

MINUTES OF THE FOURTH MEETING
REGIONAL TELECOMMUNICATIONS PLANNING
ADVISORY COMMITTEE (Reconstituted)

DATE: December 14, 2004

TIME: 2:00 P.M.

PLACE: Commissioners' Conference Room
Regional Planning Commission Offices
W239 N1812 Rockwood Drive
Waukesha, Wisconsin

Members Present

Kurt W. Bauer Chairman	Executive Director Emeritus, SEWRPC
William R. Drew Vice Chairman	Vice-Chairman, SEWRPC; Executive Director, Milwaukee County Research Park
Kenneth Brown	RF Engineer, Nextel Communications, Inc.
Bob Chernow	Chairman, Regional Telecommunications Commission
Michael Falaschi	President, Wisconsin Internet
Barry Gatz	Network Supervisor, CenturyTel
Michael E. Klasen	Director, Regulatory Affairs, SBC Wisconsin
Jody McCann	Network Domain Manager, Wisconsin Department of Administration, BadgerNet
George E. Melcher	Director, Office of Planning and Development, Kenosha County
Steven L. Ritt	Attorney at Law, Michael Best & Friedrich
James W. Romlein	Managing Director, MVLabs, LLC
Darryl Winston	Director of Data Services, City of Milwaukee Police Department
Gustav W. Wirth, Jr.	SEWRPC Commissioner

Members Absent

Roger Caron	President, Racine Area Manufacturers and Commerce
David L. DeAngelis	Village Manager, Village of Elm Grove
Brahim Gaddour	Director of Network Operations, Time Warner Telecom of Wisconsin
J. Michael Long	Attorney-at-Law, Murn and Martin, SC
Jeff Mantes	Commissioner of Public Works, City of Milwaukee
Paul E. Mueller	Administrator, Washington County Land Use and Park Department
Bennett Schliesman	Director, Kenosha County Emergency Management /Homeland Security
Paul R. Schumacher	Program Manager, Tricounty Business Partnerships
Dale R. Shaver	Director, Waukesha County Department of Parks and Land Use
Michael Ulicki	Vice President and Chief Technology Officer, Norlight Telecommunications

Staff

Kenneth J. Schlager, PhD
Lynn G. Heis

Chief Telecommunications Engineer, SEWRPC
Staff Secretary, SEWRPC

CALL TO ORDER AND ROLL CALL

Chairman Bauer called the meeting to order at 2:00P.M. Roll call was taken by circulating an attendance signature sheet, and a quorum was declared present.

CONSIDERATION OF THE MINUTES OF THE MEETING OF OCTOBER 26, 2004

Chairman Bauer noted that copies of the minutes of the third meeting of the Reconstituted Regional Telecommunications Planning Advisory Committee held on October 26, 2004, had been distributed to all members of the Committee for review prior to the meeting, and asked that the Committee consider approval of those minutes.

There being no questions, comments, or corrections, on a motion by Mr. Wirth, seconded by Mr. Chernow the minutes of the meeting of October 26, 2004, were approved as published.

CONSIDERATION OF CONSTRUCT OF PLANNING REPORTS DOCUMENTING THE FINDINGS AND RECOMMENDATIONS OF THE COMMISSION TELECOMMUNICATIONS PLANNING PROGRAM

Chairman Bauer noted that the materials distributed for the Committee review prior to the meeting included a one-page summary description of the Commission report series (Copy of document attached as Appendix I to these minutes). He said that he hoped the summary would be helpful to Committee members in understanding the structure of the reports proposed to document the findings and recommendations of the Regional telecommunications planning effort. He called attention to the description of the Technical Report series, which reports are intended to document the findings of basic planning inventories; and to the description of the Planning Report series which reports are intended to set forth official recommendations of the Regional Planning Commission. He noted that staff proposed to document the findings and recommendations of the Regional telecommunications planning effort in one technical and three planning reports.

Consideration Of Draft Outline for Technical Report Setting Forth the Findings and Recommendations of the Study on Inventories

Chairman Bauer noted all Committee members had received a copy of a draft outline for a proposed technical report setting forth the findings and recommendations of the inventories being conducted under the Regional Telecommunication Planning Program.

Chairman Bauer noted that the first chapter of each of the four proposed report outlines was to be an introductory chapter providing background information for the reader; including information on the need for regional planning; on the Regional Planning Commission itself, and such information as its composition, statutory authority, and functions and duties; on the concept of regional planning as envisioned by the Commission; on the seven County planning region including a map of the Region and such data as area, resident population, employment, and land use; and on Commission work programs to date. The chapter would also include information on the Commission's definition of the term "telecommunications" and a description of the importance of such communication to the social and economic development of the Region; on the Advisory Committee structure guiding the regional telecommunication planning effort; on the Prospectus that outlined the scope, content, and cost of the

study and provided a basis for the funding of the study; on the pertinent technical study design memoranda as approved by the Advisory Committee; and on the scheme of presentation. He noted that the introductory chapter would be identical for each of the proposed four reports and suggested, therefore, that the Committee's consideration of the draft report outlines begin always with Chapter II. He then asked Mr. Schlager to undertake a review of the draft outline with the Committee.

The following questions and comments were raised during the Committee consideration of the draft outline.

In answer to a question by Mr. Chernow, Mr. Schlager indicated that satellite systems would indeed be included under the wireless system inventory. In answer to a further question by Mr. Chernow, Mr. Schlager indicated that the session layer consisted of the means for connecting parties through the telecommunications system; and that throughput was measured by data transmission rates.

Mr. Ritt asked for the amount of the overall budget that would be used for producing this report and whether or not funding was available. Chairman Bauer indicated that a copy of the approved budget for the study would be provided as an attachment to the minutes of the meeting, and observed that the entire budget had been approved by the Advisory Committee as previously constituted and by the Commission; and that funding for the entire study was available as part of the annual Commission work program and budget.

[Secretary's Note: A copy of the approved Commission's budget for the Regional Telecommunications effort is attached to these minutes as Appendix II.]

In answer to a question by Mr. Chernow, Mr. Schlager indicated that municipal telecommunications facilities which not only fulfill a public sector function, but provide service to customers in the private sector – such as the systems being developed in Reedsburg or Jackson – would be included under the local-wide area networks inventory. In answer to a further question by Mr. Chernow, Mr. Schlager indicated that it was not proposed to include private enterprise networks in the inventory, such as those serving individual corporation like General Electric. In answer to a further question by Mr. Chernow, Mr. Schlager indicated that cable networks would be included under the wireline infrastructure inventories.

There being no further questions or comments, on a motion by Mr. Melcher, seconded by Mr. Chernow, and carried unanimously, the outline for the SEWRPC Technical Report setting forth the findings of the inventories being conducted under the Regional telecommunications planning effort was approved as submitted. (Copy of Outline of Inventory Technical Report, dated November 30, 2004, attached as Appendix III to these Minutes.)

Consideration Of Draft Outline for Planning Report Setting Forth the Findings and Recommendations of the Public Enterprise Networks Planning Effort

Chairman Bauer noted all Committee members had received a copy of a draft outline for a planning report proposed to set forth the findings and recommendations of the public enterprise networks planning effort. He then asked Dr. Schlager to undertake a review of the proposed outline.

The following questions, comments and proposals for change were raised during the Committee consideration of the draft outline.

Chairman Bauer observed that the first proposed planning report would be quite different from the second and third proposed planning reports, in that it would not, in effect, present a plan, but instead would present descriptions of potential public enterprise applications. Whether or not any of those applications moved ahead to implementation would be determined by the reaction of the governmental agencies or

quasi public organizations concerned to the descriptions provided in the report. If such interest were demonstrated with respect to any particular potential application, the Commission would have to be requested to assist in bringing about implementation; this would involve the creation of an Advisory Committee, the preparation of a Prospectus, and the attainment of funding. For this reason, he said, the Commission proposed to entitle the document concerned not as a planning report, but as a Commission memorandum report, the eight basic type of report described in the one-page summary of Commission documentation efforts provided to the Committee members prior to the meeting.

In consideration as a potential application intelligent transportation systems, Chairman Bauer submitted to the Committee a copy of SEWRPC Planning Report No. 39, "A Freeway Traffic Management System Plan for the Milwaukee Area, dated November 1988". He noted that the plan recommended in that report had been adopted by the Commission, and by the Wisconsin Department of Transportation and had been endorsed by the Federal Highway Administration; yet it took approximately a decade to get the freeway on ramp monitoring facilities presently in operation within the Region into place as recommended in the plan; and to lay the fiber optic cables connecting the ramp meters to each other and to a control center located in downtown Milwaukee. However, he noted, full operation of the system as envisioned in the plan was still pending the development of the operational algorithm which required to control freeway access based upon system-wide operating conditions and desired levels of service on each segment of the total freeway system. He observed that since the freeway system as originally planned to serve the Region had never been completed, a so-called intelligent transportation system truncated would be an important means for achieving improved levels of service on the freeway system in place. He noted that the Federal Highway Administration was promulgating the implementation of such systems; and that the system envisioned in the Chapter as a potential public enterprise network application went even beyond the system envisioned in SEWRPC Plan Report No. 39. Finally, Chairman Bauer observed that implementation of this system would, in his opinion, depend largely upon the reaction of the Wisconsin Department of Transportation to the Commission memorandum report concerned.

Mr. Chernow suggested that in the preparation of the text of the report relating to this particular application, information on the objectives in terms of improved freeway service levels be included.

Mr. Chernow suggested, and the Committee concurred, that another potential application be described in the report, namely a Special Education category for Fire Department and Emergency Medical personnel. He noted that it was estimated that the joint North Shore Fire Department alone could save over \$300,000 per year if a significant portion of the State required 150 hours per year educational efforts for fire fighters and emergency medical personnel could be made through a public enterprise network serving all fire departments within the seven-county planning Region.

There being no further questions or comments, on a motion by Mr. Drew, seconded by Mr. Chernow, and carried unanimously the draft outline for a SEWRPC memorandum report setting forth the findings and recommendations of the public enterprise networks planning effort was approved as amended. (Copy of amended outline of Public Enterprise Networks Memorandum report dated December 14, 2004, attached as Appendix IV to these Minutes).

Consideration Of Draft Outline for Planning Report Setting Forth the Findings and Recommendations of the Wireless Antenna Planning Effort

Chairman Bauer noted all Committee members had received a copy of a draft outline for a proposed planning report setting forth the findings and recommendations of the wireless antenna planning effort. He then asked Dr. Schlager to undertake a review of the proposed outline.

The following questions, comments and proposals for change were raised during the Committee consideration of the memorandum.

Mr. Falaschi noted that the FCC had acted to set aside the 4.9 Gigahertz band as a licensed band for emergency public use. He suggested, and the Committee concurred, that this band be added to the list under C, as item e, changing the next two items listed to “f” and “g”.

Mr. Ritt called attention to the terms “universal”, “region-wide” and “low-cost” used in describing the objectives listed in the Outline, and suggested that these terms needed careful definition. Chairman Bauer agreed and suggested, and the Committee concurred, that items 1, 2, and 3 under the A be struck from the Outline.

Mr. McCann noted that item B was entitled “standards” but should be entitled performance specifications. Related to this observation Mr. Ritt questioned whether the intent was to report monitored performance data or to promulgate a recommended set of performance specifications or “standards”. Mr. Schlager responded that the intent was to provide a recommended set of performance standards which could be used to evaluate alternative plan proposals. The recommended set would be intended to provide the Region with a telecommunications system that would support its ability to compete with other regions of the United States and of the world for economic development. Chairman Bauer observed that in system engineering the definition of objectives and supporting standards was a complex task and that the existing system performance levels as revealed by the performance monitoring efforts, would be one consideration in carrying of this task.

A lengthy discussion ensued upon the conclusion of which it was the Committee’s consensus to add, in parenthesis, the term “performance objectives” to the term standards under B.

Mr. Ritt observed that the promulgation by the Commission of system performance objectives would impact the private sector service providers and may create tension or conflict between the providers and the Commission. He observed that the Congress of the United States had determined that private sector “players” were to compete nationally by building systems that provide private sector determined levels and qualities of service. Mr. Schlager observed that performance standards are already promulgated for the private sector by the Institute of Electrical and Electronic Engineers (IEEE) and are related to the level of technology and not to the plans of individual private sector providers.

Mr. Brown expressed concern that any performance standards promulgated by the Commission may be used by other governmental agencies to preclude one or more service providers from entering the market in an area because those provided did not propose to provide the levels and qualities of service set forth in the Commission promulgated performance standards, thereby losing the ability to do business in an area. Chairman Bauer indicated that Mr. Brown was making an important point and that the Committee will have to be careful to ensure that the report is so written that it cannot reasonably be interpreted as a basis for denying any private service providers entering an area of the Region. He stated that the intent was to envision a desired level and quality of telecommunications service within the Region by the plan design year 2015 and then to leave the private sector to pursue the means to achieve that level and quality of service, or as close to that level and quality as practical. He recalled that the Committee had agreed at a previous meeting that a Subcommittee comprised of the engineering staffs of the service providers concerned would be asked to review drafts of the report chapters that dealt with technical issues, so that recommendations -- such as performance standards -- are both technically sound and reasonable. In this way, he stated, the members of the Technical Subcommittee could judge and advise the full Committee on whether the plan recommendations would present a serious problem for the private sector service providers. Mr. Schlager observed, in this respect, that as the wireless service industry moves from 3G to 4G technology with open architecture and Internet service, a commonality of objectives and standards will come about.

In answer to a question by Mr. Falaschi, Mr. Schlager agreed that IEEE standards 802.16, strictly defined, was not a 4G technology; however, he said, the characteristics of 802.16 had many things in common with 4G technology in that it will have mobile, as well as fixed, components, and could be seen as an interim technology moving toward true 4G technology. Mr. Schlager noted further that the Motorola Corporation was presently beginning to manufacture equipment for the 802.16 standard to operate in both licensed and unlicensed bands.

Mr. Ritt again expressed concern about the Commission promulgating an antenna site plan, noting that individual service providers such as Nextel, Verizon, Cingular, and Sprint may all have quite different plans about how best to provide wireless service within the Region; and he asked whether the plan would be tailored to the individual carriers. Mr. Schlager indicated that the plan would, in effect, be tailored to all of the individual carriers, in that the 4G technology on which the design year 2015 antenna site configuration would be based was an open architecture technology able to handle different types of systems and different types of protocol and would be oriented to Internet service.

In answer to an observation by Mr. Wirth, Mr. Schlager indicated that the plan recognized the need to transition from 3G to 4G technology and that was why the plan was structured in two parts, one dealing with second and third generation wireless service, and one dealing with the ultimate fourth generation service. Mr. Wirth suggested that the plan simply identify the number of antenna sites required to provide service coverage under both the 3G and 4G technology without identifying specific sites. Mr. Schlager indicated that a specific site configuration was required to estimate implementation costs and feasibility. Chairman Bauer indicated that to be useful to county and local planners in considering permit applications for new sites or relocation of existing sites, the plan would have to include a recommended specific antenna configuration. Such specific configuration, he said, would also be necessary in order to insure coordinated antenna siting within the planning area.

A lengthy discussion then ensued in which Mr. Ritt observed that a Commission plan would not be a service provider plan in that each service provider had their own plan for antenna locations and provision of service, which plan the service providers were not going to divulge to anyone else. Chairman Bauer noted that a preliminary antenna site location plan was to be submitted to a Subcommittee comprised of engineers employed by the various service providers, and the members of that Subcommittee should be able to make a judgment as to whether or not "their firm could live with the configuration proposed" without divulging private plans. If an individual provider's engineers should find the preliminary configuration problematic, the opportunity existed to modify the plan.

Mr. Wirth observed that it was always intended that any plan proposed under the study would be "not our plan, but your plan", which was why the major service providers were represented on the Advisory Committee, and preliminary plans would be subject to review by engineers employed by the various private service providers.

Mr. Brown observed that it appeared the antenna siting plan was focused on coverage, and expressed concern that antenna site locations also must consider capacity requirements. Mr. Schlager responded by indicating that in the Commission modeling efforts, capacity as well as service coverage would be considered. Chairman Bauer noted that any antenna siting plan would, in effect, be underlain by the Commission's adopted long-range land use plan. That plan, he said, delineated the areas of the Region expected to be developed for high, medium, and low density urban development and the areas which are to be kept in essentially open space, and in agricultural use. This, he said, should permit capacity to be considered in the antenna site location planning.

Mr. Chernow indicated that antenna tower site location presented a major problem at the municipal level and that antenna site location needed to be considered in an intergovernmental environment since site

locations in one community affected site locations in adjacent communities. There was, therefore, he said, a very practical reason for identifying the minimum number of antenna sites required to serve the Region, and the Commission's plan should be as helpful to the service providers as it may be expected to be to the County and local units of government concerned, providing economies in development costs, and timing.

There being no further questions or comments, on a motion by Mr. Chernow, seconded by Mr. Melcher, and carried, with Mr. Ritt voting no, the draft outline for SEWRPC planning report setting forth the findings and recommendations of the wireless antenna planning effort was approved as amended. (Copy of Outline of Wireless Antenna Site and Related Infrastructure Plan, dated December 14, 2004 attached as Appendix V to these Minutes.) Mr. Ritt indicated that, based upon his previously expressed concerns, he could not support approval of the outline concerned until he could review the actual content of the text to be written in accordance with the outline.

Consideration Of Draft Outline for Planning Report Setting Forth the Findings and Recommendations of the Regional Telecommunications Network Plan

Chairman Bauer noted all Committee members had received a copy of a draft outline for a planning report setting forth the findings and recommendations of the Regional telecommunications network planning effort. He then asked Dr. Schlager to undertake a review of the proposed outline.

The following questions, comments, and proposals for change were raised during the Committee consideration of the memorandum.

Mr. Schlager suggested that security be added as a concern under A2 of the outline and if added, it would become item f. A discussion ensued in which Mr. Schlager emphasized that the term security was being used as the means for protecting the privacy of wireless network users; and not – as it was at one time considered during the preparation of the study Prospectus – safeguarding physical telecommunications facilities. Mr. Falaschi observed that security in this sense was not an exclusive concern with respect to wireless communications, but also with respect to the wired network. Upon the conclusion of the discussion, it was the consensus of the Committee to add “Security” as a concern as item f under A2.

With respect to alternative plan design, Chairman Bauer called attention to the no-plan future and observed that the Advisory Committee could select that as the recommended plan; and observed that might give Mr. Ritt comfort. Chairman Bauer noted further that a no-plan alternative would, in effect, constitute a forecast of the probable state of telecommunications facilities and services within the Region under a continuation of the existing environment in which the various service providers prepare and implement individual plans uncoordinated by any public plan. Mr. Schlager observed that the no-plan alternative raises the issue of where Southeastern Wisconsin ranked with respect to private service provider priorities for improved services, and the plans of the various providers. He noted that the providers were national corporations, and that in the absence of a public plan this Region may not receive the improvements needed to make the Region competitive with other regions in the United States and the world, or may not receive the needed improvements in a timely manner. Mr. Chernow agreed indicating that under Ameritech, Wisconsin had for some time a very low priority for capital investment and as a result the firm lost a significant market share. Chairman Bauer indicated that, in his opinion, the Region deserves a chance to set out in the form of a public plan, a vision of the kind of telecommunications facilities and services required to maintain – or indeed improve – the ability of the Region to compete with other regions for economic development. He indicated that, in his opinion, a failure by the private sector to provide that level of service should be known publicly and corrective actions considered. Mr. Chernow agreed, indicating that if governmental efforts to promote the development of “high tech” industries within the Region are to be successful, a supporting high level of telecommunications services will be needed. Mr. Schlager observed that the Region lags far behind Europe and Asia in implementing

universal broadband telecommunications services, and this may act as an impediment to the economic development of the Region in a global economy.

In answer to a question by Mr. Chernow, Mr. Schlager indicated that powerline referred to the provision of broadband telecommunication services over the electric powerline network.

There being no further questions or comments, on a motion by Mr. Chernow, seconded by Mr. Romlelin, and carried unanimously, the draft outline for the SEWRPC Panning Report setting forth the findings and recommendations of the Regional telecommunications network planning effort was approved as amended. (Copy of amended Outline of Regional Telecommunications Network Plan Report, dated December 3, 2004 attached as Appendix VI to these minutes.)

CONSIDERATON OF REPORT PREPARATION SCHEDULE

Chairman Bauer then distributed a chart setting forth a proposed schedule for the preparation of the technical report and three planning reports proposed to be prepared under the Regional telecommunications planning effort. He then asked the Committee to consider the schedule. He noted that the schedule proposed to complete the planning report setting forth the findings and recommendations of the Wireless Antenna Site Planning effort first. He indicated that this was proposed in accordance with the interest expressed in this particular plan element during preparation of the Prospectus for the Planning Program and because the work required to prepare this plan element was fairly advanced by the Commission staff. He then asked for comments on the proposed schedule.

A discussion ensued in which Mr. McCann indicated that, in his opinion, a decision to give the highest priority in report preparation to the Wireless Antenna Site Location Plan was sound and in agreement with the position of the Advisory Committee that had prepared the Prospectus for the study. Mr. Wirth agreed, indicating that once the County and local plan agencies become aware of the Commission's Wireless Antenna Site Location Planning effort, it will be essential to be able to place the Commission plan in the hands of those planners if delays in wireless antenna location within the Region are to be avoided. He indicated that the Commission plan should be viewed as a guideline in the making of the needed development decisions by the private sector as well as by the public agencies concerned.

There being no further questions or comments, on a motion by Mr. Drew, seconded by Mr. Chernow, and carried unanimously, the report preparation schedule was approved as presented. (Copy of Proposed Report Preparation Schedule for Regional Telecommunications Planning Program: December 14, 2004 attached as Appendix VII to these minutes.)

CORRESPONDENCE

Chairman Bauer reported that there was no correspondence to report to the Committee.

DATE AND TIME OF NEXT MEETING

Chairman Bauer then asked the Committee to consider the date and time for the next Committee meeting.

Chairman Bauer noted that the staff would be ready to present preliminary drafts of the first two chapters of the Planning Report proposed to set forth the findings and recommendation of the Regional Antenna Site Plan probably late in February.

After some brief discussion it was determined that the next meeting of the Committee should be scheduled to be held on Tuesday, March 1, 2005, beginning at 2:00P.M. in the Commission offices.

Chairman Bauer observed that as the draft chapters of the planning report on wireless antenna siting are being prepared, it will become necessary for the Commission staff to meet from time to time with the proposed Technical Subcommittee comprised of engineers representing the wireless service providers operating within the Region. He indicated that unless the Steering Committee objected, the Commission staff would call the required Subcommittee meetings as needed to obtain technical review and comment on preliminary plan recommendations.

ADJOURNMENT

There being no further business to come before the Committee, on a motion by Mr. Winston, seconded by Mr. Chernow, and carried unanimously, the meeting was adjourned at 4:45P.M.

Respectfully Submitted,

Lynn G. Heis
Staff Secretary

KWB/lgh
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Appendix I

EXCERPT FROM SEWRPC ANNUAL REPORT

DOCUMENTATION

Documentation in the form of published reports is considered very important, if not absolutely essential, to any public planning effort. Printed planning reports represent the best means for disseminating inventory data that have permanent historical value and for promulgating plan recommendations and alternatives to such recommendations. Published reports are intended to serve as important references for public officials at the Federal and State levels, as well as at the local level, when considering important development decisions. Perhaps most importantly, however, published reports are intended to provide a focus for generating enlightened citizen interest in, and action on, plan recommendations. Accordingly, the Commission has established a series of published reports.

The first and most important type of report in the series is the planning report. The planning report is intended to document the adopted elements of the comprehensive plan for the physical development of the Region. As such, these reports constitute the official recommendations of the Regional Planning Commission. Each planning report is carefully reviewed and formally adopted by the Commission.

The second type of report in the series is the planning guide. Planning guides are intended to constitute manuals of local planning practice. As such, planning guides are intended to help improve the overall quality of public planning within the Region, and thereby to promote sound community development properly coordinated on a regionwide basis. The guides discuss basic planning and plan implementation principles, contain examples of good planning practice, and provide local governments with model ordinances and forms to assist them in their everyday planning efforts.

The third type of report in the series is the technical report. Technical reports are intended to make available to various public and private agencies within the Region valuable information assembled by the Commission staff during the course of its planning work on a work progress basis. Technical reports document the findings of such important basic inventories as detailed soil surveys, stream-water quality surveys, potential park and open space site inventories, and horizontal and vertical control surveys.

The fourth type of report in the series is similar to the technical report and is known as the technical record. This journal is published on an irregular basis and is intended primarily to document technical procedures utilized in the Commission planning programs. The documentation of such procedures assists other planning and engineering technicians in more fully understanding the Commission work programs and contributes toward advancing the science and art of planning.

The fifth type of report in the series is the community assistance planning report. These reports are intended to document local plans prepared by the Commission at the request of one or more local units of government. Occasionally, these local plans constitute refinements of, and amendments to, adopted regional and subregional plans, and are then formally adopted by the Regional Planning Commission.

The sixth type of report in the series is the planning program prospectus. Prospectuses are prepared by the Commission as a matter of policy as the initial step in the undertaking of any new major planning program.

The major objective of the prospectus is to achieve a consensus among all of the interests concerned on the need for, and objectives of, a particular proposed planning program. The prospectus documents the need for a planning program; specifies the scope and content of the work required to be undertaken; recommends the most effective method for establishing, organizing, and accomplishing the required work; recommends a practical time sequence and schedule for the work; provides sufficient cost data to permit the development of an initial budget; and suggests how to allocate costs among the various levels and units of government concerned. Importantly, the prospectuses serve as the basis for the review, approval, and funding of the proposed planning programs by the constituent county boards.

The seventh type of report in the series is the annual report. The annual report has served an increasing number of functions over the period of the Commission's existence. Originally, and most importantly, the Commission's annual report was, and still is, intended to satisfy a very sound legislative requirement that a regional planning commission each calendar year prepare, publish, and certify to the Wisconsin Legislature and to the legislative bodies of the local units of government within the Region an annual report summarizing the activities of the Commission. In addition, the annual report documents activities under the continuing regional land use-transportation study and as such serves as an annual report to the U.S. and Wisconsin Departments of Transportation. The Commission's annual report is also intended to provide local public officials and interested citizens with a comprehensive overview of the Commission's activities and thereby to provide a focal point for the promotion of regional plan implementation.

The eighth type of report in the series is the memorandum report. These reports are intended to document the results of locally requested special studies. These special studies usually involve relatively minor work efforts of a short duration and are not normally intended to document formally adopted plans.

In addition to the eight basic types of reports described above, the Commission documents its work in certain miscellaneous publications, including a newsletter, regional planning conference proceedings, study designs, public hearing and public informational meeting minutes, transportation improvement programs, and staff memorandums.

Appendix II

**APPROVED COMMISSION'S BUDGET
FOR
REGIONAL TELECOMMUNICATIONS**

Table 4

**REGIONAL TELECOMMUNICATIONS
PLAN COST ESTIMATE**

Work Element	Cost
Study Design	\$ 24,000
Formulation of Objections and Standards...	12,667
Inventory and Network Monitoring System	143,000
Analyses/Forecasts	72,000
Plan, Design, Test and Evaluation	
Antenna Site Plan	129,135
Regional Network Plan.....	65,196
Public Networks Plan.....	50,668
Plan Selection and Adoption	25,334
Plan Implementation	8,000
Other Support Labor.....	48,000
Publication of Report	50,000
Subtotal	\$628,000
Travel Contingencies and Miscellaneous Expenses	\$ 87,000
Total	\$715,000

#102718

Appendix III

**OUTLINE OF INVENTORY TECHNICAL REPORT
DATED NOVEMBER 30, 2004**

OUTLINE OF INVENTORY TECHNICAL REPORT

November 30, 2004

- Chapter I Introduction
 - A. Need for Regional Planning
 - B. the Regional Planning Commission
 - C. the Regional Planning Concept
 - D. the Region – include map
 - E. Commission Work Programs to Date
 - F. Telecommunications Definition and Importance
 - G. Advisory Committee
 - H. Prospectus
 - I. SEWRPC Technical Study Design Memoranda
 - No. 1 Monitoring System
 - No. 2 Infrastructure Inventory
 - J. Scheme of Presentation

- Chapter II Basic Principles and Concepts
 - A. Introduction

 - B. Planning Process
 - 1. Objectives and Standards
 - 2. Inventory
 - 3. Analysis and Forecasts
 - 4. Plan Design
 - 5. Plan Test and Evaluation
 - 6. Plan Selection and Adoption

 - C. Categories
 - 1. Public Versus Private Networks
 - 2. Wireline versus Wireless Networks

 - D. Organization
 - 1. Public Networks
 - a. Infrastructure
 - 1. Physical layer
 - 2. Data link layer
 - 3. Network layer
 - 4. Transport layer
 - 5. Session layer
 - 6. Presentation layer
 - 7. Application layer
 - b. Performance
 - 1. Availability
 - 2. Response Time
 - 3. Throughput
 - 4. Accuracy

2. Private Service Provider Networks
 - a. Infrastructure
 1. Physical layer
 2. Data link layer
 3. Network layer
 4. Transport layer
 5. Session layer
 6. Presentation layer
 7. Application layer
 - b. Performance
 1. Availability
 2. Response Time
 3. Throughput
 4. Accuracy

Chapter III Public Networks Inventory

- A. Wireline Infrastructure
 1. Core Networks
 - a. CSWAN
 - b. DOT
 - c. Other
 2. Local Wide Area Networks
 - a. Municipal
 - b. Agency
- B. Wireline Performance
 1. End-user
 - Network monitoring
 2. Internal
 - Trace routing
- C. Wireless Infrastructure
 1. Antenna Sites
 2. Transmission Links (if any)
 3. Wireline Interconnection (if any)
 4. Mobile/Remote Units
- D. Wireless Performance
 1. End-users
 2. Internal

Chapter IV Private Service Provider Networks Inventory

- A. Wireline Infrastructure
 1. Facility Providers
 2. Circuit Providers
 3. Service Providers
 - a. Circuit-switched
 - b. Packet-switched
 - c. Cable

- B. Wireline Performance
 - 1. End-user
 - Network monitoring
 - 2. Internal
 - Trace routing

- C. Wireless Infrastructure
 - 1. Antenna Sites
 - 2. Transmission Links
 - 3. Wireline Interconnections
 - 4. Cellular/PCS
 - 5. Fixed

- D. Wireless Performance
 - 1. End-users
 - 2. Internal

Chapter V Summary

KWB/KJS/lgh
11/30/04
#102034 V1 - Inventory Technical Report

Appendix IV

**OUTLINE OF PUBLIC ENTERPRISE NETWORKS
MEMORANDUM
DATED DECEMBER 14, 2004**

OUTLINE OF PUBLIC ENTERPRISE NETWORKS MEMORANDUM REPORT

December 14, 2004

- Chapter I Introduction
 - A. Need for Regional Planning
 - B. the Regional Planning Commission
 - C. the Regional Planning Concept
 - D. the Region – include map
 - E. Commission Work Programs to Date
 - F. Telecommunications Definition and Importance
 - G. Advisory Committee
 - H. Prospectus
 - I. SEWRPC Technical Study Design Memorandum No. 4
 - J. Scheme of Presentation

- Chapter II Basic Principles and Concepts
 - A. Introduction
 - B. Public Enterprise Network - Definition
 - C. Planning Process
 - 1. Objectives and Standards
 - 2. Inventory of Existing Public Infrastructure
 - a. Physical layer
 - b. Data link layer
 - c. Network layer
 - d. Transport layer
 - e. Session layer
 - f. Presentation layer
 - g. Application layer
 - 3. Potential Applications Review Process
 - 4. Needed Extensions and Augmentation of Public Infrastructure

- Chapter III Potential Applications
 - A. Applications Development
 - 1. Need for application
 - 2. Description of application
 - 3. Resource requirements
 - 4. Schedule
 - 5. Stakeholders Identification
 - 6. Application task force

 - B. Potential Public Enterprise Networks Applications
 - 1. Public Safety/Emergency Response/Homeland Security Application Network
 - a. Interoperable communications
 - b. Information sharing
 - c. Regional physical infrastructure radiation/bio-chemical monitoring-IEEE Std 802.15.4(ZIGBEE)

2. Intelligent Transportation System (ITS)
 - a. Universal freeway/street vehicular routing control
 - b. Individual vehicle communications
 - c. Staged development process
 - d. Link with wireless antenna site plan
 - e. Communications subsystem
 - f. Command and control subsystem
 - g. Routing software development
3. Telemedicine/Telehealth – Emergency Medicine
 - a. Link with wireless infrastructure – 4G capabilities
 - b. Communications subsystem
 - c. Session Initiation Protocol (SIP)Link with Electronic Medical Record (EMR)
 - d. Link with Electronic Medical Record (EMR)
4. Telemedicine/Telehealth - Home health care
 - a. Link with wireless infrastructure – 4G capabilities
 - b. Communications subsystem
 - c. Session Initiation Protocol (SIP)
 - d. Link with Electronic Medical Record (EMR)
5. Environmental Monitoring
 - a. Link with wireline/wireless
 - b. IEEE 802.15.4, Zigbee Alliance
 - c. Link with Homeland Security Monitoring
 - d. Role of environmental instrumentation
6. General Education
 - a. Link with state and local schools district initiatives
 - b. Emphasis on providing infrastructure
7. Special Education - Fire Department and attendant Emergency Medical personnel
8. Local Governmental Administration
 - a. Link with expanded wireline/wireless infrastructure
 - b. Need for detailed definition functional candidates
 - c. Session Initiation Protocol (STP) for information transfer
9. Other candidates applications

Chapter IV Public Enterprise Networks Infrastructure Planning

1. Physical Layer Network Status
 - a. From inventory technical report
 - b. DOT Network
 - c. CSWAN Network
 - d. Other local governmental networks

2. Protocol Layers Network Status
 - a. From inventory technical report
 - b. Data Link/Network/Transport Layers
 - c. For networks listed in C1 above

3. Session/Presentation Layer Status
 - a. From inventory technical report
 - b. For networks listed in C1 above

4. Fiber Optic Wireline Network Augmentations/Extensions
 - a. DOT
 - b. CSWAN
 - c. Other local government networks

5. Broadband Wireless Network Augmentations/Extensions
 - a. Fourth generation (4G) orientation
 - b. IEEE standards 802.11/802.16/802.20
 - c. Transmission rates: 100Mb/s and upward
 - d. Open architecture
 - e. Internet-based
 - f. Fixed communications
 - g. Mobile communications

6. Protocol planning

7. Session Initiation Protocol (SIP) planning

Chapter V Summary

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Appendix V

**OUTLINE OF WIRELESS ANTENNA SITE
AND
RELATED INFRASTRUCTURE PLAN
DATED DECEMBER 14, 2004**

OUTLINE OF WIRELESS ANTENNA SITE AND RELATED INFRASTRUCTURE PLAN

December 14, 2004

- Chapter I Introduction
 - A. Need for Regional Planning
 - B. The Regional Planning Commission
 - C. The Regional Planning Concept
 - D. The Region – include map
 - E. Commission Work Programs to Date
 - F. Telecommunications Definition and Importance
 - G. Advisory Committee
 - H. Prospectus
 - I. SEWRPC Technical Study Design Memorandum No. 3
Wireless Antenna Site and Related Infrastructure Plan
 - J. Scheme of Presentation

- Chapter II Basic Principles and Concepts
 - A. Introduction

 - B. Planning Process
 - 1. Objectives and Standards
 - 2. Inventory
 - 3. Analysis and Forecasts
 - 4. Plan Design
 - 5. Plan Test and Evaluation
 - 6. Plan Selection and Adoption

 - C. Organization
 - 1. Cellular/Personal Communications System (PCS) Wireless
 - 2. Fixed Wireless
 - 3. Generations
2.0, 2.5, 3.0, 4.0
 - 4. Frequency Bands
 - a. Below 800 MHz
 - b. 800-900 MHz
 - c. 1900-2000 MHz
 - d. 2.4 GHz
 - e. FCC 4.9 GHz Licensed Band for Emergency Public Use
 - f. 5.2-5.9 GHz
 - g. Higher frequency bands

- Chapter III Objectives and Standards
 - A. Objectives

- B. Standards (Performance Objectives)
 - 1. Data rate
 - 2. Availability
 - 3. Response Time
 - 4. Throughput
 - 5. Accuracy

Chapter IV

Inventory

- A. Infrastructure
 - 1. Mobile Cellular/PCS
 - a. Antenna sites
 - b. Transmission links
 - c. Core network interconnections
 - 2. Fixed (Service Providers)
 - a. Antenna sites
 - b. Transmission links
 - c. Core network interconnections
 - 3. Mobile Public
 - a. Antenna sites
 - b. Transmission links
 - c. Core network interconnections

- B. Performance
 - 1. Data rate
 - 2. Availability
 - 3. Response Time
 - 4. Throughput
 - 5. Accuracy
 - 6. Security

Chapter V

Analysis and Forecasts

- A. Aggregate
 - 1. National
 - a. Voice
 - b. Data
 - c. Video
 - d. Multimedia
 - 2. Regional
 - a. Voice
 - b. Data
 - c. Video
 - d. Multimedia
- B. Spatial
 - 1. Land Use
 - 2. Unit Density
 - 3. Call Generation
- C. Modal Split
 - 1. Wireless versus wireline

Chapter VI Plan Design

- A. Second/Third Generation Wireless
 - 1. Short Range Wireless Plan Prior to Target Year
 - a. Emphasis on 4G for target year plan
 - b. Interim technology
 - 2. Circuit switched core network
 - 3. Packet-switched core network
 - 4. Antenna site plan
 - a. Coverage
 - b. Capacity
 - c. Mathematical Programming (MP) - model based
 - 5. Transmission (Backhaul) links
- B. Fourth Generation (4G) Wireless
 - 1. Primary Plan Focus
 - 2. Mobil/Fixed Integration
 - 3. Link with Public Networks Plan
 - 4G in common
 - 4. Link with Regional Telecommunications Network Plan
 - role of wireless in target year regional network
 - 5. Open Architecture
 - ability to communicate with legacy systems
 - 6. Higher transmission rates
 - 7. Industry Standards
 - a. IEEE 802.11, 802.16, 802.20
 - b. 4G consortium
 - c. Other organizational standards
 - 8. Session – layer standards and protocol
 - 9. Transport, Network & Data Link – layer standards
 - 10. Physical – layer standards
 - 11. Network/Technology Integration - region-wide plan

Chapter VII Summary

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#102144 V2 - Wireline Antenna Site And Related Infrastructure Plan

Appendix VI

**OUTLINE OF REGIONAL
TELECOMMUNICATIONS NETWORK
PLAN REPORT
DATED DECEMBER 3, 2004**

OUTLINE OF REGIONAL TELECOMMUNICATIONS NETWORK PLAN REPORT

December 3, 2004

- Chapter I Introduction
 - A. Need for Regional Planning
 - B. The Regional Planning Commission
 - C. The Regional Planning Concept
 - D. The Region – include map
 - E. Commission Work Programs to Date
 - F. Telecommunications Definition and Importance
 - G. Advisory Committee
 - H. Prospectus
 - I. SEWRPC Technical Study Design Memorandum No. 6
Regional Telecommunications Network Design
 - J. Scheme of Presentation

- Chapter II Basic Principles and Concepts
 - A. Introduction

 - B. Planning Process
 - 1. Objectives and Standards
 - 2. Inventory
 - 3. Analysis and Forecasts
 - 4. Plan Design
 - 5. Plan Test and Evaluation
 - 6. Plan Selection and Adoption

 - C. Organization and Approach
 - 1. Enterprise Network Design
 - a. Region as a socio-economic entity
 - b. What best serves Southeastern Wisconsin?
 - 2. Logical Network Design
 - providing the bandwidth to meet needs and requirements
 - 3. Alternative Physical Network Designs
 - selecting technologies for core and access networks
 - 4. Network Test and Evaluation

- Chapter III Objectives and Standards
 - A. Objectives

 - B. Standards
 - 1. Data rate
 - 2. Availability
 - 3. Response Time
 - 4. Throughput
 - 5. Accuracy

- Chapter IV Inventory
 - A. Infrastructure
 - 1. Wireline
 - a. Facility Providers
 - b. Circuit Providers
 - c. Service
 - 1. Circuit-switched
 - 2. Packet-switched
 - 3. Cable
 - 2. Wireless
 - a. Antenna sites
 - b. Transmission links
 - c. Wireline interconnections
 - d. Cellular/PCS
 - e. Fixed
 - f. Security
 - B. Performance
 - 1. Wireline
 - a. End-user
 - Network monitoring
 - b. Internal
 - Trace routing
 - 2. Wireless
 - a. End-user
 - b. Internal
- Chapter V Analysis and Forecasts
 - A. Aggregate
 - 1. National
 - a. Voice
 - b. Data
 - c. Video
 - d. Multimedia
 - 2. Regional
 - a. Voice
 - b. Data
 - c. Video
 - d. Multimedia
 - 3. Bandwidth requirements
 - B. Spatial
 - 1. Land Use
 - 2. Unit Density
 - 3. Call Generation
 - by application and land use
 - C. Modal Split
 - 1. Wireless versus wireline

- Chapter VI Plan Design
 - A. The No-Plan Future
 - 1. Forecasting response to market needs
 - 2. Extrapolating current trends
 - B. Logical Network Design
 - 1. Network topology
 - 2. Bridging, Switching & Routing Protocols
 - 3. Network monitoring
 - 4. Network security
 - C. Physical Network Design
 - 1. Selecting technologies for varying land use densities
 - 2. Alternative core technologies
 - 3. Alternative Access Technologies
 - a. DSL
 - b. Hybrid Fiber Coax
 - c. Active Optical
 - d. Passive Optical
 - e. Advanced Wireless
 - f. Powerline
 - g. Satellite
 - D. Network Design Test
 - 1. Network Monitoring System
 - 2. Network Simulation and Optimization
- Chapter VII Summary

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OUTLINE OF WIRELESS ANTENNA SITE AND RELATED INFRASTRUCTURE PLAN

December 14, 2004

- Chapter I Introduction
 - A. Need for Regional Planning
 - B. The Regional Planning Commission
 - C. The Regional Planning Concept
 - D. The Region – include map
 - E. Commission Work Programs to Date
 - F. Telecommunications Definition and Importance
 - G. Advisory Committee
 - H. Prospectus
 - I. SEWRPC Technical Study Design Memorandum No. 3
Wireless Antenna Site and Related Infrastructure Plan
 - J. Scheme of Presentation

- Chapter II Basic Principles and Concepts
 - A. Introduction

 - B. Planning Process
 - 1. Objectives and Standards
 - 2. Inventory
 - 3. Analysis and Forecasts
 - 4. Plan Design
 - 5. Plan Test and Evaluation
 - 6. Plan Selection and Adoption

 - C. Organization
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 - e. FCC 4.9 GHz Licensed Band for Emergency Public Use
 - f. 5.2-5.9 GHz
 - g. Higher frequency bands

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 - A. Objectives

- B. Standards (Performance Objectives)
 - 1. Data rate
 - 2. Availability
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 - 5. Accuracy

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 - b. Transmission links
 - c. Core network interconnections
 - 2. Fixed (Service Providers)
 - a. Antenna sites
 - b. Transmission links
 - c. Core network interconnections
 - 3. Mobile Public
 - a. Antenna sites
 - b. Transmission links
 - c. Core network interconnections

- B. Performance
 - 1. Data rate
 - 2. Availability
 - 3. Response Time
 - 4. Throughput
 - 5. Accuracy
 - 6. Security

Chapter V

Analysis and Forecasts

- A. Aggregate
 - 1. National
 - a. Voice
 - b. Data
 - c. Video
 - d. Multimedia
 - 2. Regional
 - a. Voice
 - b. Data
 - c. Video
 - d. Multimedia
- B. Spatial
 - 1. Land Use
 - 2. Unit Density
 - 3. Call Generation
- C. Modal Split
 - 1. Wireless versus wireline

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 - 7. Industry Standards
 - a. IEEE 802.11, 802.16, 802.20
 - b. 4G consortium
 - c. Other organizational standards
 - 8. Session – layer standards and protocol
 - 9. Transport, Network & Data Link – layer standards
 - 10. Physical – layer standards
 - 11. Network/Technology Integration - region-wide plan

Chapter VII Summary

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Appendix VII

**PROPOSED REPORT PREPARATION SCHEDULE
REGIONAL TELECOMMUNICATIONS PLANNING
PROGRAM
DATED DECEMBER 14, 2004**

