January 7, 1998

FAX Memorandum

To: GIS-GPS Work Group

From: Dr. Tom Taylor, Work Group Facilitator

Subject: 12-19-97 Work Group Meeting Report
          Attorney General Opinion Request Letter

The 12-19-97 Drafting Meeting Report and letter requesting an Attorney General's opinion are being faxed and/or e-mailed to those listed above, members of the GPS-GIS Work Group, the Geographic Information Advisory Committee and others who have expressed interest in this effort to enhance the cost effective use of GPS and related technologies and to protect the public.

As recommended at the September 10, 1997 meeting of the Work Group, the Board of Professional Surveyors and Mappers has approved proceeding with negotiated rule-making to clarify the definition of "supervision."

At the 12-19-97 meeting the Work Group initiated agreed to request an Attorney General's Opinion that could clarify acceptable and unacceptable non-surveyor uses of GPS. The letter is a compilation of Work Group products and is not a consensus statement. Please review the letter and provide your input. All comments and suggestions will be forwarded to the Attorney General's office.
Overview

On December 19th the fifth meeting of a the GPS-GIS Work Group was held. The Work Group was created by the Geographic Information Board (GIB) to find a way to address concerns expressed by state and local governments, surveyors and others about the use of Global Positioning Systems.

The work group began the meeting by reviewing Work Document #2 and the input received; this is on the web site, http://als.dms.state.fl.us/~als/pr_met2html_formatter.cgi?gb1205.met,GIB.rpt, or from the Florida Conflict Resolution Consortium, 2031 E. Dirac Drive #132, Tallahassee, FL 32310-2850, 850644-6320, ttaylor@mailer.fsu.edu. The also considered an overview of the situation prepared by Ruth Roaza and a statement on the use of GPS to perform activities traditionally done with quad maps submitted by Henry Harrell (see attached).

The group considered the following list of options for addressing the problem (detailed explanations can be found in Work Document #2):

A. Limit License Requirements to Activities that are Defined as "Professional Work"
B. Rule Waivers
C. An Alternative Regulatory Approach, expand the scope of Chapter 472 to include GIS-GPS activities - Dave Gibson's Proposal
E. Exempt Use of GPS for Activities that Were Traditionally Done With Quads
F. More Clearly Specify Activities for Which a License is Required
G. Provide Specific Exemptions of Activities
H. Use Meta-Data to Protect the Public
I. Clearly Label Non-certified Map Products

The representatives of the surveying community expressed serious concerns about considering any changes in Chapter 472 so the Work Group chose to look at other options including:

1. Changes in Rule 61G17-6002 that would more clearly specify activities and uses require licensed surveyors (thus making it clearer what activities and uses don't require a license). This could address JAPC concerns about exemptions.
2. Initiating enforcement actions to generate court decisions to address the issue.
3. Requesting that the Attorney General issue an opinion that clarifies activities that require a license.
The group chose to focus on the last option. They agree to the following plan:

1. Draft a request to the attorney General
2. Circulate the draft letter for review and comment - Week of January 5
3. Send letter to the Attorney General
4. Present the Attorney General's Opinion at the January 29 GIB meeting
5. Determine what next steps are needed

Due to the time constraints there is not time to have another meeting to seek consensus on the letter of request. Rather than try to interpret and resolve conflicting suggestions received from reviewers, the letter will be sent as drafted along with all comments received from the full Work Group and all interested parties.

12-4-97 Drafting Meeting Participants

Tom Canter          DOR
Pat Curtis           Leon County
Steve Dicks         SWFWMD
Darcy Foster        League of Cities
Henry Harrel        DOT
Lee Killinger       Association of Counties
Ray Niles           FSMS
Ruth Roaza          DEP
David Stage         GIB
Tom Taylor          Facilitator
Ron Villella        FSMS
John Willis         Private consultant
Attorney General Opinion Request

January ?, 1998

Bob Butterworth
Attorney General
Department of Legal Affairs
The Capitol
Tallahassee, FL 32399-1050

The Florida Geographic Information Board, GIB, created a Work Group to clarify when the use of global positioning systems, GPS, and related technologies must be performed or supervised by a licensed surveyor/mapper. Surveyors in the Work Group acknowledge that there are uses that should not require licensed surveyors and mappers. The problem is that Chapter 472, F.S. can be interpreted to prohibit the use of GPS by non-surveyor/mappers. The result is the inability to use cost-saving technology or incurring the additional cost of adding staff or consultant fees to provide surveyor supervision when it is not needed. The GIB does hereby request an Attorney General's opinion that clarifies GPS uses for which Chapter 472, F.S. requires a licensed surveyor and mapper and specifies uses of GPS and related technologies that may be performed by non-licensed persons. We would like your response by January 28, if possible, so it can be presented to the Florida Geographic Information Board at their January 30, 1998 meeting.

This request includes: 1) background on the issue, 2) a list of activities the Work Group suggests may not be appropriate for regulation under Chapter 472, F.S. and 3) points to consider in drafting the opinion. The information and ideas in this letter are drawn from Work Group discussions and materials submitted by participants. This letter does not represent a consensus statement of the Work Group. It is being circulated to members of the Work Group, The Geographic Information Board, the Geographic Information Advisory Committee and others who have requested to be informed of this process. All comments received will be provided to your office for consideration.

A. Background

Chapter 472 of the Florida Statutes (F.S.) regulates surveying and mapping activities within the state. The statute defines a surveyor and mapper as a person who "determines and displays the facts of size, shape, topography, tidal datum plane, legal or geodetic location or relation, and orientation of improved or unimproved real property through direct measurement or from certifiable measurement through accepted photogrammetric procedures." (Section 472.005(3), F.S.). It further prohibits anyone from practicing surveying and mapping unless they are licensed to practice in Florida (Section 472.031). The Board of Professional Surveyors and Mappers (BPSM) within the Florida Department of Business and Professional Regulation provides oversight for surveying and mapping.

Many lay people think of surveying and mapping in terms of locating property boundaries, construction sites, official control monuments, or for providing expert witness in dealing with issues of precise location and jurisdiction. However, the statute defines it to include:
"any professional service or work, the adequate performance of which involves the application of special knowledge of the principles of mathematics, the related physical and applied sciences, and the relevant requirements of law for adequate evidence of the act of measuring, locating, establishing, or reestablishing lines, angles, elevations, natural and manmade features in the air, on the surface and immediate subsurface of the earth, within underground workings, and on the beds or surface of bodies of water, for the purpose of determining, establishing, describing, displaying, or interpreting the facts of size, shape, topography, tidal datum planes, legal or geodetic location or relocation, and orientation of improved or unimproved real property and appurtenances thereto, including acreage and condominiums." (Section 472.005(4)(a), F.S.).

This broad definition could be interpreted to apply to most locational data collection activities related to mapping. However, recent rule making activities of the BPSM clarified that the applicability of Chapter 472, F.S. is limited to data collection through "direct measurement." Furthermore, the statute applies to all direct measurements of all features on or near the earth's surface. Direct measurement refers to the determination of coordinates in the field using standard surveying methodologies such as theodolites, ranging devices, and more recent technologies such as global positioning systems (GPS) receivers. Amendment of Chapter 472 in 1994 also included the making of direct measurements from aerial photographs, a practice commonly referred to as photogrammetry.

Historically, the impact of Chapter 472 on GIS activities was minimal since conventional surveying methods required significant expertise and training. Most GIS data collection was done by digitizing from existing map sources (referred to as secondary mapping). The advent of GPS technology changed this. Using GPS receivers, virtually anyone can obtain latitude and longitude coordinates for features on the earth's surface. The GIS community at large has recognized the value of using this equipment as a cost effective means of collecting more accurate locational information. They have begun using GPS technology to collect the same data they have always collected without questioning whether or not the activity falls within the parameters of regulation under Chapter 472, F.S. As more people use this technology and make their information available, a concern has arisen among many in the professional surveying community that the public may be harmed by the distribution and misuse of poor quality positional data.

Many unlicensed professionals would like to use GPS technology to collect data for GIS applications which previously used data collected through less accurate means, such as digitizing. However, current language in Chapter 472, F.S. and proposed amendments to Rule 61G17-6.002, Florida Administrative Code (FAC), can be interpreted to require the general supervision of a licensed surveyor and mapper for all direct measurements which are "specifically designed to document the existence, the identity, the location, and the dimension or size of natural or artificial features on land or in the air, space or water." (Chapter 61G17-6.002, FAC as noticed in the October 10, 1997 edition of the Florida Administrative Weekly).

In 1995, concerned organizations began asking the BPSM for clarification regarding the applicability of Chapter 472 to GIS activities. In 1996, the BPSM published a position statement and began rule amendments to allow certain exemptions to survey and mapping. The position statement and early versions of the rule changes caused a great deal of concern because...
they could be interpreted in such a way as to adversely impact the use, management, and distribution of data stored in GIS databases. Based on the input received during rule making, the BPSM limited the scope of regulation to direct measurement. The current version of the rule indicates that a licensed surveyor and mapper must supervise all direct measurements. However, the rule does not define the level of supervision required. The BPSM is currently pursuing negotiated rule making to develop a definition of supervision for the rule. Meanwhile, the Joint Administrative Procedures Committee (JAPC) has determined that the BPSM does not have statutory authority to grant exemptions to survey and mapping activities. Therefore, in order to allow unlicensed individuals to use GPS technology professionally (under certain conditions), the law must be changed or it may be possible to render an Attorney General's opinion that the definition of surveying Chapter 472, F.S. (which has remained basically unchanged in the last 25 years) is not intended to apply to specified uses of new technology.

The Geographic Information Board (GIB) formed a work group to identify issues and develop language to revise Chapter 472, F.S. The work group is comprised of both licensed and unlicensed individuals. The major issue identified by the group is that the definition of "survey and mapping" can be interpreted to include activities which are currently performed by unlicensed individuals and the prohibitions section makes all of these activities illegal without a license.

**B. Uses that May Not be Appropriate for Regulation Under Chapter 472 F.S.**

The Work Group suggested that the following uses of GPS and related technologies may not require licenses under Chapter 472, F.S.:

1. Tracking moving features, e.g., panthers, manatees, oil spills · Locating and verifying regulated facilities such as tank sites, drinking water facilities and wells, and waste water treatment facilities and their point of discharge (a surveyor must be used when there is a compliance or enforcement issue).

2. Mapping water quality sample collection locations, and contamination plumes, sources and sites.

3. Identify location of natural resources, such as: sea grass, plant and animal habitats, and geologic core and sediment sampling sites. Locating features for resource management, such as: mitigation banking sites; trails and inventory of facilities for potential and existing greenways; control burns and the needed burn permits; features of high environmental concern; and state park resources such as cultural features, facilities, trails, as well as rare & endangered species.

4. Emergency management issues: search and rescue, spill, and hurricane damage.

5. Locating public infrastructure & facilities for inventory and government planning functions (as defined in 163 and other statutes).

7. Capture of entities with positioning tools for use in scientific analysis.

C. Points to Consider in Drafting the Opinion

1. No one seemed to have a problem with unlicensed people using GPS receivers for these activities if the information was collected for internal purposes only. However, several work group members held the position that if the data would be distributed to the public or used to affect land use or land value, the use of GPS receivers should be supervised by a licensed surveyor and mapper. Given those conditions, government organizations could not use GPS without supervision of a licensed surveyor and mapper (due to public record laws). The opinion could clarify that information collected for internal purposes and not provided to the public as a professional survey and mapping service would not require supervision by a licensed surveyor/mapper. Part of the concept is that like individuals government should be able to do land measurement for their own use. Routine use of GPS for maintenance and operations may not need to be regulated.

2. The opinion could specify that surveyor/mappers are required for direct measurement information when agencies are involved in enforcement actions or litigation. This would allow the cost effective use of GPS in the large percentage of regulatory activities that are not contested.

3. The opinion should make it clear whether or not licenses are required when land measurements are used a way that affects property values. It may be helpful acknowledge that decisions based on inventories may affect property values but are not linking specific features to particular properties and should not require a surveyor, e.g. a rezoning decision based on general soil conditions may have been compiled from field research but not linked to individual property boundaries. In other cases GPS may be used in manatee sitings that are used in designating manatee protection zones that may affect property values.

4. The opinion could state that map products should be surveyor/mapper certified or provide labeling and meta-data that advises the public that they are not surveyor/mapper certified.

5. The following language was suggested by DEP for inclusion as a definition in a proposed rule:

"Surveying and Mapping: a process of direct measurement and analysis specifically designed to document the existence, the identity, the location, and the dimension or size of natural or artificial features on land or in the air, space or water for the purpose of producing accurate and reliable maps, suitable for visualization if necessary, of such documentation. It is not the intent to regulate mapping for scientific analysis or resource management. However, direct measurements collected by non-licensed individuals shall:
1. Not be legally binding unless verified by a licensed surveyor and mapper;
2. Be collected using procedures developed with the technical advice of a licensed surveyor and mapper; and
3. Only be distributed when accompanied by a disclaimer stating the method used for direct measurement, estimated accuracy of the measurement, and a statement that they have not been certified by a licensed survey and mapper."

We appreciate your consideration of this important matter and look forward to receiving your opinion.

To be submitted by the Geographic Information Board
INPUT REQUEST
ON THE DRAFT LETTER REQUESTING
AN ATTORNEY GENERAL'S OPINION
CLARIFYING LEGAL USE OF
GLOBAL POSITIONING SYSTEMS, GPS

Your comments and suggestions will be forwarded to the Attorney General for consideration in drafting the opinion. The challenge is to find acceptable language that can allow appropriate unlicensed use of GPS and adequately protect the public. Please organize your comments in the following categories (use letters and # to code your input):

A. Comments on the background. Additional factors to consider, disagreements with the background as stated, etc.

B. Uses that may not be appropriate for regulation under Chapter 472, F.S. Suggest additional uses, uses that should be removed, refinements in the descriptions that would be clearer or more acceptable, etc.

C. Points to consider. Suggest why this opinion is needed or not needed, examples or legal cases that relate to the proposed opinion, theory or justification supporting specific ideas, etc.
Chapter 472 of the Florida Statutes (F.S.) regulates surveying and mapping activities within the state. The statute defines a surveyor and mapper as a person who "determines and displays the facts of size, shape, topography, tidal datum plane, legal or geodetic location or relation, and orientation of improved or unimproved real property through direct measurement or from certifiable measurement through accepted photogrammetric procedures." (Section 472.005(3), F.S.). It further prohibits anyone from practicing surveying and mapping unless they are licensed to practice in Florida (Section 472.031). The Board of Professional Surveyors and Mappers (BPSM) within the Florida Department of Business and Professional Regulation provides oversight for surveying and mapping.

Many lay people think of surveying and mapping in terms of locating property boundaries, construction sites, official control monuments, or for providing expert witness in dealing with issues of precise location and jurisdiction. However, the statute defines it to include:

"any professional service or work, the adequate performance of which involves the application of special knowledge of the principles of mathematics, the related physical and applied sciences, and the relevant requirements of law for adequate evidence of the act of measuring, locating, establishing, or reestablishing lines, angles, elevations, natural and manmade features in the air, on the surface and immediate subsurface of the earth, within underground workings, and on the beds or surface of bodies of water, for the purpose of determining, establishing, describing, displaying, or interpreting the facts of size, shape, topography, tidal datum planes, legal or geodetic location or relocation, and orientation of improved or unimproved real property and appurtenances thereto, including acreage and condominiums." (Section 472.005(4)(a), F.S.).

This broad definition could be interpreted to apply to most locational data collection activities related to mapping. However, recent rule making activities of the BPSM clarified that the applicability of Chapter 472, F.S. is limited to data collection through "direct measurement." Furthermore, the statute applies to all direct measurements of all features on or near the earth's surface. Direct measurement refers to the determination of coordinates in the field using standard surveying methodologies such as theodolites, ranging devices, and more recent technologies such as global positioning systems (GPS) receivers. Amendment of Chapter 472 in 1994 also included the making of direct measurements from aerial photographs, a practice commonly referred to as photogrammetry.
Historically, the impact of Chapter 472 on GIS activities was minimal since conventional surveying methods required significant expertise and training. Most GIS data collection was done by digitizing from existing map sources (referred to as secondary mapping). The advent of GPS technology changed this. Using GPS receivers, virtually anyone can obtain latitude and longitude coordinates for features on the earth's surface. The GIS community at large has recognized the value of using this equipment as a cost effective means of collecting more accurate locational information. They have begun using GPS technology to collect the same data they have always collected without questioning whether or not the activity falls within the parameters of regulation under Chapter 472, F.S. As more people use this technology and make their information available, a concern has arisen among many in the professional surveying community that the public may be harmed by the distribution and misuse of poor quality positional data.

Problem Statement:

Many unlicensed professionals would like to use GPS technology to collect data for GIS applications which previously used data collected through less accurate means, such as digitizing. However, current language in Chapter 472, F.S. and proposed amendments to Rule 61G17-6.002, Florida Administrative Code (FAC), require the general supervision of a licensed surveyor and mapper for all direct measurements which are "specifically designed to document the existence, the identity, the location, and the dimension or size of natural or artificial features on land or in the air, space or water." (Chapter 61G17-6.002, FAC as noticed in the October 10, 1997 edition of the Florida Administrative Weekly).

Status as of December 15, 1997:

In 1995, concerned organizations began asking the BPSM for clarification regarding the applicability of Chapter 472 to GIS activities. In 1996, the BPSM published a position statement and began rule amendments to allow certain exemptions to survey and mapping. The position statement and early versions of the rule changes caused a great deal of concern because they could be interpreted in such a way as to adversely impact the use, management, and distribution of data stored in GIS databases. Based on the input received during rule making, the BPSM limited the scope of regulation to direct measurement. The current version of the rule indicates that a licensed surveyor and mapper must supervise all direct measurements. However, the rule does not define the level of supervision required. The BPSM is currently considering whether or not to enter into negotiated rule making to develop a definition of supervision for the rule. Meanwhile, the Joint Administrative Procedures Committee (JAPC) has determined that the BPSM does not have statutory authority to grant exemptions to survey and mapping activities. Therefore, in order to allow unlicensed individuals to use GPS technology professionally (under certain conditions), the law must be changed.
The Geographic Information Board (GIB) formed a work group to identify issues and develop language to revise Chapter 472, F.S. The work group is comprised of both licensed and unlicensed individuals. The major issue identified by the group is that the definition of "survey and mapping" includes activities which are currently performed by unlicensed individuals and the prohibitions section makes all of these activities illegal without a license. The group identified several options to deal with the problem:

1. Write exemption or intent language (such as DEP came up with) which identifies purposes which do not need to be licensed. The difficulty with this option is developing a comprehensive list of activities which would not need to be licensed. There's a fear that the list would become so long that the law would become meaningless or we would miss something and have to go through this all over again in the future. There are also gray areas where it is difficult to draw the line and there is no way to prevent future misuse of information.

2. Change the definition back to "land surveying." Although everyone recognized that this was an option, nobody in the group voiced any support for the idea.

3. Keep the definition the same, but allow unlicensed people to do survey and mapping without being able to sign and seal information or call themselves Professional Surveyors and Mappers. Under this scenario, Chapter 472 would be the practice law which regulates how to become licensed; other legislation would determine when a licensed professional surveyor and mapper was required. There are already some laws which require licensed work. For example, Chapter 177, Land Boundaries, specifies that a professional surveyor and mapper is required. Other laws such as road construction design may need to be changed if appropriate.

4. Create a field within survey and mapping that would have a lesser certification process to enable people who are not land surveyors to do certain survey and mapping activities. For example, complete a short course to use GPS for resource management mapping.

5. Regulate output rather than input. This was a recommendation proposed by David Gibson (see paper) which would regulate certain map output products rather than regulating direct measurements.

In pursuing the option to grant exemptions, the group identified the following activities for which the unlicensed professionals in the GIS community would like to collect data using GPS receivers:

- Tracking moving features, e.g., panthers, manatees, oil spills · Locating and verifying regulated facilities such as tank sites, drinking water facilities and wells, and waste water treatment facilities and their point of discharge (a surveyor is used when there is a compliance or enforcement issue).

- Mapping water quality sample collection locations, and contamination plumes, sources and sites.
• Identify location of natural resources, such as: sea grass, plant and animal habitats, and geologic core and sediment sampling sites. · Locating features for resource management, such as: mitigation banking sites; trails and inventory of facilities for potential and existing greenways; control burns and the needed burn permits; features of high environmental concern; and state park resources such as cultural features, facilities, trails, as well as rare & endangered species.

• Emergency management issues: search and rescue, spill, and hurricane damage.

• Locating municipal government infrastructure & facilities for inventory and planning functions.

• Locating crash sites, tracking emergency vehicles, and public safety.

• Capture of entities with positioning tools for use in scientific analysis.

No one seemed to have a problem with unlicensed people using GPS receivers for these activities if the information was collected for internal purposes only. However, several work group members held the position that if the data would be distributed to the public or used to affect land use or land value, the use of GPS receivers should be supervised by a licensed surveyor and mapper. Given those conditions, government organizations could not use GPS without supervision of a licensed surveyor and mapper (due to public record laws). Furthermore, the locations could not be used for environmental regulation because that affects land use. Therefore, some members of the group felt that they should be able to collect this data without licensed supervision. At the December 4th meeting, the group was unable to reach a consensus on this issue.

The group also reviewed legislation and rules in North Carolina to see how they have dealt with the issue. North Carolina has developed GPS standards for collecting data at +/- 5 meter accuracy (or worse). However, North Carolina requires a licensed surveyor and mapper to collect data which will be entered in a GIS/LIS. Therefore, it does not seem to be a likely model to answer the concerns of unlicensed GIS professionals in Florida.
Attachment 2
Appropriate Use Of GPS Technology
(Provided to the GPS-GIS Work Group 12-19-97)

By:

Henry Harrel

Advancement in GPS technology has been great. It has simplified and decreased the cost of many activities. Simplification cannot be justification to allow technicians to do the job normally required to be done by a licensed professional.

If a problem did not exist before, then the use of GPS to do “what always used to be done,” should not be a problem. Other tools have been in use a lot longer than GPS. We do not regulate the simple uses of these tools generally. The way they are used and for what purpose has been. For example, for years, Archeologists have used tools generally associated with the Surveying Profession, transits, tapes, etc. Since Archeologists used these tools within their area for expertise, no problems existed. If Archeologists decided to use these same tools to do work regulated as requiring licensure then they were considered practicing without a license.

Scaling a positional value from a map product, such as a USGS Quadrangle, probably has never been a problem to licensed professionals. Most people that scaled positions from USGS Quadrangles understood the National Map Accuracy Standards and never represented coordinates from scaled positions any closer than to the nearest 10 feet. If GPS is used to decide positional values rather than scaling, then the use of GPS as a tool should not be a problem.

The question should be simple. “If I were to use other tools generally associated with the Surveying Profession, transits, tapes, etc. to decide the positional value that I am now determining using GPS, would it be considered regulated as requiring licensure?” When the answer is Yes, then the activity using GPS as the tool should also require licensure.

Using GPS as a tool should not require if it is used to do things that are not commonly accepted as requiring licensure.