Fargo-Moorhead Metropolitan Area Transit Development Plan Update

Fargo-Moorhead Metropolitan Area Transit Systems

prepared for the

Fargo-Moorhead Council of Governments

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EXECUTIVE SUMMARY

This Transit Development Plan Update presents a description of the route and service change proposals developed for both the Fargo Metropolitan Area Transit system and the Moorhead Metropolitan Area Transit system. These two transit systems serve the Fargo-Moorhead metropolitan area, located in eastern North Dakota and western Minnesota. Descriptions of proposals developed for Clay County Rural Transit (i.e., CCRT) are also included in this Executive Summary. Because of the relatively strong performance of the existing route structure, only minimum changes are proposed for most of the existing bus routes. However, service change alternatives are developed for more significant modifications on some selected routes.

The service proposals described in this Executive Summary were prepared by giving consideration to a variety of service inputs. Also, a group of planning precepts guided the formulation of the proposals. These two components of service planning and development are discussed in this Executive Summary. It should be noted that in this Executive Summary all dollar amounts are in current (i.e., year 2001) dollars and have not been adjusted to reflect inflationary pressures over the course of the proposed plan's implementation.

Service Inputs

Seven major inputs were considered while preparing the route and service change proposals. Each of these inputs is briefly described below.

- Community Characteristics - An analysis was performed to identify residential areas and major activity centers that warrant transit service as well as Census tracts and municipalities in the Fargo-Moorhead metropolitan area with the greatest potential need for transit. Results indicate that most of the study area that should be served is served.

- Stakeholder Interviews - Interviews were held with 13 policy makers, community leaders, representatives of minority organizations, transportation professionals, members of the business community and various other decision makers throughout the Fargo-Moorhead metropolitan area. From the interviews it was learned that the Fargo-Moorhead MAT systems are generally well respected, well run and efficient organizations. Service expansion opportunities were noted for the Fargo Industrial Park area. It was also noted that public

transportation is considered to be a vital community service.

- Public Meetings - "Walk-in" public meetings were held on April 24th and 26th, 2001 at the Ground Transportation Center (i.e., GTC) in downtown Fargo, the West Acres Mall, the Moorhead Center Mall, the North Dakota State University and at the Minnesota State University Moorhead. At these meetings, both users and non-users had an opportunity to provide input on problems with the transit service, any concerns they might have and improvement alternatives. The meetings were held over a two hour span at each location in a walk-up format (i.e., people held a one-on-one discussion with a member of the consulting team). Seventy-six people provided comments during the course of the meetings. Ten of these people were from minority groups, and five of them had some type of physical disability. Additional comments were obtained at a later date through the use of "write-in" survey sheets. One of the most common suggestions made during the public meetings was for the Fargo-Moorhead MAT systems to implement a service expansion plan for longer evening service and more frequent service overall.

- Driver Input - On April 25th, 2001, two separate meetings were devoted to soliciting input from both Fargo MAT and Moorhead MAT drivers because of their knowledge of past and existing bus routes and service areas. About a half dozen drivers provided significant input on problems with existing routes; this input focused on running time problems with many bus routes. The few improvement alternatives noted focused on extending service to new areas.

- Adequacy of Service Analysis - An interim report was prepared documenting the performance of the Fargo-Moorhead MAT systems' bus routes for a number of measures. Financial and productivity performance measures were developed; individual route data on farebox recovery and passengers carried per revenue hour of service were most heavily relied upon. A set of service guidelines were developed. The performance of the Fargo-Moorhead MAT systems' bus routes was compared with the guidelines to determine a number of measures of service adequacy.

- Field Reconnaissance - Extensive observations were made in the Fargo-Moorhead metropolitan area to gain a first-hand understanding of existing transit operating characteristics as well as the character of present and future development. During the course of these investigations, land use, key generators and other noteworthy items were recorded. All of the Fargo-Moorhead MAT systems' bus route alignments were driven.

- Staff/Committee Input - Several meetings were held with Fargo MAT staff and with Moorhead MAT staff where preliminary service change proposals were reviewed. Meetings were also held on a regular basis with the Transportation Development Plan Update Committee. Based on input from these groups, a potential plan was identified for further development.

Service Design Principles

The following service design principles were employed to guide the development of various service improvement options that are aimed at making the transit system more attractive to regular, casual and new users.

- Provide Uniform Service Paths - Service should follow the same route alignments on all trips throughout the day. Service extensions on request or on designated trips should be avoided whenever possible. Such service changes can be annoying to the riders on the bus and can confuse the casual user.

- Continue Pulse System with Ground Transportation Center - Prior research has indicated that a pulse system was the nearly unanimous type operated throughout the nation for systems the size of the Fargo-Moorhead MAT systems. Typically, the transit center is at the heart of the pulse system. Therefore, it should be a convenient, pleasant and safe waiting area. The Fargo-Moorhead MAT systems' Ground Transportation Center (i.e., GTC) in downtown Fargo is well located and safe. Because of the significant ridership activity at the West Acres Mall, the service improvement proposals call for establishing another transit center at this shopping mall.

- Continue to Provide Uniform and Clockface Headways - Headways on all routes should be uniform. Inconsistent headways will confuse users by creating uncertainty as to the arrival and departure times of buses. The result will be decreased ridership. Maintaining clockface headways makes usage easier because users will easily remember when the buses will arrive and depart.

- Maintain Coverage - It is not the intention of this plan to remove service entirely from any area that is currently served by the Fargo-Moorhead MAT systems. However, areas

where service could be adjusted or modified due to limited ridership or to decrease running times should be considered. Conversely, areas warranting new or more service will be addressed. If service is removed, it is recognized that the vacated area could still be served by the call-in demand responsive paratransit service available in the Fargo-Moorhead MAT systems' service area.

Summary of Recommended Service Plan

This section of the Executive Summary presents a summary of the route and service change proposals developed for the Fargo-Moorhead MAT systems, as well as for Clay County Rural Transit. These proposals are discussed in detail in the previous section of this plan.

Several changes are proposed for the existing bus routes, and several additional proposals focus on new services to areas that are currently underserved by the transit systems.

The recommended service changes are summarized below:

- Implement relatively minor route alignment modifications on several of the existing bus routes so that they may better serve specific traffic generators.

- Improve the frequency of service on several of the existing bus routes.

- Implement major route alignment modifications on some of the existing bus routes; these significant modifications will help improve service to several areas of the community.

- Improve the span of service (i.e., the time during which transit service is available) on most of the existing bus routes on both weekdays and Saturdays.

- Eliminate an existing transit service which becomes redundant with the new expanded services.

- Implement new bus routes serving areas and markets which are presently unserved by the Fargo-Moorhead MAT systems.

Current Capital and Operating Cost Programs

The current Transportation Improvement Program (TIP) process has already programmed funding for ongoing capital equipment needs as well as for continuing operating funding requirements throughout the next five years. This section of the Transit Development Plan Update identifies the amount of funding currently programmed via the TIP process. Proposals in the recommended service plan which require the expenditure of new funds would require that a long term commitment for additional funding be sought after from the local, state and federal governments or from private sector sources. The funds currently programmed via the TIP process are as follows:

Current Capital Funding Requirements:

- Year 2002

  Fargo: Purchase 2 vans for elderly and handicapped services.
  Cost: $40,000

  Refurbish the GTC.
  Cost: $1,000,000

  Refurbish the bus facility (i.e., City Garage).
  Cost: $300,000

  Construction of West Acres Transit Center.
  Cost: $300,000

  Moorhead: Relocation of Holiday Mall Transfer Center.
  Cost: $65,000

  Preventative maintenance.
  Cost: $45,500

- Year 2003

  Fargo: Purchase six MAT paratransit vans (five replacements and one new van).

Cost: $568,600

Purchase three vans for elderly and handicapped services.
Cost: $63,750

Moorhead: Replace one Class 400 paratransit bus.
Cost: $65,000

Replace four medium-size buses.
Cost: $1,052,000

Bus related equipment.
Cost: $8,400

Clay County: Purchase new Class 400 bus.
Cost: $55,000

- Year 2004

Fargo: Purchase four mid-sized buses.
Cost: $1,160,000

Moorhead: Replace two medium-size buses.
Cost: $526,000

- Year 2005

Fargo: Replace two elderly and handicapped vans.
Cost: $47,300

Replace one mid-sized bus.
Cost: $290,000

Moorhead: Replace one Class 400 paratransit bus.
Cost: $71,000

Replace two medium-size buses.

Cost: $610,000

Clay County: Replace one Class 500 bus.
Cost: $150,000

- Year 2006

Fargo: Replace two mid-sized buses.
Cost: $580,000

Moorhead: Preventative maintenance for vehicles.
Cost: $60,000

Clay County: Purchase new Class 500 bus.
Cost: $115,000

Current Operating Funding Requirements:

- Year 2002

Fargo: Fixed route & paratransit operating assistance.
Cost: $1,612,795

Planning assistance.
Cost: $30,000

Special Congestion Mitigation/Air Quality funding for Route 20.
Cost: $204,000

Moorhead: Fixed route & paratransit operating assistance.
Cost: $1,087,300

Planning assistance.
Cost: $9,500

Clay County: Fixed route & paratransit operating assistance.
Cost: $234,239

- Year 2003

  Fargo: Fixed route & paratransit operating assistance.
  Cost: $1,704,137

  Planning assistance.
  Cost: $30,000

  Special Congestion Mitigation/Air Quality funding for Route 20.
  Cost: $204,000

  Moorhead: Fixed route & paratransit operating assistance.
  Cost: $1,130,800

  Planning assistance.
  Cost: $9,800

  Clay County: Fixed route & paratransit operating assistance.
  Cost: $242,305

- Year 2004

  Fargo: Fixed route & paratransit operating assistance.
  Cost: $1,768,062

  Planning assistance.
  Cost: $30,000

  Moorhead: Fixed route & paratransit operating assistance.
  Cost: $1,176,000

  Planning assistance.
  Cost: $10,100

  Clay County: Fixed route & paratransit operating assistance.
  Cost: $249,574

- Year 2005

  Fargo: Fixed route & paratransit operating assistance.
  Cost: $1,834,545

  Planning assistance.
  Cost: $30,000

  Moorhead: Fixed route & paratransit operating assistance.
  Cost: $1,223,000

  Planning assistance.
  Cost: $10,400

  Clay County: Fixed route & paratransit operating assistance.
  Cost: $257,050

- Year 2006

  Fargo: Fixed route & paratransit operating assistance.
  Cost: $1,903,686

  Planning assistance.
  Cost: $30,000

  Moorhead: Fixed route & paratransit operating assistance.
  Cost: $1,272,000

  Planning assistance.
  Cost: $10,700

  Clay County: Fixed route & paratransit operating assistance.
  Cost: $264,760

Implementation Plan

Another element of the recommended plan is to define when the various elements of the

plan should be implemented. Where changes are "cost neutral" (i.e., where they do not require new sources of funding) they are scheduled for implementation during the next two years. In fact, it should be noted that some of the minor route alignment changes recommended in the plan have already been implemented. In those instances where a proposal requires a new source of capital or operating funding, it is categorized according to whether the proposal is a "high", "medium" or "low" priority service modification. For these services, eventual implementation will essentially depend upon the ability to obtain the vehicles to operate the services as well as the ability to secure a long term commitment for local funding support for those services.

The implementation plan for the "cost neutral" proposals throughout the next two years is identified below:

Year 2002

- Implement new route alignment modifications on Moorhead MAT Routes 1, 2, 3, 5 and 6.
- Implement new designated bus stop locations on Fargo MAT Route 11.
- Implement new "interline service pattern" on Fargo MAT Routes 11, 12 and 17.
- Implement new route alignment modifications on Fargo MAT Routes 14, 15 and 25.

Year 2003

- Implement new route alignment modifications on Fargo MAT Routes 16 and 18.

The remaining proposals in the recommended service plan all require the expenditure of additional capital and/or operating funds. In order to secure these new funding sources a long term financial commitment to an expanded public transportation system would have to be obtained from the local, state and federal governments or from private sector sources.

The "prioritization scheme" of the remaining proposals is presented below. However, it should be kept in mind that the prioritization scheme presented here could change based on financial commitments from various private sector entities.

High Priority

- Implement lengthened span of service on Fargo MAT Routes 11, 13, 14, 15 and 25.

- Implement new Downtown Fargo Circulator Route. This new bus route will require an additional peak vehicle.

Medium Priority

- Implement lengthened span of service on Fargo MAT Routes 12, 16, 17, 18, 19, 20 and the West Fargo Route.

- Implement lengthened span of service on Moorhead MAT Routes 1, 2, 4 and 6.

- Implement improved frequency of service on Fargo MAT Route 25. This route modification will require an additional peak vehicle.

Low Priority

- Implement lengthened span of service on Moorhead MAT Routes 3 and 5.

- Implement improved frequency of service on Moorhead MAT Routes 1 and 4.

- Implement route alignment and frequency of service modifications on Fargo MAT Route 20. These route modifications will require an additional peak vehicle.

- Implement improved frequency of service on the West Fargo Route. This route modification will also require an additional peak vehicle.

- Eliminate the Evening North Route.

- Implement lengthened span of service on the Evening South Route so that it becomes the new "Southern Crosstown Route". This route modification will

also require an additional peak vehicle.

At some point both beyond the five year planning horizon for the Transit Development Plan Update (i.e., after 2006) and after the "Low Priority" proposals have been implemented, additional consideration would be given to implementing the proposed Main Avenue Corridor bus route and the proposed Breckenridge Commuter Route. It was felt that - at this time - funding would be uncertain for these proposals.

Financial Plan - Capital and Operating Funding Program for Expanded Transit Service

To assure the implementation of those proposals in the recommended service plan which require a new source of funding, a program of both capital improvements and operating funding requirements has been developed in order to help guide future efforts at securing commitments for additional funding resources.

The program is categorized in a manner similar to the proposals themselves, with "high", "medium" and "low" priority service modifications determining the capital and operating funding requirements. A description of the proposed capital and operating improvements is presented in the accompanying table. It should be noted that all dollar amounts shown are in constant (i.e., current year 2001) dollars.

The capital needs for the proposed expanded services are essentially the new vehicles which would be required to operate the bus routes. These new vehicles would be purchased in addition to those already programmed into the TIP and described previously in this section of the report. Each new bus is estimated to cost approximately $290,000. The operating needs for the proposed expanded services are the approximate funds required to operate service more frequently and/or for a longer span of service. It should be kept in mind that the operating costs are estimated on an annual basis and would be a recurring cost item (i.e., an annual budget item). Additionally, the operating costs are cumulative in that once all the low priority proposals are implemented the annual additional operating funding required would be the sum of the additional operating funds required for the "high", "medium" and "low" priority proposals.

Finally, it should also be noted that these operating funding estimates do not include any revenues which the new transit services would generate. These revenues would offset the operating costs of the new services. However, it was desirable to demonstrate the overall costs of the proposed services without any of their associated revenues in order to conservatively project and assess the financial impacts of the proposals.

Additional Capital and Operating Funding Required for Expanded Transit Service

New Capital Funding Requirements	
Priority	**Amount**
High - Fargo	$290,000
High - Moorhead	$0
Medium - Fargo	$290,000
Medium - Moorhead	$0
Low - Fargo	$580,000
Low - Moorhead	$290,000
TOTAL	**$1,450,000**
New Annual Operating Funding Requirements	
Priority	**Amount**
High - Fargo	$314,251
High - Moorhead	$0
Medium - Fargo	$454,613
Medium - Moorhead	$151,740
Low - Fargo	$365,378
Low - Moorhead	$244,021
TOTAL	**$1,530,003**

- **Fixed Route Fleet** - As shown in an earlier chapter, the fixed route bus fleet in Fargo and Moorhead consists of 25 vehicles. Via the Transportation Improvement Program (TIP) process described previously, the Fargo-Moorhead MAT systems have already budgeted the funds for the fixed route vehicles required to replace those that will exceed their useful life during the next five years (i.e., the horizon period of this planning study). As detailed in the prior chapter, seven additional peak period buses would be required to implement the proposed service expansion plan. However - as was explained in the Implementation Plan - two of these proposals have been placed beyond the horizon of this planning study. Therefore, five new additional fixed route vehicles are required for the implementation of the proposed expanded service plan. One vehicle would be required during the implementation of the High Priority proposals, another vehicle would be required during the implementation of the Medium Priority proposals, and three new vehicles would be required during the implementation of the Low

Priority proposals. Only one new fixed route vehicle would be required by Moorhead MAT during the Low Priority implementation phase, all the other new vehicles would be required by Fargo MAT.

> Over the course of the plan's implementation, approximately $1.5 million will have to budgeted in terms of capital expenditures in order to supply sufficient fixed route vehicles for the proposed new services. It is anticipated that the federal government will support the bulk of the capital financial burden at about an 80 percent share, or approximately $1.2 million. The remaining local share investment by the local funding agencies would be about $290,000.

Expansion of the Fargo-Moorhead MAT systems' services depends on availability of local funding from a variety of sources. The additional annual operating funding required to operate the expanded transit system would total approximately $1.5 million. Once again, it is important to keep in mind that - unlike the capital funding needs - the operating funding needs are an ongoing and continuing annual expense. Without this funding, service would not be provided. Therefore, before the transit systems embark on a process to obtain new fixed route buses for providing the expanding services, two actions should be taken:

- The transit systems should obtain a preliminary commitment from the local affected agencies that they are willing to provide long term financial support for the expanded service. Funding assistance from various private sector sources should also be investigated.

- The Fargo-Moorhead MAT systems should explore each of two possible ways to obtain additional fixed route buses and identify the best method to follow. The first method would be to explore the possibility of joining another agency and be a part of their bus purchase process. While this method may save some time, it may not result in the Fargo-Moorhead MAT systems getting all the features they desire in a new bus. The second method would be for the Fargo-Moorhead MAT systems to go out to bid and obtain the needed fixed route buses on their own. This may be the more time consuming option. However, it would assure that they obtain the bus features they desire. For this last option the transit systems could obtain transit buses similar to their current fleet. It is likely that such a purchase would take between 18 months and two years to accomplish, thus easily fitting into the time frame of the current TIP.

Marketing and Public Information

The Fargo-Moorhead MAT systems have most of the public information materials that inform current and potential riders of the services offered. An area for improvement is for the new West Acres Transit Center to contain expanded passenger waiting facilities as well as new signage to display schedule information for each route.

In view of the proposed service expansion, the Fargo-Moorhead MAT systems should have a marketing campaign to inform the public of the changes. In preparation for the changes, the following activities should be undertaken:

- Install new bus stop signs to reflect the new services;

- Hand-out notices to all residents and businesses along the routes of the new and expanded services;

- Prepare notices and display them in all regular service buses and at the GTC defining the service expansion;

- Implement a fare promotion program to offer reduced or even free fares for the first several days or for the inaugural week of the new service;

- Advertise in local media (e.g., newspaper and radio bulletins) of the pending service expansion; and

- Update the Fargo-Moorhead MAT systems' map and timetables to reflect the revised services.

Another aspect where improvement could be made is in the area of general marketing. The Fargo-Moorhead MAT systems should develop a strategy to promote ridership on the system. The strategy should first include a program for insuring the successful implementation of the new service recommendations which were previously described. Once the new service is implemented, the next marketing program should be directed at expanding the basic communications method of the Fargo-Moorhead MAT systems with more dynamic and innovative approaches. Some approaches successfully utilized elsewhere in the industry include:

- Direct mail program targeted at groups with the greatest potential for increased transit use. These groups would be offered a incentive to utilize public transit;

- Fare incentive programs to attract residents to either utilize service or to increase their current use;

- Rider contests and other promotional programs in order to maintain a high awareness of transit; and

- A directed "outreach program" where senior citizen groups, students, mall shoppers and employees at major employment centers are visited with a "MAT Fair" in order to promote transit.

In terms of general marketing needs, the Fargo-Moorhead MAT systems' staff have also developed several marketing incentives which should be further explored throughout the next few years. These marketing incentives are geared to improving the quality of the bus riders' experience and towards increasing overall system ridership. These marketing initiatives are as follows:

- Provide an information display case and a bench in every bus shelter;

- Be certain all bus stop signs have the new logo with the telephone information number and website address;

- Prepare stickers (which can be updated as warranted) with the route number and times a bus serves a particular stop to be placed on the back of every bus stop sign;

- List detours and marketing promotions on the website;

- Prepare an outdoor display schedule for each college campus;

- Prepare a new "Tri-College" schedule;

- Provide exterior schedule displays at the GTC;

- Prepare a "How To Ride" presentation for training workshops (especially geared towards senior citizens);

- Place the new logo with telephone information number and website address on top of the buses so they are not obscured by the advertising wraps;

- Investigate new fareboxes and payment methods.

A key component of a successful marketing program is the development of a written action plan with a follow-up review of which programs are successful and should be pursued again.

Recommended Planning Studies

Throughout the preparation of the Transit Development Plan Update it became apparent that several transit-related issues warrant more detailed study than was possible in this plan. Therefore, with extensive input and guidance from the staff of the Fargo-Moorhead MAT systems, several future planning studies for the Fargo-Moorhead metropolitan area have been outlined and recommended as part of the Transit Development Plan Update. These planning studies are as follows:

<u>Year 2002</u>

- **Moorhead MAT Route 2 Wheelchair Accommodation Analysis** - A new accessible bus will be delivered to Moorhead MAT in 2003. When placed on this high ridership route (which serves the Minnesota State University Moorhead) the delays resulting from frequent use of the wheelchair lift may require that this route be adjusted. Further study is recommended.

- **Revenue Hours and Capacity Analysis for MAT Paratransit** - This study will analyze the capacity of the MAT Paratransit system as related to the number of trip denials in order to determine when and how much of an expansion of the MAT Paratransit system is warranted. (It should be noted that Fargo MAT has programmed an expansion vehicle for the MAT Paratransit system in 2003.)

- **Night Route Analysis** - This study will analyze the potential for creating new "night routes" in order to lengthen the span of service. This technique may be used to complement and supplement the proposed lengthening of the span of service in the Transit Development Plan Update. For example, this study could examine the effectiveness of operating a combination of new night routes along with the lengthening of the span of service of selected existing routes.

- **Main Avenue Bridge Study** - This study will analyze the possibility of obtaining funding for - and then operating - a new "shuttle bus route" between the Moorhead Center Mall and the GTC while the Main Avenue Bridge is being replaced. This "bus bridge" would allow Moorhead MAT to not operate any buses into Fargo throughout the duration of the construction project, thus saving all of the running time that would otherwise have been lost in traffic congestion associated with the construction program.

Year 2003

- **Fargo-Moorhead Metropolitan Area Bus Route Traffic Control Study** - This study will analyze the feasibility and potential effectiveness of giving buses the right-of-way at intersections which presently have no traffic controls of any type and where all directions of traffic must stop. The direction of traffic opposing the bus route would be given either a "Yield" sign or a "Stop" sign so that buses would not have to constantly slow down and stop along the bus route. This would increase the reliability of transit service and warrants careful examination.

- **Intelligent Transportation System Study** - Similar to the previous study, this study would examine another method of improving the overall operating speed and reliability of a bus route. In this study, the effectiveness and feasibility of purchasing and utilizing technological systems which allow a bus to extend the "green phase" of a traffic signal so that it favors the direction of travel in which a bus is traveling will be carefully analyzed. Once again, this would increase the reliability of transit service and warrants careful examination.

- **Consolidated Facility Study** - This study will examine the feasibility of expanding the existing transit facility or constructing and operating a new consolidated transit facility which could be utilized to store and maintain the transit vehicle fleets for all of the Fargo-Moorhead metropolitan area's operators.

Analysis of Impacts on the Paratransit System

The Americans with Disabilities Act (ADA) demand responsive paratransit program is operated under contract to Fargo MAT by Laidlaw Transit, the same company which is under contract to operate the Fargo MAT fixed route bus system. It should be noted that Laidlaw Transit solely provides the vehicle operators. The scheduling, supervision, dispatching and the day-to-day administration of the demand responsive paratransit system is undertaken by Fargo MAT. In turn, Moorhead MAT contracts with Fargo MAT to operate its ADA demand responsive paratransit system through a Joint Powers Agreement. Costs for the joint system are based on a percentage of ridership, with Fargo MAT requesting reimbursement from the City of West Fargo and the City of Moorhead (i.e., for Moorhead and Dilworth rides). Seven vehicles are allocated to MAT Paratransit - five owned by Fargo and two owned by Moorhead. Storage and maintenance of the fleet is facilitated through the City Garage in Fargo.

As a result of this arrangement, Laidlaw Transit is under contract to provide vehicle operators for the ADA demand responsive paratransit system in the entire Fargo-Moorhead metropolitan area. However, an exception exists in the rural areas of Clay County, Minnesota. The demand responsive paratransit system in the rural areas of Clay County is operated by Clay County Rural Transit (CCRT) and several private organizations. The future needs of the CCRT system are described in much greater detail in the Appendix.

The demand responsive paratransit system as presently operated already does significantly more than the required and ADA-mandated minimums. Service is provided throughout all of the municipalities of Fargo, West Fargo, Moorhead and Dilworth. This goes far beyond the "complementary" (i.e., to the fixed route system) nature and intent of the ADA, which requires that service be provided only within 3/4 of a mile of a fixed bus route. Service is also provided at all times that fixed route transit service is available, in accordance with the ADA. Additionally, the demand responsive paratransit service is operated on Sundays between 7:30AM and 5:00PM, but only within the City of Fargo. However, it should be stated again that this aspect of the service far exceeds the intent of the ADA and affords mobility-impaired Fargo residents an opportunity to participate in their community's life throughout the entire week.

In May of 1996, Fargo and Moorhead combined their separate paratransit services into one operation, thereby bridging the river separating and two communities and eliminating the

need for riders to transfer. In addition, the fare structures were realigned and made equal. Initially, there was an overall increase in ridership of approximately 50 percent on the system and an additional vehicle was procured to meet demand. At the time, driver and dispatcher services were provided by a private contractor and reimbursement was based on a "per ride" basis. Complaints, late trips, missed trips, and extensive delays in service were very high.

In August of 1997, Trapeze Software, a paratransit management software, was purchased for the overall system and located at the Ground Transportation Center (GTC). Following conversion of subscription rides and entering of clients into the new software, the Trapeze system came on-line in January of 1998. The software has automated trip booking capability and provided many other benefits, including a reduction in subscription rates from over 80 percent to the current 48 percent, the ability to track capacity statistics (e.g., lengthy trips, missed trips, and early/late arrivals) and the improvement of the overall management of MAT Paratransit.

In May of 1998, the new services contract changed reimbursement to the contractor from a "per ride" basis to a flat hourly rate. This allowed Fargo and Moorhead to more readily establish revenue hours to meet demand and to monitor performance. In addition, the City of Fargo hired two paratransit dispatchers/reservationists dedicated to the MAT Paratransit operation. Wages between fixed route and MAT Paratransit drivers were equalized to retain qualified professional staff. Although several changes in personnel have impacted the efficiency

of the system at various times, recent adjustments to the dispatchers/reservationists have resulted in improved efficiency and the near elimination of complaints.

As noted earlier, ridership increased substantially after the two city paratransit systems were joined in 1996. However, for the period between 1997 and 2000, ridership began to trend downwards. As the 2000 to 2001 statistics indicate, ridership is again on the rise by approximately 6 percent, and revenue hours have increased by 5 percent, demonstrating that adjustments have been made to meet new demand. The number of denials and refusals remains less than 1 percent and has been decreasing dramatically since June 2001 due to the addition of revenue hours. Rides per hour over the past five years average 2.6, which is above the nationwide average. This would indicate that the system is operating efficiently. During 2002, the system hours are expected to remain steady, with slight increases over the following few years. An additional vehicle is scheduled for procurement by Fargo in 2003 to assist in accommodating potential increases for the future.

The proposed service expansions will not really affect the size and scope of the ADA demand responsive paratransit program in the Fargo-Moorhead metropolitan area. Even if all the proposed service modifications were implemented, the current demand responsive paratransit system would satisfy the ADA because it operates throughout the entire service area and for all

of the hours during which even the expanded transit systems would be available.

Management and Organization

In terms of the management and organizational structure of the Fargo-Moorhead MAT systems, the recommendations of the study prepared by LJR Transportation Consultants and Planners and funded by the Fargo-Moorhead Metropolitan Council of Governments as a result of the 1996 Transit Development Plan Update (i.e., the "LJR Study") are still eminently valid. The most important issue - the eventual "unification" of the two transit systems into one effective administrative and organizational body - is being slowly and methodically implemented, albeit on an extended timetable.

The LJR Study recommended a "Modified Cooperative Pacts Model" where services are contracted from one system to another. This alternative recommends a single operating entity (i.e., Moorhead MAT) where services in other jurisdictions (i.e., Fargo, West Fargo and Dilworth) would be operated by Moorhead MAT via a contract. In terms of funding, the cities and counties participating in the system would provide contract funding to Moorhead from their general fund or from a separate levy. Both federal and state aid would, of course, be contingent on a steady flow of local dollars into the public transit system.

In terms of legal issues, procurement and personnel matters would follow the laws of the state of the system providing the service (i.e., Minnesota). Local condemnation laws would have to be followed, and there are no other major legal issues which would hinder this arrangement.

The implementation of this recommendation would allow the Fargo-Moorhead MAT systems to enjoy a certain degree of autonomy from the political pressures of their respective

cities; however, this structure still allows the system to be accountable for its actions to local elected officials.

Recent joint procurement efforts illustrate the headway being made on the overall implementation of this recommendation, as do joint public information programs, materials, bus stop signs and logo design. Eventually, planning and administrative functions would also be enhanced if operated as an element of a joint "Fargo/Moorhead" transit system.

Additional effort is continuing in order to eventually create a unified administrative structure for the Fargo and Moorhead MAT systems; however, given the various institutional issues and barriers posed by any type of bi-state operation, this process will - of necessity - be somewhat time-consuming.

Drug and Alcohol Policies

A review of both the City of Fargo's and the City of Moorhead's Drug and Alcohol Policies in terms of their compliance with recently updated Federal regulations was conducted. The results clearly demonstrate that both public transit systems are in compliance with the relevant Federal regulations.

Fargo-Moorhead Metropolitan Area Transit Development Plan Update

Fargo-Moorhead Metropolitan Area Transit Systems

prepared for the

Fargo-Moorhead Council of Governments

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COMMUNITY CHARACTERISTICS

The Fargo-Moorhead Metropolitan Area Transit systems' service area is comprised of two separate but coordinated fixed route services operating in the Cities of Fargo and West Fargo, North Dakota and within the City of Moorhead, Minnesota. In addition to the Fargo and Moorhead systems, Clay County Rural Transit operates a flexible fixed route service within the City of Dilworth, which is also located within the Fargo-Moorhead metropolitan area. The four cities and the remaining portion of Cass County, North Dakota and Clay County, Minnesota, form the Fargo-Moorhead Metropolitan Statistical Area (MSA) (Figure1). Fargo and Moorhead border the Red River and jointly form the core of the metropolitan area. The Red River forms a barrier that limits vehicular access between Fargo and Moorhead to seven bridges, three of which connect the cities' central business districts. The metropolitan area may also be described as being approximately located at the intersection of Interstate Route 29 and Interstate Route 94.

The metropolitan service area is comprised of urban and suburban settings, while the area outside the Fargo-Moorhead Metropolitan Area Transit (MAT) systems' service area is primarily rural in character. The primary urban setting is the area encompassing the central business districts (CBD's) of both Fargo and Moorhead. Between the years 1970 and 2000, the Fargo-Moorhead metropolitan service area has experienced a steady increase in population growth, from 90,534 persons in 1970 to approximately 140,749 persons in 2000. The annual growth rate between these years is about 1.8 percent annually.

During the period between 1986 and 1997, the MAT service area experienced an increase in the availability of land for industrial purposes, multi-family housing, and parks and open space. The metropolitan service area also experienced significant low density residential development within the southern and western areas of Fargo, and the southern and eastern areas of Moorhead.

The employment sector in the Fargo-Moorhead metropolitan area is comprised of a diverse array of service and manufacturing jobs. Some of the largest employers in the MAT service area are in the educational and medical fields, which are located in the eastern and central parts of Fargo and in and around Moorhead's CBD. In addition, the MAT service area has experienced a growth in high-tech and computer-based companies during the past decade. These employers, combined with a strong local retail and hospitality component, as well as a comprehensive transportation system, have made the Fargo-Moorhead metropolitan service area a regional trade, manufacturing, medical, educational and distribution center.

Public transportation service in the metropolitan area is provided by the Fargo and

Moorhead Metropolitan Area Transit systems (i.e., the Fargo-Moorhead MAT systems). Since the mid-1970's, the MAT systems have been separately administered by the cities of Fargo and Moorhead, who contract with private companies to operate and maintain the buses. The Fargo-Moorhead MAT systems' services are primarily focused on the cities of Fargo and Moorhead, with limited service to West Fargo provided by Fargo MAT on a contractual basis. As mentioned earlier, Clay County Rural Transit operates flexible fixed route service within the City of Dilworth, as well as provides comprehensive public transit service for the residents of rural Clay County. Clay County Rural Transit will be described in detail in a supplementary report. Public transportation services in the outlying portions of the MSA is mainly provided by human service agencies on an "as needed" basis for those people who are unable to use regular transit service.

The purpose of this chapter is to describe the setting within which the existing Fargo-Moorhead MAT systems' services are provided. The chapter identifies major transit generators and examines information on socioeconomic characteristics and regional travel activity for the entire metropolitan region. The chapter also looks at population and employment projections for the metropolitan region. This information will be used to assess how the Fargo-Moorhead MAT systems could most efficiently utilize their resources to address existing and future market needs and to provide the background data necessary for developing service improvement proposals.

Major Generators

The following section discusses nine types of major transit generators: major employers; industrial parks; shopping centers; social service agencies; government centers; hospitals; nursing/retirement homes; multi-family housing developments; and high schools and institutions of higher learning.

Specific sites within each of the nine transit generator types in the MAT service area were located. Each of these generators was plotted on a base map showing the street network throughout the service area, and the Fargo and Moorhead bus route systems. In many instances, only those generators above a certain threshold size were noted. These threshold sizes were determined based on the consultant team's experience with what sized generators attract a sufficient number of transit trips to be considered for potential service. The information presented in this section was obtained through a variety of sources including the F-M Metro COG and Fargo-Moorhead MAT staffs. Definitions of the nine transit generator types are detailed below.

Major Employers - For the purpose of this analysis, a major employer warranting transit service consideration is defined as any employer with 500 or more employees at a single

location. Table 1 indicates all of the major employers in the Fargo-Moorhead metropolitan area. Eleven of these employers have more than 500 people at a single location. Employers such as the City of Fargo have employees at several locations. Additionally, large educational institutions which are detailed in a subsequent section also employ large numbers of people. Figure 2 displays the geographical distribution and the level of MAT service to these sites. The Map ID Code listed for each employer in the table corresponds to a letter depicted in Figure 2.

As Figure 2 shows, the majority of these employers are served by MAT regular service or special service routes. The only major employers in the metropolitan area not served by transit are Great Plains Computer and Software, the Case Corporation and the manufacturing department of the American Crystal Sugar Company.

Industrial or Business Parks - Industrial parks or business parks generally contain a high concentration of employers and employees, which generate a large number of work trips and makes them a potential location for fixed route bus service. For this analysis, all industrial parks are listed and will be considered as a transit generator. However, it should be cautioned that the availability of automobile parking at the parks and the variety of shift times can often discourage transit use to such employment sites. Figure 3 depicts the five industrial/business parks within the service area. As the figure shows, only the Moorhead Industrial Park and the West Acres Business Park are located along a MAT bus route. The remaining industrial parks are situated along the periphery of the MAT service area and do not receive fixed route bus service.

Shopping Centers - Shopping centers attract both work trips as well as shopping trips, making them an important location for fixed route bus service. For the purpose of this analysis, big-box retailers were also identified. Figure 4 depicts 18 shopping centers within the MAT service area. As Figure 4 shows, the majority of these shopping centers are located within the City of Fargo itself, particularly along the western portion of 13th Avenue. The figure also shows that all of the shopping centers pictured on the map are served by MAT routes.

Social Service Agencies - Social service agencies are another important transit generator because they mainly serve low-income minority, elderly or disabled residents in an area. These three population groups tend to rely more often on public transportation than the general public at large. Figure 5 shows that there are 10 major service agencies in the Fargo-Moorhead area. All 10 social service agencies are located along Fargo-Moorhead MAT bus routes, and are primarily concentrated in the core of the service area. Another social service agency served by the bus system is Lakeland Mental Health in Moorhead, which is not shown in Figure 5.

Government Centers and Services - Government centers and services attract both work and visitor trips, making them a location that should be served by fixed route bus service. Most government offices are located in the Fargo and Moorhead CBD's. However, the Southeast Human Service Center and Veteran's Administration Hospital in Fargo are located in the southwest and northern areas of the city, respectively, and the Clay County Courthouse and Law Enforcement Center are located in the northern part of Moorhead. MAT Routes serve all the major government offices and services. However, no public transportation serves the Hector International Airport.

Hospitals and Clinics - Public transportation is important for providing access to hospitals, particularly for senior citizens. In addition, such facilities also serve as major employment locations. These hospitals are listed and located in Figure 6. As Figure 6 shows, most of these hospitals or clinics are located in the City of Fargo and most receive MAT service.

Senior Citizen Facilities - Senior citizen facilities contain a high concentration of seniors, a population that is heavily dependant on public transit and therefore should be considered important sites to serve with fixed-route bus service. As listed and shown in Figure 7, there are 12 nursing/retirement homes within the metropolitan service area. Figure 7 shows that these homes are dispersed throughout the metropolitan service area, and with the exception of the Elim Care Center in southern Fargo, all the nursing/retirement homes are located along Fargo-Moorhead MAT bus routes.

Multi-Family Housing Developments - Multi-family housing developments or apartment complexes are important transit generators because they provide a concentration of people in one area and often have limited parking or parking restrictions for their residents. Also, apartment complexes often provide affordable housing to low income families, elderly, and disabled residents of an area. These are three population groups that typically have a higher frequency of transit dependency than the overall population. Figure 8 depicts those portions of the metropolitan area which have a "multi-family" land use housing classification; the location of these developments in the area tends to be near the bus system's routes.

High Schools, Junior High Schools and Institutions of Higher Learning - These facilities are identified as important transit generators because students at these grade levels typically represent a transit dependent market. Additionally, colleges and universities also represent large employment centers. As shown in Figure 9, five high schools and three junior

high schools are located in Fargo, one high school is located in West Fargo, two high schools and one junior high school are located in Moorhead, and one junior high school is located in Dilworth. In addition, there are eight post-secondary facilities located in the service area. These are North Dakota State University, UND School of Medicine, UND School of Medicine (SE campus), Aaker's Business College and the University of Mary, which are located in Fargo, and Concordia College, Minnesota State University Moorhead and Northwest Technical College, which are located in Moorhead. As Figure 9 shows, only the Discovery Junior High School in southern Fargo is without public transit service. D-G-F Junior High School in Dilworth receives public transit service via Clay County Rural Transit, which provides connecting service to the Fargo-Moorhead MAT systems.

Current Socioeconomic Characteristics

One of the major elements of any transit analysis is an examination of the socioeconomic factors that influence overall travel and the need for public transportation within the area served by the transit system. These factors include characteristics about the area population including population size, population density, population age, household income, housing status and the average number of automobiles per household, as well as journey-to-work patterns which are important for gauging the population's modal choice for work trips. Factors also include indicators of the level and character of economic activity. The indicator analyzed below is employment density, or the number of jobs per square mile.

The following section analyzes current conditions in the Fargo-Moorhead metropolitan area for each of the factors listed above. The data presented and discussed in this section was obtained from both the 1990 and 2000 United States Census. As of November 2001, only population and demographic data was available from the 2000 U.S. Census. As a result, the sections pertaining to household income, mode of travel, employment density and automobiles per household are based on 1990 U.S. Census data.

Metropolitan Area Definition - According to the Fargo-Moorhead Metropolitan Council of Governments, the Fargo-Moorhead metropolitan service area includes Fargo and West Fargo, North Dakota, and Moorhead and Dilworth, Minnesota. The four cities and the remaining portion of Cass County, North Dakota, and Clay County, Minnesota together form the Fargo-Moorhead Metropolitan Statistical Area (MSA) (Figure1). For the purposes of this study the analysis presented below provides an overview of the demographics for the communities currently served by the Fargo-Moorhead MAT systems. Figures 10 and 11 indicate the census tracts, and Table 2 lists the census tracts, that will be used to analyze each of the socioeconomic characteristics presented in the following sections. It should be noted that census tracts listed in

Table 2, which are located in Clay and Cass Counties, were not analyzed in the following sections. Also, Figure 12 shows the level of transit service received in the different census tracts.

Population Size - The 2000 population of the Fargo-Moorhead MSA (Clay & Cass Counties) was 174,367 people. Cass County makes up 70.6 percent of the population of the metropolitan area. This is up from 1990 when Cass County's 102,874 residents made up 67.1 percent of the metropolitan area. Over the same period, the population of Clay County grew by 1.6 percent. By 2000, Clay County's 51,229 residents made up 29.4 percent of the metropolitan area population, down from 32.9 percent in 1990. During the same time period, the rural population as a percentage of the MAT service area decreased 7.6 percent to 33,719, even though the rural population increased in real terms by 1,678 residents (5.2 percent). This migration pattern indicates that more people are settling in Fargo-Moorhead than in the rural areas outside the urban center. Some reasons for this shift may include better job opportunities and a more comprehensive array of public services.

Table 3 provides detailed population figures at a municipal level for all the communities in the MSA larger than 500 residents. As shown in the accompanying table, the breakdown of population by municipality indicates that the City of Fargo is the largest city and makes up approximately 51.9 percent of the entire area. The municipalities of Fargo, Moorhead, West Fargo and Dilworth, which comprise the service area of Fargo-Moorhead MAT's full service route network, make up 80.7 percent of the MSA population, while the rural areas outside the MAT service area comprise 19.3 percent of the MSA population. The largest municipality outside the metropolitan service area is Barnesville (with 2,173 residents), which is located along Interstate 94 in the southern Clay County. The second largest municipality outside the service area is Hawley (with 1,882 residents), which is located along U.S. Route 10 in eastern Clay County.

Fargo-Moorhead Metropolitan Statistical Area Population
Population Change 1990-2000

Area	1990 Population	% of MSA Population	2000 Population	% of MSA Population	1990-2000 Population % Change
Fargo	74,111	48.3	90,599	51.9	22.2

Area	1990 Population	% of MSA Population	2000 Population	% of MSA Population	1990-2000 Population % Change
Moorhead	32,295	21.1	32,177*	18.5	(0.4)
West Fargo	12,287	8.0	14,940	8.6	21.6
Dilworth	2,562	1.6	3,001	1.7	17.1
Clay County**	15,565	10.1	16,120	9.2	3.6
Cass County***	16,765	10.9	17,599	10.1	5.0
Total	153,296	100.0	174,367	100.0	13.7

Source: U.S. Census Bureau
*The City of Moorhead believes it was undercounted and intends to challenge the Census Bureau's count.
** Not including Moorhead and Dilworth.
*** Not including Fargo and West Fargo.

Table 2 provides the population at a census tract level for each of the tracts in the Fargo-Moorhead MSA. The table indicates that population by tract ranges from a high of 8,141 along the west bank of the Red River in central Fargo (tract 000902), to a low of 1,667 in the southern portion of the Fargo CBD (tract 000700). However, due to the varying sizes of the tracts within the metropolitan area, these figures do not provide an accurate description of the development pattern and character of the census tracts in question, and therefore provide little information about the need or feasibility of transit service in these census tracts. The following section provides more useful information in terms of transit need through an analysis of the population density in the different tracts.

Population Density - A critical factor impacting the viability of public transportation service is the density of residential development. Transit tends to attract more riders in denser areas for many reasons, including the fact that densely populated regions tend to include a diversity of income and age groups. Also, denser development patterns make residents much less dependent on automobiles to complete their daily tasks, and the less dependent a population is on automobiles, the more likely they are to use transit. As the accompanying table shows, the MAT service area contains 60.6 square miles of land area and has an overall population density of 2,322 persons per square mile. The City of Moorhead is the most densely populated at 2,401 persons per square mile, while the City of Dilworth is the least densely populated with 1,500 persons per square mile.

Fargo-Moorhead Metropolitan Service Area
Size and Population Density

County	Square Miles	Persons per Square Mile
Fargo	37.9	2,390
Moorhead	13.4	2,401
West Fargo	7.3	2,046
Dilworth	2.0	1,500
Total	60.6	2,322

Source: 2000 U.S. Census

Figure 13 displays the population density throughout the metropolitan area. As the figure shows, the most densely populated sections of metropolitan area are primarily located in the central portion of the service area, which includes Fargo's CBD, North Dakota State University, and Minnesota State University Moorhead. These areas have population densities between 5,855 and 8,077 persons per square mile. Other sections within the metropolitan area that exhibit significant population densities include the southern portion of Fargo located between the Red River and 25th Street, which has a population density between 5,855 and 8,077 persons per square mile, and the eastern portion of West Fargo, which has a population density of between 3,931 and 5,512 persons per square mile. The population is generally less dense in those areas farther removed from the central core of the service area. It should also be noted that even though the local colleges and universities foster high population densities, these areas have a large transient population that decreases when school is not in session.

Figure 14 displays the population density throughout the MSA. Figure 14 is important because it illustrates the low density land use patterns outside the MAT service area. The areas outside the service area have population densities under 500 persons per square mile.

While no single measure exists, it is generally recognized that densities in excess of 2,500 persons per square mile are necessary to make fixed route bus service viable. The sections of the Fargo-Moorhead metropolitan area exceeding 2,500 persons per square mile are presently the primary beneficiaries of MATS service. This indicates that a majority of the service area is properly served, and should obtain acceptable financial and productivity results with fixed route transit service.

Age of Population - Senior citizens represent a major market for transit because of their relatively low incomes and in some cases their inability to drive. There are 14,537 people age 65 and over in the Fargo-Moorhead metropolitan service area. This represents 10.3 percent of the overall area population. The percentage of seniors is highest in the City of Fargo, as shown in the accompanying table.

Fargo-Moorhead Metropolitan Service Area
Population Age 65 & Over

County	Number of persons 65 & over	% of population 65 & over
Fargo	9,120	62.7
Moorhead	4,104	28.2
West Fargo	997	6.8
Dilworth	316	2.2
Total	14,537	10.3%

Source: 2000 U.S. Census

Figure 15 shows that the heaviest concentrations of seniors age 65 and over are located in central portion of the metropolitan area and have senior populations between 18.6 percent and 25.2 percent. These areas are located along the Red River in the southern portion of Moorhead, and in the northern portions of the Fargo and Moorhead CBD's. Areas with senior populations between 13.6 percent and 17.0 percent are located along the Red River in the southern portion of Fargo, along Interstate 94 in the central portions of Moorhead and Fargo, and the northern portion of Fargo between 19th Avenue and 32nd Avenue. The areas with the lowest percentage of seniors are primarily located in the southern and western portions of Fargo as well as the area that includes Minnesota State University in Moorhead. These areas have senior populations between 0.7 percent and 5.6 percent.

Young people of elementary and secondary school age are another group that are often dependent on transit. As shown in the accompanying table, there is a total of 38,894 persons in the Fargo-Moorhead metropolitan service area under age eighteen. This represents 27.6 percent of the overall area population.

Under Age 18 Population

County	Number of persons under 18	% of population under 18
Fargo	23,046	59.2
Moorhead	10,000	25.7
West Fargo	4,808	12.4
Dilworth	1,040	2.7
Total	38,894	27.6

Source: 2000 U.S. Census

Figure 16 shows that the areas with the highest concentrations of children age 17 and under are located in the southeastern portion of Moorhead between Interstate 94 and Village Green Boulevard, and along the Red River in the southern portion of Fargo. The percentage of children in these areas under 17 years of age is between 30.4 percent and 32.8 percent. Figure 16 shows the under 17 population is highest in the periphery of the service area, where low density residential development is the dominant land use pattern. The areas with the lowest percentage of children age 17 and under are located in the central and western portions of the metropolitan area.

Another indicator of the potential demand for transit service from the under age 18 population is the percent of households in an area with children. Throughout the MAT service area, these figures range from a high of between 42.2 percent and 51.5 percent in the southeastern portion of Moorhead between Interstate 94 and Village Green Boulevard to a low of 2.5 percent in the Fargo CBD. Also, as shown in the accompanying table, throughout the MAT service area, 30.1 percent of all households have children. The percentage of households with children is highest in Moorhead.

Households with Children

County	Number of Households w/ Children	% of Households w/ Children
Fargo	10,751	18.6
Moorhead	11,660	20.1
West Fargo	2,410	4.2

County	Number of Households w/ Children	% of Households w/ Children
Dilworth	471	0.8
Total	57,859	30.1

Source: 2000 U.S. Census

Household Income - Another important factor impacting the viability of public transportation service is the number of low income households in an area. Lower income households tend to rely more heavily on public transit service because many are unable to afford an automobile, cannot afford a second automobile for their household, or choose not to use their limited income for an automobile. It should be noted that household income is based on data from the 1990 U.S. Census. At the time this report was completed (i.e., November 2001), only population and demographic data was available from the 2000 U.S. Census. As the accompanying table shows, 18.1 percent of all households in the Fargo-Moorhead metropolitan service area earn an annual income less than $10,000. A higher percentage of households in Fargo earn less $10,000 compared with the other areas in the metropolitan service area.

Low-Income Households

County	Number of Households w/ annual income less than $10,000	% of Household w/ annual income less than $10,000
Fargo	5,389	64.3
Moorhead	2,310	27.6
West Fargo	504	6.0
Dilworth	171	2.0
Total	8,374	18.1

Source: 1990 U.S. Census

On a census tract level, the figures for the percent of households earning less than $10,000 per year range from a high of 56.1 percent in the Fargo CBD (tract 0007), to a low of 0.00 percent in the area including and surrounding the Hector International Airport (tract

010102). As mentioned above, tract 0007 also has the highest percentage of senior citizens. Figure 17 also graphically depicts the percentage of households earning less than $10,000 per year. Figure 17 shows that the households earning less than $10,000 annually are concentrated in the core of the MAT service area, which encompasses the Fargo-Moorhead CBD, North Dakota State University, Minnesota State University Moorhead and Concordia College. However, it should be noted that a percentage of the households located within this area include student housing.

Another indicator of the need for transit in a particular area is how the median household income of a census tract compares to that of the other census tracts in the MAT service area. Again, it should be noted that median household income is derived from the 1990 U.S. Census. In the MAT service area census tract median incomes range from $49,576 in northeast Fargo (tract 0001) to a low of $8,485 in the Fargo CBD (tract 0007). Figure18 graphically demonstrates the median income ranges of the census tracts in the service area. The Figure shows that higher median incomes are located in the peripheries of the service area, and lower median incomes are found in the core of the service area, which includes the Fargo-Moorhead CBD, and the area colleges and universities.

Housing Status - The percentage of housing units in an area occupied by renters is another important factor determining the need for transit. This is because areas where a higher than average percentage of the housing stock is not owner occupied tend to be populated by lower income households. As discussed above, lower-income households are generally more reliant on transit service than the population as a whole. Figure 19 graphically demonstrates the percentage range of housing units occupied by renters in each of the census tracts in the metropolitan area. The largest concentration of renter housing units is located in the Fargo CBD as well as north and south of Main Avenue in the western portion of Fargo. In these areas, between 88.3 percent and 98.5 percent of the housing units are renter occupied. Other areas with significant rental housing include the areas in and around North Dakota State University, Minnesota State University Moorhead and Concordia College, and the central portion of Fargo. The lowest rates of rental housing are in West Fargo, and the areas along the Red River in the southern portions of Moorhead and Fargo. In these areas, between 3.9 percent and 13.0 percent of the housing units are renter occupied.

Automobiles per Household - The average number of automobiles per household in an area is a valuable indicator of the need and propensity of a population to use transit service. This is because most households with access to one or more automobiles will tend to rely solely on their automobile for their daily travel needs. Households with no automobiles must find alternative forms of transportation such as transit service. Areas with an average number of

automobiles per household of less than 1.0 have more households who have no access to an automobile. Conversely, areas where the average number of automobiles per household is closer to 2.0 or more do not tend to have many households without any automobile, and therefore the need for transit in the area is not as great. It should be noted that this section is based on data from the 1990 U.S. Census. Figure 20 graphically demonstrates the tracts of the metropolitan area with higher concentrations of households without automobiles. Figure 20 shows that most of the service area has average automobiles per household figures of 1.5 or above. Northern Moorhead and the area including and surrounding the Moorhead CBD have lower rates of 1.0 to 1.49. The only area in the MAT service area with rates less than 1.0 is the Fargo CBD (tract 0007).

Journey-to-Work Practices - Information about the current journey-to-work modal choice of the population provides insight into the propensity of the residents of an area to use transit service. It should be noted that this section is based on data from the 1990 U.S. Census. As the accompanying table shows, approximately 40 percent of the residents of the Fargo-Moorhead metropolitan service area drive to work by themselves. A very small percentage of the area population, 0.70 percent, use MAT bus service to commute to work.

Journey-to-Work Data

Journey-to-Work Mode	% of Metro Area Residents
Drive Alone	39.20
Carpool	5.20
Bus	0.70
Walk	4.70
Work at home	2.80
Other means	0.20

Source: 1990 U.S. Census

Figure 21 depicts the percentage of bus ridership within each census tract. As shown in the figure, the area including and surrounding the Fargo-Moorhead CBD, northern Fargo and southeastern Moorhead have bus ridership higher than 0.70 percent. In fact, only in the Fargo CBD (tract 0007) do more than two percent of the residents use MAT bus service to commute to work. This figure is important because people who use transit service for their work commute are much more likely to use the service for other purposes as well.

Employment Density - The concentration of jobs in a given area can attract a higher rate of transit trips. Areas with high rates of employment density, or jobs per square mile, tend to include a variety of job types and therefore workers with diverse incomes. Many workers in the lower paying positions may use transit to access the employment opportunities at the site. Also, areas with very high employment density tend to have limited parking for employees, and often employees may be expected to pay for parking. This situation often provides an incentive for employees to use transit service to commute to work.

It should be noted that this section is based on data from the 1990 U.S. Census. Figure 22 demonstrates the employment density throughout the Fargo-Moorhead service area. As the figure shows, the area with the highest concentration of employment is located in the central portion of Fargo (tract 000802), and is situated between Interstate 29 and U.S. Route 10. Employment densities higher than 3,000 workers per square mile can also be found north and south of the Fargo CBD, the area including Minnesota State University Moorhead and Concordia College, and the area including and surrounding the West Acres Mall and West Acres Business Park.

Environmental Justice - The term "Environmental Justice" refers to a specific section of the Civil Rights Act of 1964, which ensures that all United States citizens regardless of race, color, or national origin receive equal benefit or have equal access to the benefits of federally funded programs. According to the 2000 U.S. Census, the MAT service area contained 140,717 residents, of which 7,301 (5.2 percent) were non-white. For the purposes of this report, a service area average of 5.2 percent minority population has been used. Census tracts with a minority population equaling, or exceeding 5.2 percent have been identified as "census tracts with minority populations larger than the service area average." Figure 23 illustrates the minority population throughout the MAT service area. As the figure shows, the minority population is fairly evenly distributed throughout the metropolitan area. It is important to note that no significant minority population areas are without Fargo-Moorhead MAT bus service.

In the City of Moorhead, the largest concentrations of minorities are located within the CBD as well as in and around Minnesota State University Moorhead and Concordia College, and in the area south of Interstate 94. The largest concentrations of minorities in the City of Fargo are located in and around North Dakota State University, between 25th and 32nd Streets in the northwestern section of the city, between 18th and 25th Streets in the central section of the city, between University Drive and 25th Street in the southern section of the city, and between 42nd and 45th Streets in the area north of the West Acres Mall. The areas with the smallest level of minorities are located in the peripheries of the metropolitan area. The location and percentage of

households with annual income below $10,000 is shown in Figure 17. As noted earlier, income data from the 2000 U.S. Census was not available at the time this report was completed (i.e., November 2001). As a result, income data is derived from the 1990 U.S. Census.

Socioeconomic Projections

The previous section analyzed the current socioeconomic characteristics of the Fargo-Moorhead metropolitan service area in terms of their indication of the need for transit services. This section will look at population, employment and household changes that have been projected for the area over the next twenty years.

This section uses the population and economic projections provided by Fargo-Moorhead COG staff and prepared by the North Dakota State Demographer at the North Dakota State University.

Population - According to the population projections prepared by North Dakota State University State Demographic staff, the population of the Fargo-Moorhead MSA will grow by approximately 26.3 percent between 2000 and 2030.

As the accompanying table shows, the North Dakota State Demographer projects that the fastest growth will occur in the Cities of Fargo and West Fargo, where the population will grow by 42.1 and 56.7 percent, respectively, over the thirty-year period.

As the population of the City of Fargo continues to grow, by 2030 it will comprise a slightly greater percentage of the overall MAT service area population compared with 2000 figures. As shown in the accompanying table, by 2030 58.5 percent of the MAT service area population will live in the City of Fargo. This percentage has grown from 51.9 percent in 2000 and 48.3 percent in 1990.

The MAT service area as a whole will represent 87.6 percent of the MSA population in 2030, up from 80.6 percent in 2000. During the same time period, Cass and Clay Counties' rural population compared with the population of the MSA as a whole is expected to decrease 14.5 percent and 24.1 percent, respectively.

Finally, it should be noted that by 2030 the rural population of the MSA is expected to represent 12.3 percent of the MSA population, down from 19.3 percent in 2000.

Fargo-Moorhead MAT Service Area Population
Population Change 2000-2030

Area	2000 Population	% of MSA Population	2030 Projected Population	% of MSA Population	2000-2030 Population % Change
Fargo	90,599	51.9	128,722	58.5	42.1
Moorhead	32,177	18.5	37,082	16.8	15.2
West Fargo	14,940	8.6	23,404	10.6	56.7
Dilworth	3,001	1.7	3,708	1.7	23.6
Clay*	16,051	9.2	12,184	5.5	(24.1)
Cass**	17,599	10.1	15,046	6.8	(14.5)
Total	174,367	100.0	220,146	100.0	26.3

Source: Dr. Richard Rathge, North Dakota State Demographer, NDSU

*Does not include the Cities of Moorhead and Dilworth.

**Does not include the Cities of Fargo and West Fargo.

Household Projections - Between the years 1990 and 2000, the number of households in the Fargo-Moorhead metropolitan service area increased by 11,934 households (25.6 percent). According to household projections provided by the North Dakota State Demographer, the number of households will increase by over 34,504 households between 2000 and 2030. The chart below provides a breakdown of this household growth by city. As the accompanying table shows, more households will be located in Fargo over the thirty-year period, but the rate of growth is much faster in the City of West Fargo. From 2000 to 2030, West Fargo will increase its number of households by 84.3 percent, while households will increase in Fargo by 64.9 percent.

Fargo-Moorhead MAT Service Area Households
Household Change 2000-2030

City	2000 Households	% of Service Area HH's	2030 Projected Households	% of Service Area HH's	2000-2030 Household % Change
Fargo	39,268	67.9	64,768	70.1	64.9
Moorhead	11,660	20.2	15,338	16.6	31.5
West Fargo	5,771	10.0	10,638	11.5	84.3
Dilworth	1,160	2.0	1,619	1.8	39.6
Total	57,859	100.0	92,363	100.0	59.6

Source: Dr. Richard Rathge, North Dakota State Demographer, NDSU

Employment Projections - Between the years 1990 and 2000, the Fargo-Moorhead metropolitan service area added 20,776 jobs to the local economy (a 30.5 percent growth rate). According to employment projections provided by the North Dakota State Demographer, employment in the Fargo-Moorhead metropolitan service area will grow by over 28,797 jobs between 2000 and 2030. The accompanying table provides a breakdown of this job growth by city. As the table shows, more jobs will be created in the City of Fargo over the thirty-year period, but the rate of growth will be higher in the City of West Fargo. From 2000 to 2030, West Fargo will increase its employment base by 56.7 percent, while jobs will grow by 42.1 percent in Fargo.

Fargo-Moorhead MAT Service Area Employment Growth
2000-2030

County	2000 Total Employment	2030 Projected Total Employment	2000-2030 Total Employment % Change
Fargo	50,383	71,585	42.1
Moorhead	17,588	20,268	15.2
West Fargo	7,987	12,512	56.7
Dilworth	1,657	2,047	23.5
Total	77,615	106,412	37.1

Source: Dr. Richard Rathge, North Dakota State Demographer, NDSU

Summary

This chapter provided an analysis of the types of destinations and institutions that tend to generate transit demand as well as the various factors that affect the need and the propensity of an area population to use transit. As shown in the Major Generators section of this chapter, Fargo-Moorhead MAT provides good service coverage to a high percentage of the major transit generators located in the service area. Also, by cross referencing the various figures depicting the socioeconomic characteristics of the Fargo-Moorhead metropolitan service area with Figure 12, which overlays Fargo-Moorhead MAT routes on the area census tracts, it can be observed that Fargo-Moorhead MAT does serve the areas of the service area where, judging by the indicators analyzed above, the need for transit would be the greatest.

Potential for expanded or new types of service to various parts of the Fargo-Moorhead metropolitan service area, and the feasibility of new services in the service area, will be discussed in a later chapter.

EXISTING TRANSIT SERVICES

The Fargo-Moorhead Metropolitan Area Transit (MAT) systems are comprised of two separate but coordinated fixed route services operating in Fargo and West Fargo, North Dakota and Moorhead, Minnesota. Public transportation service in the City of Dilworth is provided by Clay County Rural Transit. Fargo and Moorhead also jointly operate the mandatory Americans with Disabilities Act (ADA) complementary paratransit system - MAT Paratransit - which provides service in Fargo, West Fargo, Moorhead and Dilworth. The City of Moorhead also operates "Dial-A-Ride", a demand responsive door-to-door service for senior citizens 62 years of age and older.

This chapter presents a description of the existing Fargo-Moorhead MAT systems, as well as Clay County Rural Transit (i.e., its fixed route service). The primary focus of this existing public transportation services report is on the scheduled, fixed-route bus transit service operated by the Fargo-Moorhead MAT systems.

System Overview

Fargo MAT - Fargo MAT is the larger of the two transit systems operating in the metropolitan service area, and operates ten regular fixed routes and two special limited service fixed routes that provide daily service throughout the City of Fargo. Fargo MAT operates a "pulse" system with transfers among Fargo routes and between Moorhead MAT routes taking place at Fargo's Ground Transportation Center (GTC), located at 502 NP Avenue. All routes except Route 20, Route 25, Route 19 and the West Fargo Route begin and end at the GTC. Route 25 arrives and departs from the K-Mart located on 22nd Avenue South and offers connecting service to Routes 14 and 18. Route 19 operates as a shopping circulator, which serves the West Acres Mall area and the numerous retail stores along 13th Avenue, as well as provides connecting service to Routes 15, 16, 18 and 20. It should be noted that Fargo MAT's Route 19 is operated in conjunction with the Fargo Transportation Management Association (TMA), a consortium of businesses and public agencies seeking to mitigate traffic congestion. Finally, the West Fargo Route serves the City of West Fargo and arrives and departs from the West Acres Mall, and offers connecting service to Routes 15, 16, 18, 19, 20 and 25. There is no charge for transfers in the Fargo bus system, or between the Fargo and Moorhead systems. All twelve of these routes operate under a set schedule along a fixed route. Together, these routes comprise Fargo MAT's transit system, as illustrated in Figure 24. It should be noted that Fargo MAT Route 20, which was recently implemented, is not illustrated in Figure 24. Table 4 provides a list of all Fargo MAT routes and identifies the terminal points for each.

Moorhead MAT - Moorhead MAT consists of six regular routes and two special limited service fixed routes which provide service throughout the City of Moorhead. Four of the six routes pulse at the GTC in Fargo where transfers to other Moorhead and Fargo buses are accommodated without charge. Routes 3 and 5 offer transfers onto Routes 1 and 2 at the Moorhead Holiday Mall transfer site. Moorhead MAT also operates an Evening College Bus Service designed to meet the needs of Minnesota State University Moorhead and Concordia College students. The service is comprised of two buses, which are free to college students, as the service is paid for by student activity fees and the Minnesota Department of Transportation. Non-students may ride the buses for normal fixed route fares. The service is designed to serve the students' shopping, recreational and work needs. There is no charge for transfers in the Moorhead bus system. All eight of these routes operate under a set schedule along a fixed route. Together, these routes comprise Moorhead MAT's transit system, as illustrated in Figure 24. Table 4 provides a list of all Moorhead MAT routes and identifies the terminal points for each.

Clay County Rural Transit - Clay County Rural Transit (CCRT) operates two commuter routes along Highway 10, which provide public transit service from the rural communities Detroit Lakes, Audubon, Lake Park, Hawley, Glyndon, and Barnesville to the Fargo-Moorhead metropolitan area. In addition, CCRT operates daily flexible fixed route service within the City of Dilworth, which also provides connecting service to the Fargo-Moorhead MAT bus systems. CCRT also operates a comprehensive demand responsive service, which will be analyzed in detail in another section of this report.

Route Description

Regular Fixed Route Bus Route Service - Fargo MAT - The following ten bus routes comprise the Fargo MAT system's regular route fixed route bus network:

Route 11 - Purple - This route operates between the GTC and Trollwood Village. Twelve (12) round-trips per day extend to 32nd Avenue North. Route 11 also serves MeritCare Health System, the Harry Howland Swimming Pool, Washington Elementary School, North High School, NorthPort Shopping Center, and Trollwood Village. The northbound Route 11 bus operates north on 5th Street, west on 2nd Avenue, north on Broadway, east on 3rd Street, west on 32nd Avenue North. The southbound Route 11 bus operates in the opposite direction back to the GTC.

Route 12 - Brown - This bus route operates between the GTC and Trollwood Park. Twelve (12) round-trips per day extend to 35th Avenue between Cherry Lane and Elm Street. Route 12 also serves US West Communications, the library, Fargo City Hall, Fargo Police Department, Community Health Center Park, Fargo Chamber of Commerce, MeritCare Health System, the El Zagel Golf Course, Percy Goodwin park, Veterans Administration Hospital, and the Longfellow Elementary School. The northbound Route 12 bus operates north on 5th Street, east on NP Avenue, north on 4th Street, east on 15th Avenue, north on Elm Street, west on 32nd Avenue North, north on Cherry Lane and east on 35th Avenue. The southbound Route 12 bus operates in the opposite direction until 1st Avenue, where the bus goes west, then south on 5th Street towards the GTC.

Route 13 - Green - This bus route operates between the GTC and Fargodome/NDSU. Twelve round-trips per day extend to 25th Avenue North and University Drive. Route 13 also serves the Pioneer Building, the Federal Building Courthouse, Roosevelt Elementary School, North High School, K-Mart, the Fargodome, North Dakota State University, Sun Mart, Woodrow Wilson High School and the Downtown Post Office. The northbound Route 13 bus operates a one-way loop starting at the GTC, then north on 5th Street, west on 1st Avenue, north on 10 Street and west on 25th Avenue North, south on North University Drive, east on 2nd Avenue, south on Roberts Street and east on NP Avenue back to the (GTC).

Route 14 - Red - This bus route operates between the GTC and South K-Mart. Twelve round-trips per day extend to 27th Avenue and University Drive. Route 14 also serves the YMCA, Gateway Shopping Center, Community Theater, Jerry Sherling Court Complex, Hornbacher's Express, Southside Hopping Center, K-Mart, Nativity Elementary School, Dakota Heartland Health System, St. Anthony of Padua Elementary School, County Court House and the County Law Enforcement Center. The southbound Route 14 bus operates south on 4th Street, west on 13th Avenue, south on University Drive, west on 25th Avenue, south on 14th Street and east on 27th Avenue. The northbound Route 14 bus operates north on University Drive, east on 13th Avenue, north on 10th Street and east on NP Avenue (GTC).

Route 15 - Orange - This bus route operates between GTC and the West Acres Mall. Twelve (12) round-trips per day extend to the GTC located on NP Avenue. Route 15 also serves the Homestead Mall, Southeast Human Services, St. Anthony of Padua Elementary School, County Court House, County Law Enforcement Center, Red River Mall, Federal Court House, United Blood Services, Bethany Homes, Agassiz Junior High School, Best's Crossroad Plaza, Holiday

Inn, Village West Mall and the West Acres Business Park. The eastbound Route 15 operates east on 13th Avenue, north on 28th Street, east on 9th Avenue, south on 25th Street, east on 13th Avenue, north on 10th Street and east on NP Avenue. The westbound Route 15 bus operates north on 5th Street, west on 1st Avenue North, south on University Drive, west on 13th Avenue and south on 38th Street SW.

Route 16 - Teal - This bus route operates between the GTC and the West Acres Mall. Twelve round-trips per day extend to 42nd Street between 13th and 17th Avenue SW. Route 16 also serves the High Rise (upon request), YMCA, Gateway Shopping Center, Jerry Sherling Court Complex, Prairie Psychiatric, Dakota Hospital, Lewis and Clark Elementary School, Southwest Park Coliseum, Prairiewood Post Office, North Dakota Job Service, Best's Crossroad Plaza, Homestead Mall, West Village Mall, West Acres Business Park and the Prairiewood Golf Course. The westbound Route 16 bus operates south on 4th Street, west on 13th Avenue, south on 5th Street, west on 17th Avenue, north on 32nd Street, west on 13th Avenue, south 38th Street SW. The eastbound Route 16 bus operates south on 34th Street, east on 14th Avenue, then proceeds east in the opposite direction of the westbound route towards the GTC.

Route 17 - Yellow - This bus route operates between the GTC and Madison School and NDSU. Eleven round-trips per day extend to 32nd Street between 11th and 12th Avenues. Route 17 also serves the Red River Mall, Federal Courthouse, United Blood Services, Unicorn Park, New Life Center, Madison Elementary School, YMCA and Woodrow Wilson High School. The Route 17 bus operates a one-way loop starting at the GTC, then north on 5th Street, west on 1st Avenue, north on 15th Street, west on 3rd Avenue North, north on 25th Street, west on 8th Avenue, north on 29th Street, west on 11th Avenue North, north on 32nd Street, east on 12th Avenue North, south on University Drive and east on NP Avenue back to the GTC.

Route 18 - Tan - This bus route operates between the GTC and the West Acres Mall. Twelve round-trips per day extend to 42nd Street SW. Route 18 also serves the Federal Courthouse, United Blood Services, Community Homes, SEHS, Best's Crossroad Plaza, Homestead Mall, Buena Vista Trailercourt and the Holiday Inn. The westbound Route 18 bus operates north on 5th Street, west on 1st Avenue North, south on University Drive, west on 5th Avenue South, south on 23rd Street, west on 9th Avenue, north on 25th Street, west on 7th Avenue, south on 28th Street, east on 9th Avenue, south on 25th Street, west on 13th Avenue South, north on 38th Street, west on 9th Avenue, north on 40th Street, west on 2nd Avenue SW and south on 42nd Street. SW. The eastbound Route 18 bus operates in the opposite direction until the intersection 13th Avenue South and 28th Street South, where the bus goes east on 9th Avenue. At this point, the Route 18 bus continues in the opposite direction, but instead of going north on University Drive, the bus

continues east on 5th Avenue South, north on 10th Street and east on NP Avenue (GTC).

Route 20 - Gold - This bus route operates between Stevens Hall on the NDSU campus and the West Acres Mall. Twenty-eight round-trips per day are operated on Route 20. The southbound Route 20 bus operates west on Centennial Drive, north on 18th Street North, east on 17th Avenue North, south on University Drive North, west on Administration Avenue, west on 12th Avenue North, south on Interstate Route 29, north on 38th Street Southwest, west on 9th Avenue Southwest and south on 42nd Street Southwest into the West Acres Mall Transfer Point. The northbound Route 20 bus departs the West Acres Mall via eastbound 13th Avenue Southwest, then north on Interstate Route 29, east on 12th Avenue North and north on Bolley Drive to Centennial Drive.

Route 25 - Blue - This bus route operates between the South K-Mart and West Acres Mall. Twelve round-trips per day extend to 32nd Avenue. Route 25 also serves the Orth Institute and the South. Pte. Clinic. The southbound Route 25 bus operates north on 25th Street, west on 7th Avenue, south on 28th Street, east on 9th Avenue, south on 25th Street, east on 32nd Avenue, north on University Drive, west on 25th Avenue, south on 15th Street and east on 27th Avenue. The northbound Route 25 bus operates in the opposite direction back to West Acres Mall.

Regular Fixed Route Bus Service - Moorhead MAT - The following six bus routes comprise the Moorhead MAT's regular route fixed route bus network:

Route 1 - This bus route operates between the GTC in Fargo and the Holiday Mall in Moorhead. Twenty-five (25) round-trips per weekday extend to 24th Avenue South. Route 1 also serves the U.S. Bank, Concordia College, Riverside Elementary School, Concordia Stadium and the Moorhead Center Mall. The outbound Route 1 bus travels east from Fargo on Center Avenue, then travels a one-way loop starting at the intersection of Center Avenue and 8th Street where the bus travels south on 8th Street, south on 7th Street, west on 24th Avenue South, north on 5th Street and west on Center Avenue towards Fargo back to the GTC.

Route 2 - This bus route also operates between the GTC in Fargo and the Holiday Mall in Moorhead. Twenty-five (25) round-trips per weekday extend to 24th Avenue South. Route 2 also serves the U.S. Bank, Hornbachers's, Minnesota State University Moorhead, Concordia Stadium, Junior High School, Holiday Mall, Thomas Edison Elementary and the Midtown at Main. The outbound Route 2 bus travels east from Fargo on Center Mall Avenue, then travels in

a one-way loop starting at the intersection of 11th Street South and 2nd Avenue South where the bus travels south on 11th Street, east on 24th Avenue South, north on 14th Street South, west on 2nd Avenue South, north on 11th Street South and west on Main Avenue towards Fargo back to the GTC.

Route 3 - This bus route operates between the Holiday Mall and the Target in Moorhead. Twenty-five (25) round-trips per weekday extend to 34th Street and Highway 10. Route 3 also serves the Thomas Edison Elementary School, Moorhead Industrial Park, Meadows Golf Course, Cash Wise, K-Mart, Moorhead High School, municipal pool, Technical College and Probstfield Elementary School. The outbound Route 3 bus operates a one-way loop starting on 24th Avenue South, then north on 14th Street South, east on 12th Avenue South and north on 34th Street South. At this point, the Route 3 bus travels south on 34th Street, then continues its one-way loop by traveling east on 4th Avenue South, south on 20th Street and west on 28th Avenue South.

Route 4 - This bus route operates between the GTC in Fargo and the Target in Moorhead. Twenty-five (25) round-trips per weekday extend to 34th Street. Route 4 also serves the Target, Wal-Mart, Cash Wise, K-Mart and the Moorhead Center Mall. The outbound Route 4 bus operates a one-way loop starting at the intersection of 1st Avenue and 8th Street, then travels east on 1st Avenue North, north on 34th Street, west across the K-Mart parking lot, north on 30th Street, west on 4th Avenue North, north on 28th Street North, west on 6th Avenue North, south on 24th Street North, west on 5th Avenue and south on 14th Street North. At this point, the Route 4 bus travels west on 1st Avenue North, south on 8th Street and west on Center Avenue towards Fargo and the GTC.

Route 5 - This bus route operates between the Holiday Mall and the Village Green Golf Course in Moorhead. Twenty-five (25) round-trips per weekday extend to Village Green Drive. Route 5 also serves the Probstfield Elementary School, Technical College, Village Green Clubhouse, Safari Theater, Red River Inn and the Super 8. The outbound Route 5 bus operates a one-way loop starting at 28th Avenue South, then travels south on 20th Street South, east on Village Green Boulevard and south on 33rd Avenue South. At this point, the Route 5 bus gets back on Village Green Boulevard for a short time, then travels north on Village Green Drive and back onto Village Green Boulevard heading west. The Route 5 bus continues its one-way loop at the intersection of Village Green Boulevard and 20th Street South, then south on 20th Street South, west on 34th Avenue South, north on 18th Street South, west on 30th Avenue South, south on 14th Street South, west on 34th Avenue South, north on 32nd Avenue South, north on 9th Street South., west on 30th Street South, south on 5th Street South, south on Rivershore Drive, east on 37th Avenue South and north on 8th Street South towards the Holiday Mall.

Route 6 - This bus route operates between the GTC and the Moorhead Manor in Moorhead. Twenty-five (25) round-trips per weekday extend to 20th Street North. Route 6 also serves the U.S. Bank, the Family Service Center, Court House, Robert Asp Elementary School, George Washington School, Young's Northside Retirement Home, Mobile Manor, the River View High Rise, the Park View and the Heritage Center. The outbound Route 6 bus operates east on Center Avenue, north on 8th Street, east on 2nd Avenue North, north on 9th Street North and east on 3rd Avenue North. At this point, the Route 6 bus operates a one-way loop starting on 11th Street South, then east on 10th Avenue North, south on 14th Street North, east on 7th Avenue North, north on 20th Street North, west on 13th Avenue North and west on 15th Avenue North. The Route 6 bus then travels back down 11st Street South, west on 3rd Avenue North, south on 9th Street South, west on 2nd Avenue North, south on 8th Street and west on 1st Avenue towards Fargo and the GTC.

Special Fixed Route Bus Service - Fargo MAT - The following two bus routes comprise the Fargo MAT's special fixed route bus network:

Route 19 - Shopping Circulator - This Circulator route provides connecting service between routes 15, 16, 18, 20 and 25 and the West Acres Mall and the numerous retail stores along 13th Avenue Southwest. The Shopping Circulator buses operate a one-way loop starting at the intersection of 17th Avenue SW and 38th Street, then north on 38th Street, west on 13th Avenue, north on 42nd Street, west on 9th Avenue, south on 43rd Street, east on 10th Avenue, south on 43rd Street, west on 13th Avenue, south on 48th Street, east on 16th Avenue, south on 47th Street, and east on 17th Avenue SW.

Route 21 - West Fargo Route - This bus route operates between the West Acres Mall in Fargo and 8th Street SW in West Fargo. The West Fargo route is provided under a contractual arrangement by the City of Fargo. Eight round-trips per day extend to 8th Street SW. Route 21 also serves the T.J. Maxx Plaza, Community Living Center, Kum-n-Go, West Side School, High Rise, City Hall, West Fargo High School, and the transfer point at 45th Street and 13th Avenue where it meets other Fargo MAT buses. The West Fargo route buses operate a one-way loop starting at the West Acres Mall, then north on 42nd Street SW, west on 13th Avenue, north on 8th Street SW, east on Frontage Road, south on Sheyenne Street, east on 4th Avenue East, south on 9th Street East, east on 7th Avenue East and south on 45th Street.

It should also be noted that Fargo MAT also operates a campus circulator bus at NDSU which remains exclusively "on campus" and is utilized exclusively by the NDSU community. This recently implemented bus route is not described in detail here nor in Table 4, nor is it mapped in Figure 24. This bus route only operates on days when school is in session.

Special Fixed Route Bus Service - Moorhead MAT - The following two bus routes comprise the Moorhead MAT's special fixed route bus network:

Evening Route North - This bus operates between the Concordia Library and the GTC in Fargo. Seven trips per evening extend to Roberts Street in Fargo. The North Route also serves the Minnesota State University Moorhead Union, Moorhead Senior High School, retail stores along Highway 10 in Moorhead and in Dilworth, the EasTen Mall, shops along Center Avenue, Moorhead Center Mall and the Fargo Theater. The North Route bus operates a one-way loop starting at the Concordia Library at 9th Avenue South, then east on 7th Avenue South, north on 8th Street South, east on 6th Avenue South, south on 17th Street, east on 9th Avenue South, east on 12th Avenue South, north on 20th Street , north on 21st Street, east on Highway 10, south on 30th Street, north on 32nd Street, back on Highway 10 heading east, west on 4th Avenue North, south on Highway 75, west on Center Avenue, west on 4th Avenue South, north on 8th Street, west on 1st Avenue North into Fargo, south on Roberts Street, east on NP Avenue and south on 4th Street toward Concordia Library.

Evening Route South - This bus operates between the Concordia Library in Moorhead and the West Acres Mall. Seven trips per evening extend to 42nd Street SW in Fargo. The South Route also serves the Minnesota State University Moorhead Union, Technical College, Holiday Mall, the businesses along 42nd Street SW and the West Acres Mall in Fargo. The South Route operates a one-way loop starting at Concordia College at 9th Avenue South, then travels east on 7th Avenue South, north on 8th Street South, east on 6th Avenue South, south on 17th Street, east on 9th Avenue South, south on 19th Street South, east on 12th Avenue South, south on 20th Street South, west on 24th Avenue South, south on 8th Street South, west on Interstate 94 towards Fargo, north on Interstate 29, west on 13th Avenue, north on 38th Street SW, west on 9th Avenue South, south on 42nd Street SW, east on 17th Avenue SW and north on 38th Street SW. At this point, the South Route travels in the opposite direction along Interstates 29 and 94 until Highway 75, where the South Route goes south, then east on 35th Avenue to the Safari Theater. The South Route then travels west on 30th Avenue, north on Highway 75 and north on 8th Street towards Concordia Library.

Special Fixed Route Bus Service - Clay County Rural Transit - The following bus routes comprise CCRT's fixed route bus network.

Dilworth Route - This bus operates between the Cash Wise and the intersection 4th Avenue NE and 3rd Street NE. Four trips per weekday extend to 7th Street NE in Dilworth. The Dilworth Route also serves the businesses along U.S. Route 10 and Frontage Road, Dilworth City Hall, the Dilworth Post Office, the Dilworth Inn, Houge Estates, Dilworth Elementary School and the Dilworth Community Center. The Dilworth route operates a one-way loop starting in front of the Cash Wise on U.S. Route 10, then continues east on U.S. Route 10, south on 4th Street SW, east on 1st Avenue SW, north on 7th Street NE, west on 4th Avenue NE, south on 3rd Street NE, west on 2nd Avenue NE, south on Main Street, west on 1st Avenue NW, south on County Road 9 and back on U.S. Route 10 heading west towards the Cash Wise.

Commuter Routes - As previously mentioned, Clay County Rural Transit also operates two commuter bus routes. One route operates between the Fargo-Moorhead metropolitan area and Barnesville, while the other operates between Fargo-Moorhead and Detroit Lakes via U.S. Route 10. These routes operate only one round trip per weekday.

Frequency of Service - Table 5 indicates the frequency of service (i.e. how often the bus on a particular bus route is operated) for each of the Fargo-Moorhead MAT bus routes. As Table 5 shows, the peak period frequencies of Fargo-Moorhead MAT's regular routes range from every 30 minutes to every 60 minutes. Frequencies remain the same in the midday hours and the PM peak period, but fall off or cease entirely in the evening. With the exception of Fargo MAT's Route12 , all Fargo-Moorhead regular fixed route buses operate on Saturdays, and all the routes (with one exception) operate hourly. Route 19 operates at 30 minute frequencies on Saturdays. It should be noted that during the summer months, Moorhead Routes 1, 3, 4 and 5 run hourly service during the midday period. Fargo MAT's limited service Route 19 operates at 30 minute frequencies during the weekdays but provides no evening service. The West Fargo Route operates at lower frequencies and is geared more towards providing citizens access to the retail and business establishments located in West Fargo. Moorhead MAT's limited service routes provide limited daily and evening service and are geared more towards providing specialized service to shopping and community facilities. The two evening college routes do not operate between May 5th and August 27th, and do not operate during holidays and school breaks.

Span of Service - Table 6 indicates the span of service for each of Fargo-Moorhead MAT's bus routes. As the table shows, the majority of Fargo-Moorhead MAT service stops

before 7:00PM. Six routes provide later evening service. All but one of Fargo-Moorhead MAT's regular routes provide service on Saturdays. None of these routes offer Sunday service. All four of Fargo-Moorhead MAT's limited service routes provide Saturday service, and none provide regular Sunday service. Moorhead's evening college routes provide special Sunday service on December 3rd and 10th.

Fargo-Moorhead MAT Fixed Route System Fare Structure

Fargo-Moorhead MAT has a comprehensive fare structure for the fixed route bus service. Fares can vary depending on whether a patron uses cash, tokens, or a monthly pass. The fare can also vary depending on whether or not the patron belongs to certain groups. The system offers free transfers and allows children under six years of age to ride for free. The accompanying table provides a summary of the Fargo-Moorhead MAT fare structure, which has remained constant since January 1st, 1998.

Fargo-Moorhead MAT Systems
Fixed Route System Fare Structure

Fargo -Moorhead MAT			
Category	**Cash**	**Token**	**Monthly Pass**
Single Ride	$1.00	.90	$32.00
Senior (62 and over)	.50	.50	$20.00
Disabled (w/ special user card)	.50	.50	$20.00
Medicare Cardholder	.50	.50	$20.00
Youth (K-12th)	.50	.50	$20.00
Child With Adult (6 and under)	Free with adult		
Transfers	Free		

Source: F-M MAT Staff

Fargo-Moorhead MAT Transit System Description

This section describes the Fargo-Moorhead MAT systems and the assets that the systems utilize to provide and operate their various public transportation services throughout the Fargo-Moorhead metropolitan area.

Transit Administration - Fargo-Moorhead MAT is comprised of two separate but coordinated fixed route services operating in Fargo and West Fargo, North Dakota, and Moorhead and Dilworth, Minnesota. Fargo and Moorhead oversee administration and management of the their transit systems but transportation services, drivers and dispatchers are contracted to Laidlaw Transportation Services and Red River Trails Incorporated, respectively. In Moorhead, the mechanics who maintain the system's buses are also employed by Red River Trails. Fargo MAT is governed by a City Commission and Moorhead MAT is governed by a City Council. Each system employs a full-time Transit Manager, and both systems are equipped with staff that has the internal capacity to fulfill its planning needs including the design and implementation of bus routes and operational changes, preparation of planning documents, budgets, grant applications and other activities relative to the overall administration of the transit systems. The Fargo-Moorhead MAT systems also work closely with the Fargo-Moorhead Council of Governments who prepare and maintain a continuous, comprehensive and coordinated transportation planning process for the metropolitan area.

Fleet Inventory - The Fargo-Moorhead MAT fleet utilized to provide the fixed route transit service consists of 25 vehicles as shown in the accompanying table.

Fargo/Moorhead MAT Systems Fleet Inventory

Year	Make	Type	Passenger Seats	Wheelchair Lift Equipped	Number in Fleet
Fargo MAT					
1981	GMC	35' RTS	35	Yes	5
1997	New Flyer	35' LF35	29	Yes	5
1992	GIL	35' Phantom	37	Yes	2
1993	GIL	35' Phantom	37	Yes	1
Moorhead MAT					
1987	Orion II	25' Low Floor	22	Yes	8
1997	New Flyer	35' Low Floor	29	Yes	2
1981	GMC	35' RTS	35	No	2
Average Age of Current 25 Bus Fleet: 12.24 years					

Source: F-M MAT Staff

As the table shows, the average age of the fleet is 12.24 years, which is essentially at the guideline of twelve years suggested by the Federal Transit Administration (FTA). The 1981

GMC RTS buses have outlived their useful life expectancy of 12 to 15 years. However, all of Moorhead's 1987 Orion buses have been rebuilt between 1998 and 2000, and both Fargo and Moorhead have new buses on order for 2001. Fargo's new buses will replace the five GMC buses that are 20 years old. The average age of the bus fleet including Fargo's new buses and Moorhead's rebuilt Orion buses is only 5.8 years.

Staffing Levels - As shown in the chart below, the Fargo-Moorhead MAT systems have a total of 62 employees. More than half (64.0 percent) of Fargo-Moorhead MAT's employees are fixed route bus drivers. An additional 25 percent of the employees are in operations, while the remainder of Fargo-Moorhead MAT's employees (11.0 percent) are paratransit vehicle drivers.

As noted earlier, Fargo MAT contracts with a private operator for driver and fixed route dispatch services, and Moorhead MAT contracts with a private operator for maintenance, storage and driver services.

Fargo-Moorhead MAT Systems Employees

Category	Full-Time Number	Part-Time Number
Fargo MAT		
Fixed Route Drivers	16	5
Paratransit	6	1
Operations	8	2
Sub Total	30	8
Moorhead MAT		
Fixed Route Drivers	13	6
Operations	4	2
Sub Total	17	8
Total	**46**	**16**

Source: F-M MAT Staff

Administrative and Maintenance Facility - Fargo owns and operates a maintenance and vehicle storage facility. This facility is used to store and maintain the transit buses and paratransit vehicles. City employees perform all the maintenance. Moorhead leases a general maintenance facility as part of its transportation services contract with Red River Trails. In addition, the City of Fargo owns and operates the Ground Transportation Center transfer terminal located at 502 NP Avenue in downtown Fargo, which is the transfer point for most routes serving Fargo and Moorhead. Moorhead contributes 33 percent of the cost of operating the GTC, but Fargo and Moorhead share revenue from the sale of passes and tokens. The Fargo Buildings and Grounds Department is in charge of maintenance at the GTC. The GTC has a fourfold function. First, it provides office space for the Fargo Transit Administrator, the MAT Paratransit and Laidlaw Transportation Services. Second, the GTC functions as a driver's lounge. Third, the facility houses the dispatch services for Fargo's and Moorhead's fixed route and paratransit buses. Fourth, it provides a transfer point for passengers and a seating area with information on MAT.

Passenger Amenities - Both cities provide shelters and benches at key locations throughout the metropolitan area. Fargo currently provides thirty-one shelters, and Moorhead provides twenty-one.

Fargo MAT Fixed Route System Operating and Ridership Trends

This section provides an analysis of the operating and ridership trends at Fargo MAT between fiscal years 1995 through 2000. Due to the fact that the Fargo and Moorhead systems report separately to the National Transit Database, this section analyzes only Fargo MAT with an analysis of the Moorhead system following. To determine operating, financial and ridership trends during the past six years, relevant statistics were compiled for fiscal years 1995 through 2000. It should be noted that these statistics were derived from the National Transit Database (i.e,"Section 15") reports submitted to the Federal Transit Administration (FTA). In addition, Fargo MAT did not submit Section 15 reports for the years 1996 and 1997 due to the threat of flooding that occurred in the City of Fargo in 1997.

Fargo MAT Fixed Route System Operating Statistics - As Table 7 shows, vehicle miles and vehicle hours increased between 1995 and 2000, while peak vehicles declined 7.1 percent during the same period. Over the six year period, vehicle miles increased by 13.3 percent, while vehicle hours increased 12.3 percent. The increase in vehicle miles and hours is

most likely due to the addition of new Fargo MAT bus routes into the outlying areas of the City of Fargo and West Fargo.

Fargo MAT Fixed Route System Ridership Levels - Table 7 shows that between 1995 and 2000, ridership levels at Fargo MAT fluctuated with a range of approximately 75,000 annual passengers. Ridership during the six year period reached its highest level in 1995 when Fargo MAT served over 519,000 passenger trips. In 1998, the year of the next available NTD report, Fargo MAT carried 71,500 fewer passengers. Although ridership was up in 2000, it is down 14.1 percent from its highest level during the six year period. Table 9 shows the decrease in ridership negatively affected Fargo MAT's productivity in terms of passengers per vehicle hour, passengers per vehicle mile and passengers per peak vehicle. Table 9 also shows that Fargo MAT passenger productivity was at its highest in 1995, then declined each year thereafter.

These ridership fluctuations can be partially explained by various factors. In 1997, the City of Fargo was threatened with flooding from the Red River, which had a detrimental impact on the transit system. In addition, recent development patterns in the city are increasingly auto-dependent in character, which makes it more difficult to provide public transportation in these areas on account of lower population densities and less- compact land use patterns. This can partially explain why vehicle miles and vehicle hours increased during the period, while ridership has not rebounded from 1995 levels. Another possible contributing factor to the decrease in ridership could be the decline in passengers transferring to other routes in order to reach their final destination. The National Transit Database counts each passenger boarding a transit vehicle as one passenger trip. Therefore, when a passenger transfers from one bus to another, their one trip is actually considered two transit trips.

Fargo MAT Fixed Route System Financial Trends

To determine financial trends during the past six years, relevant statistics were compiled for fiscal years 1995 through 2000. It should be noted that these statistics were derived from the NTD reports submitted to the Federal Transit Administration (FTA). NTD reports for the year 2000 are not available to the public at this time. Data for the year 2000 was provided by Fargo MAT staff and not the (NTD).

Fargo MAT Operating Costs - As seen in Table 8, between 1995 and 2000, Fargo MAT's cost attributable to the bus system increased by 23.8 percent. This is due to an increase in all types of costs attributed to the fixed route transit system. There has been a 33.6 percent increase in costs associated with vehicle operations. This category includes cost for driver wages and fringe benefits, which are typically the single largest transit system expenditure.

Maintenance costs increased by 3.4 percent between 1995 and 2000. This represents an average annual increase of 0.7 percent. Operating costs attributable to the administration of the Fargo MAT system increased 34.7 percent over the same period, which represents an average annual increase of 6.9 percent.

Fargo MAT Operating Revenue and Farebox Recovery - Table 8 shows Fargo MAT's operating revenue increased 24.1 percent between 1995 and 2000. This is an average annual increase of 4.8 percent. Total revenue increased due to an increase over the period in revenue from fares and sources other than passenger fares. Revenue from sources other than passenger fares was up by 42.0 percent, yielding an overall increase in total revenue of 11.9 percent.

Fargo MAT's passenger revenue reached its highest level during the period in 1998 when the system collected $332.4 thousand. This can be attributed to a fare increase which was implemented the same year. Revenue dropped the following year, 1999, to $326.5 thousand. This amount represents an increase of 24.1 percent from the 1995 level; however, passenger revenue in 1999 was down 1.8 percent from its highest level in the last five years.

In terms of farebox recovery rates (which is revenue from passenger fares/total operating costs) the performance of the two systems was quite different. Fargo MAT's farebox recovery rate dropped from 24.7 percent in 1995 to 18.2 percent in 2000. This is a decrease of 26.3 percent. Table 7 shows that Fargo MAT had its best farebox recovery rate during in 1998, when farebox recovery reached 28.2 percent.

Fargo MAT Operating Deficit - As shown in Table 7, revenue from passenger fares was $26,200 less in 2000 than in 1995. During the same period, total operating costs increased $240,400 (22.6%). The drop in passenger revenue in 2000 coupled with an increase in operating costs resulted in a 33.3 percent increase in Fargo MAT's operating deficit from 1995 to 2000. Again, data for the year 2000 was provided by Fargo MAT staff and not the NTD

Fargo MAT Operating Assistance - As shown in Table 8, operating assistance provided to Fargo MAT increased by 69.3 percent between 1995 and 2000. This is due to a 144.5 percent increase in Federal operating assistance, and a 160.0 percent increase in funding provided by the State of North Dakota. Local funding decreased between 1995 and 2000 as a percentage of total operating assistance. In 1995 local funding provided 53.2 percent of the operating assistance for Fargo MAT, this was down to 32.1percent in 2000. This decrease as an overall percentage can be partially explained by an increase in federal funding for transit operations under various FTA Metropolitan Planning Programs, such as Section 5307. With

increased funding from these programs, federal operating assistance grew in terms of overall percentage from 42.4 percent in 1995 to 61.2 percent in 2000.

Fargo MAT System Productivity - Table 10 shows that Fargo MAT's system productivity measured on a per vehicle hour, per vehicle mile, per peak, and per passenger vehicle is consistent with the overall decrease in revenue per vehicle and the increase in operating costs experienced at the system between 1995 and 2000. The percentage changes illustrated in Table 10 can be attributed to an increased level of transit service in 2000 over 1995 (i.e., more vehicle hours and miles) coupled with a decrease in ridership. The most illuminating figure in Table 10 is revenue per passenger. This figure increased 3.9 percent from $0.51 to in 1995 to $0.53 in 2000. What this figure shows is that Fargo MAT passengers are paying a higher fare, on average, in 2000 than they did in 1995. This could be the result of Fargo MAT carrying fewer elderly and disabled passengers (who pay half-fare on buses) than they did in 1995. Fargo MAT had its best performance in terms of revenue in 1998 when revenue per vehicle mile, vehicle hour, and peak vehicle were at their highest level in the last six years. Revenue per passenger had its best performance in 1999.

Fargo MAT Financial Efficiency - Table 10 also shows that Fargo MAT's operating costs and deficit attributable to the fixed route system increased while revenue generated from the system decreased in each category except revenue per passenger between 1995 and 2000. This adversely affected Fargo MAT's financial efficiency. Table 10 shows that in 2000 cost and deficit per vehicle hour, per vehicle mile, and per passenger were all at their highest level since 1995. However, it should be noted that if revenue generated in 2000 was removed from the analysis, revenue per vehicle mile, vehicle hour, revenue per peak vehicle, and revenue per passenger would increase between 1995 and 1999, although the peak revenue year for all categories (except per passenger) occurred in 1998.

Moorhead MAT Fixed Route System Operating and Ridership Trends

This section provides an analysis of the operating and ridership trends at Moorhead MAT between fiscal years 1996 and 2000. Due to the fact that the Fargo and Moorhead systems report separately to the National Transit Database, this section analyzes only Moorhead MAT with an analysis of Fargo MAT provided earlier. To determine operating, financial and ridership trends during the past five years, relevant statistics were compiled for fiscal years 1996 through 2000. It should be noted that these statistics were derived from the National Transit Database (i.e, "Section 15") reports submitted to the Federal Transit Administration (FTA).

Moorhead MAT Fixed Route System Operating Statistics - As shown in Table 11, vehicle miles and vehicle hours decreased 2.7 percent between 1996 and 2000, while peak vehicles remained unchanged during the same period. The decrease in the level of service is most likely due to the deletion of the Dilworth Route from the Moorhead system in January 1998, as well as the fact that the Moorhead system implemented changes to Routes 5 and 6 in March 1999, which reduced the headways on Saturdays from thirty minutes to sixty minutes.

Moorhead MAT Fixed Route System Ridership Levels - Table 11 also shows that Moorhead MAT's ridership levels fluctuated with a range of approximately 6,500 annual passengers between 1996 and 2000. Ridership during the five year period reached its highest level in 1996 when Moorhead MAT served over 347,800 passenger trips. In 2000, the Moorhead system served 315,400 passenger trips, or 9.3 percent below the number of passengers carried in 1996. However, Moorhead MAT has recorded a small increase in ridership levels between 1998 and 2000.

Declining number of passengers carried can be partially explained by various factors. First, the City of Moorhead also experienced significant damage from the flooding in 1996, which interrupted public transit service. Second, Moorhead MAT has not added new routes or expanded its fixed route bus service since 1996. In fact, the Moorhead MAT system reduces fixed route bus service in the summer months, and does not operate the two college bus routes between May 5th and August 27th. Another possible contributing factor to the decrease in ridership between 1996 and 2000 could be that fewer passengers in Moorhead are transferring onto other Moorhead MAT routes to reach their final destination. As explained in Fargo MAT's ridership level section, the National Transit Database counts transfers as multiple trips even though a passenger might have paid for only one ride. Additionally, statistics for the Dilworth Route were removed and placed with data for Clay County Rural Transit and not with Moorhead MAT. Table 10 shows the decrease in ridership negatively affected Moorhead MAT's passenger productivity in terms of passengers per vehicle mile, passengers per vehicle hour and passengers per peak vehicle.

Moorhead MAT Fixed Route System Financial Trends

To determine financial trends during the past five years, relevant statistics were compiled for years 1996 through 2000. It should be noted that these statistics were derived from the NTD reports submitted to the Federal Transit Administration (FTA). NTD reports for the year 2000 are not available to the public at this time. Data for the year 2000 was provided by Moorhead MAT staff and not based on the NTD.

Moorhead MAT Operating Costs - Table 12 shows Moorhead MAT's cost attributable to the bus system increased almost 50.0 percent. There has been a 41.9 percent increase in cost associated with vehicle operations. As with Fargo MAT, this category included all cost for driver wages and fringe benefits, which are typically the single largest transit system expenditure. Maintenance costs increased 104.6 percent between 1996 and 2000. This represents an average annual increase of 20.9 percent. Operating costs attributable to the administration of the Moorhead system increased 19.7 percent over the same period, which represents an average annual increase of 3.9 percent.

Moorhead MAT Operating Revenue and Farebox Recovery - Also shown in Table 12, Moorhead MAT's passenger revenue reached its highest level in 2000 when the system collected $124,700 thousand. This amount represents an increase of 37.8 percent from the 1996 level. The reason why passenger revenue has increased even though ridership has declined can be attributable to a fare increase which occurred in January 1998. As shown in Table 13, there was a 26.6 percent increase in fare revenue between 1997 and 1998 even though ridership for that period was down almost 10.0 percent.

Moorhead MAT's farebox recovery rate has improved from a rate of 13.1 percent in 1996 to 14.5 percent in 2000. This is an increase of 10.7 percent. Table 11 shows that Moorhead MAT had its best farebox recovery rate in 1998, when the farebox recovery reached 16.0 percent.

Moorhead MAT Operating Deficit - As shown in Table 11, Moorhead MAT's revenue from passenger fares $34,200 more in 2000 than in 1996. In fact, revenue has outpaced operating costs, which increased 24.4 percent during the same period. However, it should be noted that the 24.4 percent increase in operating costs represents an increase in dollar terms of approximately $170,000 thousand. As a result, the operating deficit increased by more than $130,000 thousand, or an increase of 22.4 percent between 1996 and 2000.

Moorhead MAT Operating Assistance - Table 12 shows total operating assistance provided to Moorhead MAT increased by 18.1 percent between 1996 and 2000. Assistance from Federal, State, and Local sources all increased over the five-year period, and reached their highest level in 2000. Federal funding increased by over $37,000 thousand between 1996 and 2000, representing the largest increase at 30.0 percent. Much of this increase can be attributed to funding from Federal Transit Administration programs such as Section 5307. Funding from State and Local sources increased by 10.4 percent and 22.0 percent, respectively, over the same

period.

Moorhead MAT System Productivity - Table 14 shows that Moorhead MAT's system productivity measured on a per vehicle hour, per vehicle mile, per peak vehicle, and per passenger basis is consistent with the increase in revenue and operating costs between 1996 and 2000. The percentage changes illustrated in Table 14 show that revenue has outpaced operating costs and deficits during the five- year period. This could be attributed to the decrease in the level of service, while passenger fares were increased. The most illuminating figure is revenue per passenger. This figure increased 50.0 percent from $0.26 in 1996 to $0.39 in 2000. What this figure shows is that Moorhead MAT passengers are paying a higher fare, on average, in 2000 than they did in 1996. This could be the result of the fare increase that was implemented in January 1998, which raised fares in all categories. In addition, a semester pass was introduced in 1996 as a promotion for use by college students, staff, and faculty offering deep discounts on the Moorhead fixed route system. This program might have initially increased transit usage in 1996, which could account for the low revenue per passenger figure. However, as time went and the novelty of the program wore off, fewer students, staff, and faculty made use of the program. This could be attributed to the high level of ridership and low passenger revenue in 1996. Moorhead MAT had its best performance in terms of revenue in 2000, when revenue per vehicle mile, vehicle hour, peak vehicle, and passenger were all at their highest level in the last five years.

Moorhead MAT Financial Efficiency - As shown in Table 14, Moorhead MAT's operating costs and revenue generated attributable to the fixed route system increased between 1996 and 2000. However, even though all cost and deficit performance indicators were at their highest level in 2000, revenue increased at a higher rate. This improved Moorhead MAT's financial efficiency, which is a very favorable performance for the system.

Existing Paratransit Services

Demand responsive paratransit services are provided throughout the Fargo-Moorhead metropolitan area. Services are administered, managed and dispatched by Fargo Metropolitan Area Transit (MAT) and are operated by Laidlaw Transit Services. Moorhead MAT provides a subsidy payment for its share of the demand responsive paratransit services.

The Americans with Disabilities Act (ADA) requires that complementary demand responsive paratransit services be provided within 3/4 of a mile of all fixed bus routes at all the hours during which fixed route service operates.

This section describes the complementary demand responsive paratransit system.

Eligibility and Service Area - The MAT paratransit service is available on a reservation basis for individuals with disabilities who are unable to utilize any part of the MAT fixed route bus service. The criteria typically used to determine eligibility is if an individual cannot board, ride or exit any vehicle on the fixed route bus system without the assistance of another person or without the use of a wheelchair and wheelchair lift. In addition, individuals are eligible for paratransit service if they cannot travel to or from any of the bus stops and stations in the fixed route system.

The MAT Paratransit system operates within the city limits of Moorhead and Dilworth, Minnesota, and Fargo and West Fargo, North Dakota.

Fares - The fare for each one-way trip is $2.00 cash. Exact fare is required since the drivers do not have change. Coupon books are available from the Ground Transporation Center (GTC) or from the MAT Paratransit driver. Personal care attendants and children under age 7 ride free with an eligible passenger.

Span of Service - MAT Paratransit service is available during the same hours as the Fargo-Moorhead MAT fixed route systems. Sunday service is limited to residents of the City of Fargo. As shown in the accompanying table, all trips must be completed and passengers delivered to their destinations by 10:15PM. There is no service on the following holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day.

MAT Paratransit
Span of Service

Weekday	Saturday	Sunday
6:15AM - 10:15PM	7:15AM - 10:15PM	7:30AM - 5:00PM (Fargo Residents Only)

Source: F-M MAT Staff

Scheduling Procedures - Individuals must call MAT Paratransit to reserve a ride. Reservations must be made at least one day prior to when the ride is needed and can be made up

to seven days in advance. Individuals can make reservations from 8:00AM to 4:30PM, Monday through Friday. On weekends and holidays, reservations can be made for next day service by leaving a message on MAT Paratransit's answering machine. In order for MAT Paratransit to operate as efficiently as possible the dispatcher may schedule trips at an earlier or later time if other riders are traveling to similar destinations.

A subscription service is also available to individuals who need to ride on a regular basis to the same destination. A minimum of two months is required for a subscription reservation, and an application for this service must be completed two weeks in advance of the subscription start date. Subscription reservations may be restricted during the weekday peak period to work, school, meals and medical service. There are no trip limitations on Saturdays or weekday evenings.

Pick-up Procedures - When an individual reserves a ride, the dispatcher will give a scheduled pick-up time. The vehicle may arrive 15 minutes before or after the scheduled pick-up time. Drivers pull up at the curb and are not allowed to pull into the driveway of a residential home. Upon arrival, the driver will sound the horn and wait up to five minutes for the passenger to appear. If a passenger does not appear within five minutes, they are considered a "no show". If the paratransit vehicle arrives 15 minutes later than the scheduled pick- up time and the passenger refuses service or does not show, this is considered a missed trip and the passenger does not have to pay the fare. If the vehicle is more than 30 minutes past the scheduled pick- up time, the passenger can either schedule a new trip at different time or cancel the trip without having to pay the fare.

"No Show" Policy - Rides must be cancelled at least two hours prior to the scheduled pick-up, otherwise the ride is considered a "no-show". If there is a no show, the prescheduled return trip is cancelled. The return trip can be rescheduled, but it is subject to availability. Individuals who need to cancel a ride before or after office hours can leave a message on MAT Paratransit's answering machine.

Individuals who do not show up at the scheduled pick up time must pay for the missed ride before they can ride again. If an individual receives more than four "no shows" within a one month period, they can be suspended from using the service for a period of one week. If the no show was due to an individual's disability, the ride will be excused. However, the individual must notify MAT Paratransit that the missed trip wasn't a no show. If not, the individual will still have to pay for the missed trip.

MAT Paratransit Ridership and Productivity- As shown in the table below, MAT Paratransit's ridership levels decreased 1.3 percent between 1996 and 2000. Ridership during the five year period reached its highest level in 1997 when MAT Paratransit carried 43,333 passengers. In 2000, the MAT Paratransit system carried 33,961 passengers, or 1.3 percent below the number of passengers carried in 1996. It should be noted that data from 1996 only comprises eight months of the year due to the merger of the Fargo and Moorhead paratransit systems into MAT Paratransit in May 1996. The slight drop in passengers could be attributed to several factors. In June 1999, Sunday service was eliminated in all areas except the City of Fargo. In addition, a fare increase was implemented in January 2000, which raised fares from $1.50 to $2.00. MAT Paratransit's passenger productivity, measured as passengers per hour decreased by 0.4 percent between 1996 and 2000. This decrease is relatively minor and consistent with the slight decreases in ridership and level of service during the same period.

However, it should be noted that recent data gathered throughout 2001 has indicated that ridership is again trending upwards. Preliminary data indicate that ridership is increasing by approximately 6 percent and that revenue hours have increased by approximately 5 percent in order to accommodate the increased demand.

MAT Paratransit Ridership Levels

Criteria	1996	1997	1998	1999	2000	Total Percent Change	Annual Percent Change
Ridership	34,426	43,333	40,736	36,593	33,961	(1.3)	(0.3)
Vehicle Hours	13,291	2.53	15,667	13,022	13,163	(0.9)	(0.2)
Passengers per Vehicle Hour	2.59	2.53	2.60	2.81	2.58	(0.4)	(0.08)

Source: F-M MATS Staff

Fargo MAT Paratransit Ridership by Type - As shown in the accompanying table, 46.0 percent of the passengers utilizing the paratransit service in 2000 were wheelchair bound, while 45.0 percent were ambulatory. The remaining 9.0 percent of the ridership were personal care attendants.

Moorhead MAT Paratransit Ridership by Type - As shown in the accompanying table, 69.0 percent of the passengers utilizing the paratransit service were ambulatory, while 28.0

percent were wheelchair bound. The remaining 3.0 percent were personal care attendants.

MAT Paratransit Ridership Type
FY 2000

System	Wheelchair	Ambulatory	Personal Care Attendants	Guests	Total
Fargo	11,401	11,269	2,250	106	25,026
Percent	46.00 %	45.00 %	9.00%	0.42%	100.00%
Moorhead	1,854	4,681	172	10	6,717
Percent	27.60%	69.90%	2.50%	0.15%	100.00%

Source: F-M MAT Staff

MAT Paratransit Operating Statistics - As shown in the table below, vehicle miles decreased 4.8 percent between 1999 and 2000, while vehicle hours increased slightly by 1.1 percent during the same period. As mentioned earlier, the decrease in vehicle miles can be attributed to the elimination of Sunday service throughout most of the service area in June 1999.

MAT Paratransit Operating Statistics

Criteria	1999	2000	Total Percent Change
Vehicle Miles	174,977	166,540	(4.8)
Vehicle Hours	13,022	13,163	1.1

Source: F-M MAT Staff

GOALS AND OBJECTIVES

This section presents goals and objectives to guide the study process. Goals and objectives provide a fundamental basis for approaching a planning effort. They are designed to enhance public transportation service in cooperation with both local needs and public input.

Goals and objectives can be seen as being representative of "tradeoffs" between several competing criteria. These criteria are surrogates for the needs of the transit-riding public, the transit operator and the community as a whole. The community must not only consider the social needs of its residents but also its own fiscal responsibility and discipline when utilizing the public's funding. Essentially, the "tradeoffs" focus upon the fundamental question of cost versus convenience. **That is, the transit system's cost as opposed to the transit user's convenience.** If passenger convenience is maximized, then system cost is maximized. Concurrently, if passenger convenience is minimized, then system cost is minimized. For example, the following questions are all related to the "competition" between the cost of providing service and its convenience:

- Should the Fargo and Moorhead Metro Area Transit systems (i.e., Fargo-Moorhead MAT systems) maximize service coverage, or should they concentrate on increasing frequencies on existing services?

- Should the Fargo-Moorhead MAT systems maximize service coverage, or should they concentrate on lengthening the span of service on existing services?

- Should the Fargo-Moorhead MAT systems lengthen their span of service, or should they concentrate on increasing frequencies on existing services?

Clearly, a "middle ground" must be delineated where system cost and user convenience achieve a certain level of equilibrium. This is one of the reasons why several transit systems throughout the nation adopt **service standards** that specify minimum thresholds for system performance relative to locations or populations which should receive a certain level of transit service.

There are eight basic goals, each of which are presented in the following section. Each

goal is accompanied by objectives tailored to facilitate discussions regarding the development of specific proposals for the Fargo-Moorhead metropolitan area. These should be viewed as options for goals and objectives, to be discussed, prioritized and refined in accordance with local guiding principles.

The options for goals and objectives are as follows:

GOAL: Provide "user-friendly" transit service in the Fargo-Moorhead metropolitan area.

OBJECTIVES

- Better align routes to major generators and universities.
- Provide greater connectivity between Fargo, Moorhead, West Fargo, Dilworth, Clay County and Cass County generators.
- Simplify service delivery (e.g., minimize route variations) to tailor trips to passenger needs.
- Provide a frequency and span of service which encourages transit use and maximizes convenience for the passenger.

GOAL: Simplify route structure to provide direct service to major generators in the region.

OBJECTIVES

- Investigate non-linear routes to major generators such as the West Acres Mall shopping area.
- Investigate trip needs by interaction with major employers to design routes that encourage system usage.
- Further coordinate service between Fargo and Moorhead to encourage connections to new generators.

GOAL: Provide service to unserved and under-served areas.

OBJECTIVES

- Examine rural community needs and population centers for applicability to commuter routes and community services (e.g., internal circulators).

- Examine new and growing employment areas, such as West Fargo and the Fargo Industrial Park, for employee trip needs.

- Develop alternative service models to provide effective trip coverage to these areas.

GOAL: Provide service to attract a wider base of ridership, while maintaining service for transit dependent individuals.

OBJECTIVES

- Coordinate service efforts with the local universities and colleges to effectively serve the student population.

- Coordinate with agencies representing recent immigrants to determine trip needs and service delivery methods.

- Coordinate with employers to encourage transit usage where possible.

GOAL: Provide progressive transit service in concert with local and regional economic development and expansion plans.

OBJECTIVES

- Monitor both residential and commercial/industrial growth in the region to identify new opportunities for transit.

- Coordinate with agencies prior to the establishment of new and expanding generators to provide transit with input on growth.

GOAL: Research alternative and innovative service delivery options to better meet needs of the riding public.

OBJECTIVES

- Examine service populations of workers, elderly, students and others to find appropriate service delivery methods.

- Investigate non-linear services (i.e., non-radial trips which bypass the GTC) to provide quicker trips to major generators, such as the universities and the West Acres area.

GOAL: Develop marketing and informational strategies to increase transit usage and system understanding and awareness.

OBJECTIVES

- Identify target populations to increase specificity of marketing materials.

- Coordinate student efforts with the local colleges and universities to encourage transit usage among students though transit education for this population.

- Identify affected agencies to assist in marketing, promotion, and education efforts among their respective clientele.

GOAL: Contain system operating and capital costs as much as possible without allowing present service to degrade.

OBJECTIVES

- Operate new or expanded services only after determining which existing services are suitable for elimination.

- Increase service frequencies and spans of service only when additional funding sources are secured.

Conclusions and Summary

As part of the study process, the consultant team gathered input from both members of the Metropolitan Transit Development Plan (TDP) Update Committee as well as from several key members of the Fargo-Moorhead MAT systems' staffs concerning the direction to pursue regarding the goals and objectives for the TDP Update. Input was also gathered from planning officials in Clay County to help determine the overall scope and direction of the Rural Needs Assessment for the county. In the aggregate, it was felt that all of the previously mentioned goals and objectives should be taken into consideration while the TDP Update is developed.

Overall, the TDP Update Committee felt that a certain "balance" between some of the competing goals and objectives would have to be reflected in both the Service Standards - or "Service Guidelines" - and in the proposed service modifications. The TDP Update Committee generally felt that the community would be supportive of "growing" the transit system to a certain degree, recognizing that this would likely incur some modest increases in the costs of operating the transit system. It was also felt that any proposals for service should attempt to either increase the productivity of the existing services or serve the "Community Goal" of supporting development both in downtown Fargo-Moorhead and in the North Dakota State University area.

PUBLIC PARTICIPATION PROGRAM

The Fargo and Moorhead Metropolitan Area Transit systems' Transit Development Plan Update, which is currently being prepared for the Fargo-Moorhead Metropolitan Council of Governments, includes a public participation program designed to elicit input from members of the general public, current users of the transit system, community leaders, key policy decision makers and other transportation "stakeholders" in the Fargo and Moorhead Metropolitan Area Transit systems' (i.e., Fargo-Moorhead MAT systems') service area. The public participation program consists of four different elements:

- "Walk-In" Public Meetings
- Write-In Survey Sheets
- Fargo-Moorhead MAT Systems Driver Meetings
- Stakeholder Interviews

The first section of this report provides a summary outline of the results from the walk-in meetings, write-in survey sheets and the Fargo-Moorhead MAT systems driver meetings. The second section of this report summarizes the results of the various stakeholder interviews conducted in the Fargo-Moorhead area.

"Walk-In" Public Meetings

Minnesota State University Moorhead - The walk-in meeting at Minnesota State University (MSU) was held at the Comstock Memorial Union Main Lobby on April 24th from 10:00AM to 12:00PM. There were approximately 18 people at the meeting, which was largely comprised of MSU students. Six of the attendees were members of minority groups. It was apparent during the meeting that most people drive rather than use the Fargo-Moorhead MAT systems. Many attendees told the moderator that parking is easy to find throughout the service area, and driving is faster and more convenient. Those who didn't have their own automobiles usually got a ride from a friend or acquaintance rather than wait outdoors for the bus and/or have to ride the bus with a group of strangers. When asked why they didn't use the transit system

many attendees cited service hours and frequency of service as not being compatible to their daily schedules and lifestyles. In addition, many attendees told the moderator that information regarding the transit system is often hard to find (i.e., bus stop signs, schedules, route maps).

Those in attendance who use the Fargo-Moorhead MAT systems told the moderator that the transit system provides good access to the West Acres Mall either via the college evening bus in Moorhead, or Fargo MAT. The college evening bus provides a one-seat ride to the mall from MSU, while those who ride Moorhead MAT must transfer onto a Fargo MAT bus at the Ground Transportation Center in Fargo. When asked how the system could attract more riders, the attendees stated that the transit system should do a better job of attracting employees of MSU, as well as try to attract students at the local universities who do not own automobiles.

Moorhead Center Mall - The walk-in meeting at the Moorhead Center Mall was held at the fountain area on April 24th from 1:00PM to 3:00PM. Fifteen people attended the meeting. One attendee was physically disabled. Comments from this session focused on the duration of trips, frequency of service, evening service and service within Clay County. Attendees stated that the travel time aboard the buses is sometimes a problem. The transfer at the Holiday Center Mall can add too much time to the trip, and can be onerous for children. In addition, attendees stated that going over to the GTC in Fargo also adds time to the trip. A few attendees recommended implementing direct service from the south of Interstate 94 to the East Ten area and the Moorhead Center Mall, as well as direct service between the Moorhead Center Mall and the West Acres Mall without having to transfer onto another bus. A few people suggested the Moorhead MAT system operate past 6:00PM, because many people use the buses for purposes other than work trips. There were also a few comments for establishing extra service during events at the Fargodome. Several people had concerns about Clay County Rural Transit. One attendee suggested lengthening the span of service in Barnesville, so they wouldn't have to drive into the Fargo-Moorhead metro area, while another attendee expressed the need for more commuter service into Clay County. Lastly, one attendee commented that the Dilworth bus rarely adheres to its schedule, and sometime fails to show up at all.

Other comments during the session included an attendee stating that the Route 5 bus speeds through Village Green Drive, which is an area with a high number of children, as well as home to a blind child. One attendee wondered why Moorhead's buses aren't wheelchair accessible, especially the buses on Route 2 which provide service to MSU.

One attendee stated that the bus system is underutilized, but the marketing of the system has improved. In terms of improving service, one person recommended implementing some type of deviated fixed-route using mini-buses or jitneys. Other suggestions included lowering fares to

$0.25 or $0.50 and privatizing the bus system.

Ground Transportation Center - The walk-in meeting was held at the Ground Transportation Center (GTC) lobby on April 26th, 2001 from 4:00PM to 6:00PM. Fifteen people attended the session, three of whom were disabled. Some of the major comments provided by the attendees concerned the Fargo MAT bus routes. There were a few comments suggesting that Routes 11, 12, 15 and 19 be returned to their original operating routes. Conversely, there were a few people who thought the recent changes to the Fargo MAT system have been beneficial. One attendee remarked that the recent Route 18 realignment is an improvement over the old route, while another person commented that service has improved in South Fargo. In addition, Route 25 was regarded as a good running "on-time" bus that will provide much needed service to 42nd Street as it develops in the near future. It was also suggested that Route 25 should be marketed to businesses along the route to improve ridership and visibility of the transit system. Other comments at the meeting included a request for Sunday service, and a request for bus shelters at the K-Mart (which already has a bus shelter), 30th & University Avenue, 15th& 32nd Avenue South, and Broadway & 32nd Avenue North (which also already has a bus shelter).

North Dakota State University - The North Dakota State University (NDSU) walk-in meeting was held at the Memorial Union Breezeway on April 26th, 2001 from 10:00AM to 12:00PM. The session was attended by over 22 people who had different opinions concerning the Fargo MAT system. Two of the participants were members of minority groups. One group of attendees believed that the benefits of using private automobiles are too great to warrant using public transit. Another group of people were generally satisfied with the transit service, but did offer some areas where improvements should be made. The reasons given by attendees for not using the Fargo MAT service were similar to those given by the attendees at MSU. Most people have access to a private automobile, which gives them both the flexibility and "freedom" that the Fargo-Moorhead MAT systems can't provide. Some attendees stated that the transit system is inconvenient, and requires more time to get to destinations. In addition, attendees stated that they don't like being tied to a bus schedule. As with the MSU session, several attendees stated that parking is easy to find in and around the university due to ample metered spaces, free employee parking (although technically free employee parking does not exist at NDSU) and parking permits provided by the university. Finally, some attendees told the moderator that information on how to ride the system or where the system goes is often difficult to obtain. For example, route maps are not easily accessible to the public and several bus stops are not clearly marked.

Those who use the bus system like having the Route 13 bus enter the campus, which makes taking the bus very convenient. In fact, there were attendees who purchased monthly

passes and tokens. Other attendees said they use the use the transit system frequently during the winter months, while others use the transit service for work trips to the West Acres Mall and downtown Fargo. Attendees stated that the bus is convenient and goes to most areas in Fargo, but that it could run more frequently, as well as operate longer evening hours. It doesn't appear that the attendees are bothered by the transfer at the GTC. However, it was stated that the GTC should operate the same hours as the bus system, and that a retail component should be installed for the passengers' convenience to sell various convenience goods and sundries. One attendee stated that drivers sometimes make their own designated stops, but that the buses are generally on-time. Another attendee commented that "there is not enough bus service to Hornbacher's". When the moderator asked for suggestions on where improvements could be made several attendees suggested direct service from NDSU to the West Acres Mall. This service is now available via the newly implemented Route 20.

West Acres Mall - The West Acres Mall walk-in meeting was held at the lower level community room on April 26th, 2001 from 1:00PM to 3:00PM. There were six people in attendance. One attendee was disabled and two attendees were members of minority groups. However, the smaller turnout did not result in fewer comments or suggestions. On the contrary, the participants of the meeting were current transit riders who used the system on a regular basis, and provided extensive comments and suggestions on improving the transit system.

Several comments from the attendees centered around service hours, service frequency, and service expansion. Attendees told the moderator that buses should operate later evening hours, operate a weekday schedule on Saturdays and operate Sunday service. In addition, a few people suggested operating extra transit service during events at the Fargodome, while other attendees wondered why the GTC closes earlier than the rest of the transit system.

There were several suggestions concerning expanding or altering bus routes, as well as serving new areas. Some of the suggestions included operating service to the industrial park, running buses on Main Avenue, extending the Route 19 bus further west, "extending the Route 11 bus to serve 3rd Street North", and having the last trip from NDSU serve the West Acres Mall. A few attendees recommended reinstating Saturday service on the Route 12, as well as re-instating 30 minute headways on the Saturday, Route 14 bus.

The session also raised issues concerning elderly and disabled passengers. One attendee told the moderator that even though people in wheelchairs have access to paratransit services, they sometimes need last minute service that only the regular fixed-route buses can provide. As a result, the buses should be able to accommodate wheelchairs and/or electric scooters. Other comments pertaining to paratransit services ranged from people being stranded to feeling disrespected by transit staff.

Write-In Survey Sheets

The write-in survey sheet was comprised of five questions asking the respondents what they think of the existing services of both the Fargo and Moorhead MAT bus systems. These survey sheets were distributed at the public input meetings, which enabled people to elaborate on some of the topics discussed at the meetings. Ten survey sheets were returned to the moderator.

The first question asked respondents what they think of the existing transit services in Fargo and Moorhead. Overall, most of the respondents said transit service has improved since the last TDP or is improving. Some of the positive comments included good transit access to downtown Fargo and polite bus drivers. However, several respondents cited on-time performance, service coverage, and travel time as areas that need improvement. The most critical area in terms of service seems to be paratransit operations. Respondents cited wheelchair inaccessible buses in Moorhead, rude drivers, inconsistent service, and trip denials as some of the problems confronting people who need extra assistance to ride both fixed route and demand responsive public transit.

The second question asked respondents if there is sufficient information regarding how to use current services. Most of the respondents think there is adequate information on how to use the transit services. However, a few respondents think it would be a good idea to have public service announcements, as well as hold classes for elementary school and high school students on how to ride the system. Another suggestion was to make the bus route maps easier to read. There were also a few comments from respondents stating that the bus system has to reach out to the community to attract a more diverse ridership.

The third question asked if bus routes should be extended to new destinations. This question elicited several responses from the respondents. A few respondents suggested service to the industrial park with either a regular route bus or a subscription service, as well as service to South Fargo and service along Main Avenue. Someone suggested Route 25 should go to 45th Street SW to 13th Avenue and enter the West Acres Mall from 42nd Street SW. Another respondent recommended having the Route 15 bus bypass the Community Homes loop (which has already been implemented), as well as enter the West Acres Mall from 42nd Street SW instead of 38th Street SW. Lastly, one respondent suggested returning Route 3 to its original route.

The fourth question asked if bus service was available when people needed it most. Most of the respondents requested more evening service, 30 minute service on Saturdays, at least some service on Sunday mornings, and increased span of service to the major shopping areas.

There were also a few comments suggesting extra transit service during events at the Fargodome. One respondent suggested adding another run from the GTC after 10:15PM, so riders leaving the West Acres Mall at 9:45PM could access later service to downtown locations.

The final question asked the respondents if any other changes to the Fargo-Moorhead transit systems should be considered by the consultants currently analyzing the Fargo-Moorhead MAT systems. Several respondents wanted better transit service for the large number of riders with disabilities. One respondent cited the recent change of the shopping shuttle as a setback for the elderly and disabled riders, who no longer have "door to door" service to major shopping areas, In addition, a few respondents criticized Moorhead MAT for not having all their buses wheelchair accessible. Another frequently mentioned comment was restoring 30 minute headways on the Saturday, Route 14 bus. Other comments included bringing back Sunday service, adding more express routes throughout the system, discount coupons for frequent riders, a new terminal at the West Acres Mall, more meetings in the evening hours, and 30 minute headways on the Saturday Route 13 bus.

Fargo-Moorhead MAT Systems Driver Meetings

Moorhead Bus Driver Meeting - The meeting with the Moorhead MAT bus drivers was held on Wednesday, April 25th at the office of Red River Trails in Moorhead. Most of the comments from the drivers focused on current bus routes, present operating conditions, and where changes to the system may improve performance. Comments pertaining to bus routes were primarily limited to Routes 1 and 6. A few drivers think Route 1 could make better time by traveling up 8th Street South from 24th Avenue South, then making a right on 16th Avenue South, and then making a left onto 8th Street. Drivers also felt that they could provide better service to the Brookdale Sunmart if they were allowed to proceed onto the property. In addition, a few drivers suggested that Route 1 would provide better service to Concordia College if the bus traveled up 5th Street South, then onto 7th Avenue South, rather than making a right on 9th Avenue South then proceeding up 6th Street South. Lastly, a few drivers stated that the wheelchair lifts on the Route 1 bus add a lot of time to the route. In fact, a few drivers told the moderator that wheelchair lifts are a problem on many of the Moorhead bus routes.

In terms of Route 6, some drivers felt they could provide better service by using 10th Avenue North to 17th Street North, to 7th Avenue North. A few drivers also remarked on the need to proceed into both the River View High Rise and Park View High Rise. The drivers told the moderator that it's hard to maneuver through the facilities, and only the smaller Orion II buses are capable of making the trip. As a result, some drivers commented that the buses may soon become too small for the growing demand at the two housing complexes.

The bus drivers had several comments on current operating conditions, which included expanding service to more places in Moorhead, adding more night service, operating more frequently on Saturdays, and implementing Sunday service. Finally, a few drivers suggested that it may be beneficial to operate the college evening routes year around, because many students do not leave the campus area during the summer months. It should be noted that many of the drivers' comments have already prompted some immediate service modifications.

Fargo Bus Driver Meeting - The Fargo MAT bus driver meeting was held Wednesday, April 25th at the City Garage in Fargo. Most of the comments from the Fargo MAT bus drivers were recommendations to either adjust or extend existing bus routes or add new routes to the system. Route 25 elicited the most comments. One driver suggested the Route 25 bus should access the West Acres Mall by entering and departing from the 17th Avenue SW entrance (which has already been implemented), while another driver recommended that the bus should serve the Dakota Clinic. Lastly, a driver suggested that the Route 25 bus should continue on 32nd Avenue South and head northbound on 45th Street SW. There were a few other comments concerning the current Fargo MAT system. One driver recommended that the Community Homes should be served by the Route 18 bus instead of Route 15 (which has already been implemented), while another driver suggested a new GTC to West Acres Mall express route, which would access Main Avenue to 42nd Street SW. Finally, it was brought to the attention of the moderator that the new Fargo MAT route map incorrectly shows the Route 19 bus turning onto 18th Avenue SW and proceeding along 19th Avenue SW and 40th before getting back onto 17th Avenue SW. The map should show Route 19 operating along 17th Avenue SW to 38th Street SW. However, the very latest edition of the system map (i.e., August 2001) has in fact corrected this problem.

Stakeholder Interviews

The study team conducted an extensive community participation and outreach program as part of the overall study process. At the outset of the study, several outreach efforts were made to immediately incorporate local experience into the study efforts. Stakeholder interviews were conducted to include the knowledge and experience of key local persons and agencies that are impacted by transit service.

In addition to stakeholder interviews, numerous meetings have been held with local transit and planning staff, as well as extensive rider and community input developed through outreach sessions at transit hubs. This strategy has allowed the study team to work in conjunction with the local community to develop an understanding of local issues from the outset

of the project. These efforts also allowed the study team to develop a set of goals and objectives that will guide the study process based on up-front discussions with key impact groups in the Fargo-Moorhead area.

Stakeholder Interview Summary - Stakeholder interviews were conducted in the Fargo-Moorhead metropolitan area over a three day period in April, 2001. Stakeholder interviews are intended to educate the study team on local transit and development issues that will affect the transit planning process. Stakeholders range from elected officials to municipal and county employees to representatives of various human service and non-profit agencies in the area to representatives of transit dependent or disadvantaged groups. Employers were also interviewed in the process to gauge the need of workers in the area, and this constitutes an important part of the stakeholder review process.

Stakeholders were candid in their discussions regarding public transit in the area. Topics discussed included current service provision, funding, system effectiveness, rural issues, unserved as well as under-served areas, and future transit needs. These informative sessions provided the study team with a variety of viewpoints on local transit service that will be invaluable in understanding local conditions.

Although not all stakeholders were transit advocates, each understood the important role that the programs play in the local community. Some viewed transit as a necessary service that is similar to a social service; available for the persons who need it and do not have access to or cannot use a personal automobile. It was understood that many residents of the area rely on public transportation for work, school, and social activities. Several stakeholders indicated that transit service is a "life-saver" for many local residents with no mobility alternatives. These viewpoints, while not always conducive to transit expansion efforts, do show that the local stakeholders understand that there is a role for transit service that cannot be diminished in the region.

In terms of the local service area, stakeholders were positive about the coverage that is provided by the Fargo and Moorhead transit properties. Although there are specific areas that will be discussed which that were identified as being in need of transit service, the overall perception was that a good job was done covering major local generators, such as employers, retail centers and medical facilities. Many community leaders also applauded efforts to serve new and expanding activity generators in the area, of which the West Acres Mall was mentioned during several interviews as a major destination for many local transit riders. This portion of the metropolitan area is well-served by local transit. However, the retail area continues to expand and is rapidly creating "mall-sprawl", a phenomenon which is quickly becoming a major issue for many transit providers throughout the nation. In addition to basic service to major retail

areas such as West Acres Mall and the surrounding corridor, transit authorities are trying to find creative ways to serve the various major retail centers that are spread over a relatively large area.

The design of current services was also discussed with the stakeholders. These discussions examined the current radial design of the system, as well as the downtown transfers, in terms of both the positive and negative aspects of this style of service delivery. Currently, persons originating in Fargo or Moorhead must make at least one transfer to access services in the other city. It was generally agreed that the Ground Transportation Center (GTC) in downtown Fargo was an appropriate transfer location, and worked well for the passengers. It was also felt that new service designs should enhance the trips that people are presently taking. Downtown transfers, in some cases, create long trips for patrons of the system. There are numerous generators on the fringes of the service area that may be difficult to reach in a timely manner from within the local service areas, as well as from the adjacent service area (e.g., Fargo to Moorhead or vice-versa). West Acres Mall was once again mentioned as a major generator in this context. For a person traveling from southern Moorhead, the trip to West Acres Mall is quite lengthy, compared to a relatively short trip by automobile, or even social service vehicles.

One issue that was brought up in several interviews was the status of transit service between the three local colleges. Fargo is home to North Dakota State University (NDSU), while Moorhead is home to Concordia College and Minnesota State University Moorhead (MSU). These three colleges have a program that allows any student to take classes at their choice of schools, and these classes will count towards the degree where the student is enrolled. This makes transportation a key issue for the local area, in order to promote this innovative program, as well as promote the transit system among local students. In addition, the administrators at the universities indicated that many students came to school in this area with no familiarity with transit service, as a number of students come from the small towns that dominate North Dakota and Minnesota. These students, it was suggested, should be made more aware of the transit options available to them, and should be educated to understand the possibilities offered by transit services in the area.

Issues that pertained to funding brought interesting comments from the stakeholders that were interviewed for this effort. Although it was generally recognized that funding increases would result in enhanced service provision, the need for enhanced service and the efficiency of service were both brought under close scrutiny. The Fargo-Moorhead area has relatively low ridership, and the cities pay a fair amount to maintain the current system. Any expansion or changes that resulted in increased funding levels would need to be well-proven in order to gain the necessary funding. Stakeholders indicated that the re-allocation of current resources might need to be the primary source of funding for service enhancements.

Another issue that was presented was the growing need for rural connections to the

Fargo-Moorhead metropolitan area. There is currently rural service in Clay County, as well as commuter routes to outlying locations such as Detroit Lakes and Barnesville. The success of some commuter routes suggests that exploring rural service in other parts of the region may be a beneficial effort in increasing transit use among persons commuting to Fargo and Moorhead.

At the end of each discussion, interviewees were asked to identify areas that were unserved, under-served, or perhaps even over-served. No stakeholder identified any part of the area as over-served, but interesting locations were identified as un-served or under-served. The Industrial Park in Fargo, west of NDSU, was repeatedly identified. This area is home to many employers for which transit service would benefit their efforts to fill employment vacancies. In light of the relatively large immigration population that has come to the region in recent years from all over the world, these labor jobs represent excellent opportunity for many persons in this population. In addition to this area, many people mentioned West Fargo as a growth area that would need some attention in coming years. The West Acres Mall area was also mentioned. Although this area is served by transit, it is now a growing residential area as well as the major retail center for the Fargo-Moorhead metropolitan area. Service to this area, it was suggested, should be more direct, operate longer hours and offer trips to and from Moorhead as well as the transfer center in Fargo.

Summary of Public Participation Process

Table 15 summarizes the public input comments from the various phases of the public participation process, while Table 16 highlights specific route and service comments gathered during the public participation process. It should be noted that these tables do not include the input garnered from the stakeholder interview process. The breadth and content of the various stakeholder interviews were too extensive and the comments do not lend themselves to summarization in a tabular format. In any event, the results of the stakeholder interview process are summarized in the preceding section.

The Fargo-Moorhead public input meetings and write-in survey sheets revealed several reoccurring issues among the diverse array of people who attended the seven meetings and filled out the write-in survey questionnaire. Span of service, service frequency, weekend service, system expansion, and paratransit were among the most talked about topics of the meetings. However, it should be noted that the meetings did highlight the differences of opinion regarding public transportation in general and the Fargo-Moorhead MAT systems in particular, as illustrated in the text below.

The walk-in meetings that were held at Minnesota State University Moorhead and North

Dakota State University tended to be dominated by students who were more likely to own private automobiles and rely less on the Fargo-Moorhead transit systems. As a result, the discussions were mainly centered on the limitations of fixed-route transit service compared to private transportation. Frequent comments from the attendees included the ease of parking within the service area, the flexibility an automobile affords the driver and occupants, and the inconvenient service hours and service frequency of the transit system, which makes it easier to get a ride from someone rather than wait for a bus. This comment should be closely associated with several people stating that information regarding the Fargo-Moorhead MAT systems is often hard to find or understand. However, there were attendees who utilized the transit system to access certain areas within the service area, such as the West Acres Mall, or used the transit system during the winter months.

Those meetings which took place at the Moorhead Center Mall, West Acres Mall, and the GTC tended to be comprised of people who use the transit system on a regular basis, and who do not drive or do not have access to an automobile. As a result, the attendees often cited the importance of public transportation to their lives, as well as used their extensive knowledge of the Fargo-Moorhead MAT systems to comment on specific areas and routes within the system. Several suggestions and comments were often repeated by many of the attendees including better transit access for people with disabilities, longer span of service and more frequent service, and ways in which to make the bus routes operate more effectively.

The bus drivers from both Fargo and Moorhead offered extensive suggestions on how certain routes could be made faster, or how routes could be altered to improve service. Moorhead drivers made several comments concerning Routes 1 and 6, as well as recommended more service during the evenings and weekends. Fargo bus drivers made several comments regarding Routes 15 and 25, as well as suggested new routes along 12th Avenue North and Main Avenue.

Lastly, the write-in survey questions offered more detailed comments from attendees who participated in the meetings, but might not have spoken or had time to expand upon their comments. Several of the comments provided by the attendees were comments mentioned at the walk-in meetings, such as more service hours and service frequency, more reliable service for elderly and disabled passengers, and more accessible and useful public information regarding the Fargo-Moorhead MAT systems. In addition, the survey questions asked the respondents if bus routes should be extended to new areas. Service to the Fargo industrial park received several responses, as did more service to South Fargo and different routes into the West Acres Mall.

SERVICE GUIDELINES

A series of service standards - or service guidelines - has been developed for the transit services operating in the Fargo-Moorhead metropolitan area. These guidelines will be used to evaluate the adequacy of existing services and to assist in developing new service proposals.

Service guidelines are used by transit systems for several purposes:

- To define community expectations for public transportation service.
- To establish minimum thresholds for providing transit service.
- To establish performance targets for existing services.

Service guidelines can be used both to evaluate existing services and to design new services. Existing services would be reviewed using service guidelines to determine how the system as a whole performs and how well individual routes perform. For example, the system may have a farebox recovery ratio of 25 percent but individual routes may have performance ranging from 5 to 40 percent. In planning new services, the service guidelines become a set of warrants to determine if new services are justified or more service is needed on existing routes.

There are two types of service guidelines: design guidelines and performance guidelines.

- *Design guidelines* cover the basic considerations in designing public transportation service. They provide guidance for growing the Fargo-Moorhead MAT systems. Transit design guidelines are similar to warrants for traffic control.
- *Performance guidelines* reflect the results achieved in actual operation. They are used to measure how efficient and effective existing services are.

This section of the report introduces the comprehensive set of service guidelines that has been developed for the services operated by the Fargo-Moorhead MAT systems. The guidelines were presented to the TDP Committee in June 2001 and were revised based on comments received at that time. The discussion follows the two basic categories: Service Design

Guidelines and Service Performance Guidelines.

Service Design Guidelines

A total of nine different guidelines have been defined for this category. All deal with how the Fargo-Moorhead MAT systems are or should be designed to meet community expectations for mobility. Service design guidelines have been developed for the following nine areas:

- Service Availability
- Bus Stop Spacing
- Span of Service
- Frequency
- Directness
- Coordination with Rural Service
- Bus Shelter Locations
- Bus Stop Information
- Public Information

The following discussion explains the concept behind each design guideline as well as the actual threshold or target that is defined for the Fargo-Moorhead MAT systems.

Service Availability - The Fargo-Moorhead MAT systems receive requests for service from citizens who want service to a location that is not presently served. Either someone is not within walking distance of a bus route, or the bus does not go where they want it to go. Since transit resources are limited, it is important to establish guidelines to serve as minimum thresholds or warrants for service. These can be used in deciding how to allocate existing resources to expand service to new locations or rationalize service that is already in place. The guidelines define the minimum areas for service, not only the areas that should be served.

The service availability design guidelines for the Fargo-Moorhead MAT systems are grouped into two categories: Residential and Commercial. The residential areas typically are where transit trips originate. The commercial areas are the destinations.

- Residential - Bus service is considered "available" if it is within 1/4 mile of the population in a particular area. This is the maximum reasonable distance that someone should be expected to walk to access a bus stop in an urban area. A residential area warrants bus service if it meets and exceeds one of the following two thresholds:

  – *High Density* - The number of people or dwelling units per square mile is typically the highest in the region. Service to low density areas generally is not provided.

  – *Transit Dependency* - There should be bus service in areas where there is a large percentage of households without access to a private vehicle or with only one car in the household. This is likely to be areas with lower income levels as well as high concentrations of students, senior citizens and persons with disabilities.

  Service to other neighborhoods with lower density or less transit dependency should be provided as resources permit, particularly for reasons of maintaining system connectivity.

- Commercial - The primary mission of a transit system is to provide access to key destinations within the community. The following service design guidelines provide a threshold for determining if a particular generator is large enough to warrant bus service. Guidelines have been defined for employers, health centers, schools and colleges, shopping centers, and government offices and community facilities. In some cases, a particular generator may qualify for service in more than one category (e.g., a health center that employs 200 or more employees). Service should be provided to all generators that meet and exceed these thresholds. Service to other generators should be provided as resources permit.

  – *Major Employers* - A single company with 500 or more employees at a single location should receive bus service. Similarly, a location where a cluster of employees combines for 500 or more employees should be served by a bus route.

  – *Health Centers* - All hospitals, major clinics, and nursing homes in the Fargo-Moorhead metropolitan area are candidates for service. There is no

minimum size requirement. Service is needed to accommodate employees, patients, and visitors.

– *Schools and Colleges* - The Fargo-Moorhead MAT systems should provide service to all middle schools and high schools to accommodate students, faculty and staff (unless alternate arrangements are made for student transportation by the school districts). All universities, colleges, and vocational schools should be served if they have 1,000 or more students enrolled.

– *Shopping Centers* - All malls and shopping plazas with at least 25 stores or more that 100,000 square feet of retail space should be served by the Fargo-Moorhead MAT systems.

– *Government and Community Facilities* - Key locations that attract a significant number of transit riders should be served. This includes City Halls, offices with a lot of public visitation (e.g., health and human services, employment-related services, etc.), and large recreational facilities.

A generator is considered "served" if the bus stops on the property or within 1/4 mile of the main entrance. It is important to consider pedestrian safety and physical boundaries to assure that the walk from the bus stop is within 1/4 mile, or 1,300 feet, and not hazardous.

Bus Stop Spacing - Related to service availability - and having service within 1/4 mile of one's origin - is where the bus stop is located. This service design guideline addresses the minimum frequency for bus stops. Throughout the Fargo-Moorhead MAT systems' service area, bus stops should be positioned approximately once every other block. Also, there should be a stop at every major activity center (the commercial destinations described above as warranting service).

The exact placement of a bus stop should be based on pedestrian safety, convenience, transit operations, and traffic engineering considerations. Bus stop placement may need the approval of the local communities in which the Fargo-Moorhead MAT systems operate.

Span of Service - This guideline establishes the minimum hours of the day that a particular bus service operates. For the Fargo-Moorhead MAT systems, the guidelines are as follows:

Fargo-Moorhead MAT Systems - Span of Service Guidelines

Service Day	From	To
Weekday	6:00AM	10:00PM
Saturday	8:00AM	6:00PM
Sunday	No Service Required	

In a route network where many routes are interlined, it is important that the span of service on each regular route be consistent so that passengers can complete their trips at the beginning and end of the operating day. Special services such as commuter, shuttle and industrial park trippers should be provided on an "as needed" basis.

Frequency - This service design guideline is particularly important from the passenger's perspective. The frequency - or "headway" is the time from one bus to the next at the same location. Frequencies typically are established to provide enough vehicles to accommodate the passenger volume. Where passenger volume is not an issue, the frequency is based on policy. In a timed transfer system, it is important that all routes have the same headway to facilitate passenger transfers. Where this is not feasible, all headways should be divisible by the same unit (e.g., 30 and 60 minutes) so that some routes meet during each pulse.

The following minimum headways for regular fixed-route transit service are suggested:

- Weekday Peak 30 minutes
- Weekday Off-Peak 60 minutes
- Saturday 60 minutes

Directness - The directness service design guideline recognizes that there are trade-offs between providing service in close proximity to all key origins and destinations and the most efficient routing "as the crow flies". In order to provide convenient access, it is necessary to route buses off of major roads. This guideline establishes the maximum deviation that should be allowed, or the extent that a route should be permitted to "wiggle". To determine this guideline,

it is necessary to know two numbers: the total length of a particular bus route and the straight line distance between the two ends of the route. The guideline is that no route should have a ratio of more than 1.70. That is, no route should be 70 percent longer than the direct path between the two termini.

A second aspect of directness addresses whether the route network provides a single seat ride for passengers. Since passenger origins and destinations are scattered, some passengers will have to transfer to complete their trips. In a timed transfer system, such as those operated by the Fargo-Moorhead MAT systems, this is expected. The directness service design guideline looks at how many passengers are transferring. The guideline for the Fargo-Moorhead MAT systems is that no more than approximately 50 percent of all passengers should have to transfer to complete their trip.

Recognizing that some transfers will occur away from the Ground Transportation Center, particularly a second transfer, a related guideline should be that these secondary timed transfers be as coordinated as possible in order to minimize waiting time. Passengers should be required to wait no longer than 15 to 20 minutes.

Coordination with Rural Service - While Fargo and Moorhead have made great strides to coordinate their services, evidenced in part by the common fare structure and transfer opportunities, the transit services operated by the Cities of Fargo and Moorhead are not the only services in the area. This service design guideline strives for coordination among the rural and urban systems. It stresses stops for the rural system within the Fargo-Moorhead metropolitan area, where passengers can transfer to the Fargo-Moorhead MAT systems. Schedule coordination and fare coordination contribute to making this transfer more viable.

Bus Shelter Locations - A major concern of transit riders, especially during inclement weather, is the amount of time spent on the street exposed to the elements. This is particularly true for the Fargo-Moorhead MAT systems with their temperature extremes. There also is a need for protection from precipitation, wind and strong sunlight.

Shelters should be placed at locations with high volumes of passengers and high concentrations of riders who may be more in need of this protection. The guideline defines the following as minimum requirements for bus stop shelters:

- Bus stops that serve 10 or more passengers per day (both boarding and transferring riders).

- Bus stops used by a large concentration of senior citizens or persons with disabilities.

Shelters should include a minimum of 50 square feet of area and be enclosed on all sides except for entrances. Benches should be provided for the comfort of waiting passengers. Shelters should be designed and sited to be consistent with Americans with Disabilities Act (ADA) requirements regarding accessibility.

Bus Stop Information - All bus stops in the Fargo-Moorhead MAT systems should be identified by a bus stop sign. If local ordinance permits, the signs should include the Fargo-Moorhead MAT systems' logo and telephone information number. Stops should be clearly marked as a no parking zone except for the bus. Route and schedule information also should be provided at stops, particularly major stops. Stops busy enough to warrant a shelter should also include a panel of transit information.

Public Information - The Fargo-Moorhead MAT systems should provide public information for current and potential riders. At a minimum, there should public timetables for all routes and a system map and riders guide. These can be separate documents or combined into one brochure. The timetables and map should be posted at stops.

This information should be available in different formats to accommodate the needs to different rider groups. Accessible formats and alternative languages should be considered. The Fargo-Moorhead MAT systems should distribute this information at the Ground Transportation Center and throughout the service area at major destinations. The information also should be available in electronic format on the web site for customers who choose to access it that way. Public transportation information should also be available by telephone from a live operator during service hours.

Performance Guidelines

A total of six different guidelines have been defined for this category. All deal with how well the Fargo-Moorhead MAT systems perform "on the street". The emphasis is on the efficiency and effectiveness of these services. Performance guidelines have been developed for the following six areas:

- Service Reliability
- Farebox Recovery Ratio
- Passenger Productivity Levels
- Vehicle Loading
- Operating Speed
- Vehicle Condition

The following discussion explains the concept behind each performance guideline as well as the actual threshold or "target" that is defined for the Fargo-Moorhead MAT systems.

Service Reliability - One of the most critical performance measures is whether the service operates as scheduled. The transit rider needs to know that the bus will be there when the published timetable indicates. Unreliable service reduces the attractiveness of transit service, particularly chronic problems with a particular route. In a timed transfer system, lateness triggers missed connections and long waits for transfers.

Service reliability consists of two components: schedule adherence and service disruptions. Guidelines are presented separately for each.

- *Schedule Adherence* - The first step in defining a schedule adherence guideline is to define "on-time". For these performance guidelines, a bus is on-time if it arrives between zero and five minutes after its scheduled time. No bus should ever operate early. For the Fargo-Moorhead MAT systems, the major time points where this is checked are the Ground Transportation Center and each route's outer terminal. During peak hours, a minimum of 90 percent of all trips should be on-time. During all other times, at least 95 percent of all trips should be on-time.

- *Service Disruptions* - One reason why service may not be on time is if vehicles break down while in service. A service disruption is defined as a breakdown that delays passengers by five minutes or more. Breakdowns that are addressed quickly or which do not impact passengers are not counted in this calculation. Performance is measured as a systemwide average. For the Fargo-Moorhead MAT systems, vehicles should average at least 6,000 miles between roadcalls.

Farebox Recovery - A key measure of financial performance is the percentage of operating costs that are recovered through passenger fares. For this performance measure, "passenger fares" includes revenue from cash deposited in the farebox, receipts from sales of prepaid passes and tickets, and any revenue received through contracts that represents the fares of certain riders (e.g., an arrangement with the University to permit students to ride by showing an ID card).

Performance is measured at both the systemwide and route level. The Fargo-Moorhead MAT systems should recover at least 20 percent of their operating expenses with passenger fares. And all bus routes must have a farebox recovery ratio that is equal to at least 60 percent of the system average. That is, if the system average is 20 percent, no one route should have a farebox recovery ratio lower than 12 percent.

Passenger Productivity Levels - Passenger productivity relates the volume of riders to the level of service. It is the ratio of ridership to hours and/or miles of service provided. The guideline uses total passengers, not revenue passengers and revenue hours or miles, rather than total hours or miles. Thus, it is measuring how many bodies board a particular bus while it is available for revenue service.

Performance is reviewed for each route in the system. Like farebox recovery ratio, the guideline starts with a systemwide average. Each route in the transit systems is expected to achieve at least 60 percent of the system average.

Vehicle Loading - For safety and comfort reasons, passengers should expect to find an open seat on the bus. The vehicle loading performance guideline translates this into a quantifiable threshold. During peak periods, some standees are to be expected and are acceptable for short distances. The guideline is that no bus should carry more than 125 percent of its seated capacity during the peak period. During all other times, all passengers should have a seat; no bus should carry more than 100 percent of its seated capacity during the off-peak periods.

Operating Speed - Buses operate in mixed traffic, stopping to let passengers on and off. As such, buses travel at slower speeds than a private automobile. The operating speed of a bus is influenced by traffic conditions, passenger boarding and alighting volumes, route alignments, stop spacing and fare collection methods.

Operating speed is measured as total miles divided by total hours. The Fargo-Moorhead MAT systems should achieve an operating speed in the range of 10 to 14 miles per hour.

Vehicle Condition - Passengers expect a safe, clean comfortable bus. The performance guidelines for vehicle condition reflect this. Each bus should meet the following minimums when it is in revenue service:

- working heat and air conditioning
- working accessibility features (i.e., lift/ramp, kneeler, etc.)
- clear windows (no dirt, grafitti, or "scratchitti")
- seats intact (not loose or ripped)
- clean interior and exterior

Buses should be attractive. Noise, smoke and odor should be kept to as low a level as possible through use of the latest equipment and strict maintenance procedures. Exteriors of buses used for the all routes should be washed daily. Body damage should be scheduled for immediate repair. Signage, particularly the route designation, should be working, correct and clearly visible.

ADEQUACY OF SERVICE

Earlier in the preparation of this Transit Development Plan Update, a comprehensive set of service guidelines was described for both the Fargo and Moorhead Metropolitan Area Transit services (i.e., the Fargo-Moorhead MAT systems) which operate in the Fargo-Moorhead metropolitan area. The guidelines are applied in this part of the plan to evaluate the adequacy of the existing Fargo-Moorhead MAT systems' services as well as to provide important input toward developing new service proposals.

The guidelines deal with a variety of issues related to the configuration, quality and quantity of bus service. The performance of the Fargo-Moorhead MAT systems relative to each guideline is assessed. One point that should be noted at the outset is that this performance should be reviewed in relation to the tradeoffs associated with the different elements comprising the service guidelines policy. Moreover, as explored in the Goals and Objectives, this analysis delineates the competing requirements of providing extensive coverage and frequent service within the practical constraints of limited funding.

The discussion below follows the two basic categories of Service Design Guidelines and Service Performance Guidelines.

Service Design Guidelines

Nine different guidelines have been defined for this category. All deal with how the Fargo-Moorhead MAT systems are or should be designed to meet community expectations for mobility. Each element of the Service Design policy is evaluated below, with the threshold or target defined for the Fargo-Moorhead MAT systems compared with actual results.

Service Availability - The service availability design guidelines for the Fargo-Moorhead MAT systems are grouped into two categories: Residential and Commercial. The residential areas are typically where transit trips originate. The commercial areas typically are the destinations.

- Residential - One of the more difficult decisions facing transit management is where service should be provided and the spacing of bus routes. The guidelines previously suggested that the Fargo-Moorhead MAT systems' bus services be considered

"available" if they are within 1/4 mile of the population in a particular area where service is warranted. A residential area warrants bus service if the number of people or dwelling units per square mile is among the highest in the region. Within the Fargo-Moorhead metropolitan service area, 18 of the 26 census tracts have population densities above 2,500 persons per square mile. These census tracts are presently the primary beneficiaries of the Fargo-

Moorhead MAT systems' services, indicating that most of the service area is adequately covered based on these criteria.

There also should be bus service in areas where there is a large percentage of households with little or no access to a private vehicle. These are likely to be areas with lower income levels as well as areas where there are high concentrations of students and senior citizens. The census tracts with the lower median incomes are found in the "core" of the Fargo-Moorhead MAT systems' service area: the Fargo and Moorhead central business districts and nearby area colleges and universities, which include student housing. However, the under age 18 population is heaviest in the periphery of the service area, where low-density residential development is the dominant land use pattern and service is likely to be less productive.

The heaviest concentrations of senior citizen population in the area are again in and around the Fargo and Moorhead central business districts, along with the northern portions of the City of Fargo and the City of Dilworth. All are served by transit, although the Dilworth service is provided by Clay County Rural Transit (CCRT) and limited to a relatively small number of trips per day.

• Commercial - The service guidelines established various thresholds for determining if a particular generator is large enough to warrant bus service. Service should be provided to all generators that meet and exceed these thresholds. Since a generator is considered "served" if the bus stops as far away as 1/4 mile of the main entrance, it is important to assure that the walk from the bus stop is not hazardous.

– *Major Employers* - A single company with 500 or more employees at a single location should receive bus service. Similarly, a location where a cluster of employees combines for 500 or more employees should be served by one of the Fargo-Moorhead MAT systems' bus routes. Of the 14 area employers identified that meet this threshold, the majority are served by the Fargo-Moorhead MAT systems' regular service or special service

routes. However, there are three exceptions: Great Plains Computer and Software, the Case Corporation and the manufacturing department of the American Crystal Sugar Company. Further, there are five industrial/business parks, all located on the peripheries of the service area. The two in Moorhead are served by the transit system, but none of those in Fargo are similarly served.

- *Health Centers* - All hospitals, clinics, and nursing homes in the Fargo-Moorhead metropolitan area are candidates for service, to accommodate employees, patients, and visitors. Most of the area hospitals are located within the City of Fargo, and all receive transit service. However, one of the 11 nursing/retirement homes is not served: the Elim Care Center in southern Fargo.
- *Schools and Colleges* - Service should be provided to all middle schools and high schools to accommodate students, faculty and staff, except where student transportation is provided by the school districts. All universities, colleges, and vocational schools should be served if they have 1,000 or more students enrolled. The Fargo-Moorhead MAT systems serve all colleges, universities and high schools in the metropolitan area.

- *Shopping Centers* - All malls and shopping plazas with at least 25 stores or more than 100,000 square feet of retail space should be served by MAT buses. Including five big-box retailers that meet this threshold, a total of 18 such centers have been identified. Most of them are in Fargo, particularly along 13th Avenue South. All are served by the Fargo-Moorhead MAT systems.

- *Government and Community Facilities* - Key locations that attract a significant number of transit riders should be served. This includes City Halls, offices which the public frequently visits (e.g., health and human services, and employment-related services) and recreational facilities. Most government offices are located in the Fargo-Moorhead central business districts. These and the few more outlying facilities all are afforded transit service. All eight major social service agencies in the area are located along bus routes as well. However, no public transportation is available for the Hector International Airport.

In terms of service availability, the Fargo-Moorhead MAT systems attain primarily favorable results. The design of the route network is generally consistent with concentrations of

population and the location of major generators. The principal residential clusters and most key activity centers receive transit service. However, several large employment centers and one major senior citizen care facility are not afforded coverage.

Bus Stop Spacing - This service design guideline addresses the minimum frequency for bus stops. Throughout the Fargo-Moorhead MAT systems' service areas, bus stops should be positioned at least once every other block. Also, there should be a stop at every major activity center (the commercial destinations described above as warranting service), as permitted by pedestrian safety, convenience, transit operations, and traffic engineering considerations.

Most of the Fargo-Moorhead MAT systems' bus stops are positioned at two or three block intervals, but are established informally rather than as designated bus stop locations. Buses generally will stop at any corner or activity center along the route when a passenger signals the driver. Some exceptions apply: buses stop only at shelters along Center Avenue in downtown Moorhead; buses only stop at designated locations at the EasTen Mall; Moorhead buses stop only at the Ground Transportation Center (GTC) while in Fargo; and Moorhead Routes 1 and 2 only stop at designated, signed bus stops (passengers may request new bus stops on these two routes by contacting the Transit Manager). Systemwide, the stop spacing guideline is met in the sense that buses will stop on demand at most corners or activity centers along each route. However, there is a general deficiency in terms of the existence of bus stop signs in Fargo. Bus stop signs have been uniformly installed along all of the bus routes in Moorhead.

Span of Service - This guideline establishes the minimum hours of the day that a particular bus service operates. For the Fargo-Moorhead MAT systems, the suggested weekday span is from 6:00AM to 10:00PM, while Saturday service should be available between 8:00AM and 6:00PM, and no Sunday service is required. This applies to the regular route networks; consistent spans of service on each route enable passengers to complete their trips at the beginning and end of the operating day. Special services such as commuter, shuttle and industrial park trippers should be provided on an "as needed" basis.

Four of the regular Fargo MAT bus routes (i.e., Routes 11, 13, 14 and 15) essentially meet this guideline. On weekdays, they begin service near 6:00AM and continue until about 10:00PM. On Saturdays, they begin service before 8:00AM and continue until well after 6:00PM. The remaining Fargo MAT routes end service in the early evening, which is three or more hours earlier than called for in the guideline on weekdays, but consistent with the guideline on Saturdays. In addition, there is no Saturday service on Route 12, and the West Fargo service does not start until 9:45AM on Saturdays.

None of the regular Moorhead MAT routes operate past 6:45PM, but the North and South Evening services operate until past 10:00PM, thus meeting the guideline. The Dilworth Route operates only during the middays, but this is a more rural route meeting special passenger requirements.

Frequency - The following minimum headways for the regular Fargo-Moorhead MAT systems' fixed-route services are suggested: 30 minutes between buses on a particular route during weekday peak periods, and 60 minutes at other times when service is provided, including the midday period during the summer.

Only three of the regular Fargo MAT bus routes (i.e., Routes 11, 13 and 14) meet the peak period guideline. These routes operate every half hour during the peak and certain off-peak periods as well. Most of the remaining Fargo MAT routes operate at 60 minute intervals during all service periods, meeting the guideline for the off-peak but not for peak periods. Only the West Fargo service operates less than hourly during any service period.

All of the regular Moorhead MAT routes operate every 30 minutes during the weekday peak and midday periods, and every 60 minutes on Saturdays, thus meeting the frequency guidelines. It should be noted that some Moorhead MAT routes operate hourly during the weekday midday period during the summer months. The North and South Evening services operate every 45 minutes, exceeding the hourly guideline for this time period. The Dilworth Route operates four trips each weekday and two trips on Saturday, but this is a more rural route meeting special passenger requirements.

Directness - One guideline of directness is that none of the Fargo-Moorhead MAT systems' bus routes should have a directness ratio of more than 1.70. That is, no route should be 70 percent longer than the direct path between the two termini. To determine this standard, it is necessary to know the total length of a particular bus route and the straight line distance between the two ends of the route. The Fargo-Moorhead MAT systems' bus routes generally operate in a loop configuration, starting and ending at the same point (e.g., the GTC). Therefore, for this analysis, the relative distance of each bus route was measured between the primary terminal point and a more distant outlying schedule time point. Most routes are not excessively circuitous, with directness ratios of less than 1.70. However, Moorhead Route 5 and Fargo Routes 15, 19 and 25 indicated ratios in the range of 1.82 and 2.07. In addition, both of the Moorhead evening routes have directness ratios of 2.50 or above, which is not surprising considering the special nature of these services.

Another aspect of directness addresses whether the route networks provide a single seat ride for passengers. In timed transfer systems such as the Fargo-Moorhead MAT systems, a relatively high proportion of transfers would be expected. The primary transfer guideline for the Fargo-Moorhead MAT systems is that no more than 50 percent of all passengers should have to transfer to complete their trip. Currently, system transfer activity between Fargo MAT buses and Moorhead MAT buses is tracked and falls within acceptable guidelines. Tracking passenger transfers is a valuable service planning tool, especially with the timed-transfer orientation of many of the Fargo-Moorhead MAT systems' services.

A secondary transfer guideline is that passengers at transfer locations other than the GTC should not have to wait longer than 15 to 20 minutes for their connecting bus. Moorhead Routes 1, 2, 3 and 5 meet at the Holiday Mall on a "pulse" schedule, minimizing waits between buses. Times at the EasTen Target Store for Routes 3 and 4 are less coordinated but still within the guideline, requiring waits of about 15 minutes. On the Fargo side, Routes 14 and 25 are scheduled to facilitate a quick transfer at the South K-Mart. At West Acres Mall, every other Route 19 trip connects with a Route 15 bus, while the alternate trips are scheduled within one minute of Routes 16 and 18, and presumably wait when necessary. The West Fargo and Route 25 schedules offer less convenient connections with other services at West Acres, including some that do not meet the 15-20 minute guideline.

Coordination with Rural Service - This service design guideline strives for coordination among nearby rural and urban systems. It stresses stops for the rural system within the Fargo-Moorhead metropolitan area, where passengers can transfer to MAT services, and schedule and fare coordination to make this transfer more viable. Currently, CCRT's two commuter bus routes connect several rural communities with the Fargo-Moorhead metropolitan area, and CCRT's flexible fixed-route Dilworth service also provides connections to the Moorhead MAT bus system in the East Ten Mall area. These are significant steps toward fully meeting this guideline.

Bus Shelter Locations - Shelters should be placed at locations with high volumes of passengers and high concentrations of riders who may be more in need of this protection. The guideline calls for shelters at all bus stops that serve 10 or more passengers per day (both boarding and transferring riders), as well as at stops used by a large concentration of senior citizens or persons with disabilities. Shelters should include a minimum of 50 square feet of area and be enclosed on all sides except for entrances. Benches should be provided, and Americans with Disabilities Act (ADA) requirements regarding accessibility should be satisfied.

Based on discussions with the Fargo-Moorhead MAT systems' staff and a review of the

shelter location information provided (i.e., the Fargo-Moorhead MAT system map of April 2001 and a listing of Moorhead shelters), the shelter guidelines are being achieved. Stop-specific ridership and detailed shelter descriptions were not available. However, both cities provide shelters and benches at key locations throughout the metropolitan area (e.g., downtown Moorhead; the NDSU, MSU and Concordia College campuses; Community Homes and VA Medical Center in Fargo; and the Holiday Mall in Moorhead). Fargo currently reports 31 shelters installed, and Moorhead has 21 shelters. In addition, the GTC in downtown Fargo features indoor seating and other passenger amenities including restrooms.

Bus Stop Information - All bus stops in the Fargo-Moorhead MAT systems should be identified by a bus stop sign. If local ordinance permits, the signs should include the Fargo-Moorhead MAT systems' logo and telephone information number, including the area code. If space permits, the internet website address should also be included. Stops should be clearly marked as a "no parking" zone except for the transit bus. Route and schedule information also should be provided at stops, particularly at major activity centers. Stops busy enough to warrant a shelter should include a panel of transit information.

As noted above, the Fargo-Moorhead MAT systems' buses will stop at any corner along most routes when a passenger signals the driver. Bus stop signs have been uniformly installed along all of the bus routes. Therefore, the Fargo-Moorhead MAT systems are generally in compliance with the intent of the guideline. However, a more comprehensive bus stop signage program should be implemented. The existing signs are attractive, contain the system logo and delineate a "no parking" zone at the stop, but do not include route or schedule information. It should be noted that the route and schedule information could also be included on a different sign at the bus stop.

Public Information - There should public timetables for all routes, as well as a system map and riders guide. The timetables and map should be posted at stops. This information should be available in different formats to accommodate the needs of different rider groups, and should be distributed at the GTC and at other major destinations. It also should be available in electronic format, and by phone from a live operator during service hours. It should be noted that the telephone information agent should be available to answer questions even during those hours when service is operated but the GTC is closed. The presence of an information agent does not necessarily mandate opening the entire facility.

The Fargo-Moorhead MAT systems have recently published a multi-color system map and guide. It includes most route timetables. Additional public information materials are distributed, including schedule brochures for the Moorhead evening routes, NDSU campus

services, and the CCRT Dilworth service. Telephone information is available by voice and TDD. Schedules can be obtained on a cassette tape, and there is an internet website. However, as noted above, bus stop signs do not contain system or route details.

Performance Guidelines

Six different guidelines have been defined for this category. All deal with how well the Fargo-Moorhead MAT systems perform "on the street," with emphasis on the efficiency and effectiveness of the services. Similar to the service design assessment above, each service performance element is compared below with the threshold or target defined for the Fargo-Moorhead MAT systems.

Service Reliability - Service reliability consists of two components: schedule adherence and service disruptions.

For these performance guidelines, a bus is considered to be "on-time" if it arrives between zero and five minutes after its scheduled time. No bus should ever operate early. For the Fargo-Moorhead MAT systems' routes, the time points where this is checked are the GTC and the other established transfer points. During peak hours, a minimum of 90 percent of all trips should be on-time. During all other times, at least 95 percent of all trips should be on-time. Currently, the Fargo-Moorhead MAT systems' schedule adherence is tracked on an ongoing basis. In the aggregate, the intent of this guideline is being met. Transit staff have also indicated that schedule adherence generally is not a significant issue in the Fargo-Moorhead metropolitan area, although some problems have been reported with the on-time performance of Route 11, which operates on Broadway in Fargo.

A service disruption is defined as a breakdown that delays passengers by five minutes or more. Performance is measured as a systemwide average. For the Fargo-Moorhead MAT systems, vehicles should average at least 6,000 miles between roadcalls. For the Moorhead system, there were 43 such breakdowns in 2000 and 315,113 reported miles traveled. This resulted in 7,328 miles between roadcalls, which is within the guideline. A similar comparison with actual performance of the Fargo system was not completed; definitive information on Fargo roadcalls was not available for this review. However, discussions with staff indicated that there were no major vehicle availability or maintenance problems.

Farebox Recovery - A key measure of financial performance is the percentage of operating costs that are recovered through passenger fares, which include receipts from sales of

prepaid passes and tickets, and any other revenue that represents the fares of certain riders. Performance is measured at both the systemwide and route level. The Fargo-Moorhead MAT systems should recover at least 20 percent of their operating expenses with passenger fares. For the Fargo MAT system, this threshold was exceeded through 1999. However, the result for 2000 was only 18.2 percent, just below meeting the guideline. For the Moorhead MAT system, the farebox recovery was consistently below 20 percent throughout the last five years. Results for 1999 and 2000 were under 15 percent.

Each bus route should have a farebox recovery ratio that is equal to at least 60 percent of the system average. That is, if the system average is 20 percent, no one route should have a farebox recovery ratio lower than 12 percent. An analysis of route level costs and revenues was conducted. Costs were calculated based on each route's share of the annual service hours, for the relative percentage of reported total operating costs in 2000. Revenues were based on ridership per route in the same year, multiplied by the average fare of $0.5309. Using this methodology, all Moorhead routes - except the evening services - achieved the 12 percent recovery guideline. Most Fargo routes also achieved this guideline; exceptions were Routes 17, 19, 25, West Fargo and the recently implemented Route 20.

Passenger Productivity Levels - Passenger productivity relates the volume of riders to the level of service. It is the ratio of total ridership to hours and/or miles of service provided. Performance is reviewed for each route in the system. The guideline starts with a systemwide average, and each bus route is expected to achieve at least 60 percent of the system average. For Fargo MAT, the systemwide average in 2000 was 10.3 passengers per hour (excluding the newly implemented Route 20). Sixty percent of that level is approximately 6.2 passenger per hour. Only Routes 25 and West Fargo did not carry this many passengers. For Moorhead MAT, the systemwide average in 2000 was 15.3 passengers per hour (excluding the evening services). Sixty percent of that level is 9.2 passenger per hour. All daytime Moorhead routes carried more than this level of passengers.

Vehicle Loading - The loading guideline is that no bus should carry more than 125 percent of its seated capacity during the peak period. At other times, all passengers should have a seat; no bus should therefore carry more than 100 percent of its seated capacity. Based on discussions with transit system staff, it appears that vehicle overcrowding is not a significant issue in the Fargo-Moorhead metropolitan area, although some summer trips in Moorhead to area pools can become overcrowded at times.

Operating Speed - Operating speed is measured as total miles divided by total hours.

The Fargo-Moorhead MAT systems should achieve an operating speed in the range of 10 to 14 miles per hour. Based on reported vehicle miles and vehicle hours for the past few years, Fargo MAT's average operating speed is about 14 miles per hour, which is the top of the suggested range. At 16 miles per hour, Moorhead MAT's average operating speed is just slightly faster than the suggested threshold; this may be attributable to the "closed door" service operated in the City of Fargo enroute to and from the GTC.

Vehicle Condition - The performance guidelines for vehicle condition while in revenue service call for working heat and air conditioning, functioning accessibility features, clear windows, intact seats and a clean vehicle interior and exterior. Buses should be attractive. Noise, smoke and odor should be kept to as low a level as possible; exteriors of buses should be washed daily; body damage should be scheduled for immediate repair; and signage should be working and clearly visible. Based on field observations of the Fargo-Moorhead MAT systems' bus fleets, the intent of this service guideline is being satisfied.

Summary

With some limited exceptions, the Fargo-Moorhead MAT systems are providing a public transportation service that generally meets or exceeds the service guideline criteria. Some of the bus routes which appear to experience performance and/or productivity problems will be analyzed in greater detail and proposals for these routes will be included as part of the service plan.

SERVICE IMPROVEMENT PROPOSALS

This chapter presents a description of the route and service change proposals developed for both the Fargo Metropolitan Area Transit system and the Moorhead Metropolitan Area Transit system. These two transit systems serve the Fargo-Moorhead metropolitan area, located in eastern North Dakota and western Minnesota. The two transit systems will be collectively referred to as the "Fargo-Moorhead MAT systems" throughout this section of the report. Descriptions of proposals developed for Clay County Rural Transit (i.e., CCRT) are also included in this chapter of the report. Because of the relatively strong performance of the existing route structure, only minimum changes are proposed for most of the existing bus routes. However, service change alternatives are developed for more significant modifications on some selected routes.

The service proposals described in the following sections were prepared by giving consideration to a variety of service inputs. Also, a group of planning precepts guided the formulation of the proposals. These two components of service planning and development are discussed in the following section. They are followed by the recommended service proposals for the Fargo-Moorhead MAT systems' bus routes. Estimated impacts of the changes on each bus route's ridership, on vehicle hours, on cost and on revenue - as well as on the bus route's farebox recovery - are also described. It should be noted that in this section of the report all dollar amounts are in current (i.e., year 2001) dollars and have not been adjusted to reflect inflationary pressures over the course of the proposed plan's implementation.

Service Inputs

Seven major inputs were considered while preparing the route and service change proposals. Each of these inputs is briefly described below.

- Community Characteristics - An analysis was performed to identify residential areas and major activity centers that warrant transit service as well as Census tracts and municipalities in the Fargo-Moorhead metropolitan area with the greatest potential need for transit. Results indicate that most of the study area that should be served is served.

- Stakeholder Interviews - Interviews were held with 13 policy makers, community leaders, representatives of minority organizations, transportation professionals, members of the

business community and various other decision makers throughout the Fargo-Moorhead metropolitan area. From the interviews it was learned that the Fargo-Moorhead MAT systems are generally well respected, well run and efficient organizations. Service expansion opportunities were noted for the Fargo Industrial Park area. It was also noted that public transportation is considered to be a vital community service.

- Public Meetings - "Walk-in" public meetings were held on April 24th and 26th, 2001 at the Ground Transportation Center (i.e., GTC) in downtown Fargo, the West Acres Mall, the Moorhead Center Mall, the North Dakota State University and at the Minnesota State University Moorhead. At these meetings, both users and non-users had an opportunity to provide input on problems with the transit service, any concerns they might have and improvement alternatives. The meetings were held over a two hour span at each location in a walk-up format (i.e., people held a one-on-one discussion with a member of the consulting team). Seventy-six people provided comments during the course of the meetings. Ten of these people were from minority groups, and five of them had some type of physical disability. Additional comments were obtained at a later date through the use of "write-n" survey sheets. One of the most common suggestions made during the public meetings was for the Fargo-Moorhead MAT systems to implement a service expansion plan for longer evening service and more frequent service overall.

- Driver Input - On April 25th, 2001, two separate meetings were devoted to soliciting input from both Fargo MAT and Moorhead MAT drivers because of their knowledge of past and existing bus routes and service areas. About a half dozen drivers provided significant input on problems with existing routes; this input focused on running time problems with many bus routes. The few improvement alternatives noted focused on extending service to new areas.

- Adequacy of Service Analysis - An interim report was prepared documenting the performance of the Fargo-Moorhead MAT systems' bus routes for a number of measures. Financial and productivity performance measures were developed; individual route data on farebox recovery and passengers carried per revenue hour of service were most heavily relied upon. A set of service guidelines were developed. The performance of the Fargo-Moorhead MAT systems' bus routes was compared with the guidelines to determine a number of measures of service adequacy.

- Field Reconnaissance - Extensive observations were made in the Fargo-Moorhead metropolitan area to gain a first-hand understanding of existing transit operating characteristics

as well as the character of present and future development. During the course of these investigations, land use, key generators and other noteworthy items were recorded. All of the Fargo-Moorhead MAT systems' bus route alignments were driven.

- Staff/Committee Input - Several meetings were held with Fargo MAT staff and with Moorhead MAT staff where preliminary service change proposals were reviewed. Meetings were also held on a regular basis with the Transportation

  Development Plan Update Committee. Based on input from these groups, a potential plan was identified for further development.

Service Design Principles

The following service design principles were employed to guide the development of various service improvement options that are aimed at making the transit system more attractive to regular, casual and new users.

- Provide Uniform Service Paths - Service should follow the same route alignments on all trips throughout the day. Service extensions on request or on designated trips should be avoided whenever possible. Such service changes can be annoying to the riders on the bus and can confuse the casual user.

- Continue Pulse System with Ground Transportation Center - Prior research has indicated that a pulse system was the nearly unanimous type operated throughout the nation for systems the size of the Fargo-Moorhead MAT systems. Typically, the transit center is at the heart of the pulse system. Therefore, it should be a convenient, pleasant and safe waiting area. The Fargo-Moorhead MAT systems' Ground Transportation Center (i.e., GTC) in downtown Fargo is well located and safe. Because of the significant ridership activity at the West Acres Mall, the service improvement proposals call for establishing another transit center at this shopping mall.

- Continue to Provide Uniform and Clockface Headways - Headways on all routes should be uniform. Inconsistent headways will confuse users by creating uncertainty as to the arrival and departure times of buses. The result will be decreased ridership. Maintaining clockface headways makes usage easier because users will easily remember when the buses will arrive and depart.

- Maintain Coverage - It is not the intention of this plan to remove service entirely from any area that is currently served by the Fargo-Moorhead MAT systems. However, areas where service could be adjusted or modified due to limited ridership or to decrease running times should be considered. Conversely, areas warranting new or more service will be addressed. If service is removed, it is recognized that the vacated area could still be served by the call-in demand responsive paratransit service available in the Fargo-Moorhead MAT systems' service area.

Service Change Proposals - Modifications to Existing Services

This section presents a series of service change proposals for the Fargo-Moorhead MAT systems' current bus routes. The various recommendations that are made are designed to improve the effectiveness and efficiency of transit service and improve the transit systems' ridership performance. In some cases, more dramatic service changes are developed and are identified for consideration by the Fargo-Moorhead MAT systems.

New Metropolitan Area Transit Facilities - Any description of the modifications to the existing bus routes should be prefaced with a discussion of the proposed modifications to the transit infrastructure which supports the operation of the Fargo-Moorhead MAT systems. Two major transit projects, which are already underway, are proposed for the Fargo-Moorhead MAT systems' service area. These projects are described below:

- West Acres Mall Transit Center - A "transit center" with dedicated bus pull-outs and a curbfront boarding area is planned for construction at the West Acres Mall in Fargo so that transfers between the Fargo-Moorhead MAT systems' bus routes which both currently serve and are proposed to serve this major traffic generator and activity center may be more conveniently accommodated. Passengers will be provided with an enclosed waiting area with comfortable seating and access to rest room facilities. Information displays will also be provided.

- Holiday Mall Transfer Point - Due to the redevelopment of the Holiday Mall, the current transfer point must be relocated. A new "off-street" transfer point will be

constructed at the northeast corner of 11th Street South and 28th Avenue South, opposite the proposed Marriott Hotel. The transfer point will consist of a bus shelter with seating and information displays, thus allowing passengers transferring between the various Moorhead MAT system bus routes at this location to wait in an enclosed, weather-protected environment.

Span of Service - It is proposed that all of the Fargo-Moorhead MAT systems' bus routes - with some limited exceptions - operate a longer span of service than they presently operate. This will allow for more trip purposes to be accommodated, thus significantly improving the overall utility of the public transportation system.

On weekdays, the Fargo MAT bus routes (i.e., Routes 11 through 25 and the West Fargo Route) should operate until approximately 11:00PM. This means that the last departures from the Ground Transportation Center (i.e., GTC) would be at approximately 10:15PM. The Moorhead MAT bus routes (i.e., Routes 1 through 6 and the Evening North Route and Evening South Route) should operate until approximately 10:00PM. This means that the last departures from the GTC would be at approximately 9:15PM. The Dilworth Route's span of service will remain unchanged; additionally, the Evening North Route will continue to operate only during the school year.

On Saturdays, both the Fargo MAT routes and the Moorhead MAT routes should operate the same span of service they operate on weekdays. This will allow people the opportunity to greatly increase their utilization of the Fargo-Moorhead MAT systems for a variety of trip purposes.

As an interim plan - and to test passenger response to this extensive lengthening of the span of service - this element of the preliminary service proposals may be implemented only on Friday and Saturday evenings. If the longer span of service appears to be successful, then this proposal may be implemented throughout the remaining weekdays.

Finally, it should be noted that if Moorhead Routes 1 through 6 lengthen their spans of service, then the Evening North Route would become somewhat redundant. Therefore, if this proposal were implemented, the Evening North Route would be discontinued. The accompanying table, which assumes the Evening North Route is discontinued, describes the impacts of these changes to the Fargo-Moorhead MAT systems on an annual basis:

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery

Before	65,706	761,327	$2,995,352	$383,442	12.80%
After	77,436	834,831	$3,530,636	$420,203	11.90%

Route Modifications - This section of the report describes both the route alignment and frequency of service modifications proposed for each of the Fargo-Moorhead MAT systems' bus routes. The various modifications proposed for each bus route are described on an individual page, along with the estimated impacts of the modifications on an annual basis.

It should be noted that the data tables assume that the span of service improvements described previously have already been implemented for each bus route. It should also be noted that in this section of the report all dollar amounts are in current (i.e., year 2001) dollars and have not been adjusted to reflect inflationary pressures over the course of the proposed plan's implementation.

Route 1 In order to minimize running time Route 1 will be modified in various locations, as shown in Figure 25.

The first two modifications involve the outbound service. Due to the closing of the 6th Street South railroad crossing, Route 1 will access southbound 8th Street South directly from eastbound Center Avenue (i.e., U.S. Route 10). Route 1 will then continue southbound on 8th Street South and turn east onto 24th Avenue South. Route 1 will save some time by not having to operate westbound on 16th Avenue South, southbound on 7th Street South and then eastbound for an additional block on 24th Avenue South. The proposed southbound alignment lies just one block east of the current route. However, due to the left-turn lane configuration at the intersection of 8th Street South and 24th Avenue South, buses will no longer stop at 22nd Avenue South. The existing bus shelter at 16th Avenue South and 7th Street South (near Eventide Catered Living) will be removed.

The third modification involves inbound service. Northbound buses will access westbound Center Avenue (i.e., U.S. Route 10) directly from northbound 5th Street South. Route 1 will no longer operate via 6th Street South due to the closing of the railroad crossing. The street configuration along the proposed alignment (e.g., protected intersections, etc.) should also allow Route 1 to save some time. The bus stop and passenger waiting shelter located near the Moorhead Center Mall along the northern side of Center Avenue would have to be relocated further to the west (i.e., west of the intersection with 5th Street South) in order to accommodate this route realignment.

In order to serve the realigned outbound and inbound segments of Route 1, new designated bus stops will be established along 8th Street South at 16th Avenue South and 20th Avenue South, as well as along 5th Street South at 9th Avenue South (where a new bus stop shelter and bus stop sign would be located), 7th Avenue South, 4th Avenue South and 2nd Avenue South.

Additionally, the frequency of service along this bus route will be increased during the weekday midday period (i.e., operating the full autumn-winter-spring schedule) during the summer season. Presently, Route 1 operates a reduced schedule during the summer. This modification will help improve service between the GTC, downtown Moorhead and the new Holiday Mall Transfer Point.

Finally, Route 1 will be modified in order to serve the new Holiday Mall development. Route 1 will approach the new transfer point southbound from 24th

Avenue South via 11th Street South. Since Holiday Mall is this route's terminal, it will reverse direction by simply exiting onto northbound 11th Street South and proceeding back west onto 24th Avenue South. It should be noted that the closing of the 6th Street South railroad crossing means that the modifications to Route 1 will be implemented in the near future.

It should also be noted that consideration was given to operating service every half hour on Saturdays, thus doubling the current frequency of service. However, it was felt that this increase in the level of service would not be as productive and effective as lengthening the span of service.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,112.50	62,810	$171,821	$29,213	17.00%
After	4,316.50	63,955	$181,001	$29,746	16.43%

Route 2 Route 2 will also be modified in order to serve the new Holiday Mall development, as shown in Figure 26. Route 2 will approach the new transfer point southbound from 24th Avenue South via 11th Street South. Since Holiday Mall is this route's terminal, it will reverse direction by simply exiting onto northbound 11th Street South and proceeding east on 24th Avenue South and back north onto 14th Street South.

It should also be noted that consideration was given to operating service every half hour on Saturdays, thus doubling the current frequency of service. However, it was felt that this increase in the level of service would not be as productive and effective as lengthening the span of service.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,342.50	84,389	$181,240	$39,249	21.66%
After	4,342.50	84,389	$181,240	$39,249	21.66%

Route 3 Route 3 will also be modified in order to serve the new Holiday Mall development, as shown in Figure 27. Route 3 would enter the transfer point from northbound 11th Street South. This route would then simply exit the transfer point onto northbound 11th Street South, proceeding east on 24th Avenue South and back north onto 14th Street South.

During the summer season, the weekday midday period frequency of service along this bus route is hourly. Although consideration was given to improving the frequency of service to every half hour, it was determined that the current level of service - coupled with the frequency improvements on Route 1 and Route 4 - would provide a sufficient level of transit service.

It should also be noted that consideration was given to operating service every half hour on Saturdays, thus doubling the current frequency of service. However, it was felt that this increase in the level of service would not be as productive and effective as lengthening the span of service.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,105.10	43,956	$171,518	$20,444	11.92%
After	4,105.10	43,956	$171,518	$20,444	11.92%

Route 4 The frequency of service along this bus route will be increased during the weekday midday period (i.e., operating the full autumn-winter-spring schedule) during the summer season. Presently, Route 4 operates a reduced schedule during the summer. There was clear support for this proposal at several of the "walk-in" public meetings.

This proposal would also help improve the frequency of transit service in the area near the East Ten shopping center. An early iteration of the "Main Avenue Corridor" proposal would have improved transit service near the East Ten shopping center; however, subsequent iterations of this proposal do not enter Moorhead. For this reason, it was felt that improving the frequency of service along Route 4 would be justified.

It should also be noted that consideration was given to operating service every half hour on Saturdays, thus doubling the current frequency of service. However, it was felt that this increase in the level of service would not be as productive and effective as lengthening the span of service.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,138.50	53,676	$172,886	$24,965	14.44%
After	4,342.50	54,648	$182,066	$25,417	13.96%

Route 5 Route 5 will also be modified in order to serve the new Holiday Mall development, as shown in Figure 28. Route 5 will approach the new transfer point southbound from 24th Avenue South via 11th Street South. After serving the transfer point - which also serves as the terminal for Route 5 - the bus will then continue to operate via its regular route alignment by simply exiting southbound onto 11th Street South and east onto 28th Avenue South.

However, a relatively minor route nomenclature and alignment modification will also be implemented on Moorhead Route 5. In order to expedite direct service to various locations south of Interstate 94, every other trip will operate in the direction opposite to that which the route currently operates in. These trips will be identified as "Route 5B" while those trips that continue to operate in the direction the route currently operates in will be identified as "Route 5A".

It should also be kept in mind that, should the need arise in the future, Moorhead Route 5 may be utilized to provide service to the New Industrial Park via Village Green Boulevard. Service would therefore no longer operate via Village Green Drive.

During the summer season, the weekday midday period frequency of service along this bus route is hourly. Although consideration was given to improving the frequency of service to every half hour, it was determined that the current level of service - coupled with the frequency improvements on Route 1 and Route 4 - would provide a sufficient level of transit service.

It should also be noted that consideration was given to operating service every half hour on Saturdays, thus doubling the current frequency of service. However, it was felt that this increase in the level of service would not be as productive and effective as lengthening the span of service.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,121.34	41,289	$172,183	$19,203	11.15%
After	4,121.34	41,289	$172,183	$19,203	11.15%

Route 6 Route 6 will be slightly modified so as to shorten its running time, as shown in Figure 29. Service will operate eastbound along 10th Avenue North, south along 17th Street North and then back east onto 7th Avenue North. Service between 10th Avenue North and 7th Avenue North will no longer operate via 14th Street North. The street configuration along the proposed alignment (e.g., protected intersections, etc.) will allow Route 6 to save some time.

Due to the difficult roadway geometry, Route 6 will not operate into the driveway of the River View High Rise. However, the River View High Rise is within easy walking distance of the intersection of 8th Street North and 2nd Avenue North, which will still be served by Route 6 and where a new bus shelter will be erected. Service will continue to operate to the Park View complex. "On request" service to the Heritage Center will also continue to operate. It should be noted that the modifications to Route 6 will be implemented in the near future.

It should also be noted that consideration was given to operating service every half hour on Saturdays, thus doubling the current frequency of service. However, it was felt that this increase in the level of service would not be as productive and effective as lengthening the span of service.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,316.50	59,227	$180,175	$27,547	15.29%
After	4,316.50	59,227	$180,175	$27,547	15.29%

Route 11 Route 11 has encountered running time difficulties over the past few years. Although the provision of bi-directional service along Broadway has improved the route's convenience and appeal, its consequent popularity sometimes causes delays due to the greater amount of time needed to accommodate the boarding and alighting process. It is not recommended that Route 11 return to its prior service pattern. However, steps should be taken to improve the on-time performance of Route 11. These steps could include:

- *Designated Bus Stops* - The first tool utilized to address the timing issue on Route 11 should be the implementation of designated bus stops similar to the method presently utilized by Routes 1 and 2 in Moorhead. The possible location of the designated bus stops would be as described in the accompanying table:

Route 11 - Potential Designated Bus Stop Locations

Northbound			Southbound		
On	**At**	**Location**	**On**	**At**	**Location**
2nd Ave. North	Broadway	near-side corner	32nd Ave. North	33rd St.	far-side corner
Broadway	6th Ave. North	near-side shelter	Broadway	31st Ave. North	near-side corner
Broadway	8th Ave. North (MeritCare)	near-side corner	Broadway	28th Ave. North	near-side shelter*
Broadway	11th Ave. North	near-side corner	Broadway	25th Ave. North (North Port)	near-side corner
Broadway	13th Ave. North	near-side corner	Broadway	22nd Ave. North	near-side corner
Broadway	15th Ave. North	near-side shelter	Broadway	19th Ave. North	near-side shelter
Broadway	17th Ave. North	near-side corner	Broadway	17th Ave. North	near-side shelter
Broadway	19th Ave. North	near-side corner	Broadway	15th Ave. North	near-side corner
Broadway	22nd Ave. North	near-side corner	Broadway	13th Ave. North	near-side corner
Broadway	25th Ave. North (New Horizons)	mid-block shelter	Broadway	11th Ave. North	near-side corner
Broadway	29th Ave. North	near-side corner	Broadway	8th Ave. North (MeritCare)	near-side shelter
Broadway	30th Ave. North	near-side shelter*	Broadway	4th Ave. North	near-side corner
3rd St. North	31st Ave. North	far-side corner	2nd Ave. North	5th St. North	near-side corner

***** *Indicates a possible new bus passenger waiting shelter location.*

- *New Interline Service Pattern* - If the designated bus stop program does not solve the timing problems along Route 11, then an additional tool can be employed to help improve on-time performance. A new interline service pattern

may be implemented between Route 11 and both Routes 12 and 17. Currently, a bus is assigned to Route 11 and another bus is assigned to both Routes 12 and 17. The bus which operates Route 11 service can experience timing problems because it must operate in both directions along Broadway throughout the entire service day. These timing problems may be minimized if both buses operate along all three routes in an alternating service pattern as shown in the accompanying table.

This alternating interline service pattern removes each bus from Route 11 every other hour, thus giving each bus an opportunity to recover some lost time when it operates along Routes 12 and 17. This may help alleviate the on-time performance problem on Route 11 because the present service pattern can allow delays to indefinitely "snowball" throughout the day due to the fact that the same bus operates the route throughout the entire day.

It should also be noted that, at certain times, a bus would now operate through the GTC between Route 11 and either Route 12 or Route 17. Fargo-Moorhead MAT must determine if passengers will be allowed to "ride through" when these interline movements are made at the GTC. As with any interline movements, operators will change their vehicle's destination sign so that the correct bus route is always displayed. Passengers will therefore always be able to take the same numbered bus route in either direction on a particular street, thereby maintaining the current "bi-directional" service.

Proposed Routes 11/12/17 Interline Service Pattern

Minutes Past The Hour	Route & Direction Operated	
	Bus "A"	Bus "B"
:00	12 inbound	11 inbound
:15	17 outbound	11 outbound
:30	17 inbound	11 inbound
:45	11 outbound	12 outbound
:00	11 inbound	12 inbound
:15	11 outbound	17 outbound
:30	11 inbound	17 inbound
:45	12 outbound	11 outbound
:00	12 inbound	11 inbound
:15	17 outbound	11 outbound
:30	17 inbound	11 inbound
:45	11 outbound	12 outbound
:00	11 inbound	12 inbound
:15	11 outbound	17 outbound
:30	11 inbound	17 inbound
:45	12 outbound	11 outbound
pattern continues until the end of service...		

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,113.50	71,412	$197,740	$37,912	19.17%
After	4,113.50	71,412	$197,740	$37,912	19.17%

Route 12 See changes proposed for Route 11.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	2,167.50	20,971	$102,418	$11,133	10.87%
After	2,167.50	20,971	$102,418	$11,133	10.87%

Route 13 No changes other than the span of service improvements are proposed for this bus route.

It should be noted that the possibility of utilizing the Fargodome's parking lot as a "Park-and-Ride" lot along this bus route will be more carefully investigated by the Fargo-Moorhead Metropolitan Council of Governments.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,113.50	47,593	$197,740	$25,267	12.78%
After	4,113.50	47,593	$197,740	$25,267	12.78%

Route 14 Route 14 will continue to utilize the K-Mart as its transfer point with Route 25. After departing K-Mart, Route 14 will then also continue to proceed southbound on 14th Street South. However, as shown in Figure 30, Route 14 will then turn eastbound on 32nd Avenue South in order to access northbound University Drive South; 27th Avenue South will no longer be utilized by this bus route. It should be noted that this modification would be implemented only if there is a protected left turn traffic signal from southbound 15th Street South to eastbound 32nd Avenue South.

It should be noted that the possibility of utilizing the Hornbacher's parking lot as a "Park-and-Ride" lot along this bus route will be more carefully investigated by the Fargo-Moorhead Metropolitan Council of Governments.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,727.50	54,503	$227,329	$28,936	12.73%
After	4,727.50	54,503	$227,329	$28,936	12.73%

Route 15 Route 15 will no longer serve Community Homes, as shown in Figure 31. Outbound service will operate westbound on 13th Avenue South, north on 28th Street South, east on 9th Avenue South (so that Route 15 can continue to serve Southeast Human Services) and south on 25th Street South back onto 13th Avenue South westbound. Inbound service will operate eastbound on 13th Avenue South, north on 28th Street South, east on 9th Avenue South (so that Route 15 can again serve Southeast Human Services) and south on 25th Street South back onto 13th Avenue South eastbound. Community Homes still lies only one block to the east (i.e., within easy walking distance) of the proposed alignment for Route 15. In any event, Community Homes will still be provided with direct service via Route 18.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	5,167.00	90,027	$248,018	$47,796	19.27%
After	5,167.00	90,027	$248,018	$47,796	19.27%

Route 16 Route 16 will be modified to take advantage of the new 17th Avenue South crossing of the right-of-way of Interstate 29, as shown in Figure 32. Outbound service will operate westbound on 17th Avenue South and north on 34th Street South in order to continue to provide direct access to the Cashwise. Outbound service will then continue south on 32nd Street South and west on 17th Avenue South into the new West Acres Mall Transit Center. Inbound service will operate eastbound on 17th Avenue South from the West Acres Mall Transit Center and north on 34th Street South in order to continue to provide direct access to the Cashwise. Inbound service will then continue south on 32nd Street South and east on 17th Avenue South along the current alignment.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,860.00	78,090	$230,286	$41,458	18.00%
After	4,860.00	78,090	$230,286	$41,458	18.00%

Route 17 See changes proposed for Route 11.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	2,583.50	21,008	$122,051	$11,153	9.14%
After	2,583.50	21,008	$122,051	$11,153	9.14%

Route 18 Route 18 will be modified to take advantage of the new Westrac Drive crossing of the right-of-way of Interstate 29, as shown in Figure 33. Outbound service will operate westbound on 13th Avenue South and then north on 32nd Street South, which becomes Westrac Drive. After crossing Interstate 29, the buses will operate westbound on 9th Avenue Southwest until they resume the route's current alignment. Inbound service will operate eastbound from the current alignment along 9th Avenue Southwest, cross Interstate 29, continue eastbound on Westrac Drive and south on 32nd Street South. Inbound service will then resume operation along the current route alignment eastbound on 13th Avenue South.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,860.00	47,985	$230,286	$25,475	11.06%
After	4,860.00	47,985	$230,286	$25,475	11.06%

Route 19 No changes other than the span of service improvements are proposed for this bus route.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	3,377.00	30,444	$160,289	$16,163	10.08%
After	3,377.00	30,444	$160,289	$16,163	10.08%

Route 20 This new bus route connects the North Dakota State University (NDSU) campus with the West Acres Mall. As shown in Figure 34, the proposed modifications to this recently implemented service would allow both people in the northern Fargo area, as well as people in and around the NDSU campus, an opportunity to travel to and from the West Acres Mall without being forced to transfer at the GTC. An added benefit of this proposed modification to Route 20 is that service may also be provided to the Industrial Park. The relative novelty of this bus route did not allow the consultant team to obtain comprehensive ridership information at the time of the preparation of this report. However, the proposed modifications were derived from extensive comments during the public participation process regarding the service area in which Route 20 operates.

The proposal for a modified Route 20 would operate as follows: northbound from the North Port shopping center onto Broadway, west on 29th Avenue North, south on 10th Street North, west on 28th Avenue North, south on 12th Street North, west on 25th Avenue North, south on University Drive North, west on 17th Avenue North, south on Albrecht Boulevard, east on 15th Avenue North, south on University Drive North, west on Administration Avenue, westbound back onto 12th Avenue North, north on 40th Street North, west on 14th Avenue Northwest, south on 43rd Street North (thus serving the Industrial Park), westbound onto 12th Avenue Northwest, south on 45th Street Southwest and east on 15th Avenue Southwest into the new West Acres Mall Transit Center.

The return trip would operate westbound on 15th Avenue Southwest from the West Acres Mall Transit Center, north on 45th Street Southwest, east on 12th Avenue Northwest, north on 43rd Street North, east on 14th Avenue Northwest, south on 40th Street North, east on 12th Avenue North, south on 32nd Street North, east on 11th Avenue North, north on 29th Street North, east on 12th Avenue North, north on Administration Avenue, back southbound onto University Drive North, east on 12th Avenue North and northbound on Broadway into the North Port shopping center.

Due to the relative length of the modified Route 20, three vehicles would be required to provide half hourly service from approximately 6:30AM to 10:30PM on all days of service. This would certainly allow for sufficient layover/recovery time to be accommodated in the operating schedule. Half hourly service would also allow Route 20 to meet every departure of the modified Route 25 at the West Acres Mall Transit Center; if Route 25 continues to operate hourly, then every other trip on Route 20 would meet every trip on Route 25.

Although this proposal lengthens the headway on Route 20, it is felt that

improving the coverage of the bus route by providing direct service to and from the West Acres Mall for a greater portion of the population of the northern Fargo area would ultimately make Route 20 more productive and increase its overall transportation utility. It should also be noted that the significant route realignment does not serve as much of the NDSU campus as Route 20 presently does; however, it is felt that the modified Route 20 would still serve a significant portion of the NDSU campus directly. In any event, NDSU currently operates an "On-Campus Circulator" shuttle bus route which may be utilized to access the modified Route 20 and which is duplicated by the current alignment of Route 20 in some areas. Finally, 15th Avenue Southwest was utilized to access the West Acres Mall Transit Center because other transit services (i.e., Route 19 and the West Fargo Route) already operate along 13th Avenue Southwest.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	8,125.50	unknown	$390,589	unknown	unknown
After	15,503.50	unknown	$722,599	unknown	unknown

This proposal will require the addition of a vehicle during the peak period.

Route 25 There are two proposals for Route 25. First, consideration should be given to increasing this bus route's frequency of service so that service operates every 30 minutes. Currently, service operates hourly along Route 25. In any event, Route 25 should be timed so that it "pulses" with Route 20 at the West Acres Mall Transit Center.

The second proposal calls for Route 25 to be extended in order to directly serve the Fleet Farm, as shown in Figure 35. When operating westbound, the route extension will operate southbound along 36th Street Southwest (i.e., the eastern frontage road of Interstate 29) past the Fleet Farm. The route will then proceed westbound onto 40th Avenue South, cross Interstate 29 and then proceed northbound on 42nd Street South onto its existing route alignment. When operating eastbound, the route extension will continue to operate southbound on 42nd Street South past 32nd Avenue South and then proceed eastbound on 40th Avenue South past the Fleet Farm. The bus will then proceed northbound onto 36th Street Southwest (i.e., the eastern frontage road of Interstate 29) and then proceed onto its existing route alignment on 32nd Avenue South.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	4,860.00	16,013	$230,286	$8,501	3.69%
After	9,413.00	21,679	$435,171	$11,509	2.64%

This proposal will require the addition of a vehicle during the peak period.

West Fargo Route The only proposal for the West Fargo Route is that its service frequency be improved so that service operates at least hourly throughout the day. The current headway is somewhat erratic. Service on the West Fargo Route should also be timed so that connections with the other bus routes at the West Acres Mall Transit Center are easily accommodated.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	1,790.00	7,112	$84,301	$3,776	4.48%
After	2,531.50	8,286	$117,669	$4,399	3.74%

This proposal will require the addition of a vehicle during the peak period because the proposed service modifications will no longer allow the West Fargo Route to "interline" with Route 19.

Dilworth Route No changes proposed.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	629.91	unknown	$25,795	unknown	unknown
After	629.91	unknown	$25,795	unknown	unknown

Evening North Route This bus route would be eliminated. Other proposals call for Moorhead Routes 1 through 6 to lengthen their spans of service. If this were implemented, then the Evening North Route would become somewhat redundant. The existing bus routes - operating with a longer span of service - would provide a more effective transit option for more residents of the area and therefore have a higher overall level of transportation utility. Therefore, if the proposed span of service changes were implemented, the Evening North Route would be discontinued. The accompanying table assumes that this bus route is eliminated.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	873.83	4,091	$31,851	$1,903	5.97%
After	*route eliminated*				

Evening South Route A major span of service modification is proposed for the Evening South Route. This change will substantially alter the nature of the existing transit service. It is proposed that this bus route operate throughout the entire service day (i.e., not just during the evening) and that it operate throughout the entire year (i.e., not just during the academic year).

These substantial service modifications will allow this bus route to effectively serve as the new **"Southern Crosstown" Route**.

Time Frame	Hours	Passengers	Cost	Revenue	Farebox Recovery
Before	924.18	4,327	$33,686	$2,012	5.97%
After	4,960.68	9,449	$215,329	$6,407	2.98%

Commuter Service No changes are proposed for either the Detroit Lakes or Barnesville commuter services.

Service Change Proposals - New Transit Services

This section presents a review of proposals for new transit services. New service proposals comprise only a portion of the recommendations for the Fargo-Moorhead MAT systems. The proposals for new transit services in the Fargo-Moorhead metropolitan area are as follows:

Sunday Service - Sunday service was considered for implementation on selected bus routes; however, the public input process indicated that people would strongly prefer a longer span of service and improved frequencies of service on the existing days of service to any new Sunday service. For this reason, Sunday service is not recommended at this time.

New Bus Routes - The following section of the report presents a description of the proposed new bus routes in the Fargo-Moorhead metropolitan area. The various proposals for new bus routes are described on an individual page, along with the estimated impacts of the proposal on an annual basis. It should also be noted that in this section of the report all dollar amounts are in current (i.e., year 2001) dollars and have not been adjusted to reflect inflationary pressures over the course of the proposed plan's implementation.

Downtown Fargo Circulator Route

A new bus route is proposed for the downtown Fargo area. This route will serve to connect various activity centers in and around the downtown area with each other. However, this route will not solely serve the immediate "downtown" area; this is because the "heart" of downtown in Fargo is relatively small and most locations are within easy walking distance from each other. Instead, the proposed bus route will also serve some activity centers located a short distance from downtown and which may warrant some level of connection with each other that does not necessarily require a transfer at the GTC. This bus route could utilize a distinctive vehicle (e.g., a "vintage trolley" type bus) with unique markings in order to distinguish it from the rest of the Fargo-Moorhead MAT systems' bus routes.

As shown in Figure 36, the proposed circulator bus route would operate as a one-way "loop" and would meet other Fargo-Moorhead MAT routes at the GTC. Service would operate as follows: eastbound from the GTC on NP Avenue, south on 2nd Street North past Main Avenue and into the Senior Citizen High Rise, northbound from the Senior Citizen High Rise past Main Avenue onto 2nd Street North, west on 1st Avenue North, south on Roberts Street (thus serving the Burdick Federal Courthouse), east on NP Avenue, north on Broadway (past the MeritCare Medical Center), east on 8th Avenue North, south on 4th Street North, west on 1st Avenue North and south on 5th Street North back into the GTC. One vehicle would provide service every 15 minutes from approximately 6:15AM to 10:15PM on all days of service.

Hours	Passengers	Cost	Revenue	Farebox Recovery
4,988.75	23,946	$224,494	$12,713	5.66%

This proposal will require the addition of a vehicle during the peak period.

"Main Avenue Corridor" Route

A new bus route is proposed to provide public transportation service in a corridor which is presently unserved by any bus routes. This new bus route would operate between the West Acres Mall and the GTC in downtown Fargo primarily via Main Avenue (i.e., U.S. Route 10), thus serving the main east-west "corridor" in the metropolitan area.

As shown in Figure 37, the proposed route would operate as follows: from the GTC onto NP Avenue eastbound, south on 4th Street North, west on Main Avenue and south on 42nd Street Southwest into the West Acres Mall Transit Center. The return trip would operate northbound on 42nd Street Southwest from the West Acres Mall Transit Center, east on Main Avenue, north on 8th Street North and east on NP Avenue back into the GTC.

One vehicle would provide service every 60 minutes from approximately 6:15AM to 10:15PM on all days of service. Although not strictly adhering to the proposed service guidelines, hourly service would be acceptable for this proposal because this would be the fourth bus route to offer a "one seat ride" between the GTC and the West Acres Mall Transit Center. It is proposed that this bus route utilize a "designated bus stop" system, similar to that proposed for Route 11. This will allow for a greater degree of schedule adherence on this lengthy bus route. In the long term, the designated bus stop system will also allow for a "limited stop" or "semi-express" style transit service to be operated between the GTC and the West Acres Mall Transit Center.

Hours	Passengers	Cost	Revenue	Farebox Recovery
4,912.00	31,437	$221,040	$16,690	7.55%

This proposal would require the addition of a vehicle during the peak period.

New Commuter Service

New commuter service between the GTC, Moorhead Center Mall and the community of Breckenridge is proposed. As shown in Figure 38, this service would operate via U.S. Route 75. The route alignment can vary depending on traffic conditions as long as the GTC, Moorhead Center Mall and Breckenridge are all served. One round trip per weekday (inbound in the morning and outbound in the afternoon) would be operated.

Hours	Passengers	Cost	Revenue	Farebox Recovery
1,785.00	5,100	$80,325	$10,200	12.70%

This proposal would require the addition of a vehicle during the peak period.

RECOMMENDED PLAN

This chapter first summarizes the elements of the recommended service plan. Next, the current capital program for the Fargo-Moorhead metropolitan area's transit systems is defined for a five year period - 2002 through 2006 - for replacement buses and other necessary items. The current ongoing operating funding projections are also defined. An implementation plan is then identified for all the service plan elements comprising the Transit Development Plan Update. Some elements (i.e., those which are "cost neutral") are scheduled for implementation throughout the next two years, while those elements of the recommended service plan which require the expenditure of new funds are categorized according to "high", "medium" and "low" priority service modifications. A capital plan for the acquisition of the vehicles necessary to implement those proposals which require new funding sources is then presented. The level of additional operating funds required to operate the expanded system is also projected based upon the priority level of the proposed service modifications. Proposals are also presented in the public information/marketing areas as related to implementation of expanded services and for ongoing activities. Finally, factors affecting the demand responsive paratransit system are also discussed.

Summary of Recommended Service Plan

This section presents a summary of the route and service change proposals developed for the Fargo-Moorhead MAT systems, as well as for Clay County Rural Transit. These proposals are discussed in detail in the previous section of this plan. Several changes are proposed for the existing bus routes, and several additional proposals focus on new services to areas that are currently underserved by the transit systems.

The recommended service changes are summarized below:

- Implement relatively minor route alignment modifications on several of the existing bus routes so that they may better serve specific traffic generators.

- Improve the frequency of service on several of the existing bus routes.

- Implement major route alignment modifications on some of the existing bus

routes; these significant modifications will help improve service to several areas of the community.

- Improve the span of service (i.e., the time during which transit service is available) on most of the existing bus routes on both weekdays and Saturdays.

- Eliminate an existing transit service which becomes redundant with the new expanded services.

- Implement new bus routes serving areas and markets which are presently unserved by the Fargo-Moorhead MAT systems.

Current Capital and Operating Cost Programs

The current Transportation Improvement Program (TIP) process has already programmed funding for ongoing capital equipment needs as well as for continuing operating funding requirements throughout the next five years. This section of the Transit Development Plan Update identifies the amount of funding currently programmed via the TIP process. Proposals in the recommended service plan which require the expenditure of new funds would require that a long term commitment for additional funding be sought after from the local, state and federal governments or from private sector sources. The funds currently programmed via the TIP process are as follows:

Current Capital Funding Requirements:

- <u>Year 2002</u>

  Fargo: Purchase 2 vans for elderly and handicapped services.
  Cost: $40,000

  Refurbish the GTC.
  Cost: $1,000,000

  Refurbish the bus facility (i.e., City Garage).
  Cost: $300,000

Construction of West Acres Transit Center.
Cost: $300,000

Moorhead: Relocation of Holiday Mall Transfer Center.
Cost: $65,000

Preventative maintenance.
Cost: $45,500

- Year 2003

  Fargo: Purchase six MAT paratransit vans (five replacements and one new van).
  Cost: $568,600

  Purchase three vans for elderly and handicapped services.
  Cost: $63,750

  Moorhead: Replace one Class 400 paratransit bus.
  Cost: $65,000

  Replace four medium-size buses.
  Cost: $1,052,000

  Bus related equipment.
  Cost: $8,400

  Clay County: Purchase new Class 400 bus.
  Cost: $55,000

- Year 2004

  Fargo: Purchase four mid-sized buses.
  Cost: $1,160,000

  Moorhead: Replace two medium-size buses.
  Cost: $526,000

- Year 2005

Fargo: Replace two elderly and handicapped vans.
Cost: $47,300

Replace one mid-sized bus.
Cost: $290,000

Moorhead: Replace one Class 400 paratransit bus.
Cost: $71,000

Replace two medium-size buses.
Cost: $610,000

Clay County: Replace one Class 500 bus.
Cost: $150,000

- Year 2006

Fargo: Replace two mid-sized buses.
Cost: $580,000

Moorhead: Preventative maintenance for vehicles.
Cost: $60,000

Clay County: Purchase new Class 500 bus.
Cost: $115,000

Current Operating Funding Requirements:

- Year 2002

Fargo: Fixed route & paratransit operating assistance.
Cost: $1,612,795

Planning assistance.
Cost: $30,000

Special Congestion Mitigation/Air Quality funding for Route 20.
Cost: $204,000

Moorhead: Fixed route & paratransit operating assistance.
Cost: $1,087,300

Planning assistance.
Cost: $9,500

Clay County: Fixed route & paratransit operating assistance.
Cost: $234,239

- Year 2003

Fargo: Fixed route & paratransit operating assistance.
Cost: $1,704,137

Planning assistance.
Cost: $30,000

Special Congestion Mitigation/Air Quality funding for Route 20.
Cost: $204,000

Moorhead: Fixed route & paratransit operating assistance.
Cost: $1,130,800

Planning assistance.
Cost: $9,800

Clay County: Fixed route & paratransit operating assistance.
Cost: $242,305

- Year 2004

Fargo: Fixed route & paratransit operating assistance.
Cost: $1,768,062

Planning assistance.
Cost: $30,000

Moorhead: Fixed route & paratransit operating assistance.

Cost: $1,176,000

Planning assistance.
Cost: $10,100

Clay County: Fixed route & paratransit operating assistance.
Cost: $249,574

- Year 2005

Fargo: Fixed route & paratransit operating assistance.
Cost: $1,834,545

Planning assistance.
Cost: $30,000

Moorhead: Fixed route & paratransit operating assistance.
Cost: $1,223,000

Planning assistance.
Cost: $10,400

Clay County: Fixed route & paratransit operating assistance.
Cost: $257,050

- Year 2006

Fargo: Fixed route & paratransit operating assistance.
Cost: $1,903,686

Planning assistance.
Cost: $30,000

Moorhead: Fixed route & paratransit operating assistance.
Cost: $1,272,000

Planning assistance.
Cost: $10,700

Clay County: Fixed route & paratransit operating assistance.

Cost: $264,760

Implementation Plan

Another element of the recommended plan is to define when the various elements of the plan should be implemented. Where changes are "cost neutral" (i.e., where they do not require new sources of funding) they are scheduled for implementation during the next two years. In fact, it should be noted that some of the minor route alignment changes recommended in the plan have already been implemented. In those instances where a proposal requires a new source of capital or operating funding, it is categorized according to whether the proposal is a "high", "medium" or "low" priority service modification. For these services, eventual implementation will essentially depend upon the ability to obtain the vehicles to operate the services as well as the ability to secure a long term commitment for local funding support for those services.

The implementation plan for the "cost neutral" proposals throughout the next two years is identified below:

<u>Year 2002</u>

- Implement new route alignment modifications on Moorhead MAT Routes 1, 2, 3, 5 and 6.

- Implement new designated bus stop locations on Fargo MAT Route 11.

- Implement new "interline service pattern" on Fargo MAT Routes 11, 12 and 17.

- Implement new route alignment modifications on Fargo MAT Routes 14, 15 and 25.

<u>Year 2003</u>

- Implement new route alignment modifications on Fargo MAT Routes 16 and 18.

The remaining proposals in the recommended service plan all require the expenditure of additional capital and/or operating funds. In order to secure these new funding sources a long term financial commitment to an expanded public transportation system would have to be obtained from the local, state and federal governments or from private sector sources.

The "prioritization scheme" of the remaining proposals is presented below. However, it should be kept in mind that the prioritization scheme presented here could change based on financial commitments from various private sector entities.

High Priority

- Implement lengthened span of service on Fargo MAT Routes 11, 13, 14, 15 and 25.

- Implement new Downtown Fargo Circulator Route. This new bus route will require an additional peak vehicle.

Medium Priority

- Implement lengthened span of service on Fargo MAT Routes 12, 16, 17, 18, 19, 20 and the West Fargo Route.

- Implement lengthened span of service on Moorhead MAT Routes 1, 2, 4 and 6.

- Implement improved frequency of service on Fargo MAT Route 25. This route modification will require an additional peak vehicle.

Low Priority

- Implement lengthened span of service on Moorhead MAT Routes 3 and 5.

- Implement improved frequency of service on Moorhead MAT Routes 1 and 4.

- Implement route alignment and frequency of service modifications on Fargo MAT Route 20. These route modifications will require an additional peak vehicle.

- Implement improved frequency of service on the West Fargo Route. This route modification will also require an additional peak vehicle.

- Eliminate the Evening North Route.

- Implement lengthened span of service on the Evening South Route so that it becomes the new "Southern Crosstown Route". This route modification will also require an additional peak vehicle.

At some point both beyond the five year planning horizon for the Transit Development Plan Update (i.e., after 2006) and after the "Low Priority" proposals have been implemented, additional consideration would be given to implementing the proposed Main Avenue Corridor bus route and the proposed Breckenridge Commuter Route. It was felt that - at this time - funding would be uncertain for these proposals.

Financial Plan - Capital and Operating Funding Program for Expanded Transit Service

To assure the implementation of those proposals in the recommended service plan which require a new source of funding, a program of both capital improvements and operating funding requirements has been developed in order to help guide future efforts at securing commitments for additional funding resources.

The program is categorized in a manner similar to the proposals themselves, with "high", "medium" and "low" priority service modifications determining the capital and operating funding requirements. A description of the proposed capital and operating improvements is presented in the accompanying table. It should be noted that all dollar amounts shown are in constant (i.e., current year 2001) dollars.

The capital needs for the proposed expanded services are essentially the new vehicles which would be required to operate the bus routes. These new vehicles would be purchased in addition to those already programmed into the TIP and described previously in this section of the report. Each new bus is estimated to cost approximately $290,000.

The operating needs for the proposed expanded services are the approximate funds required to operate service more frequently and/or for a longer span of service. It should be kept in mind that the operating costs are estimated on an annual basis and would be a recurring cost item (i.e., an annual budget item). Additionally, the operating costs are cumulative in that once all the low priority proposals are implemented the annual additional operating funding required would be the sum of the additional operating funds required for the "high", "medium" and "low" priority proposals.

Finally, it should also be noted that these operating funding estimates do not include any revenues which the new transit services would generate. These revenues would offset the operating costs of the new services. However, it was desirable to demonstrate the overall costs of the proposed services without any of their associated revenues in order to conservatively project and assess the financial impacts of the proposals.

Additional Capital and Operating Funding Required for Expanded Transit Service

New Capital Funding Requirements	
Priority	**Amount**
High - Fargo	$290,000
High - Moorhead	$0
Medium - Fargo	$290,000
Medium - Moorhead	$0
Low - Fargo	$580,000
Low - Moorhead	$290,000
TOTAL	**$1,450,000**
New Annual Operating Funding Requirements	
Priority	**Amount**
High - Fargo	$314,251
High - Moorhead	$0
Medium - Fargo	$454,613
Medium - Moorhead	$151,740
Low - Fargo	$365,378
Low - Moorhead	$244,021
TOTAL	**$1,530,003**

- **Fixed Route Fleet** - As shown in an earlier chapter, the fixed route bus fleet in Fargo and Moorhead consists of 25 vehicles. Via the Transportation Improvement Program (TIP) process described previously, the Fargo-Moorhead MAT systems have already budgeted the funds for the fixed route vehicles required to replace those that will exceed their useful life during the next five years (i.e., the horizon period of this planning study). As detailed in the prior chapter, seven additional peak period buses would be required to implement the proposed service expansion plan. However - as was explained in the Implementation Plan - two of these proposals have been placed beyond the horizon of this planning study. Therefore, five new additional fixed route vehicles are required for the implementation of the proposed expanded service plan. One vehicle would be required during the implementation of the High Priority proposals, another vehicle would be required during the implementation of the Medium Priority proposals, and three new vehicles would be required during the implementation of the Low

Priority proposals. Only one new fixed route vehicle would be required by Moorhead MAT during the Low Priority implementation phase, all the other new vehicles would be required by Fargo MAT.

> Over the course of the plan's implementation, approximately $1.5 million will have to budgeted in terms of capital expenditures in order to supply sufficient fixed route vehicles for the proposed new services. It is anticipated that the federal government will support the bulk of the capital financial burden at about an 80 percent share, or approximately $1.2 million. The remaining local share investment by the local funding agencies would be about $290,000.

Expansion of the Fargo-Moorhead MAT systems' services depends on availability of local funding from a variety of sources. The additional annual operating funding required to operate the expanded transit system would total approximately $1.5 million. Once again, it is important to keep in mind that - unlike the capital funding needs - the operating funding needs are an ongoing and continuing annual expense. Without this funding, service would not be provided. Therefore, before the transit systems embark on a process to obtain new fixed route buses for providing the expanding services, two actions should be taken:

- The transit systems should obtain a preliminary commitment from the local affected agencies that they are willing to provide long term financial support for the expanded service. Funding assistance from various private sector sources should also be investigated.

- The Fargo-Moorhead MAT systems should explore each of two possible ways to obtain additional fixed route buses and identify the best method to follow. The first method would be to explore the possibility of joining another agency and be a part of their bus purchase process. While this method may save some time, it may not result in the Fargo-Moorhead MAT systems getting all the features they desire in a new bus. The second method would be for the Fargo-Moorhead MAT systems to go out to bid and obtain the needed fixed route buses on their own. This may be the more time consuming option. However, it would assure that they obtain the bus features they desire. For this last option the transit systems could obtain transit buses similar to their current fleet. It is likely that such a purchase would take between 18 months and two years to accomplish, thus easily fitting into the time frame of the current TIP.

Marketing and Public Information

The Fargo-Moorhead MAT systems have most of the public information materials that inform current and potential riders of the services offered. An area for improvement is for the new West Acres Transit Center to contain expanded passenger waiting facilities as well as new signage to display schedule information for each route.

In view of the proposed service expansion, the Fargo-Moorhead MAT systems should have a marketing campaign to inform the public of the changes. In preparation for the changes, the following activities should be undertaken:

- Install new bus stop signs to reflect the new services;

- Hand-out notices to all residents and businesses along the routes of the new and expanded services;

- Prepare notices and display them in all regular service buses and at the GTC defining the service expansion;

- Implement a fare promotion program to offer reduced or even free fares for the first several days or for the inaugural week of the new service;

- Advertise in local media (e.g., newspaper and radio bulletins) of the pending service expansion; and

- Update the Fargo-Moorhead MAT systems' map and timetables to reflect the revised services.

Another aspect where improvement could be made is in the area of general marketing. The Fargo-Moorhead MAT systems should develop a strategy to promote ridership on the system. The strategy should first include a program for insuring the successful implementation of the new service recommendations which were previously described. Once the new service is implemented, the :

- Direct mail program targeted at groups with the greatest potential for increased transit use. These groups would be offered a incentive to utilize public transit;

- Fare incentive programs to attract residents to either utilize service or to increase their current use;

- Rider contests and other promotional programs in order to maintain a high awareness of transit; and

- A directed "outreach program" where senior citizen groups, students, mall shoppers and employees at major employment centers are visited with a "MAT Fair" in order to promote transit.

In terms of general marketing needs, the Fargo-Moorhead MAT systems' staff have also developed several marketing incentives which should be further explored throughout the next few years. These marketing incentives are geared to improving the quality of the bus riders' experience and towards increasing overall system ridership. These marketing initiatives are as follows:

- Provide an information display case and a bench in every bus shelter;

- Be certain all bus stop signs have the new logo with the telephone information number and website address;

- Prepare stickers (which can be updated as warranted) with the route number and times a bus serves a particular stop to be placed on the back of every bus stop sign;

- List detours and marketing promotions on the website;

- Prepare an outdoor display schedule for each college campus;

- Prepare a new "Tri-College" schedule;

- Provide exterior schedule displays at the GTC;

- Prepare a "How To Ride" presentation for training workshops (especially geared towards senior citizens);

- Place the new logo with telephone information number and website address on top of the buses so they are not obscured by the advertising wraps;

- Investigate new fareboxes and payment methods.

A key component of a successful marketing program is the development of a written action plan with a follow-up review of which programs are successful and should be pursued again.

Recommended Planning Studies

Throughout the preparation of the Transit Development Plan Update it became apparent that several transit-related issues warrant more detailed study than was possible in this plan. Therefore, with extensive input and guidance from the staff of the Fargo-Moorhead MAT systems, several future planning studies for the Fargo-Moorhead metropolitan area have been outlined and recommended as part of the Transit Development Plan Update. These planning studies are as follows:

<u>Year 2002</u>

- **Moorhead MAT Route 2 Wheelchair Accommodation Analysis** - A new accessible bus will be delivered to Moorhead MAT in 2003. When placed on this high ridership route (which serves the Minnesota State University Moorhead) the delays resulting from frequent use of the wheelchair lift may require that this route be adjusted. Further study is recommended.

- **Revenue Hours and Capacity Analysis for MAT Paratransit** - This study will analyze the capacity of the MAT Paratransit system as related to the number of trip denials in order to determine when and how much of an expansion of the MAT Paratransit system is warranted. (It should be noted that Fargo MAT has programmed an expansion vehicle for the MAT Paratransit system in 2003.)

- **Night Route Analysis** - This study will analyze the potential for creating new "night routes" in order to lengthen the span of service. This technique may be used to complement and supplement the proposed lengthening of the span of service in the Transit Development Plan Update. For example, this study could examine the effectiveness of operating a combination of new night routes along with the lengthening of the span of service of selected existing routes.

- **Main Avenue Bridge Study** - This study will analyze the possibility of obtaining funding for - and then operating - a new "shuttle bus route" between the Moorhead Center Mall and the GTC while the Main Avenue Bridge is being replaced. This "bus bridge" would allow Moorhead MAT to not operate any buses into Fargo throughout the duration of the construction project, thus saving all of the running time that would otherwise have been lost in traffic congestion associated with the construction program.

Year 2003

- **Fargo-Moorhead Metropolitan Area Bus Route Traffic Control Study** - This study will analyze the feasibility and potential effectiveness of giving buses the right-of-way at intersections which presently have no traffic controls of any type and where all directions of traffic must stop. The direction of traffic opposing the bus route would be given either a "Yield" sign or a "Stop" sign so that buses would not have to constantly slow down and stop along the bus route. This would increase the reliability of transit service and warrants careful examination.

- **Intelligent Transportation System Study** - Similar to the previous study, this study would examine another method of improving the overall operating speed and reliability of a bus route. In this study, the effectiveness and feasibility of purchasing and utilizing technological systems which allow a bus to extend the "green phase" of a traffic signal so that it favors the direction of travel in which a bus is traveling will be carefully analyzed. Once again, this would increase the reliability of transit service and warrants careful examination.

- **Consolidated Facility Study** - This study will examine the feasibility of constructing and operating a new consolidated transit facility which could be utilized to store and maintain the transit vehicle fleets for all of the operators in the Fargo-Moorhead metropolitan area.

Analysis of Impacts on the Paratransit System

The Americans with Disabilities Act (ADA) demand responsive paratransit program is operated under contract to Fargo MAT by Laidlaw Transit, the same company which is under contract to operate the Fargo MAT fixed route bus system. It should be noted that Laidlaw Transit solely provides the vehicle operators. The scheduling, supervision, dispatching and the day-to-day administration of the demand responsive paratransit system is undertaken by Fargo MAT. In turn, Moorhead MAT contracts with Fargo MAT to operate its ADA demand responsive paratransit system through a Joint Powers Agreement. Costs for the joint system are based on a percentage of ridership, with Fargo MAT requesting reimbursement from the City of West Fargo and the City of Moorhead (i.e., for Moorhead and Dilworth rides). Seven vehicles are allocated to MAT Paratransit - five owned by Fargo and two owned by Moorhead. Storage and maintenance of the fleet is facilitated through the City Garage in Fargo.

As a result of this arrangement, Laidlaw Transit is under contract to provide vehicle operators for the ADA demand responsive paratransit system in the entire Fargo-Moorhead metropolitan area. However, an exception exists in the rural areas of Clay County, Minnesota. The demand responsive paratransit system in the rural areas of Clay County is operated by Clay County Rural Transit (CCRT) and several private organizations. The future needs of the CCRT system are described in much greater detail in the Appendix.

The demand responsive paratransit system as presently operated already does significantly more than the required and ADA-mandated minimums. Service is provided throughout all of the municipalities of Fargo, West Fargo, Moorhead and Dilworth. This goes far beyond the “complementary” (i.e., to the fixed route system) nature and intent of the ADA, which requires that service be provided only within 3/4 of a mile of a fixed bus route. Service is also provided at all times that fixed route transit service is available, in accordance with the ADA. Additionally, the demand responsive paratransit service is operated on Sundays between 7:30AM and 5:00PM, but only within the City of Fargo. However, it should be stated again that this aspect of the service far exceeds the intent of the ADA and affords mobility-impaired Fargo residents an opportunity to participate in their community’s life throughout the entire week.

In May of 1996, Fargo and Moorhead combined their separate paratransit services into one operation, thereby bridging the river separating and two communities and eliminating the

need for riders to transfer. In addition, the fare structures were realigned and made equal. Initially, there was an overall increase in ridership of approximately 50 percent on the system and an additional vehicle was procured to meet demand. At the time, driver and dispatcher services were provided by a private contractor and reimbursement was based on a "per ride" basis. Complaints, late trips, missed trips, and extensive delays in service were very high.

In August of 1997, Trapeze Software, a paratransit management software, was purchased for the overall system and located at the Ground Transportation Center (GTC). Following conversion of subscription rides and entering of clients into the new software, the Trapeze system came on-line in January of 1998. The software has automated trip booking capability and provided many other benefits, including a reduction in subscription rates from over 80 percent to the current 48 percent, the ability to track capacity statistics (e.g., lengthy trips, missed trips, and early/late arrivals) and the improvement of the overall management of MAT Paratransit.

In May of 1998, the new services contract changed reimbursement to the contractor from a "per ride" basis to a flat hourly rate. This allowed Fargo and Moorhead to more readily establish revenue hours to meet demand and to monitor performance. In addition, the City of Fargo hired two paratransit dispatchers/reservationists dedicated to the MAT Paratransit operation. Wages between fixed route and MAT Paratransit drivers were equalized to retain qualified professional staff. Although several changes in personnel have impacted the efficiency of the system at various times, recent adjustments to the dispatchers/reservationists have resulted in improved efficiency and the near elimination of complaints.

As noted earlier, ridership increased substantially after the two city paratransit systems were joined in 1996. However, for the period between 1997 and 2000, ridership began to trend downwards. As the 2000 to 2001 statistics indicate, ridership is again on the rise by approximately 6 percent, and revenue hours have increased by 5 percent, demonstrating that adjustments have been made to meet new demand. The number of denials and refusals remains less than 1 percent and has been decreasing dramatically since June 2001 due to the addition of revenue hours. Rides per hour over the past five years average 2.6, which is above the nationwide average. This would indicate that the system is operating efficiently. During 2002, the system hours are expected to remain steady, with slight increases over the following few years. An additional vehicle is scheduled for procurement by Fargo in 2003 to assist in accommodating potential increases for the future.

The proposed service expansions will not really affect the size and scope of the ADA demand responsive paratransit program in the Fargo-Moorhead metropolitan area. Even if all the proposed service modifications were implemented, the current demand responsive paratransit system would satisfy the ADA because it operates throughout the entire service area and for all of the hours during which even the expanded transit systems would be available.

Management and Organization

In terms of the management and organizational structure of the Fargo-Moorhead MAT systems, the recommendations of the study prepared by LJR Transportation Consultants and Planners and funded by the Fargo-Moorhead Metropolitan Council of Governments as a result of the 1996 Transit Development Plan Update (i.e., the "LJR Study") are still eminently valid. The most important issue - the eventual "unification" of the two transit systems into one effective administrative and organizational body - is being slowly and methodically implemented, albeit on an extended timetable.

The LJR Study recommended a "Modified Cooperative Pacts Model" where services are contracted from one system to another. This alternative recommends a single operating entity (i.e., Moorhead MAT) where services in other jurisdictions (i.e., Fargo, West Fargo and Dilworth) would be operated by Moorhead MAT via a contract. In terms of funding, the cities and counties participating in the system would provide contract funding to Moorhead from their general fund or from a separate levy. Both federal and state aid would, of course, be contingent on a steady flow of local dollars into the public transit system.

In terms of legal issues, procurement and personnel matters would follow the laws of the state of the system providing the service (i.e., Minnesota). Local condemnation laws would have to be followed, and there are no other major legal issues which would hinder this arrangement.

The implementation of this recommendation would allow the Fargo-Moorhead MAT systems to enjoy a certain degree of autonomy from the political pressures of their respective cities; however, this structure still allows the system to be accountable for its actions to local elected officials.

Recent joint procurement efforts illustrate the headway being made on the overall implementation of this recommendation, as do joint public information programs, materials, bus stop signs and logo design. Eventually, planning and administrative functions would also be enhanced if operated as an element of a joint "Fargo/Moorhead" transit system.

Additional effort is continuing in order to eventually create a unified administrative structure for the Fargo and Moorhead MAT systems; however, given the various institutional issues and barriers posed by any type of bi-state operation, this process will - of necessity - be somewhat time-consuming.

Drug and Alcohol Policies

A review of both the City of Fargo's and the City of Moorhead's Drug and Alcohol Policies in terms of their compliance with recently updated Federal regulations was conducted. The results are illustrated in Table 17 for the City of Fargo and in Table 18 for the City of Moorhead. They clearly illustrate that both public transit systems are in compliance with the relevant Federal regulations.

APPENDIX B

This appendix includes the following materials:

1. Notices of the Public Input Meetings held on April 24th and 26th, 2001 to garner initial comments and the Public Meeting held on November 14th, 2001 to review the Draft TDP Update Final Report. Results of the first Public Input Meeting are included in the main body of the final report.

2. Sign-in sheets from the November 14th public meeting.
   3. 24 people signed-in for the 9:00AM session
   4. eight people signed-in for the 4:30PM session

   It should be noted that separate counts were maintained of the people that attended the meeting, many of which did not sign-in. These separate counts are listed below:

   17 Female which included 2 minority and 1 disabled
   25 Male which included 2 minority and 3 disabled

   A total of 42 people attended the meeting with 32 that signed-in.

3. The following are the comments that were made and given to members of the consultant team who attended the meeting. Answers to the comments, where appropriate, are also given.

Questions/Compliments

- Wanted to be assured that the suggested new service span would be consistent on weekdays and Saturday.
  Answer - it will be.
- Was park-n-ride considered?
  Answer - Yes, Hornbacher's on Route 14 and Fargodome on Route 13.
- When will Route 20 changes be implemented?
  Answer - Possibly by next year.
- Industrial Park service is a great idea.
- Longer span of service is a great idea.
- Likes idea of new Main Avenue bus route.
- Likes idea of service to Fleet Farm on Route 25.

Comments

- Downtown route might need adjustment to serve new parking lots.
  Answer - Yes, it may and will be addressed as required.
- There is an issue with Moorhead Arena parking for the University.
  Answer - It is more a parking issue and not transit.
- Route map can sometimes be unwieldy.
  Answer - Although it could be simplified, most patrons prefer the "all-in-

one" nature of the new system maps.

- What about Sunday service?

  Answer - Sunday service not typically found in similar size communities; it was also felt that resources would be better used improving weekday and Saturday service.

- Are Senior Ride issues being addressed?

  Answer - No, the primary focus of the study was on fixed route transit issues. However, if during the course of the study Senior Ride issues were uncovered, they were noted.

4. Attached are written comments made by nine individuals. The individual comment pages are numbered 1 to 9 to reflect individual comments. Some of those that responded had many comments. In fact, one person provided 11 separate pages of comments. These following are the responses to these comments:

<u>Person 1</u>

- Don't change route and change Route 19 back to where it was prior to past revisions.

  Answer - Such changes were considered.

- West Fargo should have its own system.

  Answer - Transit follows travel needs which are more regional; also, West Fargo must be willing to provide additional subsidies if service is to be expanded. Improvements are proposed for the existing West Fargo route.

- Likes the suggested Industrial Park service.
- Service to NDSU should be reduced.

  Answer - Transit provides mobility to all area residents including students.

- Would like Sunday service.

  Answer - Sunday service not typically found in similar size communities; it was also felt that resources would be better used improving weekday and Saturday service.

<u>Person 2</u>

- Main Avenue route will be tough to keep on-time.

  Answer - Plan developed alternatives for this issue (i.e., possibility of limited stop service).

- No need for Downtown Circulator route.

  Answer - Such service is successful in other places.

- Don't need more routes.

  Answer - Agree, short term plan is to improve existing routes.

- How can Route 14 stay on time?

  Answer - Hopefully changes will improve on-time performance along with the new traffic signal being installed.

- Route 25 change looks good but a minor routing is possible to

avoid congestion.

Answer - Another option is being suggested to avoid this congestion.

Person 3

- Downtown Loop is a waste.

  Answer - Such service is successful in other places.
- Likes change to Route 16 and low floor buses.

Person 4

- Review Route 3 changes to see if it can be revised to serve Hockey arena and perhaps shuttle to Minnesota State University Moorhead.

  Answer - This was reviewed; this type of service would be more of a "parking shuttle" and not truly a transit service.

Person 5

- Complimented service and drivers.

Person 6

- Likes the proposed Main Avenue route.
- Thinks we should consider a route to the airport.

  Answer - Not enough demand for such a route.

Person 7

- Likes the route changes.

Person 8

- Would like Sunday service.

  Answer - Sunday service not typically found in similar size communities; it was also felt that resources would be better used improving weekday and Saturday service.

Person 9

Page 1 - Compliments report

Page 2 - Disagrees with downtown trolley

Answer - Such service is successful in other places.

Page 3 - Disagrees with Main Avenue route.

Answer - Was reviewed further; is placed in the "longer term" portion of the TDP Update.

- Tri-College Circulator route should not be funded by MAT.

Answer - Non-MAT funded should be pursued.

Pages 4 & 5 - MAT needs to run on-time.

Answer - Agree. Several proposed changes are aimed at improving on-time performance.

Page 6 - Suggests possible changes to Route 14.

Answer - As suggested, should monitor performance and make changes as needed.

Page 7 - Route 25 should be extended to Fleet Farm.

Answer - Will review further.

- Does West Fargo route go to Old Navy?

Answer - Yes, it does.

Page 8 - Several compliments on the plan.

- Need to get same buses for Moorhead and Fargo.

Answer - Agree.

Page 9 - Would like Sunday service.

Answer - Sunday service not typically found in similar size communities; it was also felt that resources would be better used improving weekday and Saturday service.

- States that there should not be fare discounts for students.

Answer - Disagree, students are offered discounts throughout the nation.

Page 10 - Didn't see any financial info on draft plan, especially local share commitment.

Answer - Correct, this information has just recently been prepared.

- Wants to know where the money is coming from to fund the plan?

Answer - A constrained and unconstrained financial plan has been prepared which provides local discretion on which plan elements are funded and which are not.

Page 11 - Pointed-out minor typos in the draft plan document.

Answer - Thanks, these are being corrected.

APPENDIX C

FARE STRUCTURE ALTERNATIVES

APPENDIX C

Moorhead Metropolitan Area Transit
FARE STRUCTURE ALTERNATIVES

The following fare structure alternatives have been developed using the baseline conditions as shown in Table 1. These data were obtained from ridership and revenue information supplied to the consultant team by Moorhead Metropolitan Area Transit (MAT) for the year 2000. This memorandum indicates the impacts of the various alternatives and allows Moorhead MAT to examine these implications in light of the budget preparation process. It should be noted that data for the Fargo MAT system was unavailable; however, it is assumed that the percent changes in ridership and revenue for Fargo MAT would be similar. It was also assumed that both Fargo MAT and Moorhead MAT would have an identical fare structure, as they currently do. Finally, ridership changes were forecast utilizing the Aone-third elasticity@ standard (i.e., for every one percent increase in fare there is a corresponding 0.33 percent decrease in ridership) typically utilized by the public transportation industry.

Alternative 1 - Change Pass and Token Discounts

Adult tokens have a 10 percent discount over cash fares while Elderly/Disabled/Student (E/D/S) tokens have no discount. A similar E/D/S discount would sell tokens at 20 for $9.00 or 45 cents each. Also, the adult monthly pass provides a 24 percent discount over the cash fare assuming 42 one-way trips per month ($10.00/$42.00). The E/D/S monthly pass offers a 5 percent discount over the cash fare, again assuming 42 one-way trips per month ($1.00/$21.00).

For this alternative, the discounts would be made similar, as shown below. All other fare elements would remain the same.

- $ E/D/S Tokens @ 20 for $9.00 or 45 cents each
- $ E/D/S Monthly Pass @ $16.00

Assuming a steady state condition of ridership and revenue for the projection period, the following impacts are projected, as detailed in Table 2:

	Baseline	Alternative 1	Percent Change
Ridership		213,646	219,206
			+ 2.6
Revenue		$124,741	$120,085
			- 3.7

Alternative 2 - Increase Base Fare to $1.10

The base fare of $1.00 has been in existence for five years. Since the adult base fare is used on a very limited basis (11 percent of total passengers), an increase is warranted. The base fare could be increased by 10¢ to $1.10. Other fare options would follow, as shown below:

$	E/D/S Cash	55 cents
$	Adult Monthly Pass	$35.00
$	E/D/S Monthly Pass (same discount as adult)	$22.00 or $17.00
$	Adult Tokens	$1.00
$	E/D/S Tokens (same discount as adult)	55 cents or 50 cents

For this alternative, it is suggested that the E/D/S monthly pass be raised to $22.00 while the E/D/S tokens remain at 50 cents.

Assuming a steady state condition of ridership and revenue for the projection period, the following impacts are projected, as detailed in Table 3:

	Baseline	Alternative 2	Percent Change
Ridership	213,646	207,939	- 2.7
Revenue	$124,741	$133,268	+ 6.8

Alternative 3 - Increase Base Fare to $1.20

As stated previously, the base fare of $1.00 has been in existence for five years. Since the adult base fare is used on a very limited basis (11 percent of total passengers), an increase is warranted. In this alternative, the base fare could be increased by 20¢ to $1.20. Other fare options would follow, as shown below:

$	E/D/S Cash	60 cents
$	Adult Monthly Pass	$38.00
$	E/D/S Monthly Pass (same discount as adult)	$24.00 or $19.00
$	Adult Tokens	$1.10
$	E/D/S Tokens (same discount as adult)	60 cents or 55 cents

For this alternative, it is suggested that the E/D/S monthly pass be raised to $24.00 while the E/D/S tokens be raised to 55 cents.

Assuming a steady state condition of ridership and revenue for the projection period, the following impacts are projected, as detailed in Table 4:

	Baseline	Alternative 2	Percent Change
Ridership	213,646	200,347	- 6.2
Revenue	$124,741	$140,002	+ 12.2

This fare change would increase the farebox recovery ratio for fixed route services in 2000 dollars from 15.7 percent to approximately 17.7 percent.

Other Fare Alternatives

Once the latest farebox technology equipment is obtained, the following additional fare options should be considered:

Weekly Pass - Price at 10 times base fare
Day Pass - Price at four times base fare

The weekly pass is a fare alternative that is typically used in place of tokens.

APPENDIX D

TDP UPDATE IMPLEMENTATION CHECKLIST

APPENDIX D

TDP UPDATE IMPLEMENTATION CHECKLIST

Year of Implementation or Implementation Priority	Service Plan Element
Fargo Metropolitan Area Transit	
2002	Implement new designated stop locations on Route 11.
	Implement new interline pattern on Routes 11, 12 and 17.
	Implement new route alignments on Routes 14, 15 and 25.
2003	Implement new route alignments on Routes 16 and 18.
High Priority	Implement lengthened span of service on Routes 11, 13, 14, 15 and 25.
	Implement new Downtown Fargo Circulator Route.
Medium Priority	Implement lengthened span of service on Routes 12, 16, 17, 18, 19, 20 and the West Fargo Route.
	Implement improved frequency of service on Route 25.
Low Priority	Implement route alignment and frequency modifications on Route 20.
	Implement improved frequency on the West Fargo Route.
Longer Term	Implement Main Avenue Route.
Moorhead Metropolitan Area Transit	
2002	Implement new route alignment modifications on Routes 1, 2, 3, 5 and 6.
Medium Priority	Implement lengthened span of service on Routes 1, 2, 4 and 6.
Low Priority	Implement lengthened span of service on Routes 3 and 5.
	Implement improved frequency of service on Routes 1 and 4.
	Eliminate Evening North Route.
	Lengthen span of service on the Evening South Route.

TDP UPDATE IMPLEMENTATION CHECKLIST (Continued)

Year of Implementation or Implementation Priority	Service Plan Element
Clay County Rural Transit/Minnesota Department of Transportation	
Longer Term	Implement Breckenridge Commuter Service.
Fargo-Moorhead Metropolitan Council of Governments	
2002	Undertake Moorhead MAT Route 2 Wheelchair Accommodation Analysis.
	Undertake Revenue Hours and Capacity Analysis for MAT Paratransit.
	Undertake Night Route Analysis.
2003	Undertake Main Avenue Bridge Study. Undertake Fargo-Moorhead Metropolitan Area Bus Route Traffic Control Study.
	Undertake Intelligent Transportation System Study. Undertake Consolidated Facility Study.
All Fargo-Moorhead Metropolitan Area Transportation Stakeholders	
2002 through 2006	Implement the various elements of the Marketing and Public Information section of the Recommended Plan.

APPENDIX E

HOLIDAY MALL TRANSFER CENTER MEMORANDUM

APPENDIX F

ADOPTION RESOLUTIONS