

Strategic Plan
Yamhill County
Land Information System Review

1. INTRODUCTION

Yamhill County is in the process of developing a Land Information System (LIS) using both Automated Mapping Tools and Geographic Information Systems (GIS). The county started developing the LIS in approximately 1993 when the Assessor's Office began automating tax maps. The mapping effort was expanded a few years later when the county contracted with Prison Industries to automate most of the assessor's maps using a grant for DLCDC. Unfortunately this mapping effort did not yield satisfactory results. The county started using GIS technology to assist in system development in 1995. An implementation plan for GIS was developed and resources were placed within the IS department. GIS activities continued to be managed within the IS department and the Assessor's Office continues to map and maintain tax maps today. The Planning and Development Department, Public Works and Surveying are all users of GIS and Automated Mapping technology and are part of the Land Information System.

This report was developed to review the current Land Information System (LIS) at the county. The next section of this report will be used to:

- Review how departments are using existing tools and information.
- Examine how departments want to use the tools and information.

The third section will be used to review the original goals and objectives for GIS activities, summarize management perspectives, and to identify barriers and opportunities for continued implementation. The fourth section will discuss alternatives and recommendations for implementation and the final section will be used to document a selected implementation plan.

2. DEPARTMENT REVIEW

As part of the review project all department heads were met with collectively to provide an overview of the their department and how they used the GIS/AM tools. In addition, departments were met with individually and staff interviewed to obtain their perspectives. This section documents this effort.

Assessor

The Assessor's Office is responsible for both Assessment and Taxation. The office is partitioned into a cartography, appraisal, taxation, and office support sections. Cartography is responsible for maintaining approximately 1100 county tax map so that it meets state DOR mapping standards. Cartography also produces acreage summaries for taxlots as part of the property appraisal process and generates area summaries for soil values, identifies deferrals, and review existing zoning. Cartography uses microstation tools to support it's automated mapping needs. Each map is maintained separately in a local coordinate system. Cartography also uses mylar aerial photos, digital orthophotos of urban areas, paper zoning maps, and paper soil value maps.

The department uses an in-house developed system for managing the approximately 38,000 A&T tax records that resides on a UNISYS computer stored in a proprietary DBMS engine. The system is accessed via PC's using terminal emulation. The system works well and meets county needs.

The department is the key to the processing of land transactions. A typical transaction follows these basic steps.

1. Clerk Records Deed or Plat and the information passed on to A&T
2. Staff runs the deed and determines if it is simple land transaction or involves a change of boundary. Simple transactions are passed to office support for entry into the system. Boundary changes are passed on to cartography.
3. Cartography maps the change and generates acreage summaries for the appraisal staff.
4. Office support staff enter the changes into the system and pass it on to the appraisers for appraisal.
5. Appraisers appraise property
6. Office support enters information into the system.

Once entered the information is shared with other departments and provided to the public.

Where The Department Is Now

The following list summarizes how the department currently uses land information.

- Property information is integrated in an A&T system that is accessible county-wide.
- Maps are maintained in an Automated Mapping System in local coordinates.
- Maps meet state mapping requirements.
- Several needed layers including aerial photos, soils, and zoning are not automated.
- Appraiser use paper copies of the A&T Maps
- Support information such as photos and building diagrams are manual or are not integrated.
- Maps are not integrated into a county-wide system.
- The map maintenance process that is in place works to produce that standard map.

Where The Department Would Like To Be

The following list briefly summarizes how the department would like to use land information.

- One map is used and maintained by cartography.
- All needed land based information is automated and accessible.
- Map information is digitally linked to A&T system.
- Support information (photos & diagrams) is digital and linked.
- Other departments can access maps and A&T information as needed.
- Clerk system is better integrated with the land transaction process.
- Maps and other A&T information are available to the public using appropriate technology.
- A mapped taxlot can be found using an owner name and an owner can be found using the map.

Planning and Community Development

The Planning and Community Development Department is responsible for planning, building development, code enforcement and sanitation. Planning supports daily planing efforts and some long range planning. Building development includes support staff, the building official, and inspectors for electrical, plumbing and construction. Code enforcement is responsible for enforcement of development code including planning and building. Sanitation is responsible for on-site sanitation facilities in rural areas.

Planning using Microstation Software to look at A&T maps and ArcView Software to look at the edgematched township maps. They track planning applications manually. Building development uses an in-house developed system for managing the permits records that resides on a UNISYS computer stored in a proprietary DBMS engine. The system is accessed via PC's using terminal emulation. The system is integrated with the A&T system using the tax account key. The system works well and meets county needs.

Code enforcement tracks violations manually. Septic permits are being added to the permit system at this time.

The planing department is responsible for managing planing applications. The following briefly summarizes this process.

1. Request for action made by the public
2. Staff check property, identify ordinances and assist application with selecting a development alternative.
3. Application is submitted.
4. Staff review application and notify public as required.
5. Staff develop report that reviews application.
6. Hearing process.
7. Dependant on results of hearings process development is approved or denied.

Where The Department Is Now

The following list summarizes how the department currently uses land information.

- Use Paper Maps to support decision making
- Use A&T Maps (digital – use microstation to look at them)
- Use A&T system for access to property information
- Permit system is complete and integrated with A&T
- Use Township edgematched maps (digital – use ArcView to look at them)
- Counter support uses paper maps
- Any long range planning relies on paper mapping procedures
- Maintenance of county zoning maps are paper

Where the Department Would Like to be

The following list briefly summarizes how the department would like to use land information.

- Departmentally managed layers such as zoning are maintained digitally.
- Staff have access to one base map which is integrated to A&T and Permit system.
- Other data layers are digital and easily accessible including: Zoning, Comprehensive Plan, City boundaries, UGB, Areas of influence within county, Aerial Photos, Floodplain boundaries and analysis, Willamette River Greenway, Soil boundaries and relevant soil information, Critical fish and wildlife habitat, Topography, Building locations on parcels, Utilities, Future comprehensive plan areas
- Property notifications can be quickly made using digital tools.
- Planing tests can be quickly done using digital tools.

- Planning documents are digital and accessible.
- Lawfully created taxlots are managed on top of the A&T map.
- Staff know what information is available and can quickly use it to support business functions.

IS/GIS

The Information System and Geographic Information Systems is responsible for managing information technology for the county. The department provides services to the other departments so that they can utilize computer technology to support their business needs. The department has staff to support computers and networks, staff to support the integrated information system, and staff to support GIS technology. The county network is PC based, uses NT servers, and some Novell technology. Integrated Information Systems are managed within a UNISYS platform using a proprietary DBMS engine. The system is accessed via PC using terminal emulation. External connection to the system using ODBC drivers is currently being tested. Two GIS staff use a combination of ArcView, Arc/Info and Microstation tools to build and maintain several county-wide digital base layers, produce maps as required, and are building a continuous ownership based on the A&T taxmaps.

Where The Department Is Now

The following list summarizes how the department currently uses land information.

- Property and permit information is integrated in an A&T system that is accessible county-wide.
- GIS activities has full departmental support.
- Adequate hardware and software infrastructure exists.
- Products and maps, such as county-wide maps produced by GIS have good acceptance.
- Adequate software and hardware tools exist.
- Lots of data layers have been developed.
- Expectations remain high.
- Taxlots have been combined into township-wide layers.

Where the Department Would Like to be

The following list briefly summarizes how the department would like to use land information.

- One base map is used and maintained by cartography.
- Users maintain their own data
- GIS staff develop applications to improve access to data.
- Township map is edgematched.

- Township map is linked to A&T.
- Management supported plan for implementation exists.
- GIS staff complete projects to support departments where needed.
- Useful tools that allow better access to data are available for departments to use.

Surveyor

The Surveyor is responsible for corner restorations, review and management of surveys, processing of plats, and support of other departments. The department uses Tremble GPS technology and total stations to support field work. PCMaps is used to manage survey information. The corner index system is used to manage corners. AutoCAD is used to support drafting. TraversePC is used to complete math checks of surveys. Survey images are scanned and managed with PCMaps software.

Where The Department Is Now

The following list summarizes how the department currently uses land information.

- Survey index is working and tabular information has been entered, digital images created and survey locations are being entered.
- GPS and CAD equipment works adequately.
- Restorations are being completed slowly and digital coordinates are digitally stored and shared with GIS.
- Roads have been located with GPS equipment.

Where the Department Would Like to be

The following list briefly summarizes how the department would like to use land information.

- Need one controlled base map to work with.
- Township maps are edgematched.
- Basemap is connected to the A&T system.

Public Works

The Public Works Department is responsible for managing roads for the county. The department uses the IRIS system for support and is participating in testing GIS technology within IRIS at AOC. The department obtains a fair amount of support from GIS to complete special GIS projects.

Where Department Is Now

The following list summarizes how the department currently uses land information.

- Roads have GPS locations.
- Photos are available digitally.
- IRIS works well.
- IRIS GIS tools look like they will work and are being tested.
- Some layers are maintained internally using tools developed by GIS.

Where the Department Would Like to be

The following list briefly summarizes how the department would like to use land information.

- Taxlot map linked to property information is accessible.
- Other data layers are accessible.

3. MANAGEMENT REVIEW

This section will be used to review the original goals and objectives, summarize management perspectives, and to identify barriers and opportunities for continued implementation.

Original Policies and Goals

As part of the review process department heads and staff met together and reviewed the original policies and goals for GIS. They agreed that these policies and goals were still valid as follows.

Policies

- Land information is a county-wide asset and should be managed like any other part of the county infrastructure.
- Land information must be managed in a multi-departmental environment and must easily cross department boundaries.
- The land information program will require a multi-year investment in order to produce significant returns.

Goals

- Decrease time and cost required to maintain county land information
- Improve the quality and availability of land information for the county staff, policy makers, and the public.
- Completely implement and fully utilize the capabilities of current and future GIS system applications. Integrate them into the core of most county functions that deal with land, resources, and people.

Management Group

The department heads and support staff for LIS met and discussed where LIS is at the county and where they would like to see it be.

Where LIS Is At Now

The following list summarizes how LIS exists at the county at this time.

- Many aspects of the land information system are in place including hardware, staff, many data layers, and management support.
- Lots of money has been spent.
- The LIS program has much support from Dept. heads and from BOC.

- The program needs to produce returns to justify investments.
- Some areas are working well, but an overall integrated system does not exist.
- Two basemaps of ownership taxlot exist.
- The initial map conversion vendor, Prison Industries, did not deliver the required product.
- At times A&T and GIS have had some miscommunication.
- The departments get along and department heads want the implementation to be successful.
- A technical committee exists for support but until recently management has not been meeting to discuss implementation strategies.

Where Management would like LIS to be

The following list summarizes where the management team would like the LIS program to be.

- One consistent base map exists for viewing, planning, the public and communication with the BOC.
- A management team exists and defines direction for the LIS program.
- Program direction is documented with measurable outcomes.
- Agreement exists as to how accurate the base map must be.
- Departments manage their own data layers.
- Applications exist so department can access all land information as needed.
- Applications and technical support exist so departments can maintain their own information.
- GIS staff will provide support to other departments as needed.
- Maps need to be updated in a reasonable time frame.
- A simple county-wide tool needs to exist for access of information.
- More control points are needed to accurately map taxlots.

Barriers and Opportunities

As part of the LIS review the management team identified barriers and opportunities to development of a mature Land information system.

Barriers

- The clock is running and time is critical.
- One base map is needed and two exist and at this time and are not integrated.
- The implementation plan from 96/97 has not been updated.
- Not enough time or staff exists to do everything the group would like to do.
- The base map is not tied to the A&T database.
- Many departments have invested heavily and have not seen many results.

Opportunities

- Many aspects of the land information system are place.
- The needed hardware and software infrastructure is in place
- The A&T system is well organized and could be easily linked to the GIS.
- Lots of information has already been automated.
- Good cooperation exists between the departments at both management and staff level.
- GIS staff are trained and familiar with county operations.
- The county can take the program in any direction management sees fit to go.

4. PLAN RECOMMENDATIONS & ALTERNATIVES

This section will identify potential implementation alternatives for the next phase of LIS development at Yamhill County. Many of the recommendations made are already in place at the county.

Management

This section identifies the management objectives for the LIS and suggests recommendations for implementation.

Objectives

1. Management direction exists and annual objectives are reviewed and set.
2. A current implementation plan exists.
3. GIS, IS and user staff understand the plan and management direction.

Recommendations

1. A management team should exist consisting of the IS/GIS manager, Assessor, Surveyor, Public Works Director, a commissioner, and others as the program expands. The management team should be aware of program status, identify strategies for implementation, address barriers and take advantage of opportunities to ensure that the program is successful and meets county needs. The management team should meet quarterly or as needed.
Time Frame: (Completed)
2. Each department should have a lead GIS staff person. These lead people will work together to address technical issues for the management team. The technical team should agree on designs and procedures for data layers that are shared, research/review implementation alternatives, identify problem areas, and provide the management committee with information needed to manage the program. The technical committee should be supported by GIS staff.
Time Frame: (Must be formalized)
3. The technical team should meet monthly and as ad-hoc subcommittees to address technical aspects of system implementation. Quarterly the technical team should review progress of implementation and review this progress with the management team. The progress review should be a simple report that reviews annual objectives, identifies planned quarterly objectives and status, and identifies objectives for the next quarter.
Time Frame: (Starting July 1, 2001)
4. Annually the technical team should summarize the program status and identify plans for the coming year. The technical team should review this document with

management who will use it with support from the technical committee to assist in developing the coming year's budget.

Time Frame: (Prior to budget)

Data

This section identifies the objectives for managing digital data and suggests recommendations for continued implementation.

Objectives

1. One taxlot basemap is maintained and accessible.
2. A&T data is linked and accessible as part of the taxlot basemap.
3. Support data layers are accessible.
4. Departments maintain their own data layers.

Recommendations

1. The county should incrementally migrate to one base map using the following steps:
 - a. Township maps are appended together, joined with A&T information, converted to a shape file, and made accessible. A&T information will be exported to a file easily accessible to the GIS software. This layer will become an index for taxlot information. It will be very important for all to understand the limitations of this information.
Time Frame: (April 2001)
 - b. Survey, GIS and Cartography staff will test alternatives for adding additional control to one small rural and one small urban area within the county. The test will examine how to add additional control, document accuracy requirements, review methods for map adjustment, and identify how to integrate of the A&T map currently maintained by cartography. The test will be used to guide later phases of implementation.
Time Frame: (March-July 2001)
 - c. Survey and GIS staff work together obtain needed control, adjust township maps to more control, append townships together and incrementally replace the original appended township (step a). Some of this work could be paid for by ORMAP. This activity will be a multi-year task.
Time Frame: (Starting July 2001)
 - d. Cartography will place A&T maps onto the county-wide appended township maps. These maps will be spatially referenced to the county-wide appended township maps allowing users to see updates as needed. This will provide a mechanism for users to obtain more detailed and current information.

Time Frame: (March-August 2001)

- e. As townships are edge matched with control the cartographer will modify the A&T CAD map structure and adjust them to the controlled townships. Parts of this task could be a contracted job and could be partially funded by ORMAP.
Time Frame: (Starting December 2001-June 2004)
- f. A conversion routine will be developed, based on work already completed at the county, that will convert the A&T CAD maps to a format consistent with the edgematched townships. The conversion will be run for a map whenever it is updated.
Time Frame (January 2002)
- g. The county will develop a direct link between the shared taxlot shape file and the UNISYS system.
Time Frame: (June 2002)

2. Departments should get access to needed data layers using the following steps:

- a. GIS staff organize all common data layers into libraries for CAD base drawings, coverages, and shape files.
Time Frame: (March 2001)
- b. GIS and user staff review the libraries and document them. GIS staff make them accessible to user applications as required.
Time Frame: (June 2001)
- c. User staff review the libraries and identify missing layers and provide feedback through management structure for future directions.
Time Frame: (June 2001)

3. Departments should maintain their data layers. Data layers that are shared should be designed by each department with support from GIS staff and should be reviewed by the technical committee. Any development of new data layers should be tested with a small pilot. The pilot should review the design and identify the best alternative for automation, maintenance, and access.

- a. A&T maintains the taxlot map basemap (process described previously). Taxmap boundaries, taxcode boundaries and management districts will be derived from this base map using macros.
Time Frame: (Discussed previously)
- b. Surveyor staff maintain corner and survey data layers.

Time Frame: (In process)

- c. Public Works maintains the road data layer and generates support information with IRIS.

Time Frame: (Beta testing now – full implementation June 2002)

- d. Planning & Community development maintains zoning and comprehensive plan. This layer should probably be completed after the townships have been edge matched with control. Initial conversion could be done by GIS staff, planning, or as a contract. Once complete GIS staff will work with planning staff to identify and develop the appropriate tools for layer maintenance.

Time Frame: (Starting Oct 2001-July 2003)

- e. Additional layers will be identified quarterly, prioritized by management and technical staff, and implementation procedures developed. Conversion may be funded from general fund or by individual departments.

Time Frame: (Future)

Applications & Access

This section identifies the objectives for providing access to the system and suggests recommendations for continued implementation.

Objectives

1. The Land Information System is integrated into departmental activities so the system becomes an integral part of departmental function.
2. Simple tools are available to each department so that staff can access the system with little training.
3. Technical tools are available so that technical staff from each department can produce custom products as needed.
4. Departments get project support from GIS to assist in developing advanced or one-time products.
5. The public has limited access to land information.
6. Land Information is created and maintained as a function of staff doing their normal day-to-day job.

Recommendations

1. The county should implement a simple desktop solution that will provide county staff with basic access to land information.
 - a. Layers will be organized as identified.
Time Frame: (April-May 2001)

- b. Pcmaps currently owned and used by the Surveyor will be installed to provide access.
Time Frame: (April-May 2001)
 - c. Users will be trained and provide feedback to GIS staff.
Time Frame: (May -June 2001)
 - d. GIS staff will make modifications as needed and provide updates to users.
Time Frame: (July 2001)
2. GIS staff should make Arc/View and CAD tools accessible to the each technical lead for a department as advanced products are needed and as departments can invest in the advanced tools and training that go with them.
Time Frame: (August 2001)
 3. GIS staff should provide project support as requested from user staff. Projects should be reviewed by the technical team. Large projects should be reviewed by the management team prior to initiation.
Time Frame: (In Process)
 4. GIS staff should provide access to compiled maps on the Internet as images in a PDF or TIF formats for the public to access.
Time Frame: (July-August 2001)

5. SELECTED PLAN

This section will identify the selected implementation plan for the next phase of LIS development at Yamhill County. Many of the recommendations made are already in place at the county. The plan is composed of policy and goals, objectives and tasks. The following are the program policies and goals. These have not changed much since the program was implemented several years ago.

Policies

- Land information is a county-wide asset and should be managed like any other part of the county infrastructure.
- Land information must be managed in a multi-departmental environment and must easily cross department boundaries.
- The land information program will require a multi-year investment in order to produce significant returns.

Goals

- Decrease time and cost required to maintain county land information
- Improve the quality and availability of land information for the county staff, policy makers, and the public.
- Completely implement and fully utilize the capabilities of current and future GIS system applications. Integrate them into the core of most county functions that deal with land, resources, and people.

To meet the goals within the policy developed a series of objectives and supporting tasks have been developed. The objectives and tasks have been partitioned into categories that address management, data, and information access issues as described in the following subsections.

Management

This section identifies the management objectives for the LIS program and identifies tasks that will be completed to assist the county in meeting those objectives.

Objectives

1. Management direction exists and annual objectives are reviewed and set.
2. A current implementation plan exists.
3. GIS, IS and user staff understand the plan and management direction.

Tasks

1. A management team exists consisting of the IS/GIS manager, Assessor, Surveyor, Public Works Director, a commissioner, and others as the program expands. The management team will be aware of program status, identify strategies for implementation, address barriers and take advantage of opportunities to ensure that the program is successful and meets county needs. The management team will meet quarterly or as needed.

Time Frame: (Completed)

2. Each department will have a lead GIS staff person. These lead people will work together to address technical issues for the management team. The technical team will agree on designs and procedures for data layers that are shared, research/review implementation alternatives, identify problem areas, and provide the management committee with information needed to manage the program. The technical committee will be supported by GIS staff.

Time Frame: (Must be formalized)

3. The technical team will meet monthly and as ad-hoc subcommittees to address technical aspects of system implementation. Quarterly the technical team will review progress of implementation and review this progress with the management team. The progress review will be a simple report that reviews annual objectives, identifies planned quarterly objectives and status, and identifies objectives for the next quarter.

Time Frame: (Starting July 1, 2001)

4. Annually the technical team will summarize the program status and identify plans for the coming year. The technical team will review this document with management who will use it with support from the technical committee to assist in developing the coming year's budget.

Time Frame: (Prior to budget)

Data

This section identifies the objectives for managing digital data and identifies tasks that will support the objectives.

Objectives

1. One taxlot basemap is maintained and accessible.
2. A&T data is linked and accessible as part of the taxlot basemap.
3. Support data layers are accessible.
4. Departments maintain their own data layers.

Tasks

1. The county will incrementally migrate to one base map using the following steps:
 - a. Township maps are appended together, joined with A&T information, converted to a shape file, and made accessible. A&T information will be exported to a file easily accessible to the GIS software. This layer will become an index for taxlot information. Technical staff will assist all users in understanding the limitations of this information.
Time Frame: (April-May 2001)
 - b. Survey, GIS and Cartography staff will test alternatives for adding additional control to one small rural and one small urban area within the county. The test will examine how to add additional control, document accuracy requirements, review methods for map adjustment, and identify how to integrate of the A&T map currently maintained by cartography. The test will be used to guide later phases of implementation.
Time Frame: (March-July 2001)
 - c. Survey and GIS staff work together obtain needed control, adjust township maps to more control, append townships together and incrementally replace the original appended township (step a). Some of this work could be paid for by ORMAP. This activity will be a multi-year task.
Time Frame: (Starting July-August 2001)
 - d. Cartography will place A&T maps onto the county-wide appended township maps. These maps will be spatially referenced to the county-wide appended township maps allowing users to see updates as needed. This will provide a mechanism for users to obtain more detailed and current information.
Time Frame: (March-August 2001)
 - e. As townships are edge matched with control the cartographer will modify the A&T CAD map structure and adjust them to the controlled townships. Parts of this task could be a contracted job and could be partially funded by ORMAP.
Time Frame: (Starting December 2001-June 2004)
 - f. A conversion routine will be developed, based on work already completed at the county, that will convert the A&T CAD maps to a format consistent with the edgematched townships. The conversion will be run for a map whenever it is updated.
Time Frame (January 2002)
 - g. The county will develop a direct link between the shared taxlot shape file and the UNISYS system.
Time Frame: (June 2002)

2. Departments will get access to needed data layers using the following steps:

- a. GIS staff organize all common data layers into libraries for CAD base drawings, coverages, and shape files.
Time Frame: (March-May 2001)
 - b. GIS and user staff review the libraries and document them. GIS staff make them accessible to user applications as required.
Time Frame: (June 2001)
 - c. User staff review the libraries and identify missing layers and provide feedback through management structure for future directions.
Time Frame: (June 2001)
3. Departments will maintain their data layers. Data layers that are shared will be designed by each department with support from GIS staff and will be reviewed by the technical committee. Any development of new data layers will be tested with a small pilot. The pilot will review the design and identify the best alternative for automation, maintenance, and access.
- a. A&T maintains the taxlot map basemap (process described previously). Taxmap boundaries, taxcode boundaries and management districts will be derived from this base map using macros.
Time Frame: (Discussed previously)
 - b. Surveyor staff maintain corner and survey data layers.
Time Frame: (In process)
 - c. Public Works maintains the road data layer and generates support information with IRIS.
Time Frame: (Beta testing now – full implementation June 2002)
 - d. Planning & Community development maintains zoning and comprehensive plan. This layer should probably be completed after the townships have been edge matched with control. Initial conversion could be done by GIS staff, planning, or as a contract. Once complete GIS staff will work with planning staff to identify and develop the appropriate tools for layer maintenance.
Time Frame: (Starting Oct 2001-July 2003)
 - e. Additional layers will be identified quarterly, prioritized by management and technical staff, and implementation procedures developed. Conversion may be funded from general fund or by individual departments.
Time Frame: (Future)

Applications & Access

This section identifies the objectives for providing access to the system and identifies tasks that will be used to meet these objectives.

Objectives

1. The Land Information System is integrated into departmental activities so the system becomes an integral part of departmental function.
2. Simple tools are available to each department so that staff can access the system with little training.
3. Technical tools are available so that technical staff from each department can produce custom products as needed.
4. Departments get project support from GIS to assist in developing advanced or one-time products.
5. The public has limited access to land information.
6. Land Information is created and maintained as a function of staff doing their normal day-to-day job.

Recommendations

1. The county will implement a simple desktop solution that will provide county staff with basic access to land information.
 - a. Layers will be organized as identified.
Time Frame: (April-May 2001)
 - b. Pcmaps currently owned and used by the Surveyor will be installed to provide access.
Time Frame: (April-May 2001)
 - c. Users will be trained and provide feedback to GIS staff.
Time Frame: (May -June 2001)
 - d. GIS staff will make modifications as needed and provide updates to users.
Time Frame: (July 2001)
2. GIS staff will make Arc/View and CAD tools accessible to the each technical lead for a department as advanced products are needed and as departments can invest in the advanced tools and training that go with them.
Time Frame: (August 2001)
3. GIS staff will provide project support as requested from user staff. Projects will be reviewed by the technical team prior to implementation. Large projects will be reviewed by the management team prior to initiation.

Time Frame: (In Process)

4. GIS staff will provide access to compiled maps on the Internet as images in a PDF or TIF formats for the public to access.

Time Frame: (July-August 2001)