

Minnesota Telecommunications Council

Final Report



— 1984 Minn. Laws Chap. 654 —
— Art. 2 Sec. 65 —

— Minn. Stat. 16C.01 —

Minnesota Telecommunications Council

960594

July 31, 1985

Hon. Rudy Perpich
Governor
State of Minnesota
130 Capitol Building
Saint Paul, MN 55155

Dear Governor Perpich,

It is our pleasure to provide you with the attached Final Report of the Minnesota Telecommunications Council. Over the past year the council has examined the key telecommunications issues which will be facing Minnesota's policy makers over the next decade. As a result of these efforts, the council has drawn a number of conclusions and recommendations regarding telecommunications in Minnesota which are contained in this report.

Advanced telecommunications will play an important role in determining the future economic health and vitality of Minnesota. The beginning of the information age is providing Minnesota with a unique opportunity for economic growth and improved quality of life. It has been the goal of the Minnesota Telecommunications Council to prepare Minnesota for this opportunity by identifying these major telecommunications issues.

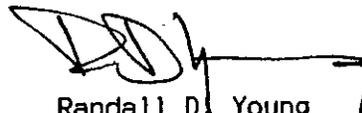
This report is the completion of the issue identification phase of the task. It is the hope of the council that the efforts which it has begun will be continued. The next phase, consisting of research and analysis of the issues, is essential to the development of sound telecommunications policy in Minnesota. We encourage you to continue the council's efforts through the State Planning Agency.

Each council members appreciates the opportunity of serving the people of Minnesota over the past year on the Telecommunications Council. It has been a fruitful and rewarding experience.

Sincerely,



Richard D. Windham
Chair



Randall D. Young
Executive Director

Sulte LL65 · Metro Square Building · Saint Paul, MN 55101



--EXECUTIVE SUMMARY--

FINAL REPORT OF THE
MINNESOTA TELECOMMUNICATIONS COUNCIL

MAJOR ISSUES ADDRESSED BY THE MINNESOTA TELECOMMUNICATIONS COUNCIL DURING 1984-1985

Economic Development

- * Both urban and rural Minnesota must have an excellent telecommunications infrastructure to ensure economic growth and development. There appears to be a disparity developing between the adequacies of the infrastructures in the metro and non-metro areas.
- * The council commissioned a "rural telecommunications needs assessment" for non-metro Minnesota which found the 3 issues of most concern to rural areas to be:
 - The cost of telecommunications services
 - The availability of timely, accurate information
 - The need for more knowledge of telecommunications technologies & uses
- * In order to determine the adequacy of the infrastructure in the non-metro area, the council commissioned an inventory which found that:
 - While Minnesotans in the metro area have toll-free calling over almost the entire area, relatively fewer areas in non-metro Minnesota have toll-free calling beyond the local exchange. This has implications for both economic development and social interaction.
 - Inter-exchange trunks in many part of non-metro Minnesota have yet to be upgraded, leaving these areas without the ability to handle high speed data transmission beyond the exchange.
- * Advancement of the non-metro telecommunications infrastructure should be used in narrowing the gap between the metro and non-metro economies.

Regulatory Issues

- * In this period of transition in telecommunications, we must examine the state's regulatory posture to ensure that it is meeting the changing needs of the customers and companies alike.
- * Historic patterns of funding universal service have been altered by divestiture and an increasingly competitive industry. The definition of universal service needs to be reexamined and new methods of funding must be identified to ensure that necessary services are available, regardless of ability to pay.
- * Bypass of the local telephone network by large users is of concern, especially in the metro area. Extensive bypass could result in higher costs for residential and small business users as fixed costs are spread over fewer users.

Public Sector's Use

- * There are more creative ways we can use telecommunications in government to deliver services and make government more effective and efficient.
- * There is a need to better coordinate public sector investment in telecommunications to prevent duplication and to maximize benefits.
- * A clearinghouse should be established to provide public sector users with information on new technologies and ways in which they can be used to make government and education at all levels more effective.

Recommendations for Future Efforts

- * Work on issues identified by the council should be continued by State Planning Agency. The Director should establish issue specific work groups composed of public and private sectors telecommunications experts to prepare recommendations
- * Funds should be solicited from public and private sector sources to engage consultants when necessary to assist the work groups on projects.

FINAL REPORT
OF THE
MINNESOTA TELECOMMUNICATION COUNCIL

The Minnesota Telecommunications Council was created by the 1984 Legislature to promote coordination and to establish leadership in the use of advanced telecommunications resources in the public and private sectors. Over the past year, the 23 members of the council have brought a broad spectrum of knowledge to this task. Council members come from the telecommunications industry, user groups, the educational community, and state agencies involved in telecommunications. This diversity has provided a blending of expertise and viewpoints which has never occurred before in Minnesota.

The council has also drawn heavily on existing state and private resources to accomplish its work. Through three committees of the council and two staff level work groups established by the council, it has examined in detail telecommunications issues important to Minnesota and established a framework for examining a number of others. Staff members from a number of state agencies and telecommunications companies have assisted the council by participating in these efforts. This has proven to be not only an efficient means of investigating issues but also an excellent example of inter-agency and private/public cooperation.

After one year of operation, the Minnesota Telecommunications Council is terminating its activities pursuant to Laws of Minnesota 1985, ch. 285. Although the legislative charge which the Telecommunications Council originally received in 1984 was broad and far reaching, the council's work has touched all of the major policy areas. These efforts can be divided into three

areas: telecommunications as an economic development tool; the regulatory environment for telecommunications in Minnesota; and, the public sector's use of telecommunications. This final report of the Minnesota Telecommunications Council will summarize the efforts which the council has made in each of these three policy areas.

TELECOMMUNICATIONS AS A TOOL FOR ECONOMIC DEVELOPMENT

In order for Minnesota to attract new high technology companies to our state, we must have a strong telecommunications industry and a telecommunications infrastructure which is capable of supporting telecommunications intensive companies. Just as an infrastructure of sewers, streets and highways were necessary for economic development in the "industrial age", so an infrastructure of telecommunications wires, cables and satellite links is necessary for economic development in the "information age". With an adequate telecommunications infrastructure in the information age, Minnesota's "distance to market" will no longer be a disadvantage for our companies competing both nationally and internationally.

The Telecommunications Council has set forth to determine the adequacy of Minnesota's telecommunications infrastructure with two commissioned studies. Because of the pressing need for economic development opportunities in non-metropolitan Minnesota, these studies have focused on that portion of the state.

The first study examined the perceived telecommunications needs in rural Minnesota. The study conducted "town meetings" in 26 non-metropolitan communities throughout the state to receive

input on telecommunications needs. The study was conducted for the council jointly by the Rural Sociology Unit and the of the Agricultural Extension Service of the University of Minnesota. This study, carried out in the spring of this year, examined the ways in which rural groups and organizations obtain and distribute information, the perceived telecommunications needs of these groups, and the opportunities and solutions which they feel are appropriate for their particular situations. Data were obtained from 310 participants who served as spokespersons for 14 different categories of telecommunications providers and consumers.

The study showed that, in terms of obtaining and distributing information, the participants perceived themselves as having a high degree of dependence on long distance and local telephone service, as well as on mail service. Long distance is seen as particularly important in obtaining information needed to carry out economic and other activities vital of the participants. Local service, on the other hand, was viewed as the primary means of giving information. (Computer technologies were not seen as currently being a major means of either obtaining or giving information.)

While three quarters of the respondents indicated that people in their occupation, association or organization frequently went beyond the local area to get information, only about a third reported frequently going outside the local area to give information. In other words, there is a perception in non-metropolitan Minnesota that they are importers of information from the "outside" rather than suppliers of information to the "outside." Information sources are still primarily metro based.

When asked to list the most important telecommunication or information needs of the people they represented, the participants produced over 750 needs statements. While these statements range from very general to highly specific, the needs most often focus upon concerns about the costs associated with all forms of telecommunications, a perceived lack of accurate, timely information, and a perceived lack of knowledge about current telecommunications technologies and how they might benefit from them.

It should also be noted that analysis of the data on a regional basis indicated that many of the patterns found on the state level can also be seen at the regional level. Nonetheless, for a number of items there were substantial differences between some of the regions.

As the study indicates, there is a need for more knowledge of telecommunications technologies and uses. Many telecommunications users, both business and residential, are not fully aware of what is available to them. The state should explore avenues by which Minnesotans can become better informed about the potentials and opportunities which are now available because of advances in telecommunications.

The second study commissioned by the council is presently in the process of producing an inventory of the telecommunications infrastructure in non-metropolitan Minnesota. This study is designed to parallel a similar inventory to be conducted by the Metropolitan Council for the seven county metropolitan area. Before public and private sector decision makers can determine the adequacy of our existing infrastructure, the variety and capacity of the current systems and services must be known. To help clarify policy issues and develop appropriate public policy responses to the needs of non-metropolitan Minnesota, the

council is obtaining reliable data on telecommunications systems now operating in non-metropolitan Minnesota and information concerning development trends and plans for meeting the future telecommunications needs in those parts of the state.

The infrastructure study is intended to establish a framework for understanding communications systems in Minnesota. The study will identify areas where coordination of telecommunications systems and services will be necessary and where opportunities for such coordination exists. This will include an examination of areas and situations where telecommunications systems development may affect the development of other public systems and services in non-metropolitan Minnesota. The report, when completed, will define trends in telecommunications systems development and systems applications in non-metropolitan Minnesota. It will also examine the state's telecommunications links to major national and international markets, including an assessment of the adequacy of these links for future economic development. Finally, the study will weigh the incentives and disincentives for the development and use of telecommunications technologies in the financial, legal and regulatory environment at the national, state and local levels.

The actual inventory of telecommunications facilities in non-metropolitan Minnesota has been completed. However, due to the termination of the council's funding on July 1, 1985, the remainder of the study been suspended until additional funding can be obtained to complete the work.

Preliminary results of the inventory portion of the infrastructure study point to a significant difference between the telecommunications infrastructure in the metropolitan and non-metropolitan areas of the state. The available capacity of

satellite uplink facilities, for example, differs greatly between the two areas of the state. The metropolitan area facilities have a great deal of excess capacity, while the three non-metropolitan uplink facilities have no remaining available capacity. This is forcing potential users to use microwave to transport their communications into the metropolitan area before they can be uplinked to a satellite.

There are a number of distinctions between the telephone infrastructures in the metropolitan and non-metropolitan areas. While toll-free calling within the metropolitan area is considered the norm, "free calling" areas in non-metropolitan Minnesota are, by comparison, considerably smaller and relatively limited. The majority of inter-exchange calls are toll, even between neighboring communities. It is not unusual to find situations where it is a toll call to a family's school, county government, and sometimes even fire and police protection. As for inter-LATA calling, only customers in the largest cities have a choice of providers. Most long distance carriers do not have "points of presence" outside of the Twin Cities area.

Within non-metropolitan Minnesota there is a great variety from exchange to exchange in the switching capabilities of the central offices. Switching appears to be either very modern (i.e. digital or electronic) or quite antiquated (i.e. step-by-step). Preliminary findings indicate that there may be more "modern switching" in the non-metropolitan areas of the state than in the metropolitan area. Although this is a benefit for communications within an exchange, because many inter-exchange trunks have not yet been upgraded in many parts of non-metropolitan Minnesota, high speed data transmission cannot leave the local exchanges adequately. This may pose a potential problem for those areas in attracting companies that require high speed data transmission.

Bypass of the local network in non-metropolitan Minnesota does not seem to be of the same magnitude as bypass in the metropolitan area. Of the seventeen largest employers in non-metropolitan Minnesota, only three own their own entire telecommunications systems. Two of these have their own long distance lines to other plants or facilities in the country. This contrasts with another study conducted by the consultants which tends to show the level of bypass in the metropolitan area to be higher.

There is, however, a great deal of interest in shared tenants systems in larger non-metropolitan communities. This is seen as a good economic development tool for communities wanting to encourage small firms who cannot yet afford the office or telecommunications amenities of a larger company.

When analysis of the inventory is completed, Minnesota will have for the first time a comprehensive picture of the state's telecommunications infrastructure. This information, which can be computerized and periodically updated, will be extremely valuable as an economic development and planning tool for state and local governments, as well as private sector companies. It will also aid state regulators in assessing telephone company proposals for future development.

In addition to developing this baseline information through these two studies, the Minnesota Telecommunications Council has also been exploring other means in which the council can foster economic development in Minnesota through the promotion of telecommunications. There are two types of telecommunications related industries which can benefit from this promotion. The first type includes the manufacturers and sellers of telecommunications equipment and services. This is a rapidly growing

industry with a good potential for future job creation. The second type includes high technology and service industries which are telecommunications intensive. Steps should be taken by the state to encourage the development of both types of telecommunications industries in Minnesota.

Other companies which have telecommunications needs but are not telecommunications intensive should continue to be sought. The council proposes the establishment of a pool of technical expertise from both the public and private sectors which can advise these, as well as telecommunications intensive, companies relocating to Minnesota. Since the breakup of AT&T, one stop shopping for a company's telecommunications needs is no longer possible. The multiple vendors now needed to obtain service is, at best, confusing and complicated. Expertise could be drawn from this pool on a case by case basis to work with companies in assessing their telecommunications needs and determining areas of the state that have the telecommunications infrastructure necessary to handle those needs. This technical pool would be available to the Department of Energy and Economic Development to compliment their existing programs which foster business expansion.

MINNESOTA'S REGULATORY ENVIRONMENT IN THE POST DIVESTITURE ERA

A fundamental influence on the ability of telecommunications to play a role in economic development is the regulatory posture which the state takes toward telecommunications. The well being of not only the telecommunications industry but also its residential and business customers and the state's economy hinges on a state regulatory policy which is appropriate for the post-divestiture era.

The technological changes in telecommunications, the divestiture of AT&T, and the move toward the deregulation of the industry at the federal level will all have an impact upon Minnesota's economy and on the relevance of Minnesota's traditional approach to the regulation of telecommunications. The council believes that Minnesota is at a critical point. This period of change in the industry offers Minnesota a unique opportunity for the future if it takes the initiative now. Minnesota needs to examine its regulatory policy, not in a vacuum, but in conjunction with its policies on economic development and government's own use of telecommunications.

State law governing the regulation of the telephone industry was, for the most part, enacted in 1915. Needless to say, much has changed technologically, socially, and economically in seventy years. Technological advances in equipment and services has broken down some of the barriers which once allowed regulated monopolies to operate all of their services in a competition-free environment, where government regulation acts as a substitute for competition.

By examining public policy now, Minnesota has the opportunity to explore all of the options available for the future of telecommunications regulation. These options range from continuing its historic regulatory approach of regulating "natural monopolies", to following the lead taken by other states and the FCC, to examining Minnesota's particular situation, analyzing its present regulatory policies, and setting its course based upon sound data and information. The Telecommunications Council believes that Minnesota must rationally examine its current policies through an integrated approach and either reaffirm or adjust them, based upon conscious decisions made by the appropriate decision makers. The council's efforts in this area are directed toward this end.

Through the efforts of a group composed of telecommunications companies, regulators and users, the council has developed a work plan for examining the legal and organizational context within which Minnesota regulates telecommunications. By completing this work plan, recommendations can be developed, through a participatory process, for the Governor and the Legislature on the direction of future telecommunications regulation in Minnesota.

The Telecommunications Council has also developed a work plan to more closely examine a keystone issue in any examination of telecommunications regulatory policy -- the preservation of what is commonly referred to as "universal service."

To outline the issue in very basic terms, there exists a concern that competition in the telecommunications industry is forcing regulators to abandon the widely held traditional ratemaking philosophy of pricing business and toll services well above the actual cost of providing those services. These excess revenues are used to "subsidize" basic local residential service. As competition has entered the telephone industry, competitive pressures have been forcing regulators to reexamine this ratemaking philosophy.

If business services are kept artificially high (that is, well above the actual cost of providing these services), customers using these services may switch to less expensive alternatives outside of the exchange telephone company. If this occurs, the cost of the existing telephone plant would have to be borne by the fewer remaining ratepayers. This would result in higher rates for the remaining (primarily residential) ratepayers left on the system.

As residential rates increase, it will become increasingly more difficult for more and more Minnesotans to afford basic telephone service. If something resembling universal service is to continue in Minnesota, creative means of assuring basic telephone service to those who cannot afford it must be envisioned now before the crisis is reached.

The council has set forth to determine the types of telecommunications services and the levels of quality of those services which should be included in universal service. In the past "plain old telephone service" (POTS) has been considered adequate for universal service. However, technological advances in the not too distant future may dictate that other telecommunications services, such as expanded video or data transmission for shopping by home computer, be considered as essential for functioning in society. The inclusion of such other services under universal service needs to be addressed in this context. As telecommunications is used more and more in the delivery of services and information, it becomes even more of a necessity in order to function in society. As this occurs, we may have to begin to re-think the status of telecommunications in our society, considering it in public policy terms as a basic human right rather than merely a modern convenience.

Associated with setting the parameters for a definition of universal service is exploring and evaluation the means for paying for it. A wide range of options is available. Traditional rate design subsidies between different classes of customers is one potential option. New forms of government assistance to low income customers as another option. Targeted rates which would provide basic telecommunications services at a lower rate to qualified low income customers is still another option available. The funding mechanism for universal service in the future will be as crucial as the scope of universal

service. Minnesota should examine both components now while time is still available to thoroughly investigate the options.

These two components of universal service should be formulated in a model format. By doing this, a mechanism can be designed which can examine the issue in a flexible framework. Such a model would be meaningful both now and in the future as technological and economic conditions changed.

The Telecommunications Council has also developed a work plan to examine the closely related issue to network bypass. The bypassing of the public telecommunications network by very large users has the real potential for adversely affecting all residential and small business ratepayers. It also poses a significant threat to the future "attractiveness" of traditional local exchange telephone companies to investors, as the investment firm of Shearson Lehman Brothers has concluded.

Briefly stated, bypass refers to the use of telecommunications services and equipment other than that offered by the established common carrier. There is the incentive for this to occur when a user can obtain either the service at a lower cost or an alternative service not offered by the established common carrier. The same factors which are threatening universal service are at play in encouraging this uneconomic bypass. Uneconomic bypass refers to bypass fostered by a price differential between established common carriers and other providers which is caused by the practice of common carriers (encouraged and often ordered by regulators) of charging rates well in excess of the actual cost of providing the service. These excess revenues have historically been used to offset costs of providing basic local service to residential customers. Uneconomic bypass does not include bypass caused by an inherent cost or quality advantage of the bypass technology.

The dilemma for regulators and established common carriers is to set rates for large users which will not encourage uneconomic bypass, while at the same time not forcing up the rates for basic residential service to the point where universal service is threatened.

The Telecommunications Council believes that further study of this issue is essential. It is important for Minnesota to know the extent to which uneconomic bypass is occurring in the state; the potential of future bypass under different economic, regulatory and technological conditions; and the potential impact on remaining ratepayers under these different conditions.

While a crisis does not presently exist in Minnesota's regulatory arena, we may be approaching one. Minnesota must be prepared with a "game plan" to adopt as future conditions dictate. The divestiture of AT&T, as well as the more general federal deregulation of the telecommunications industry, has thrust Minnesota, along with the other states, into a period of transition from a regulated monopoly environment to a competitive (or at least regulated competitive) environment. Minnesota needs a long term strategy for an orderly transition in order to protect the ratepayers and to strengthen the industry. Completion of these studies will prepare Minnesota policy makers for the major regulatory issues which are on the horizon.

THE PUBLIC SECTOR'S USE OF TELECOMMUNICATIONS

The third area in which enabling legislation gave direction to the Telecommunications Council was in promoting and coordinating the use of advanced telecommunications resources in the public sector. Government, both state and local, is a large

user of telecommunications. The State of Minnesota is the largest single telephone customer in the state. Tens of millions of dollars are spent each year by government in Minnesota on telecommunications. Because of the importance which telecommunications plays in the operation of government and the significant impact which revenues from government accounts has on the telecommunications network, the council feels that it was important to examine government's use of telecommunications.

With the Department of Administration planning and coordinating state government's use of telecommunications, the council was able to turn its attention to exploring ways in which local units of government, school districts, libraries, and colleges and universities could benefit from expanded use and cooperative use of telecommunications. With a great many diverse initiatives already underway by various public bodies, the council saw this coordinating role as a priority. Coordination can minimize unnecessary duplication, ensure maximization of shared facilities, and best utilize public funds spent for telecommunications in order to prevent over investment. In the work plan developed by the council, the process to accomplish this could begin with a series of meetings throughout the state which would bring together the various public sector users to explore possibilities for cooperative ventures.

The council also believes that there are many creative ways in which state agencies can use telecommunications to more effectively and efficiently conduct their business. Such things as conducting public meetings and contested case hearings via telecommunications, establishing an electronic mail system for state agencies, and providing employee training via telecommunications to non-metropolitan sites should be explored. The legal and administrative restrictions on the use of such

technologies should be identified, and when appropriate, changed to enable government to fully utilize the benefits of the telecommunications revolution. Telecommunications can greatly benefit government in providing services more effectively and more efficiently while at the same time making it more accessible to the people.

Finally, the council found a need for the establishment of a clearinghouse for information pertaining to telecommunications developments in the public sector. Such topics as new technologies, successful prototype projects, and potential funding sources for public sector telecommunications systems should be "networked" through a clearinghouse. With so much occurring in this area at such a rapid pace, the council feels that it is necessary to have one focal point that public bodies can turn to for direction, putting people needing information in contact with people having information on telecommunications issues affecting the public sector.

In all of these efforts, the Telecommunications Council feels that it was essential that public sector decision makers implementing new telecommunications systems be aware of the potential impacts which their decisions may have on the other network users. Government entities, being some of the largest users of telecommunications, could have a substantial impact on existing common carrier networks if they were to bypass those networks by creating their own systems. Although such bypass could result in a cost savings to taxpayers, it could also result in higher costs to those same people in the form of higher telephone bills.

The council does not believe that this should automatically prohibit such systems from being implemented. However, the council strongly feels that before any public sector entity

installs telecommunications equipment or systems which have the potential for adversely impacting the remaining ratepayers on the network, it should be fully aware of the impacts of its actions. This could be done through some type of a decision making process analogous to an environmental assessment which would fully set forth the costs and benefits to those impacted by the proposal.

The explosion in telecommunications technologies has the potential for enormous benefits in the public sector. The full benefit of these technologies cannot be realized without knowledgeable and rational decisions. New technology should not be considered an end in itself. It is only a means of achieving an end -- providing needed government services to the citizen of Minnesota as effectively and efficiently as possible. Likewise, the public sector should not ignore new technology because of outdated or inappropriate legal constraints and organizational inertia. Minnesota must examine these issues.

RECOMMENDATIONS FOR FUTURE TELECOMMUNICATIONS PLANNING

The Minnesota Telecommunications Council has identified the key telecommunications issues facing Minnesota in the near future. The decisions which Minnesota makes in the next decade will be crucial to the state's long term economic strength. Minnesota, along with the entire nation, has entered a new economic era -- the Information Age. There is a transformation presently taking place which is changing the nation's economy from an industrial base to an information base. In 1950, manufacturing accounted for 50 percent of the US gross national product. Today, that has fallen to 20 percent and by the year 2000 it is expected to decline to below 10 percent. Today, 7 out of every 10 jobs are said to be derived from the information sector of the economy.

This dramatic shift is providing Minnesota with an unusual opportunity to improve its competitive advantage in job creation. We can take advantage of this opportunity if public policy is developed which encourages the creation of the telecommunications infrastructure necessary for this development and fosters growth in the telecommunications and telecommunications intensive industries.

In order to benefit from this opportunity Minnesota must take a pro-active stance. Minnesota cannot afford to sit back and react to events as they happen around us. Minnesota must not only be prepared for the upcoming changes, it must be prepared to make changes happen. Also, the stakes are too high for either the public sector or the private sector to "go it alone." It will take unique public/private cooperation to create the environment necessary for innovative and creative development to occur in telecommunications related industries.

To this end, the Minnesota Telecommunications Council recommends that the efforts begun by the council be carried on and completed. The work which the council has done has highlighted the fact that Minnesota policy makers must be prepared to address a number of important issues in telecommunications within the next few years. The key issues surfaced by the council over the past year need further investigation and analysis in order to provide complete and meaningful information for policy makers.

Telecommunications planning and coordination should continue in the State Planning Agency. The funding which was provided to the agency for this biennium will allow for the continuation of a staff position in the agency. That position should serve as a linchpin for the continuation of the council's work through a number of activities.

Over the past year the council has availed itself of the knowledge and expertise of dozens of experts from both the public and private sectors. Although the council does not feel that it is appropriate for another advisory body similar to itself to be appointed in the immediate future, the expertise of individuals similar to those who served on the council and its work groups should be utilized in addressing the telecommunications issues set forth in this report.

The Director of the State Planning Agency should be encouraged to establish working groups composed of telecommunications experts from both the public and private sectors on an ad hoc basis to work on specific issues and report to the director with recommendations for action. The director should periodically prioritize issues so that recommendations can be made in a timely manner. Initial emphasis should be given to economic development and related regulatory issues.

The Director of the State Planning Agency should solicit funds from both the public and the private sectors to engage consultants to assist work groups on projects which cannot otherwise be completed in an timely manner. Because of the scope of many of the work plans developed by the council, it will not be possible for work groups composed to experts taking on this responsibility in addition to their existing work loads to complete their tasks in a timely manner without assistance. The securing of consultant services on an as needed basis is the most cost efficient means of accomplishing the work.

The council is confident that Minnesota can continue to be a leader and innovator in telecommunications planning. The work that the council has done has set the stage for the next phase of work on these important issues. By doing this, Minnesota can bridge this transition period in telecommunications with the decision making tools necessary for sound policy development.

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