O&M savings are not sufficient to recover capital costs.

This obscures the long term productivity performance of these alternatives, in the final EIS a longer period should be used to calculate these cost effectiveness ratios. One cost ratio not used is the total annual operating and maintainance cost divided by total annual ridership. This value is 76 cents per passenger for the null and 55 cents for LRT-1. That reduction in per unit cost is significant.

Because inflation is not factored in, EAC per passenger for the Null is only 63% of the EAC per passenger for the LRT (University corridor LRT-1). In point of fact this value could be higher if the O&M costs of the Null were to inflate as in the past. Conversely the LRT value could drop if patronage were to be

better than expected. Also the real gap between .93 and 1.47 is statistically less significant than it seems, given a 10-15% confidence interval about the two values or a change in the basic underlying assumptions about inflation and fixed capital costs.

The bottom line is that the LRT alternative does not represent a major increase in transportation or even transit costs. This can be seen from tables B-2 and B-4 in the background portion of this set of memos. For example, the equivalent annual capital cost of one LRT alternative, Univ. LRT-1, is $12.5 million which is 10% of the estimated total transit system cost of $124.3 million in the year 2000, or 14% of the 1983 cost of $86.2 million.

The Alternatives of the Hiawatha Ave. Corridor

A separate analysis of the Hiawatha corridor is provided in that it was a separate study carried out to select a preferred alternative for improvements to Hiawatha Ave. The study considered both roadway improvements and transit improvements. Only the transit improvements are of interest in this evaluation. Based on the fact that the commissioner of transportation has selected an alternative in the corridor which includes LRT for transit, the primary action require of the council is to evaluate the corridor as a Priority corridor for federal funding. The question of preferred alternative is not before the Council because Minneapolis has not submitted the preferred alternative as a plan amendment. In the plan approved by the Council the Hiawatha corridor was listed as one of several "study corridors" for LRT.

- More to Come -

PART II POLICY EVALUATION

Approach

The alternatives have been compared to eleven policies of the Transportation Development Guide/Policy Plan (TPP). These policies were those determined to be most applicable based on their reference either to transit, transit services in the Urban Service Area or significance as general policies governing transportation investments. The eleven policies are listed on Tables T-2 to T-5 along with the alternatives. The tables summarize the policy impacts through a policy scoring system applied so as to differentiate between corridors as well as show alternative performance within the corridor. The policy scoring system uses three evaluation levels.

0- shows a neutral effect of an alternate upon policy
1- shows an alternative is consistant with policy
2- shows an alternative strongly encourages policy attainment

The criteria used to score alternative impacts on policy are taken from data in the AA/DEIS and HA/EIS. Comments indicate how the criteria, to the extent possible, use measures directly from data tables of the study reports. Care has been taken not to use the same measure twice and therefore double count a criterion.

1. Policy 1. Facilities should serve and promote development consistent with the development framework.

Comment All alternatives would be built in, and serve, the urban service area, which is to receive transit, and they also provide accessibility to the metro centers which are to be encouraged to grow. Thus all alternatives are consistent. The fixed guideway alternatives actually improve access to the Metro Centers. Null and TSM alternatives are scored 1 for consistency, busway and LRT alternatives are scored 2 for consistency and encouraging metro center growth.

2. Policy 2. Transportation investments are to be made based on need and ability of the metro area to finance and maintain them.

Comment This policy requires two criteria sets, one for need and one for cost. On the radial highways leading to the metro centers the need is to divert travelers and vehicles from the facility. Auto diversions and guideway ridership measure these needs. Ability to finance and maintain is enhanced by lower costs measured through equivalent annual cost (EAC). Measuring need uses two values. Autos diverted ranges from 600 (Univ. TSM) to 6600 (Univ. LRT-1). The criteria are autos diverted fewer than 3000, score 0, autos diverted more than 3000 score 1. Guideway ridership is also used to measure need. It ranges from 14,600 (SW Bus-3A) to 46,100 (Univ. LRT-3S). The criteria are, below 14,600, score 0, from 14,600 to 25,000, score 1 and from 25,000 up, score 2. EAC is used to measure cost. It ranges from $8.73 million (SW Null), to $31.04 million (Univ. LRT-3S). Because lower cost is desired the score is inverse to dollar amount. Below $11 million score 2, $11 million to $22 million score 1, over $22 million score 0. In this arrangement the possible top score for this policy becomes 5 as opposed to a top of 2 for all other policies. This is reasonable because policy 2 is a very significant policy, it lays out a go or no-go basis for transportation investments.

3. Policy 3. Transportation investments should use existing investments effectively.

Comment This could refer to using highways more effectively but that has already been measured above with auto diversions and guideway ridership. Thus this policy will only be applied to transit systems. The alternates that use existing vehicle fleets, and the support facilities such as garages and repair shops, are the most consistent and score 2. Those alternates using existing vehicles but requiring new guideways (busways) are less consistent and score 1. The entirely new technologies that use no existing transit facilities are least consistent and score 0.

4. Policy 10. Transportation facilities should minimize disruption of neighborhoods.

Comment All alternatives are considered to operate on existing roads or on separated alignments already between neighborhoods. Therefore no alternative will disrupt any more or less than the current situation. They are all scored 1 for being consistent.

5. Policy 12. Subregional in-vehicle time should be 30 minutes or less.

Comment This and policy 16 should be a straight 0-1 score for non-compliance or compliance. No credit is given for faster speeds because the travel time policies are threshold policies. Times for University Ave. are taken from Table 4-1 of the AA/DEIS and are implied by using half the time value of CBD to CBD time on University itself, since the express service on I-94 does not serve the subregion. Null and TSM don't conform to the travel time criteria, the other alternates do. SW corridor values are from Table 4-2 and use the Hopkins to CBD in-vehicle time as representative of the subregion. Hiawath data is an estimate for the Null and TSM based on an average vehicle speed of 8 mph over a distance of 6 miles. The LRT and HOV speeds are from page 3-29 of the HA/EIS. The policy is liberally interpreted to apply just to the corridor distance from the edge of subregion 2 to the CBD since the whole subregion is large and elongated north-south. Under these conditions the Null and TSM don't meet the criteria, the fixed guideway alternates do.

6. Policy 16. In-vehicle travel time to the CBD should be 45 minutes or less.

Comment Again an either-or evaluation is used. Faster alternatives don't effect the scoring on this policy. They have already received credit for speed in policy 1 where they get credit for increase in access which is due to speed. All alternatives in all corridors meet the 45 minute guidelines, so they are scored 1 for compliance. Estimates for Hiawatha are the same as above.

7. Policy 17. All day express service should be provided, commensurate with demand, with priority access for transit vehicles.

Comment Demand for off peak service has not been estimated by the AA/DEIS. However, it is known that a demand of 5000 per day is enough to keep express service going on the 94B line all day. It is assumed that 94B would operate with the Univ Null and TSM alternatives. Comparison of the speeds on the University LRT and Busway alternatives doesn't seem to qualify for express level when compared to the speeds of the 94B. SW LRT-1A has a speed from Hopkins to the CBD which could justify an express definition but demand in the off peak is not known. Finally the policy is for suburban to CBD service which really only effects the SW corridor. The policy is not capable of interpretation under the circumstances and is scored 0 for all alternatives.

8. Policy 19. Priority for transit services should go to routes with high density population and demand for service and a transit dependent population.

Comment Based on the combination of factors listed in the policy, the alternatives of the University corridor and the Milwaukee/Nicollet corridor are in areas with the named characteristics. One way this is shown in the AA/DEIS is with the higher ridership projections of these two corridors. Of the two other alternative corridors, Hiawatha would rank ahead of the CNW corridor. Since order or rank is all that is implied by the policy, scoring is, CNW corridor, all alternatives score 0, Hiawatha corridor, all alternatives score 1, University ave. and Milwaukee/Nicollet corridors, all alternatives, score 2.

9. Policy 20. Transit services should be provided that achieve efficiency and effectiveness.

Comment This can be directly measured with data on the equivalent annual cost (EAC) per passenger. This measures cost effectiveness by giving the true total annual cost per rider served. The lower the value the more the policy is met so an inverse relationship is used. The EAC divided by ridership has a value from $0.93 to $2.59. Natural breaks in this distribution occur at $1.54 and $2.07. Scoring is as follows, less than $1.54, score 2, less than $2.07 but more than $1.54, score 1, over $2.07, score 0.

10. Policy 23. Transit fare structure should reflect a balance between cost, public purpose and need.

Comment There are no differences in fares in the study, all alternatives are assumed to operate with the existing fare structure or a similar area-wide structure in the future. Differences in cost have been measured by policy 20 and need by policy 2. Therefore there is no basis for application of policy 23 and all alternatives are considered consistent and are scored 1.

11. Policy 23. Metropolitan transportation systems operations should meet national air quality standards.

Comment The only violation of air quality standards in the region is on the University Ave. alignment at Snelling. That problem is expected to be solved by changes in vehicle operations on University induced by new signal timing. On the other hand, use of transit is a strategy to maintain air quality in the region's air quality implementation plan. Therefore all alternatives are consistent and are scored 1.

Evaluation of the Policy Analyis

The scoring results of the above criteria definition and measurement are shown in Tables T-2 to T-5. The significance of the policy evaluation as assumed above is indicated, at least in part, in the total values for each alternative given at the bottom of each table. The total values are remarkably similar and show the effect of trading off the lowered costs of bus related alternatives against the larger ridership and greater speed of the LRT alternatives. The Null and TSM alternatives come out equal in many cases just because of that factor. The conclusions on Hiawatha alternates are incomplete but on the policies that can be measured with existing data the same pattern is emerging. What does show up is that more policies are supported or show consistency in the University ave. corridor than in the other corridors and that the Milwaukee/Nicollet alignment scores slighty better than the CNW alignment in the SW corridor.

FINDINGS

Technical Findings

The LRT and Busway alternatives evaluated pose meaningful choices to deal with local or subregional transit deficiencies within the University and Southwest corridors when compared to the Null or TSM alternatives.

The alternatives in these two corridors can be grouped into four rankings of cost effectiveness, based on the ratio of effective annual cost to total corridor ridership these are:

1. Buses in the University corridor
2. LRT in the University corridor except LRT with subway
3. Buses in the Southwest corridor
4. All fixed guideway alternatives in the Southwest corridor and LRT with subway in the University corridor.

The increase in total costs to the Region of a single LRT or Busway alternate in one corridor would ammount to a 10-15% increase in the total transit budget.

The alternatives evaluated do not contribute significantly to solving transportation problems of a regional scope, they cannot significantly reduce freeway congestion nor improve access to or through the Metro centers.

The Hiawatha corridor revised data on patronage is not yet available, as a result the findings for that corridor cannot be directly compared to other alternatives, especially the relative cost effectiveness.

The LRT alternative in the Hiawatha corridor shows similar performance to LRT in the other corridors when compared to the Null in the Hiawatha corridor. LRT attracts relatively greater ridership and shows an improved O&M cost performance when compared to the Hiawatha do nothing alternative.

Policy Findings

The alternatives of the University Ave. corridor rank ahead of the other two corridors in support of or consistency with regional transportation policy.

In all corridors at least one fixed guideway alternate ranks ahead of either TSM or Null alternatives based on policies, but only by a slight margin.

In choosing between LRT or busway alternatives in each corridor the policy analysis does not differentiate to a significant degree.

The policy analysis reinforces the technical analysis in suggesting that the more costly alternatives produce greater benefits.

TABLE T-2

EVALUATION OF ALTERNATIVES: REGIONAL TRANSPORTATION POLICIES

UNIVERSITY AVENUE ALTERNATIVES

POLICIES	ALTERNATIVES						
	NULL	TSM	BUS-1	LRT-1	LRT-2	LRT-3	LRT-3S
1. Transportation facilities should be planned, designed and operated to promote and serve development that is consistent with the Development Framework Chapter of the Metropolitan Development Guide.	1	1	2	2	2	2	2
2. Transportation investments should be made on the basis of need and the ability of the Metropolitan Area to finance and maintain these investments in relation to other metropolitan system needs and investments over time.	2	2	4	4	4	4	3
3. Transportation systems should be developed and managed to utilize existing investments more efficiently and effectively.	2	2	1	0	0	0	0
10. Transportation facilities should be planned, designed and operated to minimize the disruption of neighborhoods.	1	1	1	1	1	1	1
12. The transit and street and highway systems should provide a travel time of no more than 30 minutes in off-peak periods from any part of a subregion to any other part of that subregion for 90 percent of the residents in the subregion.	0	0	1	1	1	1	1
16. The transit system should provide a travel time of no more than 45 minutes in either peak or off-peak periods from any part of the urban service area to one of the metro centers for 90 per cent of the residents of the urban service area.	1	1	1	1	1	1	1
17. All-day express transit service should be provided to the metro centers from suburban subregions, commensurate with demand, with priority access and movement along the freeways, expressways and other high-volume travel corridors.	0	0	0	0	0	0	0
19. The highest priority for transit services should be in areas or along routes with a relatively high density of demand for the service and a population dependent upon transit by age, income, or physical or mental disability.	2	2	2	2	2	2	2
20. Transit services should be provided that achieve the most efficient, productive and effective use of public resources and investments.	2	2	2	2	2	2	0

EVALUATION OF ALTERNATIVES: REGIONAL TRANSPORTATION POLICIES

UNIVERSITY AVENUE ALTERNATIVES

POLICIES	ALTERNATIVES						
	NULL	TSM	BUS-1	LRT-1	LRT-2	LRT-3	LRT-3S
23. The transit fare structure should reflect a balance between the actual operating cost of the service to be provided and the public purpose or need for the service.	1	1	1	1	1	1	1
33. Metropolitan transportation systems should be planned and managed so that the resulting quality of the air conforms with the national ambient air quality standards.	1	1	1	1	1	1	1
	13	13	16	15	15	15	14

TABLE T-3

EVALUATION OF ALTERNATIVES: REGIONAL TRANSPORTATION POLICIES

SOUTHWEST CORRIDOR ALTERNATIVES

POLICIES	MILWAUKEE/NICOLLET ALIGNMENT ALTERNATIVES						
	NULL	TSM	LRT-1B TO MINNETONKA	BUS-1B TO MINNETONKA	LRT-2B TO HOPKINS	BUS-2B TO HOPKINS	BUS 3B TO WOODDALE
1. Transportation facilities should be planned, designed and operated to promote and serve development that is consistent with the Development Framework Chapter of the Metropolitan Development Guide.	1	1	2	2	2	2	2
2. Transportation investments should be made on the basis of need and the ability of the Metropolitan Area to finance and maintain these investments in relation to other metropolitan system needs and investments over time.	2	2	2	2	3	2	2
3. Transportation systems should be developed and managed to utilize existing investments more efficiently and effectively.	2	2	0	1	0	1	1
10. Transportation facilities should be planned, designed and operated to minimize the disruption of neighborhoods.	1	1	1	1	1	1	1
12. The transit and street and highway systems should provide a travel time of no more than 30 minutes in off-peak periods from any part of a subregion to any other part of that subregion for 90 percent of the residents in the subregion.	0	0	1	1	1	1	1
16. The transit system should provide a travel time of no more than 45 minutes in either peak or off-peak periods from any part of the urban service area to one of the metro centers for 90 per cent of the residents of the urban service area.	1	1	1	1	1	1	1
17. All-day express transit service should be provided to the metro centers from suburban subregions, commensurate with demand, with priority access and movement along the freeways, expressways and other high-volume travel corridors.	0	0	0	0	0	0	0
19. The highest priority for transit services should be in areas or along routes with a relatively high density of demand for the service and a population dependent upon transit by age, income, or physical or mental disability.	2	2	2	2	2	2	2
20. Transit services should be provided that achieve the most efficient, productive and effective use of public resources and investments.	1	1	0	0	0	0	1

EVALUATION OF ALTERNATIVES: REGIONAL TRANSPORTATION POLICIES

SOUTHWEST CORRIDOR ALTERNATIVES

CNW ALIGNMENT ALTERNATIVES

POLICIES	NULL	TSM	LRT-1A TO MINNETONKA	BUS-1A TO MINNETONKA	LRT-2A TO HOPKINS	BUS-2A TO HOPKINS	BUS-3A TO WOODDALE
23. The transit fare structure should reflect a balance between the actual operating cost of the service to be provided and the public purpose or need for the service.	1	1	1	1	1	1	1
33. Metropolitan transportation systems should be planned and managed so that the resulting quality of the air conforms with the national ambient air quality standards.	1	1	1	1	1	1	1
	12	12	12	12	12	12	13

TABLE T-4

EVALUATION OF ALTERNATIVES: REGIONAL TRANSPORTATION POLICIES

SOUTHWEST CORRIDOR ALTERNATIVES

CHW ALIGNMENT ALTERNATIVES

POLICIES	NULL	TSM	LRT-1A TO MINNETONKA	BUS-1A TO MINNETONKA	LRT-2A TO HOPKINS	BUS-2A TO HOPKINS	BUS 3A TO WOODDALE
1. Transportation facilities should be planned, designed and operated to promote and serve development that is consistent with the Development Framework Chapter of the Metropolitan Development Guide.	1	1	2	2	2	2	2
2. Transportation investments should be made on the basis of need and the ability of the Metropolitan Area to finance and maintain these investments in relation to other metropolitan system needs and investments over time.	2	2	3	2	3	2	2
3. Transportation systems should be developed and managed to utilize existing investments more efficiently and effectively.	2	2	0	1	0	1	1
10. Transportation facilities should be planned, designed and operated to minimize the disruption of neighborhoods.	1	1	1	1	1	1	1
12. The transit and street and highway systems should provide a travel time of no more than 30 minutes in off-peak periods from any part of a subregion to any other part of that subregion for 90 percent of the residents in the subregion.	0	0	1	1	1	1	1
16. The transit system should provide a travel time of no more than 45 minutes in either peak or off-peak periods from any part of the urban service area to one of the metro centers for 90 per cent of the residents of the urban service area.	1	1	1	1	1	1	1
17. All-day express transit service should be provided to the metro centers from suburban subregions, commensurate with demand, with priority access and movement along the freeways, expressways and other high-volume travel corridors.	0	0	0	0	0	0	0
19. The highest priority for transit services should be in areas or along routes with a relatively high density of demand for the service and a population dependent upon transit by age, income, or physical or mental disability.	0	0	0	0	0	0	0
20. Transit services should be provided that achieve the most efficient, productive and effective use of public resources and investments.	1	1	0	0	0	0	1

EVALUATION OF ALTERNATIVES: REGIONAL TRANSPORTATION POLICIES

SOUTHWEST CORRIDOR ALTERNATIVES

MILWAUKEE/NICOLLET ALIGNMENT ALTERNATIVES

POLICIES	NULL	TSM	LRT-1B TO MINNETONKA	BUS-1B TO MINNETONKA	LRT-2B TO HOPKINS	BUS-2B TO HOPKINS	BUS-3B TO WOODDALE
23. The transit fare structure should reflect a balance between the actual operating cost of the service to be provided and the public purpose or need for the service.	1	1	1	1	1	1	1
33. Metropolitan transportation systems should be planned and managed so that the resulting quality of the air conforms with the national ambient air quality standards.	1	1	1	1	1	1	1
	10	10	10	10	10	10	11

TABLE T-5

EVALUATION OF ALTERNATIVES: REGIONAL TRANSPORTATION POLICIES

HIAWATHA AVENUE ALTERNATIVES

POLICIES	ALTERNATIVES				
	NULL	TSM	HOV-AT GRADE	HOV GRADE SEP.	LRT PART. SEPT.
1. Transportation facilities should be planned, designed and operated to promote and serve development that is consistent with the Development Framework Chapter of the Metropolitan Development Guide.	1	1	2	2	2
2. Transportation investments should be made on the basis of need and the ability of the Metropolitan Area to finance and maintain these investments in relation to other metropolitan system needs and investments over time.	No Data				
3. Transportation systems should be developed and managed to utilize existing investments more efficiently and effectively.	2	2	1	1	0
10. Transportation facilities should be planned, designed and operated to minimize the disruption of neighborhoods.	1	1	1	1	1
12. The transit and street and highway systems should provide a travel time of no more than 30 minutes in off-peak periods from any part of a subregion to any other part of that subregion for 90 percent of the residents in the subregion.	0	0	1	1	1
16. The transit system should provide a travel time of no more than 45 minutes in either peak or off-peak periods from any part of the urban service area to one of the metro centers for 90 per cent of the residents of the urban service area.	1	1	1	1	1
17. All-day express transit service should be provided to the metro centers from suburban subregions, commensurate with demand, with priority access and movement along the freeways, expressways and other high-volume travel corridors.	0	0	0	0	0
19. The highest priority for transit services should be in areas or along routes with a relatively high density of demand for the service and a population dependent upon transit by age, income, or physical or mental disability.	1	1	1	1	1
20. Transit services should be provided that achieve the most efficient, productive and effective use of public resources and investments.	No Data				

EVALUATION OF ALTERNATIVES: REGIONAL TRANSPORTATION POLICIES

HIAWATHA AVENUE ALTERNATIVES

POLICIES	ALTERNATIVES				
	NULL	TSM	HOV-AT GRADE	HOV GRADE SEP.	LRT PART. SEP.
23. The transit fare structure should reflect a balance between the actual operating cost of the service to be provided and the public purpose or need for the service.	1	1	1	1	1
33. Metropolitan transportation systems should be planned and managed so that the resulting quality of the air conforms with the national ambient air quality standards.	1	1	1	1	1
NOTE: Totals are incomplete due to missing data	8	8	9	9	8

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SUMMARY

SOUTHWEST/UNIVERSITY AVENUE CORRIDORS STUDY

TRANSIT ALTERNATIVES ANALYSIS AND DRAFT ENVIRONMENTAL IMPACT STATEMENT

For Discussion at Joint Public Meeting of
Metropolitan Council and Regional Transit Board
January 23 - 7 p.m.
Council Chambers, St. Paul

Metropolitan Council of the Tiwn Cities Area
300 Metro Square Building, 7th and Robert Streets
St. Paul, Minnesota 55101 Tel. 612 291-6359

Publication No. 26-85-006A

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ABOUT THIS SUMMARY

In 1982 the Metropolitan Council, in conjunction with several state and local agencies, received a grant from the federal Urban Mass Transportation Administration (UMTA) to conduct a study of major transit improvements in two corridors of the Twin Cities Metropolitan Area.

This summary of the Southwest/University Avenue Corridors Study: Transit Alternatives Analysis and Draft Environmental Impact Statement is based on a preliminary version of a Draft Environmental Statement being prepared at this time for consideration by UMTA. It is a concise discussion of the most comprehensive documentation of the study available at this point, and contains background information, a description of the alternatives considered in each corridor, and the major impacts of each of these alternatives.

This report and the preliminary DEIS which it summarizes are being reviewed by UMTA as part of the federal decision-making process. Once a final draft Environmental Impact Statement is authorized for release by UMTA, a formal public hearing will be held, and preferred alternatives will be selected in each of the two corridors for purposes of qualifying for possible federal funding of the proposed improvements.

Copies of the full preliminary draft EIS may be obtained by calling the Communications Department at 291-6464. For additional information on the Southwest/University Avenue Corridors Study, please call Steve Wilson (291-6344).

SOUTHWEST/UNIVERSITY AVENUE CORRIDORS STUDY
TRANSIT ALTERNATIVES ANALYSIS AND DRAFT ENVIRONMENTAL IMPACT STATEMENT

SUMMARY

PURPOSE OF THE STUDY

The purpose of this study is to identify problems and analyze solutions regarding transit services in the University Avenue and Southwest Corridors. Each corridor is considered separately in the analysis.

The University Avenue Corridor runs between downtown Minneapolis and downtown St. Paul, generally following University Avenue; it serves the University of Minnesota and other traffic generators along that route in addition to the downtown areas.

The Southwest Corridor extends generally in a southwesterly direction from downtown Minneapolis and traverses southwest Minneapolis, St. Louis Park, Hopkins, Minnetonka, and several Lake Minnetonka suburbs before ending in Excelsior.

The study includes: a definition of goals and policies; the definition of a range of alternative transit improvements; the selection, through a scoping process, of a small number of alternatives which were found to be most reasonable; a detailed definition of the characteristics of those alternatives; analyses of the effects of each on the transportation system, the community and the environment; and an evaluation of the alternatives to determine which is considered best.

The major document of the study is a draft Environmental Impact Statement (DEIS), prepared under the guidance of the federal Urban Mass Transportation Administration (UMTA). The DEIS will be circulated to inform the public of the proposed improvements and their consequences. Public meetings and hearings will be held to further inform the affected public and to receive comments from public and private agencies, organizations, and citizens.

At the end of the public hearing period, the Steering Committee for the study will consider the DEIS and comments and select a preferred alternative for each corridor. This committee is composed of elected officials from: Hennepin and Ramsey Counties; the Cities of Minneapolis, St. Paul, St. Louis Park, Hopkins, and Minnetonka; and representatives of the Regional Transit Board, Minnesota Department of Transportation, the University of Minnesota, the Metropolitan Transit Commission, and the Metropolitan Council.

Preparation of a DEIS is a requirement of the National Environmental Policy Act. It is prepared as a part of the alternatives analysis process developed and defined by UMTA. The successful completion of an alternatives analysis is a prerequisite to an application for federal financial participation in the construction of a fixed-guideway transit line. The DEIS will also fulfill state requirements for environmental impacts statements.

The outcome of the study will be the selection of a preferred alternative in each corridor for the purpose of obtaining federal funding. The Regional Transit Board and Metropolitan Council will be able to use the Steering Committee's recommendations as input to the regional transit decision-making process.

MAJOR GOALS AND OBJECTIVES, PROBLEMS BEING ADDRESSED

Major transportation goals and objectives for this study can be summarized as follows:

- Provide attractive transportation choices for metropolitan residents as measured by increase transit use in the proposed facilities and diversion of auto users.
- Reduce automobile traffic in the downtown areas by increasing transit use.
- Provide better transit service for existing users as measured by travel time savings.
- Provide effective, productive and efficient transit services.
- Relieve congestion particularly in congested highways and in the downtowns.

These overall goals and objectives relate to some specific problems. In the University Avenue corridor, those problems are:

- Congestion on I-94 between the two downtowns
- Low transit speeds on University Avenue
- Insufficient capacity to handle anticipated growing demand

In the Southwest Corridor, the problems are:

- Poor accessibility to downtown Minneapolis due to a bottleneck east of France Avenue
- Use of local streets for commuting purposes
- High transit travel times
- High concentration of buses on Hennepin Avenue.

In addition, congestion and negative environmental impacts in downtown areas and the high cost of existing transit operations were identified as problems pertaining to both corridors.

Other goals and objectives identified are:

- To encourage economic development
- To minimize environmental impacts

ALTERNATIVES CONSIDERED

In late 1982, the Metropolitan Council received a grant form UMTA to conduct a transit alternatives analysis for the University Avenue and Southwest corridors. A scoping process, including public meetings and an evaluation process, was used to screen down an initial set of alternatives to a smaller set of alternatives in each corridor that would be studied in detail as part of the AA/DEIS.

Four basic alternatives in each corridor are considered for detailed evaluation in the Southwest/University Avenue Corridors Study:

o NULL: Continuation of existing bus service, with only slight revisions

- o TRANSPORTATION SYSTEM MANAGEMENT (TSM): Improvements to existing service primarily by adding routes or increasing service frequencies short of a major capital improvement.

- o BUSWAY: Diesel buses operating on reserved rights-of-way, but with at-grade street crossings permitted.

- o LIGHT RAIL TRANSIT (LRT): Electrically powered (from an overhead wire power source) rail vehicles operating on reserved rights-of-way, but with at-grade street crossings permitted.

University Avenue Corridor

The Null alternative consists primarily of MTC Route 16A, which provides local service along University Avenue, and Route 94B/D, which provide express service between downtown Minneapolis and downtown St. Paul on I-94.

The TSM alternative introduces selected service improvements, such as better service to the University of Minnesota and a Lexington Avenue crosstown route.

For the "fixed guideway" alternatives, busway and light rail, the transit vehicles would travel on a pair of exclusive lanes (tracks for the LRT) in the middle of University Avenue, with similar exclusive treatments on the other streets of the route (see Figure S-1). Consideration of small variations in routing and/or station spacing are considered, leading to the following fixed guideway alternatives in the University Avenue Corridor:

- BUSWAY: Downtown St. Paul (through the Capitol Area), University Avenue, Washington Avenue (through the University of Minnesota), downtown Minneapolis. Stops would be basically located 1/4 mile along the route.

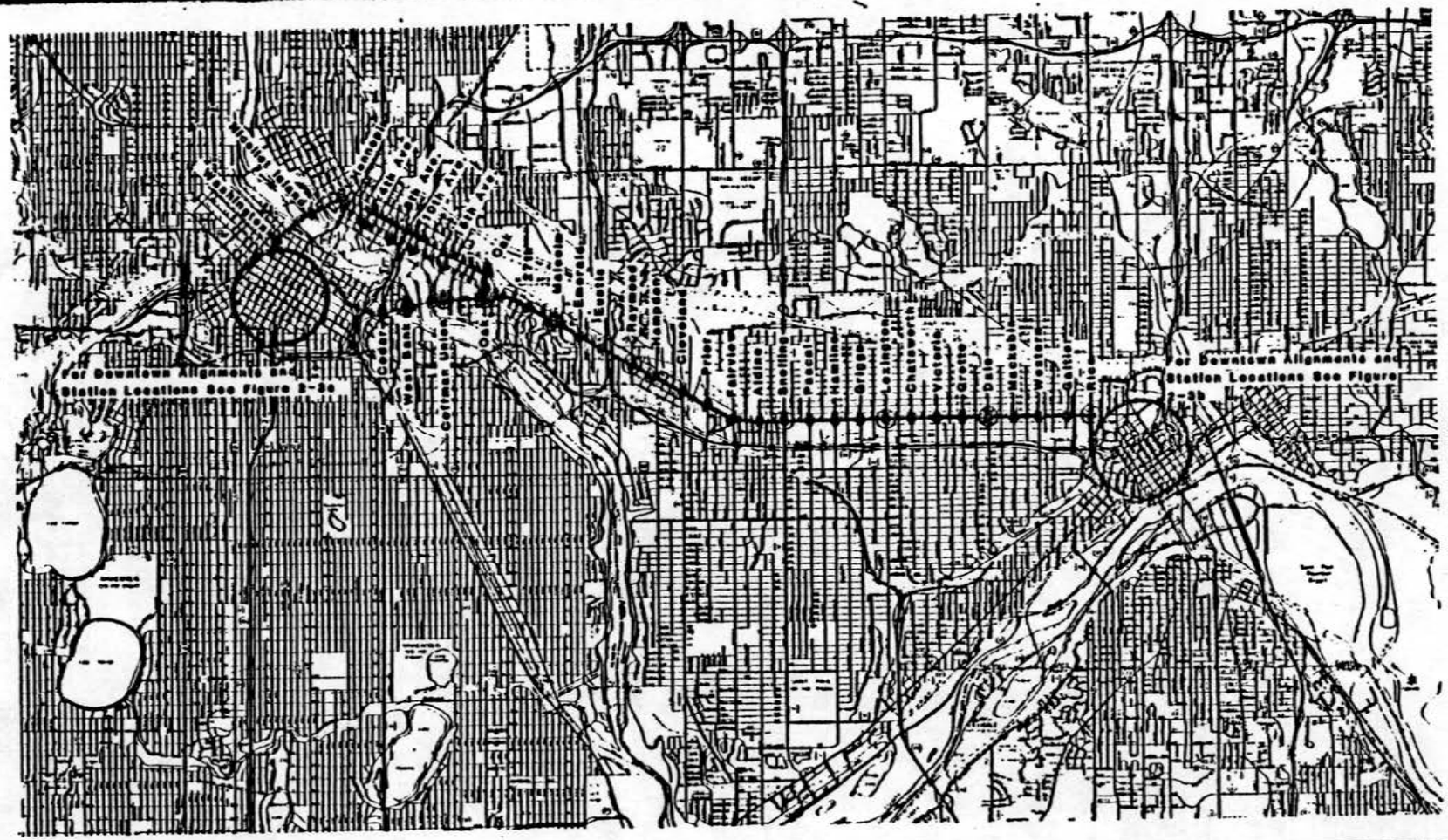
- LRT-1: The same routing and spacing as the busway alternative.

- LRT-2: This alternative would approach downtown St. Paul in an east-west direction (along 5th and 6th Streets from John Ireland Blvd.), skirting the Capitol area rather than going through it. In Minneapolis the routing would be along University Avenue and 4th St. S.E. through Dinkytown, St. Anthony-Main and Riverplace, entering the downtown area via Hennepin Avenue.

- LRT-3: The same routing as LRT-1, but stops along University Avenue would be approximately one mile apart. Local bus service would be augmented in adjacent neighborhoods to offset the loss of closely spaced stops.

- LRT-3S: The same as LRT-3 except the downtown Minneaoplis portion of the route would be in a subway tunnel.

The capital cost estimates of each alternative include the costs of vehicles, park and ride lots, stations, maintenance facilities, and fixed-guideway facilities where applicable. Annualized capital costs are estimated since some system components wear out and need replacement more often than others. The University Avenue Corridor alternatives (see Table S-1) range in capital cost from $13.9 million (Null) and $16.1 million (TSM), to $36.8 million for



◆ LRT or Busway Station
○ LRT-3 or LRT-3S Stations
Common Segment for All Alternatives
Alignment for LRT-1, LRT-3, LRT-3S and Busway-1
Alignment for LRT-2

Scale : 1" = 1 Mile
0 1 2

Figure S-1

University Avenue Corridor, Guideway Alignments and Station Locations

Barton-Aschman Associates, Inc.

the Busway, and $105.1 to $226.1 million for LRT alternatives. The LRT-3S costs approximately $115 million more than other LRT alternatives because of the cost of the downtown Minneapolis subway tunnel.

Annual operating costs are estimated for each alternative, including costs of the guideway vehicles as well as any feeder buses, where applicable.

The University Avenue Corridor alternatives have estimated annual operating costs ranging from $7.08 million (LRT-3, LRT-3S) to $8.66 million (TSM).

Southwest Corridor

The major transit routes today, and in the Null alternative, are MTC Routes 12, 17, and 67.

Some rerouting of the lines and improvements in service frequencies constitute the TSM alternative.

Busway and LRT alternatives in the corridor mainly follow routings that are presently railroad rights-of-way. For the busway alternatives, railroad tracks would be relocated where necessary and a two lane bus-only roadway would be built; where the alignments use existing streets, special lanes would be used, similar to the transit lanes in downtown Minneapolis. For the light rail alternatives, tracks would be built instead of the roadway. The fixed guideway alternatives are defined on the basis of the western terminus of the guideway and the routing through Minneapolis (see Figure S-2):

Western Termini	Minneapolis Routing
1. T.H. 101 (Minnetonka)	A. CNW Railroad (through Kenwood)
2. T.H. 7 (Hopkins)	B. Milwaukee Road/Nicollet Ave.
3. Wooddale Avenue (St. Louis Pk.)	

For example, the LRT alternative from downtown Minneapolis to Hopkins entirely along the CNW railroad is referred to as LRT-2A. The Wooddale Avenue terminus was only selected for busway alternatives.

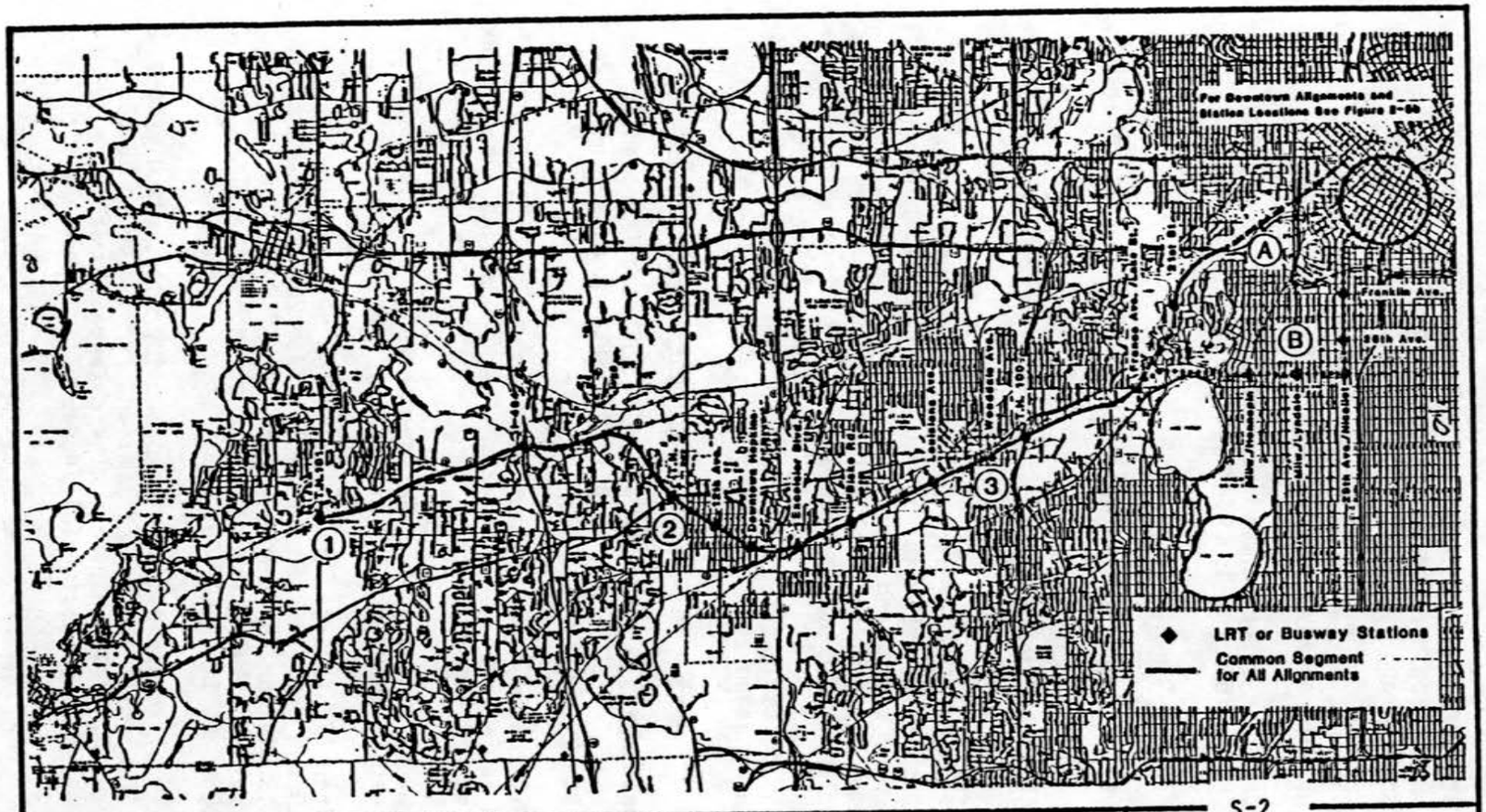
For the busway and light rail alternatives in the corridor, bus services would be extensively rearranged to feed into the guideway (Figure S-3).

In the Southwest Corridor (Table S-2), the Null and TSM alternatives are the least expensive at $9.0 and $13.4 million respectively. Busway alternatives range in cost from $38.3 million for the Busway-3A to $77.2 million for the longer Busway-1B alternative. LRT alternatives range in cost from $75.3 million (LRT-2A) to $105.5 million (LRT-2B).

Southwest Corridor alternatives have estimated operating costs range from $7.05 million for the Null, $8.53 million for the TSM, and from $8.06 to $8.55 million for the fixed guideway alternatives. These large increases compared to the Null alternative reflect the substantial increases in service to the Southwest Corridor.

IMPACTS AND EVALUATION

Each alternative is analyzed for several possible impacts. These impacts are summarized below, with several of the results presented in Tables S-1 and S-2.



S-2

Western Terminus Options:

① T.H.101 (Minnetonka)
② T.H.7 & CNW (Hopkins)
③ Wooddale Ave.

Downtown Approaches:

Ⓐ CNW Railroad
Ⓑ Milwaukee R.R./Nicollet Ave.

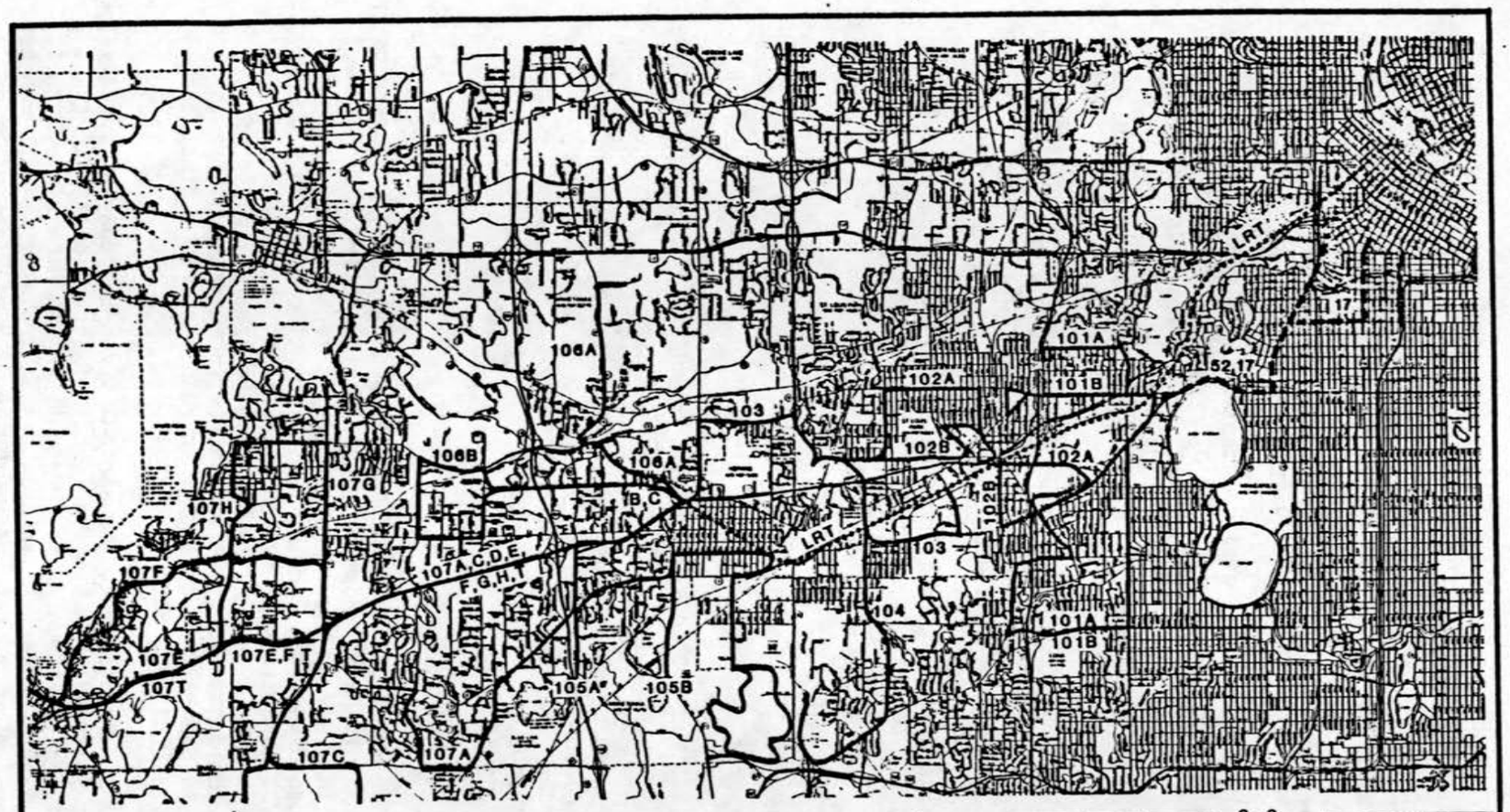
Scale 1" = 1 Mile

0 1 2

Figure

Southwest Corridor Guideway Alignments and Station Locations

Barton-Aschman Associates, Inc.



S-3

LRT Alignment
Feeder Bus Routes
Background Bus Routes

Scale 1" = 1 Mile
0 1 2

Figure
Southwest Corridor
Feeder and Background Bus
Routes for LRT-2A Alternative

Barton-Aschman Associates, Inc.

The impacts are analyzed in terms of effectiveness, efficiency, equity, trade-offs and financial feasibility which are defined as follows:

- Effectiveness measures the level of attainment of a given policy goal/objective or group of goals/objectives.
- Efficiency relates the level of attainment by an alternative of a given goal/objective to the cost. In other words, it gives an indication of the return or productivity on a given investment.
- Equity addressed the distribution of impacts among various population groups.
- Trade-off analysis addresses the differences among alternatives in terms of costs and benefits and outlines the advantages and disadvantages associated with each alternative.
- Financial analysis presents what revenue sources would be available for financing the capital, operating and maintenance costs of each alternative.

University Avenue Corridor

o Transportation Measures

The transportation objectives listed above have been addressed by several effectiveness measures:

- Increase in transit usage as measured by the total number of auto diversions or person-trips diverted from auto to transit
- Corridor ridership figures for each alternative
- Travel time savings
- Reduction in congestion

- Auto Diversions

In the University Avenue Corridor, all alternatives would produce person-trips shifts from automobile to transit. However, the TSM alternative would attract much fewer new riders than any of the fixed-guideway alternatives. The difference from 600 auto diversions for the TSM alternative to 5,200 - 6,600 for the fixed-guideway alternatives is due to significant improvements in travel times along University Avenue while maintaining similar levels of accessibility for the residents along the corridor. In other words, fixed guideway alternatives in general are effective in reducing travel times and therefore in producing shifts from auto to transit.

The difference in auto diversions among the various fixed-guideway alternatives are due to differences in travel times or in levels of accessibility to the transit line along University Avenue. LRT-1 results in the highest number of auto diversions because of significant improvements in travel time with respect to the Null, direct service to the core of the University of Minnesota and frequent stops along the route. The busway alternative which follows the same route than LRT-1 would originate fewer auto diversions because of higher travel times. LRT-2 would also result in lower diversions than LRT-1 mainly because

TABLE S-1
SUMMARY OF SIGNIFICANT IMPACTS FOR THE UNIVERSITY AVENUE CORRIDOR

CRITERIA	UNIVERSITY AVENUE ALTERNATIVES						
	NULL	TSM	BUS-1	LRT-1	LRT-2	LRT-3	LRT-3S
Year 2000 Ridership							
Corridor Ridership (Includes Bus)							
Daily (Linked Trips)	37,200	39,200	44,800	46,300	42,900	46,100	46,100
Annual (Million)	10.97	11.56	13.22	13.66	12.66	13.60	13.60
New Transit Riders (Auto Diversions)							
Daily	--	600	6,000	6,600	5,400	5,200	5,200
Annual (Million)	--	.177	1.773	1.938	1.581	1.516	1.516
Guideway Ridership							
Daily	--	--	37,300	39,500	35,700	46,100	46,100
Annual (Million)	--	--	11.00	11.65	10.53	13.60	13.60
Costs ($1984 Million)							
Total Capital Cost	13.9	16.1	36.8	113.8	105.1	110.7	226.1
Annual Capital Cost	2.1	2.3	4.58	12.5	11.6	12.06	24.30
Annual O & M Cost	8.44	8.66	8.37	7.55	7.75	7.08	7.08
Equivalent Annual Cost	10.39	10.70	12.82	20.10	19.50	19.23	31.04
Travel Time Savings (Existing Transit Riders)							
Daily Hrs	--	181	4,111	4,644	4,057	6,609	6,609
Annual Hrs (Million)	--	.053	1.213	1.376	1.197	1.950	1.950
Annual Value ($1984 Million)	--	.20	4.49	5.10	4.43	7.22	7.22
Revenues ($1984 Million)							
Annual Farebox Revenues	6.17	6.49	7.48	7.74	7.16	8.03	8.03
Operating Ratio	.73	.75	.89	1.02	.92	1.13	1.13
Annual Operating Deficit or Surplus							
Corridor Operating Deficit or Surplus	-2.27	-2.17	-.89	+.19	-.59	+.95	+.95
Operating Cost Per Corridor Pass.	.78	.75	.63	.60	.61	.52	.52
Operating Deficit or Surplus Per Corr. Pass.	-.21	-.19	-.07	+.01	-.05	+.07	+.07
Cost Effectiveness Ratios							
(EAC[a] - Value of Travel Time Savings)/New Riders[b]	--	--	-1.36	2.56	3.25	1.13	9.95
EAC Per Hour Saved[c]	--	5.85	2.00	7.06	7.61	4.53	10.59
EAC Per Corridor Passenger[c]	.95	.93	.97	1.47	1.54	1.41	2.28
EAC Per New Transit Rider[c]	--	1.75	1.37	5.01	5.76	5.83	13.62
EAC Per Guideway Passenger	--	--	1.17	1.73	1.85	1.41	2.28
Accessibility: (% Trip Opportunities)[d]							
St. Paul CBD	18.4%	18.4%	20.6%	21.8%	21.8%	21.2%	21.2%
Central/Dale	10.0	10.1	14.2	15.0	15.0	19.3	19.3
Snelling/University	13.8	13.9	17.6	18.6	18.9	20.0	20.0
University of Minnesota	18.0	19.1	21.1	22.4	22.1	24.5	24.5
Minneapolis CBD	29.2	29.4	29.1	30.0	29.9	29.7	29.7

[a] EAC: Equivalent Annual Cost [b] Incremental change compared to TSM alternative [c] Incremental change with respect to Null Alternative
[d] Within 45 Minutes of Door-to-Door Travel Time (For Selected Zones)

it provides less direct service to the core of the University of Minnesota and the two downtowns.

The LRT-3 alternatives would also result in fewer auto diversions because of travel time increases for downtown to downtown transit travel due to the elimination of the faster express bus service. It would also be less accessible for some residents further away from the transit stops along the route due to the greater station spacing, even though this is partially compensated by better feeder service.

- Corridor Ridership

All alternatives would produce corridor ridership increases with respect to the Null ranging from 5 percent (TSM Alternative) to 25 percent (LRT-1 and LRT-3). Most of the new riders are auto diversions, but some are attracted to the guideway from other transit routes outside the corridor. Express bus ridership is much smaller for LRT-1, LRT-2 and the busway alternative because the express bus service is discontinued during off-peak hours. This factor contributes to increases in guideway ridership. For the LRT-3 alternative, all the express bus service is eliminated and therefore all corridor trips are shown as guideway trips. In other words, former express bus riders would be forced into the guideway under LRT-3.

- Travel Time Savings

Travel time savings for existing transit riders represent an important benefit. Such transit users are now provided better service and associated benefits. This measure is estimated by comparing changes in door-to-door travel time for each alternative, as compared to the Null, and assigning a dollar value to the time savings. Table S-1 includes a summary of travel time savings for the University Avenue Corridor.

Travel time savings for fixed guideway alternatives in the University Avenue Corridor, calculated in relation to the Null alternative, ranged from $4.4 million to $7.2 million. A modest travel time savings of $.2 million was estimated for the TSM alternative. The LRT-3 alternative saved more than $2 million more in travel time compared to LRT-1 or Busway, reflecting the faster average travel speeds which it is able to achieve. This occurs in spite of the fact that downtown to downtown riders during peak-hours experience a 7 minute travel time increase. LRT-1 and Busway were in turn estimated to save more travel time than the longer LRT-2. In summary, all fixed guideway alternatives are effective in terms of travel time reductons, with LRT-3 being the most effective.

- Congestion

Fixed guideway alternatives on University Avenue would result in relatively modest reductions of auto travel (i.e. about 2% during peak hours) along I-94 but no significant differences would exist among the various alternatives. These changes would still produce a positive impact on traffic along the freeway.

LRT alternatives would result in fewer transit vehicles in the downtown areas than the bus alternatives (i.e. 36-48 vehicles for the LRT alternatives versus 63-66 vehicles for the bus alternatives).

Some isolated traffic problems were also identified for the fixed-guideway alternatives along Washington Avenue at the University of Minnesota and along University Avenue between Bedford Street and Washington Avenue. Those problems, however, could be mitigated by several solutions such as diverting auto traffic in the University of Minnesota area.

o Economic Measures

- Revenue/cost comparisons

Table S-1 summarizes the annual farebox revenues estimated for each alternative in the University Avenue corridor. The table also contains the operating ratio, that is, annual farebox revenues divided by annual operating costs, for all corridor transit services (both guideway transit, feeder bus, and other supplementary corridor bus services). This measure indicates what portion of the operating costs is paid for by farebox revenues. An operating ratio greater than 1 means that revenues outweight costs. Conversely, an operating ratio smaller than 1 means that costs are greater than revenues. The annual operating deficits implied by these farebox revenues, at the corridor level are also shown.

Every fixed guideway alternative is effective in improving the operating ratio in comparison to either the Null or the TSM. Two alternatives, LRT-1 and LRT-3, actually show a surplus of farebox revenues over operating costs, with an operating ratio of 1.02 and 1.13 respectively. LRT-2 and Busway also display significantly improved operating ratios of .92 and .89, respectively. These operating ratios are reflected in corridor-level operating deficit as high as $860,000 for Busway, to a surplus as high as $910,000 for LRT-3. The Null and TSM alternatives experience, in comparison, deficits of $2.18 million and $2.08 million, respectively.

At the overall regional system level, the TSM alternative would increase the annual operating deficit in comparison to the Null by about $3.3 million, to a total of $71.1 million. Each of the fixed guideway alternatives would, however, actually reduce this annual operating deficit in comparison to the TSM alternative. In other words major improvements in fixed guideway transit in the corridor would actually result in less annual operating deficit. This would be due to a combination of higher ridership levels and reduced operating costs that would be achieved in comparison to the TSM alternative.

- Induced Development

Experience in other regions suggests that fixed-guideway rail alternatives can have a positive impact in the reallocation of regional growth to land areas adjacent to stations. Around 10,000 reallocated jobs and as many as 2,000 reallocated dwelling units could be associated with stations (especially CBD stations). This reallocation would be consistent with regional goals regarding efficient land development.

o Environmental Measures

The alternatives proposed would be very effective in terms of minimizing environmental impacts. Minimum amounts of land acquisition would be required and no residential or industrial land uses would be displaced. During construction of fixed-guideway alternative, temporary and short term impacts

could be expected. However, these impacts would not have major consequences because alternatives use an existing transportation right-of-way.

Some visual impacts could exist at sensitive sites, such as the Capitol Area. Design treatments and public involvement in design of the selected alternative could mitigate negative impacts. Another possible environmental concern is the air quality at the intersection of University and Snelling Avenues, where standards are presently violated but measures are to be taken to alleviate the problem in the next few years. A third concern is possible removal of parking along University Avenue, but loss of parking would likely only occur at station areas and could be offset by providing off-street parking facilities.

o Efficiency Measures

Capital and operating/maintenance costs have been converted into equivalent annual costs to permit a more consistent comparison and evaluation. Equivalent annual costs allow capital-intensive and labor-intensive alternatives to be compared over a longer-range time horizon, so that amortized capital costs can be matched against annual operating costs.

For the University Avenue Corridor, equivalent annual costs oscillate from a low of $10.39 million for the Null alternative to a high of $31.04 million for the LRT-3S. The busway and TSM alternatives show a lower EAC than the LRT alternatives mainly because of the influence of lower capital costs.

The "cost-effectiveness ratios" also included in Tables S-1 and S-2 represent summary comparison measures for assessing the different alternatives. These ratios permit the "payoff" or "return" on investment, for various measures of capital and/or operating costs, to be determined. Such output or efficiency measures are calculated in terms of cost per passenger, where passengers may be defined as only auto diversions, as guideway passengers, or as overall corridor transit passengers. These summary "output" measures provide a useful index of the "productivity" of each alternative.

Depending upon the cost measure chosen, as well as the ridership measure chosen, such efficiency indices reflect different perspectives on the performance of different alternatives.

The first measure listed in Table S-1 and S-2 as a "cost-effectiveness ratio" represents a relative index of the net direct benefits delivered by each alternative developed by the Urban Mass Transportation Administration. It measures these benefits both in terms of the number of new riders diverted from their automobiles (appearing as the denomination in the index), and for former transit riders who are provided better service (reflected in terms of travel time savings accrued by these riders). These travel time benefits are subtracted from equivalent annual costs, to derive an economic measure, and then divded by auto diversions or new transit riders. Equivalent annual costs include both equivalent annual capital costs and annual operating costs.

Because it represents a balancing of two measures of benefits against two measures of cost (capital and operating), this is the single most useful efficiency measure in the table. However, it should be utilized with judgement, and is not by itself a sufficient measure to form conclusions about each alternative.

The other cost-effectiveness ratios provide unit costs by dividing the EAC or

the incremental EAC with respect to the Null Alternative by different measures such as travel time savings, corridor passengers or guideway passengers.

Equivalent Annual Cost Minus Value of Travel Time Savings, Per New Transit Riders. The busway alternative display a travel time savings that exceeds equivalent annual cost, giving this index a minus sign. These represent the best performing alternatives, and reflect both lower equivalent annual costs and lower travel time savings than other options. LRT-3 shows the next highest performance, reflecting particularly its high level of travel time savings. It is followed by LRT-1 and then LRT-2.

This particular index, for the University Avenue corridor, shows that the busway and LRT-1 each offer a combination of new riders and net costs which are superior to the combinations offered by LRT-2 and LRT-3.

Equivalent Annual Costs Per Hour Saved. This index represents a partial cost/benefit ratio for exising transit users. Two alternatives--LRT-3 and Busway--show the lowest index values, falling within seven percent of one another. LRT-1 and LRT-2 show higher index values, followed by TSM which has a very high index value. The latter indicates that relatively little travel time savings are achieved, for the cost required, for the TSM alternative.

Equivalent Annual Cost Per Corridor Passenger. The TSM, Null, and Busway alternatives perform somewhat better than the LRT-3 alternatives.

Equivalent Annual Cost Per New Passenger. All fixed guideway alternatives perform better than the TSM alternative here, due largely to the higher number of automobile diversions which they achieve. The Busway, and LRT-1 alternatives perform best.

Equivalent Annual Cost Per Guideway Passenger. The busway performs best here followed by LRT-3.

Two other criteria, listed under the "Revenues" section of Table S-1, also represent efficiency measures in relation to annual operating costs.

Operating Cost Per Corridor Passenger. All fixed guideway alternatives perform better than the Null or TSM alternatives along this criterion. LRT-3 achieved the lowest operating cost per corridor passenger, followed by LRT-1 and Busway.

Operating Deficit Per Corridor Passenger. All fixed guideway alternatives perform better than the Null or TSM alternatives. LRT-3 provides a surplus of farebox revenues over operating cost, as does LRT-1.

o Equity

No major "lumpiness" was found for any of the alternatives. That is, no geographic or socio-economic sub-group received disproportionate benefits or disbenefits. Environmental impacts are relatively slight in nature. No significant dislocation impacts due to right-of-way acquisition are expected, since existing transportation rights-of-way are utilized almost exclusively.

The Central/Dale neighborhood represents the highest concentration of household members under the poverty income level within the corridor. Accessibility measured in terms of percent of work and non-work trip attractions within 45 minutes travel time would be significantly improved by all fixed guideway

alternatives, compared to the TSM option. This improvement would range from a relative gain of 41 percent (Busway) to 91 percent (LRT-3). Such improvements can be considered a more equitable distribution of benefits.

o Tradeoffs

This section summarizes the major advantages (benefits) and disadvantages (costs or disbenefits) of the alternatives in each corridor, proceeding from the least costly to the most costly transit improvement. The general intent is to give an understanding of what would be gained or lost by implementing one alternative rather than another. Important considerations here are the tradeoffs between direct benefits (to former and new transit users), indirect benefits and costs, capital costs, and operating costs.

Null Alternative. In the University Avenue Corridor, the Null Alternative would offer the same level of transit services that are available--local and express buses operating in mixed traffic. No significant improvement in accessibility through improved level of service and better speeds would be offered. At the same time, capital cost requirements would be the lowest of any alternative. Transit ridership and operating ratios would be the lowest of any alternative.

TSM Alternative. This alternative offers very little improvement over the or the Null Alternative. This alternative achieves a modest gain of new transit riders, but with correspondingly low capital costs. Travel time savings are also small because only very slight accessibility gains are offered. The incremental equivalent annual cost per new passenger is lower than for the other alternatives except the busway.

Busway Alternative. For about double the capital cost of the TSM alternative, the Busway option offers noticeable accessibility improvements and travel time reductions for the corridor. This correspondingly yields a signficantly increased number of automobile diversions to transit. The operating ratio is also signficantly improved over TSM, and the incremental equivalent annual cost per new transit rider is the lowest of any alternative except the TSM.

LRT-1. This alternative provides further improvements in accessibility, travel time savings and the highest automobile diversions, but also requires the highest level of total capital cost with the exception of the LRT-3S alternative which includes a subway solution for downtown Minneapolis. Farebox revenues will approximately equal operating costs, though equivalent annual costs per new passenger is higher than for the busway alternative. A potential for induced development at station areas, especially in both CBDs, applies as well to the other fixed-guideway alternatives.

LRT-2. This alternative is the lowest in cost of the three light rail options, though all are significantly more costly than the busway alternatives. New transit riders are lowest among the light rail options, as is daily guideway ridership because it does not serve as well a major trip generator such as the main campus of the University of Minnesota. Daily guideway ridership and travel time savings are also lower than for the busway alternative.

LRT-3. This alternative offers improved travel time for corridor riders but penalizes downtown to downtown riders. This alternative is only slightly lower than LRT-1 in terms of total capital cost, but also has alower level of new transit riders diverted from their automobile. It has the highest level of

total corridor transit ridership, however mainly because downtown to downtown riders are forced into the guideway. The one mile station spacing would also penalize some short-trip riders even though additional feeder bus service has been provided to improve accessibility to stations (not counting transfers). If offers the highest operating ratio for any alternative, with a surplus of farebox revenues over operating costs. It is lowest in terms of equivalent annual costs per hour saved, and yields significantly higher travel time savings than any other fixed guideway alternatives. The LRT-3S alternative accomplished similar benefits than the LRT-3 but would require a more than double capital investment.

Southwest Corridor

o Transportation Measures

- Auto Diversions

All alternatives in the Southwest Corridor would produce person-trip shifts from automobile to transit. These shifts range from a minimum of 1,000 auto diversions for the TSM alternative to a maximum of 5,800 new transit riders for an LRT line starting in Minnetonka and following the Milwaukee/Nicollet alignment (LRT-1B).

No major differences occur within the group of LRT alternatives or within the busway alternatives. LRT alternatives range from 5,300 to 5,800 new transit riders whereas busway alternatives oscillate from 2,700 to 3,200 auto diversions. In other words, changes in length among alternatives of the same type do not result in major shifts in attracting new riders. Furthermore, the route along the Milwaukee Road alignment versus the CNW alignment does not alter the number of new riders significantly, either. Loss in new suburban riders is compensated by gains in inner city riders.

The difference between LRT and busway alternatives are mainly due to higher speeds and more frequent stops along the guideway which provide greater intra-corridor accessibility.

- Corridor Ridership

All guideway alternatives would be effective in producing significan tridership gains at the corridor level with respect to the Null and TSM alternatives. Extension of the fixed-guideway alternatives to TH 101 does not generate a significant amount of additional ridership. Even the busway ending at Wooddale Avenue generates ridership levels similar to the other busway alternatives.

LRT alternatives generate approximately 10 percent more corridor trips then the corresponding busway alternatives because of higher speeds on the guideway and better intra-corridor accessibility.

Milwaukee Road alignment alternatives have also a higher ridership than the corresponding CNW alternatives. The higher densities of the area adjacent to the Milwaukee/Nicollet alignment more than offset the losses of a suburban riders due to longer travel time.

- Travel Time Savings

Travel time savings for the Southwest Corridor fixed guideway alternative (see

TABLE S-2
SUMMARY OF SIGNIFICANT IMPACTS FOR THE SOUTHWEST CORRIDOR

CRITERIA	NULL Alt.	TSM Alt.	CNW Alignment Alternatives: LRT-1A To Minnetonka	BUS-1A To Minnetonka	LRT-2A To Hopkins	BUS-2A To Hopkins	BUS-3A To Wooddale	Milwaukee/Nicollet Alignment Alternatives: LRT-1B To Minnetonka	BUS-1B To Minnetonka	LRT-2B To Hopkins	BUS-2B To Hopkins	BUS-3B To Wooddale
Year 2000 Ridership												
Corridor Ridership (Includes Bus)												
Daily (Linked Trips)	18,500	19,500	24,000	21,100	23,800	21,000	20,700	27,800	23,500	27,600	23,400	23,100
Annual (Million)	5.46	5.75	7.08	6.22	7.02	6.20	6.11	8.20	6.93	8.14	6.90	6.81
New Transit Riders (Auto Diversions)												
Daily	--	1,000	5,500	2,600	5,300	2,500	2,200	5,800	2,500	5,600	2,400	2,100
Annual (Million)	--	.295	1.623	.767	1.564	.738	.649	1.711	.738	1.652	.708	.620
Guideway Ridership												
Daily	--	--	17,000	15,100	16,700	14,900	14,600	23,500	20,200	23,200	20,000	19,700
Annual (Million)	--	--	5.01	4.45	4.93	4.40	4.31	6.93	5.96	6.84	5.90	4.93
Costs ($1984 Million)												
Total Capital Cost	9.0	13.4	89.4	63.2	75.3	53.2	38.3	105.5	77.2	89.8	67.4	51.8
Annual Capital Cost	1.32	1.89	10.09	7.30	8.59	6.18	4.60	11.85	8.83	10.16	7.72	6.04
Annual O & M Cost	7.50	8.53	8.20	8.36	8.55	8.11	8.06	8.06	8.58	8.27	8.45	8.21
Equivalent Annual Cost	8.73	10.32	18.11	15.50	16.97	14.15	12.53	19.71	17.24	18.25	16.01	14.11
Travel Time Savings (Existing Transit Riders)												
Daily Hrs	--	321	4,106	4,483	3,788	4,136	3,706	3,867	3,730	3,567	3,441	3,011
Annual Hrs (Million)	--	.095	1.211	1.322	1.117	1.220	1.093	1.141	1.100	1.052	1.015	.888
Annual Value ($1984 Million)	--	.35	4.47	4.89	4.14	4.51	4.05	4.22	4.08	3.90	3.75	3.29
Revenues ($1984 Million)												
Annual Farebox Revenues	3.35	3.46	5.39	4.38	5.38	4.34	4.29	6.10	4.81	6.06	4.78	4.72
Operating Ratio	.45	.41	.66	.46	.63	.47	.47	.76	.49	.65	.49	.49
Annual Operating Deficit												
Corridor Operating Deficit	4.15	5.07	2.81	3.98	3.17	3.77	3.77	1.96	3.77	2.21	3.67	3.49
Operating Cost Per Corridor Pass.	1.39	1.48	1.15	1.34	1.22	1.31	1.32	1.00	1.24	1.02	1.22	1.21
Operating Deficit Per Corr. Pass.	.76	.88	.40	.64	.45	.61	.62	.24	.54	.27	.53	.51
Cost Effectiveness Ratios												
(EAC[a] - Value of Travel Time Savings)/New Riders[b]	--	--	2.76	1.36	2.25	-0.74	-4.21	3.90	7.20	3.23	5.54	2.62
EAC Per Hour Saved[c]	--	16.74	7.75	5.12	7.38	4.44	3.48	9.62	7.74	9.05	7.17	6.06
EAC Per Corridor Passenger	1.60	1.80	2.56	2.49	2.42	2.28	2.05	2.40	2.49	2.24	2.32	2.07
EAC Per New Transit Rider[c]	--	5.39	5.78	8.83	5.27	7.34	5.86	6.42	11.53	5.76	10.28	8.68
EAC Per Guideway Passenger	--	--	3.62	3.48	3.44	3.22	2.91	2.84	2.89	2.67	2.71	2.86
Accessibility: (% Trip Opportunities)[d]												
Minneapolis CBD	29.2%	29.4%	31.6%	31.2%	31.7%	31.3%	31.4%	31.0%	31.0%	31.1%	31.1%	31.2%
Lake/Nicollet	22.2	22.3	22.3	22.8	22.0	22.5	22.2	23.4	23.4	23.1	23.1	22.8
France Ave.	13.7	14.0	21.5	19.5	19.1	17.3	15.0	20.2	20.2	17.9	17.9	15.6
Hopkins	3.4	11.4	11.9	9.3	12.9	10.1	11.0	11.4	11.4	12.4	12.4	13.3
Deephaven	.2	1.9	8.3	2.8	2.1	.7	.1	4.7	4.7	1.2	1.2	.5

(a) EAC: Equivalent Annual Cost

(c) Incremental change with respect to Null Alternative

Table S-2) range from $3.3 million (Busway-3B) to $4.9 million (Busway-1A). Again the TSM alternative achieves a more modest travel time savings of $.35 million. The alternatives along the CNW alignment show greater time savings than those following the Milwaukee Road/Nicollet Avenue alignment, reflecting the faster service they provide between suburban communities and the Minneapolis CBD. However, the Milwaukee Road alternatives provide travel time savings for Minneapolis patrons which partly balance the additional travel time which suburban commuters would experience (5 minutes longer per suburban trip to reach the Minneapolis CBD).

- Congestion

One of the major concerns regarding the Southwest Corridor was the bottleneck east of France Avenue that forced through traffic into the neighborhoods and the accumulation of buses on Hennepin Avenue and in the downtown areas. All of the fixed-guideway alternatives would relieve these problems. Reductions in auto traffic of about 6 percent during peak hours would take place in those areas east of France Avenue.

Bus requirements for the busway alternatives would remain approximately the same than for the Null alternative but would not be routed along Hennepin Avenue which is the most conflictive arterial. They would either use the CNW right-of-way or Nicollet Avenue. LRT alternatives would require a much smaller number of vehicles than the Null, TSM and corresponding busway alternative. For instance, alternative Busway-1A uses 38 guideway buses whereas LRT-1A uses only 10 vehicles. In summary, guideway alternatives would produce modest but positive reductions in neigborhood and downtown traffic. LRT alternatives would reduce the number of vehicles entering the area east of France Avenue and downtown Minneapolis.

o Economic Measures

- Revenue/Cost Comparisons

Annual farebox revenues, associated operating ratios and annual operating deficits for the Southwest Corridor are summarized in Table S-2. Operating ratios reflect both low-density distribution of transit passengers (and consequently the higher operating costs necessary to serve them), as well as the high proportion of background bus and feeder bus services necessary to provide complete corridor service coverage. Operating ratios for the supporting bus services are lower than those achieved for the fixed guideway alternatives, lowering the overall corridor average which is indicated in the table. The TSM alternative offers a slightly lower operating ratio of .41 in comparison to the Null. All fixed guideway alternatives provide higher operating ratios, from a slight improvement of .47 for Busway-1A to .76 for LRT-1B. In general, the light rail alternatives have higher operating ratios than the busway alternatives. All busway and the TSM alternatives increase the corridor deficit somewhat, since increased operating efficency is more than offset by increased transit service and cost. The LRT alternatives lower the deficit slightly.

- Induced Development

The fixed-guideways alternatives are estimated to induce a regional reallocation of up to 10,000 jobs to station areas along the corridor, as well as up to 2,000 dwelling units. Much of this reallocation, associated with the

Minneapolis CBD, would achieve regional goals with regard to efficient land development.

o Environmental Measures

The proposed alternatives would be very effective in terms of minimizing environmental impacts. One possible impact of significance would be noise violations that could occur in Hopkins due to the proximity of the guideway to residential development; up to 35 residences could be affected. Mitigating measures proposed, such as noise barriers and engineering technigues could be used to eliminate violations of noise standards. Visual intrusion and parking removal are concerns in specific areas, and could be mitigated as discussed above for the University Avenue corridor.

o Efficiency Measures

The different cost-effectiveness indexes for the Southwest Corridor are summarized in Table S-2.

In the Southwest corridor, the Null and TSM alternatives have the lowest EACs. For the fixed-guideway alternatives, the differences are relatively small among alternatives of the same length and with the same routing. Shorter alternatives (i.e. less capital-intensive) exhibit lower EACs.

Equivalent Annual Cost Minus Value of Travel Time Savings, Per New Passenger. Two of the busway options (Bus 2A and Bus 3A) exhibit negative values for this index. This indicates that when compared to the TSM alternatives, the benefits, in terms of travel time savings more than offset the total annual cost. The options following the CNW alignment show greater cost-effectiveness than those using the Milwaukee Road alignment. The shorter fixed-guideways also exhibit greater cost-effectiveness than the longer ones.

The LRT alternatives along the CNW alignment show greater cost-effectiveness than the corresponding busway alternatives. The reverse is true for the Milwaukee Road alignment.

Equivalent Annual Cost Per Hour Saved. The incremental EAC per hour saved (i.e. travel time savings, unit costs) shows a similar distribution than the previous index. For this index, shorter alternatives perform better than longer ones. The CNW alignment alternatives perform better than the corresponding Milwaukee Road alternatives. The busway alternatives perform better than the corresponding LRT alternatives.

Equivalent Annual Cost Per Corridor Passenger. The EAC per total corridor passenger exhibit small differences between the Milwaukee Road and the CNW alignments. Shorter alternatives, however, also perform better under this index than longer alternatives. The LRT alternatives exhibit slightly higher values than their corresponding busway alternatives along the CNW alignment. The reverse is true for the Milwaukee Road alignment.

Equivalent Annual Cost Per New Passenger. Again, the CNW alignment alternatives exhibit a better performance under this index than the Milwaukee Road alternatives. Also, shorter alternatives perform better than longer ones. The LRT alternatives exhibit greater cost-effectiveness than the corresponding busway alternatives.

Equivalent Annual Cost Per Guideway Passenger. The EAC per guideway passenger is more favorable for shorter alternatives, for those following the Milwaukee Road alignment. The busway alternatives perform better thhan the corresponding LRT alternatives for the CNW alignment. Along the Milwaukee Road, both kind of alternatives perform almost the same.

o Equity

In the Southwest Corridor the Lake/Nicollet neighborhood represents the highest level of persons below the poverty level in this sector of the region. Because of its close proximity to the Minneapolis CBD, improvements in accessibility as compared to the Null or TSM alternatives are slight, for any of the fixed guideway options. The percentage of attractions within 45 minutes travel time of this neighborhood would at best increase by only 5 percent in comparison to the TSM option.

o Tradeoffs

Null Alternative. In the Southwest Corridor the Null Alternative involves significant expansion in service (reduced headways) over existing routes, to keep pace with population growth projected for the corridor. It includes both local and express buses operating in mixed traffic, as well as limited use of HOV lanes along I-394. For some passengers, improvements in accessibility may be provided via reduced wait times (or in-vehicle time along I-394), but increasing congestion along arterial streets will lengthen travel times.

TSM Alternative. This alternative offers a modest level of service improvements which result in few new riders diverted from their automobiles, and low travel time savings for existing riders. Its capital and operating costs are correspondingly higher than for the Null. Accessibility improvements are modest. Equivalent annual costs for new passengers is the highest of any alternative, while the operating ratio is approximately the same as for the Null.

Busway Alternatives. The busway alternatives represent significant service improvements for existing riders as evidenced by the travel time savings. The length of the guideway, however, does not result in major changes in benefits. In other words, extending the guuideway from Wooddale Avenue to TH 7 or TH 7 to TH 101 does not result in major ridership gains or travel time savings.

The busway alternatives along the CNW alignment afford greater travel time savings for suburban riders than those following the Milwaukee Road alignment, and are also less expensive to build. The CNW alignment alternatives attract fewer guideway riders but attract almost as many new transit riders as the Milwaukee Road alternatives.

Light rail alternatives have differences among themselves similar to those discussed above for the several busway alternatives.

Differences in costs and benefits exist between light rail and busway alternatives having comparable lengths and routings. In general the LRT alternatives provide a better service, as measured by the number of new transit riders. Operating ratios are better for light rail alternatives, primarily because of higher farebox revenues since operating costs for all fixed guideway alternatives are within the range of $8.1 to $8.6 million. The major

difference between busway and LRT alternatives is a somewhat more costly capital investment needed for LRT of about $2 to $3 million dollars on an annualized basis.

Financial Feasibility

Financial feasibility has been examined from two perspectives. First, four scenarios demonstrating the potential of various combinations of federal, state, and local funding sources for the capital cost of the system were developed. Federal sources considered are the UMTA Section 3 and Section 9 funds. A possible source of state funds is the portion of the Motor Vehicle Excise Tax that has been dedicated to transit. The use of public/private coventure sources such as tax increment financing and benefit assessment districts are also considered. Each source and scenario has advantages and disadvantages that need to be weighed.

The stability of existing sources of operating funds for the regional system, and the potential impact of the alternatives on the overall regional operating deficits is another consideration. All alternatives in the University Avenue Corridor would reduce the regional deficit, up to 4.5 percent with any of the fixed guideway alternatives.

Southwest Corridor fixed guideway alternatives would similarly result in a small reduction in the regional operating deficit. The TSM alternative, however, would increase the deficit slightly.

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