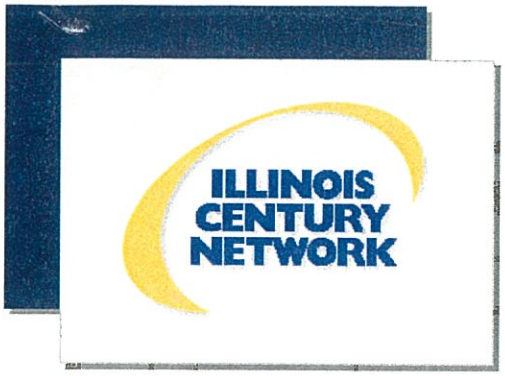


ILLINOIS CENTURY NETWORK

POLICY COMMITTEE MEETING AGENDA

June 1, 2001 2:00 p.m.

ILLINOIS CENTURY NETWORK
POLICY COMMITTEE
MEETING AGENDA
June 1, 2001
2:00 p.m.

Item # 1
June 1, 2001

ILLINOIS CENTURY NETWORK

FEBRUARY 7, 2001 POLICY COMMITTEE MINUTES

Submitted for:	Action
Summary:	Distribution of February 7, 2001 minutes for review by the Policy Committee. Staff will ensure that the Policy Committee has future minutes at least a week prior to the scheduled meeting and recommends adoption of meeting minutes accordingly.
Action Requested:	Adoption of October 23, 2000 and February 7, 2001 minutes.
Recommended Motion:	*That the ICN Policy Committee adopt the October 23, 2000 and February 7, 2001 minutes with any edits as noted.*

Item # 1
June 1, 2001

ILLINOIS CENTURY NETWORK

FEBRUARY 7, 2001 POLICY COMMITTEE MINUTES

The meeting was called to order by Mary Reynolds.

Members present: Mary Reynolds, Governor's Technology Office; Keith Sanders, Illinois Board of Higher Education; Jean Wilkins, State Library; Bonnie Styles, representing Bruce McMillan, State Museum; Michael Schwartz, Department of Central Management Services; Joe Cipfl, Illinois Community College Board; Lugene Finley, Illinois State Board of Education (attended executive session).

Others attending included: Bill Vetter, Department of Central Management Services; Brent Crossland, Governor's Technology Office; Ross Hodel, Illinois Board of Higher Education; Alice Engle, Department of Central Management Services; Doug Dougherty, Illinois Telecommunications Association; Neil Matkin, Frank Whitney, Lori Sorenson, and Rebecca Dineen all from the Illinois Century Network.

I. Minutes

Minutes from the last meeting were distributed as a draft for review and approval at the next meeting.

II. Network Updates

Community Networking: ICN staff is developing a community networking white paper that will address the questions surrounding the viability and long-term sustainability of community networks. Community network applications are being evaluated on a case-by-case basis, with particular attention paid to technical and financial feasibility. ICN staff is also soliciting success stories from ICN constituents. The emphasis is being placed on identifying those applications that are now made possible due to participation in the ICN, that couldn't be supported before. Michael Schwartz suggested sharing these success stories with the local community press to build positive public relations, giving credit to the Governor for his leadership. Keith Sanders suggested letting local legislators know which entities in their area are connected in order to keep them informed. Keith also supports extending the network out to other entities, but wants staff to be sure that the primary constituents named in the legislature are being served.

Neil Matkin noted that staff has the ability to produce reports based on legislative district, library district, school district, county, higher education consortia, zip code, and other

parameters. It was suggested that specific benefits of connection should be highlighted in these reports, i.e. the ability to participate in the Illinois Virtual High School.

Backbone Circuits: Alice Engle reported that four of the backbone circuits are now installed. Although there has been some difficulty in acquiring facilities, it is hoped that all circuits will be up by May. The state telecommunications RFP is in final stages of review. Michael Schwartz indicated that any difficulty with vendors should be referred to his office, Mary Reynolds, or the Policy Committee. Discussions regarding utilization of fiber, where beneficial, are continuing with the Department of Transportation.

Interagency Agreement: Discussions between the Illinois State Board of Education and the Illinois Board of Higher Education regarding the interagency agreement are progressing. Currently it is at ISBE. A draft will be brought to the Policy Committee for edits, changes, and consideration.

Circuit Inventory and Connectivity Update: Staff continues to work on an extensive audit of all ICN connections. Frank Whitney distributed draft database reports for review. Comments and suggestions were made about making the reports easier to understand. In addition to identifying the institutions connected to the ICN, the report also intends to identify those schools that have no Internet access as well as those that get their Internet access from another service provider.

ICN is working with ISBE and CMS to acquire a circuit tracking software package called Remedy.

Marketing Efforts: ICN staff is in the final stages of preparing a mailing to municipalities, communities, and K-12 schools that are not connected to the ICN or have access to the Internet via another provider. RTC staff has been instructed to target those schools and bring solutions to them. In preparation for the anticipated response to the mailing, all RTC staff has been trained in the circuit-ordering process. Community Colleges are not targeted in this mailing because all are connected. Michael Schwartz noted again that marketing materials should emphasize success stories.

State Agencies to Connect: Equipment has been purchased and should go into place in the next 30 to 60 days to provide Internet access to the 48 state agencies through a CMS connection to the ICN.

Connected Institutions vs. Physical Network Connections: In order to avoid confusion when reporting the number of connections to the network, the ICN staff will modify future reports to make a clearer distinction between the number of institutions connected to the network and the number of physical network connections.

Ongoing Policy Briefs: In response to issues such as peering vs. transit to the Internet, physical vs. logical connections, community network options, ICN staff is to prepare a series of executive summaries for the Policy Committee. The summaries will give a

background and brief overview so the Policy Committee is informed and has the opportunity to provide input and feedback.

Keith Sanders suggested briefing papers in the following areas: provide an updated connectivity list at each meeting in the priority order specified in the enabling legislation (schools first); pricing over time – how the network can produce some income without damaging the goals to reduce or not increase ICN's appropriation; an imaginative set of future uses that might come to fruition in order to stay ahead in a rapidly developing field. Mary Reynolds suggested consistency in pricing. Michael Schwartz suggested getting a staff member to start building some of the emerging success stories and update the committee at the next meeting (ICN staff has already begun this process).

Jean Wilkins suggested that if the committee does decide on some type of charge back, notice should be given well in advance. Experience at the State Library has shown that when a service is offered at no cost for a period of time, users become alarmed when a charge back is discussed. Neil Matkin assured the committee that enough notice would be given to institutions in order to make appropriate adjustments in their budgets.

Keith Sanders explained that there are other states and private vendors that would like to have access to the ICN. A possible fee structure for providing this access should be investigated. One example is Franklin University in Columbus, Ohio who has contracts with up to 17 community colleges to provide baccalaureate completion programs, parts of which could ride on the ICN.

Neil Matkin identified several opportunities and partnerships that are under consideration as the backbone develops and network growth and capacity are determined. Discussions are ongoing with Ameritech/Southwestern Bell's philanthropic division, Cisco and the Illinois Commerce Commission. Interest in the ICN Chicago Network Access Point has been expressed by states that are contiguous to Illinois.

Advisory Groups: The Advanced Engineering Taskforce is focusing on updating and revising the 1998 engineering study. Special attention is being paid to the integration of video with the ICN. Future issues that impact bandwidth demands and the capacity of the backbone are also under consideration.

The Illinois Online Leadership Council is working on an e-learning portal, which is up and running. Input from all online content initiatives will be solicited for inclusion in the e-learning portal. Neil Matkin asked the Policy Committee's permission to have Beth Aper contact them to solicit their input on the educational e-learning portal. The IOLC is also developing a print brochure.

Regional User Groups: The regional users groups have been meeting to bring ICN constituents together across sectors to identify network uses and help to anticipate further network demands. The user groups have taken the leadership in inviting local legislators and the press to attend these events. Many of the questions raised by the users groups are the same as those raised by the ICN staff and the policy committee. Michael Schwartz

suggested that the Policy Committee receive 8-10 bullet points of success stories that they could use to discuss the network.

III. Next Steps/Discussion

The meeting February 26, 2001 will be held for the purpose of interviews only in executive session.

Motion: Joe made motion; Keith seconded.

Joe Cipfl moved that the Policy Committee go into closed Executive session at 11:25 a.m. Wednesday, February 7, 2001 for the purpose of screening potential candidates for the Illinois Century Network executive director search pursuant to Section 2(B)(1) of the Open Meetings Act.

Motion carried.

IV. Executive Session

The Committee moved into executive session.

Item # 4
June 1, 2001

ILLINOIS CENTURY NETWORK

POLICY COMMITTEE MEETING SCHEDULE

Submitted for: Action

Summary: This item recommends the establishment of a regular schedule of Policy Committee meetings to be held 6 times per year on the last Wednesday of the month during January, March, May, July, September and November (November's meeting would be moved to the week prior to Thanksgiving).

Action Requested: That the ICN Policy Committee adopt the schedule of meetings as presented.

Recommended Motion: *That the ICN Policy Committee will meet 6 times per year according to the schedule presented.*

Item #5a
June 1, 2001

ILLINOIS CENTURY NETWORK

NETWORK OPERATING POLICIES:
COMMUNITY NETWORK UPDATE

Submitted for: Action

Summary: Last year, the Illinois Century Network embarked on a path to foster community networks. Since that time, it has become apparent that many issues require clarification and clear policies established to determine the scope and role of the ICN. This item seeks to update the Policy Committee on issues involving community networks and clarify the role of the ICN in their development.

Action Requested: The Illinois Century Network Policy Committee agrees with the staff recommendations regarding community networks and authorizes the staff to promote and assist in the development of such networks throughout the state funding connectivity to such networks where both the ICN and the community network benefit.

Recommended Motion: *The Illinois Century Network Policy Committee agrees with the staff recommendations regarding community networks and authorizes the staff to promote and assist in the development of such aggregate networks throughout the state and funding connectivity to such aggregate networks where both the ICN and the proposed network benefit.*

Item #5a
June 1, 2001

ILLINOIS CENTURY NETWORK

NETWORK OPERATING POLICIES:
COMMUNITY NETWORK UPDATE

In speaking with representatives from other state networks, staff has learned that the idea of community networks is not a new concept. Common problems have been encountered in executing community networks and difficulties have arisen as a result of many factors. In some states, the concept of community networks has been abandoned. Nonetheless, staff believes that the concept of community networks has value for Illinois.

This item examines the advantages and disadvantages of community networks and seeks to clarify the role of the Illinois Century Network in order to ensure long-term success. Definition of a Community Network: For the purpose of the Illinois Century Network, a community network is the local infrastructure that provides telecommunication services to a group of diverse public and/or private organizations that are working together toward common goals. A network that connects different physical locations of the same or like entities is a private wide area network and may not necessarily be a community network.

Potential Advantages of Community Networks: 1) sharing the cost for the intra-LATA access circuit connecting the community to the ICN, 2) supporting local collaborations, and 3) recognizing economies of scale to make the most of local resources.

Potential Disadvantages of Community Networks: 1) not all communities have the necessary expertise to provide adequate support for constituents connections, 2) competing entities may not agree as to which entity should serve as the connection point, 3) depending on local tariffs and telecommunications infrastructure, direct connections may be less expensive, and 4) community networks often include connections to businesses, religious organizations, and other entities that the ICN does not currently serve.

ICN Staff Recommendations:

1) Direct Connections Are Preferable to Shared Connections: Where feasible, the preferred means for connecting to the ICN is a direct connection. This minimizes the number of connections necessary to reach the ICN backbone as well as the points of potential connectivity failure. However, a community network is sometimes the most cost effective option for the community and for the ICN. Many communities are partnering with their local cable providers to secure fiber connections between local schools, libraries and municipal offices for the purpose

of providing high speed Internet access at a lower cost. These communities will realize significant cost savings by purchasing a single access circuit to the ICN.

2) Reducing Costs to Connect Should Remain a High Priority: Reducing constituent costs for connecting to the ICN remains a top priority. Currently, the ICN provides the local loop connection at all network Points of Presence (POP) sites, thus reducing the cost for connection by approximately $98 per month per constituent. Additionally, several "grooming sites" have been established throughout the state where constituent circuits are aggregated within a telecommunications provider's territory and transported to the closest ICN point of presence as a single circuit. The result may be a significant cost savings to the ICN or to constituents in the region.

3) Ongoing Analysis and Education Should Continue: Staff continues to identify new opportunities for aggregating bandwidth and reducing constituent connection costs. An MSA-by-MSA analysis of telecommunications options and current ICN deployment is now underway and is resulting in streamlined operations and lower costs for both the ICN and its constituents. The staff is working to assist communities in planning network initiatives. The ICN is partnering with City, Water, Light, and Power (CWLP) and various municipal associations to create a guide for communities interested in establishing a community fiber network either through a partnership with the local cable provider or as part of a municipal owned utility. The ICN also intends to serve as a conduit for communicating telecommunications success stories among constituents and linking constituents together to expand opportunities.

4) The Role of the ICN is to Provide Professional Analysis and Feedback for Community Network Plans Providing Resources Where Feasible: The ICN should continue to provide analysis of proposed community networks, however, can not be the final arbiter of local network planning. ICN staff will continue to review community network plans and make recommendations when requested. The ICN will pay for the circuit to a community network when doing so reduces costs for primary ICN constituents and for the ICN and provides better service to these constituents. These requests will be evaluated on a case-by-case basis.

The staff recommends the following resolution:

The Illinois Century Network Policy Committee agrees with the staff recommendations regarding community networks and authorizes the staff to promote and assist in the development of such aggregate networks throughout the state and funding connectivity to such aggregate networks where both the ICN and the proposed network benefit.

Item #5b
June 1, 2001

ILLINOIS CENTURY NETWORK

NETWORK OPERATING POLICIES:
PRIORITY OF PUBLIC ENTITY CONNECTIONS

Submitted for: Action

Summary: The Illinois Century Network Act, PA 91-21, lists the primary constituents to be served by the ICN. The staff believes these constituents to be listed in priority order and suggests a structure to be considered for allocation of limited resources.

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

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

Item #5b
June 1, 2001

ILLINOIS CENTURY NETWORK

NETWORK OPERATING POLICIES:
PRIORITY OF PUBLIC ENTITY CONNECTIONS

The Illinois Century Network Act, PA 91-21, lists the primary constituents to be served by the ICN. The staff believes these constituents to be listed in priority order and suggests a structure to be considered for allocation of limited resources.

Public Act 91-21, section 10, [***staff emphasis added***]:

> Illinois Century Network. The Illinois Century Network shall be a high speed telecommunications network that provides reliable communication links to and among Illinois ***schools, institutions of higher education, libraries, museums, research institutions, State agencies, units of local government, and other local entities*** that provide services to Illinois citizens.

Priority of ICN Constituents

The ICN was envisioned as an enabling education network to foster anytime, anywhere learning and teaching throughout Illinois. Although the ICN is currently and will in the future serve other potential constituents, policies determining priorities for network resources should be established to aid management in prioritization of future resources. Although ICN services continue to expand constituent demands are also increasing. To ensure that the network maintains its mission to Illinois education and institutions providing content for education such as libraries and museums, staff recommends that the Policy Committee officially adopt the language of the enabling legislation to list institutions to be served by the network in priority order as follows:

1. K-12 Schools
2. Institutions of Higher Education
3. Libraries
4. Museums
5. Research Institutions
6. State Agencies
7. Units of Local Government
8. Other Local Entities

In addition, 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.

The staff recommends the following resolutions:

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

Item #5c
June 1, 2001

ILLINOIS CENTURY NETWORK

**NETWORK OPERATING POLICIES:
REVIEW OF ICN-PROVIDED SERVICES AND EQUIPMENT
AND COST RECOVERY POLICIES**

Submitted for: Action

Summary: The Illinois Century Network Act, PA 91-21, instructs that the ICN is to *maintain sufficient capacity to meet the requirements of the participating institutions*. In order to fulfill this requirement, options must be considered to replenish finite network resources. This item examines ICN-provided services and equipment and recommends a strategic plan to adopt a cost recovery model in order to ensure long-term viability of the network and to attain equity for all ICN primary constituents.

Action Requested: The Illinois Century Network Policy Committee is requested to approve long-term operating policies to guide staff in providing services and equipment on the basis of scalability and sustainability. Further, staff asks that the Policy Committee authorize the development and adoption of a cost recovery funding model as described.

Recommended Motions: *The Policy Committee adopts staff recommendations to discontinue providing customer premise equipment and access transport circuits as described and to provide access transport circuits only as described in the Community Network model, when provision of access transport circuits reduces costs for both the ICN and the community connecting to the network.*

The Policy Committee authorizes staff to establish a long-term funding model that provides base services and transit to primary constituents and employs reasonable cost recovery such that the network is able to continue providing services and expand as needed. The cost recovery model is to be structured in a manner that provides the greatest benefit to primary constituents.

Item #5c
June 1, 2001

ILLINOIS CENTURY NETWORK

NETWORK OPERATING POLICIES: REVIEW OF ICN-PROVIDED SERVICES AND EQUIPMENT AND COST RECOVERY POLICIES

The Illinois Century Network Act, PA 91-21, Section 10 instructs that the ICN **is to *maintain sufficient capacity to meet the requirements of the participating institutions***. In order to fulfill this requirement, options must be considered to replenish finite network resources. This item examines ICN-provided services and equipment and recommends a strategic plan to adopt a cost recovery model in order to ensure long-term viability of the network and to attain equity for all ICN primary constituents.

A Brief History of ICN Funding and Benefits to Constituents

The ICN, as originally conceptualized by a statewide taskforce, was to be a higher education network. As such, original plans called for funding for a backbone network as well as access circuits. Since combining with the LincOn network, the mission of the ICN as defined by enabling legislation, has expanded. The LincOn network, operated by the State Board of Education prior to merging with the ICN, was funded at approximately $10 million per year from fiscal years 1995 through 1999. Its primary mission was to provide Internet connectivity for K-12 schools. It was originally established to serve public schools and expanded later to serve private schools. In 1999, the State Board and Board of Higher Education combined their efforts. Funding from the State Board increased to $12 million and the Board of Higher Education received $15 million during that fiscal year. Prior to merging with the ICN, some annual fees were associated with the LincOn network but were discontinued in 1999.

Originally, the Board of Higher Education budget for the ICN was split between access and backbone expenses with approximately $8 million earmarked for the construction of the backbone and $7 million targeted for access circuits and equipment. In addition, due to the long delays in acquiring necessary backbone circuits, some funds were made available on a limited basis to assist libraries and museums in connecting to the network. K-12 schools received no funding from the ICN for access circuits or equipment but were recipients of various technology grants administered through the State Board of Education. Current assistance provided by the ICN in the form of equipment and services are noted in Table 1.

In addition to providing some constituents with access circuits and equipment, the ICN provides all constituents with a connection port at a point of presence located in each Market Service Area (MSA) at no expense to the constituent. This means that any

constituent can connect to the ICN without paying for higher cost long distance circuits. Although most constituents provide their own circuit or access transport[1] to the network, the ICN provides transit[2] to the Internet as well as interconnection of all constituents to one another.

Table 1
CURRENT ICN ASSISTANCE
TO PRIMARY CONSTITUENTS
Fiscal Years 2000 - 2001

ENTITY	ROUTER PROVIDED	END DATE	CIRCUIT	TYPE	END DATE	COMMENTS/ NOTES
Public K12	No	-	No	-	-	
Private K12	No	-	No	-	-	
Public University	Yes	ongoing	Yes	DS3	Ongoing	
Branch (Teaching)	No	-	No	-	-	
Community College	Yes	ongoing	Yes	DS3	Ongoing	
Branch (Teaching)	No	-	No	-	-	
Private University	Yes	ongoing	No	-	-	
Branch (Teaching)	No	-	No	-	-	
Private College	Yes	ongoing	No	-	-	
Branch	No	-	No	-	-	
Libraries	Yes	see note	Yes	T-1	30-Jun-01	Must apply by June 30
Museums	Yes	see note	Yes	T-1	30-Sep-01	Must apply by Sept 30
All other	No	-	No	-	-	

NOTES:
[1]Libraries and Museums ordering circuits by the deadline will be reimbursed for installation charges even if after deadline.
[2]All ongoing assistance is subject to regular review and availability of resources.

Difficulties Created by Current Operating Policies

Current operating policies create several distinct problems. Although the ICN began its life as two separate networks with two separate budgets it operates today as a single state network serving all sectors of education and other constituents. The question

[1] Transport correlates to the physical access circuit connecting a constituent to the ICN point of presence. Transport facilities follow standard telecommunications offerings and generally consist of circuits able to transport a particular number of megabits per second (Mbps). For example, a T-1 circuit has the capacity to transport 1.5 Mbps, 45 Mbps for a DS3 circuit, 155 Mbps for an OC3, and 620 Mbps for an OC12.
[2] Transit refers to the actual throughput on a physical circuit. For example, even though an institution may have a circuit that allows a particular speed, the actual transit can be controlled by the network hardware. A constituent with a 45 Mbps circuit may be 'rate-limited' to 30 Mbps.

arises routinely as to why the ICN provides disparate services to different constituents. Another question pertains to the responsibility of the ICN to provide increases in transport and transit as well as upgrades to equipment.

A further and more significant issue arises when considering that the ICN provides transit to the commercial Internet at no expense to any constituent. Since constituents have no cost associated with connection there is little or no incentive to manage traffic. Currently the ICN is operating at ninety-three percent (93%) capacity of existing egress to the Internet. Although the growth in constituents clearly calls for additional capacity, this additional capacity will be but a temporary fix unless policies are put in place that encourages prudent use of available resources. For example, if a university utilizes 30 Mb of transit to the Internet and, upon examination, ICN staff find that almost 60% of the traffic is related to student recreational use of the Internet, there is no policy in place that allows the staff to effectively limit transit.

The problem of supply and demand arises as a result of a limited quantity of transit to the commercial Internet and no limitation placed on individual constituents. If a limit were to be placed on constituents, it is not the role of the ICN to determine which traffic is priority and which is non-priority other than ensuring sufficient resources to serve primary constituents. This problem is amplified when considering the effect of community networks and connecting municipalities that serve as local Internet Service Providers. In summary, supply cannot keep up with demand under the current operating model.

Recommendation for Adoption of a Long-Term Funding Model

A long-term funding model must be adopted in order to continue to expand the network to meet demand. If the ICN is to operate with existing funds, a cost recovery policy must be instituted or additional funds must be secured in out years to maintain long-term viability. While additional funding may be necessary at some point, it is prudent to develop a long-term funding model that shares some of the ongoing costs with the direct beneficiaries. In surveying twenty-eight other state networks, most have adopted a cost recovery model to assist constituents in prioritizing network traffic and expand their respective networks to meet increasing demands.

Although the ICN originated as a result of two separate initiatives, today it operates as a single network. As such, all constituents should be treated equally with primary constituents receiving discounted pricing or additional services at ICN expense. The costs associated with telecommunications networks is well known and consists of Internet transit and transport, points of presence and associated equipment, local loop transport circuits to access the backbone network, customer premise equipment, maintenance, local support, network operations center, and other client services. Note the Illinois Century Network Costs Graphic (attachment).

Staff recommends the following:

1) All ICN constituents will be required to provide customer premise equipment (CPE), access transport circuits, and necessary maintenance and software upgrades to CPE.

2) The ICN will fund circuits to constituents only as described in the Community Network model, when providing the access transport circuit reduces costs for both the ICN and the community connecting to the network.

3) The ICN will provide a specific amount of transit on access transport circuits for primary constituents to ICN points of presence and maintain sufficient egress and backbone capacity to route such traffic to other points on the network and to the Internet. Transit above the minimum set amount will be provided on a cost recovery basis that will be evaluated and determined annually.

4) The minimum set amount of transit will be such that the majority of primary constituents that are of smaller size and scope will not be required to pay for service. The amount of transit provided will be evaluated annually and adjusted depending on ICN resources, market costs, and demand.

5) Other entities who may be eligible to connect to the ICN will provide customer premise equipment (CPE), access transport circuits, necessary software upgrades to CPE, and will be charged for point-of-presence port charges and transit over the backbone and to the Internet on a cost recovery basis that will be evaluated and adjusted annually.

6) The ICN will allow creation of private virtual circuits on backbone circuits where bandwidth permits on a cost recovery basis only and will not fund any circuit that does not connect directly to the ICN.

7) ICN funding and provision of customer premise equipment will cease effective June 30, 2001 unless other deadlines have been established.

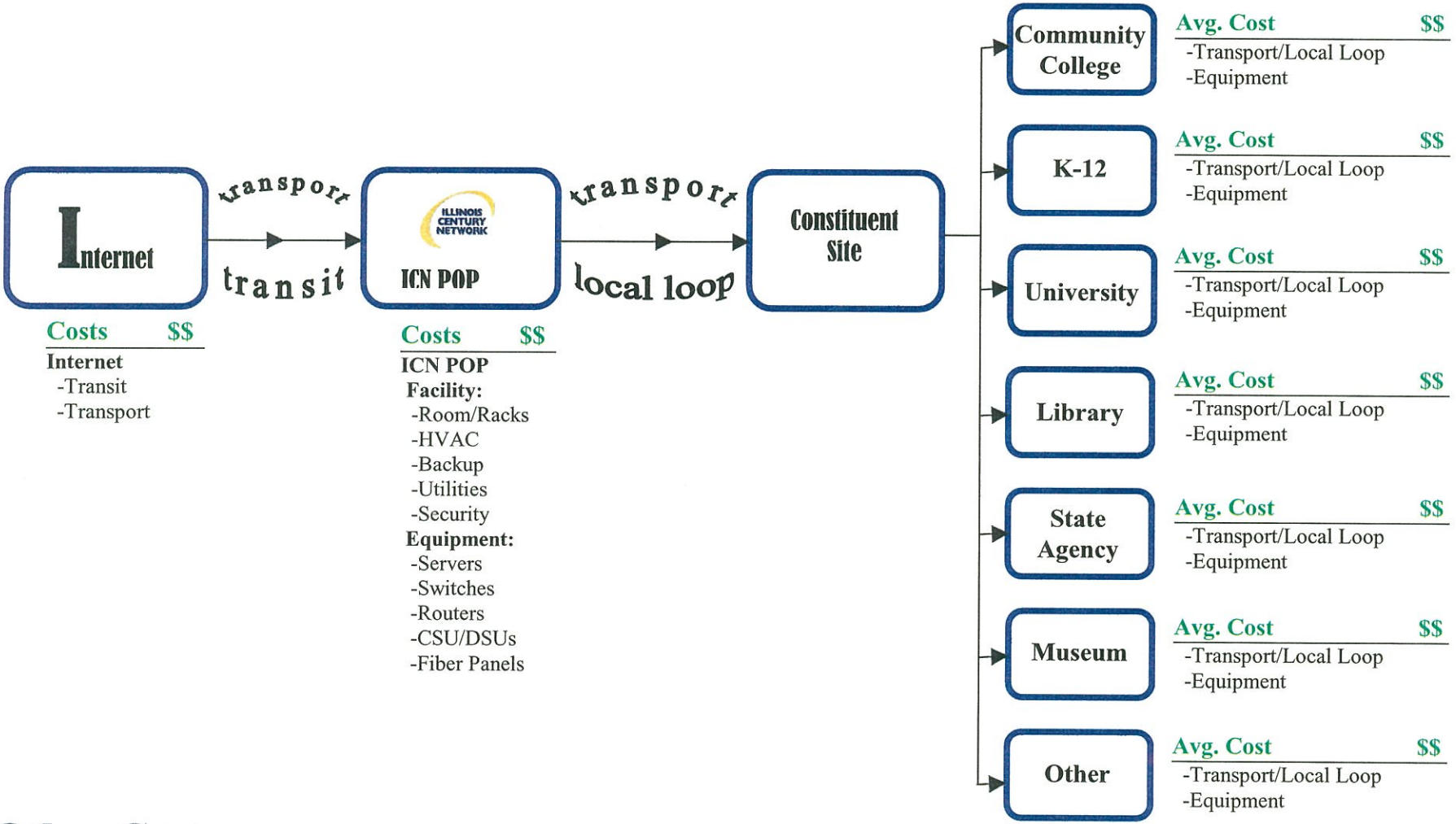
8) Current funding for access circuits will cease effective June 30, 2002 in order to allow budget planning for affected entities unless other deadlines have been established.

The staff recommends the following resolutions:

The Policy Committee adopts staff recommendations to discontinue providing customer premise equipment and access transport circuits as described and to provide access transport circuits only as described in the Community Network model, when provision of access transport circuits reduces costs for both the ICN and the community connecting to the network.

The Policy Committee authorizes staff to establish a long-term funding model that provides base services and transit to primary constituents and employs reasonable cost recovery such that the network is able to continue providing services and expand as needed. The cost recovery model is to be structured in a manner that provides the greatest benefit to primary constituents.

Illinois Century Network Costs Graphic



Other Costs

Maintenance

Costs $$
-Equipment
-Software

Regional Technology Centers

Costs $$
-Local Support

Network Operations Center Staff

Costs $$

Client Services Staff

Costs $$

Item #6
June 1, 2001

ILLINOIS CENTURY NETWORK

INTERNET EGRESS ISSUES

Submitted for: Information

Summary: The ICN provides access to the commercial Internet for all constituents. Current egress is 410 Mb and the network is peaking at 93% utilization. This item seeks to familiarize the Policy Committee with issues related to Internet egress and steps the staff is taking to facilitate growing demand.

Action Requested: None

Item #6
June 1, 2001

ILLINOIS CENTURY NETWORK

EGRESS ISSUES

The ICN provides access to the commercial Internet for all constituents. This item seeks to familiarize the Policy Committee with issues related to Internet egress and steps the staff is taking to facilitate growing demand.

Egress refers to total capacity available to the commercial Internet. Bandwidth is a function of transport (the physical capacity of a particular circuit) and transit (the total capacity available on a particular circuit). For example, the ICN may acquire a physical circuit capable of carrying 45 Mb but pay for only 30 Mb of transit across the facility.

Total egress for the entire network is currently 410 Mb with utilization peaking around 380 Mb, which represents 93% of full capacity. Orders have been placed to increase egress bandwidth to 1,800 Mb over the next 18 months. These orders should be filled between December 2001 and June 2002 and enable the ICN to meet current and future requirements. As egress bandwidth increases, the cost per Mb decreases from $424/Mb to $218/Mb. To further reduce the cost of egress, the ICN takes advantage of peering relationships with other networks and is now actively moving to implement caching servers. Table 1 reviews current egress costs and anticipated future costs. Note that increasing egress by four hundred percent lowers the cost per Mb by almost fifty percent.

Table 1
Current and Future Cost of Egress

Providers	Current Monthly Costs	Monthly Future Costs
Sprint	38,750 (155Mb)	148,500 (620Mb)
AT&T	46,000 (90Mb)	125,736 (620Mb)
Nap.Net	42,919 (75Mb)	42,919 (75Mb)
Qwest	20,000 (45Mb)	41,123 (155Mb)
Access US	26,000 (45Mb)	-
New services		
Intermedia		47,089 (155Mb)
Total Per Month Recurring	173,669	405,367
Total Annual	2,084,028	4,864,404
Cost per MB	424	218

The goal and advantage of peering relationships is to share traffic with another network and avoid transit costs. Peering relationships take place at Internet Network Access Points (NAP) and are formed by agreements between networks to exchange traffic before it reaches the World Wide Web or commercial Internet. To date the ICN has 40 peering arrangements that reduce egress demand by approximately 90 Mb. The ICN will continue to expand peering relationships as appropriate to ensure that the network is managed efficiently.

Caching servers are used to store the most recently requested data from the Internet on a local server resulting in quicker access and a reduction in the amount of traffic that is routed over the ICN backbone out to the World Wide Web. The ICN management team has been in discussions with the Advanced Engineering Taskforce and with Akamai Corporation to investigate caching services. The Akamai Corporation has turned caching into a business. Akamai charges large companies like Microsoft or Apple to cache their web pages and then provides servers free of charge to large networks like the ICN. This arrangement benefits the large companies by reducing the amount of traffic that crosses their network and benefits the ICN by reducing egress traffic. Akamai is willing to provide the ICN with 12 servers that include web caching as well as video streaming caching free of charge. Akamai will manage the servers and the ICN will provide space, installation and possibly some replacement parts if needed. The Akamai arrangement will help reduce ICN egress costs and increase the speed for accessing the cached content.

Staff is also in negotiations with Cacheflow to purchase appropriate caching servers for the network. These servers will be installed during the summer. The contract for Akamai has been reviewed and approved by ICN legal counsel. The server acquisition and installation process takes 6 weeks and the project should be completed in August. The ICN should realize a 30% reduction in Internet egress as a result of this initiative.

Item #7a
June 1, 2001

ILLINOIS CENTURY NETWORK

NETWORK OUTREACH:
AVENEW TO ICN CONVERSION

Submitted for: Information

Summary: This item describes a series of events and steps that the ICN pursued, in partnership with Ameritech, to expedite connectivity for over 300 schools and libraries previously served by Avenew, a private Internet Service Provider that discontinued service on May 20, 2001. ICN staff worked literally around the clock to ensure that the primary constituency continued services with minimal interruption. The Avenew to ICN conversion is a model of cooperation between public and private interests that was successful due to an unprecedented cooperative effort between all parties.

Action Requested: None

Item #7a
June 1, 2001

ILLINOIS CENTURY NETWORK

NETWORK OUTREACH:
AVENEW TO ICN CONVERSION

In early February of this year, 357 public schools, libraries, municipalities, and one university were notified that their Internet Service Provider, Avenew, was going to cease providing service at the end of May. Immediately upon hearing this news, the ICN began discussions with Avenew and Ameritech to see what could be done to avoid disruption of service for these customers, primarily elementary and secondary schools along with a few libraries. Due to the fact that service was scheduled to cease prior to the end of the academic year, timing became critical.

After a close technical and fiscal analysis of the Avenew network, it was determined that it was not feasible for the ICN to assume the Avenew infrastructure and take over their network. Further complications prohibiting assuming Avenew's network infrastructure resulted from legal disputes between Avenew and Ameritech. With less than eight weeks until Avenew discontinued service, connecting the Avenew clients directly to the ICN was the most efficient and expedient solution. ICN staff began planning and coordinating what would prove to be a monumental task and succeeded in undertaking a "rescue operation" that resulted in the most intensive growth period in the history of the ICN as well as the prior LincOn network.

A critical factor to the success of this undertaking was current and open communication among all the key players involved in this project. The ICN developed an Avenew information site on its web site that directed Avenew customers to the latest decisions and directions for securing connections to the ICN. A listserv was facilitated by the ICN to provide a forum for questions and issues raised by the customers that were answered on a 24-hour a day, 7 day a week basis by ICN staff. Regular updates on the project's progress were posted to the web site as well as to the listserv.

While the final decision was being made as to whether the ICN could assume the Avenew network, Avenew customers were encouraged to begin the process of connecting to the ICN by filling out the participation application, reviewing the frequently asked questions, and joining the Avenew listserv. During this time period, some of the Avenew schools submitted community network applications in order to maintain some of the services that they had previously received through Avenew that are not currently provided by the ICN. Examples include web hosting, email, firewalls, and filtering. Although the review process needed to be expedited in order for the individual schools to make decisions about connecting, all community network applications were subjected to the technical and fiscal standards that are applied to all ICN community network

applications.

A highlight of the actions taken by ICN to facilitate these connections is as follows:

- Doug Jurewicz and Dirk French, ICN Senior Telecommunications Analysts, worked together to map out existing Ameritech facilities and increase ICN capacity in Chicago to handle the sudden growth. Doug worked to provide the necessary logistical support between Ameritech and Avenew and handled daily issues that arose. [Note: Dirk French was an Ameritech employee up until May 16, 2001 when he joined the ICN staff in Chicago. Dirk was instrumental in past years working with the Illinois Video Education Network and will work with Doug in performing MSA-by-MSA analyses of all ICN operations to ensure sustainability and scalability to best serve ICN constituents.]

- A task force, headed by Robin Woodsome, the ICN Regional Coordinator based in Chicago, was established in MSA 1 (ICN Regions 1-4), the area previously served by Avenew.

- ICN staff compiled a database of all Avenew customers with information provided by Avenew. Each of the Avenew constituents was contacted by ICN staff to encourage the completion of the participation application and to answer any outstanding questions.

- Schools in need of services not currently provided by the ICN, such as web-hosting, email, firewalls, and filtering were referred to the State Board of Education Learning Technology Centers, which facilitated communities of interest and ad hoc consortia to provide needed services. Jim Flanagan, Maine Township High School, also worked to assist schools in obtaining necessary filtering and the ICN is hosting servers in the Chicago POP to enable this activity.

- The ICN made 150 Cisco routers available as loaners to schools that needed them on a first come, first serve basis.

- For those schools committed to maintaining their existing Bay routers, the ICN contracted with a consultant to assist in the programming required to make connections compatible with the ICN. The schools understood that this was for implementation only and would not become an ongoing service provided by the ICN. [Note: The ICN does not utilize Bay equipment anywhere in the backbone network therefore the expertise required for this particular brand of equipment had to be contracted out given the short time frame.]

- All Cisco routers required for Avenew cutovers were programmed by RTC staff in Regions 1 – 4 and delivered on-site to the customers in anticipation of a weeklong schedule of cutovers from the Avenew network to the ICN.

- Ameritech agreed to fill Avenew orders on an emergency basis in order to keep the process going.

- During the last critical week before the end of Avenew service, Ameritech put together a team of over 100 project managers and technical support personnel to work closely with the ICN task force.

- During the week prior to May 20, 2001, the ICN staff in MSA 1 worked day and night, with Ameritech personnel to do live cutovers resulting in 193 connections. This resulted in over 300 new constituents for the ICN in less than eight weeks.

Throughout this project, the ICN staff in MSA 1, with tremendous support from client and network services in Springfield, worked diligently to keep the Avenew customers informed at all times. Ameritech stepped up and demonstrated their ability to work cooperatively with the ICN technical staff to ensure as smooth a cutover as possible. Although there were some technical glitches along the way, it is a great credit to all concerned that the resources were available to assist Illinois education at a time of great need. ICN personnel continue to work with the few remaining Avenew customers. As a testimony to how they felt the ICN handled this transition, some of their comments follow:

Joe Terrasi – St. Clement School, Chicago

> "Just for the record, I have dealt with a number of the ICN people so far for various things (from Neil Matkin to technical people), and they have been fantastic. Each has been knowledgeable, helpful, and friendly. I know we're not through this yet by any means, but it is comforting to see such consistency in the quality of the personnel."
>
> "We were bumped late one night as well, but that is the ONLY thing that was problematic in our cutover. On the up side, the ICN folks we worked with were nothing short of amazing. Wesley, Atif, and Robin were not only helpful, but each was personable and friendly every time we spoke (and many of these conversations were well after normal business hours). I was always treated as a valued customer even though our situation is much smaller and less visible than many. Wesley even went so far as to spend some time to answer some of my questions about our internal networking - something that is clearly not his responsibility.
>
> The cutover went very smoothly, and all our servers and client

machines were fully functional and accessible within 12 hours of the switch. Thanks to each of the dedicated ICN employees."

Eric Martin – NSSED, Highland Park

"I totally agree. The competency and courtesy are very helpful, and even if everything goes to hell, at least we know they are trying their damndest…"

Walter Biga, Jr. – Gower District 62, Burr Ridge

"I am in complete agreement. This is a top-notch group of people."

Penny Ellsworth – Western Springs School District 101, Western Springs

"That has certainly been my experience as well; they are giving it their all and that makes me feel a lot more confident about this whole operation."

"Western Springs cut over four schools on Wednesday…we are up and running with all four! Thanks to Wesley (Rozanski) for his tireless commitment (and such patience!) for helping me through this; he's a prince!"

Susan Cooper – Park View School, Morton Grove

"I 'second the motion!' It's obvious they are doing everything to ease our concerns. What more could I ask?"

Jim Flanagan – Maine Township HS District 207, Park Ridge

"Ditto for me."

Judy Lovett - Summit School, Elgin

"I agree with all the positive comments. Everyone has been helpful and encouraging. No matter how many times I would call with a question they were always there to answer."

"Just a short note to thank Natalie, Jason Reid and all who helped us make the transition. They were great."

James Casey – Oak Lawn Public Library, Oak Lawn

"We really appreciate all the help you gave us in working through our DNS issues. We'll be glad to share what we learned with others – after all, we're part of the ICN now."

L. Hoyer – Fairview Schools

> "Cut over for Skokie Fairview District 72 was at 4:00 Friday afternoon. Everything works. Thank you to Robin and Erik Jacobsen, and unknown additional people who worked so diligently, being patient with those of us who are teachers first and techies second."

Keith Shaffer – Skokie/Morton Grove School District 69

> "Skokie District 69 would like to extend our thanks to all ICN staff involved with this project. Erik Jacobsen was very responsive to our inquires and requests. The cut over happened on time and went well. One school was identified as having a cut over problem. ICN and Ameritech had the line fixed within a few hours. I actually slept well this weekend!"

Bill Stefek – Oswego School District 308

> "Oswego District 308 is up and running with minimal disruption thanks to all the folks at ICN. Thanks is not enough!! You are the greatest and that is my final answer!

George Pratscher – St. Gilbert School, Grayslake

> "I am on the Technology Committee at St. Gilbert School, Grayslake. Many thanks to all involved in making a smooth transition, including Robin Woodsome, Atif Musa, and Mark Dupee (all from ICN) for their support during this transition."

Susan Cooper – Morton Grove School District 70

> "School District 70 in Morton Grove is up and running but we will have to set the DNS numbers at each and every one of the machines! THANKS to Mark and Neil, plus any supporting cast members, who have been so helpful during the process."

Bruce – Brookfield/LaGrange Park District 95

> "Brookfield/LaGrange Park District 95 is up and running. Thank you Wesley and Robin and the many others that have put in incredible hours to make this work."

Lynn Moriarty – St. Mary of the Woods School

> "Thanks to all at ICN – Robin and Wesley – we are up again. Thank you for all your dedication, time and effort. It really made a difference."

Item #7b
June 1, 2001

ILLINOIS CENTURY NETWORK

NETWORK OUTREACH:
INTERNET2

Submitted for: Information

Summary: ICN management is currently pursuing participation in Internet2 that will provide all ICN constituents with the opportunity to access the next generation Internet backbone.

Action Requested: None

Item #7b
June 1, 2001

ILLINOIS CENTURY NETWORK

NETWORK OUTREACH:
INTERNET 2

ICN is investigating an opportunity that will enable education constituents to have access to Internet2 (I2) through Abilene, a nationwide Internet2 network. Internet2 provides high-speed access to research projects, video, and other multi-media content not available on the legacy Internet. Projects that require high bandwidth and Quality of Service (QOS)[1] and/or multicast[2] in many cases will only work with I2 connectivity. The cost of this connection will be approximately $88,400 per year and will serve all ICN constituents providing them I2 access via the Metropolitan Research Education Network (MREN) connection. The cost includes a portion of the telecommunication lines and the connector fee charged to MREN by I2 that is calculated on a base fee plus a variable fee determined by the number of Illinois congressional representatives. Since most ICN institutions are not yet "Internet2 ready," staff is currently negotiating for a reduction in the annual fee.

Internet2 is the Advanced Research and Educational Network of this millennium. It is a global movement by the research institutions to provide themselves with a private research Internet for high bandwidth applications, providing for that bandwidth need as well as QOS, multicast and IPv6[3] utilization. Joining this network would give ICN constituents access to a state-of-the-art network opening the door to otherwise unreachable content, research projects, and I2/Abilene initiatives.

I2 is a national backbone that limits the number of direct connections. A new membership category created by I2, allows the ICN to access this backbone as a Sponsored Educational Group Participant through MREN. The ICN is currently working with MREN to complete the application for participation that will allow all ICN constituents to have access. Several of the research institutions in Illinois are currently direct members of I2.

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[1] Quality of Service or QOS is a guarantee of a preset minimum amount of bandwidth for a particular constituent. In essence, QOS is a reservation system for available bandwidth that allows one client's traffic to have priority over another's thus guaranteeing a specific throughput.

[2] Multicast refers to a streaming video broadcast over the network with source materials originating at one site and received by many. Most ICN constituents do not have sufficient bandwidth to receive multicast transmissions. The ICN backbone is being modified to allow this service and it is likely that there will be strong incentive to increase the bandwidth of local access circuits to take advantage of Internet 2 educational offerings in the future.

[3] IPv6 refers to the sixth version of the transmission protocol or "electronic language" of the Internet. Available today only on Internet 2, it will become the standard communication protocol for tomorrow's Internet.

Network services staff has been working with the current I2 members in Illinois, as well as MREN, to determine the most efficient technical solution for connecting to the Abilene network. Once the application process is complete, the final technical solution and the I2 participation agreement will be finalized.

At the recent meeting of statewide networks, the ICN management team learned that 11 states had already submitted their applications under this new category and several more are awaiting approval. The ICN is looking forward to adding Illinois to the list of states that provide I2 access to constituents across all educational sectors.

Internet Access Comparison

	Illinois Century Network	Private Internet Service Providers	Abilene and Internet2	Metropolitan Research and Education Network
Who are they?	The Illinois Century Network (ICN) is a telecommunications backbone to provide high-speed access to data, video, and audio communication.	Private Internet Service Providers (ISPs) are located in most areas and include major players such as America Online (AOL) and the Microsoft Network (MSN) and smaller local providers. Most provide a variety of connection speeds and services.	Abilene is a high performance network developed in partnership with Qwest, Nortel and Cisco to provide a backbone network for Internet2 (I2).	The Metropolitan Research and Education Network (MREN) provides digital communications for research and educational applications and general networking needs.
Who is eligible to connect?	Schools, libraries, colleges and universities, public libraries and museums, and municipal government.	Anyone.	Any higher education institution that is an I2 member is eligible to use the Abilene backbone network. Private and government organizations focused on research and education that are collaborating with I2 universities can also connect.	The majority of members are research universities (R1), research laboratories, and commercial research centers and related institutions that require high performance networking support for advanced applications.
What services do they provide?	The ICN provides 24/7 support, primary and Domain Name Services (DNS), IP Addresses, and high-speed connections to the Internet.	Services vary depending on the provider, but usually include web and email hosting, filtering, Internet access, support, etc.	High-speed bandwidth for Internet access for the development of advanced network services and applications.	High bandwidth connections for research, virtual reality, physics, and more. The network also provides end-to-end ATM, routed IP services and distributed operations.
What are the fees to connect?	The fees vary depending on the connection speed and the location of the institution in relation to the nearest POP site.	The fees vary depending on the connection speed, usage, services, provider, and support level desired.	Annual Participation Fee: $20,000 Annual Connection Fee: $110,000 – 430,000 Qwest Interconnect Fee: $1000- 3,000 install, $1,000 - 3,000 monthly Local Loop Fees: Varies	The fees vary depending on the connection needed and the location.
For more information	Call 877-844-2724 or visit www.illinois.net	Contact local providers.	Visit the website www.internet2.edu/abilene/	Visit the website www.mren.org

Item #7d
June 1, 2001

ILLINOIS CENTURY NETWORK

BACKBONE CIRCUIT UPDATE

Submitted for: Information

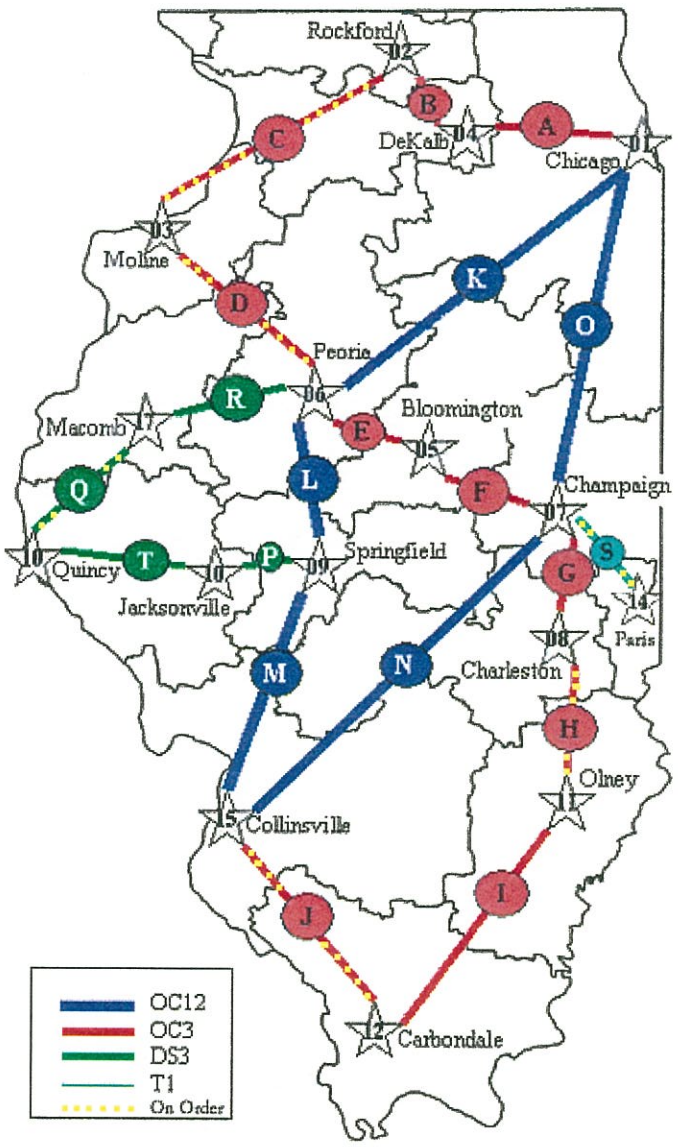
Summary: ICN backbone circuits continue to come up and, at this writing, fourteen out of twenty circuits are operational. Of the remaining six, five are expected to be complete by the end of summer and one awaits construction of facilities.

Action Requested: None

ILLINOIS CENTURY NETWORK

Backbone Circuit Update
May 16, 2001

Trunk/ Route	Due Date	PON	Type	MSA A	MSA Z
A	Completed	47192	OC3	DeKalb	Chicago
B	Completed	47172	OC3	DeKalb	Rockford
C	6.15.01	47193	OC3	Rockford	Moline
D	6.15.01	47194	OC3	Moline	Peoria
E	Completed	47211	OC3	Peoria	Blmgtn/Nrml
F	Completed	47210	OC3	Blmgtn/Nrml	Chmpgn/Urb
G	Completed	47209	OC3	Champgn	Chaleston
H	8.15.01	47171	OC3	Charleston	Olney
I	Completed	47208	OC3	Olney	Carbondale
J	5.25.01	47207	OC3	Carbondale	Collinsville
K	Completed	47205	OC12	Chicago	Peoria
L	Completed	47204	OC12	Peoria	Springfield
M	Completed	47201	OC12	Springfield	Collinsville
N	Completed	47196	OC12	Collinsville	Chmpgn/Urb
O	Completed	47176	OC12	Chmpgn/Urb	Chicago
P	Completed	52057	DS3	Jacksonville	Springfield
Q	No FOC	51741	DS3	Macomb	Quincy
R	Completed	47173	DS3	Macomb	Peoria
S	On order		T1 (2)	Champaign	Paris
T	Completed	41824	DS3	Jacksonville	Quincy



Item #8
June 1, 2001

ILLINOIS CENTURY NETWORK

BUDGET REPORT

Submitted for: Information

Summary: The Illinois Century Network budget has been loosely coordinated as two separate budgets over the last two years. Although cooperatively developed, as a result of unknown delivery dates for high bandwidth circuits, the budget development process was imprecise. Now that the majority of circuits are in place, this item seeks to present a snapshot of the fiscal year 2001 budget and identify issues that affect long-term planning.

Action Requested: None

Item #8
June 1, 2001

ILLINOIS CENTURY NETWORK

BUDGET UPDATE

The Illinois Century Network budget has been loosely coordinated as two separate budgets over the last two years. Although the budget was cooperatively developed, as a result of unknown delivery dates for high bandwidth circuits, the budget development process was imprecise. Now that the majority of circuits are in place, this item seeks to present a snapshot of the budget and identify issues that affect long-term planning.

Several items remain to be paid in fiscal year 2001 including approximately $8-9.5 million in telecommunications circuits, $1.5 million in necessary equipment and network upgrades, $500 thousand for telecommunications software, $150 thousand for the Chicago office, $70 thousand for the lease of the Springfield office, and $125 thousand for EDP equipment. Table 1 presents a snap shot of the fiscal year 2001 budget to date.

Table 1
Fiscal Year 2001 Budget
May 22, 2001

Detail Object	**IBHE**	**ISBE**
Personnel:	$ 1,482,000	$ 700,000
Contractual:	1,125,000	1,787,000
Commodities:	42,000	6,000
Equipment:	490,000	3,454,350
Telecommunications:	11,458,000	5,807,000
Regional Technology Centers:	350,000	
Build out Costs:	27,000	
Sub Totals:	$ 14,974,000	$ 11,754,350
Total Combined:		**$ 26,728,350**

Although the fiscal year 2001 budget appears sound, there are expenses that occurred in the last quarter of the fiscal year and outstanding orders that have the potential to create shortfalls in fiscal year 2002. These include an increase in annual circuit charges ($7M), equipment maintenance contracts

($2M-$3.5M[1]), continuation of Regional Technology Centers after June 6, 2002 ($2.5M), increase of Internet egress ($2M), and equipment to light and utilize I-wire fiber builds ($1M).

At this time, projecting costs to June 30, 2002, staff believes that the ICN will have a balanced budget. Several factors have the potential to assist in long-term stability including an interagency agreement with Central Management Services that will further reduce operating expenses, adoption of the proposed cost recovery funding model, and continued refinement of the planning and budgeting process in conjunction with recommendation from the Advanced Engineering Taskforce.

[1]This was paid out of ISBE end of the year money prior to this fiscal year and cost approximately $3.5 million at that time. Staff is working to reduce the costs of the equipment and maintenance warranties to a target of $2 million.

Item #9
June 1, 2001

ILLINOIS CENTURY NETWORK

ICN ORGANIZATION

Submitted for: Information

Summary: The Illinois Century Network is divided into three primary functional areas that work together to support the constituents of the ICN. Client Services – Springfield, Client Services – Chicago, and Network Operations all play a critical role in providing the elements that make up the quality service provided by the ICN. Attached to this item is the current organization chart that outlines the ICN staffing plan.

Action Requested: None

Item #9
June 1, 2001

ILLINOIS CENTURY NETWORK

ICN ORGANIZATION

The Illinois Century Network is divided into three primary functional areas that work together to support the constituents of the ICN. Client Services – Springfield, Client Services – Chicago, and Network Operations all play a critical role in providing the elements that make up the quality service provided by the ICN. Attached to this item is the current organization chart that outlines the ICN staffing plan.

Client Services - Springfield

The Springfield Client Services team works directly with ICN constituents to facilitate their connections to the network and provide internal systems that support these efforts. Primary responsibilities for the staff include: circuit provisioning, database development, web development, telecommunications analysis, and Regional Technology Centers 5 through 9.

This past year, the Client Services staff successfully implemented a database system accessible by all ICN offices to facilitate constituent applications and circuit orders, expanded the constituent order processing to include RTC staff resulting in faster processing of constituent circuit orders, redesigned the ICN website as well as an e-learning portal (elearning.Illinois.net), made great strides in improving our constituent reporting capabilities, and is in the process of developing a new tracking system that will greatly expand customer service capabilities. These successes are a result of a dedicated team that is committed to becoming a world-class network with world-class service to enable world-class Illinois education to further its mission of service to Illinois citizens.

Client Services - Chicago

The Chicago staff is responsible for the management of the Chicago ICN office and ICN outreach activities. The management of the Chicago office includes oversight for Regional Technology Centers 1 through 4 located in MSA 1. MSA 1 comprises approximately sixty percent (60%) of all ICN constituents. RTC 1 is located at the Chicago office and provides service to twenty-two percent (22%) of all ICN constituents as well as lead technical support for all other MSA 1 Regional Technology Centers. One of two ICN senior telecommunications analysts is also housed at the Chicago office in order to provide technical solutions to ICN constituents located within the largest concentration of users.

Development and outreach activities include seeking additional sources of funding for the ICN, representing the ICN at state and national conferences, providing coordination for the RTC 1 user group, and functioning as the ICN liaison with constituent groups in Illinois, such as the Higher Education Regional Consortia, Chicago's CivicNet, the K-12 Learning Technology Centers and the State's Library Systems. Leadership and coordination for the Illinois Online Leadership Council, the content providers comprising the Illinois e-learning portal, is also a function of this service area.

Major projects for FY 2002 include the establishment of the RTC 1 user group, a review and analysis of the technical support structure for MSA 1, continued leadership of the Illinois Online Leadership Council activities, active involvement in the FCC review of the universal service/E-rate program, and the pursuit of national and corporate sources of funding for the ICN.

Network Operations

The Network Operations center is divided into Network Services and Network Design and Engineering. Together they form the foundation for the technical services required to support and monitor the ICN backbone as well as managing the technical specifications required for constituent connections. Significant cross training occurs between the two areas in order to ensure that network coverage is always maintained.

The Network Services team installs, configures and maintains equipment and firewalls located at the ICN Network Operation Center (NOC) in Springfield as well as the ICN Point of Presence (POP) sites across the state of Illinois. The team's primary areas of responsibility include security, UNIX services and NT systems. Some of the services provided are Internet protocol (IP) address management, domain name services (DNS), email, trivial file transfer protocol (tftp), file transfer protocol (ftp), and logging of events.

Major projects for next year include: UNIX operating system and DNS upgrades to ensure uninterrupted service to ICN constituents; new NT systems for the Remedy project which will enhance the ICN application process and circuit tracking system; and new security features to provide encrypted access to ICN servers and proactive security monitoring. An ongoing project is to research new initiatives, tools and utilities to increase efficiency. The Network Services team strives to provide the best possible support and services to the ICN staff, the Regional Technology Centers (RTCs) and the constituents of the Illinois Century Network.

The Network Design and Engineering team handles ICN Multi-Services (voice, video, ATM, and routed services), Backbone, POP, and Egress implementation from design to maintaining and troubleshooting said services. Engineering provides Help-Desk services to the RTCs as problem escalation for their constituents. The staff also maintains peering sessions with paid transit providers, as well as Network Access Point (NAP) peers and private entities to maximize our Egress dollar while providing the most

robust Internet access. Design provides sanity checks and design specs both for our backbone designs and for those of network aggregation points.

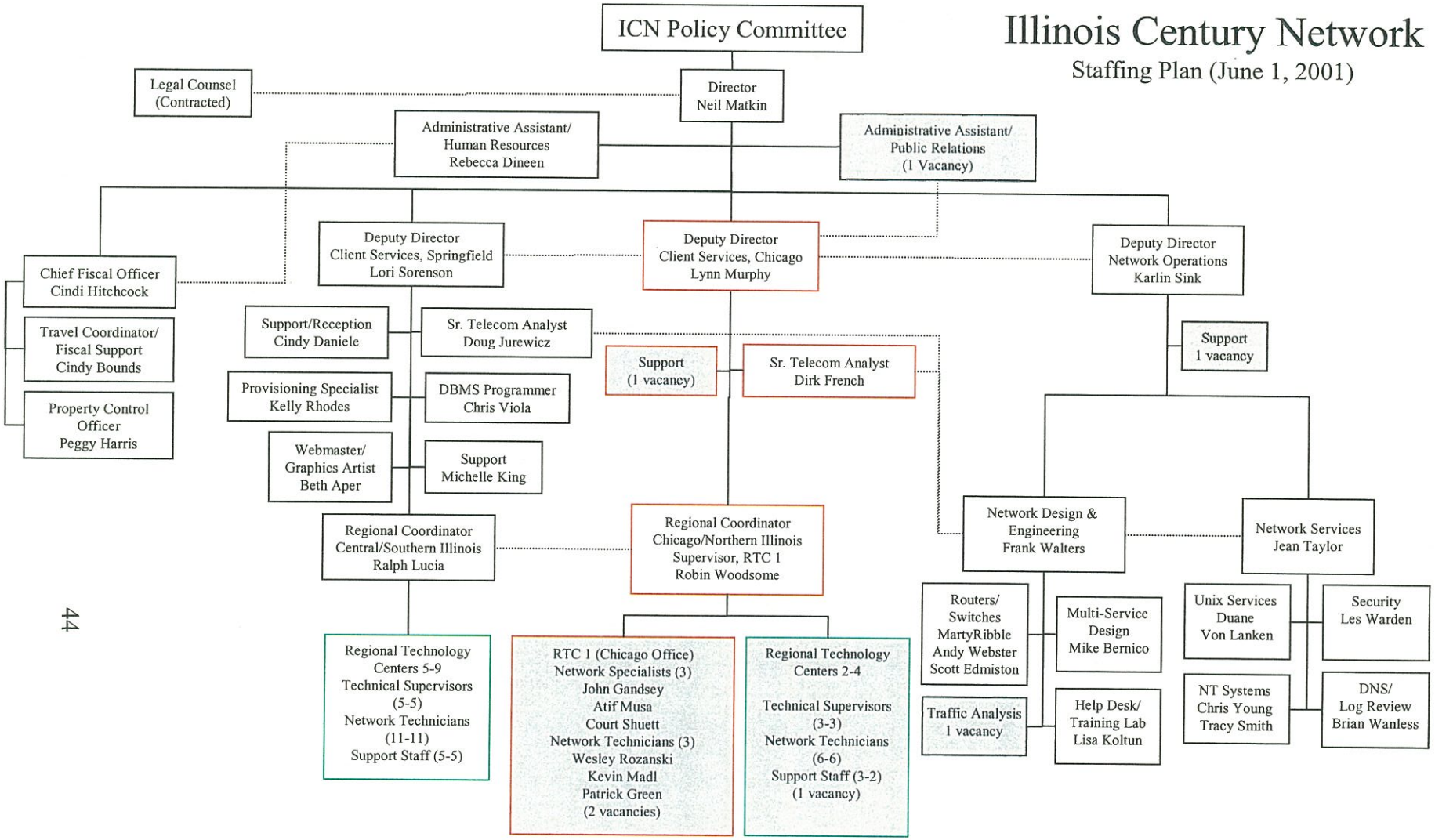
This past year we have been successful in maintaining network integrity while keeping the network on the leading edge in technology. Staff has been fortunate enough to complete the following major initiatives:

- Completed OC12 ring
- Upgrade the backbone to Multi-Cast
- Brought on CMS and State Agencies
- Brought on 60+ Colleges and Universities
- Tripled the number of Peers at the NAP
- Added a Major POP to the Network (DeKalb)
- Doubled our Transit Egress
- Completed the ATM implementation to bring ATM to the backbone
- Upgraded Internet operating system (IOS) on the Network to support quality of service (QOS) and other initiatives
- Maintained a world-class network

Upcoming projects include completion of the tertiary OC3 and DS3 rings, significantly increasing our Egress and Peering, maximizing the current opportunity for dark fiber via collaboration with CMS and the I-Wire project, and connecting to Internet2 (Abilene). The Network Design and Engineering team works to provide the maximum uptime and fastest response time on the largest and highest speed Internet backbone network in Illinois.

Illinois Century Network

Staffing Plan (June 1, 2001)



Legend

- Chicago-based staff (RTC 1)
- Vacancies (number in parentheses)
- RTC 2-9 Staff

Item #10
June 1, 2001

ILLINOIS CENTURY NETWORK

ADVANCED ENGINEERING TASKFORCE UPDATE

Submitted for: Information

Summary: Until recently ICN staff have been working from engineering plans and practices developed as part of the LincOn project and additional work done on behalf of higher education in pursuit of the state funding. The enabling legislation makes clear that ICN is to be a single network for all of education as well as for other public sector entities. The Advanced Engineering Taskforce, comprised of technology leaders from all sectors, is finalizing an annual report to inform staff as to best practices and suggest next steps to ensure long-term viability for ICN operations.

Action Requested: None

Item #10
June 1, 2001

ILLINOIS CENTURY NETWORK

ADVANCED ENGINEERING TASKFORCE UPDATE

Until recently ICN staff have been working from engineering plans and practices developed as part of the LincOn project and additional work done on behalf of higher education in pursuit of the state funding. The enabling legislation makes clear that ICN is to be a single network for all of education as well as for other public sector entities. Because the K-12 activities were so far along when this additional clientele was added, the influence of prior activities is very strong. There are new challenges for the network management, both related to the evolution of applications, technology and the communications industry. To assist the management in navigating these changes the Advanced Engineering Taskforce (AET) was established a year ago, and has met three times. The report that will be submitted in June presents an assessment of status and progress as well as the most important technical issues facing the ICN in the next two years. Another update to this report should be presented about one year from now, or alternatively in time for budget discussions for FY 2003.

The AET consists of a number of individuals from institutions within Illinois that are representative of the clients ICN serves. Some are from highly technical networking activities while others are more closely aligned with the applications areas of greatest importance. In addition, there are several people from the ICN staff, CMS and other agencies who serve as expert sources of information and who participate fully in the discussions. The opinions expressed in AET reports are those of the institutional representatives for the purpose of informing ICN management and may not be those of the agency employees or of ICN staff.

The report currently under development will report very substantial progress in reaching the goal of getting initial connections to all of the intended clientele, especially public institutions. Two of the principle issues the report will address are the adequacy of these connections to meet the educational objectives, and keeping the performance of the network ahead of demand—i.e. performing well enough to be attractive as an educational delivery system.

On the matter of adequate capacity in the connection of institutional buildings to the backbone network, the AET will outline the requirements for different kinds of educational uses. It is clear from the discussions that the current connections of many K-12 sites are not adequate, and that upgrades will be needed in the very near future. The performance of the backbone, and of the interconnections to the Internet, is good. It is, however, reaching saturation. This is an area where traffic doubles more than once per year, and several recommendations will be in the report. These recommendations are

consistent with actions already being pursued by the ICN staff, including increasing the amount of Internet egress capacity, adding facilities within the network to allow much more of the traffic to be served within the ICN Intranet, and completing the initial upgrade of the backbone circuits. The AET endorses the purchase of caching servers from Cacheflow or a comparable product, and the type of mirroring services of Akamai now in negotiation. These will reduce the traffic to the outside by 30 percent or more.

In support of the issues above, and the ongoing engineering of the network, it will be necessary for the operations staff to measure traffic and client patterns in a systematic way. The AET has been reviewing such data as is available, and will recommend expansion of the measurement program. In addition to measures directly related to performance we will also suggest measurements that help present the story of the ICN to its clients, the suppliers of funds, and to the public.

Another area on which AET will make recommendations is the degree to which ICN should go beyond basic network connectivity, and into assuring the availability of enhanced services to those clients who are not self-sufficient or large enough to justify local services. Examples include providing Web servers, streaming servers for audio and video materials, or email. Another approach is to offer consultation and advice on those services, but leave the clients to establish their own solution according to ICN-suggested remedies or best practices.

Video is one of the rapidly developing areas for Internet technology, and AET will offer recommendations on how to proceed in this arena. This will include advice on transition from the existent educational video system as well as how to make video much more pervasive and easy to support network-wide.

There are some areas of the state where services are not readily available through the current approach to procurement. In addition, we anticipate that there will be a need to make a large number of upgrades in capacity of K-12 connections, including many in areas where services may be difficult to find. The AET will make recommendations on how to approach this aspect of the digital divide. It is also clear that many of the K-12 organizations with preexisting connections from their own early initiatives are paying punitive prices, and that the ICN should be able to serve as an effective intermediary in this upgrade process. It is also possible that cooperation with community based networking efforts can play a role in solving this problem.

There are several other issues that will be included in the report.

Item #11
June 1, 2001

ILLINOIS CENTURY NETWORK

ILLINOIS ONLINE LEADERSHIP COUNCIL UPDATE

Submitted for: Information

Summary: This item discusses the current activities and plans for the Illinois Online Leadership Council, the content piece of e-learning in Illinois.

Action Requested: None

Item #11
June 1, 2001

ILLINOIS CENTURY NETWORK

ILLINOIS ONLINE LEADERSHIP COUNCIL

The Illinois Online Leadership Council (IOLC) continues to meet on a monthly basis to discuss the promotion and coordination of Illinois online content initiatives that serve all sectors of Illinois citizens. Shared marketing, both internally and externally, continues to be at the top of the priority list for the council. The initial work done on the e-learning portal can be viewed at elearning.Illinois.net. In addition to this online marketing, the IOLC is developing a brochure that can be distributed by all IOLC participants at conferences and meetings.

The IOLC will be submitting a HECA grant to establish a support system to provide coordination and continuity among the projects and activities identified by the IOLC participants. Additional projects in the HECA proposal call for conducting an environmental scan of e-learning activities; conducting a needs assessment to determine additional e-learning opportunities that are needed; and sponsoring a statewide e-learning conference that will highlight the activities of all the IOLC participants.

A Learning Anytime Anywhere Program preliminary proposal was submitted by the IOLC but was not encouraged for final submission. Additional sources of funding will be sought to support IOLC activities and will include federal, state, and corporate sources.

Item #12
June 1, 2001

ILLINOIS CENTURY NETWORK

EXECUTIVE SESSION

Submitted for: Action

Summary: A closed executive session is requested for the purpose of reviewing FY 2002 personnel and salary recommendations including the transfer of ICN employees currently hired by the State Board of Education to the Board of Higher Education.

Action Requested: Approval of staff recommendations regarding personnel and salary as amended by the Policy Committee.

Item # 12
June 1, 2001

SUGGESTED STATEMENT FOR MARY REYNOLDS
AT POLICY COMMITTEE MEETING
Friday, June 1, 2001

The Policy Committee will meet in Executive Session today. Under the Open Meetings Act, there must be a motion adopted in open session to authorize an Executive Session. A quorum must be present, and the motion must be approved by a majority of the quorum with a recorded vote. A quorum is present. I would now ask if we could have a motion and a second to authorize an Executive Session, as follows:

"I move that the Policy Committee go into closed Executive Session at _____ p.m., Friday, June 1, 2001 for the purpose of discussing compensation for Illinois Century Network employees pursuant to Section 2(B)(1) of the Open Meetings Act."