PSAP Grant Program Grant Ranker

View Application--142--911 Mapping Software Upgrade

Grant Period: 2010

Tier: Replacement of technically outdated wireless E-911 equipment or service to enable primary PSAP to maintain current service levels to the general public (**TECHNICALLY OUTDATED**)
Grant Program: Continuity and Consolidation **Grant Type:** Individual PSAP
Priority: GIS: high priority (refer to GIS-related Grant Request Prioritization Matrix for a description of GIS projects that would have a high funding priority) (**GIS HIGH PRIORITY**)

Primary PSAP Applicants:	Henrico County
Jurisdictions Served:	Henrico, County of

Project Director:
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Captain
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Project Description:

Total Project Cost	$60,870.00
Amount Requested:	$60,870.00

Statement of Need:
The County of Henrico currently receives approximately 62% of its E-9-1-1 calls from cellular phones. Consequently it is very dependent upon its mapping system to aid in the location of these calls. The County's mapping system is currently using an outdated mapping technology. Upgrading this technology to current standards will benefit the County and its citizens by allowing the County to maintain its current high level of service to its citizens into the future. Furthermore, moving to the next generation of mapping technology will enable the County to implement new beneficial features, such as automatic routing, that will further enhance its capability to provide service but are beyond the scope of the its current mapping software. Relationship to the Current Funding Priorities: This grant request is related to the FY10 PSAP Grant Program Priorities for Continunity and Consolidation as stated the Grant Guidelines for 2010 document. Priority #2 Mapping System. Priority #4 GIS High Priority, Dispatch Mapping Standalone -- Supports Geodatabase, Evidence of Financial Need This grant request will provide the funding needed to upgrade the existing mapping system and will enable the PSAP to convert their current MapObjects dispatch system to an ArcObjects dispatch system. This update will enable the PSAP to utilize all standard ESRI geodatabase formats. The new software is necessary to support continuity of service and to enable enhanced automated functionality such as routing in the PSAP. Without the grant the PSAP does not have the financial resources to successfully develop and implement this project. Impact on Operational Services

The PSAP will be able to fully utilize data in ESRI geodatabase formats, and not be reliant upon out-dated MapObjects based dispatch functionality. Also, updating the ESRI software level will enable the PSAP to implement newer versions of its mapping system which will provide additional features such as an automated routing capability which will improve the PSAP's ability to efficiently dispatch emergency services. Consequences of not receiving funding This project is reliant upon the award of the grant funding. The PSAP does not have the funding necessary to perform this work without the grant award. Inclusion of Project in PSAP Planning Enabling the ESRI geodatabase supported dispatch and automated routing capabilities of the PSAP GIS software is part of the continuous plan for increasing efficiencies and improving services to our citizens and businesses. The PSAP is currently is on a maintenance plan with its GIS/mapping system but is unable to advance to the latest version without updating its ESRI licenses.

Comprehensive Project Description:

The County of Henrico desires to upgrade the mapping technology system currently used at the PSAP. Our current mapping capability relies upon old ESRI technology, namely MapObjects and shape files. We desire to upgrade to a newer version of our mapping vendor's software which uses ESRI's ArcGis 9.3 product and geodatabases. The mapping software upgrade itself is covered under our existing software maintenance agreement, however, we need the grant money to fund the ESRI licenses and the implementation and training fees that the upgrade will require. This upgrade will allow us to move away from outdated technology and to take advantage of newer features such as a routing capability that the older mapping system did not support. Goals and Objectives Goal The goal of this project is insure continuity and enhancement of function by enabling the PSAP to upgrade its mapping system by moving to the latest ESRI ArcGis 9.3 compatible technology. Project Objectives 1. Data conversion and software setup service 2. Install the mapping system upgrade (including the ESRI software upgrade). 3. Test and validate 4. User training in the use of the upgraded software Implementation Strategy and Work plan Implementation strategy. Since this is an upgrade to our existing mapping system we intend to install the new software on the dispatcher's PC's side by side with the existing program. As users are trained to use the newer version of the program they will one by one begin to use the new system. At the completion of the training period all users will be using the upgraded system (see project timeline, below). Work Plan. We anticipate this project will include: 1. Implementation services: a. Creation of geodatabase b. Determine map configuration options based upon • Existing map setup • User input c. Install new software 2. End user training: a. Administrative training b. Train the trainers 5. - Implement the system Project Sustainability The grant funding will be put towards the purchase of upgrading the existing mapping system. Ongoing operations, including annual licensing and software maintenance fees, will be provided through the PSAP operations budget. Timeline We anticipate a 60 day project implementation once new software is in hand: Week 1. Convert from existing shapefiles to geodatabases. Weeks 2 – 3: o Software install on existing PC's. o Train system administrators. o Train the trainers. Week 4. Test new configuration. Weeks 5-8: End user training Week 8. Full implementation.

How will the equipment purchased will support future technologies for PSAP readiness?:

The software and services purchased under this grant will provide the PSAP with the ability to improve the call dispatch functions.

Budget and Budget Narrative:

*See detailed attached Quote Data Conversion and software setup services $1,950.00 Software Licenses (30) $45,000.00 Installation and Training $13,920.00 Total:$60,870.00 The Henrico PSAP maintains a thirty (30) position center. Data Conversion and software setup service, licensing for each workstation are provided by the vendor, GeoComm. Additionally, GeoComm will install all software and provide training to PSAP employees in accordance with quote. As noted previously, the existing PSAP operational budget will provide funding for the annual maintenance contract.

Evaluation:

Ultimately, the successful implementation and use in production of the newest version of the mapping software would be the sole measure of the success of this project. In order for this to happen then each of the stages of the project will have had to have been successfully completed, as follows: -conversion GIS shapefiles to geodatabases -upgrade of mapping system and ESRI software levels -system configuration and installation -system admin training -train the trainer training -end user training -implementation A successful project means that the user will be able to use the newly upgraded mapping system to carry out

all and any public safety oriented functions that can currently be done with the current mapping system. This includes location of E-9-1-1 calls, both land line and wireless as well as numerous GIS functions which are commonly provided. The new map will provide the same degree of CAD interaction as the old map including the plotting of all active calls for service via its CAD interface. The new map will provide the dispatcher the capability for doing point to point routing. The new mapping system will facilitate the update of map layers by providing a server centric geodatabase such that updating this one database will bring each dispatch position up to date without having to individually update the mapping system at each dispatch console.

Attachments

Henrico County Software Conversion Proposal.pdf

GeoComm

been there.

Henrico County Virginia

Software Conversion

October 28, 2008

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601 West St. Germain Street St. Cloud, MN 56301

Contents

1 Summary

Using standard processes GeoComm proposes to convert your current software to GeoComm's latest version of GeoLynx 9-1-1. The latest version of the nation's premier 9-1-1 dispatch GIS system is built from the ground up on Microsoft .NET and ESRI ArcGIS technology bringing the latest and best GIS tools to your PSAP. This conversion process is streamlined utilizing our highly experienced GIS and implementation staff to bring this latest technology to you in an efficient and cost effective manner.

The following sections contain descriptions of:

- GeoLynx 9-1-1 v7
- system implementation services including GIS data conversion and software setup services
- installation and training services
- GeoComm deliverables, customer responsibilities, and hardware specifications
- software support and maintenance services
- the costs to convert your current software

The GeoLynx 9-1-1 system description will provide you with the features and benefits of our latest version of dispatch GIS software. The sections following the system description will provide you with information regarding the steps that will be taken to ensure all necessary items, from the GIS data conversion to the software support and maintenance is completed for a successful project completion.

The final section will provide you with a break-down of costs and the total cost of this project.

2 GeoLynx 9-1-1 System Description

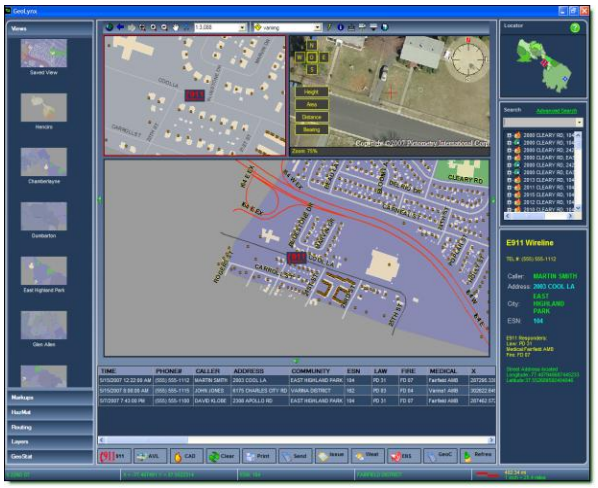
GeoLynx® 9-1-1
DISPATCH GIS

Locating and displaying emergency incidents in your jurisdiction is fully automated by installing GeoLynx 9-1-1. When a 9-1-1 call is placed, GeoLynx 9-1-1 automatically captures the address from the ALI stream and instantly plots an arrow at the caller's location on your digital base map.

GeoLynx 9-1-1 is a full-featured, professional-level desktop mapping software package specifically tailored for 9-1-1 emergencies.

Benefits and Features

- Instantaneous call-plotting of wireline and wireless Phase I and Phase II calls on a map
- Built on ESRI's ArcGIS Engine, bringing the GIS technology advancements of the ESRI ArcGIS framework to your dispatch center
- Built on a Microsoft .NET framework, bringing Microsoft's most current and future technology to your dispatch center
- New modern Vista-inspired command and control style user interface to streamline 9-1-1 call-taker and dispatcher workflows using GIS to speed emergency response time
- Built-in basic hazard plume modeling and advanced ALOHA chemical plume modeling
- Integrated electronic Emergency Response Guide (ERG) database with isolation protocol mapping
- GeoLynx 9-1-1 can be configured to view Web GIS data for real-time weather maps and natural hazard maps such as wildfires and floods
- Drive time polygons and barrier routing to dispatch closest responders and concentrate search efforts based on drive time and distance
- Integration of Pictometry technology offers an additional location display functionality



- Simple navigation to all functionality options
- Hyperlink feature for users to reference additional information such as structure photos, floor plans, emergency preparedness documents, etc.
- Intelligent 9-1-1 call aging with no user interaction to easily determine call age
- Easily view, print, and search GIS data
- Specifically developed for use in your 9-1-1 environment
- Sophisticated GIS engineering with simple user operations
- Raster and vector layer translucency in same map view
- Greatly enhanced cartographic map rendering capabilities
- Re-projects both raster and vector GIS datasets on-the-fly
- Directly reads many supporting GIS layers, formats, projections, and coordinate systems on-the-fly with no conversion or translation required
- Open API for seamless third-party software integration
- Immediate detection of GIS data and ALI errors
- E-mail or fax mapped call locations
- Expandable to other modules in the software family to enhance dispatch mapping system specifically geared toward 9-1-1 emergencies such as emergency notification, automatic vehicle tracking, statistical crime mapping, and in-vehicle mapping
- Life-saving information is visible and easily accessible with GeoLynx 9-1-1

Supported Formats

GeoLynx 9-1-1 is compatible with standard data formats (raster, vector, AutoCAD, etc.) and supports GIS data formats of all variations including:

- ESRI file geodatabase
- ESRI personal geodatabase
- ESRI enterprise geodatabase
- ESRI shapefile

In addition, services can be offered to convert many other data formats to an acceptable ESRI format for use within GeoLynx 9-1-1.

System Architecture

GeoComm is proud to be an ESRI Business Partner. Partnering with the industry leader in GIS allows GeoComm to provide you with products and services that exceed your expectations.

Because GeoComm is an ESRI business partner, we are able to provide the latest version of GeoLynx 9-1-1 dispatch mapping software. GeoLynx 9-1-1 uses ESRI's ArcGIS Engine, bringing the GIS technology advancements of the ESRI ArcGIS framework to 9-1-1 dispatch centers.

GeoComm recognizes the need for the most current technology to be implemented to ensure the software is maintained and supported for years to come. Our proposed ArcGIS framework is the most current and future technology platform from ESRI.

GeoLynx 9-1-1 is also built on the Microsoft .NET framework. This is Microsoft's current and future platform and it is ensured to work with the new Microsoft technology, such as Windows Vista.

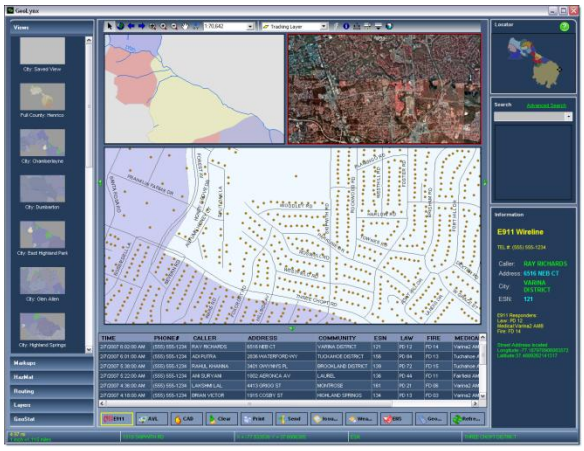
Additionally, advanced, scalable Database Management System (DBMS) technology is used in GeoLynx 9-1-1 for storing data and configuration settings. Benefits of using SQL server include significantly increased performance capacity for both AVL and CAD. For example, for AVL, Microsoft SQL server allows 100, 1,000, and more units to be moved on the map in a single transaction unlike other DBMS technology which move units individually on a map during a transaction. This same efficiency extends to CAD calls for service.

User Interface

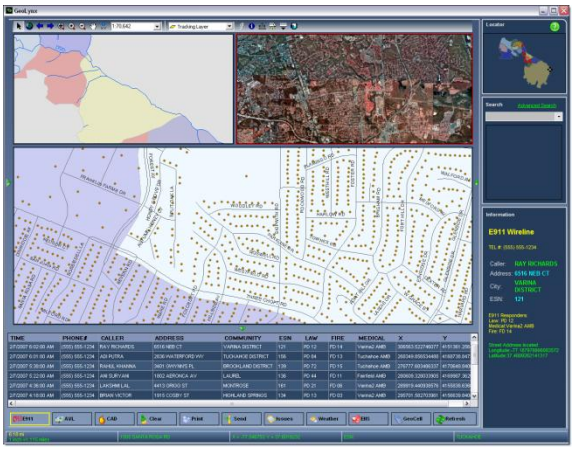
The GeoLynx 9-1-1 user interface (UI) is a command and control (C2) style. C2 UIs are more like dashboards, control panels, and cockpits, unlike office automation applications where there are many menus and dialog boxes to navigate. The intent is to put all needed information and functionality on a single screen, to enable users do their jobs more efficiently, in high stress, high speed environments.

Immediate access to features and functions in the side panels are available in the GeoLynx 9-1-1 display. Some major features include HazMat, Routing, GeoLynx Stats, Markups, and much more. The ability to expand the map is useful when GeoLynx 9-1-1 is on a large format screen or projected on a wall of a PSAP as an overview, with no human interaction. With no user, there is no need for the human interface tools.

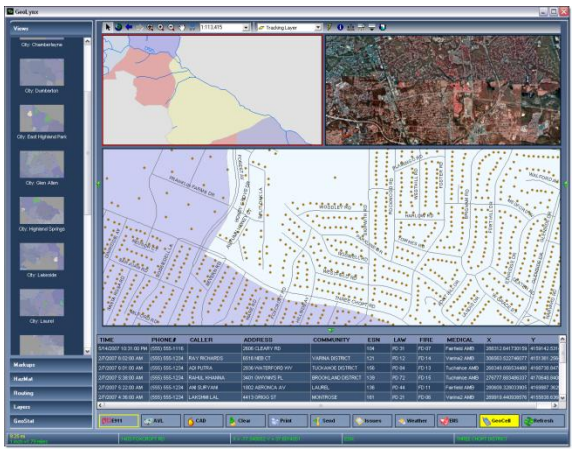
To maximize the map view display, the panels to the left, right, and bottom of the main map view can be hidden. Any combination of panels can be hidden:



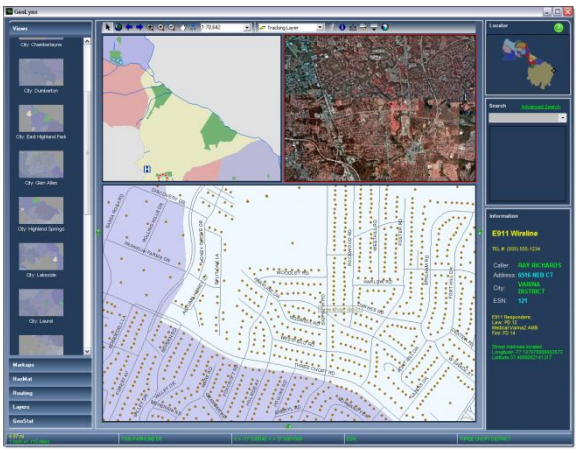
Original view.



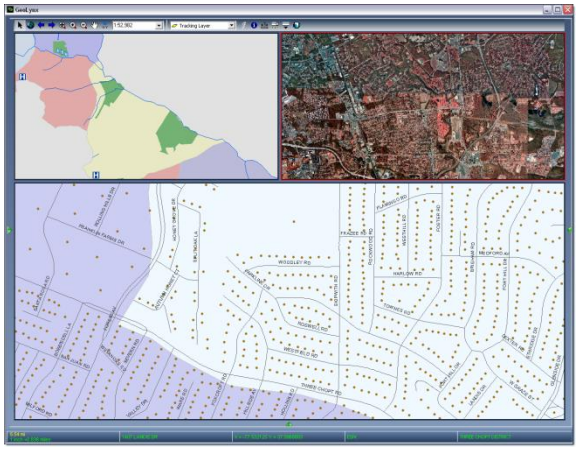
After expanding the left side of the map view.



After expanding the right side of the map view.



After expanding the bottom of the map view.



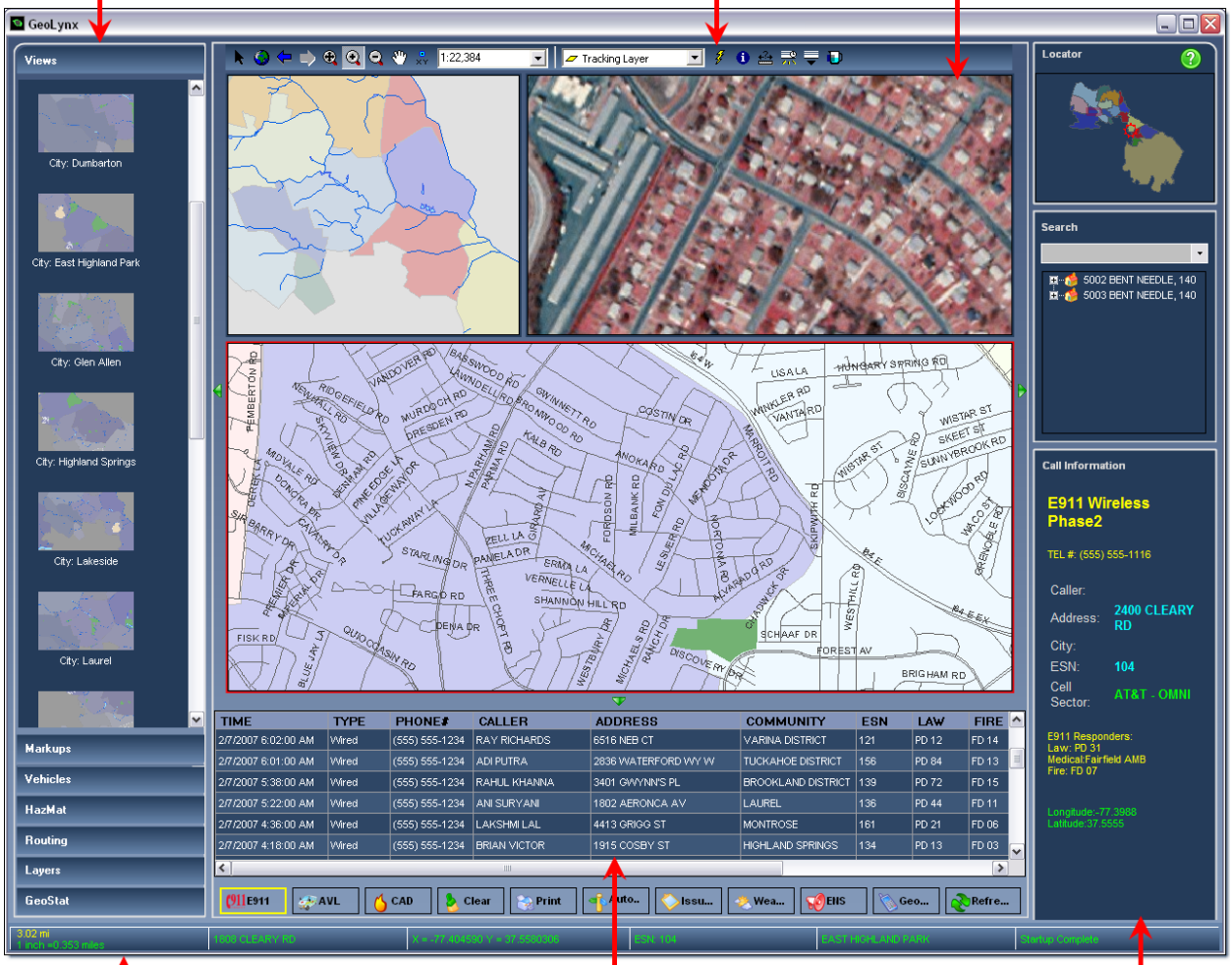
After expanding all sides of the map view.

GeoLynx 9-1-1 Screen Components

Features Panel
Includes the **Views**, **Markups**, **Vehicles**, **HazMat**, **Routing**, **Layers**, and **GeoStat** panes.

Map Toolbar
Displays map tools for exploring data and features in the map views, including **Zoom In**, **Hyperlinks**, and **Measure**.

Main Map View
Displays maps, address locations, and tracked vehicles. Can be configured to display up to three different map panes.



Status Bar
Displays quick reference information such as map scale, pointer coordinates, and street address at the pointer.

Results Grid
Displays results of several GeoLynx functions, including E9-1-1 calls, plume model results, and calculations for routing requests.

Information Panel
Includes the **Locator**, **Search**, and **Call Information** panes.

Features Panel

The features panel includes several features to help your organization more effectively navigate to specific map views, display map layers, use geographic information, and manage emergency incident statistics.

Map Toolbar

As you work with your map, you can easily change how you view the data it contains. Most of the tools for navigating such as zoom in, zoom out, pan, and full extent are found on the map tools toolbar, the topmost toolbar in the GeoLynx 9-1-1 window. Because GeoLynx 9-1-1 is built on ESRI's ArcGIS Engine these tools resemble those found in other ESRI products such as ArcView.

Main Map View

The main map view displays the GIS data, ALI, and any tracked vehicles and is configurable for up to three map panes. So users can customize their individual map display to meet their emergency dispatch needs.

Status Bar

GeoLynx 9-1-1 displays a status bar at the bottom of the application window at all times. The status bar contains information about the current mouse pointer location. The system administrator can configure the status bar to display any combination of the following:

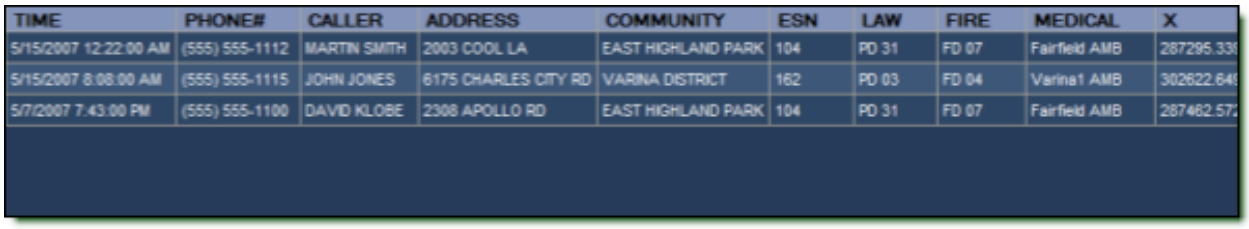
- Current zoom level of the map (width of the map in miles)
- Calculated street address at the mouse pointer
- Coordinates of the mouse pointer:
  - In decimal degrees
  - In degrees/minutes/seconds (DMS)
  - In degrees/decimal minutes (DDM)
- ESN of the current mouse pointer location

Results Grid

The results grid displays the results of several GeoLynx 9-1-1 functions. Most commonly the results grid will display a list of the E9-1-1 calls received by your organization. By double-clicking any of the calls in the list, the map views zoom to that call location. The specific fields that will display can also be configured.

Other data which may display in the results grid includes

- Plume model results
- GeoLynx Stats query results
- Results for routing requests
- CAD calls
- AVL information



TIME	PHONE#	CALLER	ADDRESS	COMMUNITY	ESN	LAW	FIRE	MEDICAL	X
5/15/2007 12:22:00 AM	(555) 555-1112	MARTIN SMITH	2003 COOL LA	EAST HIGHLAND PARK	104	PD 31	FD 07	Fairfield AMB	287295.33
5/15/2007 8:08:00 AM	(555) 555-1115	JOHN JONES	6175 CHARLES CITY RD	VARINA DISTRICT	162	PD 03	FD 04	Varina1 AMB	302622.64
5/7/2007 7:43:00 PM	(555) 555-1100	DAVID KLOBE	2308 APOLLO RD	EAST HIGHLAND PARK	104	PD 31	FD 07	Fairfield AMB	287462.57

Features Toolbar

Button	Description
	Displays, in the results grid, a list of the E9-1-1 calls received in your center.
	Accesses AVL add-on module.
	Accesses optional CAD features.
	Clears all symbols from the map views and all data from the call information pane.
	Prints, e-mails, faxes, and saves a map view.
	Sends a map view by fax, fax server, e-mail, or printer to preprogrammed destinations.
	Logs ANI/ALI and GIS issues.
	Accesses weather information, if configured.
	Accesses ENS add-on module.
	Displays a list of cell sectors and locates map features for wireless calls.
	Refreshes the database connection and redraws the map.

Information Panel

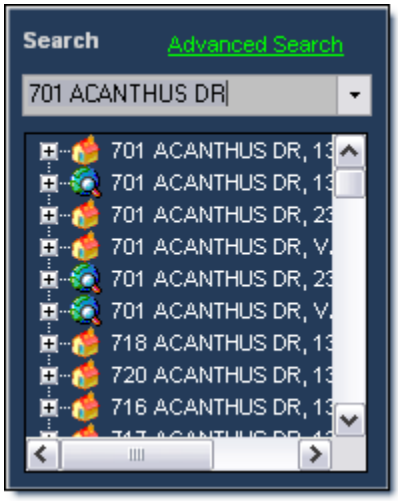
The information panel includes the Locator Pane, Search Pane, and Call Information Pane.

Locator Pane

The locator pane displays an overview of the jurisdiction. This panel can be used to quickly move the active map view to another location in your jurisdiction with the click of a mouse. At any time, the user can click on the locator map and the active map view will automatically zoom to that location.

Search Pane

The search pane is an interactive pane that allows you to manually map a location.



Map a location by typing an address or street in the search field. You can also click the drop-down arrow to scroll through a list of roads in your jurisdiction.

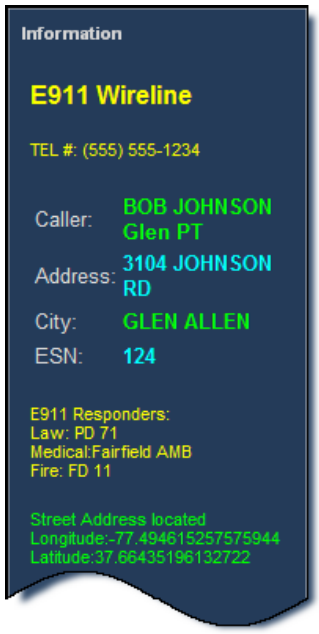
Additionally, this search pane is used to find features in any of your GIS map data layers which are searchable. This one search function is streamlined so users only need to go to one location to find items within their GIS map data.

Leveraging locator technology in ArcGIS you are able to create aliases which allow searches to be done within GeoLynx 9-1-1 using the search pane. For example, you can type Old City Park into the search pane which will then zoom to the point or parcel containing the attribute information. These locators can be developed for an additional fee by GeoComm's GIS department, if desired.

Call Information Pane

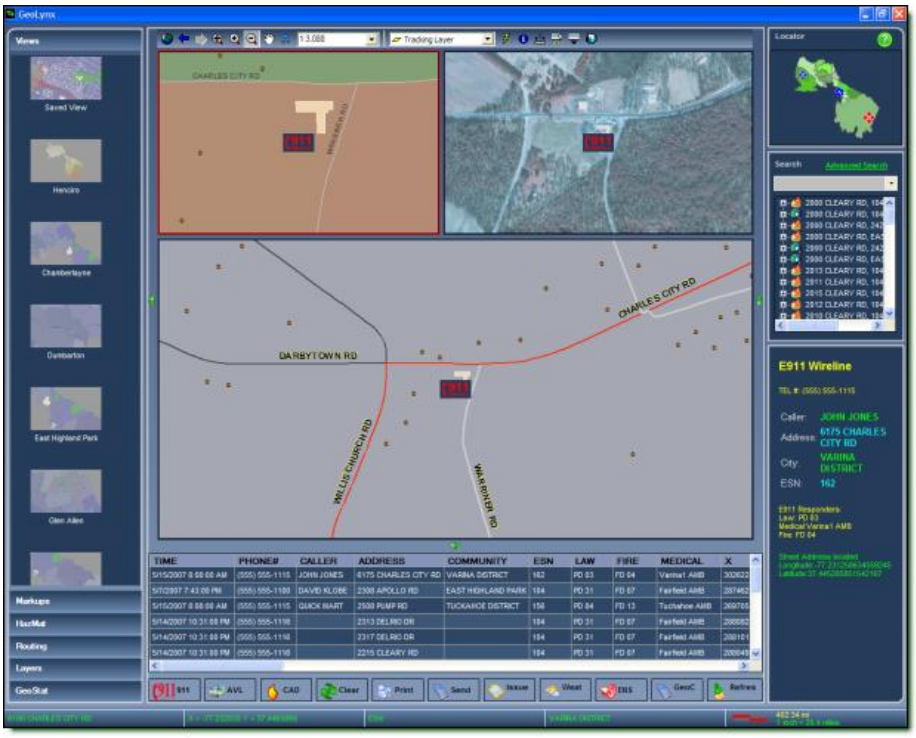
Important, detailed information related to the current dispatch environment including ALI, responder information, and vehicle list populate in the information pane to aid the call-taker.

This data displays automatically for an incoming call. It also displays when you select a call from the results grid.



Wireline E9-1-1 Call Plotting

GeoLynx 9-1-1 displays the most immediate and important information in an emergency call situation on one screen. When an E9-1-1 call is received, address, caller name, and responding agency data is parsed out of the ALI data stream sent from the E9-1-1 ALI controller. The map automatically searches the primary and secondary GIS data layers and then locates the address, where appropriate, in all map views with an arrow and the caller and responder information panels populate. The active call location symbol also displays in the locator map.



GeoLynx 9-1-1 taps directly to the ANI/ALI controller by way of a serial connection on the Computer-Aided Dispatch (CAD) port, via the IP network, or software API connection depending on the specific equipment present. When an E9-1-1 call is received, GeoLynx 9-1-1 accepts the ANI/ALI data stream and parses the information for name, address, and phone number (ANI and/or p/ANI as appropriate).

When the call is processed, the map display centers on the call location which is marked by a designated icon. The icon display changes when a new E9-1-1 call is received to distinguish the current call from past calls.

Wireless E9-1-1 Call Plotting

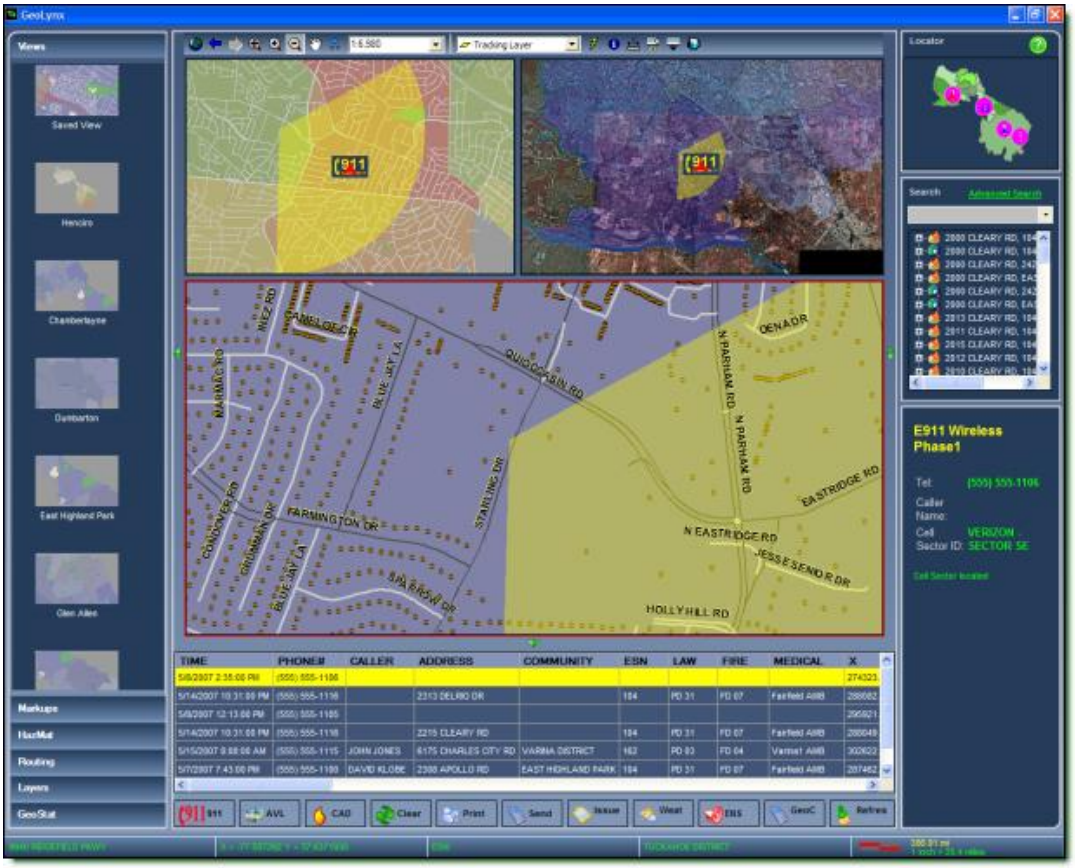
GeoLynx 9-1-1 provides configuration of different location processing methods based on class of service and provider. When a 9-1-1 call is received, GeoLynx 9-1-1 will examine the class of service and provider to determine the type of call (wireline, wireless PI, wireless PII, wireless PII with PI attributes and no PII attributes – indicating that a re-bid is required to receive x,y coordinates). Symbology is configurable by the system administrator for each class of service.

GeoLynx 9-1-1 can also list map features from any layer contained within a call's coverage area (for Wireless Phase I) or confidence interval (for Wireless Phase II).

Phase I Wireless Call

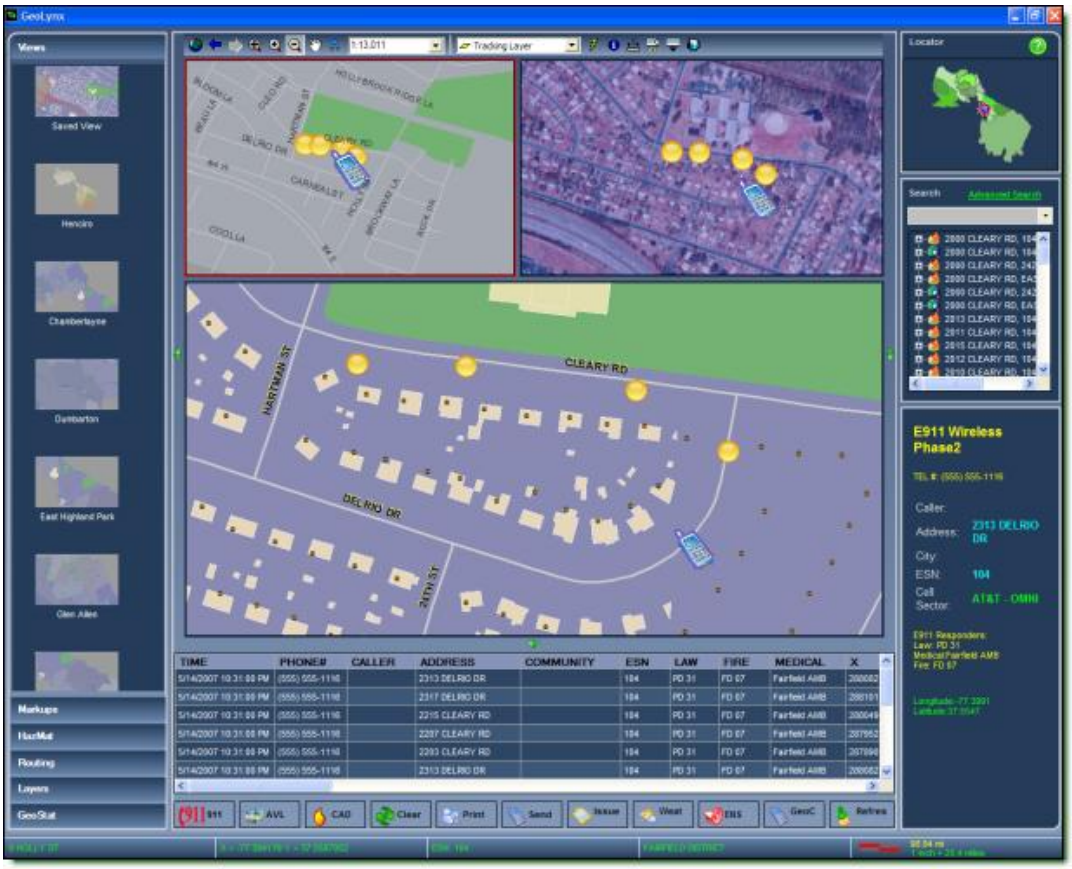
When GeoLynx 9-1-1 receives a Phase I wireless call the coverage information is received from the ALI data stream. The map of the cell sector or omni-directional coverage area displays on the map.

The map indicates the wireless caller was likely within the cell site/sector coverage area when they pressed send on their phone to dial 9-1-1.

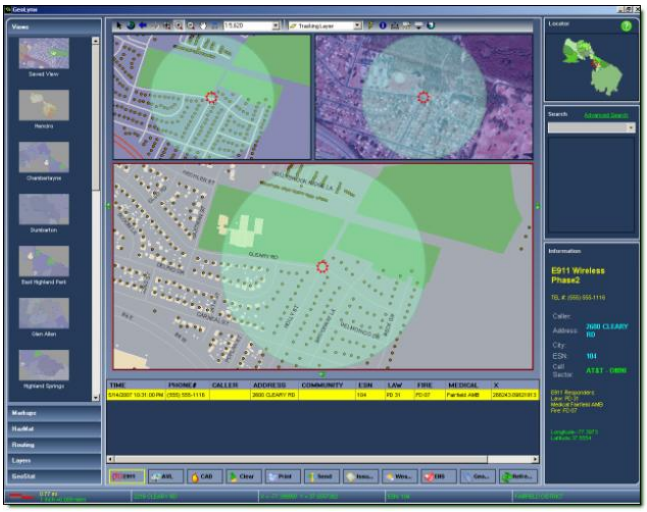


Phase II Wireless Call

When GeoLynx 9-1-1 receives a Phase II wireless call the x,y coordinate location on the map is found from the ALI data stream for that call. The screen below also shows ALI rebid locations of the wireless call.



Phase II Confidence Interval / Tolerance Zone



To display the confidence interval the cell phone provides or GeoLynx 9-1-1 utilizes a distance set as a default by the system administrator. The circle defines the highest probability where the caller may be located. GeoLynx 9-1-1 can automatically and manually search the tolerance zone for closest features, such as parcel polygons, building footprints, and address points.

3 System Implementation

Above and beyond typical software installation and training services, GeoComm recognizes implementation services are required to help plan the deployment of various system components and to build a deployment architecture that will meet your operational needs and realities.

Rather than simply installing the latest version of GeoComm software, training your users, and then leaving you with manuals to go ahead on your own, GeoComm's implementation services help turn the key to the ignition for the system so you can begin to realize benefits immediately after deployment of GeoLynx 9-1-1 v7.

As with all of our projects, GeoComm will follow a systematic approach to installation performed to ensure there is the least disruption to the existing, on-going operations.

One key to successful system implementation is to have a quality project management process in place. Based on established processes and past project experience, GeoComm's processes encompass all facets of project management. This methodology is critical to the success of any assignment.

GeoComm is committed to undertake the work outlined in this proposal. We have the needed resources, processes, and procedures in place to perform this work.

Project Team Development

GeoComm will establish a project team specifically for you with a highly qualified project manager supported by public safety GIS and software development experts based in our main office in St. Cloud, Minnesota.

The project manager will be available as follows throughout the project:

- To provide project status reports and updates to project timelines
- To answer routine questions regarding the project
- To follow-up on inquiries and requests from you regarding the project

An Implementation Specialist will be the primary technical contact for the project and will have overall responsibility for implementing the proposed GeoLynx 9-1-1 v7 software.

Team members will be assigned specific duties related to the technical and administrative elements of the project and the project manager will provide the oversight necessary to ensure all elements of the project are implemented in a timely manner.

The project team utilizes the expertise of individuals from several departments within the company, all specializing in different aspects of the project. This blend offers a diverse understanding and perspective while working cohesively to deliver the required elements of this project.

Kickoff Meeting and Project Coordination

One of the first steps for the team will be to gain an in depth understanding of your project in its entirety…the total scope, goals, and desired outcomes. Detailed knowledge of all the systems involved is essential and results from staff research, analysis, audits, or assessments. During an initial internal meeting, project leaders will ensure the team understands any nuances in the scope of work, the overall schedule, and their individual responsibilities during the course of the assignment. This is an effective step in assuring the project's successful and timely completion.

There are many decisions to make and questions to answer at the project start including gaining a detailed understanding of all constraints that may exist with any particular endeavor, i.e. deadlines and risks. Also, efficient methods for communication among team members both internally and externally related to the project will be established.

Through open communication between Henrico County and the entire project team an understanding of the depth of the project scope will be gained. With consensus from all parties, a project synopsis will be developed. This open communication between team members and Henrico County will be ongoing throughout the entire project and has proven to be an essential part of successful project implementation.

You are an integral part of project implementation with regular meetings scheduled to keep you abreast of the project schedule. To ensure project success, the team will continually identify milestones in the process, tracks all factors, and will inform you of the project status.

Quality Control

Quality control is also an integral part of system implementation. GeoComm will utilize documented internal processes to assure the highest quality of deliverables are developed and documented. In addition,

an Acceptance Test Plan (ATP), final report, and approval processes will be utilized with documentation of your ultimate satisfaction with all project elements as the final goal.

Pre-Installation Coordination

Before installation, Implementation Specialists will work with you to assure all hardware is available. Pre-installation conference calls and a project timeline will be outlined in the project plan and reviewed periodically for accuracy.

GeoComm Client Services personnel will work with you to ensure that project requirements are understood and clarified. Conference calls will be made to review installation, hardware, software, and configurations. A Microsoft Visio® diagram will be developed and sent to you to review and to aid in overall project understanding.

GeoComm GIS Specialists will complete the GIS data conversion and software setup prior to installation and training of GeoLynx 9-1-1 v7.

GIS Data Conversion and Software Setup

One of the most crucial elements in mapping 9-1-1 calls is the GIS map data. GIS map data is produced in many different formats with file structures that vary. For any specialized software program, this format must meet certain minimum map data specifications. However, in addition to complying with those specifications, software compatibility is fundamentally the most important aspect for mapping 9-1-1 calls - so your GIS map data must be adapted to work cohesively with GeoLynx 9-1-1.

To ensure successful implementation project management time is extensive. Our team uses years of expertise in map data development to provide you with the most effective GIS map data solutions.

GeoComm's GIS data conversion and setup services include:

- converting the format of your GIS map data and developing an ESRI geodatabase, if required
- setting up and configuring map documents to display the map data in GeoLynx 9-1-1
- ensuring the GIS data you supply meets minimum map data specifications for successful integration into GeoLynx 9-1-1
- making recommendations and assisting with making those GIS data modifications to create an acceptable format for successful integration into a dispatch center
- building address locators used in GeoLynx 9-1-1 for plotting wireline 9-1-1 calls
- building address locators used in GeoLynx 9-1-1 to find map features or locations on the map

- configuring the following address locator properties to ensure continued accurate and efficient wireline call plotting:
  - matching option configurations
  - intersection connectors
  - output options
- reviewing map data file structure and file naming and delivering a written document outlining required or recommended modifications that will be completed during the data conversion and setup process
- developing an ESRI geodatabase design that allows for the most effective means for incorporating future map updates into GeoLynx 9-1-1
- consulting on procedures related to map data updates and the importance of keeping data up-to-date in a 9-1-1 environment
- integrating your map data into GeoLynx 9-1-1 and scheduling a follow-up conference call to ensure future map maintenance will incorporate in the modifications

4 Installation and Training

Installation

As with all of our projects, GeoComm will follow a systematic approach to installation performed to ensure there is the least disruption to the existing, on-going operations. Installation will be done by GeoComm on customer-provided equipment at the facilities designated by the customer, according to a mutually agreeable schedule.

After the conversion contract is in place, GeoComm's Client Services Department will schedule the on-site implementation. A GeoComm Implementation Specialist will travel on-site to reconfigure and install the newest version of software.

While on-site the Implementation Specialist will complete the following for the software conversion:

- Uninstall old versions of GeoLynx 9-1-1
- Install and configure the new version of software

For GeoLynx 9-1-1 specifically the Implementation Specialist will complete the:

- ALI data connection and configuration
- Testing of wireline and wireless calls

On-site Training

For on-site training, GeoComm will provide a combination of classroom instruction and hands-on training. The classroom presentation provides foundational information and introduces software functionality. The hands-on session concentrates on procedural based functionality.

Agendas discussing the recommended training format, the scheduling of training and the workstations for training purposes will be reviewed during contract negotiations.

GeoLynx 9-1-1 System Administrator Training

GeoComm has learned through experience the most effective way to train an administrator is to have them attend a user session first then build on that foundation with administrator content. All our training curriculums have been designed to facilitate the acquisition of basic skills and concepts relating to the use of mapping software in the 9-1-1 call answering process.

GeoComm's system administration training is to provide a basic understanding of the functionality and ongoing maintenance of our GeoLynx 9-1-1 Dispatch GIS system. In addition, we will train system administrators on how to make adjustments to better fit the needs of the individual PSAP. This is accomplished through a combination of background lectures with functionality and scenario based hands-on exercises. The system administration training will be broken down into four basic components:

- System Architecture
- Installation
- Configuration Options
- Maintenance Procedures

System Architecture

GeoLynx 9-1-1 is a client/server based architecture. An overview of the following will be covered:

- GeoLynx Family of Products
- GeoComm Configuration Controller
- GeoComm Message Switch
- SQL Server
- Message Queues
- Geodatabases
- Address Locators

Installation

In the event of a hardware or system failure, GeoLynx 9-1-1 will require reinstallation. Materials are left with the administrator for reinstallation. In addition, the GeoComm Implementation Specialist will train the system administrator(s) necessary processes for reinstallation and reconfiguration of the system.

Maintenance Procedures

Maintenance of map data and settings within GeoLynx 9-1-1 is required to preserve accuracy levels established during the original installation. The GeoComm Implementation Specialist will detail how to add updated map data layers into GeoLynx 9-1-1 and the corresponding settings.

Configuration Options

GeoLynx 9-1-1 includes the ability to customize a multitude of settings and configuration options. Configuration training will focus on the options available to the system administrator to accommodate the need of the individual call taker or PSAP. The configuration training will allow the administrator to develop

the skill set for maintaining GeoLynx 9-1-1. GeoLynx 9-1-1 provides user-friendly configuration interface that is password protected to allow for easy manipulation of the software.
Some of the settings and configuration options covered in this course include:

- User account configurations/settings
- .mxd maintenance
- Setting zoom levels
- Map data layer requirements
- Configure system to minimize required maintenance
- Customize map data display (set the desired number of map views)
- Set ALI parsing parameters in the system – wireline and wireless
- Update and add AutoSend numbers
- Setting up hyperlinks
- Define and display tolerance zone on Phase II call
- Special feature modules
- New GeoLynx 9-1-1 server and database architecture *
- GeoComm configuration controller *

  *please see diagram provided in the hardware specifications section

The system administrator(s) will be responsible for understanding how GeoLynx 9-1-1 works and what files are affected by changes within the system. The overall focus of the training will revolve around the various options available for making adjustments within the system. These options relate mainly to display options of map data in the map views at workstations and application options such as the status bar configuration.

GeoLynx 9-1-1 System Administrator Training Plan

Course Title	Staff	Duration	Class Size	Number of Sessions
System Administrator Training	Administrator	Up to 4 hours	2-4	1

Notes: The number of training sessions may be revised in contract negotiations based on the availability and location of trainees.

GeoLynx 9-1-1 Train-the-Trainer

The intent of GeoComm's train-the-trainer program is to provide instruction on GeoLynx 9-1-1 that will aid in the processing of wireline and wireless 9-1-1 calls. In addition training will include instruction on how to train other system users and administrators.

This is course will include:

- Training Instruction
- General Background Discussion
- Functionality Training
- Procedural Training
- System Architecture
- Installation
- Configuration Options
- Maintenance Procedures

Training Instruction

The train-the-trainer program will provide the subject matter and materials required to develop the knowledge needed for your trainers to train other system users and administrators. The training sessions follow the same curriculum structure as the system user and administrator training courses along with this session as outlined below.

The session will review the support material necessary for your trainers to support and train other staff members on GeoLynx 9-1-1. Agendas discussing the recommended training format and scheduling of training and workstations for training purposes will be reviewed.

Appropriate materials will be provided to the trainers. The GeoLynx 9-1-1 manuals will be provided in PDF format for easy duplication. PowerPoint presentations will be provided in PDF format for any background material used in the training sessions.

General Background Discussion

User training highlights the integration of GIS technology, the dispatch GIS software and the 9-1-1 industry. The training session provides the tools for understanding the call processing background required for basic troubleshooting. Some topics covered are:

- Map data layer requirements
- Working relationship with the incoming ALI data
- Function of map data
- ESN boundaries

Functionality Training

The training focuses on basic functionality and features of GeoLynx 9-1-1 and provides the dispatcher with tools needed to take advantage of the command inherent in GeoLynx 9-1-1. The training clearly explains how GeoLynx 9-1-1 will aid a call taker during a 9-1-1 call.

Specific topics covered in the functionality training portion include:

- Drag and Drop map views
- Tool functionality (locating an intersection)
- Responder vehicle drive time recommendations
- Error log reporting (ALI or GIS Discrepancy Report)
- Real-time map markup and road closures
- Wireless call location
- Dynamic vehicle routing (requires optional GeoLynx AVL module)
- Discrepancy tracking procedures
- Hazardous material mapping
- Unique features such as the digital atlas
- 2004 ERG (Emergency Response Guidebook) integration
- Measure tool (aids in determining distances)
- Map data layer requirements
- Entry of coordinates to find a location
- Map navigation (zoom, pan, and specialized tools)

Procedural Training

The procedural or scenario-based training is customized to fit the general procedures followed within each PSAP and the specific needs of the county. These carefully designed scenarios produce optimum "hands-on" learning environment, allowing dispatchers to use the various tools available for map navigation, as well as other tools in GeoLynx 9-1-1. Trainees will obtain a basic comfort level with the software.

The training curriculum will provide call takers the ability to pull the functionality of GeoLynx 9-1-1 into scenarios that could exist during a 9-1-1 call. Some of the simulated scenarios include:

- Landline 9-1-1 call is received: enable dispatch personnel to leverage visual and text location information displayed within GeoLynx 9-1-1 to reduce emergency response time
- Manual Address lookup: GeoLynx 9-1-1 can locate address and responder information even if call is received over administrative (non-emergency) lines

- AutoSend: test wireline 9-1-1 call – send fax to the appropriate fire and medical agency assigned to the Emergency Service Number
- Error Log: wireline 9-1-1 call. The map location does not match the location confirmed by the caller; ALI information is correct, map location is not accurate – GIS Map Discrepancy Log
- Wireline 9-1-1 call that does not find a match, possible match window comes up under certain circumstances
- Creation of an issue report: map errors as well as ANI/ALI errors can be filed by dispatch personnel. This information is accessible to GIS and administrative staff and aids in the maintenance and refining of map layers and the 9-1-1 database.
- A hunter is injured and calls 9-1-1 from a cellular phone. He is able to give the coordinates of his location from his personal GPS receiver. Determine a location from DDM coordinates.
- Determining the appropriate responders to a wireless 9-1-1 call

System Architecture

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- GeoComm Configuration Controller
- GeoComm Message Switch
- SQL Server
- Message Queues
- Geodatabases
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Installation

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need of the individual call-taker or PSAP. The configuration training will allow the administrator to develop the skill set for maintaining GeoLynx 9-1-1. GeoLynx 9-1-1 provides user-friendly configuration interface that is password protected to allow for easy manipulation of the software.
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GeoLynx 9-1-1 Train-the-Trainer Program Plan

Course Title	Staff	Duration	Class Size	Number of Sessions
Train-the-Trainer	Trainer	4-6 hours	4	1

Notes: The number of training sessions may be revised in contract negotiations based on the availability and location of trainees.

Acceptance Testing

Upon completion of the installation and training, GeoComm will provide Henrico County with an Acceptance Test Plan (ATP), which is used to test all aspects of the product and its performance. Ideally, the ATP is completed immediately following installation and training.

Documentation

GeoComm provides "System Administration" and "User" reference manuals with this system showing complete operation, administrative setup/configuration and reference guides.

These manuals are used as part of the training provided after installation of the public safety software.

Document	Staff
GeoLynx 9-1-1 User Reference Manual	Operations User
GeoLynx 9-1-1 System Administration Reference Manual	System Administrators
Acceptance Test Plan	System Administrators

One professionally printed user and administration reference manual is provided for each software license. Digital copies for printing by the customer are available upon request at no charge. Additional professionally printed manuals can be purchased, if desired. A final price can be determined based on the additional manuals purchased.

Online Learning Network

For convenience and flexibility, GeoComm now offers online interactive training through Internet technology. This is an excellent way to offer new hire training, advanced training, and refresher training. Online training for GeoComm's entire Family of Products is conducted by our Implementation Specialists and is available for two audiences:

I. System Administrator Training
II. User Training

GeoComm offers a variety of product training and demonstrations via the GeoComm Learning Network. Information sharing is maximized in online training sessions for first-time users and advanced users who would like extended course instruction. During online training, customers can view and control GeoComm products, ask trouble shooting questions, and receive live coaching from GeoComm trainers on software functionality. One benefit of online training is that several locations may access the training simultaneously so customers may receive help at the same time, and information and ideas can be exchanged between customers.

An online schedule is available at http://geo-comm. com/learning_network.html.

Continuing Education

User groups provide an avenue for customers to gather at a central location and be refreshed on software applications. Usually facilitated annually, these sessions provide customers with the opportunity to renew their knowledge of the GeoComm entire Family of Products and to learn new and advanced features of the software.

5 Software Support and Maintenance

GeoComm's friendly and knowledgeable Technical Support Analysts are available to our customers on a twenty-four hour, seven-day a week basis. Our response time will be four hours or less…that is our promise. Over 65 percent of the technical support calls made to GeoComm are resolved the day you place the call.

Our response to customer issues is fast because GeoComm develops all proposed software components, trains its technicians on advanced trouble-shooting methods, has remote access to your system, and available web interaction through Internet technology. This results in quicker diagnosis and call closure. Ultimately, this means less downtime and maximum software functionality benefits.

Warranty Period

Following software implementation, GeoComm will provide you with an Acceptance Test Plan to test all aspects of the product and its performance. Once the test plan is completed, a 90-day warranty period will begin. During this period, you will have unlimited access to our Technical Support Analysts via telephone, e-mail, or fax. Whether it is a simple question or a complex issue, GeoComm will assist you to ensure full performance of your software.

Once the 90-day warranty period ends, GeoComm offers an annual software support and maintenance agreement for a fixed price or you can opt for services as needed at a rate of $95 per hour, minimum one hour.

Software Upgrades

GeoComm recognizes the importance of continued software enhancements and innovation. Our Software Development Team is charged with staying on top of all industry-related developments and to incorporate desirable features into our software suite. Also, our customers play a significant role by making software enhancement requests and providing feedback either through their support calls or via our customer satisfaction surveys.

It is common practice for GeoComm to issue service releases in between the major version releases to fix or enhance any trouble spots for specific customers and specific purposes.

Software support and maintenance customers are eligible for receipt of all new software version releases and appropriate service releases for the term of their agreement.

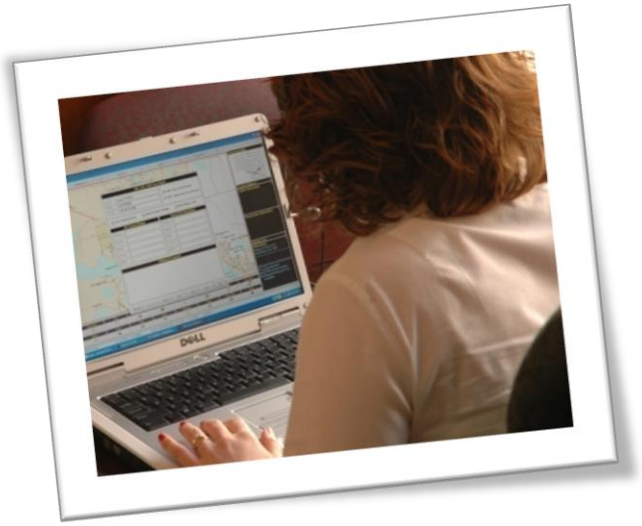
Unlimited Hotline Support

Hotline Support consists of technical assistance and product coaching by trained and experienced specialists in an advisory capacity via a toll-free telephone number, fax, or e-mail, relating to the operation of any portion of the GeoLynx 9-1-1 Software Suite. A Technical Support Analyst will work with you to resolve the issue upon receiving the telephone call, fax, or e-mail. If all analysts are busy assisting other customers, a return telephone call to address the issue will be made within four hours.

Availability

Emergency Calls are addressed 24 hours a day, seven days a week via a toll-free number / pager system. A technical staff member will return your emergency calls requiring immediate attention. GeoComm defines emergency calls as one or more of the following:

- System alarms where software does not process calls, or
- System locks up repeatedly without ability to recover.



During our regular business hours, 8 a.m. to 5 p.m. Central Standard Time, Monday through Friday, excluding holidays, customers are allowed unlimited toll-free calls, e-mails, and faxes related to any concern with the software.

If the hotline is called outside of regular business hours with non-emergency matters that could be addressed during regular business hours, you will be billed for such calls at a rate of $95 per hour (minimum one hour). These fees will be payable, in addition to the normal annual support and maintenance fee, within 30 days of receiving an invoice.

Support also consists of remote access into your software for troubleshooting. This does not cover calls related to issues with other vendors.

6 Responsibilities and Deliverables

GeoLynx 9-1-1 Customer Responsibilities

Prior to the GIS data conversion and software setup, Henrico County is responsible for:

- providing master ESRI shapefiles currently incorporated in the existing GeoLynx 9-1-1 setup
- providing supplementary layers desired for the new GeoLynx 9-1-1 display, if available
- providing map projection information for all map data provided
- reviewing map display (feature rendering)

GeoLynx 9-1-1 is designed on a server and database architecture so all configuration settings, as well as ALI data, is channeled through the server and database where it is picked up by GeoLynx 9-1-1 client for display of data, therefore a server is required.

Prior to GeoComm's arrival, Henrico County must:

- Have a dedicated server for GeoLynx 9-1-1.
- Ensure hardware meeting the required specifications below is available at the time of installation.

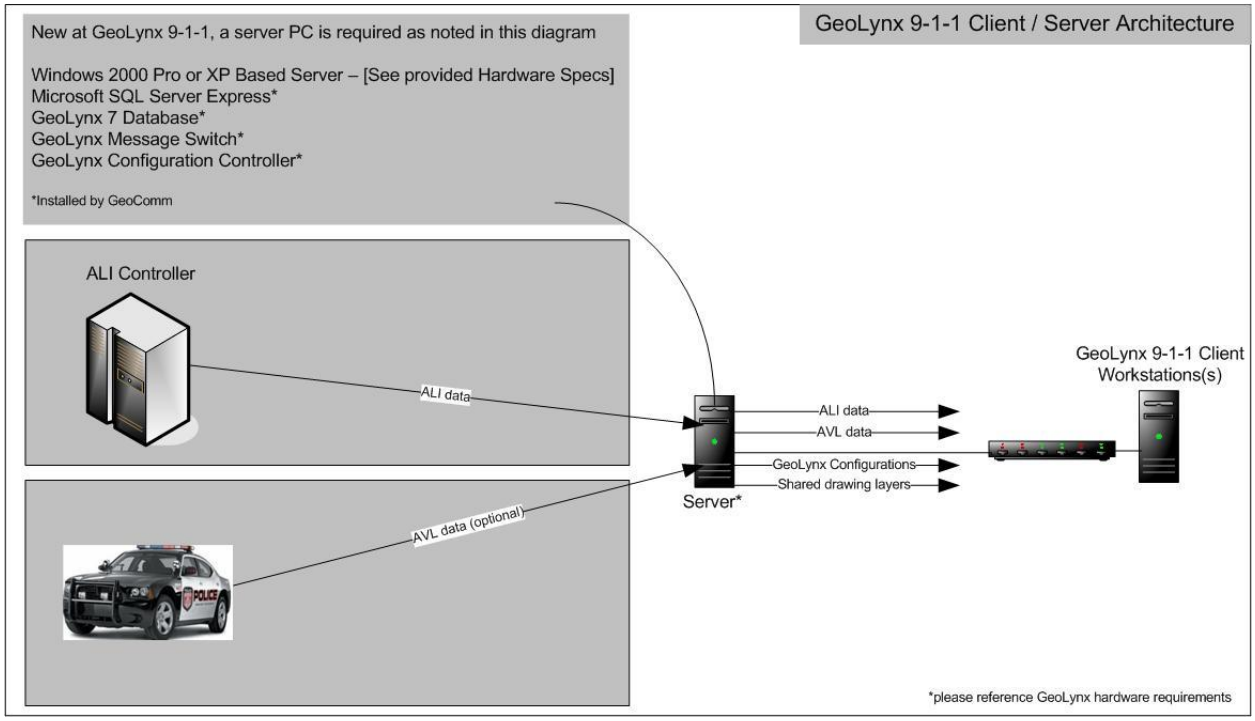
System Component	Minimum	Recommended
Description	Typical desktop computer workstation. The GeoLynx Network Server running GeoComm Message Switch Application allows a single connection to E9-1-1 ALI, AVL, and/or CAD systems. The Message Switch Application can distribute data from these subsystems to any network attached GeoLynx 9-1-1 workstation client. The GeoLynx 9-1-1 Network Server can also be used as a GIS map data storage container and GeoLynx 9-1-1 workstation update mechanism. The workstation should be accessible 24/7.	
CPU	2.0 GHz Intel Pentium 4 Processor or AMD equivalent	3.0 GHz Pentium 4 Processor or AMD equivalent
RA	1GB RAM	2GB RAM
Available Hard Drive	10 GB depends on size of map data and size of aerial imagery, if applicable	80 GB hard drive with space available for map data
Display	17" 800x600, 256 color depth	17" or 21" monitor, 1024x768, 24 or 32 bit color depth
Video Card	32 MB video card	128 MB dedicated memory video card
Resolution	1024x768 capable video card with 17" monitor, 16-bit color [LCD or CRT]	1280x1024 capable video card with 19" monitor, 32-bit color [LCD or CRT]
Operating System	Windows 2000 or XP Pro	
Network Card	10/100 Mbps depends on network speed	10/100/1000 Mbps depends on network speed. GeoLynx 9-1-1 using enterprise geodatabases requires at least a gigabit network.

System Component	Minimum	Recommended
Serial Ports	2 Port DB9 SIIG PCI Serial Card (Dual com ports) for external connection to 911 equipment and/or AVL subsystem modems on the server application with the GeoComm message switch. Note – other brands than SIIG may be used, however PCI serial cards eliminate resources and interrupt sharing problems between multiple ports to be used concurrently.	
CD-ROM Drive	CDRW Drive	48X DVDRW Drive
Floppy Disk Drive	3.5" 1.44 MB*	
Modem	Optional 56 kbps hardware-based fax modem [for faxing maps]	
Remote Access	Dial-up or high-speed Internet connection	High-speed Internet connection
Network	• TCP/IP Protocol installed, static IP address assigned • 10/100/1000 baseT Network Interface Adapter • 10/100/1000 baseT hub for connecting workstations Network speed requirements depend on usage: • 10 baseT: suitable for message switch operations and periodic scheduled file update processes • 100/1000 baseT: suitable for message switch operations and frequent periodic scheduled file update processes, as well as live access of GIS data from a server.	

*Optional in lieu of external USB memory

- Have all computers installed and connected to the LAN. GeoComm is not responsible for setup or maintenance of the LAN connections or LAN infrastructure. Facilities that have not been properly setup upon our arrival may cause significant delay in our portion of the installation and may be subject to an extended visit or additional visits. The cost of these extensions or extra visits shall be invoiced according to our normal labor rates plus additional travel expenses, including any penalties assessed for pre-arranged accommodations.
- Make remote connections available on each workstation. GeoComm will test the connection prior to arrival to ensure it provides the expected connectivity between GeoComm and Maywood PD workstations. Without remote access, help support will be limited.
- Have RS232 cable or CAT5 cable ran from the ALI Controller location to the GeoLynx 9-1-1 or Message Switch location.
- Provide an operational link from the GeoLynx 9-1-1 location to a NENA standard CAD port on the ALI controller, including a valid and operational ALI data stream. Have the parameters configured on the CAD as outlined by GeoComm's documentation.

GeoLynx 9-1-1 Network Diagram



GeoLynx 9-1-1 GeoComm Deliverables

- GeoComm will deliver the final GIS map data layers in an agreed upon standard ESRI projection. The map data layers will be in ESRI feature class format. GeoComm will provide a CD with the master GIS data set.
- New GeoLynx 9-1-1 software licenses
- New product Installer CDs
- New user and administrative manuals
- On-site installation
- Acceptance test plan
- One on-site system administrator training session
- Two on-site user courses

7 Pricing

Prices valid for 90 days.

Software Conversion

Description	Qty	Price/Unit	Total Price
GIS Data Conversion and Software Setup Services			$1,950
GeoLynx 9-1-1 Software License(s)	30	$1,500	$45,000
GeoLynx 9-1-1 Installation and Training			$13,920
Software Support and Maintenance			$24,750
		Software Conversion Total:	**$85,620**

Notes: Interface fees, if applicable, are not included in this total.

This fee includes all travel and associated costs and should be considered firm.

GeoLynx 9-1-1 is a single use license. One license is needed per workstation.

GeoLynx 9-1-1 workstations must meet the minimum GeoLynx 9-1-1 hardware requirements as outlined in this proposal.

GeoLynx 9-1-1 operation requires a computer act as the system server. Henrico County is responsible to provide this system server.

Final testing for GeoLynx 9-1-1 v7 to work in your environment is currently taking place. Upon contract signing and project start, firm implementation dates will be set.

Software support and maintenance costs to be prorated based on actual date of installation and term of existing software support and maintenance contract.