



ILLINOIS CENTURY NETWORK

POLICY COMMITTEE MEETING AGENDA

November 14, 2001 2:00 p.m.

**ILLINOIS CENTURY NETWORK
POLICY COMMITTEE
MEETING AGENDA
November 14, 2001
2:00 p.m.**

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ILLINOIS CENTURY NETWORK

September 26, 2001 POLICY COMMITTEE MINUTES

Submitted for: Action

Summary: Distribution of September 26, 2001 minutes for review by the Policy Committee.

Action Requested: Adoption of September 26, 2001 minutes.

Recommended Motion: *That the ICN Policy Committee approves the September 26, 2001 minutes with any edits as noted.*

ILLINOIS CENTURY NETWORK

SEPTEMBER 26, 2001 POLICY COMMITTEE MINUTES

The meeting was called to order by Mary Reynolds.

Members present: Mary Reynolds, Governor's Office; Jean Wilkins, Illinois State Library; Keith Sanders, Illinois Board of Higher Education; and Joe Cipfl, Illinois Community College Board

Others attending included: Brent Crossland, Governor's Office; Tim Fox and John Anderson, Department of Central Management Services; Anne Craig, Illinois State Library; Virginia McMillan, Illinois Community College Board; Neil Matkin, Lori Sorenson, Lynn Murphy, Karlin Sink, Cindi Hitchcock, George Badger, Kristy Morelock, Beth Aper, and Rebecca Dineen all from the Illinois Century Network.

1. Policy Committee Minutes

Staff requests the adoption of the July 25, 2001 Policy Committee meeting minutes.

Motion: Joe made motion; Keith seconded.

Joe Cipfl moved that the ICN Policy Committee adopt the July 25, 2001 minutes with any edits as noted. (No edits were noted.)

Motion carried.

2. Announcements

Mary Reynolds introduced, "Using Information Technology to Transform the Way We Learn" a report that was included in the ICN information packet distributed to the Policy Committee. Extra copies were available to the audience. It is a report to the President dated February of 2000 and is the product of a committee that's been working since 1999. The report states "Our goal is to define a long range program that will provide all citizens with full and easy electronic access to education and training resources enhanced by new technologies and used by properly prepared teachers and trainers". Mary recommended that every one read the report as it gives findings and recommendations for what the government can do and what groups like the ICN can do. One point relevant to the ICN states "widespread access to computing is not sufficient to achieve improved information technology enhanced learning and education however it is a necessary pre-cursor". Then

it states “the ability to access computers and the Internet must extend beyond the schoolroom however into communities and homes of the students”.

Government Technology Magazine is hosting the Illinois Digital Government Summit in Springfield on October 9th and 10th at the Prairie Capitol Convention Center. The focus is on state and local government, but the ICN has an incredible role to play and is the subject of one break out session. This summit provides the environment to talk about cross collaboration opportunities with local and state government on a number of different fronts. Mary encouraged everyone to attend and noted that there is a discount if more than two individuals from the same organization registered. Individuals can register at the Government Technology web site.

Mary also commented on the recent announcement regarding budget restrictions made by the Governor and the Director of the Budget. The ICN is certainly not immune from the economic impact the state is experiencing now and will experience in the future. Though the Governor made it very clear to the cabinet on Saturday that his intent is to continue with his initiatives, the ICN should watch closely the way that it spends funds.

3. Remarks

The new ICN information packets and additional handouts were distributed. The information packets will be mailed to constituents when the cost recovery initiative is finalized. The ICN continues to receive requests for the information packet via the website.

Neil highlighted a Sun Times news article regarding the connection of the Adler Planetarium and the Field Museum to the ICN. Policy Committee member Bruce McMillan was interviewed for the article.

The staff has decided to distribute the Facts at a Glance, which includes the ICN constituent update, on a monthly basis to keep the Policy Committee informed. The backbone circuit update will be distributed when changes are made in the status of the backbone circuits. All circuits are in now except two, and both involve long term build issues that are progressing slowly.

An updated list of “schools not connected” was distributed. Neil noted that the designation “on hold” means that a constituent has asked us to get a contract or a quote and it’s on hold at the local level, awaiting action by the constituent. “Open orders” are in process.

The Governor has shown great interest in the schools not connected, so staff went to great length not only to find out who was not connected, but why. Staff also looked at those schools connected to an ISP and not the ICN. All K-12 school districts are either connected to an ISP or the ICN with the vast majority of them (80%) connected to the ICN. In some instances institutions are not connected because they are in the process of moving or building. Others do not wish to be connected, for example St. Clair County

Juvenile Detention Center. In some cases, where schools do not have the facilities, staff offers assistance with technology plans for that facility or that location. Staff is also trying to get out there and figure out why they are connecting to ISPs and not the ICN. The staff will provide an updated "schools not connected" list at each Policy Committee meeting and include it in the monthly mailing, although it doesn't change quite as fast as some of the other information.

"Little Known Facts About the ICN" was distributed as an information piece that can be used as a hand out for legislators and other individuals who may have questions. This has been a work in progress and it is still not complete. It describes facts like the ICN connects almost 5,500 institutions; the ICN is serving over two million Illinois citizens, most being students; the ICN is pushing over 620 million bits per second to the Internet on a daily basis and traffic grows 6% to 8% per month.

The ICN has the largest bandwidth available to any community college system in the United States. In terms of universities, research networks and the state network have evolved in different ways and there are still some networks that are not production networks like the ICN. The ICN is the largest single network in the state providing real time traffic management, network services and repairs on a 24/7/365 basis. The ICN is now connected to Internet2 and running a 90-day pilot with SIU-C. ICN is the first state network to become fully multicast enabled.

The ICN has recently put out a request for proposals (RFP) for additional egress to the Internet and as a result the ICN is becoming a driver of what some of these commercial Internet egress providers offer. The ICN is continuing to provide service, equipment and management that started with LincOn in order to light up dark fiber for the Chicago Housing Authority, City of Chicago, Chicago City Schools, Chicago Public Library and is expanding that with some other dark fiber builds. ICN is working on partnerships with Civicnet, Central Management Services and the I-WIRE project to further utilize dark fiber, increase bandwidth and to decrease constituent cost. The ICN has video applications with Illinois Healthcare to provide hospitals with access to critical care and burn care units in rural areas and right now is offering the lowest possible cost for constituent institutions to receive bandwidth for the commercial Internet and more importantly to one another.

The ICN is working on a master plan for the transition of older H.320 video to H.323 video because there are several high schools that would be able to take advantage of it with the existing circuits that they have. Finally, the ICN has one of the largest percentages of certified technicians of any organization in the state with over 70% of ICN staff technically certified and that number is growing.

Keith Sanders took the opportunity to remind Neil of several content initiatives that need to be included on the list: The Illinois Community Colleges On-line on the ICN; the Illinois Virtual High School which is expanding rapidly; the Illinois Virtual Campus; the Illinois Digital Library on the ICN; connection of libraries through the Gates grant; and the connectivity between and among our college and university libraries on the ICN.

Neil distributed a handout addressing the issue of "what came first". For ten years, in higher education especially, it has been argued that advanced network applications could not be built because there was no network to support them, so which comes first - high quality education applications that demand a network or a network capable of supporting such applications? Between March 2000 and September 2001 there were 2005 additional institutions added, a 58% growth. Libraries experienced a 1625% increase; public schools experienced a 26% increase; other public education facilities experienced a 25% increase; private K-12 experienced a 200% increase; community colleges experienced a 450% increase, which translates into all 48 main community college campuses either connected or within reach of being connected as well as several of their extension campuses; private colleges experienced a 462% increase; public colleges and universities experienced a 457% increase; and museums experienced a 300% increase with most of the largest museums connected. Today 196 municipalities, including the city of Chicago, are getting their Internet access and connectivity through the ICN. The other category includes constituents such as hospitals and zoos.

Neil introduced Kristy Morelock who has been brought on board to aid in the coordination of print and other public relation efforts that will help make sure that the story of the ICN gets told.

ICN staff recently completed an equipment inventory audit of 3,300 pieces in two weeks and is getting ready to transfer that equipment from ISBE to IBHE, which serves as fiscal agent to the ICN. External auditors will be brought in to conduct a statistical audit for accuracy.

The World Trade Center Tragedy has touched all of us. Unfortunately one of the co-founders and two engineers of Akami, a mirroring service that ICN has contracted with, were killed on September 11th, the evening of the scheduled install. The company contacted the ICN and the install was postponed. The tragedy has affected the ICN in that the Federal Emergency Management Agency has frozen some of the shipments of large network equipment for the entire two weeks after the tragedy. As a result, ICN staff have gone through and examined the network for redundancy in terms of disaster planning. Staff members have discovered a couple of weaknesses that need to be addressed, especially in the Chicago operation, where some minor changes need to be made to reduce network vulnerability.

Jean Wilkins thanked Neil, Lori, Lynn, and Karlin for their help with connecting libraries as a result of the Gates grant. The grant brought approximately 4.4 million dollars in equipment to 720 Illinois public libraries, and connectivity to the ICN was a primary consideration in this process.

Mary also noted the ICN and I-WIRE were party to the University of Illinois National Center for Supercomputing Applications (NCSA) for a Terra Grid grant. It is a 54 million dollar project between NCSA at Urbana and San Diego, however the majority of the effort is in Illinois between Urbana and Argonne.

Neil remarked that this project has started out well because of the collaboration between the ICN, Charlie Catlett, Bill Vetter, Alice Engle, Jim Haycraft, and other individuals at CMS involved in the fiber project but that no tangible timeline was yet available for the use of the fiber resources. The fiber out to San Diego and Los Angeles is going to benefit the ICN and Illinois in a huge way down the road.

Mary commented that this is a good example of how the existence of the ICN helps to leverage additional funds for other projects.

Keith asked what it would cost to extend the Illinois Digital Library out to all the libraries. It is currently available to the academic community. The ICN will look into the cost.

4. Secretary to the Policy Committee

Item number four asks the Policy Committee to appoint Rebecca Dineen as the Secretary to the Policy Committee. Rebecca has already served in that capacity for almost two years, and the ICN would like the Policy Committee to make her appointment official.

Motion: Keith made motion; Mary seconded.

Keith Sanders moved that the Policy Committee approve the appointment of Rebecca Dineen to the position of Secretary to the Policy Committee.

Motion carried.

5. ICN Contracts: Update and Inclusion of Constituents

Lori Sorenson updated the Policy Committee on the recent activities regarding ICN contracts and procurement efforts. Beginning July 13th, thanks to the many efforts of Dr. Sanders and Director Schwartz, CMS delegated procurement authority to the ICN for the direct purchase of network related services and equipment. This allows the ICN a direct relationship with the vendors in order to better plan for the direction of the network and begin to engage in contract negotiations for better prices. It will also result in a cost savings to the ICN by eliminating the administrative fee CMS must charge for their services.

Staff has been working with CMS to transfer circuits purchased through CMS so the ICN becomes the customer of record. There are approximately 550 circuits through 10 vendors for which we currently have contracts. ICN staff is working, in collaboration with Steve Hayden, head of CMS Data Provisioning Group, to facilitate this transfer. As of November 1, 2001, billing and ownership will be in the hands of the ICN.

ICN staff members have also been participating in the negotiations of the statewide network service contract with CMS. The current contract expires at the end of this calendar year and the new contract will take effect January 1, 2002. So far, the contract numbers indicate that the ICN will receive a 30% to 35% discount on our backbone circuits.

The ICN has received many requests from constituents asking if they can purchase from ICN master contracts in order to receive the same discounted pricing and benefits. This has been occurring in some fashion with the Cisco contract. ICN customers are able to purchase at the ICN discounts, which are 35% off the list price. However, the ICN needs to be able to aggregate those purchases to a single procurement in order to receive the best possible discounts. Staff is requesting approval from the Policy Committee to enter into master contracts that will allow ICN constituents to purchase off of those contracts and increase the volume resulting in lower costs for the ICN and constituents.

Keith reminded those in attendance that we should all be grateful to Director Michael Schwartz and his colleagues for giving the ICN authority that allows us to save 30% to 35% and to be able to have these master agreements.

Neil indicated that the motion on page 14 of the agenda is not correct. The correct motion is on page 16 of the agenda.

Motion: Joe made motion; Jean seconded.

Joe Cipfl moved that the Policy Committee adopt staff recommendations to allow the ICN to act in a consortial manner to establish master contracts for network related equipment and services for the purpose of reducing constituent and ICN costs and providing greater service to Illinois Education.

Motion carried.

6 a. Advanced Engineering Taskforce Report: Recommendations

Note: Page 2 of the agenda was corrected to read "a. 2001 Report and Recommendations" under item six, Advanced Engineering Taskforce.

George Badger gave an overview of the 2001 Advanced Engineering Taskforce Report. The staff response concurs very strongly with the recommendations, and in fact, the staff had started doing many of the things that the taskforce recommended even before the report was in. The report tries to relate network capacity to the applications that institutions might use and also looks at the difference between service to an individual and service to a building full of individuals.

The Advanced Engineering Taskforce recommends that the ICN begin to inform school districts of the kind of demands that will be made on them and that the ICN begin to bring together the organizations, school districts, and regions to put the bandwidth in

place to support applications like the Illinois Virtual High School. Nobody develops applications for a delivery system that cannot deliver the content – the network has to come before the application because the network pulls the development efforts along.

The use of video was discussed. A few key issues not addressed in the report or staff response were: the ability to take video material originating on a community college campus where they are delivering it to 2 or 3 high schools and insert it into the ICN so that it can be delivered to any desktop at any school in the system; the emergence of desktop conversations using desktop video, and person to multi-person video conferencing. Video is also an area where the consulting role of the ICN staff is the most critical. It is not so much a matter of developing content as it is a matter of knowing how to get the right equipment, get it into place, and how to use it. Video servers allowing individuals to view clips on demand with good quality were also discussed.

George commented on the importance of procurement delegation in the purchase of circuits and the acquisition of dark fiber. When the taskforce began discussing the issue of dark fiber, it was a unique opportunity in Illinois because of the work that had been done with the Department of Transportation. Over the years a number of other states have begun to use dark fiber as a means of implementing their networks. Dark fiber is technically important, because once the fiber is in place the capacity can be changed by a factor of 10 by simply adding more electronics at the ends. By changing the capacity of the electronics you really change it dramatically. A few years ago the capacity of a fiber was approximately two and a half billion bits per second. Today, it is about 800 billion bits per second using the technology that is just coming on to the market. It is a technology that is being pushed faster and faster so the fiber that you get is increasingly more important over time. The Policy Committee will want to look at issues such as how the dark fiber is managed and how you procure support services for it.

This is an area the ICN will have to contract for with caution - keeping in mind issues regarding access to regulated space at telephone companies and the ability to change the equipment on the ends. George recommended the ICN maintain as much responsibility for this as possible. Other fiber issues include voice over IP and continuing to expand without over spending the budget. Future agenda items will include recommendations on how dark fiber should be implemented, voice over IP, the interaction between how the network is engineered and the cost recovery model, video plans, and what consulting services the ICN should offer and at what level.

Mary inquired about the status of dark fiber contracts among the agencies mainly CMS and DOT in terms of the IWIRE project and the ICN.

Tim Fox replied that the link from the Bolingbrook area into the Chicago Loop needs to be constructed to meet the IWIRE project needs, and a link that exists between Champaign and Springfield is also needed. Tim agreed with Neil and George in that CMS does not view it as a good idea for the state to be constructing its own fiber, but to utilize the assets of right-of-ways. The benefit of the IWIRE collaboration is that it will help create a ring that will connect Champaign, Chicago, Peoria, Springfield and back to

Champaign when the vendors start building again. The fiber that CMS has today can be utilized before construction is complete, but not to its full value. The dark fiber is property of the state of Illinois. It is now titled under what is called an Indefeasible Right of Use (IRU). CMS holds the IRU for the fiber along the I55 corridor, but unfortunately that fiber stops at Bolingbrook rather than going into the Chicago area. The final 30 plus miles is necessary to put it to its most effective use.

Neil commented that it is necessary to conduct an inventory of what dark fiber is available from other companies. Ameritech has an immense amount of dark fiber available that they cannot sell because of FCC and tariff restrictions and the Telecom Act of 1996. The market for dark fiber is changing, two years ago no one would sell dark fiber because there wasn't enough of it to go around. Today there is a bit of a glut and prices are lower than they were two years ago.

Mary commented that we should find ways for Illinois constituents to benefit from the research that is taking place not only at universities and labs, but that takes place on the network - an example being multiplexing and the concept of getting more for that strand. Schools should be able to take advantage of research on the network - use the network as a test-bed in some areas. George commented that we should find an incentive for the AET members to give not only their wisdom, but to connect their projects and bring in extra connections. Internet2 is an example of that.

Mary mentioned that she and Lori met with the East West Corridor Association and that they are extremely interested in the network. They represent some of the largest corporations and labs in the western suburbs and they are adamant that the state should do something to try and get broadband to their businesses at least and to their homes. Mary also spoke with Qwest regarding help with research and finding ways to partner with our network to broaden access.

Neil commented that the ICN had also been in conversations with Qwest; had a state-wide meeting of ICN regional staff regarding what services they believe their constituents need and would like to see the network provide; and senior staff will be meeting tomorrow as a culmination of that group to discuss implications and thoughts in conjunction with extensive documentation of what services the ICN can legally offer without being classified by anyone as a common carrier. This represents several efforts coming together at one time as the precursor for some of the collaborations Mary has mentioned. ICN staff will be able to inform the Policy Committee in short order what is technically feasible, what we can do legally. Staff will then make some recommendations in conjunction with the AET.

Membership in the AET is being expanded. Neil has asked several members around the table to submit names to better round out the taskforce to represent our constituency base and bring in other experts with additional knowledge.

Keith thanked George for the report and noted that he looks forward to future reports addressing the services that the ICN can provide and to whom.

Motion: Keith made motion; Joe seconded.

Keith Sanders moved that the Policy Committee accept and endorse the 2001 report of the Advanced Engineering Taskforce.

Motion carried.

6 b. Advanced Engineering Taskforce Report: Recommendations

Neil took the opportunity to thank George publicly for contributing a lot of long hours with a large number of people in numerous meetings across the state to make this report a reality. Neil also introduced Beth Aper who is the ICN Webmaster and responsible for the fine quality and layout of the report and several other documents the ICN produces.

Mary also thanked George on behalf of the Policy Committee for his having been with the project from the beginning and his invaluable leadership on the architecture of the project.

Neil noted that the AET works as an independent body and ICN staff attends meetings only to provide information. ICN staff has not revised the report except in making grammatical edits.

Highlights of the staff response included: the importance of dark fiber, demonstration of educational value, creating a "recipe book" to help educate schools on their needs for certain applications with staff acting in a consulting role to help them understand the recommendations, sponsoring a meeting for the AET, ICN technical staff, and content related groups, associate with groups nationally and internationally, the digital divide issue, and procurement issues. The staff is currently addressing several of these issues and initiatives.

Neil highlighted specific issues in the staff response for consideration by the Policy Committee.

With respect to Action Item 1, Neil clarified the conditional agreement to the recommendation regarding backbone issues. The staff would like to continue working with IP version 6 for future planning. In backbone network issues, it is the ICN's first priority to encourage the unconditional use of dark fiber and access to state owned fiber and conduit in the right-of-ways along Illinois highways and to expand the capacity of the backbone to meet current needs. There is already one OC12 leg that within the next 12 to 18 months will have to be brought up to an OC48 and one OC 3 link that will have to be brought up to an OC12. The cost recovery model cannot come to soon for the ICN's growth curve. The longevity of the ICN can be measured in years or decades depending on the ability to reduce costs and expand bandwidth on a scale that isn't tied to a telecommunication vendor's decisions. The acquisition of dark fiber is key in this ability. Discussion of dark fiber continued.

The digital divide and monies from the telecom re-write were also discussed. DECA oversees the fund set by the Eliminate the Digital Divide Act, which will receive one million dollars this year and next. This is in addition to the telecom re-write monies, which could be as much as five million dollars.

Staff fully adopts the AET recommendation regarding K-12 bandwidth requirements. This bandwidth is fundamental to roll out content services to K-12 schools.

Regarding the need for increases noted on page 30 of the agenda, Keith would like to see estimates of what an increase in bandwidth for K-12 schools would cost the ICN. Neil will update the committee in the future.

Staff fully agrees with the AET recommendation regarding adding value through new services. Currently the staff is focusing on adding filtering to the network as a backbone offering. The addition of caching servers to the network will also allow a certain degree of filtering.

A lot of progress has been made in terms of action item four, constituent connections. Staff members are excited about that progress, and will continue talking to people who are not connected and try to figure out how to get them connected.

The ICN conditionally agrees with the AET recommendation regarding video. The ICN sees its role as providing an environment for existing H.320 video for the short term. However, the ICN does not have the financial resources, nor does it consider purchasing H.323 equipment for institutions as one of its roles. Currently, ICN is providing 30 to 40 thousand dollars in maintenance for the existing H.320 equipment. The ICN is working with the existing video sites where possible to leverage the ICN backbone to reduce the cost for PRI's and other things. That project is moving forward and nearing completion.

Six, seven, eight and nine are points that the staff are in agreement with and were already planning to implement. Gathering data from network traffic analysis is ongoing.

There is a caveat on point seven regarding adding egress capacity. Currently there is an RFP to increase egress by 100%, however staff would like to continue to monitor the egress growth rate to determine the actual need. Staff is also interested in seeing how traffic patterns may change after the cost recovery model is put into place.

The staff asks the Policy Committee adopt the priority order and endorse the staff response.

Motion: Keith made motion; Joe seconded with questions.

Joe questioned the total cost in new money being suggested by adopting the recommendations in the report.

Neil responded that the new dollar cost for this year is a zero total cost. The real impact will be as the network starts expanding and the budget could grow by approximately four million dollars a year. A portion of that increase may be offset with the utilization of dark fiber and by passing some costs on to the constituents via the cost recovery model.

Joe clarified that he was concerned about the amount of new money needed out of the General Revenue Fund. While Joe supports the efforts of the ICN, he expressed his concern for the amount of General Revenue Fund monies that would be needed. He does not want the Policy Committee to take action that seems to indicate that we are less than sensitive to the issues that are so very apparent.

Mary commented that the ICN should consider any expansion carefully to ensure they are doing so in the most effective way possible and determine if there are other sources that can accomplish some of these goals. It depends on whether these items are viewed as an action plan or viewed as an approval of the staff's response with direction that they move forward with these items. The Committee is, in fact, looking at this as a Taskforce report and goals, but certainly with fiscal responsibility in mind.

Neil again expressed the importance of the cost recovery model to offset the increasing costs of providing connectivity. He also noted, and George concurred, that the key to keeping the cost at the absolute lowest in the long term is the implementation of dark fiber.

Keith noted that the 27 to 32 million dollar level of funding the ICN has been receiving in past years has been generous and the staff should not expect to receive any General Revenue Funds beyond that same level in future years considering the current economic climate. The staff should feel grateful to receive level funding in the next fiscal year. It is with these considerations that the Policy Committee examines this item. He noted that he does see the ICN continuing to provide high quality services and maybe even increasing the quality of service through dark fiber and other new technologies.

Mary suggested amending the motion to read "dependent upon resources available". There were no objections to the amendment.

Keith Sanders moved that the Policy Committee accept and endorse the staff's prioritization, recommendations, and action items related to the key issues identified in the 2001 Advanced Engineering Taskforce report *dependent upon resources available*.

Motion carried.

7. Budget Report: Fiscal Year 2001 Final, Fiscal Year 2002 Proposed

The fiscal year 2001 budget and fiscal year 2002 budgets were discussed. Neil took this opportunity to introduce Cindi Hitchcock, Fiscal Officer at the ICN. Cindi has been working on the budget with the two fiscal agents, and feels that reporting should be much easier now that there is a consolidated budget. A revised fiscal year 2001 budget based

on a new end of the year budget for ISBE was distributed to replace the fiscal year 2001 budget on page 46 of the agenda. There is some confusion on the level of funding the ICN should receive from ISBE in fiscal year 2002, so this budget may not be final. The ICN has submitted a list of seven questions to the State Board of Education regarding funds. It was understood that the ICN should receive funding of 12 million dollars plus e-rate monies from ISBE and 15 million in funding from IBHE. Neil will provide the Committee with a final fiscal year 2002 budget when the funding issues have been clarified. A brief discussion of the ICN funding commitments and the importance of e-rate monies followed. It was noted that e-rate monies are distributed on a delayed schedule, one year behind. The e-rate for this year was 2.3 million dollars, and it is expected to be between 6 and 8 million dollars for next year.

The committee decided to table action on this item. There was no motion.

8. Collocation Policy

The ICN has received several requests from various constituents to collocate equipment in ICN POP sites, which means they want to put equipment in ICN racks and connect to a local network. One of the main requests is for filtering equipment which is fairly expensive. Rather than locate equipment in each school it is much less expensive to do it by district or with a coalition of districts. Requests have also come from groups who have content to push out to the schools. The staff would like the Policy Committee to endorse the ICN to set up facilities where groups who provide content or filtering could maintain their equipment on a 24 / 7 unrestricted unescorted access basis and still not have access to the main equipment that serves everyone on the network.

Motion: Keith made motion; Joe seconded.

Keith Sanders moved that the Policy Committee authorize the staff to establish a collocation policy for ICN constituents.

Motion carried.

Items 9, 10, and 11 were all information items. Due to time constraints they were not discussed and there were no questions. However, Joe commented on the information items because he did not want it to appear as though the Policy Committee was disregarding them. He recognized that it takes a lot of work to get this packet together and that it contains a lot of good information. He wanted to make sure that the Policy Committee was not conveying an uncaring message to staff that had put these items together.

Mary commented on the web site usage report. The information presented clearly shows that people are using the site and certainly interested in the work of the ICN.

Keith added that the overall quality of the staff is really quite high. He complimented on the professionalism of the presentations and the materials, and the way staff continues to

be willing to tackle the tough issues - the dark fiber issues, the issues that face funding, the issues of content and other issues.

Neil announced that in honor of Frank Whitney, one of the core routers was named "Big Frank".

Joe made a motion to adjourn; Keith seconded.

Meeting adjourned at 4:30 p.m.

The staff recommends the following motion:

That the ICN Policy Committee approves the September 26, 2001 minutes with any edits as noted.

ILLINOIS CENTURY NETWORK
**ADVANCED ENGINEERING TASKFORCE
APPOINTMENTS**

Submitted for: Action

Summary: Based on the Advanced Engineering Taskforce Membership Selection motion passed on July 25, 2001, the Director solicited nominees for additional members to the Advanced Engineering Taskforce. The additional members serve to equate constituent representation and participation among key sectors of constituents served by the network. This item lists those nominees and seeks approval from the Policy Committee to add them as members and establish terms of appointment.

Action Requested: The Illinois Century Network Policy Committee is requested to adopt the staff recommendation to add the nominated individuals to the Advanced Engineering Taskforce for the terms specified.

Recommended Motion: *The Policy Committee adopts the staff recommendation that the individuals nominated be added to the Advanced Engineering Taskforce for the specified terms.*

ILLINOIS CENTURY NETWORK
**ADVANCED ENGINEERING TASKFORCE
APPOINTMENTS**

On July 25, 2001 ICN staff proposed, and the Policy Committee adopted, expanding the Advanced Engineering Taskforce (AET) in order to attain better constituent and key state technology initiative representation. Staff recommended adding representation from museums, libraries, a municipality, and a state agency. Based on the previous motion, the Director solicited nominations for additional members to the AET. The nominations were received, and the following list was compiled:

- 1.) Mr. Andrew Bullen
Information Technology Coordinator
Illinois State Library
- 2.) Mr. Kelton Davis
Technology Director
Monroe-Randolph Regional Office of Education
- 3.) Mr. Robert Einhorn
Director, Information Systems
College of Lake County
- 4.) Mr. Sam Ferguson
Director of Information Technology
City of Schaumburg
- 5.) Mr. Dennis Gallo
Technology Coordinator
O'Fallon Community Consolidated School District 90
- 6.) Mr. Alan Newman
Executive Director, Department of Imaging
The Art Institute of Chicago
- 7.) Mr. Alan Pfeifer
Director of Computing and Instructional Technology
Sauk Valley Community College

- 8.) Mr. Steven J. Philbrick
First Deputy Chief Information Officer
City of Chicago, Business and Information Service
- 9.) Dr. Erich Schroeder
Curator of Information Technology
Illinois State Museum, Research and Collections Center

New and existing members serve a fixed term with renewal at the option of the Director. The term length for each individual is noted in parentheses after his or her name on Table 1. Term assignments were determined by listing each member alphabetically by sector and assigning one, two, or three year terms in the order of the listing. The terms range from one to three years in order to allow one third of the AET to be transitioned prior to the start of school in the fall each year. George Badger, Senior Policy Analyst, continues to chair and facilitate the group.

The AET members are offered a stipend and reimbursed for travel expenses for each of the quarterly meetings. When the AET was formed, the stipend offered for each of these meetings was \$500. This will change to \$250 per meeting beginning with the first meeting in fiscal year 2002 given state budget constraints. The members will continue to be reimbursed for travel expenses for each meeting.

The nominees have been added to the AET matrix in *italics*. Terms are noted in parentheses. Staff do not serve a fixed term and are assigned as needed.

Table 1
Advanced Engineering Taskforce Appointments and Terms
Calendar Year 2002

K-12 Schools	Community Colleges	Universities	Libraries	Museums	Other Institutions	Units of Local Government	State Agencies	Staff (Non-members)
<i>Kelton Davis, Monroe-Randolph ROE (1)</i>	<i>Robert W. Einhorn, College of Lake County (3)</i>	Mike Dickson, WIU (3)	<i>Andrew Bullen, Illinois State Library (2)</i>	<i>Alan Newman, Art Institute of Chicago (1)</i>	David Barr, IMSA (3)	<i>Sam Ferguson, City of Schaumburg (2)</i>	Tim Fox, CMS (1)	John Anderson, CMS
Jim Flanagan, Maine Township Schools (2)	<i>Alan Pfeifer, Sauk Valley Community College (1)</i>	Charles Kline, UIUC (1)	Tammy Lusher, NIU Founders Library (3)	<i>Erich Schroeder, Illinois State Museum (2)</i>	Charles Catlett, Argonne / I-Wire (1)	<i>Steven J. Philbrick, City of Chicago (3)</i>	New Member (2)	Dirk French, ICN
<i>Dennis Gallo, O'Fallon CCSD 90 (3)</i>	Gary Wenger, COD (2)	Joel Mambretti, Northwestern University (2)						Doug Jurewicz, ICN
Arlene Love, CPS (1)		Ken Spelke, UIUC (3)						Neil Matkin, ICN
Keith Mann, Township HSD 214 (2)		Bret Sutton, Aurora University (1)						Kristy Morelock, ICN
								Ron Sanderson, CMS
								Karlin Sink, ICN
Chair: George Badger, Senior Policy Analyst								Frank Walters, ICN

The staff recommends the following motion:

The Policy Committee adopts staff recommendations that the individuals nominated be added to the Advanced Engineering Taskforce.

ILLINOIS CENTURY NETWORK

**BUDGET REPORT:
FISCAL YEAR 2001 FINAL (PRE-AUDIT), FISCAL YEAR 2002 PROPOSED,
FISCAL YEAR 2003 PLANNING BUDGET**

Submitted for: Action

Summary: Thursday, August 24, 2001 marked the close of the fiscal year 2001 budget period. Staff updated the Policy Committee at its June 1, 2001 meeting regarding expenditures to that date for fiscal year 2001. This item provides a follow up and presents final expenditure data for fiscal year 2001. In addition, the item presents the aggregate budget and spending plan for fiscal year 2002 for approval by the Policy Committee. Staff presented the budget plan in September; however, many factors with direct impact on the overall budget were in flux and the Committee chose to table the staff report until the November meeting. Since that time, the interagency agreement between the funding agencies, delegation of procurement authority, and the funding level from the State Board of Education has been determined. A fiscal year 2003 planning budget is included as a working discussion document.

Action Requested: The Policy Committee accepts the fiscal year 2001 end-of-year report and endorses the fiscal year 2002 budget and plan for expenditures presented by the staff.

Recommended Motions: *The Policy Committee approves the fiscal year 2002 budget and expenditure plan as presented by staff.*

ILLINOIS CENTURY NETWORK

**BUDGET REPORT:
FISCAL YEAR 2001 FINAL (PRE-AUDIT), FISCAL YEAR 2002 PROPOSED,
FISCAL YEAR 2003 PLANNING BUDGET**

Thursday, August 24, 2001 marked the close of the fiscal year 2001 budget period. Staff updated the Policy Committee at its June 1, 2001 meeting regarding expenditures to that date for fiscal year 2001. This item provides a follow up and presents final, pre-audit expenditure data for fiscal year 2001. In addition, the item presents the aggregate budget and spending plan for fiscal year 2002. Staff presented the budget plan in September; however, many factors with direct impact on the overall budget were in flux and the Committee chose to table the staff report until the November meeting. Since that time, the interagency agreement between the funding agencies, delegation of procurement authority, and the funding level from the State Board of Education has been determined. A fiscal year 2003 planning budget is included as a working discussion document.

Fiscal year 2001 ended on target and actual expenditures were approximately \$18,000 higher than projected in June. Since that time, staff has adjusted the manner in which the ICN budget is reported to reflect actual revenues from all sources to comply with requirements discussed with the Office of the Comptroller. In previous reports, Federal e-rate refunds associated with the network were not broken out as a separate line item. These funds went directly to the Department of Central Management Services in the form of credits to outstanding telecommunications charges for the ICN. As a result of this reporting change, comparisons between the June budget report projections and final report for FY 2001 may not appear accurate. If the e-rate revenues/expenditures are subtracted the reports track closely and are within \$18,000 as previously noted. Please note the final report for fiscal year 2001 in Table 1 and the budget for fiscal year 2002 in Table 2.

Fiscal year 2002 reveals the beginning of cost recovery revenues and a substantial increase in telecommunications expenditures resulting from full deployment of the earlier planned backbone network. Although the costs associated with backbone circuits are expected to decrease as a result of the delegation of procurement authority and better contract prices (effective January 2002), the cost of OC-12 and OC-3 circuits remains substantial.

Further explanation is necessary when comparing fiscal years 2001 and 2002 since the two funding agencies coded expenditures somewhat differently. In fiscal year 2001, the ISBE expenditures for the contractual line was over \$1.7 million compared to an apparent reduction in fiscal year 2002 to \$1.06 million. This is due to some contractual costs that are now recorded under the telecommunications line in the IBHE system. The actual amount expended for items previously coded as contractual has increased by a substantial amount as a result of maintenance contracts paid in advance in previous fiscal years coming due during this fiscal year.

A similar circumstance occurs in the equipment line when comparing fiscal years 2001 and 2002 since ISBE classified certain telecommunications equipment expenditures under the EDP equipment line. These same items are now reported in the telecommunications line of the fiscal year 2002 budget. The proportion of funding allocated for equipment has remained flat and is primarily intended for necessary core equipment upgrades. Of interest is the fact that the fiscal year 2000 equipment expenditures were roughly double that for both fiscal year 2001 and 2002. The majority of the bulk equipment purchased in fiscal year 2000 has been deployed and staff estimates that remaining equipment from this bulk purchase will be utilized in calendar year 2002.

Another source of increased expenditures in the telecommunications line is a one hundred percent (100%) increase in egress to the Internet required to meet growing demand. Also, the ICN has moved closer to full staffing levels and this has had an impact on the fiscal year 2002 budget plan. In fiscal year 2001, a number of staff members were added in the last five months of the year. Effective fiscal year 2002, all ICN employees on the ISBE payroll transferred to the IBHE, which serves as fiscal agent for the ICN. Therefore, the personnel line for fiscal year 2001 is significantly lower than projected expenditures for fiscal year 2002. An important note is that the ICN continues to work from the original staffing model presented to the Policy Committee a year ago.

For fiscal year 2002, staff intended to fund the Regional Technology Centers (RTCs) for the last month of the current fiscal year and all of fiscal year 2003. RTCs were originally funded for two years beginning in fiscal year 2000 but will now be renewed on an annual basis beginning this fiscal year. Fiscal year 2002 has a line item of \$200,000 to fund the RTCs from June 6 through the lapse period in mid-August 2002. The full expense of the RTC line has been shifted to fiscal year 2003. Lastly, the \$350,000 allocation under the Regional Technology Center line for fiscal year 2001 was the onetime grant to assist libraries and museums in connecting to the network. Distribution of these funds was administered by the Southern Illinois Collegiate Common Market (SICCM), which serves as the fiscal agent for RTC 9.

Total expenditures for fiscal year 2001 and planned for fiscal year 2002 are virtually identical. The apparent increase in overall expenditures is the result of reporting e-rate as revenue and funds available from other sources on a one-time basis. Other differences between categories are a result of reporting differences between the two funding agencies.

A fiscal year 2003 planning budget has been included for your information and should be considered a working document.

Staff asks that the Policy Committee approve the fiscal year 2002 budget and expenditure plan:

The Policy Committee approves the fiscal year 2002 budget and expenditure plan as presented by staff.

Table 1
ILLINOIS CENTURY NETWORK
Fiscal Year 2001 Final (Pre-Audit)¹
(August 24, 2001)

REVENUE SOURCES:	IBHE	ISBE	FEDERAL E-RATE	OTHER FUNDS	
Appropriations:	15,000,000	12,000,000			
E-Rate Reimbursement to CMS Revolving Fund ² :			2,370,059		
TOTAL REVENUE:	15,000,000	12,000,000	2,370,059	-	\$ 29,370,059
EXPENDITURES:					
Personnel:	1,491,546	605,883			
Contractual:	919,006	1,948,132			
Commodities:	45,342	12,924			
Equipment:	329,688	3,473,382			
Telecommunications:	4,169,217	4,952,511	2,370,059		
Regional Technology Centers:	350,000	-			
Interagency Grant (ISBE)	7,500,000	-			
Build Out:	190,317	-			
TOTAL EXPENDITURES:	14,995,116	10,992,832	2,370,059	-	\$ 28,358,007

¹ End-of-year fiscal reports were provided by funding agencies and are not audited. Final figures provided by ISBE (September 19, 2001).

² ISBE was the Customer of Record for ICN circuits and therefore the agency to file for E-rate discounts for fiscal year 2001.

Table 2
ILLINOIS CENTURY NETWORK
Fiscal Year 2002 Proposed Budget

REVENUE SOURCES:		
IBHE Appropriation:	15,000,000	
ISBE Appropriation:	10,500,000 ³	
E-Rate Reimbursement	2,461,655	
ISBE Revolving Fund:	2,827,569 ⁴	
Cost Recovery Funds:	100,000	
TOTAL REVENUE:		\$ 30,889,224
EXPENDITURES:		
Personnel:	2,887,260	
Contractual:	1,074,480	
Commodities:	66,900	
Equipment:	92,500	
Telecommunications:	26,468,084 ⁵	
Regional Technology Centers:	200,000 ⁶	
Build Out:	100,000	
TOTAL EXPENDITURES:		\$ 30,889,224

³ Funds provided by the Illinois State Board of Education are \$1.5 million less than anticipated precipitating changes to planned expenditures in fiscal year 2002.

⁴ Revised total from Illinois State Board of Education effective October 30, 2001.

⁵ Best projections based on anticipated contract pricing and other savings.

⁶ Original budget estimates of \$1.6 million funded RTC operations one year in advance. Reduction in this line moves the bulk of this liability to fiscal year 2003 where it is incurred.

Table 3
ILLINOIS CENTURY NETWORK
Fiscal Year 2003 Planning Budget

REVENUE SOURCES:	
IBHE Appropriation:	15,000,000
ISBE Appropriation:	10,500,000
E-Rate Reimbursement:	2,461,655
Cost Recovery Funds:	1,426,329
TOTAL REVENUE:	\$ 32,215,573
EXPENDITURES:	
Personnel:	3,031,623
Contractual:	1,114,554
Commodities:	55,000
Equipment:	150,000
Telecommunications:	25,869,396
Regional Technology Centers:	1,995,000
TOTAL EXPENDITURES:	\$ 32,215,573

ILLINOIS CENTURY NETWORK
COST RECOVERY POLICY

Submitted for: Action

Summary: This item addresses two primary issues:

- 1) At current funding and operational levels the ICN anticipates a budget shortfall in fiscal year 2003.
- 2) The creation of a comprehensive policy to provide guidelines for allocation of state appropriations and collection of necessary fees in order to allow the ICN to keep up with current growth in demand and services.

Action Requested: Approve staff recommendation of cost recovery policies.

Recommended Motion: *That the ICN Policy Committee adopts the proposed cost recovery model.*

ILLINOIS CENTURY NETWORK COST RECOVERY POLICY

Introduction

The Illinois Century Network (ICN) was signed into law by Governor George H. Ryan on June 8, 1999. Merging the efforts of the State Board of Education LincOn Network and the Community College Board and Board of Higher Education Illinois Video Education Network, the ICN now serves almost 5,500 constituents and over two million Illinois citizens, more than doubling previous efforts. Demand for reliable and robust Internet access continues to grow at a phenomenal rate as educators implement multimedia and other complex applications to increase access to information and to improve the quality and efficiency of Illinois education.

Today, the ICN provides a seamless network infrastructure for schools, colleges, universities, museums, libraries, state agencies, and other partners in the state. The network allows public agencies to work together to prepare Illinoisans to be productive in the technologically intensive workplace of the twenty-first century. This rapid growth has not been without cost. With up to 27 million dollars in direct funding allocated in fiscal years 2000, 2001, and 2002, through the Board of Higher Education and State Board of Education, the ICN faces critical fiscal challenges as it continues providing high levels of service to Illinois education and other constituents. Additional funding is necessary because the budget provided by the state is not sufficient to cover documented growth in the clientele and in anticipated network traffic. In addition, the ICN must become more aggressive in securing favorable pricing which is now possible as a result of the delegation of procurement authority.

Although fiscal resources are a valid concern, as with any sizable enterprise, there are other important factors that must be taken into consideration when developing sound public policy necessary to guide the network. Further, construction and management of the network is only one part of the requirements identified in the original 1997 Statewide Taskforce Report. Although the ICN clearly provides excellent access to the commercial Internet and to the "Illinois Intranet" created through the ICN, it must continue efforts to significantly address the provision of educational content to take full advantage of the robust statewide network that is now built. What is the next step in what is clearly a phenomenal Illinois success story? The ability of educational constituents to successfully implement technical resources for content delivery will prove to be the most important next step. Cost recovery policies presented in this item facilitate this goal over the next five years.

This item addresses two primary issues:

1. At current funding and operational levels the ICN anticipates a budget shortfall in fiscal year 2003.
2. The creation of a comprehensive policy to provide guidelines for allocation of state appropriations and collection of necessary fees in order to allow the ICN to keep up with current growth in demand and services.

The choice the ICN confronts is a simple one:

Does the ICN (1) start restricting the use of the network to operate within level funding constraints, or (2) continue to expand and grow to meet the documented needs of Illinois education and other constituents?

If the answer is that the ICN should restrict the use of the network, then the question that follows is:

Which services and what educational content should be limited?

The staff recommends against limiting services and believes that doing so would be a disservice to Illinois education and the constituents of the network. If the answer is that the ICN should meet the needs of its constituents, as the staff strongly recommends, then the next question is simply:

Who pays?

The potential actions or combination of actions available to remedy the anticipated shortfall in resources and/or growth in demand are fourfold. The ICN can:

1. Attempt to obtain incremental new moneys from the legislature and governor in collaboration with funding agencies,
2. Ask current funding agencies or potential funding agencies to reallocate existing funds to provide additional resources (e.g., IBHE and ISBE give more than currently allocated, other constituents represented on the Policy Committee provide funding),
3. Implementation of cost recovery funding measures,
4. Lower the overall cost of operations by negotiating better contract pricing or reduce provided services.

Public Act 91-21: The Legislative Intent of the Illinois Century Network

The ICN Policy Committee is charged in enabling legislation with oversight and direction of the network. At the June 1, 2001 meeting, the Policy Committee passed the following motion:

The Illinois Century Network Policy Committee recognizes that constituents listed in the enabling legislation are in priority order and agree with staff recommendations regarding the definition of primary constituents of the ICN.

Section 10 of Public Act 91-21 cites the following order of constituents able to connect to the network:

...(1) Illinois schools, (2) institutions of higher education, (3) libraries, (4) museums, (5) research institutions, (6) State agencies, (7) units of local government, and (7) other local entities that provide services to Illinois citizens...

The specific staff recommendation the motion referenced was as follows:

...staff recommends that the K-12 schools, institutions of higher education, libraries, and museums be identified as ICN Primary Constituents. As such, these institutions would receive the highest possible degree of service at the lowest possible cost and be entitled to discounted pricing if the Policy Committee adopts a cost recovery model.

Educational constituents are listed first and foremost in enabling legislation and all funding to date has come through the combined efforts of state education boards and approved by the legislature and governor. Almost ninety-two percent (92 percent) of all network constituents are comprised of educational institutions, which in turn utilize the majority of the available bandwidth of the network, also ninety-two percent (92 percent). K-12 schools make up the largest number of connections but have the lowest bandwidth per connection. This may be indicative of the level of available funding but more likely indicates that bandwidth levels are adequate for current applications. Table 1 provides details of the percentage of connections and bandwidth by sector (tables providing detailed explanation of bandwidth utilization and number of entities by sector are provided in Appendices A and B).

In keeping with the clear legislative intent and funding, the primary direction and implementation of the ICN is as a statewide network primarily serving education. The ICN will continue to honor the legislative intent in allocation of funding to each type of client placing emphasis on primary constituents (schools, community colleges, universities, libraries, and museums).

Table 1
Overview:
Percentage of Connections and Bandwidth All Sectors
(September 2001)

	Constituents Served	Bandwidth Utilization	Bandwidth Total
K-12 Schools	80.00%		50.09%
Public		44.85%	
Private		5.24%	
Higher Education	3.30%		30.91%
Public Community Colleges	2.00%	15.86%	
Public Universities	0.30%	11.78%	
Private Colleges & Univ.	1.00%	3.27%	
Libraries	8.00%		9.68%
Museums	0.40%		1.00%
Municipal/State Government	4.00%		3.10%
Other	5.00%		5.61%

*Connections and bandwidth totals are slightly higher than 100% due to rounding.

Components of the ICN: What is the State Paying For?

The ICN consists of the following component parts (fiscal year 2002 costs totaling approximately \$30.8 million are highlighted in parentheses):

1. **Points of Presence (POP):** Equipment rooms that allow the interconnection of backbone circuits and provide a location for ICN constituents to connect to the network. These facilities are telecommunications class equipment centers¹ with necessary network equipment, backup power, uninterruptible power supplies, fire suppression systems, and air conditioning in accordance with industry standards. Co-location facilities are sections of the POP spaces that have been physically segmented to provide constituent equipment to locate directly on the network.
(\$4.5 million)

2. **Backbone Circuits:** High bandwidth circuits leased from telecommunications carriers or provided by the State from state-owned fiber to interconnect the ICN POPs and create the Illinois INTRANet.
(\$8.72 million)

¹ Telecommunications Class facilities refers to facilities that have professional, telecommunications industry standards-based equipment. This level of equipment is robust and generally has a lifespan of 5-7 years. Much of the ICN equipment in service today was inherited from the former LincOn project and is five to six years into its useful life and is being systematically upgraded.

3. **Internet Egress:** The backbone network and POPs connect constituents to one another and allow sharing of commercial Internet resources. Contracts with commercial providers for large egress quantities reduce the costs for all ICN constituents.
(\$3.2 million)
4. **Regional Technology Centers (RTC):** Strategically placed ICN offices to provide support and local monitoring of ICN connections. RTCs boast industry-certified technicians capable of quickly solving network outages at the local level to ensure educational use of the ICN remains as reliable as possible. The RTCs work with Regional User Groups and training as well as promotion of local wide area network strategies to help schools, colleges, universities, museums, and libraries increase bandwidth to individual facilities at the lowest possible cost.
(\$200, 000)
5. **Management and Administration:** Network operations, administrative services, and client services provide the necessary human resource and infrastructure support to ensure that the ICN manages the state resources entrusted to it wisely and continues building the network to meet the rapidly changing needs of its constituents.
(\$4.18 million)
6. **Access Circuits:** Access circuits include connections to higher education institutions, libraries and museums, community networks, grooming sites, and CT3 loops. Circuits connecting higher education institutions are scheduled to be paid by constituents at the end of the fiscal year representing a reduction in costs of approximately \$1.4 million. Other circuits are maintained by the ICN to extend access points to the backbone network to those areas of the state that bear the highest connection costs. These circuits include community networks, grooming sites, and CT3 loops and represent a subsidy of approximately \$6.89 million to K-12 schools and \$1.46 million to other ICN constituents².
(\$10 million)

Current and Projected Utilization of the Network: ICN Growth Trends

The growth in utilization of the network is well documented. What is less evident is the rate at which each piece of the network is growing. To some degree, future growth trends are estimates. The easiest estimate is based upon utilization over the last two years, however, since the ICN has been in a building mode, basing future growth on these

² An MSA-by-MSA analysis currently underway will analyze the overall cost effectiveness of these operations and result in specific recommendations to the Policy Committee for continuation or discontinuation of these access subsidies focusing resources on the most underserved areas of the state.

particular trends may not be accurate. Every consecutive year of operation will yield better data for long-term trending.

In order to facilitate responsible planning, the ICN has created three growth models: 1) anticipated growth, 2) slower than anticipated growth, and 3) faster than anticipated growth. The ICN funding models are based on growth trends with ranges to facilitate slower than anticipated growth or faster than anticipated growth.

What might cause slower growth in the use of the network? An extended economic slowdown could clearly push local expansion plans and technology-based content rollouts to later starting points. Prioritization of other necessary expenditures such as upgrades to physical plant, remodeling of school buildings, or new building projects may cause a slowdown in anticipated growth. Faster than anticipated growth could result from continued disruption in travel routines and other normal patterns leading to greater use of online resources. Among higher education, the ICN is already witnessing faster than anticipated growth in video carried by the network after the September 11 tragedy and attributes this acceleration to travel disruptions. The start of a new semester in 2002 will show whether online courses experience growth as a result of the terrorism attacks. Another factor that accelerates some sector's use of the online resources is the high unemployment rate since colleges and universities usually experience higher enrollment during economic slowdowns.

Total cost is a function of various attributes associated with each operational area of the network. Note that many of the cost functions detailed below are dependent on events external to the ICN and include constituent connections, the bandwidth of those connections, and the utilization of the network (the anticipated growth through fiscal years 2005 and average per year is highlighted in parentheses):

1. **Points of Presence (POP):** Cost is a function of 1) necessary equipment upgrades, 2) the number of constituent connections, 3) the bandwidth of constituent connections, 4) the bandwidth of backbone circuits, 5) POP space rental, 6) electrical utilities, 7) ongoing maintenance contracts, 8) required software upgrades, and 9) network management equipment and software. **(11-26% cumulative, 4-9% per year)**
2. **Backbone Circuits:** Cost is a function of 1) constituent network utilization, 2) the ability to procure bandwidth capacity at competitive prices, 3) the contract term commitment (typically 3-5 year contracts), and 4) the costs of installing incremental levels of telecommunication services. For example, if a 45 mbps backbone circuit (DS3) reaches capacity it is likely that the minimum acceptable replacement will be another 45 mbps circuit, however, the pricing point for circuits may dictate going to the next largest offering (OC3) which in effect triples the bandwidth at approximately twice the previous price. Growth of backbone utilization is not a linear function. Utilization is currently growing at approximately 50% per year and the last months have seen acceleration of this trend. National averages report 100% growth per

year and the Advanced Engineering Taskforce reports that 6-8% growth per month (72%-96% per year) is normal.
(193-208% cumulative, 64-69% per year)

3. **Internet Egress:** Cost is a function of 1) constituent utilization, 2) ability to bundle aggregate use to procure large bandwidth connections, 3) establishment of peering relationships, 4) content hosting, 5) caching and mirroring, and 6) constituent prioritization of Internet resources (limitations of recreational traffic).
(233-248% cumulative, 78-83% per year)
4. **ICN Management, Administration, and Regional Technology Centers (RTC):** Cost is a function of 1) human resources deployed, 2) training costs, 3) office rental, 4) administrative/travel costs, 5) office equipment, local area networks (LANs), network monitoring equipment, 6) network management facilities, and 7) funding for Regional User Group activities.
(12-18% cumulative³, 4-6% per year)
5. **Access Circuits:** Cost is a function of 1) the number of constituents connected, 2) the bandwidth of the connections, and 3) the degree to which the ICN subsidizes constituent access to the backbone network or extends the backbone network access points to underserved areas.
(decrease of -13 to -28% cumulative, -4 to -9% per year)

Staff has created a comprehensive model taking into account current growth trends and the detailed attributes listed above. Appendix C provides three year growth projections and anticipated costs. Appendices D-F provide a graphical view of backbone network upgrades anticipated in correlation to the three growth models for fiscal years 2003-2005.

The Budget Objective

The goal of the staff is to achieve a balanced budget while continuing to meet the demands of Illinois education and other ICN constituent groups. However, if the budget is balanced and the result is limiting the intended use of the network, the legislative intent of the ICN will not have been achieved. The ICN must meet the needs of Illinois education or, in essence, the network will have reached a plateau and its useful life will be severely limited. The ICN budget for fiscal year 2002 is presented in a separate item inclusive of a working budget outline for fiscal year 2003.

Consideration of Legal Issues: The ICN is a Private Network

In studying successes and failures relating to other state networks, staff has discerned the need to clearly understand and work within federal and state laws

³ RTC funding was prepaid in fiscal year 2000 through June 5, 2002. Growth percentage calculated based on actual costs of RTC operations.

applicable to the ICN. To that end, staff has met with representatives from the Illinois Commerce Commission and retained expert legal counsel to assist in identifying relevant issues and to ensure that the ICN moves forward in accordance applying best practices within applicable law.

Clearly, the ICN, as a state-owned and operated network, is designed and intended to provide services to state funded entities. As such, the ICN is, and intends to continue as, a private network. To that end, the following policies are vital to ensure that the ICN does not engage in common carriage or act in any way as a common carrier:

1. The ICN will operate as a private network providing robust connectivity to and among publicly funded entities and to the commercial Internet as well as providing advanced services and educational content.
2. The ICN will allow non-publicly funded entities to connect to the network on a cost recovery basis and provide individually configured services via facilities-based lease contracts.
3. The ICN will not in any way engage in the provisioning of basic transport between constituent entities but will limit its offering to enhanced data services.

At the July 25, 2001 Policy Committee meeting, Information Item #10 addressed the staff's consideration of constituent requests for permanent virtual circuits (PVCs). PVC is the name given for the dedicated portion of bandwidth that is sectioned off from the rest of the bandwidth along a given path. Typical requests for this service come from multi-campus universities who are interested in sharing sensitive information such as student data or financial information.

Recognizing that this request is outside the baseline level of service that the ICN provides to its constituents, staff agreed to investigate providing PVCs on a cost recovery basis to primary constituents as long as there is no negative impact on network capacity required to serve ICN primary constituents. In July, staff informed the Policy Committee that a decision and cost structure for providing PVCs would be determined upon the finalization of the cost recovery model.

Based on further investigation by staff in developing the cost recovery model, coupled with information received through legal consultation, it has been found that the ICN is able to offer PVCs in limited cases to publicly funded entities for advanced services. The ICN will consider requests based only on the previously discussed legal points and will work within the constraints applicable to a state owned and operated private network.

Goals of Cost Recovery

In discussing cost recovery and the related use of the existing state appropriations, specific goals identified below are consistent with policies approved by the Committee.

Implementation of proposed cost recovery policies create incentives to encourage educational uses of the network and to improve the technology skills of the workforce of the future. The policies encourage all sectors of the Illinois educational community to participate and ensure that each client is at least as well off under the cost recovery policies as they would be procuring like services outside the ICN. Some segments of potential ICN constituents have yet to take full advantage of the network. To this end, the ICN will continue to publicize the value of the network to constituents and work to ensure that there are incentives to use the network responsibly (e.g., limiting recreational traffic). The aggregate and responsible use of the network will assist staff in managing the state's resource and extending its use at lower cost of operation to all constituents. The proposed policies continue to encourage local consolidation and cooperation across sectors for the purposes of providing robust bandwidth at affordable prices (e.g., school districts, municipal and county government, and other local public sector entities sharing resources).

There is concern that some entities have procured services through the ICN and then provided such services at prices above costs to their constituents. This becomes a crucial issue since it potentially serves to increase the cost for legitimate users who do not connect directly to the network. The legal participation agreement forbids this and the ICN will not knowingly empower entities to resell ICN services at more than actual cost.

The ICN will continue to implement the backbone network and promote higher levels of constituent bandwidth to encourage experimentation and new advanced methods of course delivery. Not all constituents require advanced services to accomplish their individual missions. As such, the ICN will provide levels of service allowing constituents to decide which service offerings and bandwidth is sufficient to best meet local needs.

It is important that the ICN work with clients to ensure that annual costs are predictable and that sufficient advance notice is given in order to allow ample time for budget preparation. Further, staff will work with those entities whose fiscal years vary from the state fiscal year (July 1 – June 30) in such a way to assist in budget planning.

The Cost Recovery Model

To ensure that the proposed cost recovery model is implemented in the spirit of the legislative intent and further definition by the Policy Committee, primary constituents (education institutions, libraries, and museums) receive the highest possible degree of service at the lowest possible cost. Staff will work to limit the complexity of cost recovery management, both for ICN staff and for the clients connecting to the network.

Predictive models exist and will continue to be refined by staff such that different growth patterns can be monitored and cost recovery allocation adjusted accordingly. Upon approval by the Policy Committee, cost recovery will be implemented in such a manner that sustains the network and addresses constituent demands upon existing and future resources.

The proposed cost recovery model allocates the state appropriations and constituent charges as follows:

1. Effective July 1, 2002, all education constituents will pay for costs to access the network including direct circuits and portions of circuits allocated for constituent use. The ICN has reduced these access costs significantly by providing points of presence (POPs) in every Market Service Area and providing grooming sites that allow constituents to connect to the network without procuring long distance circuits.
2. Effective July 1, 2002, publicly funded primary constituents will receive baseline transit across the network and to the commercial Internet. These ICN-provided transit levels will be based on headcount associated with direct connections to the network within the limits of funds appropriated to the ICN.
3. Effective July 1, 2002, non-public primary constituents will receive services through individually negotiated facilities-based leases to provide connectivity to the network. Transit levels will be based on the individual facilities-based lease at cost recovery rates to be negotiated with the constituent institution.
4. Baseline transit levels for publicly funded primary constituents will be evaluated annually in relation to available funds and staff will recommend modifications to the Policy Committee accordingly. Any adjustment to baseline transit provided by the ICN will be communicated to constituents accordingly. Table 2 provides the staff recommendation for fiscal year 2003 (July 1, 2002 through June 30, 2003).

Table 2
Establishment of Baseline Transit Amounts for
Public Primary Constituent Direct Connections

Institution(s) FTE Headcount	ICN Provided Base Bandwidth/Transit (Mbps)
Less than 1,000 (and entities without FTE)	1.5
1,001-3,000	3
3,001-6,000	6
6,001-12,000	12
More than 12,000	20

5. Effective July 1, 2002, transit required above the baseline provided by the ICN for publicly-funded institutions will be charged back quarterly at ICN costs. ICN costs will be based on actual and anticipated expenditures and revised annually for consideration by the Policy Committee. The cost per megabit of transit will be communicated to constituents annually.
6. Effective July 1, 2002, existing secondary and permissive constituents will pay for connection to the network via facilities-based leases tailored to the needs of the constituent. Any access, transit, and egress facilities, inclusive of equipment port connections at the point of presence (POP) will be sized according to requirements. New ICN secondary constituents will pay these costs effective immediately based upon the successful execution of a facilities-based lease.
7. Effective July 1, 2002, all current ICN constituents will pay for existing added-value services provided at the request of ICN constituents on the basis of a facilities-based lease. All new ICN constituents or any new services requested by current constituents will be charged on a cost recovery basis effective immediately. [Note: The Policy Committee will be presented a comprehensive item in January 2002 detailing planned and potential ICN service offerings complete with implementation timeframes in response to an ongoing statewide survey of constituents.]
8. The Policy Committee has approved the ICN to discontinue funding for constituent premise equipment to connect to the network. However, the ICN currently owns a large quantity of such equipment that it has made broadly available on a long-term sign out basis. This equipment remains the property of the state. Effective immediately, any hardware upgrades for constituent-based equipment will become the responsibility of the constituent institution. Ongoing maintenance contracts and software upgrades are paid in advance by the ICN through July 1, 2002, at which time these items will also be the responsibility of the constituent institutions. The ICN may elect to provide some equipment installations used as grooming sites or other resources in a local region when it is cost effective to do so. At the request of the institution, the ICN may bundle hardware costs or upgrades into ongoing facilities-based leases to serve specific constituent needs.

The staff recommends the following motion:

The ICN Policy Committee adopts the proposed cost recovery model.

Appendix A
Bandwidth Utilization by Sector
 (September 2001)

	Bandwidth (Mbps)	Schools	Community Colleges	Public Universities	Private Colleges & Universities	Libraries	Museums	State & Municipal Government	Other
Colleges - Public	3.088			0.07%					
Colleges - Private Non-Profit	78.803				1.70%				
Community Colleges - Public	734.526		15.86%						
Universities - Public	523.466			11.31%					
Universities - Private Non-Profit	72.686				1.57%				
K12 - Public	2076.458	44.85%							
K12 - Private Non-Profit	242.504	5.24%							
Library - Public	448.090					9.68%			
Museums - Public	34.283						0.74%		
Museums - Private Non-Profit	10.808						0.23%		
Museums - For Profit	1.544						0.03%		
Hospitals - Private Non-Profit	1.544								0.03%
Hospitals - Public	1.544								0.03%
Medical Centers - Public	4.632								0.10%
Medical Centers - Private Non-Profit	9.264								0.20%
State Agencies	22.984								0.50%
Municipal Buildings	143.750							3.10%	
Public County Government	48.688								1.05%
Others - All	168.136								3.76%
Zoos - Public	1.544								0.03%
Zoos - Private Non-Profit	1.544								0.03%
Total Bandwidth Utilized	4629.886	50.09%	15.86%	11.37%	3.27%	9.68%	1.01%	3.10%	5.74%

*Bandwidth totals are slightly higher than 100% due to rounding.

Appendix B
Number of Entities Served
 (September 2001)

	Number of Entities Served	Schools	Community Colleges	Public Universities	Private Colleges & Universities	Libraries	Museums	State & Municipal Government	Other
Colleges - Public	2			0.04%					
Colleges - Private Non-Profit	42				0.77%				
Community Colleges - Public	120		2.19%						
Universities - Public	72			1.31%					
Universities - Private Non-Profit	32				0.58%				
K12 - Public	4202	76.59%							
K12 - Private Non-Profit	178	3.24%							
Library - Public	429					7.82%			
Museums - Public	11						0.20%		
Museums - Private Non-Profit	7						0.13%		
Museums - For Profit	1						0.02%		
Hospitals - Private Non-Profit	3								0.05%
Hospitals - Public	2								0.04%
Medical Centers - Public	3								0.05%
Medical Centers - Private Non-Profit	9								0.16%
State Agencies	82								1.49%
Municipal Buildings	149							2.72%	
Public County Government	30								0.55%
General Business									0.00%
Others - All	110								2.08%
Zoos - Public	1								0.02%
Zoos - Private Non-Profit	1								0.02%
Total Entities Served	5486	79.84%	2.19%	1.35%	1.35%	7.82%	0.35%	2.72%	4.46%

*Total number of entities served are slightly higher than 100% due to rounding.

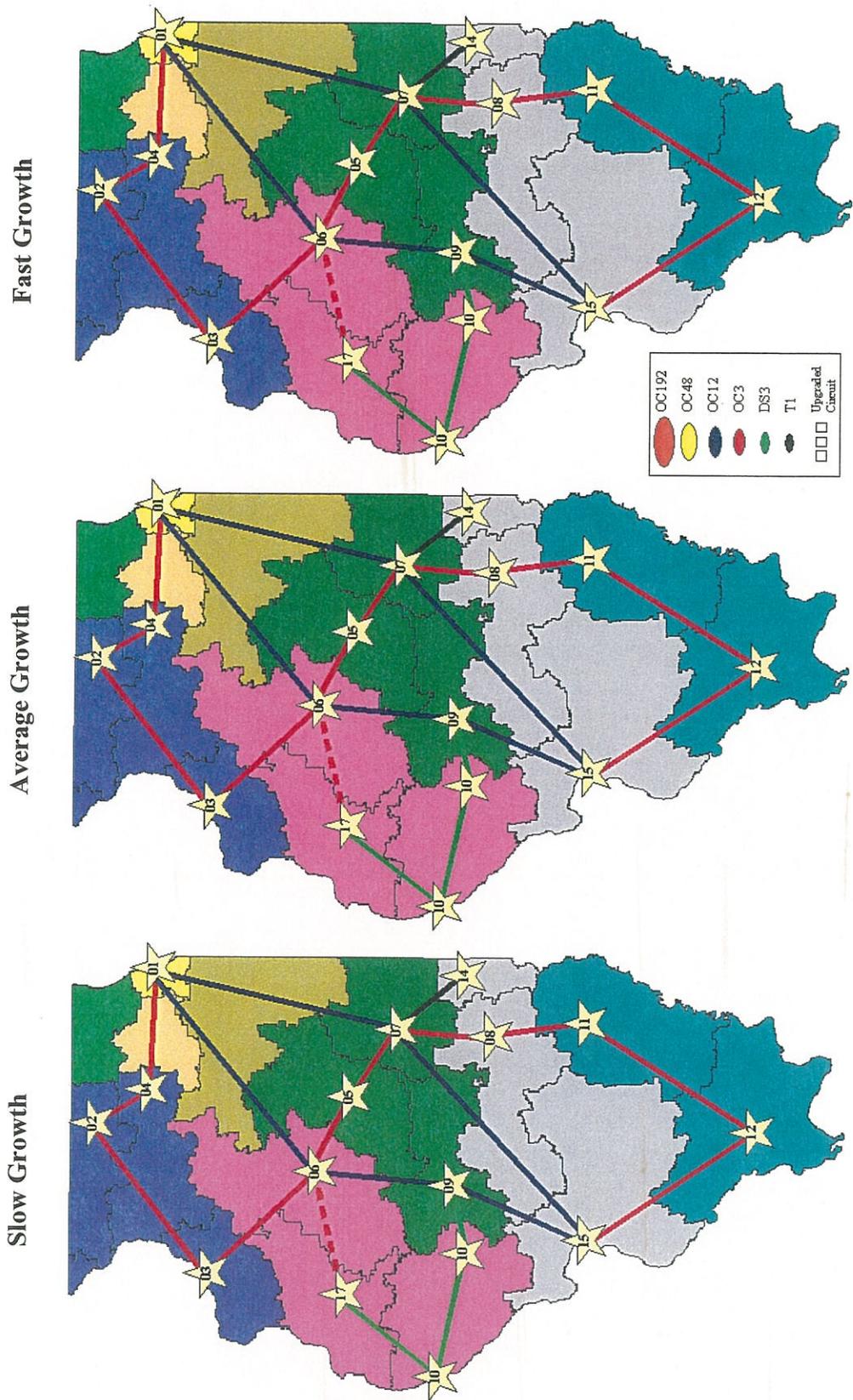
Appendix C
Three Year Projections Based on Growth Trends
 (September 2001)

	FY 2002			FY 2003			FY 2004			FY 2005		
	Slow	Average	Fast	Slow	Average	Fast	Slow	Average	Fast	Slow	Average	Fast
Backbone												
Circuits	\$8,723,468	\$8,826,668	\$8,826,668	\$8,826,668	\$8,826,668	\$14,641,136	\$8,826,668	\$10,893,968	\$14,641,136	\$14,212,736	\$26,020,736	\$29,456,984
Equipment	\$4,500,000	\$4,725,000	\$4,725,000	\$4,725,000	\$4,725,000	\$4,961,250	\$4,961,250	\$4,961,250	\$4,961,250	\$5,209,313	\$5,209,313	\$5,209,313
Egress	\$3,210,354	\$4,333,978	\$4,815,531	\$5,393,395	\$6,500,967	\$8,090,092	\$9,751,450	\$10,834,945	\$12,135,138			
Access												
Community Colleges	\$1,315,563	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Colleges & Universities	\$122,485	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Libraries & Museums	\$25,094	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Community Networks	\$2,565,061	\$1,282,531	\$1,282,531	\$1,282,531	\$1,282,531	\$1,282,531	\$1,282,531	\$1,282,531	\$1,282,531	\$1,282,531	\$1,282,531	\$1,282,531
Grooming Sites	\$3,354,310	\$3,354,310	\$3,354,310	\$3,354,310	\$3,354,310	\$3,354,310	\$3,354,310	\$3,354,310	\$3,354,310	\$3,354,310	\$3,354,310	\$3,354,310
CT3 Loops	\$2,691,544	\$2,758,833	\$2,826,121	\$2,879,952	\$2,896,774	\$3,023,950	\$3,041,613	\$3,115,799	\$3,175,147			
Administration												
Springfield and Chicago	\$4,181,345	\$4,390,412	\$4,390,412	\$4,390,412	\$4,609,933	\$4,609,933	\$4,840,429	\$4,840,429	\$4,840,429	\$4,840,429	\$4,840,429	\$4,840,429
RTCs	\$200,000	\$1,995,000	\$1,995,000	\$1,995,000	\$2,094,750	\$2,094,750	\$2,199,488	\$2,199,488	\$2,199,488	\$2,199,488	\$2,199,488	\$2,199,488
Total	\$30,889,224	\$31,666,731	\$32,215,573	\$32,847,267	\$34,527,182	\$42,057,951	\$43,891,869	\$56,857,550	\$61,653,340			
Projected Budget	\$30,889,224	\$28,061,655	\$28,061,655	\$28,061,655	\$28,061,655	\$28,061,655	\$28,061,655	\$28,061,655	\$28,061,655	\$28,061,655	\$28,061,655	\$28,061,655
Cost Recovery Required	\$0	\$ (3,605,076)	\$ (4,153,918)	\$ (4,785,612)	\$ (6,465,527)	\$ (13,996,296)	\$ (15,830,214)	\$ (28,795,895)	\$ (33,591,685)			

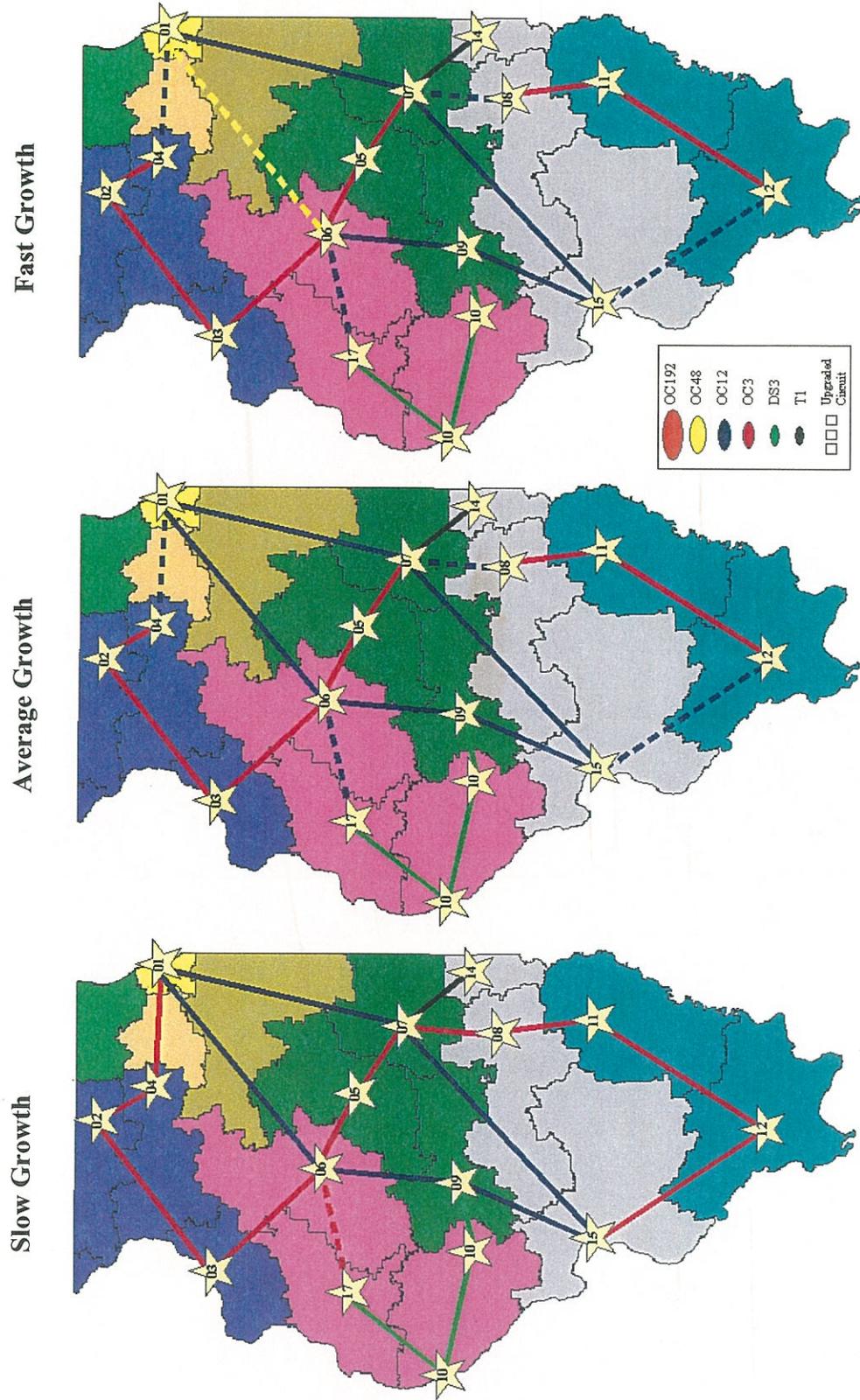
Notes:

1. Fiscal year 2002 budget includes addition of funds from ISBE revolving fund.
2. Fiscal years 2003-2005 projected budgets are based on flat state appropriations, level e-rate funding, and no funds applied from adoption of cost recovery policies.
3. Fiscal year 2002 RTC costs are funded by a previous grant originating in fiscal year 2000 that ends June 5, 2002. Funds allocated for RTC operations represent the remainder of FY 2002 operating costs including the lapse period ending mid-August 2002.
4. Fiscal year 2002 Backbone and Access costs are based on actual expenditures. The fiscal year 2002 budget proposal incorporates anticipated reductions in costs as a result of renegotiated contract pricing, elimination of CMS administrative fees, and reductions in the cost of Internet egress.

Appendix D
Backbone Network Circuit Projections Based on Growth Trends
Fiscal Year 2003
 (September 2001)



Appendix E
Backbone Network Circuit Projections Based on Growth Trends
Fiscal Year 2004
 (September 2001)



Appendix F
Backbone Network Circuit Projections Based on Growth Trends
Fiscal Year 2005
 (September 2001)

