Technical Panel
of the
Nebraska Information Technology Commission

Tuesday, December 13, 2005 - 9:00 a.m.
Varner Hall - Board Room
3835 Holdrege St., Lincoln, Nebraska

AGENDA

Meeting Documents:
Click the links in the agenda
or click here for all documents (x.x MB, xx Pages)

1. Roll Call and Meeting Notice

2. Public Comment

3. Approval of Minutes - November 8, 2005*

4. Standards and Guidelines

   - Set for Public Comment*
     - Land Record Information and Mapping Standards

   - Review of Existing Standards and Guidelines*
     - Secure E-mail for State Government Agencies
     - Minimum Workstation Configuration Guidelines
     - Minimum Workstation Configuration Guidelines for K-12 Public Education
     - Disaster Planning Procedures for Information Technology

5. Portfolio Management - NITC Strategic Initiatives - Weir

6. Statewide Technology Plan - Action Items

7. Regular Informational Items and Work Group Updates (as needed)

   - Accessibility of Information Technology Work Group
   - CAP
   - Security Work Group
   - Statewide Synchronous Video Network Work Group

8. Election - Technical Panel Chair for 2006*

9. Other Business

10. Next Meeting Date

    Tuesday, January 10, 2006

11. Adjourn

* Denotes Action Item

(The Technical Panel will attempt to adhere to the sequence of the published agenda, but reserves the right to adjust the order of items if necessary and may elect to take action on any of the items listed.)

NITC and Technical Panel Websites: http://www.nitc.state.ne.us/
Meeting notice posted to the NITC Website: 16 NOV 2005
Meeting notice posted to the Nebraska Public Meeting Calendar: 16 NOV 2005
Agenda posted to the NITC Website: 8 DEC 2005

Technical Panel
Nebraska Information Technology Commission
Tuesday, November 8, 2005 - 9:00 a.m.
Varner Hall - Board Room
3835 Holdrege St., Lincoln, Nebraska
PROPOSED MINUTES

MEMBERS PRESENT:
     Mike Beach, Nebraska Educational Telecommunications Commission
     Steve Henderson, Department of Administrative Services, State of Nebraska
     Christy Horn, University of Nebraska, Compliance Officer
     Kirk Langer, Lincoln Public Schools
     Walter Weir, University of Nebraska

MEMBERS ABSENT: Brenda Decker, Chief Information Officer, State of Nebraska

CALL TO ORDER, ROLL CALL, NOTICE OF PUBLIC MEETING

Mr. Weir called the meeting to order at 9:10 a.m. A quorum was present at the time of roll call. The meeting notice was posted to the NITC website and the Nebraska Public Meeting Calendar on October 17, 2005. The meeting agenda was posted to the NITC Website on November 3, 2005.

PUBLIC COMMENT

There was no public comment.

APPROVAL OF OCTOBER MINUTES

Ms. Horn moved to approve <u>October 11, 2005</u> the minutes with the correction of Mr. Becker's name under "Other Business". Mr. Henderson seconded the motion. Roll call vote: Beach-Yes, Henderson-Yes, Horn-Yes, Langer-Yes, and Weir-Yes. Results: Yes-5, No-0. Motion carried.

PROJECT REVIEWS- 2006 DEFICIT BUDGET REQUESTS

Arts Council - Summary Sheet with Reviews

The project scored 69 out of 100 in the technical review. Panel members agreed with the reviewer comments. There was a concern regarding the completion of the project, as well as, the budget to complete. Alternatives were not addressed. Mr. Becker stated that the agency has not had an opportunity to respond to the reviewer comments.

Mr. Langer arrived to the meeting.

Mr. Weir moved to provide the following comments on this project: 1) the Technical Panel agrees with the findings of the reviewers and 2) the agency should be provided the opportunity to respond to the review. Ms. Horn seconded the motion. Roll call vote: Beach-Yes, Henderson-Ye, Horn-Yes, Langer-Yes, and Weir-Yes.

Department of Education - Summary Sheet with Reviews

The project scored 90 out of 100 in the technical review. Questions and discussion occurred regarding the intent and impact of LB 689 and the deficit request. The funding and impact of LB 689 is yet to be determined and is unknown.

Mr. Weir moved to provide the following comments on this project: 1) the Technical

Panel agrees with the findings of the reviewers; 2) the project is technically feasible; the proposed technology is appropriate for the project; and the technical elements can be accomplished within the proposed timeframe and budget; and 3) the agency should be provided the opportunity to respond to the review. Mr. Beach seconded the motion. Roll call vote: Weir-Yes, Langer-Yes, Horn-Yes, Henderson-Yes, and Beach-Yes. Results: Yes-5, No-0. Motion carried.

STATEWIDE TECHNOLOGY PLAN - ACTION ITEMS

Mr. Becker stated that NITC will be meeting late January will be approving action items for the Statewide Technology Plan. Several of the strategic initiatives are being addressed by CAP through Network Nebraska.

Mr. Weir state that UNL is utilizes the ProSight system to manage IT projects. The program provides a 4 dimensional view of project management that also ties in with Microsoft. ProSight will be conducting a 2-day workshop in Lincoln the last week in November. Mr. Weir is asking them to use the NITC strategic initiatives for their demonstration and will share results with member of the Technical Panel and the NITC.

REGULAR INFORMATIONAL ITEMS AND WORK GROUP UPDATES (as needed)

Accessibility of Information Technology Work Group, Christy Horn. The charter was been reviewed and revised. The work group will be asking the State of Nebraska to recommend someone to serve on the work group. The only change was in the wording of the purpose which now reads: Make recommendations to the Technical Panel on all matters relating to the creation **and implementation** of an accessibility of information technology policy for state governmental agencies and education institutions.

Mr. Henderson moved to approve the revised charter. Mr. Langer seconded. Roll call vote: Beach-Yes, Henderson-Yes, Horn-Yes, Langer-Yes, and Weir-Yes. Results: Yes-5, No-0. Motion carried.

CAP. The work group will be meeting right after today's Technical Panel meeting.

Security Work Group, Steve Hartman. The work group met last month. The charter will be reviewed. The group decided to establish two focus groups – one technical based and the other policy based. The groups will be discussing the development of two standards: a url standard and a minimum standard for servers.

Statewide Synchronous Video Network Work Group, Mike Beach. The work group has not met due to legislative occurrences. The charter will need to be reviewed and the group may consider a different name and focus.

OTHER BUSINESS

The NITC will be meeting today at 1:30 p.m. Videoconference sites are the Executive Building in Lincoln, Kearney Public Library and the Scottsbluff Regional West Medical Center. On Friday, November 18th, the NITC will be briefing the Transportation and Telecommunication Committee and the Appropriations Committee on its accomplishments and future plans. The Nebraska Fusion '05 E-Government Conference is scheduled for Tuesday, November 15th at the Embassy Suites in Lincoln.

NEXT MEETING DATE AND ADJOURNMENT

The next meeting of the NITC Technical Panel will be on Tuesday, December 13, 2005, at Varner

Hall, 3835 Holdrege Street, in Lincoln.

Mr. Langer moved to adjourn the meeting. Mr. Henderson seconded. All were in favor. Motion carried.

The meeting was adjourned at 10:05 a.m.

Meeting minutes were taken by Lori Lopez Urdiales and reviewed by Rick Becker of the Office of the CIO/NITC.

Nebraska Information
Technology Commission

DRAFT
Land Record Information and Mapping Standards

Category	**Data and Information Architecture**
Title	**Land Record Information and Mapping Standards**
Number	**XX-XXX**

Applicability	☑ **State Government Agencies**
	     ☑ All .... **See each section**
	     ☑ Excluding _____ ..... **See Section 4.1**
	 ☑ **State Funded Entities -** All entities receiving state funding for matters covered by this document .... **See each section**
	 ☑ **Other: Public Entities-** Other public entities developing or acquiring geospatial data not supported by state funding .... **See each section**
	
	 Definitions:
	 Standard - Adherence is required. Certain exceptions and conditions may appear in this document, all other deviations from the standard require prior approval of <u>NITC Technical Panel</u>.
	 Guideline - Adherence is voluntary.

Status	☐ Adopted ☑ **Draft** ☐ Other:_____
Dates	Date: 11-3-05 Draft Date Adopted by NITC: Other:

1.0 Standard

These standards/guidelines are primarily focused on those public entities responsible for maintaining property parcel maps for their particular jurisdiction. The last line following each standard or guideline refers to the type(s) of agency or entity to which that standard/guideline applies and whether it is a standard (adherence required) or guideline (adherence voluntary) for each type of entity.

1.1 Datum. Local government multipurpose GIS/LIS (Geographic Information System/Land Information System) and their associated geospatial data layers should be based on the North American Datum (NAD) 83 and the North American Vertical Datum (NAVD) 88. Any existing systems developed based on other datums should consider conversion to these datum.

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Standard**

1.2 Projection. The Nebraska Plane Coordinate System, NAD 83, should be used as the primary map projection system for the recording of positions in local land-data systems in Nebraska. Selection of any other projection should be done reluctantly and only after most careful consideration. The plane coordinate values for a point on the earth's surface may be expressed in either meters or feet.

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Standard**

1.3 Geodetic Control. GIS/LIS systems developed with the goal of providing a multipurpose cadastre for local government use should be referenced to a local geodetic reference framework that is properly connected to the National Spatial Reference System (NSRS).

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Standard**

1.4 Public Land Survey System Control.

1.4.1 PLSS Geodetic Framework. For all land in Nebraska that is subdivided according to the Public Land Survey System (PLSS), the geodetic reference framework for the cadastre should be the section corners of the PLSS for each section.

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Standard**

1.4.2 Locate, Monument, and GPS Primary Corners. At a minimum, local government entities developing a geospatial land information system should initially invest in a precision Global Positioning System (GPS) survey to locate, re-monument as necessary, and obtain the geographic coordinates of the major boundary defining corners that legally define the boundaries of their county jurisdiction(s). These precision GPS survey coordinates for the boundary defining corners should be collected and integrated as framework data into the land information system. This effort should be coordinated with officials from the adjacent county(ies) to ensure agreement on the location of the shared corners.

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Guideline**

1.4.3 Progressive Monumentation. In addition, each county (or municipality) that is planning to develop a GIS/LIS-based cadastre program should also consider initiating a progressive program to locate and/or re-monument, as

necessary, and collect geographic coordinates on other PLSS corners according to the legally established procedures and properly connect them to the National Spatial Reference System to obtain geodetic coordinates.

State Agencies: **Guideline**   State Funded Entities: **Guideline**   Other: **Guideline**

1.5   **PLSS Base Map**. Local governments considering the development of a multipurpose GIS, should consult with the Nebraska State Surveyor's Office to locate and access the best available data on the Public Land Survey System (PLSS) for their geographic area. To assist the State Surveyors Office in maintaining a repository of the best available PLSS data, local governments participating in the Nebraska Land Information System Program should share any enhanced PLSS data, for their geographic area, with the State Surveyors Office so that it might be integrated into the PLSS repository database.

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Standard**

1.6   **Ortho-base (Aerial Layer) or Base Maps.** Both a Public Land Survey System base map and an orthophoto (surface features) base map should be used to provide the geospatial reference framework upon which a local government multipurpose land information system is developed. Both base maps should be tied to the National Spatial Reference System and have a level of spatial accuracy appropriate to the range of applications planned for a given area.

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Standard**

1.7   **Map Scale and Spatial Accuracy.**

1.7.1   Minimum Horizontal Accuracy Standard. Public entities developing a GIS/LIS program should conduct data collection and development in a manner to achieve at least the minimum level of horizontal spatial accuracy consistent with the National Horizontal Map Accuracy Standards corresponding to a 1:12,000 (1"= 1,000') scale map (90% of the "well defined" horizontal locations must be within ±33.3 ft. of their real world location).

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Standard**

1.7.2   Additional Accuracy Considerations. Beyond this minimum horizontal map accuracy, public entities are encouraged to consider the following recommended map scales and their corresponding National Horizontal Map Accuracy Standards in determining the positional accuracy needed for base maps in the development of a local government GIS/LIS:

Relative Size of Property Parcels	Map Scale		Nat'l Horizontal Map Accuracy Std.	Equivalent Metric Scale
Urban areas	1:600	(1" = 50')	±1.7 ft.	1:500
	1:1,200	(1" = 100')	±3.3 ft.	1:1,000
Large urban & suburban	1:2,400	(1" = 200')	±6.7 ft.	1:2,500
Rural areas	1:4,800	(1" = 400'	±13.3 ft.	1:5,000
	1:9,600	(1" = 800')	±26.7 ft.	1:10,000
	1:12,000	(1"= 1,000')	±33.3 ft.	1:10,000

State Agencies: **Guideline**   State Funded Entities: **Guideline**   Other: **Guideline**

1.8 Legal Lot and Parcel Layers. Two graphic data layers are necessary to provide the foundation for a wide variety of local government GIS/LIS applications that involve land subdivision and/or ownership.

a). The legal lot layer consisting of legal land subdivisions. These are aliquot portions of the PLSS, filed subdivision plats and irregular tracts defined by filed deeds.

b). The parcel layer that defines ownership tracts of land. These tracts may group multiple legal lots into one taxable account and that typically represents the boundaries of a landowner's property. These data layers include locational coordinates for points representing property corners, lines between property corners representing property boundaries and closed polygons representing the property area.

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Standard**

1.9 Parcel Identifiers.

a). Each county/region should adopt a system of unique, permanent feature identifiers (PID) that provide the link between each graphic land ownership parcel polygon and the attribute information (ownership, size, situs address, value, etc.) related to that specific land ownership property parcel.

b). A county/region PID system must be designed in a manner such that a unique, statewide PID can be defined and maintained for each property parcel by using the county FIPS code (Federal Information Processing Standards Publications) as a prefix to the county/region's PID system.

c). To maintain this unique one-to-one association between a specific property parcel and its related attribution information, new PIDs should be assigned whenever a property parcel is altered by either splitting it into two or more parcels or by combining two or more parcels to form a new parcel. The previous PIDs should not be used for these new modified parcels, but the historical PID associations should be maintained through a parent/child PID reference table.

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Standard**

1.10 Spatial Data Format. A broad range of state and regional applications require property parcel information. Many of these applications require the combining of data across jurisdictional boundaries. To facilitate these applications, the property parcel spatial (graphic) data should be either maintained in a manner that allows it to be readily integrated in a common geographic data format (i.e., shapefile) or be capable of being exported into a common geographic data format (i.e., shapefile), while including the parcel identifiers.

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Guideline**

1.11 Metadata. All geospatial land record databases, and their associated attribute databases should be documented with Federal Geographic Data Committee (FGDC) compliant metadata outlining how the data was derived, attribute field definitions and

values, map projections, appropriate map scale, contact information, access and use restrictions, etc.

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Standard**

1.12 Attribute Data. To provide the foundation necessary for a wide variety of local government applications, non-graphic, attribute data should be organized within the GIS/LIS, which describes individual property parcels relative to their basic parcel characteristics, tenure, value, history, buildings and units within the parcel, and tax status. In most cases, much of this attribute data will already exist in separate databases within a variety of local agencies and should be tied to the graphic property parcel via the unique PID. To meet a range of state and regional applications that require property parcel information, the following types of property parcel data should be maintained (for every property parcel?) and (be) available in a manner that allows it to be harvested, translated, and integrated into a statewide property parcel attribute dataset.

PID#............................. Parcel identifier (county FIPS code plus local government PID)
Situs Address............... Address of parcel (may be multiple fields)
Owner Address............ Address of property owner (may be multiple fields)
Township .... Township #
Section......................... Section #
Range .... Range #
Range Direction........... East or West
Legal Description......... Narrative legal description of parcel
Assessed Value........... Total assessed value of property (land and improvements)
Land Value................... Assessed value of land
Area (Deeded) .... Area of parcel according to the deed
Property Class .... (Res, Ag, Com, Rec., Ind.)
Property Sub-class ..... i.e., Ag (Dryland, Irrigated, Grassland/Pasture, Waste)
Ownership type............ Federal, State, County, Private, Tribal, Exempt, Other and Unknown
Tax District................... County ID plus Tax Dist. #
School District .... State number definition
Landuse .... Actual landuse with NPAT defined general categories
Property Parcel Type... NPAT defined categories
Status .... (Vacant, Improved or Improved only) (NPAT defined)
Location .... (Urban, Sub-urban, Rural)(NPAT defined)
City Size....................... 1st class, 2nd class, primary, metro, or village
Source Document........ Sales/transfer reference or document (book & page)
Recording Date............ Most recent sales/transfer date
Sales Value.................. Most recent sales value

State Agencies: **Standard**   State Funded Entities: **Standard**   Other: **Standard**

2.0   Purpose and Objectives
The purpose of these standards and guidelines is to help realize the maximum long-term return on and overall utility of the public's investment in the modernization of how Nebraska's land records are maintained and distributed.

2.1   Background
Land records and land ownership records are public records that are used by wide cross-section of our society and its institutions. Ready access to current and accurate land

records is critical to our state's overall economy and the efficient functioning of many of its public and private institutions.

Historically land records have been maintained on paper records and paper maps. This made it very difficult and costly to update and keep current records and maps in areas where there was significant turnover in property ownership. Paper records and maps also made it difficult to share land record information outside of the physical office where they were maintained. Paper records and maps also made it difficult to conduct analyses of broader land ownership and land valuation patterns. Computerization in general, and GIS/geospatial technologies in particular, have revolutionized how land and land ownership records can be maintained, analyzed, shared, and distributed.

Modern computerized land records and maps make it relatively easy to update and keep current land records and maps. Computerization and GIS/geospatial technologies now routinely enable easy, reliable access to land records and maps via the Internet to a wide variety of users. Land records in computerized relational databases and GIS parcel maps have provided a wide array of new information management tools that can be used to integrate land records with other data and analyze and display land ownership, land valuation and other broader land-related patterns. Among other uses, these tools help ensure that all property is on the tax rolls and that the property is tax equally.

Modern computerized land records and maps can provide a wide array of potential benefits to a wide array of users. However, to realize many of these benefits, it is important that when these databases and maps are originally developed they follow a minimal set of standards and guidelines that support this potential broad array of applications and benefits. In many instances, it is not this broader array of potential uses that is the immediate stimulus, which causes a local or state agency to undertake a modernization of its land records and maps. Therefore, these standards and guidelines serve the function of raising the awareness of these potential future applications and the related need to incorporate minimal standards beyond those needed for immediate applications.

These standards and guidelines are intended to help ensure that modernized land records are developed on a solid technical foundation. A foundation, which will enable both the original developing agency, and other interested entities, to build on this initial investment and maintain and enhance the data and enable it to be utilized for multi-purposes by multiple users. These standards and guidelines are also intended to facilitate partnerships between local, state, and federal entities to support the development and maintenance of modernized land records

2.2   Objectives
These standards and guidelines to guide the modernization of land records in Nebraska have the following objectives:

2.2.1. Provide guidance to state and local officials as they work, either in-house or with private contractors, to develop and/or acquire computerized, geospatial data related to land records and maps and thereby increase the likelihood that the data acquired and/or developed will be suitable for the range of intended applications and likely future applications.

2.2.2. Improve public policy development and implementation by helping to make land records more current and readily accessible and by making available to land record management applications the wide range of analytical tools available through GIS/geospatial technology.

2.2.3. Enhance coordination and program management across jurisdictional boundaries by insuring that modernized land records and maps can be readily integrated across jurisdictional boundaries for regional applications (e.g., school districts, NRDs, emergency response, etc.) or statewide applications.

2.2.4. Save public resources by facilitating the sharing of computerized land records among public agencies or sub-divisions of agencies by incorporating data standards and following guidelines which will make it more likely that the computerized land records developed by one entity will also be suitable to serve the multiple needs of other entities and thereby avoid the costly duplication of developing and maintaining similar land records.

2.2.5. Make land records and land ownership maps more readily accessible to the wide range of potential users

2.2.6. Facilitate harmonious, trans-agency public policy decision-making and implementation by enabling multiple agencies and levels of government to access and appropriately use common geospatial datasets and thereby make it more likely that intersecting public policy decisions, across levels of government, will be based on the same information.

2.2.7. Lay the foundation for facilitating intergovernmental partnership to the modernization of land records by defining standards and guidelines that increase the likelihood that computerized land records will meet the needs of multiple users.

3.0   Definitions

3.1   Attribute Data
Properties and characteristics of property parcel or other spatial data entities.

3.2   Datum
A Geodetic Reference System is the true technical name for a datum. A datum is a combination of an ellipsoid, which specifies the size and shape of the earth, and a base point from which the latitude and longitude of all other points are referenced.

3.3   Entity
Any object about which an organization chooses to collect data.

3.4   Geodetic Control
A set of surveyed monuments used to define a spatial reference system and used to register map sheets and transform coordinates for a particular project.

3.5   Geographic Information System (GIS)
A system of computer hardware, software, and procedures designed to support the compiling, storing, retrieving, analyzing, and display of spatially referenced data for addressing planning and management problems. In addition to these technical components, a complete GIS must also include a focus on people, organizations, and standards.

3.6   Geospatial Data

A term used to describe a class of data that has a geographic or spatial nature. The data will usually include locational information (latitude/longitude or other mapping coordinates) for at least some of the features within the database/dataset.

3.7   Global Positioning System (GPS)
GPS is a method for identifying locations on earth using triangulation calculations of satellite positions. Originally created by the United States Military, it has since found numerous commercial applications.

3.8   Land Information System (LIS)
A special type of GIS that manages and analyzes data related to land ownership (e.g., tax parcels, urban infrastructure, property assessment). A GIS used for municipal or county level applications is typically structured as an LIS.

3.9   Map Scale
The scale of a map is the ratio between a distance on the map and the corresponding distance on the earth, with the distance on the map typically expressed as 1. Thus, a scale of 1:100,000 means 1 inch on the map equals 100,000 inches (approximately 1.6 miles) on the earth. Large scale maps depict a small area and show more detail. Small scale maps depict a large area and show less detail

3.10 Metadata
Data describing a GIS database or data set including, but not limited to, a description of a data transfer mediums, format, and contents, source lineage data, and any other applicable data processing algorithms or procedures.

3.11 Monumentation of PLSS Corners
Monumentation in surveying refers to the practice of marking known horizontal and vertical control points with permanent structures such as concrete pedestals and metal plaques. Once surveyed and marked, these monuments can be used for further surveying and for the alignment of land-parcel boundaries and infrastructure.

3.12 National Spatial Reference System (NSRS)
A consistent national coordinate system that defines latitude, longitude, height, scale, gravity, and orientation throughout the Nation, and how these values change with time. Consequently, it ties spatial data to geo-referenced positions.

3.13 Nebraska Plane Coordinate System
Nebraska Plane Coordinate System means the system of plane coordinates for designating the geographic position of points on the surface of the earth, within the State of Nebraska, which have been established by the National Ocean Service/National Geodetic Survey, or its successors, for defining and stating the geographic positions or locations of points on the surface of the earth, within the State of Nebraska.   The Nebraska Plane Coordinate System is a Lambert conformal conic projection of the North American Datum of 1983, having standard parallels at north latitudes 40 degrees 00 minutes and 43 degrees 00 minutes along which parallels the scale shall be exact. The origin of coordinates is at the intersection of the meridian 100 degrees 00 minutes west of Greenwich and the parallel 39 degrees 50 minutes north latitude. This origin is given the coordinates. N = 0 meters and E = 500,000 meters. (State of Nebraska Statutes, Section 76-2502)

3.14 Orthophoto
An aerial photo that has been corrected to eliminate the effects of camera tilt and relief displacement. The ground geometry is recreated as it would appear from directly above

each and every point. Digital orthophotos can be created by scanning the original photograph and applying a process called differential rectification to each pixel in the image. In creating digital orthophotos, it is also possible to remove the effects of tangential displacement.

3.15 Parcel Identifier (PID)
A unique number identifying a specific property on the assessment and tax rolls and used as a cross reference between graphic/mapping data and tabular attribute data.

3.16 Projection
A system to portray all or part of the earth, which is an irregular sphere, on a planar, or flat surface

3.17 Public Land Survey System (PLSS)
The Public Land Survey System (PLSS) is a way of subdividing and describing land in the United States. All lands in the public domain are subject to subdivision by this rectangular system of surveys (townships, range, sections, quarter-sections, etc.), which is regulated by the U.S. Department of the Interior, Bureau of Land Management.

3.18 Shapefile
A Shapefile is an ESRI digital vector (non-topological) storage format for storing geometric location and associated attribute information that can be generated by a wide variety of GIS software packages.

3.19 Spatial Accuracy
The accuracy of a map in representing the geographic location of an object relative to its true location on the surface of the Earth based on geographic coordinates.

4.0 Applicability

4.1 State Government Agencies
State agencies that have the primary responsibility for maintaining land ownership records and property parcel maps for a particular jurisdiction(s) or geographic area (e.g. Nebraska Dept. of Property Assessment and Taxation for counties for which it has assumed the primary assessment role) are required to comply with those sub-sections identified as a "Standard" for "State Agencies" in section 1. Those state agencies with oversight responsibilities in this area are required to ensure that their oversight guidelines, rules, and regulations are consistent with these standards.

4.2 State Funded Entities
Entities that are not State agencies but receive State funding, directly or indirectly, for property parcel mapping and/or property tax assessment and have the primary responsibility for maintaining property parcel maps for a particular jurisdiction or geographic area are required to comply with those sub-sections identified as a "Standard" for "State Funded Entities" in section 1.

4.3 Other
Other entities, such as local government agencies (e.g. County Assessor, County Register of Deeds, municipalities) that have the primary responsibility for developing and maintaining land ownership records and property parcel maps are required to comply with those sub-sections identified as a "Standard" for "Other" in Section 1.

4.4 Exemption
Exemptions may be granted by NITC Technical Panel upon request by an agency.

4.4.1 Exemption Process

Any agency may request an exemption from these standards by submitting a "Request for Exemption" to the NITC Technical Panel. Requests should state the reason for the exemption. Reasons for an exemption include, but are not limited to: statutory exclusion; federal government requirements; or financial hardship. Requests may be submitted to the Office of the CIO via e-mail or letter (Office of the CIO, 521 S 14th Street, Suite 301, Lincoln, NE 68508). The NITC Technical Panel will consider the request and grant or deny the exemption. A denial of an exemption by the NITC Technical Panel may be appealed to the NITC.

5.0   Responsibility

5.1   NITC
The NITC shall be responsible for adopting minimum technical standards, guidelines, and architectures upon recommendation by the technical panel. (N.R.S. 86-516 §6)

5.2   State Agencies
The Nebraska Department of Property Assessment and Taxation will be responsible for ensuring that its rules and regulations relative to land ownership records and property parcel (tax) mapping include those subsections in Section 1 that are identified as a "Standard" for "Other" and are consistent overall with those standards.

5.3.   Granting Agencies and Entities
State granting or fund disbursement entities or agencies will be responsible for ensuring that these standards are included in requirements and regulations related to fund disbursements as they relate to land (property parcel) records or property parcel mapping.

5.4   Other
Local governments agencies that have the primary responsibility for land ownership records and property parcel mapping will be responsible for ensuring that those sub-sections defined for "Other" as a "Standard" in Section 1 will be incorporated in land record modernization and geospatial data development efforts and contracts.

6.0   Related Documents

6.1   Federal Geographic Data Committee (FGDC) Cadastral Data Content Standards
http://www.fgdc.gov/standards/status/sub3_5.html

6.2   Nebraska Guidebook for Local Government Multipurpose Land Information Systems. http://www.calmit.unl.edu/gis/LIS_Stds_Intro.html

6.3   Federal Geographic Data Committee Content Standard for Digital Geospatial Metadata Workbook (For use with FGDC-STD-001-1998) Version 2.0
http://www.fgdc.gov/publications/documents/metadata/workbook_0501_bmk.pdf

Title	**Secure E-mail for State Government Agencies**
Category	**Groupware Architecture**
Applicability	**State Government Agencies** (See the "Applicability" section below.)
Status	☐ **Standard** - A degree or level of requirement that all jurisdictions should use, which would be enforceable by duly authorized entities. With any standard, there may be circumstances that merit exceptions. ☑ **Guideline** - A statement of general policy or procedure by which to determine a course of action. Adherence is voluntary.
Date Adopted	**November 13, 2002**
Date of Last Revision	**August 8, 2002**
Date of Next Review	**June 2004**

A. *Authority*
Section 86-516 (6). "[The Nebraska Information Technology Commission shall] adopt minimum technical standards, guidelines, and architectures upon recommendation by the technical panel."

B. *Purpose and Objectives*
The purpose of this guideline is to provide state government agencies a suggested technical solution for sending and receiving e-mail and electronic documents that require secure transmission.

Some agencies that handle sensitive information may need to securely transmit such information electronically. E-mail messages and documents sent over the Internet are generally sent in a non-secure format; however, there are various methods available to secure e-mail messages and electronic documents. This guideline recommends one method for use by state government agencies, but does not preclude an agency from using another method.

IMServices is developing a secure, Web-based document transmission system for Health and Human Services. The system, known as Secure Information Xchange (SIX), is expected to be operational by January 2003, and has been designed to allow other agencies to utilize this secure method of document transmission.

The Technical Panel will periodically review this guideline and the technical solution chosen to ensure it continues to meet the needs of state agencies.

C. *Guideline*
State agencies needing to send or receive secure electronic communications should consider utilizing the Secure Information Xchange system, the Web-based document transmission system maintained and hosted by IMServices. Agencies are encouraged to contact IMServices for more information.

Agencies utilizing a secure, electronic communications system should develop policies for the use of such a system within their agency.

D. *Key Definitions*
Secure E-mail means a system for sending electronic messages and attached documents over a computer network in a manner in which the message and attached documents are protected from unauthorized access.

E. *Applicability*
State Government Agencies - Agencies needing secure e-mail and electronic document transmission are encouraged to utilize the Secure Information Xchange system maintained and hosted by IMServices.

F. *Responsibility*

G. *Related Policies, Standards and Guidelines*
(http://www.nitc.state.ne.us/standards/)
E-mail Standards for State Agencies
Security Policies

Title	Minimum Workstation Configuration Guidelines
Category	Hardware Architecture
Date Adopted	(Resource Document Only - Approved by the Technical Panel on August 13, 2003)
Date of Last Revision	August 13, 2003

A. Authority

Section 86-1506 (6). "(The Nebraska Information Technology Commission shall) adopt minimum technical standards, **guidelines**, and architectures upon recommendation by the technical panel created in Section 86-1511."

B. Purpose and Objectives

The purpose of this document is to recognize the responsibility of the NITC to establish recommended **minimum** configurations for personal computers. Minimum configurations are established in order to simplify technical support and enable a secure desktop environment. Minimum configuration guidelines established by the NITC will (must) change over time in response to requirements of newer applications or operating systems.

These guidelines provide a suggested set of minimum configurations that agencies can adopt or modify to meet their specific needs. These guidelines are not intended to endorse or support any single hardware or software vendor. These guidelines are subject to periodic review and revision.

As minimum configurations, these guidelines are recommendations to be considered in conjunction with other factors, including financial constraints, performance requirements of specific applications, and an agency's networking environment.

The primary objective of these guidelines include recommendations to:
A. Improve versatility and compatibility of desktop systems;
B. Insure that personal computer configurations procured with state funds can operate efficiently in today's high speed connected environment;
C. Provide a guide to agency on when to upgrade existing personal computers;
D. Reduce technical support problems; and,
E. Provide a secure desktop operating system.

As the State of Nebraska begins to develop Internet enabled applications, and e-Government and e-Business applications that are delivered over public and private Intranets and the Internet, it is imperative that agencies maintain desktop clients that can efficiently run these new applications. Agency desktop personal computers should be able to:
1. Execute network applications;
2. Support Internet technologies;
3. Extend the desktop communications to the state telecommunications backbone;

4. Support e-Business and e-Government applications; and,
5. Provide desktop security, encryption, and virus protection services when connected to the state telecommunications systems.

C.   *Standards and Guidelines*
1. Agencies and institutions should manage desktop workstations as assets. This concept is similar to good management of other physical assets. It should include a planning process for determining, adopting, and periodically upgrading the minimum workstation configurations that meet the agency or institution's specific internal needs and any new external requirements. Requirements for new Business applications or mandated operating system upgrades should be the basis for capacity planning. Capacity planning should address options for implementation such as phasing in new purchases, moving older workstations to less demanding uses, or surplusing.

2. Existing Personal Computers:

   Agencies should develop a plan to upgrade or replace existing personal computers if they do not support the following minimum system requirements:

   Minimum Hardware Guidelines for Existing Personal Computers
       (1) CPU: 750 MHz or higher Intel or equivalent CPU
       (2) Memory: 256 MB RAM
       (3) Hard Disk: 6 GB hard disk with a minimum of 2 GB of free space
       (4) Operating System:
           (a) Windows 2000 Professional
       (5) LAN Connection: Ethernet - must support at least 100 Mb

3. Minimum New Personal Computer Purchasing Guidelines:

   When purchasing new personal computers, an agency should consider the following minimum guidelines.

   a. Standard Desktop Hardware
       (1) CPU: 2 GHz Intel or higher or equivalent CPU
       (2) Memory: 512 MB RAM or higher
       (3) Hard Disk: 20 GB or larger
       (4) Operating System: Windows XP Professional (requires 512 MB RAM)
       (5) LAN Connection: Ethernet - must support at least 100 Mb

   b. GIS Workstation Desktop Hardware
       (1) CPU: 2 GHz Intel or higher or equivalent CPU
       (2) Memory: 512 MB RAM
       (3) Hard Disk: 20 GB or larger (e.g., SCSI)
       (4) Operating System: Windows XP Professional (requires 512 MB RAM)
       (5) LAN Connection: Ethernet - must support at least 100 Mb

   c. Server Hardware:

       (1) CPU: Zeon 2 GHz or higher
       (2) Memory: 1 GB RAM minimum
       (3) Hard Disk: 10 GB Fast Open or larger (e.g., SCSI) Raid 0 for Operating System, Raid 5 for Data
       (4) Operating System:
          (a) Windows 2000 SP4
          (b) Windows 2003 Server
       (5) LAN Connection: Ethernet - must support at least 100 Mb

4. Software Recommendations:
       (1) Office Productivity: MS Office XP Standard Edition (recommended)
       (2) Simple Terminal Emulation:
          (a) TELNET3270 or
          (b) TELNET5250
       (3) Advanced 3270/5250 Terminal Emulation with Host Addressable Printing
          (a) IBM Host Client Access Package
       (4) Internet Browser:
          (a) MS Explorer 5.0 or higher with 128-bit encryption, and XML compliance. or
          (b) Netscape 4.78 or higher with 128-bit encryption, and XML compliance.
       (5) Virus Protection:
          (a) Anti-Virus software (Norton Anti-Virus recommended)
          (b) Anti-Virus subscription service to protect against newest attacks

5. All agencies and local government agencies that utilize networking services of the Nebraska Department of Administrative Services' Information Management Services Division and/or the Division of Communications should migrate to Windows NT 4.0 or Windows 2000 Professional in order to support network security.

6. Any agency or local government agency that operates a direct connection to the public Internet shall implement security procedures that are consistent with NITC security policies, including firewall services.

7. All agencies that receive public Internet e-mail service shall implement security procedures that are consistent with NITC security policies, including the requirement of virus protection on the desktop or mail server.

8. There is far more to the cost of a personal computer than its initial purchase cost. In fact, the purchase cost of the PC usually represents only a small fraction of the total cost of using and supporting the PC over its lifetime. Consulting firms typically calculate PC ownership, depending on the environment, as costing anywhere from $8,000 to $12,000 per year. Costs arise from categories like user wasted time, software, peer support, training and technical support. Industry standards indicate that the ratio of one full-time technical support person is required for every 50 PCs.

D. Key Definitions
1. <u>Agency</u> shall mean any governmental entity, including state government, local government, or third party entities under contract to the agency.
2. <u>Networking Services</u> shall mean any system that transmits any combination of voice, video, and/or data between users.

E. Applicability
These guidelines are intended to be sufficiently generic to apply to a wide range of governmental and educational agencies in the State of Nebraska.

Agencies should follow these guidelines whenever they intend to support networking services on the desktop. The guidelines may not apply whenever the desktop does not share network services, when there is no connection to state or local networking services, or whenever an application requires a different hardware and software configuration to perform a specific function.

Title	Minimum Workstation Configuration Guidelines for K-12 Public Education
Category	Hardware Architecture
Date Adopted	(Resource Document Only - Approved by the Technical Panel on August 13, 2003)
Date of Last Revision	August 13, 2003

A. Authority

Section 86-1506 (6). "(The Nebraska Information Technology Commission shall) adopt minimum technical standards, **guidelines**, and architectures upon recommendation by the technical panel created in Section 86-1511."

B. Purpose and Objectives

The purpose of this document is to recognize the responsibility of the NITC to establish recommended **minimum** configurations for personal computers. Minimum configurations are established in order to simplify technical support and enable a secure desktop environment. Minimum configuration guidelines established by the NITC will (must) change over time in response to requirements of newer applications or operating systems.

These guidelines provide a suggested set of minimum configurations that schools and districts can adopt or modify to meet their specific needs. These guidelines are not intended to endorse or support any single hardware or software vendor. These guidelines are subject to periodic review and revision.

As minimum configurations, these guidelines are recommendations to be considered in conjunction with other factors, including financial constraints, performance requirements of specific applications, and the networking environment of a school or district.

The primary objective of these guidelines include recommendations to:
A. Improve versatility and compatibility of desktop systems;
B. Insure that personal computer configurations procured with state funds can operate efficiently in today's high speed connected environment;
C. Provide a guide to schools and districts on when to upgrade existing personal computers;
D. Reduce technical support problems; and,
E. Provide a secure desktop operating system.

As the State of Nebraska begins to develop Internet enabled applications, and e-Government and e-Business applications that are delivered over public and private Intranets and the Internet, it is imperative that schools and districts maintain desktop clients that can efficiently run these new applications. Computers should be able to:
1. Execute network applications that adhere to open standards;
2. Support Internet technologies that adhere to open standards;
3. Extend the desktop communications to the state telecommunications backbone;

4. Support those e-Business and e-Government applications that are appropriate for K-12 environment; and,
5. Provide desktop security, encryption, and virus protection services when connected to the state telecommunications systems.

C.   *Standards and Guidelines*
1. K-12 institutions should endeavor to manage computers as assets. This concept is similar to good management of other physical assets. Technology Plans submitted to the State Department of Education include a planning process for determining, adopting, and periodically upgrading the workstation configurations that meet the school's or district's specific internal needs and any new external requirements. Technology Plans will address options for implementation such as phasing in new purchases, moving older computers to less demanding uses, or surplusing.

2. Existing Personal Computers:

   Schools and Districts should be advised to develop a plan to upgrade or replace existing personal computers if they do not support the following minimum system requirements:

   Minimum Hardware Guidelines for Existing Personal Computers
   > (1) CPU: 233 MHz (Intel or equivalent CPU, PowerPC, SPARC)
   > (2) Memory: 64 MB RAM
   > (3) Hard Disk: 2 GB hard disk with a minimum of 650MB of free space
   > (4) Operating System:
   >   (a) Windows 98
   >   (b) Macintosh OS 9
   > (5) LAN Connection:
   >   (a) Ethernet 10Mb

3. Minimum New Personal Computer Purchasing Guidelines:

   When purchasing new personal computers, schools or districts should consider the following minimum guidelines.

   a. Standard Desktop Hardware
   > (1) CPU: 2GHz Intel or equivalent CPU, 800Mhz G4, 550Mhz SPARC, or higher
   > (2) Memory: 256 MB RAM
   > (3) Disk: 40 GB
   > (4) LAN Connection:
   >   (a) Ethernet: 10/100 Mb
   > (5) Operating System:
   >   (a) Windows 2000 professional or Windows XP
   >   (b) Mac OS X with Classic environment
   >   (c) Solaris 8 or 9
   >   (d) Linux

     b. Server Hardware:
       (1) CPU: 2GHz Intel, (or equivalent), 1 GHz G4, or 1GHz UltraSPARC III
       (2) Memory: 512 MB RAM minimum
       (3) Disk: 80GB
       (4) LAN Connection:
          (a) 100/1000Mb
       (5) Operating System:
          (a) Windows 2000 Server or Windows Server 2003
          (b) OS X Server
          (c) Solaris 8 or 9
          (d) Linux

4. Software Recommendations:
       (1) Office Productivity: Current MS Office, AppleWorks 6.2 or Star Office
       (2) Simple Terminal Emulation:
          (a) TELNET3270 or
          (b) TELNET5250
       (3) Advanced 3270/5250 Terminal Emulation with Host Addressable Printing
          (a) IBM Host Client Access Package
       (4) Internet Browser:
          (a) MS Explorer 6 with 128-bit encryption, and XML compliance-or
          (b) Netscape 7.1 with 128-bit encryption, and XML compliance. or
          (c) Safari 1.0 with 128-bit encryption, and XML compliance
       (5) Virus Protection:
          (a) Anti-Virus software
          (b) Anti-Virus subscription service to protect against newest attacks

5. Any school or district that operates a direct connection to the public Internet shall implement security procedures that are consistent with NITC security policies, including firewall services.

6. All schools or districts that receive public Internet e-mail service shall implement security procedures that are consistent with NITC security policies, including the requirement of virus protection on the desktop or mail server.

7. There is far more to the cost of a personal computer than its initial purchase cost. In fact, the purchase cost of the PC usually represents only a small fraction of the total cost of using and supporting the PC over its lifetime. Consulting firms typically calculate PC ownership, depending on the environment, as costing anywhere from $8,000 to $12,000 per year. Costs arise from categories like user wasted time, software, peer support, training and technical support. Industry standards indicate that the ratio of one full-time technical support person is required for every 50 PCs.

D. Key Definitions

1. <u>Schools and Districts</u> shall mean any public education institution providing instruction to students from Kindergarten to Grade 12 and Educational Service Units.

E. *Applicability*

This document is intended to provide schools and districts with a set of working guidelines that can be referenced when updating technology plans filed with the State of Nebraska, Department of Education.

Schools and Districts should follow these guidelines whenever they intend to support networking services on the desktop. The guidelines may not apply whenever the desktop does not share network services, when there is no connection to state or local networking services, or whenever an application requires a different hardware and software configuration to perform a specific function.

Title	**Disaster Planning Procedures for Information Technology**
Category	**Security Architecture**
Applicability	**All Public Entities** (See the "Applicability" section below.)
Status	☐ **Standard** - A degree or level of requirement that all jurisdictions should use, which would be enforceable by duly authorized entities. With any standard, there may be circumstances that merit exceptions. ☑ **Guideline -** A statement of general policy or procedure by which to determine a course of action. Adherence is voluntary.
Date Adopted	**November 13, 2002**
Date of Last Revision	
Date of Next Review	**November 2004**

A. Authority

Section 86-516 (6). "[The Nebraska Information Technology Commission shall] adopt minimum technical standards, guidelines, and architectures upon recommendation by the technical panel."

The Nebraska Information Technology Commission (NITC) has adopted a security policy pertaining to disaster recovery, which states that:

"Each agency must have a disaster recovery plan that at least identifies and mitigates against risks to critical systems and sensitive information in the event of a disaster. The plan shall provide for contingencies to restore information and systems if a disaster occurs. The disaster recovery plan for information technology may be a subset of an agency's comprehensive disaster recovery plan. The concept of a disaster recovery includes business resumption." (http://www.nitc.state.ne.us/standards/index.html)

B. Purpose and Objectives

Information technology (IT) and automated information systems are vital elements in most business processes. Because these IT resources are so essential to an organization's success, it is critical that the services provided by these systems are able to operate effectively without excessive interruption. Contingency planning supports this requirement by establishing thorough plans, procedures, and technical measures that can enable a system to be recovered quickly and effectively following a service disruption or disaster. Interim measures may include the relocation of IT systems and operations to an alternate site, the recovery of IT functions using alternate equipment, or the performance of IT functions using manual methods.

This template provides instructions, recommendations, and considerations for Nebraska State Government IT contingency planning. It discusses essential contingency plan elements and processes, highlights specific considerations and concerns associated with contingency planning for various types of IT systems, and provides examples to assist readers in developing their own IT contingency plans. The scope ranges from minor incidents causing short-term disruptions to disasters that affect normal operations for an extended period. Because IT systems vary in design and application, specific incident types and associated contingency measures are not provided in this document. Instead, the planning guide defines

a process that may be followed for any IT system to identify planning requirements and develop an effective contingency plan.

C. Assumptions

Following is a list of typical planning assumptions to be considered in writing the disaster recovery plan. Each agency must review and modify this list to meet their specific requirements. In particular, this list of assumptions does not entail certain worst-case scenarios, such as losing staff that would perform critical functions in exercising the disaster recovery plan.

1. The IT business continuity plan is part of a bigger plan that covers areas outside of IT (i.e., facilities, personnel, etc). The Nebraska Emergency Management Agency (NEMA) is currently revising the State Emergency Operations Plan (SEOP). Changes to the SEOP may provide state and local government with guidance on preparing business continuity plans that address internal operations and the ability to provide public services following a disaster. The relationship between the IT business continuity plan and the overall agency business continuity plan includes the following points:
    o   The IT business continuity plan is a subset of the agency's overall business continuity plan.
    o   Internal and external dependencies will be listed in the IT business continuity plan.
    o   The IT business continuity plan will address internal dependencies, and the agency's overall business continuity plan will address external dependencies.
2. The plan will be approved and endorsed by management.
3. The plan will only cover critical information systems in the order of the highest priority. It will not cover every information system within an organization.
4. Staff is available to perform critical functions defined within the plan.
5. Staff can be notified and can report to the backup site(s) to perform critical processing, recovery and reconstruction activities.
6. Off-site storage facilities and materials will survive.
7. The disaster recovery plan is current.
8. Subsets of the overall plan can be used to recover from minor interruptions.
9. An alternate facility is available.
10. The necessary utilities (i.e., long distance and local communications lines, Wide Area Network and Internet connectivity, power, etc.) are available to the organization as defined in the dependencies section of the plan.
11. Outside organizations, including vendors will perform according to their general commitments to support the organization in a disaster.
12. Development, test, and implementation of new technologies and applications will be suspended during the disaster so that all resources will be available to the recovery.
13. Other assumptions.

D.   IT Contingency Planning Process
To develop and maintain an effective IT contingency plan, organizations should use the following approach in the sequence shown:

1. *Develop the contingency planning policy statement.*
    A formal policy provides the authority and guidance necessary to develop an effective contingency plan. The Security Architecture Work Group (a Work Group sponsored by the Technical Panel of the Nebraska Information Technology Commission) developed the

state's Disaster Recovery Policy:
http://www.nitc.state.ne.us/tp/workgroups/security/security_policies.htm.

2. *Conduct the business impact analysis (BIA) and risk analysis (RA).*
The BIA helps to identify and prioritize critical IT systems and components. It's purpose is to correlate specific system components with the critical services that they provide, and based on that information, to characterize the consequences of a disruption to the system components. Key steps include listing critical IT resources, identifying disruption impacts and allowable outage times, and developing recovery priorities.

When working on the BIA phase of the IT continuity plan, there are two goals to keep in mind for each business process: the recovery time objective (RTO) and the recovery point objective (RPO). RTO defines the tolerable maximum length of time that a business process can be unavailable, while RPO defines how much work in progress can be lost.

The BIA and risk assessment procedures are documented in Chapter 3 of the Security Officer Instruction Guide (http://www.nitc.state.ne.us/tp/workgroups/security/documents.htm). Business continuity coordinators should reference that document for information on conducting an BIA. NIST SP 800-34 contains a sample BIA process and template that may also be used.

Having determined the impacts, it is now important to consider the magnitude and likelihood of risks. Again, this is a critical activity - it will determine which scenarios are most likely to occur and which should attract most attention during continuity planning. This should include both partial and total system loss as well as least and worst case scenarios. Assessing the probability of an event and the likely loss should it occur associated with specific disaster scenarios helps determine appropriate and cost-effective preventive controls and recovery strategies.

3. *Identify preventive controls.*
In some cases, the outage impacts identified in the BIA may be mitigated or eliminated through preventive measures that deter, detect, and/or reduce impacts to the system. Where feasible and cost-effective, preventive methods are preferable to actions that may be necessary to recover the system after a disruption. Preventive controls should be documented in the contingency plan, and personnel associated with the system should be trained on how and when to use the controls. Adequate insurance coverage is one means to mitigate the financial impact of a disaster.

Business continuity coordinators should list all preventive controls.

4. *Develop recovery strategies.*
Recovery strategies provide a means to restore IT operations quickly and effectively following a service disruption. Strategies should address disruption impacts and allowable outage times identified in the BIA. Several alternatives should be considered when developing the strategy, including cost, allowable outage time, security, and integration with larger, organization-level contingency plans. These strategies should be prioritized, based on the scenarios developed in the risk analysis phase.

The selected recovery strategy should address the potential impacts identified in the BIA/RA and should be integrated into the system architecture during the design and implementation phases of the system life cycle. It should include a combination of methods that complement one another to provide recovery capability over the full spectrum of incidents. A wide variety of recovery approaches may be considered; the

appropriate choice depends on the incident, type of system, budget resources and its operational requirements as determined in the previous phases.

Assumptions and dependencies should be identified as part of the recovery strategy. These are areas beyond the scope of control of the planners.

5. *Format an IT Contingency Plan.*
IT contingency plan development is a critical step in the process of implementing a comprehensive contingency planning program. The plan contains detailed roles, responsibilities, teams, and procedures associated with restoring an IT system following a disruption. The contingency plan should document technical capabilities designed to support contingency operations. Each organization must tailor the contingency plan and its requirements to fit their needs. Plans need to balance detail with flexibility; usually the more detailed the plan, the less scalable and versatile the approach.

The contingency plan comprises five main components:
- Supporting Information
- Notification/Activation Phase
- Recovery Phase
- Reconstitution Phase
- Plan Appendices

See Section IV for more details.

6. *Plan Testing, Training, and Exercises.*
Each IT contingency plan element should be tested to confirm the accuracy of individual recovery procedures and the overall effectiveness of the plan. Testing enables plan deficiencies to be identified and addressed. Testing also helps evaluate the ability of the recovery staff to implement the plan quickly and effectively.

The ideal disaster test scenario uses a true-to-life model that draws participants into the exercise and allows them to test their procedures realistically. The test scenario may be at any level from a single system to an entire enterprise being affected. Planners should use explicit test objectives and success criteria in their test plan in order to assess the effectiveness of each plan element and the overall plan. Information collected during the test and post-test reviews that improve plan effectiveness should be incorporated into the contingency plan.

7. *Plan Maintenance.*
To be effective, the plan must be maintained in a ready state that accurately reflects system requirements, procedures, organizational structure, and policies. IT systems undergo frequent changes because of shifting business needs, technology upgrades, or new internal or external policies. Therefore, it is essential that the contingency plan be reviewed and updated regularly, as part of the organization's change management process, to ensure new information is documented and contingency measures are revised if required. Responsibility for plan currency must be assigned as part of critical job duties. As a general rule, the plan should be reviewed for accuracy and completeness at least annually or whenever significant changes occur to any element of the plan. Certain elements will require more frequent reviews, such as contact lists. Based on the system type and criticality, it may be reasonable to evaluate plan contents and procedures more frequently.

The business continuity plan should be stored away from the organization's primary facility. Records management has the ability to store these documents in their repository; however, they take no responsibility for the documents.

E. Contingency Plan Development

This section discusses the key elements that comprise the contingency plan. The plan contains detailed roles, responsibilities, teams, and procedures associated with restoring an IT system following a disruption. It should be tailored to each department or agency.

1. *Supporting Information*

    The Supporting Information component includes an introduction and concept of operations section that provides essential background or contextual information that makes the contingency plan easier to understand, implement, and maintain. These details aid in understanding the applicability of the guidance, in making decisions on how to use the plan, and in providing information on where associated plans and information outside the scope of the plan may be found.

    a) Introduction Section

    This section orients the reader to the type and location of information contained in the plan. It contains the following subsections:

    i) Purpose

    ii) Applicability

    iii) Scope

    (1) Scenarios

    (2) Assumptions

    (3) Dependencies

    iv) References/requirements

    v) Record of Changes

    b) Concept of Operations

    This section provides additional details about the IT system, the contingency planning framework; and response, recovery, and resumption activities. This section may include the following elements:

    i) System Description

    ii) Line of Succession

    iii) Responsibilities

    iv) External Communications

2. *Notification/Activation Phase*

    The Notification/Activation Phase defines the initial actions taken once a system disruption or emergency has been detected or appears to be imminent. This phase should clearly designate who has the authority to declare a disaster and define the level of the emergency. The Notification/Activation phase includes activities to notify both management and recovery personnel, assess system damage, and implement the plan. Notification/Activation must match the overall organizational recovery plan. At the completion of the Notification/Activation Phase, recovery staff will be prepared to perform contingency measures to restore system functions on a temporary basis.

3. *Recovery Phase*

    The Recovery Phase begins after the contingency plan has been activated, damage assessment has been completed (if possible), personnel have been notified, and appropriate teams have been mobilized. Recovery phase activities focus on contingency measures to execute temporary IT processing capabilities, repair damage to the original system, and restore operational capabilities at the original or new facility. At the completion of the Recovery Phase, the IT system will be operational and performing the functions designated in the plan. Depending on the recovery strategies defined in the plan, these functions could include temporary manual processing, recovery and operation

on an alternate system, or relocation and recovery at an alternate site. Teams with recovery responsibilities should understand and be able to perform these recovery strategies well enough that if the paper plan is unavailable during the initial stages of the event, they can still perform the necessary activities.

4. *Reconstitution Phase*
In the Reconstitution Phase, recovery activities are terminated, and normal operations are transferred back to the organization's facility. If the original facility is unrecoverable, the activities in this phase can also be applied to preparing a new facility to support system processing requirements. Once the original or new site is restored to the level that it can support the IT system and its normal processes, the system may be transitioned back to the original or to the new site. Until the primary system is restored and tested, the contingency system should continue to be operated. The Reconstitution Phase should specify teams responsible for restoring or replacing both the site and the IT system.

5. *After Action Review*
An After Action Review (AAR) is an assessment conducted after the business continuity activity (i.e., disaster, test, etc.) that allows employees and leaders to discover what happened and why. It may be thought of as a professional discussion of an event that enables employees to understand why things happened during the progression of the process and to learn from that experience. The AAR is an essential element to complete the four-step planning cycle of review, update, modify, and plan.

6. *Contingency Plan Appendices*
Contingency Plan Appendices provide key details not contained in the main body of the plan. The appendices should reflect the specific technical, operational, and management contingency requirements of the given system. Appendices can include, but are not limited to contact information for contingency planning team personnel; vendor contact information, including offsite storage and alternate site POCs; standard operating procedures and checklists for system recovery or processes; equipment and system requirements lists of the hardware, software, firmware, and other resources required to support system operations; vendor agreements, reciprocal agreements with other organizations, and other vital records; description of, and directions to, the alternate site; and the BIA.

F. *Applicability*
The issue of disaster recovery planning for information technology applies to any agency or institution that relies on information technology to support critical business functions. Agencies or institutions should follow a structured methodology, such as these guidelines, in developing a disaster recovery plan for information technology.

G. *Responsibility*
1. Nebraska Emergency Management Agency (NEMA). NEMA is responsible for preparing and maintaining the State Emergency Operations Plan. One element of this plan pertains to continuity of government operations. Disaster planning procedures for information technology is a subset of continuity of government operations.
2. State Records Management Division, Secretary of State's Office. The Records Management Division serves as a repository for back-up media. The Records Management Division will also store electronic and paper copies of an agencies disaster recovery plan.

3. Agency and Institutional Heads. The highest authority within an agency or institution is responsible for the protection of information resources, including developing and implementing information security programs, including disaster recovery plans for information technology. The authority may delegate this responsibility but delegation does not remove the accountability.
4. Agency Information Officer. In most cases, the highest authority within an agency or institution delegates the general responsibility for security of the agency's information technology resources to the agency's highest-ranking information technology professional. This responsibility includes development and promulgation of agency-specific information security policies, including disaster recovery planning for information technology.
5. Agency Security Officer. In some cases, the Agency Information Officer assigns an Agency Security Officer who is responsible for preparing a disaster recovery plan for information technology. They must understand the risks posed by disruption of computer systems. They must help prepare contingencies and be ready to implement the disaster recovery plan for information technology.

H. Related Standards and Guidelines
1. NITC Disaster Recovery Policy (http://www.nitc.state.ne.us/tp/workgroups/security/security_policies.htm)
2. NITC Security Officer Handbook (http://www.nitc.state.ne.us/standards/security/so_guide.doc)
3. Nebraska Emergency Management Agency – Information Paper on Continuity of Operations Plan (available from NEMA at 402.471.7430)

I. References
1. NIST SP 800-34, Contingency Planning Guide for Information Technology Systems, http://csrc.nist.gov/publications/drafts/ITcontingency-planning-guidelines.pdf
2. Business Continuity Planning & Management on-line, http://www.contingencyplanning.com/
3. Disaster Recovery Journal, http://www.drj.com/
4. Contingency Planning and Disaster Recovery, http://www.disasterplan.com/
5. Kansas, Department of Administration, Contingency Planning On-Line, http://csrc.nist.gov/publications/drafts/ITcontingency-planning-guideline.pdf
6. FEDERAL EXECUTIVE BRANCH CONTINUITY OF OPERATIONS (COOP), http://www.fas.org/irp/offdocs/pdd/fpc-65.htm

J. Additional Information For State Agencies
1. Insurance Coverage. State agencies should consider insurance coverage to mitigate the financial impact of a disaster. The Risk Management Division of the Department of Administrative Services offers two types of insurance coverage. Content insurance applies to fixtures and equipment within a building. Current cost is $.05 per $100 value, with a $5,000 deductible per event. Inland Marine Insurance covers non-permanent fixtures that are highly portable, such as laptops. The cost is $.12 to $.15 per $100 value. When calculating the value of equipment to be covered, agencies should include the cost of any services that might be used to restore services. Insurance should not be used instead of good disaster planning and mitigation strategies.

The Risk Management Division is working with the state's insurance broker to narrow the current exclusion of "terrorism". The state's insurance contracts provide some assistance with conducting risk assessments. The state's insurance broker also offers business continuity planning services for a fee.

2. Personnel issues. Agencies should be aware of labor contract requirements when developing their disaster recovery plans. The labor contract may affect options regarding leave time when the work site is not available, ability to work at an alternate site, working from home, and other issues. Counseling is available through the state's employee assistance program contract. Temporary staff is available through State Personnel's SOS program and IMServices' contractual services agreements.

3. Purchasing Issues. The Materiel Division can assist agencies with replacing equipment. Surplus Property is one option to consider. Existing contracts facilitate acquiring equipment, without the need for bids. The contract with IBM obligates the vendor to give priority and expedite shipment in the event of a disaster. Similar terms are being negotiated with Dell. Agencies should maintain complete equipment lists, including current configurations.

4. Information Management Services Division. IMServices houses much of the state's data and applications either on the mainframe or LAN servers located in the 501 Building. As custodians of this equipment and information, IMServices has its own disaster recovery plans to protect those assets. Agency information technology disaster recovery plans are simplified when IMServices manages the hardware, software and data resources, but agencies should include references and communications with IMServices regarding expectations for how much and how fast their applications and data functions need to be restored. Procurement of replacement LAN servers housed in 501 but owned by an agency are the responsibility of the agency. IMServices provides and manages backup services for mainframes, LAN servers at the 501 Building, and agency-owned servers that may be located anywhere on the campus LAN. Backup tapes (and the Gator backup System) are housed in the Capitol Computing Center and will be available for business resumption once the platform and/or network are restored.

A Business Impact Analysis process to aid in applying the appropriate level of planning and investment against loss of IT assets and capability is contained in the Security Officer Guide developed by the NITC (http://www.nitc.state.ne.us/standards/security/so_guide.doc).

5. Communications. The Division of Communications (DOC) is currently involved in a feasibility study in conjunction with IMS to determine if the existing core routing equipment can be duplicated off site, or split between two sites. DOC carries a limited amount of spare equipment that can be used at disaster sites, and we require our main vendors (Qwest and Alltel) to carry a certain number of spares. Although we do not have a formal agreement with the telcos, we expect to receive priority service from the telcos in the event of an emergency. DOC also has caches of cellular phones located at strategic positions about the State that can be quickly activated and distributed. DOC also assists agencies, such as NEMA, for coordinating radio communications when needed.