VERSATERM

7534 E First Street
Scottsdale, AZ 85251
www.versaterm.com

February 15, 2016

Mr. Jaime D. Young
Director
Office of Public Safety Communications
San Mateo County
400 County Center – PSC100
Redwood City, CA 94063

**Re: REQUEST FOR INFORMATION RFI 011316CAD**
**Computer Aided Dispatch and Mobile Systems**

Dear Director Young,

On behalf of Versaterm I am pleased to present our response to San Mateo County's RFI. Versaterm is providing information on our CAD and Mobile systems as requested. In general, this response follows the outline of functionality provided in SECTION I – INTENT on page 3 of the RFI.

Versaterm has had a long and successful career implementing CAD systems for agencies both large and small all across North America. Major American City's such as Phoenix, Seattle, Sacramento, Portland and many others depend on our CAD systems.

Versaterm works in partnership with our customers to achieve long-term success. This success, however, is not reached on the day you go live, even though this is a significant milestone. Rather, we define success based on a longer-term goal, when you are fully utilizing the system and when it begins to pay for itself in improved efficiencies.

Each of our implementations is followed up with our unique Evergreening maintenance program that includes close and personal support, software functionality updates and technology refreshes. The result: Evergreening, which is included in your annual maintenance payments, keeps your system functionally fresh and relevant, and prevents it from every becoming technically obsolete.

Since a Versaterm system never becomes obsolete, it never needs replacement and this is why they never are. As we like to say, a Versaterm system won't be your next system, it will be the last system you will every need.

If you have any questions please feel free to contact me, as I will be your contact person as described in the RFI. The phone and email are below and the address in the letterhead.

Sincerely,

James Mortimer
Director of Business Development
Versaterm
Tel: 480-663-9744
Fax: 480-663-6261
Jim.mortimer@versaterm.com
www.versaterm.com

## Versaterm Qualifications

Over the 39 years since Versaterm's founding, we have quietly grown into a leading supplier of public safety systems across North America. During those years we have established a solid reputation by successfully working with public safety agencies of all sizes – from under 40 to over 7,000 field personnel. Versaterm's CAD is running in some of North America's largest public safety communications centers. Some of our CAD systems are multi-jurisdictional while others are multi-class (Fire, EMS and Police) and still others are both. Some handle incident counts in excess of 2.5 Million per year and others with under 100,000 per year. As diverse as these customers are in terms of size, class of service and business model all of our customers have these things in common:

- They all run the same CAD/Mobile System developed in house by Versaterm.
- They are all references (a complete client list with contact information can be found in Appendix A).

Our track record of success on large systems such as the one contemplated here is pretty well known. What is not so well known is our track record at replacing PRC/Northrop Grumman systems like your current San Mateo County system. In fact, we have replaced 11 large PRC/Northrop Grumman CAD systems (and will be adding a 12th site within the next couple of months) – many of these customers refer to themselves as the PRC Alumni Association. The following is a list:

- E-COMM, British Columbia – Population Served: 4,000,000
- York Regional Police, ON – Population Served: 850,000
- Ottawa Police and Fire Service, ON – Population Served: 822,000
- Niagara Regional Police, ON – Population Served: 815,000
- BOEC Portland Region Police, Fire and EMS – Population Served: 700,000
- Seattle Police, WA – Population Served: 569,000
- Durham Regional Police, ON – Population Served: 550,000
- Sacramento Police, CA – Population Served: 400,000
- Halifax Regional Police and Fire, NS – Population Served: 359,000
- Anaheim Police, CA – Population Served: 328,000
- Chandler Police, AZ – Population Served: 240,000

The PRC/Northrop system, though dated today, is a tough act to follow. Why has Versaterm been so successful at replacing these systems? Reasons vary by site of course, but one comment we hear over and over is the ease of transition.

After years of dispatching on the same system, change is a disruptive if not a scary thing to users. The Versaterm CAD makes the transition from Northrop's COBOL CAD much smoother in several ways:

- Commands – The commands used by dispatchers become muscle memory; they are typed at lightning speed. Changing the commands causes stress and delay. The Versaterm CAD's command structure is completely flexible; this means San Mateo County dispatchers can keep their commands. Along with being a huge stress reducer, this also saves training time and expense.

- Look and Feel –
    - Working Screen: The look and feel of the working screen, though a very modern GUI, uses a similar philosophy to the PRC/Northrop COBAL CAD – that is, it's disciplined. Information that you need will appear in the spot/window you expect it to, you can't hide any information accidently and if you don't need to see something it's not on the screen blinking at you.
    - Status Monitor: The status monitor gives you the information you need now. Changing its configuration because a new system is introduced will cause stress and slow reaction time as users are used to looking in a particular spot for information displayed in a particular font or color. The Versaterm CAD status monitor is fully configurable. This means that aspects such as colors, behavior, background, position etc. are set either at the agency level for all communicators or by each user so that the configuration of the screen follows them whenever they log in. In the end, it's up to you. However, because the monitor adapts to you rather than you adapting to it, stress is reduced and transition is eased. So, when you are looking for that particular unit or incident, it's right where you have always expected it to be.
- Data Elements – Of course we will preserve critical data elements from one system to the other including incident types, unit IDs, commonplace names, etc.

When San Mateo County Communications Professionals first sit down with the Versaterm system on the first day of training, they will have a considerable advantage. The screens they will be looking at will be familiar – but better, the commands they will use will be the same and the things those commands affect will be the same (places, units, incident types, etc.). They will find that they will be able to do most of the things they did on the old system almost without instruction. The only thing left then will be to learn the new functionality the Versaterm CAD offers.

One of the principal reasons for this success in agencies large and small results from the unique way we define that word – "success". At Versaterm, a success is not merely going live on time and on budget, though this is a significant milestone – and one that we have never failed to complete. Rather, success as we define it comes later, when you have fully "moved in" to the system and are taking full advantage of its functionality and when the system is improving your efficiency, meeting your goals and growing with you over time. That's real and sustainable success. Our larger customers gain much from this as they avoid risk by working with a vendor with a perfect track record and end up with a system that actually begins to pay for itself.

We get there together, by working in a partnership with you. Versaterm is not interested in acting simply as your vendor. Rather, we deliver the system **with you** and not **to you**. This ensures that it becomes *your* system and that the job is done right and that a long-term partnership is forged.

Once you are in production and under maintenance, we continue to work in partnership with you through close personal support, which is provided by our senior staff whom you call directly – no help desk and no waiting until your issue floats to the top of a queue. At Versaterm, your support team consists of the very same individuals who worked with you to implement your system. They know you, they know your system and how you have configured it. (Often our team becomes the virtual memory for our customers as they survive agency reorganization and retirements.) Because these are senior technical people and because the source code is resident on your system, they are ready to extend help now.

Versaterm provides functional releases in 18-month intervals. These are delivered, installed and tested on your site by Versaterm personnel. Each of these releases consists of approximately 100 new functionality features. This is how the system grows with our customers' needs. As technology evolves we will provide technical upgrades ensuring that our customers' systems are kept constantly modern. We call this process **Evergreening**. Evergreening is included in our standard maintenance agreement; there are no additional charges for this service. The result is a system that evolves through time. It will never become functionally stale or technically obsolete and thus will never need to be replaced. That is long term and sustainable success.

Many of our customers, particularly the larger ones, come to us from a custom system built and maintained in house. They were seeking the cost and efficiency advantages of a COTS system, but at the same time feared leaving their custom features behind. They find that the Versaterm CAD offers the best of both worlds. It's a fully COTS system offering all of the stability and cost effectiveness one would expect. At the same time the extensive configurability takes in your unique business needs and Evergreening ensures that the system will grow and evolve as your needs dictate. In the end, you gain the efficiencies of COTS without sacrificing the responsiveness associated with in-house systems.

Because of our experience and consistent track record of success in large agencies, combined with our partnership approach, personal service and evergreening, we feel Versaterm would be a good fit for San Mateo and the last CAD the County will ever need.

## Company Background

Versaterm was formed in 1977 by industry leaders who were fundamental in building the CPIC system—the Canadian equivalent to NCIC and NLETS. From the beginning, the focus was to create advanced information and management systems for public safety agencies, and Versaterm has been deploying Police, Fire, and Emergency Medical systems for integrated dispatch and records management ever since.

By 1987 Versaterm had also established its unique business philosophy - a philosophy that focuses exclusively on each customer's long-term success rather than on growing our market share. At that time, we revolutionized the enterprise software market by introducing the "*evergreen*" philosophy where we included enhancement releases (and installation) free of charge as part of the normal support and maintenance functions. Today Versaterm is a very successful privately held corporation based in Ottawa, Ontario that is fully and exclusively dedicated to public safety. Versaterm's geographic focus is the United States and Canada with one installation in the Caribbean.

Versaterm Inc. is a privately held, for-profit corporation that is federally chartered under the Canada Business Corporations. The US subsidiary, Versaterm U. S. Corp., is a for-profit corporation incorporated in Delaware. Versaterm has main offices in Ottawa ON and Scottsdale AZ with remote employees spread across the US (including southern California) and Canada. Our office locations are well situated to provide the best support across all North American time zones.

Versaterm currently employs 96 people but is organized such that the significant majority of the personnel are considered operational (i.e. able to deliver). That is, we only have 2 business development professionals and very few administrative personnel. The focus on delivery is what sets us apart from our competition as the people you deal with can actually help. We were early adopters of the matrix-style of management and it has served us, and our customers, very well. Further, the employees of Versaterm are owners of the Company as we have an internal share forum providing a market for employees to buy and sell shares in the company. This allows each employee to benefit in the success of Versaterm.

The Versaterm senior management is quite unique; not only have they been with Versaterm for a significant amount of time (the majority have been here for over 20 years), but most have direct experience in developing and delivering projects of this size. Even the President of the Company started as a programmer developing portions of the Versadex system before managing projects and implementing the system for various customers.

Because our business model, and thus our profitability, is based on the ongoing success of our customers, rather than on continued sales or on achieving market share goals, we will remain a very financially stable partner for our customers, regardless of the economic climate. For example, during the most recent economic downturn we remained profitable even though we instituted a zero-increase on our existing support contracts.

## CAD and Mobile Software Description

Timely and accurate information has often been characterized as the life blood of public safety and policing operations. It plays a critical role in supporting all aspects of an organizations operation- administrative, strategic and tactical. Effective information management is dependent on an agency's ability to create, collect, store, communicate, evaluate, and transform data into actionable information. Without this ability, police forces are hindered in their ability to make on-going improvements in their operational efficiency and ultimately the effective delivery of services to the community that they serve.

Since 1977 Versaterm has developed and continues to deliver, support and enhance a suite of fully integrated operational information systems that deliver a structured work-flow oriented approach to the creation, collection and management of information that will empower an agency with the ability to streamline business processes, gain improved manpower efficiencies and provide real time information in support of improved strategic and tactical decision making. Our solutions include:

- **Versadex Computer Aided Dispatch System**
  - Supports Police, Fire and EMS
  - Supports multiple jurisdictions
- **Versadex Law Enforcement Records Management System**
  - Supports multiple jurisdictions
- **Versadex Mobile Workstation Solutions**
  - CAD MWS Subsystem
  - Mobile Report Entry (MRE) Field Reporting Subsystem
  - vMobile APP

Over the last 39 years these Commercial Off-the- Shelf (COTS) solutions have automated public safety operations, delivered measurable results with a structured work-flow oriented approach in collecting and managing information that maximizes data flow, improves data quality and minimizes or eliminates internal duplicate workflow processes. With the addition of key interface connections to other 3rd party systems, critical information sharing is initiated and the reduction of additional workflow processes are provided thus improving efficiency and creating a virtually paperless environment.

The following pages will highlight some of the critical features of the Versadex CAD (Police and Fire) and the Mobile Workstation solution that may be of interest to San Mateo County. We have tried to highlight those features and functions specifically identified in **Section I - Intent** found on page 3 of the formal RFI document.

*The Versadex CAD:*

**The CAD system supports the following work positions:**

**- Call Taker**

**- Dispatcher**

**- Combined positions**

**-Supervisory**

**- Remote CAD workstation**

**Supports Integrated Mapping**

**AVL with unit recommendation**

**ConfigurableUnit Recommendation based on Type of Service and Call Type**

**Support these common functions:**

**-Dispatch using recommendation**

**-Backup Unit Dispatch**

**-Retrieve active calls**

**-Custom call time stamps**

**-Status Change updates**

**- Cancelling calls after dispatch**

**-Re-queuing active or closed calls**

**-Stacked or handled calls**

**- On-view events**

**- Busy Codes**

**- Creating follow-up calls**

**- Dispatch special services**

**- Traffic stop/initiate incident**

**-Transports**

**- Fire Move-up calculations**

**- Split Crew functionality**

**- Premise Hazards**

**- Cad to Cad Integration**

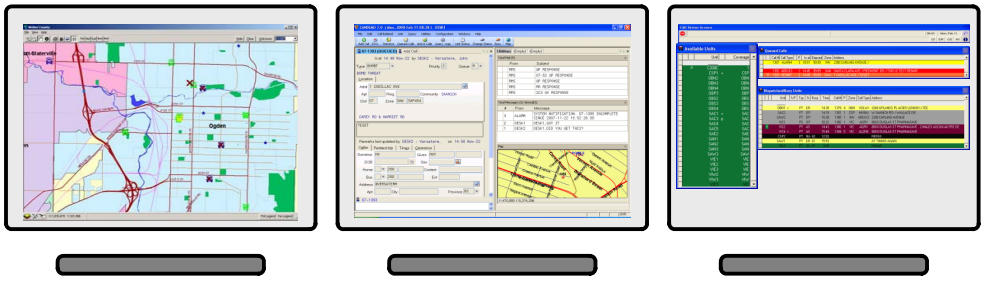
**And many others….**

## Versadex Computer Aided Dispatch System

The Versadex Computer Aided Dispatch (CAD) system has been built specifically to support operations found in Communications Centers serving individual agencies, multiple jurisdictions and multiple classes of service (Police, Fire, and EMS).

Versadex is reliable, stable, predictable and powerful. We serve customers who range in size from those who process less than 10,000 calls-for-service per year to those who process over 2.5 million calls-for-service each year; from single agency installations to multi-agency, multi-service consortiums serving multiple cities/counties. Through decades of user input from our various customers, Versadex has become a virtual repository of best practices and a feature-rich system that focuses on gaining efficiencies for call takers, dispatchers and responders.

The Versadex Computer Aided Dispatch (CAD) system was first introduced in 1993 and each year it continues to expand and grow in accordance with new technology. Guided by our users' input and that of a highly experienced advisory board, we create new releases every twelve to eighteen months that contain many improvements and new features. The result is that your system remains as technologically modern and functionally relevant as it was the day you installed it. All of this is at no additional charge – no upgrade fees or pricy enhancements. We call this process Evergreening and the result is that the system never becomes obsolete; it is one of the reasons we have retained customers for almost 30 years.



The Versadex CAD provides users with a .NET User Interface (UI) and an underlying technology that utilizes Web Services within a Services Oriented Architecture (SOA).

The result is an intuitive Windows UI with a disciplined and flexible CAD architecture. For example, information always appear where it is expected – not in pop-up windows that are tiled to the nth-degree; this minimizes stress and eliminates the possibility of covering critical information or an event with another window.

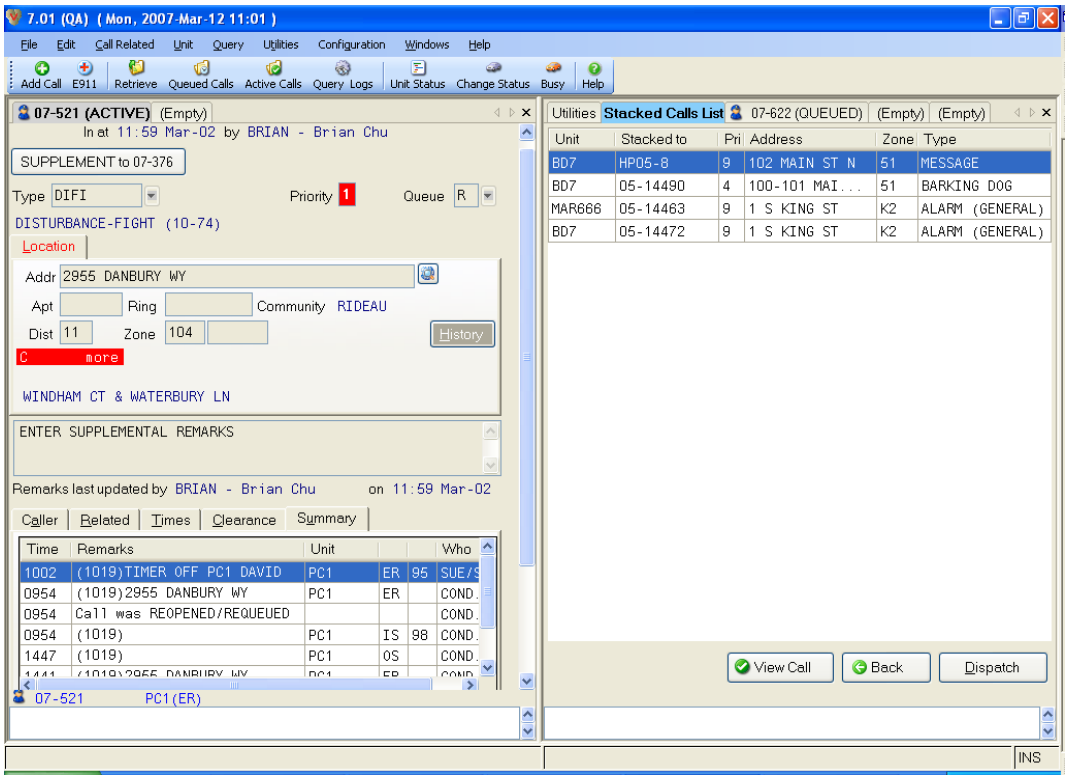
Versadex CAD efficiently organizes information making it readily available to users. Folder tabs are used to categorize information and

quick navigation keys can be used to flip through the folder tabs. This design provides users with a more centralized 'Working screen' in which they can access many types of information, create new calls for service, manage existing calls and resources - without having to open multiple windows.

The flexibility and ease of use of CAD is due to the use of these folder tabs. These tabs allow an operator to have a great deal of information available to them without needing multiple working screens open.

By creating two separate tab groups an operator can access critical information on either side of the screen. A common configuration is to place the **Call Screen** on the left side and the **Utilities** tab on the right-hand side. However, an operator can retrieve any type of information (e.g., a call, the queued calls list, stacked calls etc.) on any 'Empty' tab which allows you to have different types of information open at the same time.

For example, in the screen below, a call is open on the left hand side while the stacked calls list is open on the right. Notice that the **Utilities** tab and another queued call are also active on the right side of the screen. It is important to note that the command line is always available on any empty or active tab.

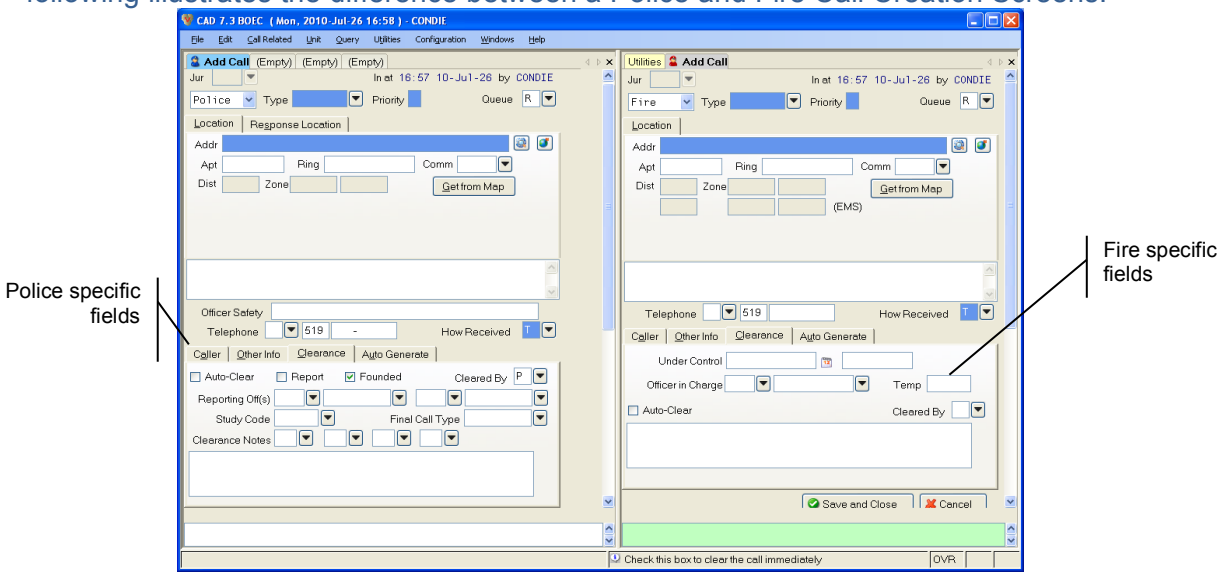



The **Utilities** tab can also be configured to contain the following items:

- The Mail window which displays the Versadex Mail inbox.
- The Officer notes window to display all officer notes (memos)

- The scratch pad which call-takers and dispatchers can use to enter miscellaneous notes. The Monitor window where you can monitor a desk or unit.
- The integrated map which is a scaled down version of the existing map that dynamically updates to show the current call's location
- The message window which contains desk messages.

The Versadex CAD also supports different Command Screens for Police, Fire and EMS. The following illustrates the difference between a Police and Fire Call Creation Screens.




In order to maximize speed and efficiency, Command lines are to be found in every folder tab so users can have 1, 10 or more command lines available. Users have a choice of how to operate the system – command line, function keys, hot keys and/or a mouse. User customization capabilities are provided so individual users can personalize the CAD but these features can also be disabled by the administrator (to provide conformity throughout).

The Versadex CAD command line supports a site-configurable command set. To reduce training time, the mnemonic and parameter sequence for commands can be changed to match what the dispatchers are already familiar with. A function is provided that will allow you to configure the CAD with the command set in-use today so users will be able to use the same command "language" they have become accustomed to. This functionality will help make the transition to a new CAD system easier by minimizing the necessity to re-learn a new command structure.

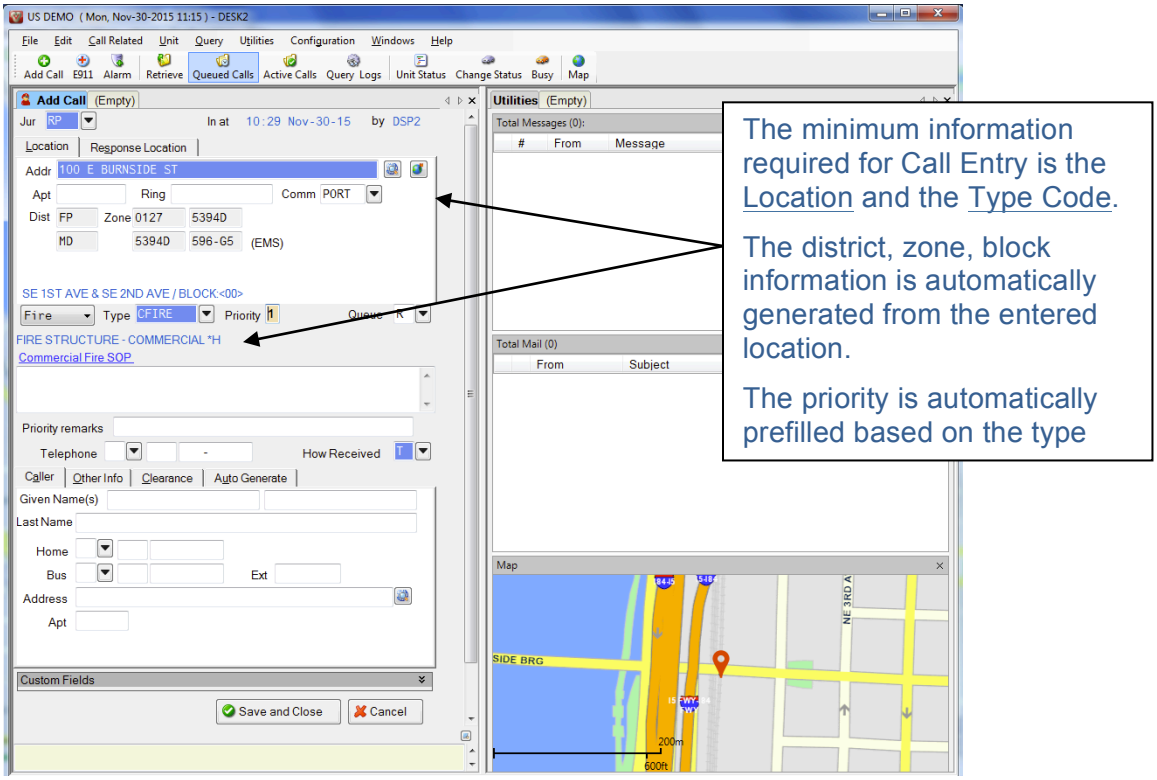
## Call Creation

The Versadex CAD provides a variety of standard functions to initiate Calls for Service:

- E-911 Call including wireless E911 calls
- Standard telephone call

- Front Desk/District workstation
- Directly from Map Display
- Officer initiated activity from the MWS
-

The following illustrates the call-taking screen:




Once the minimum required information (Address and Type Code) is entered, the call taker can save the call and it will automatically be routed ('pended') to the appropriate dispatcher based on location. The call taker can continue to add/supplement additional details to the call after the call has been pended and/or dispatched. Both the call taker and the dispatcher can view and update the call and/or update/control units at the same time. The dispatcher is made aware of the updates from other operators.

In this example, dispatching units to the call can trigger the Fire Station Alerting (FSA) interface to enable automatic station tones, voice commands and optional station printouts.

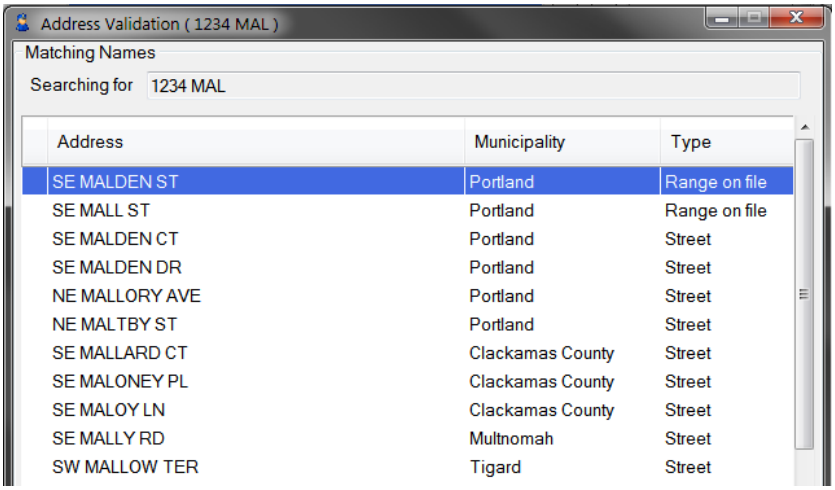
The Versadex CAD has a number of visual features and a powerful address validation utility that are designed to assist the call taker in determining the location as quickly as possible.

Once the operator enters the address (either manually or prefilled from the 911 ALI), the system will automatically verify the address/location against the Versadex GIS files. If a single or exact match is found, the address is immediately verified and geocoded. If the system is unable to

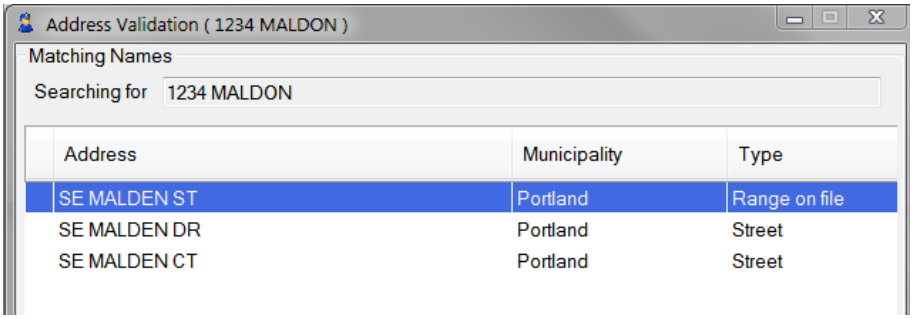
verify the location or if there is more than one possible match, the user is presented with a list of choices. The user can select a match from the list, re-enter the location, or override the address.

There are various ways in which the system can be configured to validate locations. For example, the Versadex CAD can be configured to either use a soundex ('sound alike') or a name matching algorithm to validate street and intersection data. The system can also be configured to use a soundex based on the number of characters entered in the location field.

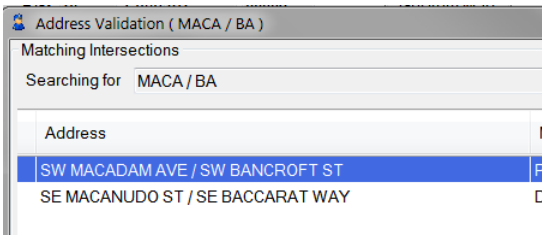
For example, many agencies will configure the system to use character matching if less than 6 characters are entered; after that, then soundex will be used. In that example, entering a partial street name such as '1234 MAL' will present the users with a list of possible streets starting with MAL:




Whereas entering '1234 MALDON' will return similar 'sounding' streets such as 'MALDEN:'

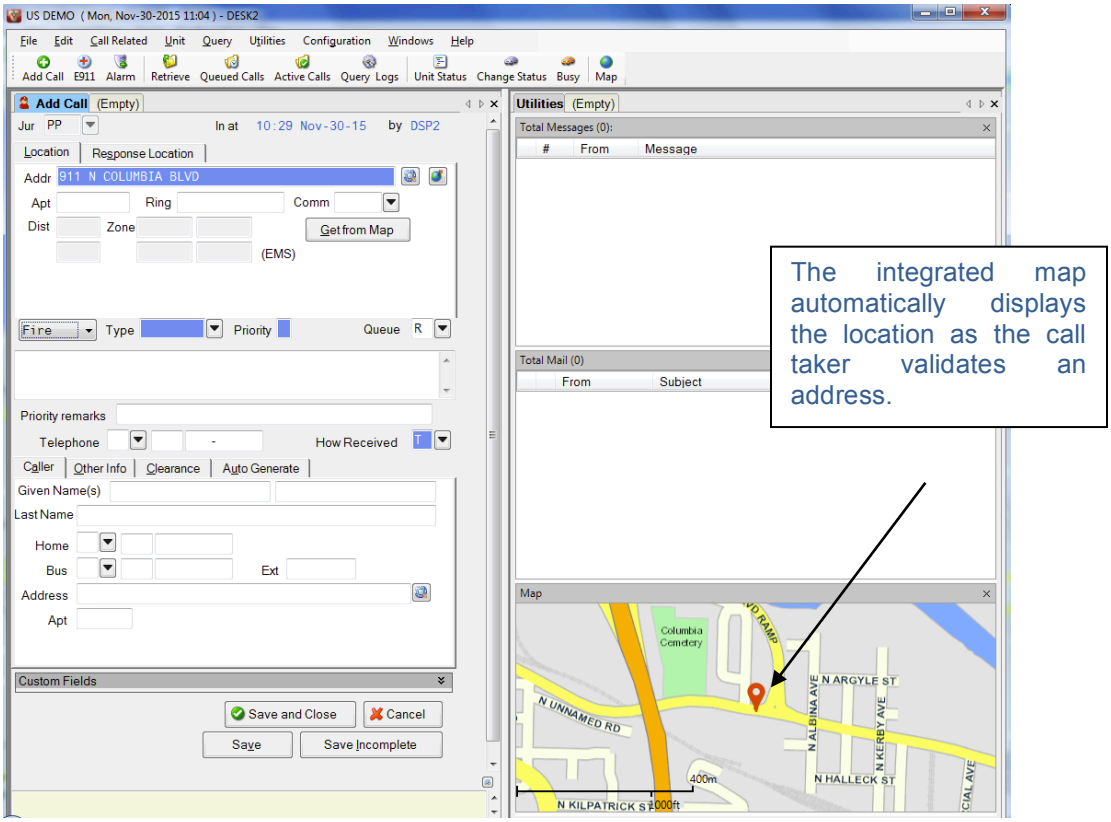



Partial street names can also be used when validating intersections. For example, entering 'MACA / BA' presents the user with possible matches:

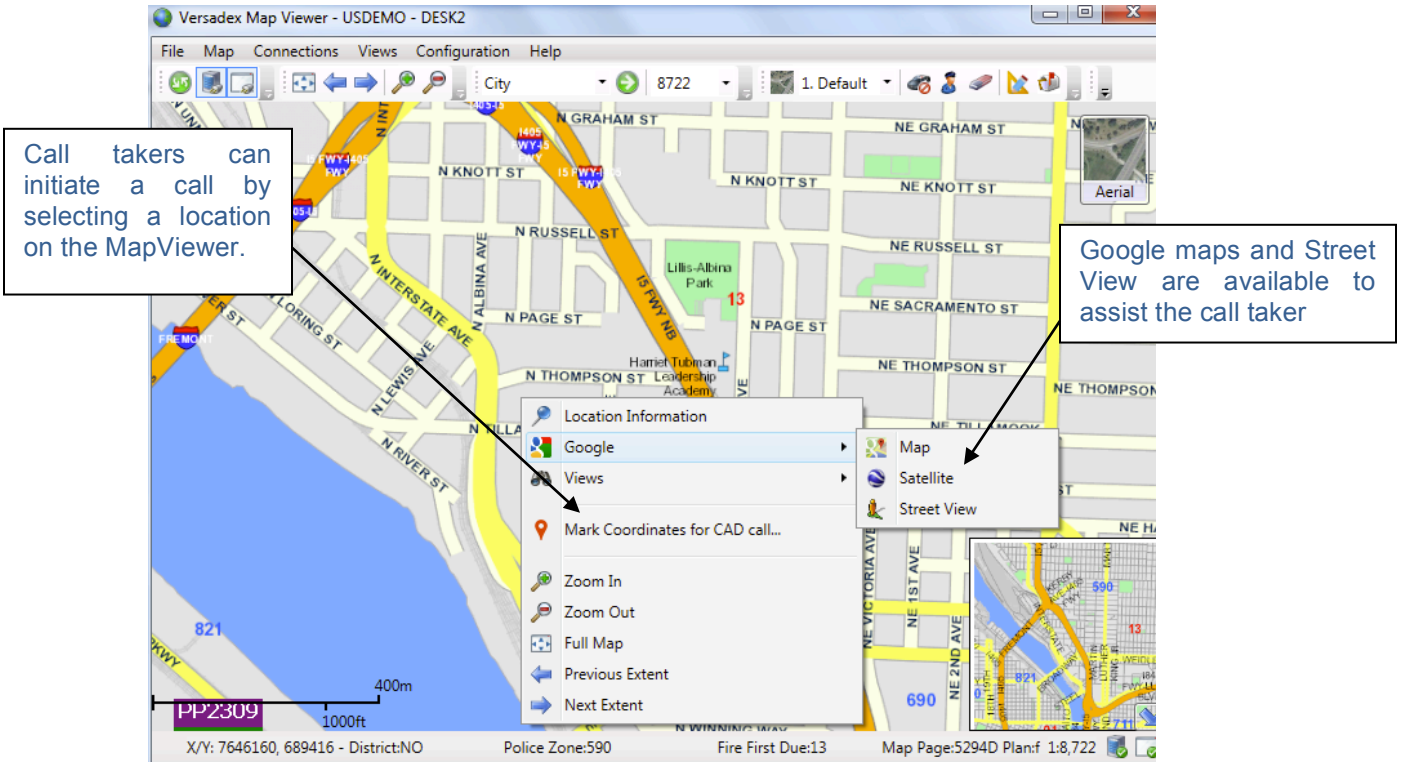



Note that the user is only presented with a choice of possible matches if the system does not find a single or exact match.

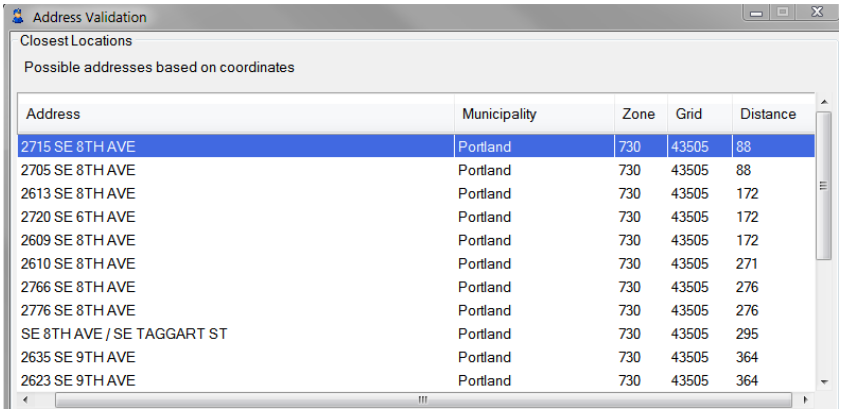
As the call taker validates an address, the location is automatically displayed on the integrated map at a pre-defined zoom level providing the call taker with visual indicator to confirm the location that was selected.



As an alternative to entering a verifiable address, Versadex supports a feature where a user can select a location using the MapViewer (as illustrated in the following screen shot). This is especially helpful when the caller does not know the exact address of the incident but can describe it relative to a nearby landmark.

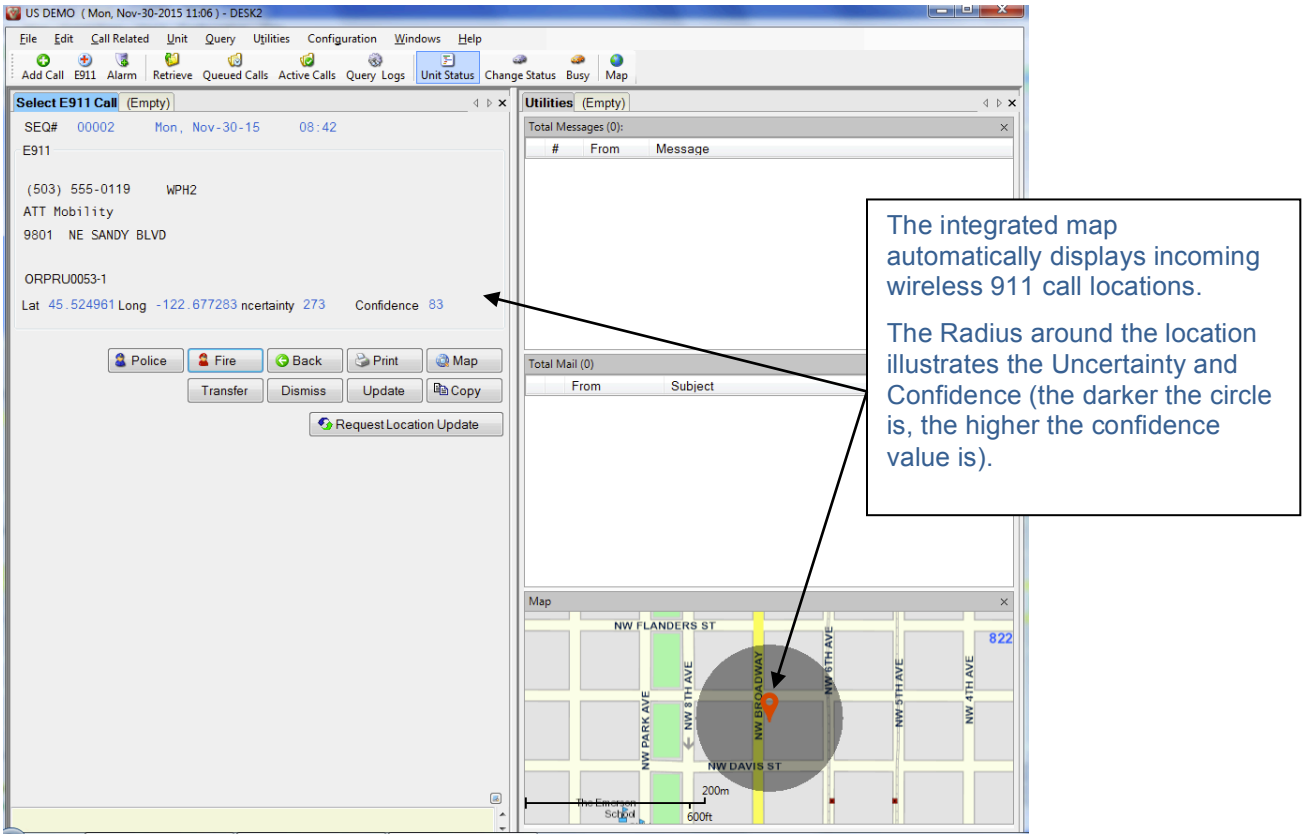



The user is then presented with a list of closest locations ordered by distance.



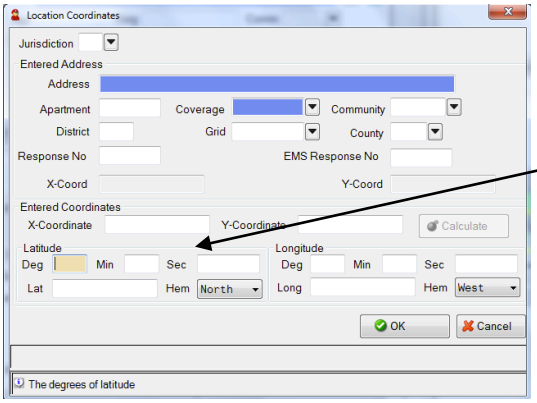

| Address | Municipality | Zone | Grid | Distance |
|---|---|---|---|---|
| 2715 SE 8TH AVE | Portland | 730 | 43505 | 88 |
| 2705 SE 8TH AVE | Portland | 730 | 43505 | 88 |
| 2613 SE 8TH AVE | Portland | 730 | 43505 | 172 |
| 2720 SE 6TH AVE | Portland | 730 | 43505 | 172 |
| 2609 SE 8TH AVE | Portland | 730 | 43505 | 172 |
| 2610 SE 8TH AVE | Portland | 730 | 43505 | 271 |
| 2766 SE 8TH AVE | Portland | 730 | 43505 | 276 |
| 2776 SE 8TH AVE | Portland | 730 | 43505 | 276 |
| SE 8TH AVE / SE TAGGART ST | Portland | 730 | 43505 | 295 |
| 2635 SE 9TH AVE | Portland | 730 | 43505 | 364 |
| 2623 SE 9TH AVE | Portland | 730 | 43505 | 364 |

A similar process exists for mobile 911 calls ('Phase 2' wireless). In this case, the call taker's map is automatically re-focused to display the location of the wireless call, even before the call taker has validated the address. The Map display includes a radius to illustrate the "uncertainty" and "confidence" of the wireless call.




The call taker then has the option of viewing the closest locations (ordered by distance). The call taker can either select an address/intersection from the list of closest locations to be used as the call location or can manually enter another location. Once the call is added, both locations (the Phase 2 wireless location and the actual incident location) are available to the dispatcher and can be displayed on the map.

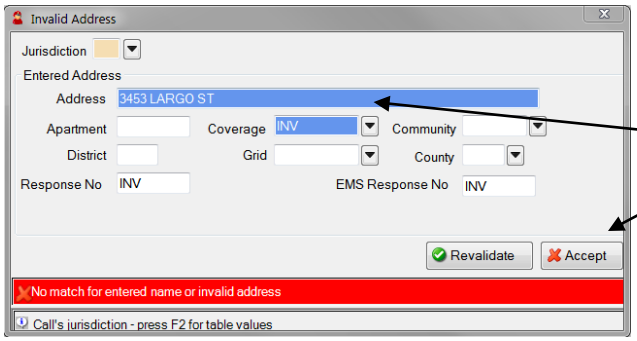
As another alternative to entering a verifiable address, Versadex support a special feature where a user can enter a location using a coordinate system.




Users can enter a location using Lat/Long coordinates to record the exact location where the incident occurred (e.g. in the middle of the park)

This is especially helpful to record the exact location where the incident occurred. For example, when an incident occurs in a park, the verifiable street address is typically the park entrance. With this feature, Versadex can record the pin-point location while the user can provide a descriptive location (in the location field).

When entering a location that cannot be verified against the local GIS data, the user is presented with an invalid address screen where they can re-enter the location or override the verification process. This is useful for out-of-area locations or new addresses that are not yet known by the GIS.




If a location cannot be verified, the user can re-enter the location or override the verification process

The Versadex CAD also supports two additional external call creation methods. These include:

- **CAD-to-CAD data sharing for both Fire and Police calls**. The Versadex CAD-to-CAD data sharing interface allows CAD users to exchange call and information with external agencies that use a separate CAD system – regardless of the CAD vendor. For example, a fire agency can notify and request mutual aid assistance from a neighboring fire agency or even request the assistance from other services for combined incidents such as a serious car accident. Call information can be exchanged automatically by call type with optional filtering by incident location (e.g. border areas) or the dispatcher can manually transfer call information to another agency.

  Additionally, the interface allows unit information to be exchanged between CAD systems making the availability and AVL locations of units known to other agencies. This is particularly useful between agencies that have mutual aid agreements as it provides the ability for the other agencies to quickly determine the availability of other units. Through the interface, CAD users have the ability to send and receive unit assistance requests from external agencies. The unit assistance requests can happen automatically by configuring the external units into the dispatch run card recommendations. As your dispatcher dispatches an external unit to their call, the request is automatically sent to the external agency and if accepted, the dispatcher is advised and can take control of the unit.

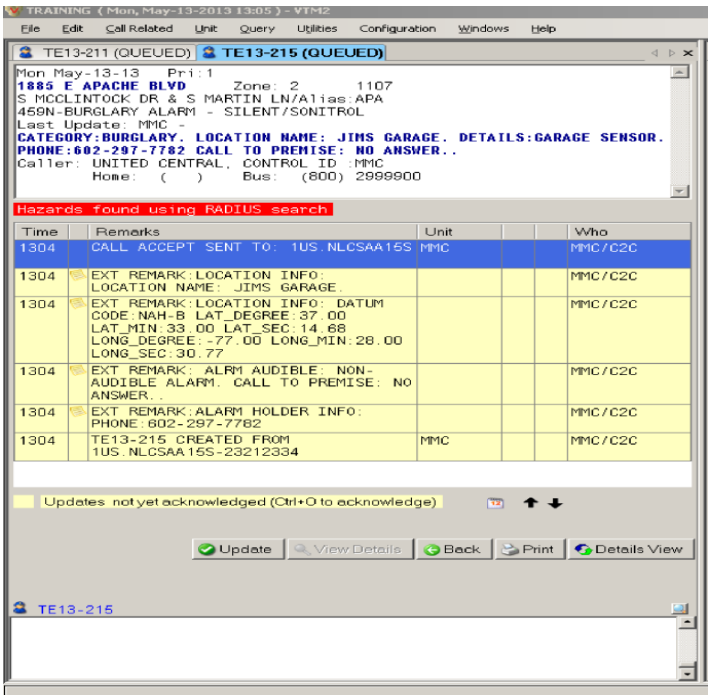
  The automated CAD-to-CAD interface reduces call processing and response times as it improves the communications between dispatch centers and eliminates the need for telephone calls.

  Versaterm has experience interfacing CAD-to-CAD with various other CAD vendors either directly or through an Enterprise Service BUS (ESB). Our standard data exchange consists of a NIEM compliant XML transfer; however, we can also transform into another vendor's format if required.

- **APCO ASAP Electronic Alarm Event Delivery**- The Versadex CAD was the third system nationally to provide an interface APCO ASAP protocols to provide the following functionality:
  - Automatically creates an Alarm Call when a notification of an alarm event is received from an alarm monitoring company.
  - Provides the ability to receive additional information for an alarm call from the alarm monitoring company (e.g., cancellation requests or updates concerning key-holder information).
  - Notifies the alarm monitoring company when a unit has been dispatched.
  - Notifies the alarm monitoring company when the first unit arrives on scene.
  - Notifies the alarm monitoring company when the call has been closed.
  - Provides the ability for the dispatchers to send or request additional information from the alarm company.

  Once an alarm call is received from ASAP it is immediately directed to the appropriate Dispatchers Status Screen and a message is sent notifying receipt of the alarm. The

Dispatch command screen shown below is in its Dynamic Display format. Please note the blue text in the top of the screen- that is information sent through ASAP. The blue line in the yellow section of the screen confirms the acceptance of the alarm and notes that a confirmation has been returned to the alarm company.




The dynamic display illustrated above is available for all CFS and provides a real-time chronological listing of every single transaction that has happened on a specific event from the newest activity to the initial call creation.

The ASAP alarm messages would be routed through CLETS and then via NLETS. Please note that CLETS must first be capable of supporting the new ASAP message formats (ALQ-Alarm Company date sent to PSAP; ALR-Response from PSAPS to alarm company) before the interface can be placed in operation.

## Status Monitoring

Once a call for service is received and entered into the Versadex CAD it will automatically be routed and stored into several different queues. Queues can be configured by dispatcher or by any other assignment – for example a call back queue. Calls can be held for a specific time or 'stacked' for a specific unit. In addition, calls can be routed/queued based on their location, call type and ultimately type of service required (Police, Fire, EMS).

Primarily these queued calls will be displayed on a separate but integrated CAD Status Screens. These status monitors are full-color displays, with optional visual and audio aids, provide a dynamically updated synopsis of ongoing Police, Fire and EMS events.

The Status Screen contains a marquee that can display the following:

- Push to Talk (PTT) requests

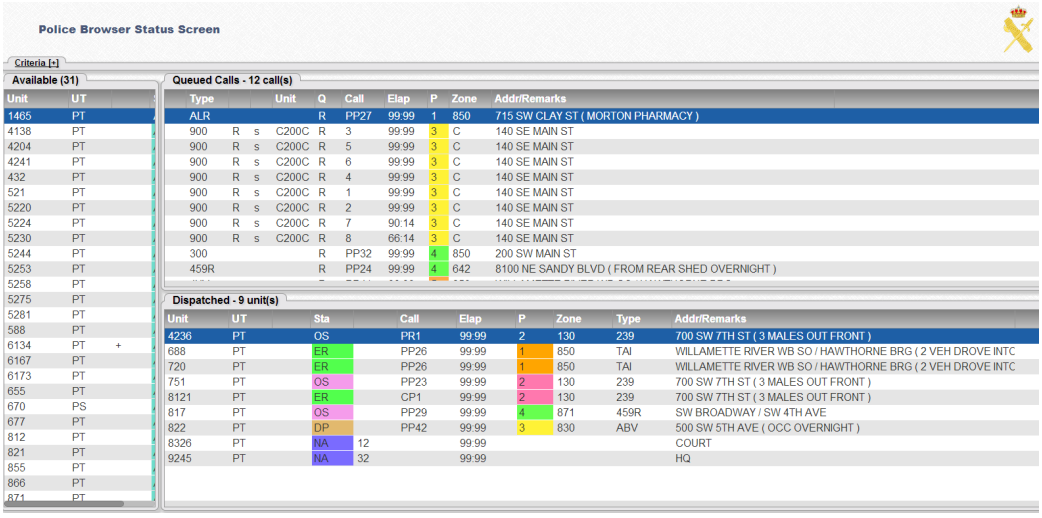
- Request to Talk (RTT) requests
- Unit updates
- Timers
- Call Updates

It also contains between one and three other windows that can display the following:

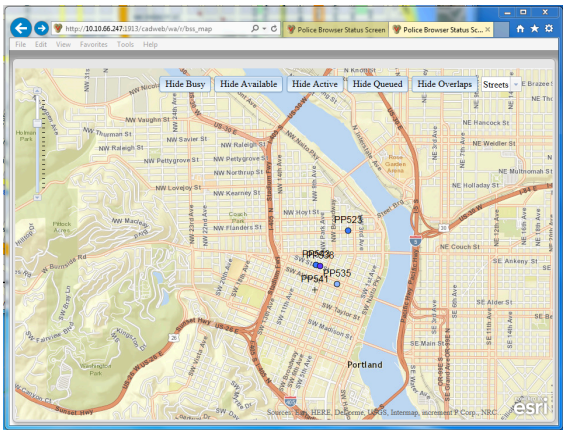
- queued calls
- dispatched and busy units/apparatus
- available units/apparatus

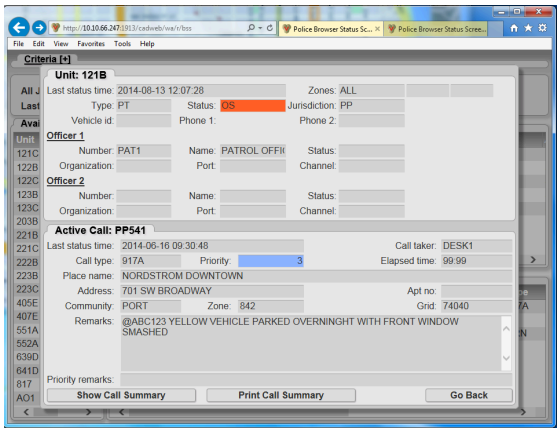
The individual status screens are also user configurable. Data to be displayed in each status screen can be configured, the order of the data elements, and a default sort order established. The only constraint is screen and font size. These configurations can be set by the agency or if permitted, each individual dispatcher can configure their own individual display content governed by their sign-on/password.

In addition to the traditional Status Monitors, the Versadex CAD system also includes a Browser Based Status screen. This HTML5 based display is primarily designed to offer users selective CAD information in a non-mission critical environment where full CAD access isn't required.



The Web Browser based Status Monitor also supports an integrated map display. Clicking on a "call" or "unit" (either on status monitor or map) displays the relevant information.




Dashboard metrics with advanced visual indicators and notifications have recently been developed for the Browser Based Status Monitor. CAD dashboards focusing on Call Volume, Unit Availability and Call times work on a System Performance dashboard. These dashboards have configurable thresholds, measure for acceptable performance, and warn if thresholds are met. Our goal is to detect an issue before it becomes critical.

## Resource Recommendation

Once a Call is created and sent to the Dispatcher the CAD is capable of generating automated response recommendations—that is, a computer-generated list of suggested Police, Fire and EMS units ('apparatus') and special services to dispatch to a call. The recommended apparatus are prefilled in the Dispatch window available from the Call screen and can all be dispatched with a single keystroke.

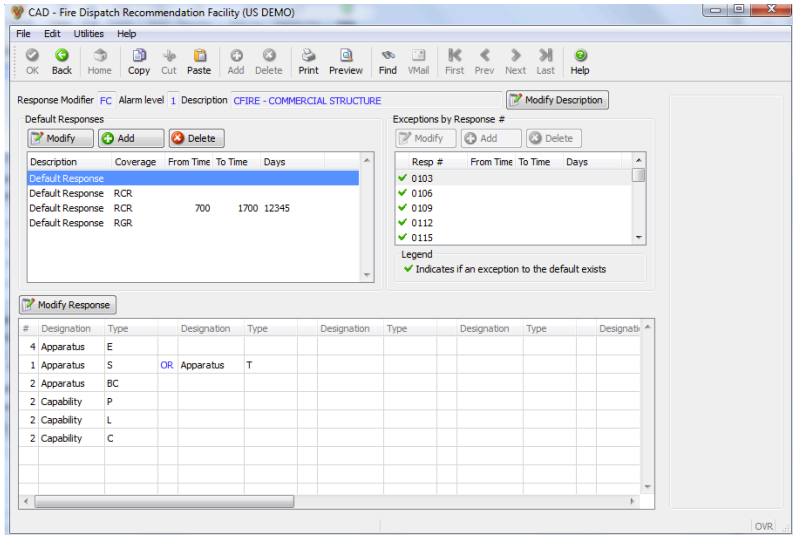
The determination of who to send can be quite complex but primarily the CAD uses the following criteria for unit recommendation:

- call type
- coverage area and zones
- units/Apparatus types required
- Capabilities dispatch (Unit/Apparatus or individual with specific skills or equipment)
- AVL Recommendation and Routing.

For Fire resource recommendation the following additional criteria is also supported:

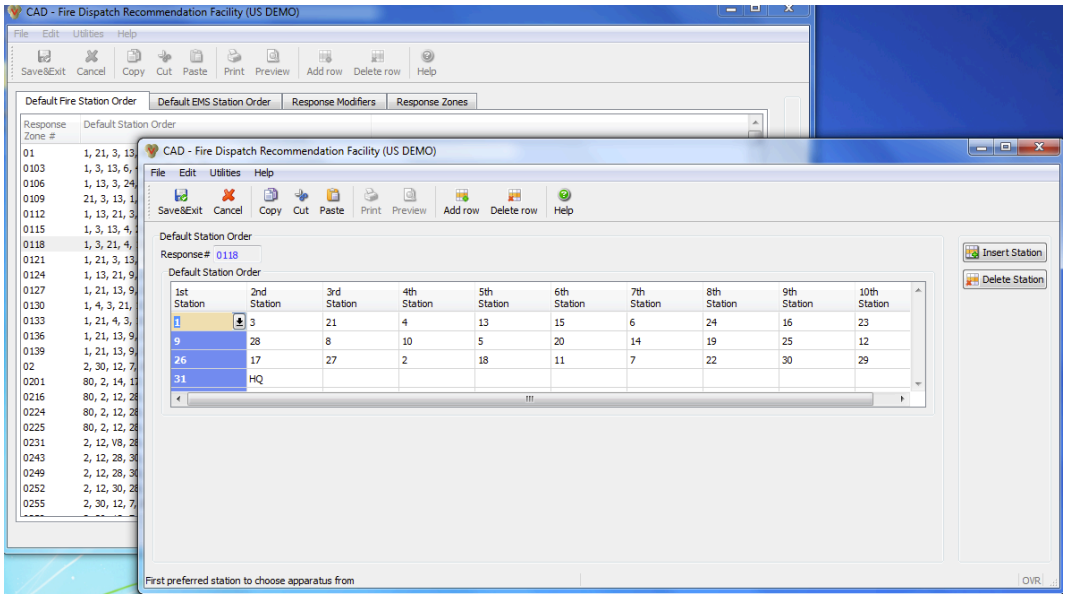
- For each type of incident, the system can be configured to recommend any combination of unit type and capability (personnel skill and/or vehicle equipment).
- A default recommendation can be configured for each type code, with exceptions by area and/or specific locations. For example, an extra engine may be added for certain incidents occurring on the freeway or additional units added for fire incidents at a high-rise.
- Additionally, recommendations can be altered by time-of-day/day-of-week. For example, it is possible to configure an alternate response for incidents occurring at a mall or a school during mall/school hours. It is also possible to indicate the order in which the system should search for units. For example, recommend the Squad if it is available, if not recommend the Truck.

The following screen shot illustrates a sample response for a Commercial Fire (4 Engines, 1 Squad or Truck, 2 Battalion Chiefs, 2 pumper capabilities, and 2 ladder capabilities).



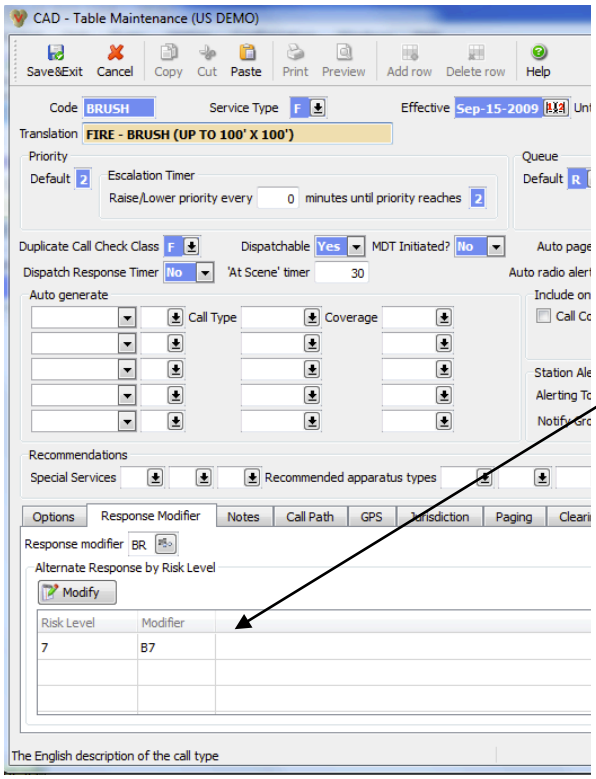
The system allows for up to 10 capabilities (unit equipment and/or personnel skill) to be assigned to each unit along with up to 10 secondary unit types. Dispatchers can easily modify the characteristics of a unit 'on the fly' as operational conditions change. For example, if a paramedic is no longer available, dispatch can change the unit capabilities from ALS to BLS.

Default station orders are defined for each Response Zone to indicate the order in which the system searches for the required units. The following screen shot illustrates a sample station order.




In addition to configuring the default station order for each Response Zone, Versadex supports the ability to override the default station order based on specific unit type/capability. For example, in order to recommend an engine from the opposite direction on freeways, an exception would be made forcing them to be recommended from an alternate order.

Versadex has the capability to define Risk Levels ("degraded modes") to modify response plans by type code either Countywide or for a specific geographical area. The following screen shot illustrates the configuration for a brush fire type code having an alternate Response Plan when a Risk Level of 7 is in effect. Risk Level descriptions are determined by the agency.




An alternate Response Plan (modifier) is specified in the event that a Risk Level 7 is in effect.

The Response Plan for B7 would include an additional engine (either Countywide or for a specific geographical areas).

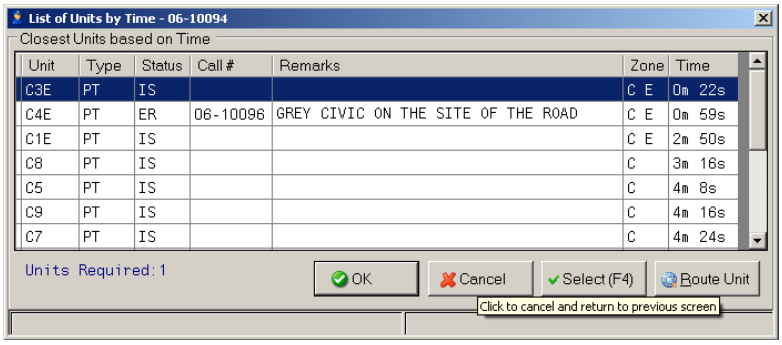
Users with the appropriate security levels can easily enable and disable Risk Levels from within the Versadex CAD application.

Additional examples from other departments include:

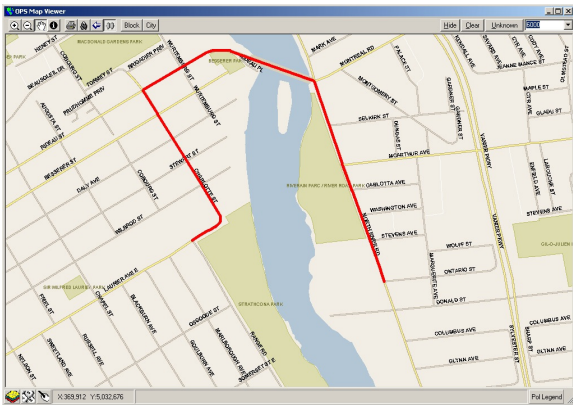
- Disasters such as an earthquake where only the most critical EMS calls would recommend units, whereas other calls would be re-queued and triaged by a response chief.
- Significant weather events such as a hurricane or an ice storm where fire calls that normally receive 2 or 3 apparatus would only get one recommended unit and the responding unit can request additional resources on arrival based on findings. For example, a Smoke Structure call normally receives an Engine and a Truck however when this risk level is in effect, they only receive an Engine.

The Versadex Automatic Vehicle Routing and Recommendation (AVRR) module can also be used to provide AVL based dispatch recommendations for Police, Fire and EMS units. AVRR determines the time (and distance) required by a Unit to get from its current location to the call for service by calculating the route based on the underlying street network. When calculating a route the AVRR takes into consideration speed limits and road restrictions such as one way streets and medians.

When executing the dispatch command to recommend units based on AVL locations the following screen will display, showing the dispatcher recommend resources based on “time”.




The dispatcher can also display the recommend route for the selected unit and also generate detailed directions. An example of an AVRR generated map can be seen below



The Versadex AVRR also allows the agency to apply speed factors to one or more street segments. The speed factor can be used, for example, to block a street (reduce speed to 0) or reduce the speed by a factor (e.g. 50%) for rush hour, speed bumps, etc. These factors can be configured for specific date/time ranges.

Our latest CAD release also allows Fire Departments to assign **Time and Distance Penalties** as part of the AVL Unit recommendation**.** These are penalties that add time or distance to the existing time or distance a Unit/Apparatus is from a call. By doing so an apparatus that is actually farther away from a call may be recommended because an apparatus that is close has been given these penalties.

Time and distance penalties can be assigned to an apparatus itself, all apparatus’ at a station, status codes, apparatus types, and capabilities. This can have several implications:

- Penalizing an apparatus type or capability that drives slower. For example, a ladder truck is difficult to maneuver out of a station and is penalized to account for the extra time it takes to get enroute to the call.
- Penalizing a status code that takes longer. For example, an apparatus that is "at station" could be penalized to account for the time it takes fire personnel to prepare and leave the station while an apparatus that is 'returning to station' doesn't require the extra time because it is already on the road.
- Penalizing apparatus' from stations that are not dispatched automatically but are dispatched only in cases in which extra help is required (e.g. mutual aid). For example when a station is asked to provide mutual aid to a neighboring fire jurisdiction, you can add a penalty to those apparatus' to account for the time it takes to contact the mutual aid station and request assistance.
- Penalizing apparatus from jurisdictions that have volunteer fire stations. In order to account for the time it takes for volunteer firefighters to arrive at the station before dispatch, you can assign a penalty to the station.

Additionally, detailed turn-by-turn directions can be generated for viewing by the dispatcher. This same functionality is also available in the Versadex Mobile solution that will be discussed later in this document.

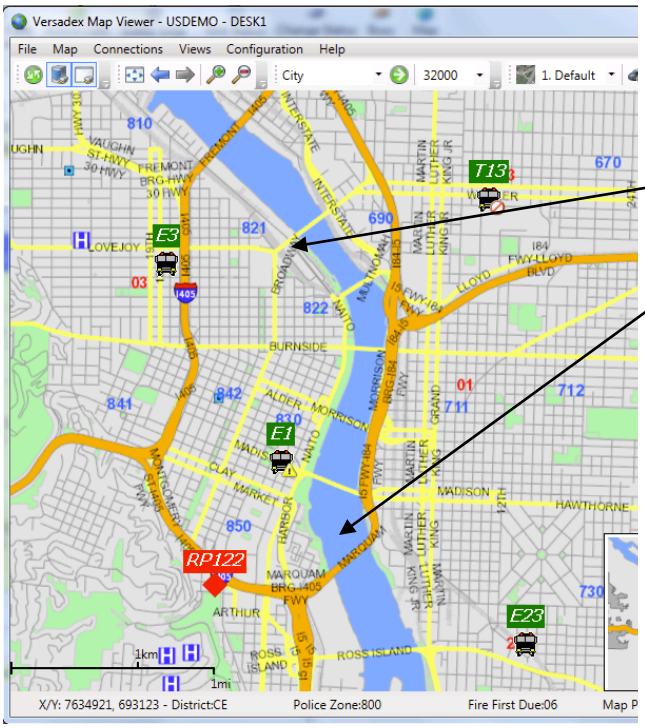
The Versadex CAD can also be configured to automatically recommend special services. Special services are public or private services that may need to be dispatched to Police/Fire/EMS calls in addition to regular response units—for example, tow truck services, public works, animal control, private ambulance services, coroner, etc. Typically these are agencies or services for which the agency does not physically dispatch or is not an included agency in the CAD system.

Two types of special services can be considered:

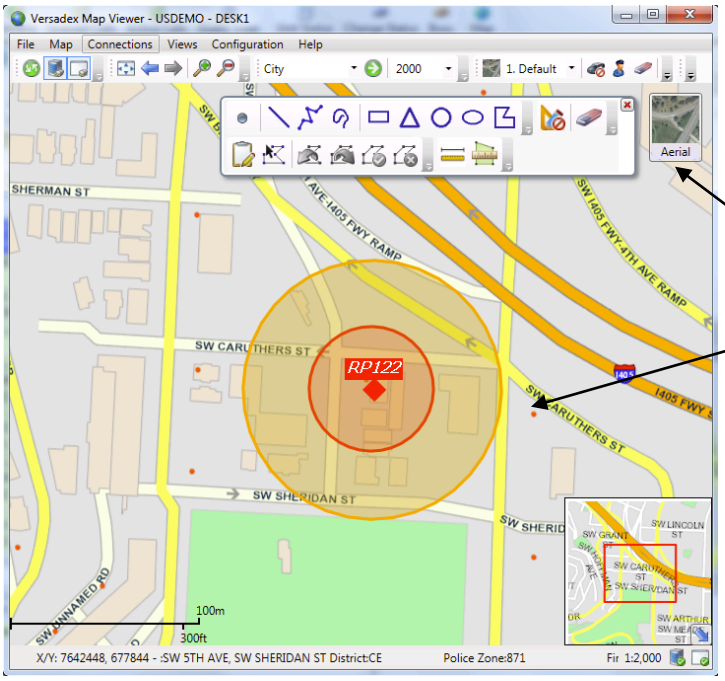
- rotational services (Tow Company; Private Ambulance)
- non-rotational services (Public Services/Public Works)

## GIS and CAD Mapping

As you have seen, the Versadex CAD supports fully integrated CAD functionality. The Versadex system is based upon ESRI toolsets and provides support for the latest ArcGIS RT, thereby providing advanced, built-in mapping and AVL capabilities. ESRI's ArcMap tools are used to create map packages providing the powerful visuals within the Versadex MapViewer. The MapViewer assists the operators in validating locations, monitoring and locating vehicles and determining how to best deploy units based on the incident type and location. In addition to the mapping functionality already displayed, the following screen shots illustrate some of the more commonly used mapping features.



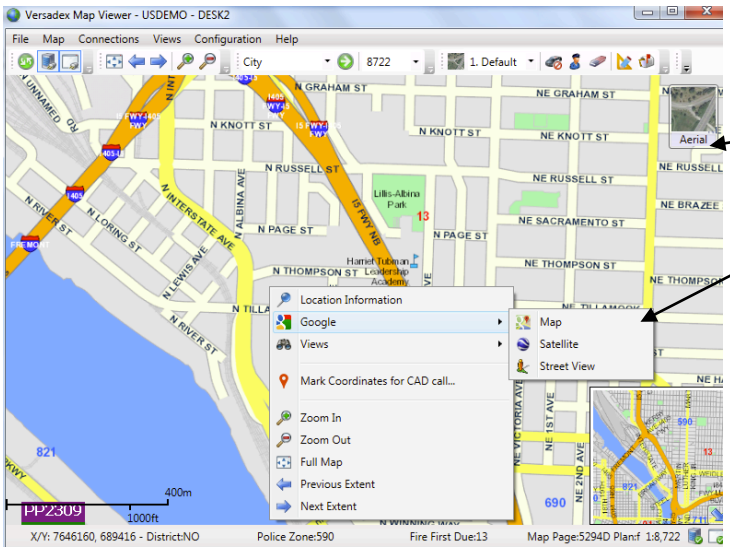

The MapViewer displays incident and unit locations.




Various drawing and measuring tools are available which can be useful for measuring the square footage of an area/building or drawing staging locations or hot/warm zones around a location.

In addition to these measuring tools, one of the useful tools that our mapping system enables is **GeoFencing**. A geo-fence is a virtual perimeter for a real-world geographic area. The CAD can be configured to create a geo-fence radius around an incident. Now, when an enroute unit crosses the fence, it can be time stamped as “AVL Arrived”. The actual Arrival Time stamp is

still reserved for the Police Officer/Firefighter to determine. However, this tool informs all parties that the unit is there even though it may still be preparing to engage in the incident. This is also useful when Police Officers/Firefighters forget to hit the arrived key. We will continue to take further advantage of geofencing in the future and are currently discussing with our customers as to how this could be best utilized.




Display locally available Aerial digital maps and/or

Integration with Google Maps and Street Views provides an enhanced view for the operators and responders.

In addition to local GIS layers, the Mapviewer has the ability to display layers from external sources where the data is updated frequently (e.g. hydrants, real time traffic feeds).

The Versadex CAD also supports Automatic Vehicle Location (AVL) technology in order to:

- Track Unit and Officers on CAD MapViewer to ensure officer safety;
- Initiate Dispatch recommendations based on Unit location
- Playback historical Unit and Event locations in order to facilitate improved deployment or as an investigative tool.

The AVL functionality facilitates immediate in-car visual display as well as integration with the CAD dispatch recommendation algorithm. Each transaction sent from the mobile will include the GPS coordinates which are appended to each transaction. This approach reduces the load on the wireless network by linking the coordinates to existing transactions rather than broadcasting additional messages across the wireless network.

The AVL can be tuned to generate GPS transactions based on distance travelled, unit status, etc. Further, the CAD can change the reporting frequency by incident type and status on the specific incident. For example, the CAD can be configured so that a unit en-route to a call will transmit GPS coordinates much more often than a unit “at rest” and a unit involved in a “vehicle pursuit” can transmit even more frequently.

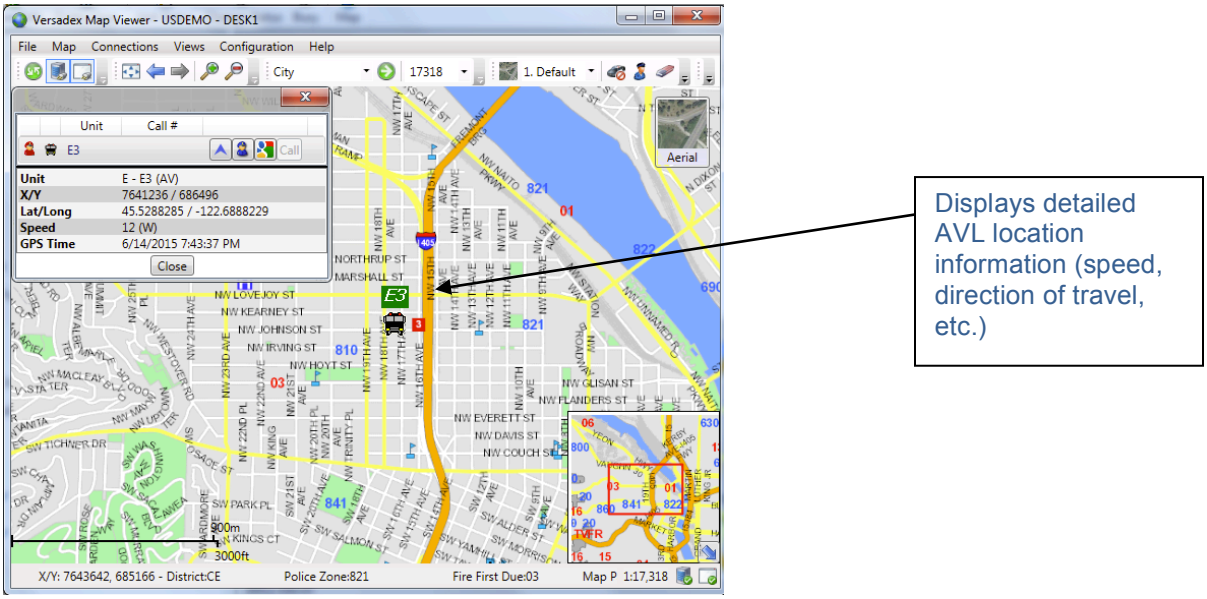
In the CAD Communications Center, a dispatcher can watch on their map display the current location of the unit (represented by an icon on the map), the incidents location, as well as all of

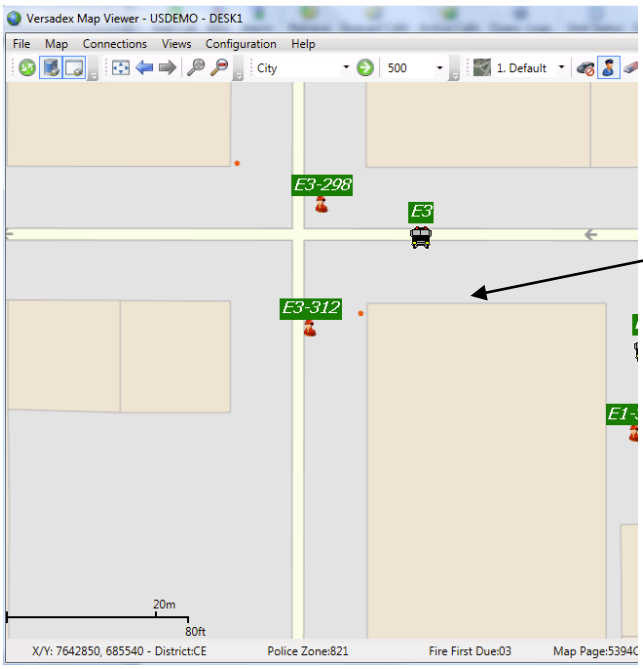
the other units and incidents under their control. As Unit status is updated and new coordinates delivered, the unit icons will also dynamically update their location on the map display.

In order to minimize time and bandwidth the base map graphics are stored directly on the mobile computer in an officer's vehicle. The only information that is sent to the mobile unit will be the GIS coordinates for a calls location and status updates with GIS coordinates of all vehicles dispatched to the same event.

The CAD can also monitor and track the location of AVL equipped vehicles but also Individual Officers. Officer GPS coordinates can be sent via a GPS enabled radio system or from a hand-held mobile device running an app like the Versadex vMobile software solution- a description of vMobile is included in the following pages. A dispatcher can not only see the Unit's location but also the location of the Officer should they leave their vehicle.

Dispatcher/Supervisors can visually track all Units on the map display depending on the type of call, or a single unit may want to be individually tracked. After selecting a unit to track, the MapViewer will follow the unit, auto-.size the map display as necessary to keep the unit centered and scales the map as necessary to keep the unit, the call and any other units on the call visible. Other calls and units are hidden while tracking a specific unit.





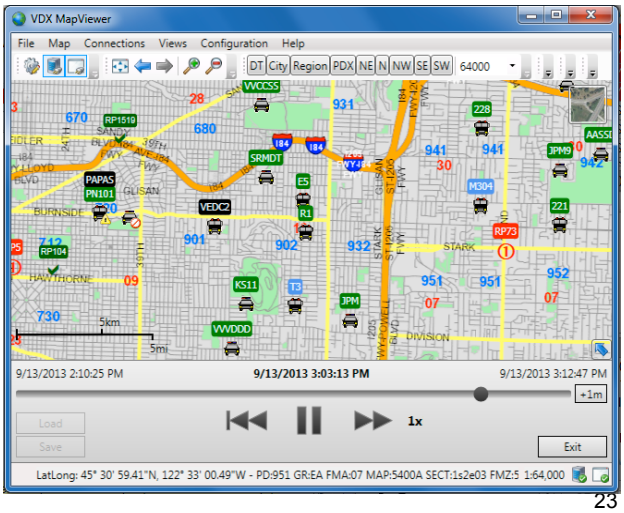

Mobile GPS coordinates from a radio system or Versadex vMobile provides the ability to track AVL locations of individuals.

The Versaterm CAD also provides two types of easy to use AVL/GPS playback utilities. These GPS Replay Utilities provide a map-based playback of vehicles and call locations based on a specified time period. It uses information from the Versadex CAD application and the MWS to display event data of a historical nature. The replay utilities include:

- **Instant AVL/GPS Replay**- function is provided to display the status of units and events during a recent past time period. Typically this utility is used by communications supervisors to review unit assignment and deployment decisions that occurred within a preconfigured near past time period. The time period is user configurable (e.g. the last 15, 30 or 60 minutes).
- **Standard AVL/GPS Replay**- This playback utility is primarily used to support investigations and isn't time constrained like the Instant playback utility. A user can select a range of dates, times and units for replay. For example, an agency might want to look at the path travelled by a specific unit, on a specific day, during a specific period of time during which the unit was involved in an arrestee transport.

Both replay utilities provide a user with the ability to control the playback much like the controls on a DVD player.

The controls include start/pause, stop, and jump one frame forwards/backwards. The utility also has a progress slider that enables you to rewind and fast-forward during the playback and a speed slider that controls how fast data is sent to the MapViewer.



For address/location validation and history, the same ESRI data (single source) used for mapping is transformed into the Versadex system to provide not only extremely fast processing times but also to support the unique emergency responder needs such as phantom intersections (e.g. overpasses), soundex, alias street names, reference points, etc.

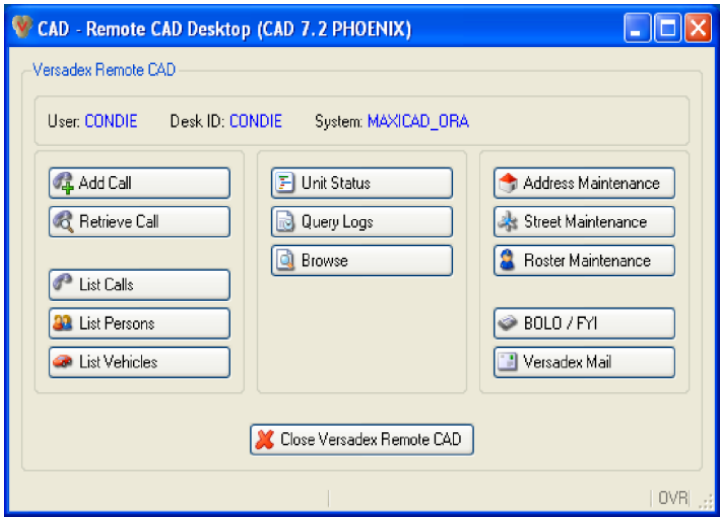
The Versadex GIS Interface (VGI) is provided to help transform your local data into Versadex. The VGI will verify the source GIS data and transform it into properly structured load files for the Versadex CAD. Once complete, the data is loaded and can be placed into production by the CAD administrator without impacting the users (takes less than 1 second). The Versadex CAD supports two versions of the GIS data; so, should an issue arise with the latest load, the CAD administrator can quickly revert to the previous version (less than 1 second).

Additionally, within Versadex CAD, the Versadex Street Index facility allows the CAD Administrator to manage the geofile directly where they can query to verify a location, print reports, maintain streets, intersections and ranges along with "common place names" (e.g. Starbucks). The ability to maintain the geofile, directly in Versadex, is a valued feature as the source GIS may not be as up-to-date as required for emergency response.

The CAD Administrator can identify the geofile data that was manually added and merge that into the new (refresh) load from the source GIS with the ability to identify duplicates.

## Remote CAD

The Versadex CAD system also supports a **Remote CAD** module. The module provides a remote facility that supports CAD features without requiring a full Versadex CAD installation.




For example, for Police calls, users can add and retrieve calls, check unit status and CAD logs, view queued call lists (e.g., Regular, Hold, Active queues, etc.), and view calls with related persons and/or vehicles. Additionally, there are administrative functions available such as Address Maintenance (premise history), Roster Maintenance and BOLO/FYI.

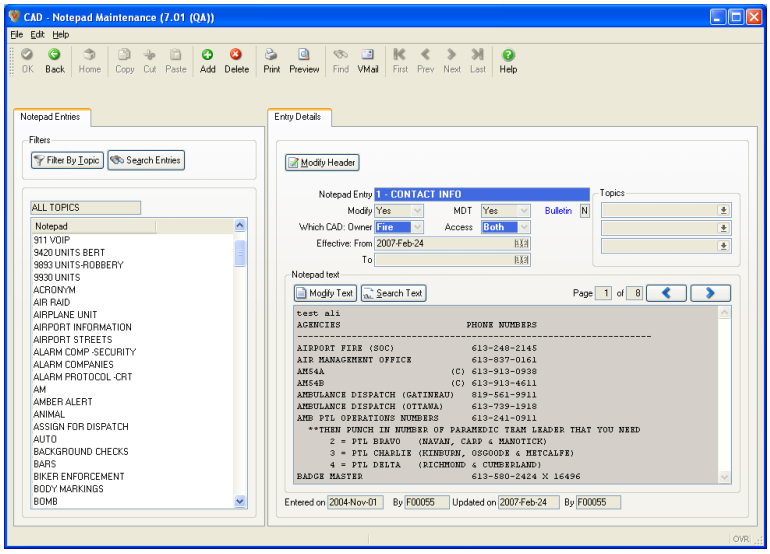
For Fire calls, most functionality is available. However, because not all Remote CAD functionality applies to Fire calls, Remote CAD does not support the following functions:

- adding calls
- self assigning calls
- viewing entities from a call
- viewing the list of queued calls with related persons

- viewing the list of queued calls that have related vehicles
-

The Versadex CAD also provides numerous support files which are used by both Dispatchers and Field personnel. BOLO's, location hazards/alerts, and other premise information, are offered as well as is a fully featured capability to pre-record alarm permits. The CAD system supports Emergency Contact Lists, Employee Contract lists and general Note Files through our Note Pad Facility.

The screen display shown here illustrates the variety of topics (left hand column) that could be added to the CAD Notepad facility along with sample content (right hand window).




## Query Capability

One of the key features of all Versadex systems is the ability to easily access all of the data and information that is contained in remote systems as well as within our solution databases.

The following queries are supported from:

- **Outside the CAD System**
  - CLETS/NCIC Queries
  - Versadex RMS
  - Other interfaced systems (LinX, Local CJIS systems, etc.)

  As such our systems support the query of multiple databases and files within a single query transaction. These queries can be generated in a variety of ways. They include:

  - Automatic query transaction that are spawned based on a system configurable convention like a dispatcher automatically running a name or vehicle if a special format symbol is detected while entering CAD incident remarks field.
  - Command line queries for Names, Vehicle and Drivers License
  - Pre-formatted Query window

  All of these methods are designed to enable Dispatchers and other users to spawn required queries as quickly as possible. This same functionality is also available from the officers MWS and from with the Versadex RMS system. Name and Vehicle inquiries can also spawn multiple inquiries to as many remotes systems that will support these inquiries.

  The **Versadex NCIC Gateway**, which manages these interfaces, also supports a "hit" file that contains keywords (i.e. Stolen; Wanted) that can trigger a specific response. If

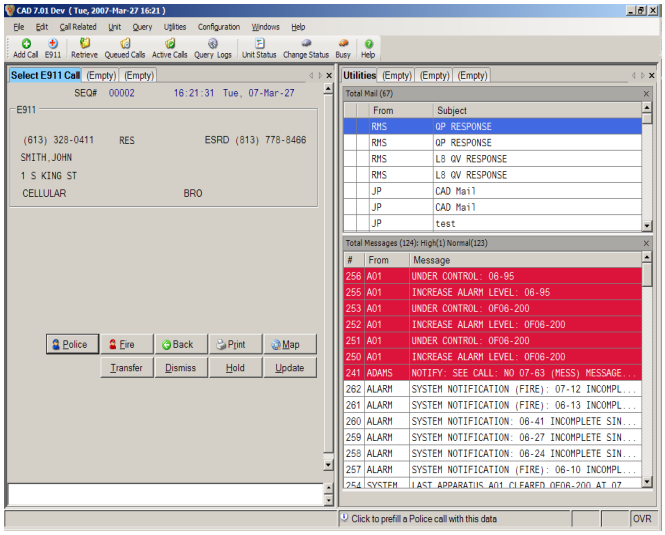
an officer, from their mobile workstation,
runs a query and the response contains any of the "trigger" words, the dispatcher receives a copy of the response. This feature is intended to augment officer safety.

An extensive suite of CLETS/NCIC query/maintenance masks are also provided. These masks include field edits where a query or maintenance transaction may not be run unless the minimum required data elements are entered. For example, a QW (Wanted Person) query may not be spawned unless a Date of Birth has been entered.

In addition to People and vehicles the following Versadex RMS queries can also be initiated from within the CAD system, if available:

- Query Property
- Article
- Boat
- Motor
- Query Location
- Query Officer Schedule
- Query Business
- Query Event
- Query Address

Once a query result is returned it will be displayed on the command terminal on the Utilities tab. The following is an example of how the screen would look.

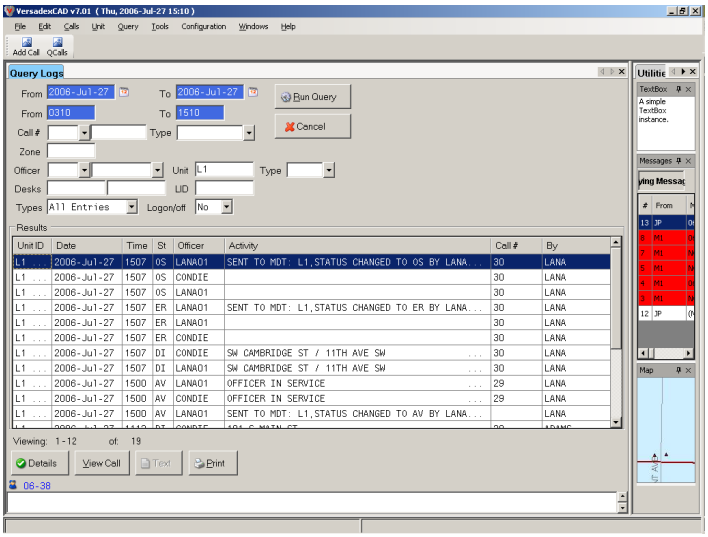



The query results are listed in the top window of the Utilities tab. Also please note that the second window is displaying text messages that have been sent by individuals on the system including officers in the field, or system generated messages. Both query results and messages can be displayed simply by selecting one of them for review.

- **Internal CAD queries.** Some of the more common queries include:
  - Query a Location
  - Query an address assigned to a unit
  - Query by data/time/address/event type
  - Request an Officers Activity Log for a specific date by Officer ID#
  - Query today's Duty Roster for Officer Fox
  - Query what officer(s) are manning Unit 5C13

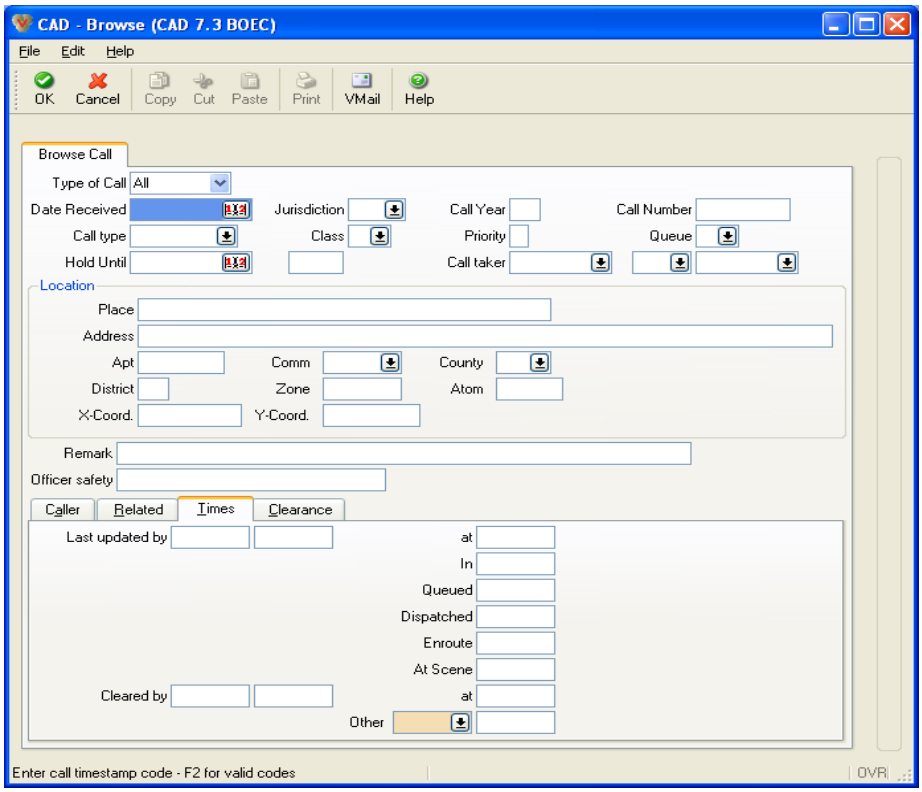
- Query where Detective Fox is logged onto the system

The following is an example of a Query Log function that enables a user to review all CAD transactions.




The Versadex CAD also has a powerful Browse facility (query by example) that allows a user to scan the database using virtually any data field used in the CAD. This facility is a useful tool when you are searching for a call but do not have enough precise information to perform a query.

Browse utilizes Boolean search operators (range; equal to/not equal to; greater/lesser than; wildcard characters, etc.) to aid a user in finding the information that they seek.




Upon the completion of a Browse a list of all CFS that meet the search criteria are displayed and the user can request and display all detailed information on each of the found records. In addition, all of the data associated with the search result can be downloaded to any standard reporting for additional reporting and analysis which will be discussed in the next section.

## Reporting and Business Intelligence Analytics

The Versadex CAD also can include a variety of reporting and analytical functions, including Business Intelligence (BI) software. The design philosophy for all Versaterm Versadex products is to insure that an agency has access to all of the information contained within any of our systems. The following are the reporting and analytical functions that would be available.

- Standard System Reports ( included in the base system)
- Genero Report Writer
- Cognos BI based-Versadex Crime Analysis Product VCAP (also used by CAD for Event Analysis) (Optional application)
- Other 3rd Party Analysis Tools

A. **Standard Reports**- the Versadex CAD comes equipped with a variety of standard system reports. The following table lists all of the system reports that come standard with the system:

### Standard Police CAD Reports

- Calls by Hour
- Calls by Month

- Calls by Week (by day of week)
- Calls by Zone
- Call Frequency
- Daily Incident
- Dispatch Analysis
- Down Time
- Expired Hazard Reports
- Officer Activity by Call type
- Officer Radio Log
- Response Time
- Snapshot Report
- Time Log
- Zone by Hour
- Zone by Month
- Zone by Week
- Invalid Locations

**Standard Fire CAD Reports**

- Monthly Apparatus Activity
- Call Analysis
- Call Type comparison
- Call by month
- Calls by day of the week
- Daily Incident
- Response Time Analysis Reports

B. **Versadex Genero Report Writer**- Genero is the underlying programming language and architecture which is used to build and maintain the Versadex CAD system. All of the standardized reports listed in Item A above were created using this programming language. In the past the only way to add to or modify/customize these standard reports was by someone who knew the underlying data base structure and was able to program in the Genero language.

   In the latest release of the Versadex CAD we have integrated the new Genero Report Writer for use with both our CAD and RMS systems. This new Report Writer will allow System Administrators to customize/localize the standard reports delivered with the system; create new reports; change the look and feel of Standard Browse results; and improve the ability to export data to other 3rd party analysis tool by using the new graphical reporting tool.

C. In addition, the **Versadex Crime Analysis Product (VCAP)** is also available for use in the analysis of CAD Calls for Service and other user supplied data.

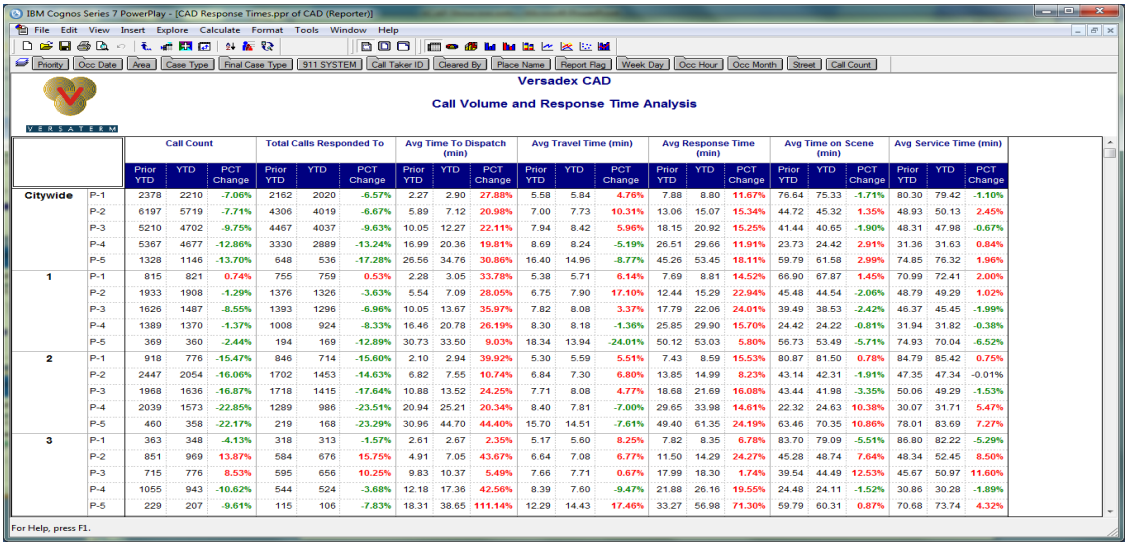
   The Versadex CAD will be configured with the **Versadex Data Mart** that normalizes data extracted from the CAD system (and can also be shared with the Versadex RMS) for use in detailed CFS, crime and operational analysis. VCAP uses the Cognos Business Intelligence (BI) PowerPlay and Impromptu modules to perform sophisticated data analysis and reporting.

Cognos PowerPlay serves as the core analytical tool for VCAP, using statistical "cubes" of data to present high level analysis reports while supporting near limitless "drill-down" and "drill-through" capability - effectively providing "interactive reporting". Multidimensional analysis with PowerPlay is a process of extracting and evaluating multiple aspects of available crime information, focusing on key indicators for the purpose of decision support.

A standard library of reports is included with the CAD system. The County can continue to utilize these standard reports, modify them, and/or add new VCAP reports based on agency requirements.

The following pages provide a description of some of these standard VCAP CAD reports.

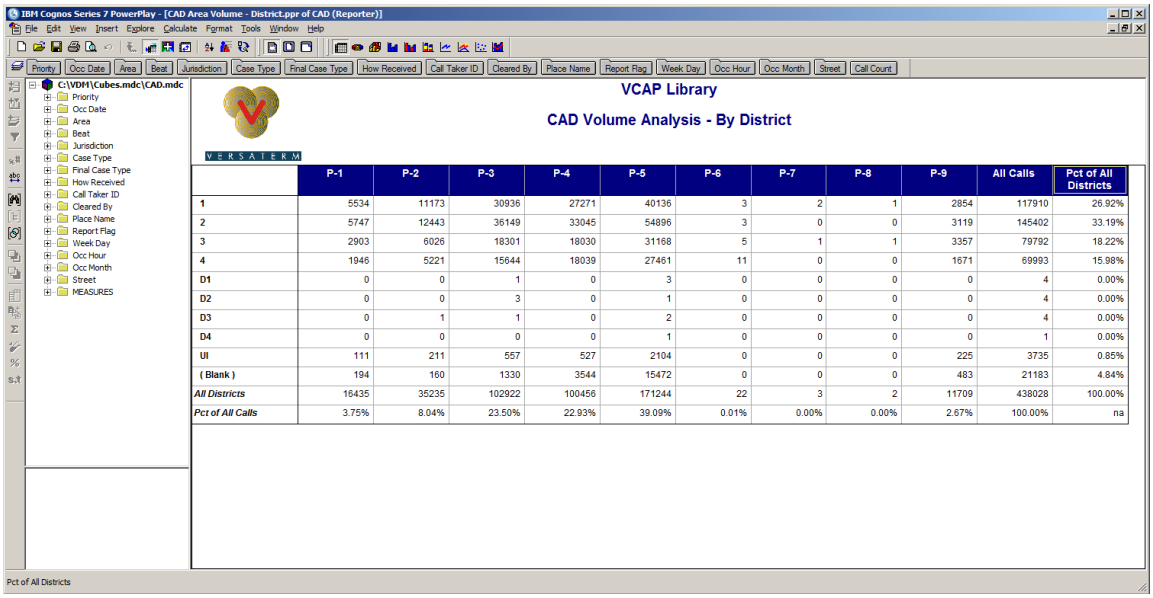
The following report is the initial default view of the Call Volume Response Time Analysis Reports. The default report shows responses times for the entire County sub-divided by District and Beat. This default report format can be changed on the fly by selecting from the buttons (highlighted in the box below) and changing specific report parameters (time range; date range; CFS Type, etc.). Once reset the response values for the report will automatically change.




| | | Call Count | | | Total Calls Responded To | | | Avg Time To Dispatch (min) | | | Avg Travel Time (min) | | | Avg Response Time (min) | | | Avg Time on Scene (min) | | | Avg Service Time (min) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Prior YTD | YTD | PCT Change | Prior YTD | YTD | PCT Change | Prior YTD | YTD | PCT Change | Prior YTD | YTD | PCT Change | Prior YTD | YTD | PCT Change | Prior YTD | YTD | PCT Change | Prior YTD | YTD | PCT Change |
| Citywide | P-1 | 2378 | 2210 | -7.06% | 2162 | 2020 | -6.57% | 2.27 | 2.90 | 27.88% | 5.58 | 5.84 | 4.76% | 7.88 | 8.80 | 11.67% | 76.64 | 75.33 | -1.71% | 80.30 | 79.42 | -1.10% |
| | P-2 | 6197 | 5719 | -7.71% | 4306 | 4019 | -6.67% | 5.89 | 7.12 | 20.98% | 7.00 | 7.73 | 10.31% | 13.06 | 15.07 | 15.34% | 44.72 | 45.32 | 1.35% | 48.93 | 50.13 | 2.45% |
| | P-3 | 5210 | 4702 | -9.75% | 4467 | 4037 | -9.63% | 10.05 | 12.27 | 22.11% | 7.94 | 8.42 | 5.96% | 18.15 | 20.92 | 15.25% | 41.44 | 40.65 | -1.90% | 48.31 | 47.98 | -0.67% |
| | P-4 | 5367 | 4677 | -12.86% | 3330 | 2889 | -13.24% | 16.99 | 20.36 | 19.81% | 8.69 | 8.24 | -5.19% | 26.51 | 29.66 | 11.91% | 23.73 | 24.42 | 2.91% | 31.36 | 31.63 | 0.84% |
| | P-5 | 1328 | 1146 | -13.70% | 648 | 536 | -17.28% | 26.56 | 34.76 | 30.86% | 16.40 | 14.96 | -8.77% | 45.26 | 53.45 | 18.11% | 59.79 | 61.58 | 2.99% | 74.85 | 76.32 | 1.96% |
| 1 | P-1 | 815 | 821 | 0.74% | 755 | 759 | 0.53% | 2.28 | 3.05 | 33.78% | 5.38 | 5.71 | 6.14% | 7.69 | 8.81 | 14.52% | 66.90 | 67.87 | 1.45% | 70.99 | 72.41 | 2.00% |
| | P-2 | 1933 | 1908 | -1.29% | 1376 | 1326 | -3.63% | 5.54 | 7.09 | 28.05% | 6.75 | 7.90 | 17.10% | 12.44 | 15.29 | 22.94% | 45.48 | 44.54 | -2.06% | 48.79 | 49.29 | 1.02% |
| | P-3 | 1626 | 1487 | -8.55% | 1393 | 1296 | -6.96% | 10.05 | 13.67 | 35.97% | 7.82 | 8.08 | 3.37% | 17.79 | 22.06 | 24.01% | 39.49 | 38.53 | -2.42% | 46.37 | 45.45 | -1.99% |
| | P-4 | 1389 | 1370 | -1.37% | 1008 | 924 | -8.33% | 16.46 | 20.78 | 26.19% | 8.30 | 8.18 | -1.36% | 25.85 | 29.90 | 15.70% | 24.42 | 24.22 | -0.81% | 31.94 | 31.82 | -0.38% |
| | P-5 | 369 | 360 | -2.44% | 194 | 169 | -12.89% | 30.73 | 33.50 | 9.03% | 18.34 | 13.94 | -24.01% | 50.12 | 53.03 | 5.80% | 56.73 | 53.49 | -5.71% | 74.93 | 70.04 | -6.52% |
| 2 | P-1 | 918 | 776 | -15.47% | 846 | 714 | -15.60% | 2.10 | 2.94 | 39.92% | 5.30 | 5.59 | 5.51% | 7.43 | 8.59 | 15.53% | 80.87 | 81.50 | 0.78% | 84.79 | 85.42 | 0.75% |
| | P-2 | 2447 | 2054 | -16.06% | 1702 | 1453 | -14.63% | 6.82 | 7.55 | 10.74% | 6.84 | 7.30 | 6.80% | 13.85 | 14.99 | 8.23% | 43.14 | 42.31 | -1.91% | 47.35 | 47.34 | -0.01% |
| | P-3 | 1968 | 1636 | -16.87% | 1718 | 1415 | -17.64% | 10.88 | 13.52 | 24.25% | 7.71 | 8.08 | 4.77% | 18.68 | 21.69 | 16.08% | 43.44 | 41.98 | -3.35% | 50.06 | 49.29 | -1.53% |
| | P-4 | 2039 | 1573 | -22.85% | 1289 | 986 | -23.51% | 20.94 | 25.21 | 20.34% | 8.40 | 7.81 | -7.00% | 29.65 | 33.98 | 14.61% | 22.32 | 24.63 | 10.38% | 30.07 | 31.71 | 5.47% |
| | P-5 | 460 | 358 | -22.17% | 219 | 168 | -23.29% | 30.96 | 44.70 | 44.40% | 15.70 | 14.51 | -7.61% | 49.40 | 61.35 | 24.19% | 63.46 | 70.35 | 10.86% | 78.01 | 83.69 | 7.27% |
| 3 | P-1 | 363 | 348 | -4.13% | 318 | 313 | -1.57% | 2.61 | 2.67 | 2.35% | 5.17 | 5.60 | 8.25% | 7.82 | 8.35 | 6.78% | 83.70 | 79.09 | -5.51% | 86.80 | 82.22 | -5.29% |
| | P-2 | 851 | 969 | 13.87% | 584 | 676 | 15.75% | 4.91 | 7.05 | 43.67% | 6.64 | 7.08 | 6.77% | 11.50 | 14.29 | 24.27% | 45.28 | 48.74 | 7.64% | 48.34 | 52.45 | 8.50% |
| | P-3 | 715 | 776 | 8.53% | 595 | 656 | 10.25% | 9.83 | 10.37 | 5.49% | 7.66 | 7.71 | 0.67% | 17.99 | 18.30 | 1.74% | 39.54 | 44.49 | 12.53% | 45.67 | 50.97 | 11.60% |
| | P-4 | 1055 | 943 | -10.62% | 544 | 524 | -3.68% | 12.18 | 17.36 | 42.56% | 8.39 | 7.60 | -9.47% | 21.88 | 26.16 | 19.55% | 24.48 | 24.11 | -1.52% | 30.86 | 30.28 | -1.89% |
| | P-5 | 229 | 207 | -9.61% | 115 | 106 | -7.83% | 18.31 | 38.65 | 111.14% | 12.29 | 14.43 | 17.46% | 33.27 | 56.98 | 71.30% | 59.79 | 60.31 | 0.87% | 70.68 | 73.74 | 4.32% |

***Default view Call Volume Response Time***

The following report looks at the volume of calls for each area, broken down by priority. When considering staffing levels, it is very helpful to know not only the numbers of calls, but the seriousness of the calls for service, and what percentage each area contributes to the whole. Using the available dimension tabs (top bar on the dispaly0, you can filter for citizen- or officer-initiated calls, varying times of the day, and different days of the week.



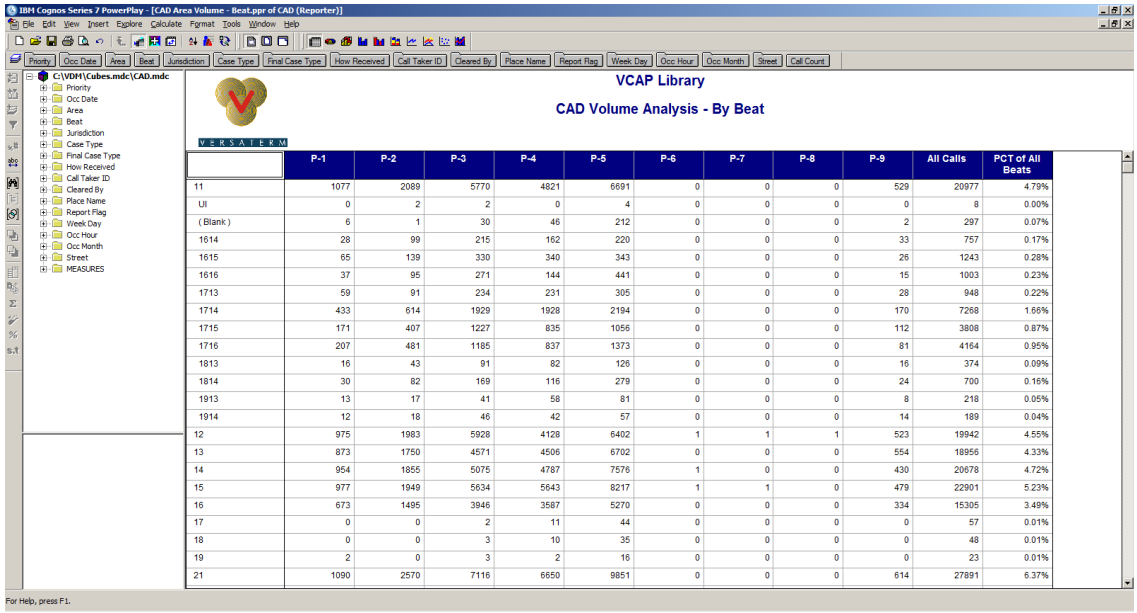
VCAP Library

CAD Volume Analysis - By District

| | P-1 | P-2 | P-3 | P-4 | P-5 | P-6 | P-7 | P-8 | P-9 | All Calls | Pct of All Districts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5534 | 11173 | 30936 | 27271 | 40136 | 3 | 2 | 1 | 2854 | 117910 | 26.92% |
| 2 | 5747 | 12443 | 36149 | 33045 | 54896 | 3 | 0 | 0 | 3119 | 145402 | 33.19% |
| 3 | 2903 | 6026 | 18301 | 18030 | 31168 | 5 | 1 | 1 | 3357 | 79792 | 18.22% |
| 4 | 1946 | 5221 | 15644 | 18039 | 27461 | 11 | 0 | 0 | 1671 | 69993 | 15.98% |
| D1 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 0.00% |
| D2 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0.00% |
| D3 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 0.00% |
| D4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0.00% |
| UI | 111 | 211 | 557 | 527 | 2104 | 0 | 0 | 0 | 225 | 3735 | 0.85% |
| ( Blank ) | 194 | 160 | 1330 | 3544 | 15472 | 0 | 0 | 0 | 483 | 21183 | 4.84% |
| *All Districts* | 16435 | 35235 | 102922 | 100456 | 171244 | 22 | 3 | 2 | 11709 | 438028 | 100.00% |
| *Pct of All Calls* | 3.75% | 8.04% | 23.50% | 22.93% | 39.09% | 0.01% | 0.00% | 0.00% | 2.67% | 100.00% | na |

***Default View CAD Volume Analysis by District***

The following is the same report except it has been changed by drilling down into a District and displaying the same information by Grid



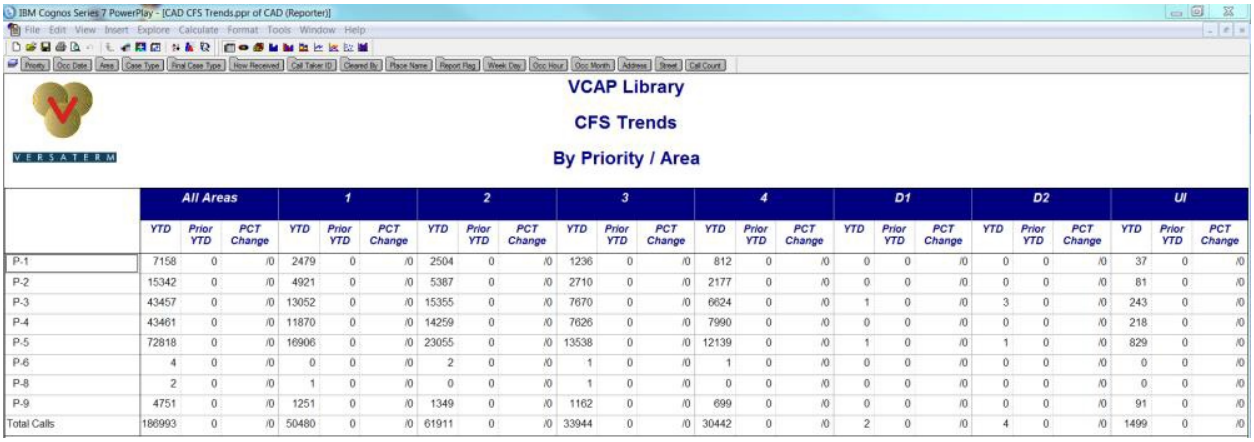
VCAP Library

CAD Volume Analysis - By Beat

| | P-1 | P-2 | P-3 | P-4 | P-5 | P-6 | P-7 | P-8 | P-9 | All Calls | PCT of All Beats |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 1077 | 2089 | 5770 | 4821 | 6691 | 0 | 0 | 0 | 529 | 20977 | 4.79% |
| UI | 0 | 2 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 8 | 0.00% |
| ( Blank ) | 6 | 1 | 30 | 46 | 212 | 0 | 0 | 0 | 2 | 297 | 0.07% |
| 1614 | 28 | 99 | 215 | 162 | 220 | 0 | 0 | 0 | 33 | 757 | 0.17% |
| 1615 | 65 | 139 | 330 | 340 | 343 | 0 | 0 | 0 | 26 | 1243 | 0.28% |
| 1616 | 37 | 95 | 271 | 144 | 441 | 0 | 0 | 0 | 15 | 1003 | 0.23% |
| 1713 | 59 | 91 | 234 | 231 | 305 | 0 | 0 | 0 | 28 | 948 | 0.22% |
| 1714 | 433 | 614 | 1929 | 1928 | 2194 | 0 | 0 | 0 | 170 | 7268 | 1.66% |
| 1715 | 171 | 407 | 1227 | 835 | 1056 | 0 | 0 | 0 | 112 | 3808 | 0.87% |
| 1716 | 207 | 481 | 1185 | 837 | 1373 | 0 | 0 | 0 | 81 | 4164 | 0.95% |
| 1813 | 16 | 43 | 91 | 82 | 126 | 0 | 0 | 0 | 16 | 374 | 0.09% |
| 1814 | 30 | 82 | 169 | 116 | 279 | 0 | 0 | 0 | 24 | 700 | 0.16% |
| 1913 | 13 | 17 | 41 | 58 | 81 | 0 | 0 | 0 | 8 | 218 | 0.05% |
| 1914 | 12 | 18 | 46 | 42 | 57 | 0 | 0 | 0 | 14 | 189 | 0.04% |
| 12 | 975 | 1983 | 5928 | 4128 | 6402 | 1 | 1 | 1 | 523 | 19942 | 4.55% |
| 13 | 873 | 1750 | 4571 | 4506 | 6702 | 0 | 0 | 0 | 554 | 18956 | 4.33% |
| 14 | 954 | 1855 | 5075 | 4787 | 7576 | 1 | 0 | 0 | 430 | 20678 | 4.72% |
| 15 | 977 | 1949 | 5634 | 5643 | 8217 | 1 | 1 | 0 | 479 | 22901 | 5.23% |
| 16 | 673 | 1495 | 3946 | 3587 | 5270 | 0 | 0 | 0 | 334 | 15305 | 3.49% |
| 17 | 0 | 0 | 2 | 11 | 44 | 0 | 0 | 0 | 0 | 57 | 0.01% |
| 18 | 0 | 0 | 3 | 10 | 35 | 0 | 0 | 0 | 0 | 48 | 0.01% |
| 19 | 2 | 0 | 3 | 2 | 16 | 0 | 0 | 0 | 0 | 23 | 0.01% |
| 21 | 1090 | 2570 | 7116 | 6650 | 9851 | 0 | 0 | 0 | 614 | 27891 | 6.37% |

***View expanded by drilling down from District to Grid***

The following is a default Calls for Service Trend Report by CFS priority and Area



VCAP Library

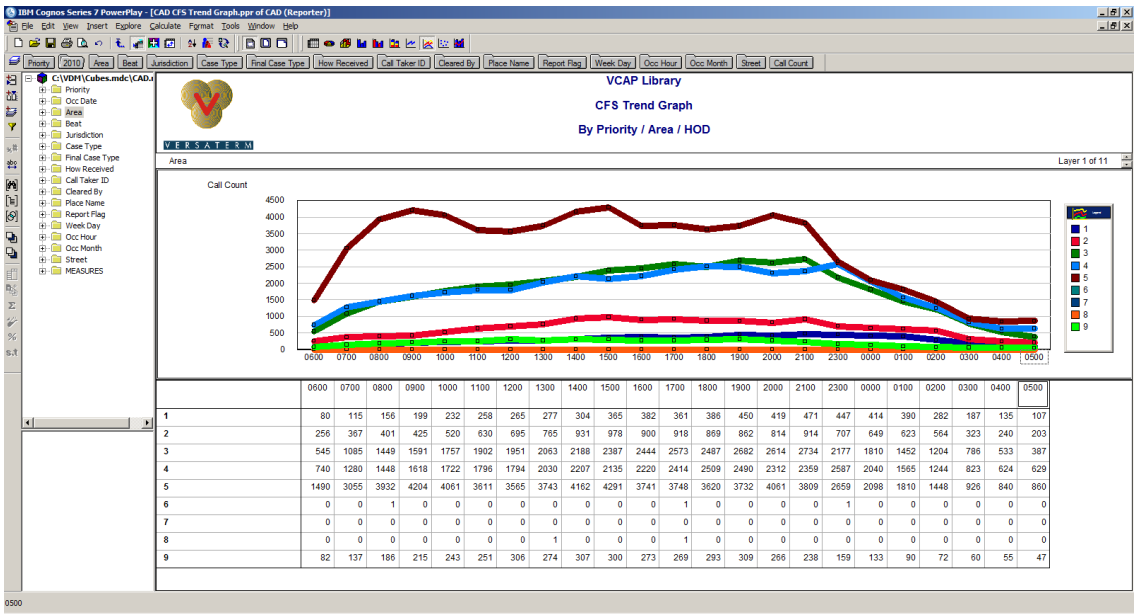
CFS Trends

By Priority / Area

| | All Areas | | | 1 | | | 2 | | | 3 | | | 4 | | | D1 | | | D2 | | | UI | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | YTD | Prior YTD | PCT Change | YTD | Prior YTD | PCT Change | YTD | Prior YTD | PCT Change | YTD | Prior YTD | PCT Change | YTD | Prior YTD | PCT Change | YTD | Prior YTD | PCT Change | YTD | Prior YTD | PCT Change | YTD | Prior YTD | PCT Change |
| P-1 | 7158 | 0 | /0 | 2479 | 0 | /0 | 2504 | 0 | /0 | 1236 | 0 | /0 | 812 | 0 | /0 | 0 | 0 | /0 | 0 | 0 | /0 | 37 | 0 | /0 |
| P-2 | 15342 | 0 | /0 | 4921 | 0 | /0 | 5387 | 0 | /0 | 2710 | 0 | /0 | 2177 | 0 | /0 | 0 | 0 | /0 | 0 | 0 | /0 | 81 | 0 | /0 |
| P-3 | 43457 | 0 | /0 | 13052 | 0 | /0 | 15355 | 0 | /0 | 7670 | 0 | /0 | 6624 | 0 | /0 | 1 | 0 | /0 | 3 | 0 | /0 | 243 | 0 | /0 |
| P-4 | 43461 | 0 | /0 | 11870 | 0 | /0 | 14259 | 0 | /0 | 7626 | 0 | /0 | 7990 | 0 | /0 | 0 | 0 | /0 | 0 | 0 | /0 | 218 | 0 | /0 |
| P-5 | 72818 | 0 | /0 | 16906 | 0 | /0 | 23055 | 0 | /0 | 13538 | 0 | /0 | 12139 | 0 | /0 | 1 | 0 | /0 | 1 | 0 | /0 | 829 | 0 | /0 |
| P-6 | 4 | 0 | /0 | 0 | 0 | /0 | 2 | 0 | /0 | 1 | 0 | /0 | 1 | 0 | /0 | 0 | 0 | /0 | 0 | 0 | /0 | 0 | 0 | /0 |
| P-8 | 2 | 0 | /0 | 1 | 0 | /0 | 0 | 0 | /0 | 1 | 0 | /0 | 0 | 0 | /0 | 0 | 0 | /0 | 0 | 0 | /0 | 0 | 0 | /0 |
| P-9 | 4751 | 0 | /0 | 1251 | 0 | /0 | 1349 | 0 | /0 | 1162 | 0 | /0 | 699 | 0 | /0 | 0 | 0 | /0 | 0 | 0 | /0 | 91 | 0 | /0 |
| Total Calls | 186993 | 0 | /0 | 50480 | 0 | /0 | 61911 | 0 | /0 | 33944 | 0 | /0 | 30442 | 0 | /0 | 2 | 0 | /0 | 4 | 0 | /0 | 1499 | 0 | /0 |

***Default view of CFS Trends***

The CFS Trend Graph is another way to view call trends, but in a more graphical way. By default, the report opens with call priorities as rows and hours of the day as columns. But, another layer has been added to the report that allows you to view the information for your entire County or by individual district. The additional layer appears just above the graph.



VCAP Library

CFS Trend Graph

By Priority / Area / HOD

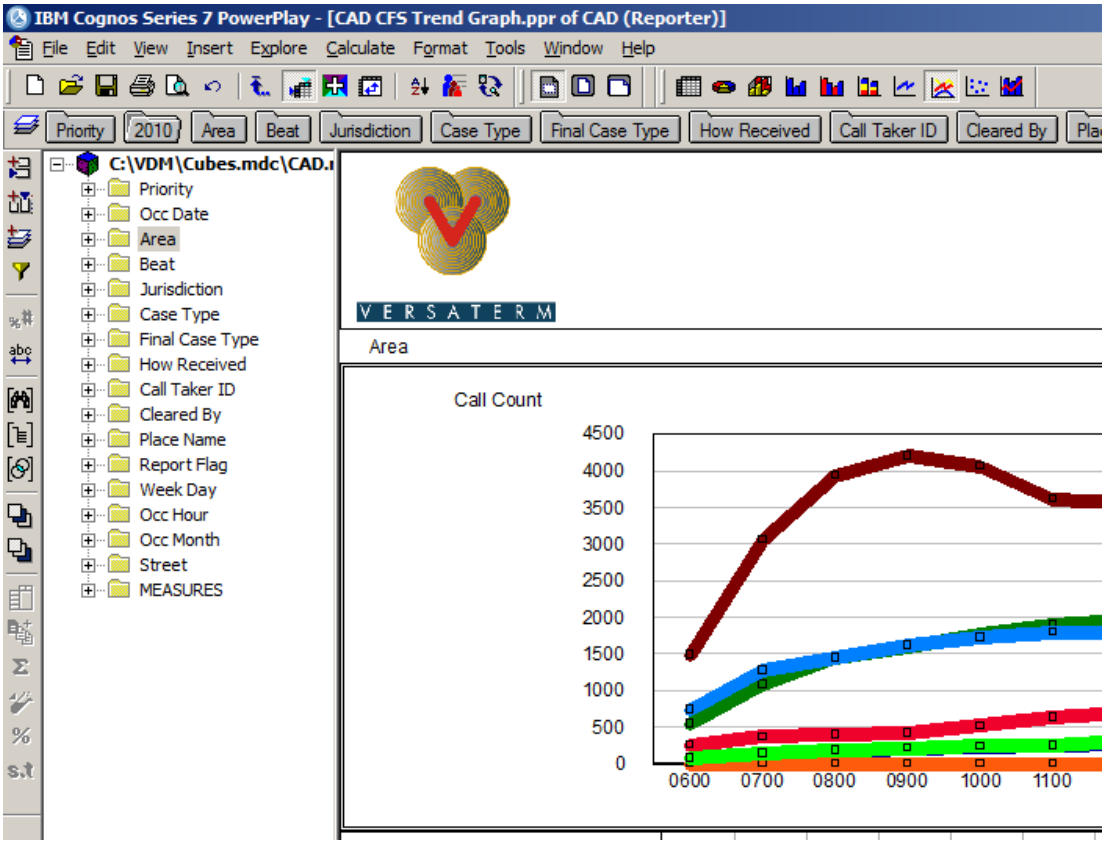
Area

Layer 1 of 11

Call Count

| | 0600 | 0700 | 0800 | 0900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2300 | 0000 | 0100 | 0200 | 0300 | 0400 | 0500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 80 | 115 | 156 | 199 | 232 | 258 | 265 | 277 | 304 | 365 | 382 | 361 | 386 | 450 | 419 | 471 | 447 | 414 | 390 | 282 | 187 | 135 | 107 |
| 2 | 256 | 367 | 401 | 425 | 520 | 630 | 695 | 765 | 931 | 978 | 900 | 918 | 869 | 862 | 814 | 914 | 707 | 649 | 623 | 564 | 323 | 240 | 203 |
| 3 | 545 | 1085 | 1449 | 1591 | 1757 | 1902 | 1951 | 2063 | 2188 | 2387 | 2444 | 2573 | 2487 | 2682 | 2614 | 2734 | 2177 | 1810 | 1452 | 1204 | 786 | 533 | 387 |
| 4 | 740 | 1280 | 1448 | 1618 | 1722 | 1796 | 1794 | 2030 | 2207 | 2135 | 2220 | 2414 | 2509 | 2490 | 2312 | 2359 | 2587 | 2040 | 1565 | 1244 | 823 | 624 | 629 |
| 5 | 1490 | 3055 | 3932 | 4204 | 4061 | 3611 | 3565 | 3743 | 4162 | 4291 | 3741 | 3748 | 3620 | 3732 | 4061 | 3809 | 2659 | 2098 | 1810 | 1448 | 926 | 840 | 860 |
| 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 82 | 137 | 186 | 215 | 243 | 251 | 306 | 274 | 307 | 300 | 273 | 269 | 293 | 309 | 266 | 238 | 159 | 133 | 90 | 72 | 60 | 55 | 47 |

You can scroll through each District layer by using the up/down arrows on the right side of the layer line. As you scroll down, the graph and chart will reflect values for that specific layer. You can also replace the layer with another. For example, if you want to replace the District layer with Beats, right-click on the District layer, delete it, then highlight the Beat dimension in the Dimension Viewer, and drag it over to the Layer Target on the Dimension Tool Bar to create the new Beat layer. Double-click on the new layer to expand it.




These are only a few of the standard reports that are available from the Versadex CAD standard library. All of these reports can be modified by system administrators, and new reports can be created using all of the PowerPlay utilities.

In addition, it is possible for the County to build additional data cubes from other RMS and Crime databases or Census Bureau, and other demographic databases could be imported into the datamart thus supporting a wide range of analytical reports.

## CAD System Configuration

The Versaterm CAD is very flexible in that it can be configured at many points to enable your business practices. This configuration control is reached through the configuration menu. There are many things that can be controlled from this point including, but by no means limited to, the following:

### Basic settings at the user level

The user can set font size, sounds and the number of lines shown in the Command Line. The user can also configure the layout, color scheme and behavior of the status monitor. Generally speaking these are settings that assist the user in creating a personal environment that is unique to the user that sets them and which follows them by login. The availability of these

settings to the user is dependent on whether the system CAD Administrator has granted users access to them. These settings can be reserved for the Administrator to set for the entire system.

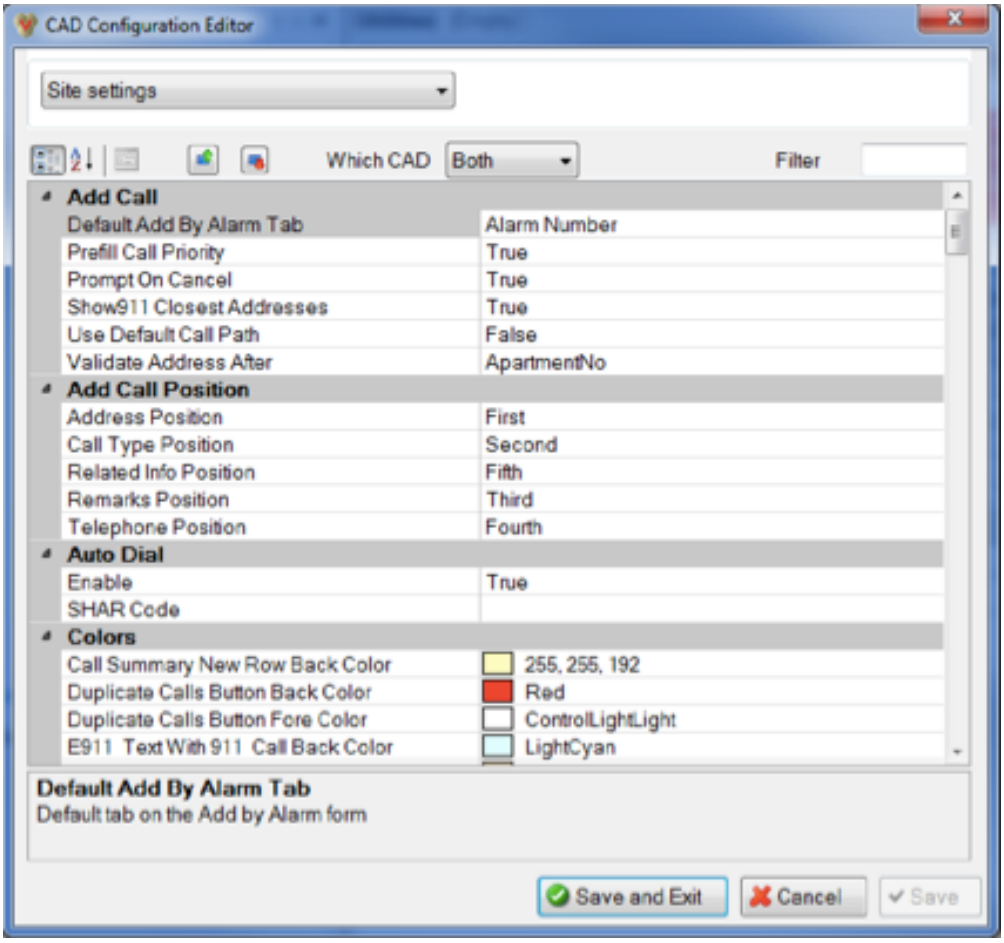
## Advanced settings at the site level

CAD Administrators have the exclusive ability to change settings at the site level. These settings apply to the whole site. The array of settings is quite extensive and in many systems these kinds of adjustments would have to be accomplished by the vendor. With the Versaterm CAD; the control is in your hands, if you need to make a change, your agency can do it without our help.

At the site level, you can control all the settings available at the User level plus the following additional categories, with in each of these categories are a number of individual settings and options:

- Add Call settings
- Add Call Position settings
- Auto Dial
- Colors that are not available at the User level
    - E911 Call Location Updated Back Color (i.e., used to determine the background color on the E911 Viewer when a new ANI/ALI feed is received)
    - E911 Text to 911 Call Back Color (i.e., used to determine the color of the E911 Viewer when a T9-1-1 call is received).
- Common CAD settings
- CAD Configuration settings
- Custom Person Query
- Custom Vehicle Query
- Fire default settings
- Lookup Tables settings
- Maps settings
- Police default settings
- ProQA defaults Remote
- CAD Colors Sounds
- Third Party

The Screen shot below is a sample of how the settings are laid out in the system. The first 4 setting categories listed above are shown on this screen and you can see the choices in each category are shown. (The color category runs well beyond what is shown due to the scroll position when this shot was taken.) As you can see, there are many configuration settings that are at your site's discretion.




## Remote System Interfaces

The Versadex CAD system is architected to share information with external systems. The mechanism for exchange depends upon the type of interface, namely

1. Real Time
2. Store and Forward

A Real Time interface is used when time is of the essence and an external system or process needs to be updated or information provided immediately. A typical illustration of this type of interface is E9-1-1, Push-to-Talk/Emergency Pin, Fire Station Alerting, Paging, etc. These interfaces are generally quite specific and support a specific exchange format and interface protocol (generally specific to the 3rd party supplier).

CAD provides a number of generic web services/interface exchanges which external parties can access, namely a GetCall and UpdateCall web service, a useful web service for publishing apparatus AVL/GPS updates, an AVL interface for receipt of updated GPS locations, a CAD-to-

CAD interface currently based on the NIEM standard (will be migrated to the new NENA IEDD standard once available), among others.

CAD also maintains an in memory database of current calls, busy/dispatched/ available apparatus, as well as current apparatus status and apparatus location (current GPS position). The in memory database is updated in real time and used by various CAD components such as the Browser Status Screen for instance. It can also be accessed by external systems such as EOC software and any application that needs access to current CAD data (status monitor for instance). Where real time CAD data is required to be published to an external system, we are able to leverage the internal hooks used to update the in memory database to also publish updates to an external system.

The CAD and mobile workstation (MWS) maps make use of ESRI tools and technology (ArcGIS Runtime) and as such can consume any number of compliant GIS provided map services such as hydrant location and status (whether operational) for instance.

A Store and Forward interface is often used where information needs to be exchanged but not necessarily in real time. This type of interface is often used for exchanges with external RMS systems, Data Marts and other information sharing systems. This involves unloading a NIEM XML compliant Call for Service file, which contains a complete copy of all the key CAD call related information, including 911 related data, dispatched apparatus, and corresponding call and apparatus time stamps.

Versaterm will often provide point-to-point interfaces as the Customer more often than not, requires these. Some installations provide a “message broker” between Versadex and the external systems where CAD call for service information for instance will be sent to the broker for subsequent distribution and sharing.

Here is a list of some of more typical supported CAD interfaces,

- E9-1-1
- Paging
- Fire Station Alerting
- Master Clock
- Push-to-Talk and Emergency Pin Interface (Motorola, Bell, Zetron, others)
- CAD-to-CAD (incident exchange, apparatus dispatch & status updates, messaging); interfaces are supported to AMR and Gold Cross Ambulance
- GPS/AVL (Versadex CAD published interface; Motorola Unified Network Service I/F to receive GPS updates from portable radios)
- APCO ASAP Alarm Interface;
  Versadex CAD Alarm Company Upload and False Alarm Unload
- State Crime Information Systems/NLETS/NCIC
- Versadex CAD Media Notification
- Versadex CAD Get Call, Add Call web services
- Priority Dispatch ProQA/LowCode Interface (Call Triage and Tiered Dispatch)

- NIEM Call for Service Unload
- GIS, Map Services

## Legacy CAD Data Conversion

Over the years Versaterm has worked closely with our customers on the successful conversion of data from an existing legacy system over to the Versadex application. We also have had customers who decided to convert none of their legacy system data, partial data, or all of their legacy information. Some customers chose to move their legacy data to separate RDBMS files and then use 3rd party query tools to access the information. There may also be other methods of moving files from one system to the other that doesn't involve computerized transfer. In some cases it proves to be less expensive to manually enter some files, rather have them electronically converted (i.e. cleared by code or list of equipment). Versaterm works with our clients during the scoping process to identify the best approach in each case.

Versaterm has developed a standard approach to conversion of legacy data over the years. We always recommend that, as a first step, the department authorities who know the data and can assess the value of the data review all of the possible information that could be converted based on current relevance, accuracy, difficulty to convert, etc. We then review this data with one of our conversion experts to analyze and identify the core information that must be converted. The elapsed time to extract data is reviewed and the ability to detect what has changed or been added after an extract is addressed.

The next step is to determine what is required to extract the identified data to be converted from existing databases into flat files with documented fields. The extraction process is best accomplished by the customer - often with the help of the legacy system provider. Note: The legacy vendor may charge for this service.

Once a sample flat file has been extracted, Versaterm has a conversion program that can be used by customer personnel to scan the file and compile a "content" distribution for those fields that have been selected or validated for valid values that defines all of the possible values found in each such field.

Once the CAD selection/validation tables have been reviewed and configured, Versaterm has another desktop program that presents, by field, the values represented in the flat file and, next to it, the values selected for the new CAD for the equivalent field. Someone familiar with the old values (and the new ones) can perform the mapping to define what each old value should be converted to in the new value for that field. This process really goes quite quickly, although it should be validated by a second person before the final run. This process is repeated for each source flat file to be converted.

The result is a group of conversion control tables, used by the main conversion tool, to read the flat files, convert them to database records and load them.

The next step, often after some time elapses, is to repeat this process but with an extract of everything that has been selected for conversion (much larger flat files). Inevitably, other values that are subsequently determined to be erroneous may be found that were missed in the sample process. Thus, new table entries need to be made before converting these much larger flat files into the new CAD database. Again, some Quality Assurance effort is expended. However, we now have a solid and representative database that can be used for process re-engineering, training of "lead" or "super users", etc.

Occasionally (but rarely), the previously described full database conversion can be retained. In that event, immediately prior to "go live", we can extract only the records that have been changed and added since the full conversion (assuming that the legacy CAD database supports such identification) and we have code to apply to those records after conversion to the existing database to bring it up to date. More often though, we find more anomalies in the converted data and wind up repeating the extract and conversion process with revised conversion tables a week or so before the cut-over (depends on the speed of the extracting system), load that information and then catch up the additional records and changes once the old systems have been stopped. A few weeks of data can be converted and applied in a few minutes.

**Versadex MWS functionality includes:**

- **Separate Police and Fire applications**
- **User Definable Screen layouts**
- **Touch Screen enabled for one hand operation**
- **Single sign-in to access CAD, RMS, and remote system interfaces**
- **Integrated Mapping with AVL**
- **Dispatch related transactions, dispatch receipt, status updates,**
- **Busy time updates, on-view and**
- **Traffic stops,**
- **Access to other unit's status and AVL location display of all units on a single call.**
- **Previous location history for all CAD and RMS events through a hyperlink**
- **Premise hazards at or near dispatched location**
- **Simultaneous Information checks or requests on names, addresses, vehicles, property, etc. against local RMS, County, Regional, Stat/national data bases**
- **Mugshot/DL Photo display**
- **Messaging transactions using short conversational messages to dispatchers, other units, supervisors, and even key locations within the department**

## Versadex Mobile Workstation Environment

Versaterm has been an industry leader in providing integrated Mobile Workstation solution for many years. Versaterm has led the way in providing desktop-like functionality for Officers in their vehicles.

We first introduced the **Versadex Workstation** solution for dispatch support in the late 1980's. We were one of the first to provide an innovative wireless law enforcement field reporting module called **Mobile Report Entry (MRE)** in 1994. Back in those early days, Versaterm was not only providing seamless integration but we were doing it over the very limited wireless network infrastructures of those years. .

Since that time, hardware, networks and user-needs have evolved. In 2013 we released our **vMobile App** which extends access to the Versadex CAD and RMS system on a wide range of mobile devices.

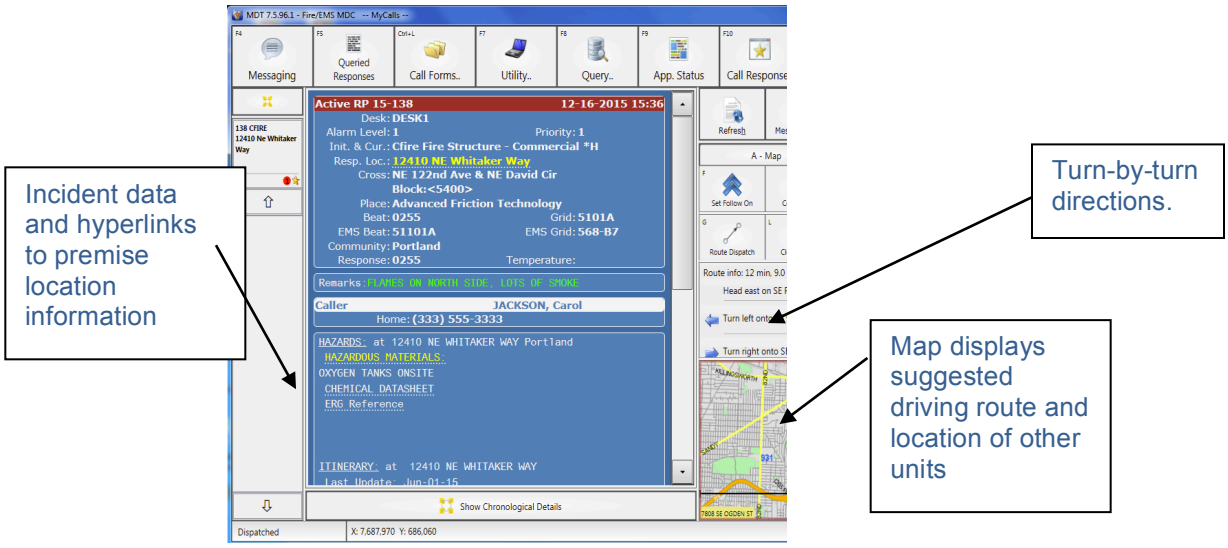
The following is an in-depth review of the **Mobile Workstation** and **vMobile App** solutions.

**Versaterm's Mobile Workstation (MWS)** is the extension of the power of the Versadex CAD directly into the field. There are also separate Fire/EMS and Police MWS applications due to the differences in functionality required by agency type.

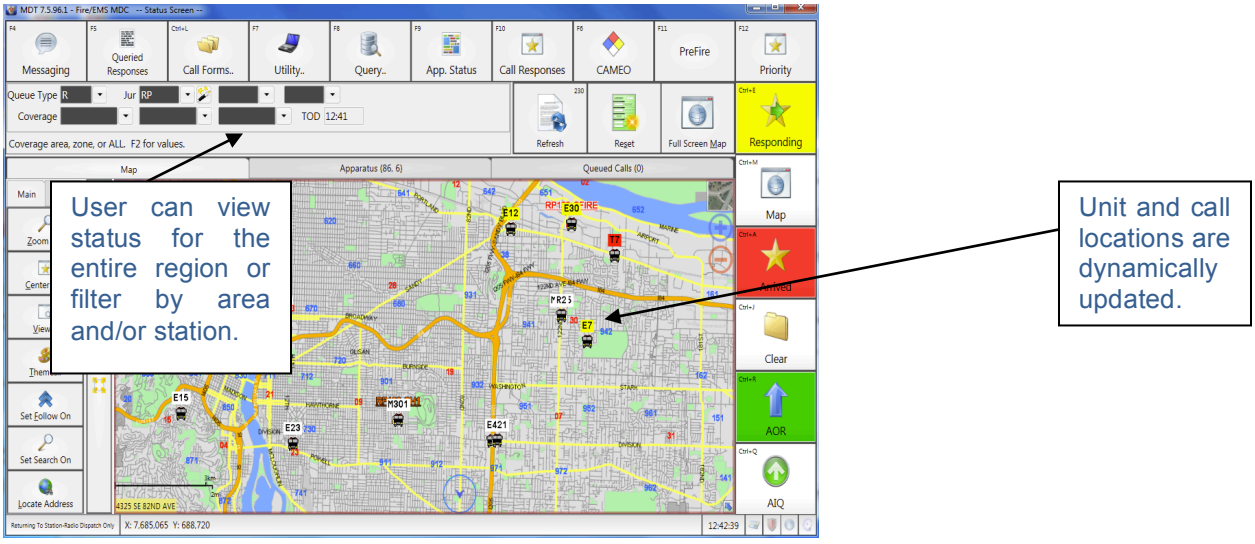
The applications are designed for the mobile environment and it is intuitive and easy to use. It requires just one hand to operate – no mouse. It supports touch screens with buttons large enough for a gloved finger in a fast moving vehicle.

The **Versadex MWS** is intended to be installed on a Windows device running the Windows 7 (and above) operating system and enables the responders to perform the majority of system inquiries and status updates right from their vehicles. This is by far the most popular choice for Versadex mobile deployments as the application is designed for the vehicle supporting large buttons for touchscreen use with daytime and nighttime settings. The MWS includes a Designer application that allows your administrator to fully configure the screen layouts with the flexibility of creating separate layouts/builds by user/unit function (Police vs EMS vs Fire).

The Dispatch View provides the responder with basic information about the incident along with hyperlinks to premise related information (preplan, hazardous materials, lockbox codes, etc.), turn-by-turn directions, an interactive map displaying the suggested driving route and the location of the other vehicles and a chronological view with real time incident and unit updates. The following screen shot illustrates the Dispatch View:



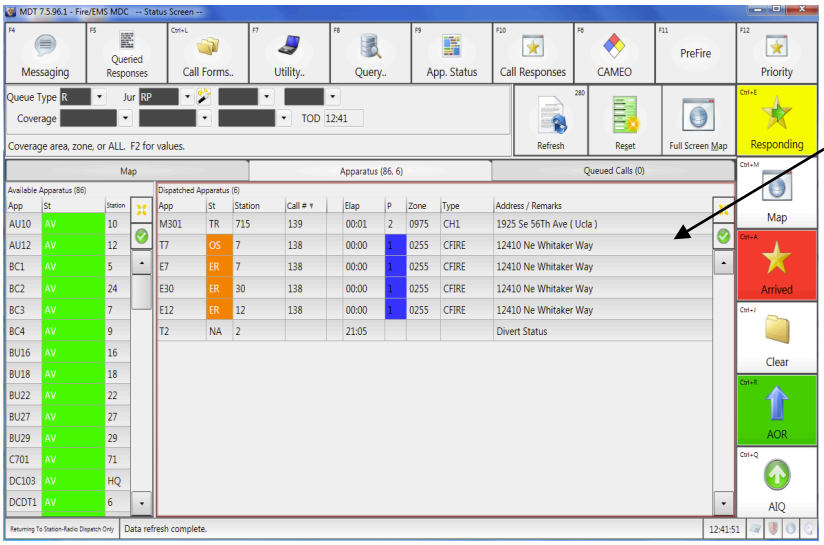

The Status Screen View increases situational awareness to the field units by providing them with a dynamic display of active AVL unit and current call information. The field units can view unit status/location and call details for the entire region or filtered by area, beat, district, station(s) or battalion. The user can display the requested information in a synopsis format or plotted on the map.



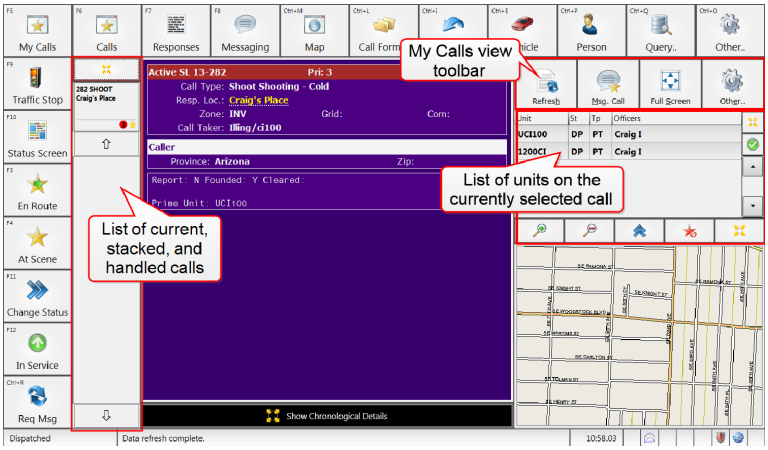
In addition, both Police and Fire/EMS MWS's can also display the traditional Status screen view which provides a dynamically updated synopsis of ongoing operations. This Status screen is identical to that used in CAD. It allows users to track and interact with Available apparatus/units, Queued Calls, and Dispatched apparatus/units. The Status screen view is comprised of three separate windows:

- Available apparatus
- Queued calls
- Dispatched apparatus

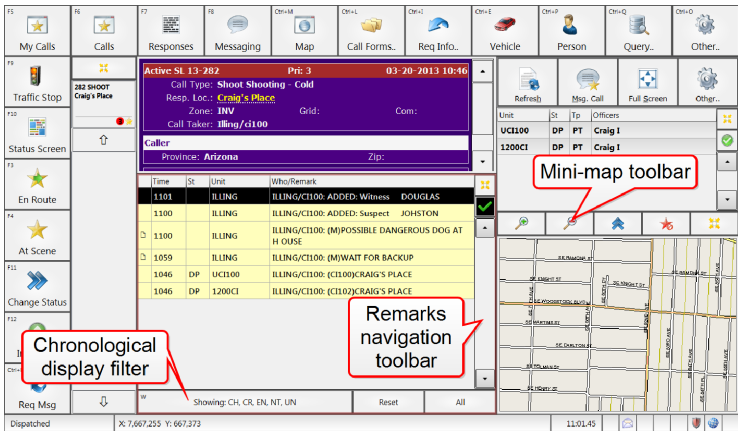
In order to support combined agency operations a Cross-service Status Screen is also available so that the status of all Police, Fire and EMS units/events can be monitored.




The My Calls view features its own toolbar with menu options for reading and managing dispatch information.

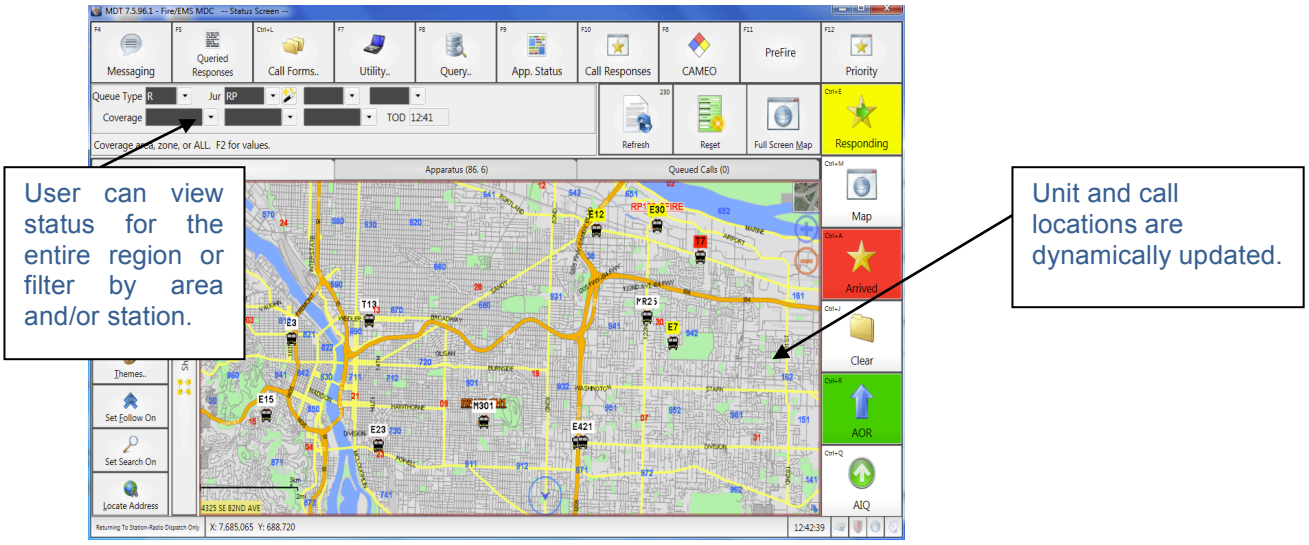


My Calls view can appear in a regular view or in a chronological display. When viewing chronologically, information is automatically updated. This chronological view is exactly the same view that is available to the dispatcher.

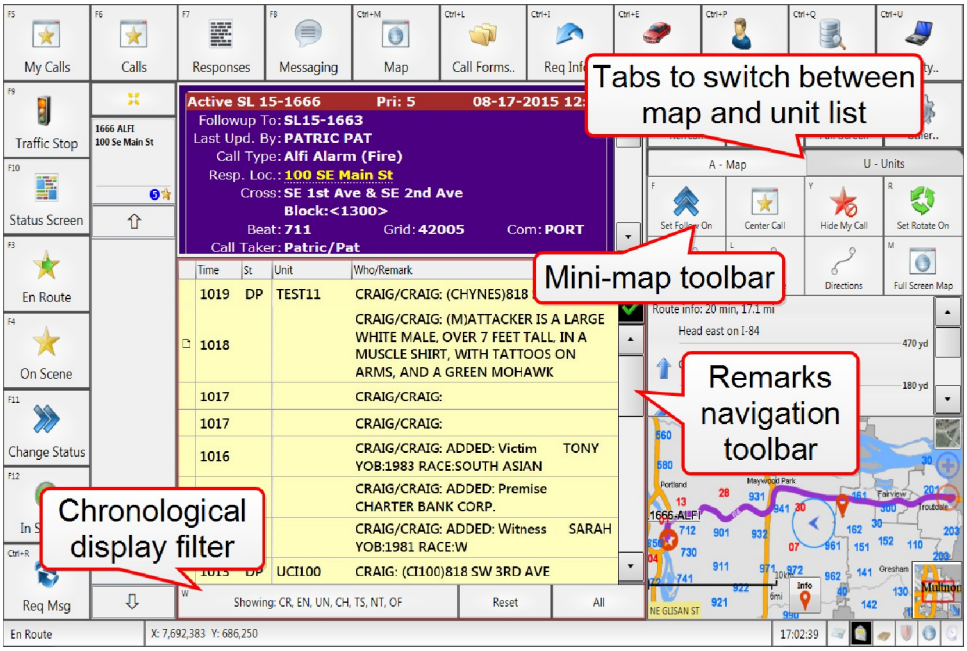



The Versadex MWS also supports Automatic Vehicle Location (AVL) where the map will dynamically display the current location of your Units/Apparatus as well as the updated location of other responding Unit(s) assigned to the same call.

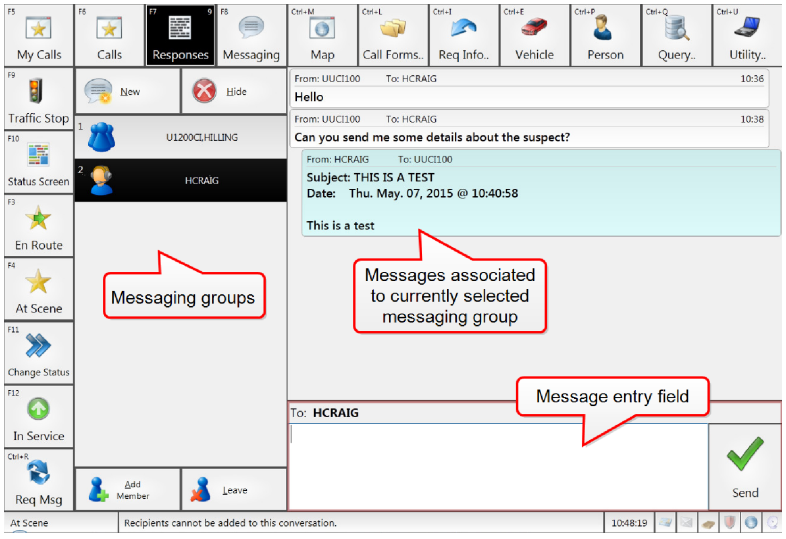
Officers can view the dynamic update of unit positions on the map-based Status Screen.



On the My Call screen they can view a list of all units assigned to the specific call or see them dynamically updated on the integrated map. The Officer selects the specific tab identified below to determine how they would like to view the assigned units.

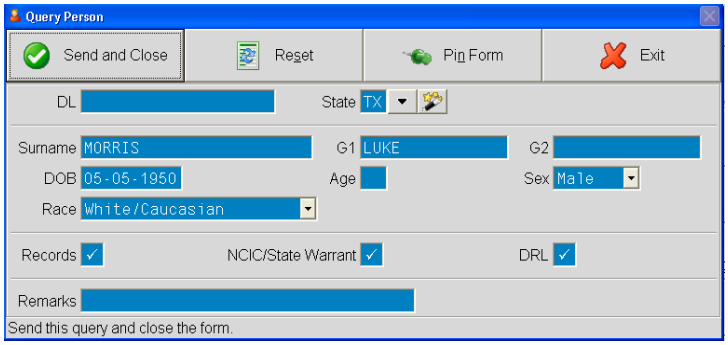


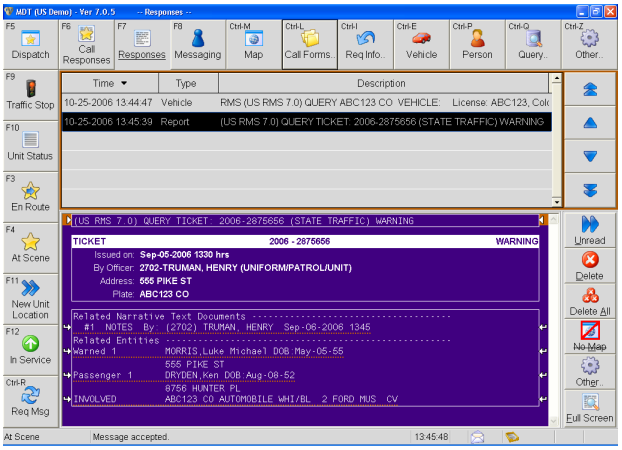

The MWS application also includes a messaging facility that allows officers to communicate with CAD desks and other units/apparatus equipped with the Versadex MWS application. Agencies with cross-service integration enabled can message MWSs of others services. Messaging functions as normal, the user only needs to enter the Unit/Apparatus ID of the cross-service unit that they want to begin messaging.



Throughout the incident or at any other time, the Police MWS can also provide field personnel with unparalleled access to information. The Police MWS is designed to 'enter once and query many'. This enables the user to enter a name (for example) and then simply check off the database sources they wish to hit with the query. That means through a single form, they can get RMS, State, NCIC or any other data source for which an integrated transaction is provided (see example screen shot below). To make it even simpler (and safer), the Versadex MWS supports driver's license scanning right in the application so the Officers can simply swipe the cards and keep their attention focused on their contacts.

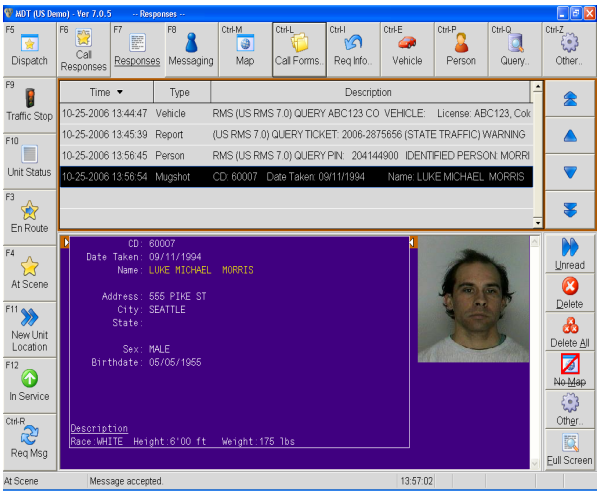
Even though the Officer sends a single query transaction, responses from all of these source databases are treated separately. That means if one system is slow to respond or temporarily unavailable, it will not delay the other responses from reaching the Officer. The MWS will also allow the Officer to continue working in other areas while queries are being processed.




All responses will be individually returned directly to the Officer's workstation in an easy to read window especially designed to enable the Officer to quickly scan the response and move on. Many responses will themselves include drill-down or hyperlinks that facilitate further data-mining.

For example, if you query a plate, and you have the Versadex RMS it will return all incidents (cases, tickets, field interviews) in which the vehicle or person was involved. A hyperlink list with all the events will appear so the Officer can retrieve details on vehicle occupants, warnings/charges issued and any recorded notes. If a Mugshot or Drivers License photo is available, the Officers will also be able to view the photo on their MWS display.



Other integrated MWS features include:

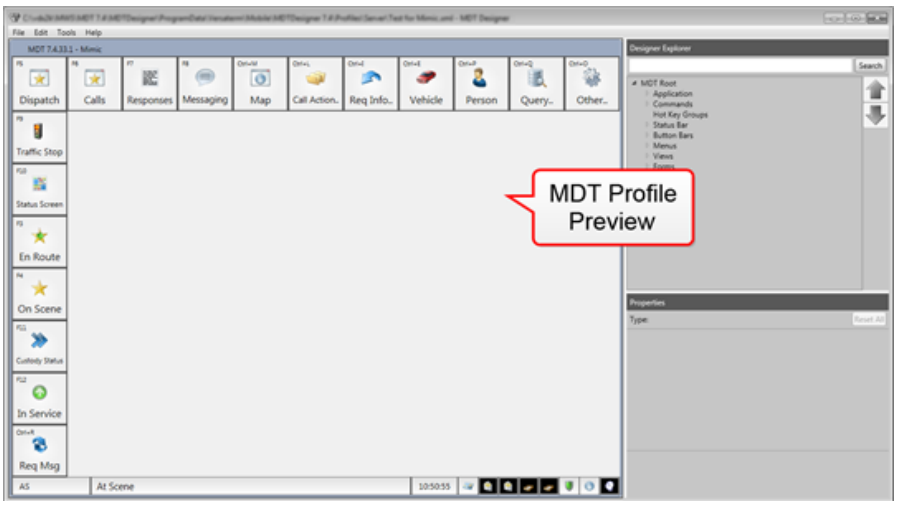
- Self-initiated calls for service (i.e. traffic stop)
- BOLO bulletins
- Duty Roster
- Notepad Info
- Officer Schedules
- Case Management Workload Queue

The Versadex MWS solution also includes the Versadex **MWS Designer,** an application that will enable your agency to configure the look and feel of the mobile application to meet you specific needs.

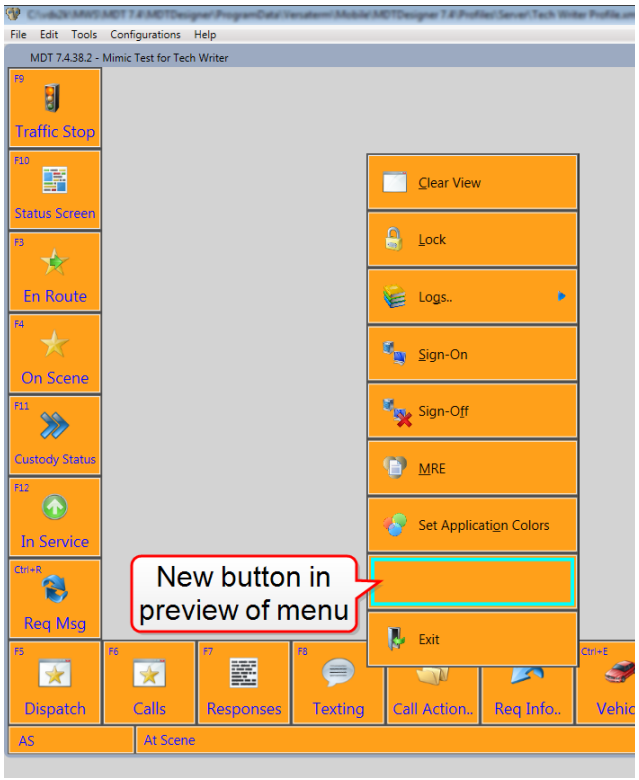
The MWS Designer can be used to make significant alterations to the function, layout, and appearance of the MWS. The MWS Designer is flexible enough to allow creation of MWSs from scratch, but also comes with several pre-built templates based on generic MWS configurations, in order to get you started.

Here is a brief example:

This screen displays what is considered a standard layout for major MWS functions. Traditionally the buttons are displayed across the top and down the left side. Please note that even in this standard configuration the various button locations and descriptions can be altered and moved.




The following screen presents a different format for the main buttons and still aligns them down the left side but instead of on the top of the display, moves them to the bottom of the screen. This screen also shows a new button being added to a preview menu.




The MWS Designer will provide an agency with a great deal of flexibility to adapt the Versadex MWS to meet the specific needs of the agency.

The Versadex MWS runs in a connectionless state, network connectivity is not required until the user wants to transmit the information (e.g. queries, status changes). The Versadex MWS is designed for wireless (and low bandwidth) networks, with the ability to prioritize / interrupt transmissions, re-transmitting packets automatically to guarantee delivery. That is, the advanced wireless design of the MWS permits Versadex to interrupt a low priority transmission (e.g. request info) with a higher priority transmission (e.g. dispatch). Then, once complete, the interrupted transmission is resumed – not started over. This design allows for most functionality to be available even over the slower networks. Additionally, the Versadex MWS can be tuned to manage the bandwidth by limiting data response size, etc. Even though most of our customers have adopted high-speed networks and ideally, the RF bandwidth will deliver 44 KB or better, we still support limited RF networks such as RDLAP (19.2 KB).

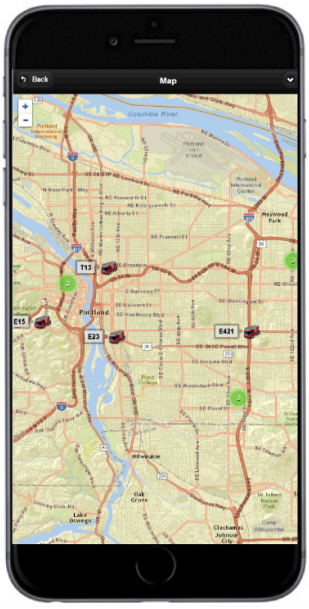
The following table provides the minimum requirements for the Versadex MWS application.

| | |
|---|---|
| Device | A Windows PC computer with full Windows Desktop Operating System.<br><br>**Peripherals**: Mouse or pointing device, COMM port, USB ports. Touchscreen recommended.<br><br>**CPU:**<br><br>• I5 or 2.0 GHz recommended. I3 or 1.6 GHz minimum.<br><br>**Video**: |

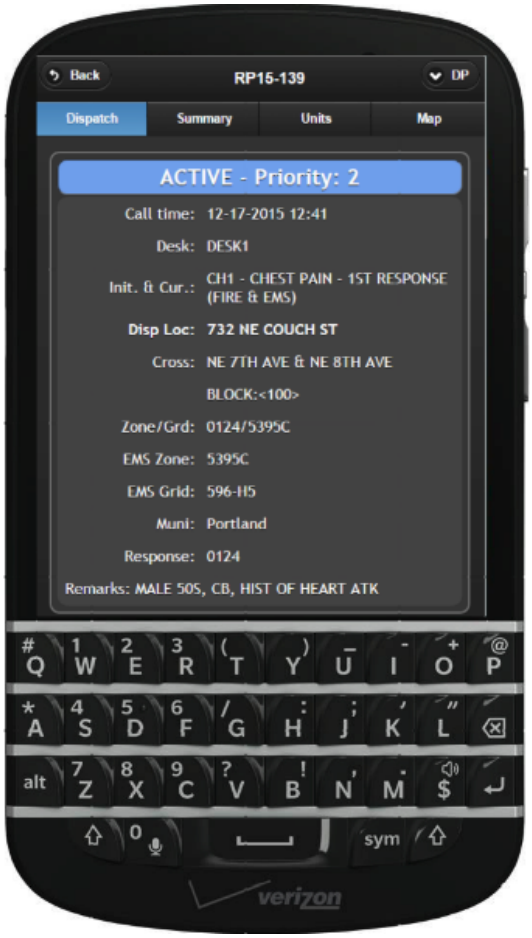
| | |
|---|---|
| | • Minimum 1024 x 768 resolution, 24-bit color depth.<br>• Note that MWS can be configured for displaying on non-standard screen aspect ratios.<br>• Accelerated graphics card<br>  ○ 256 MB recommended. 64 MB minimum.<br>  ○ Shader Model 2.0 minimum.<br>  ○ Latest drivers.<br>**Storage:**<br>• 80 GB recommended. 40 GB minimum (depends if maps are installed) |
| Operating System | Windows 7 SP1 - 32 and 64 bit, Windows 8/8.1, Windows 10 |
| Memory | 4 GB recommended. 3 GB minimum (depends if maps are installed) |

The **Versadex vMobile** is meant for handheld use, on devices such as smartphones or tablets. Currently, it is certified for Android, IOS and BlackBerry operating systems, while being device agnostic.

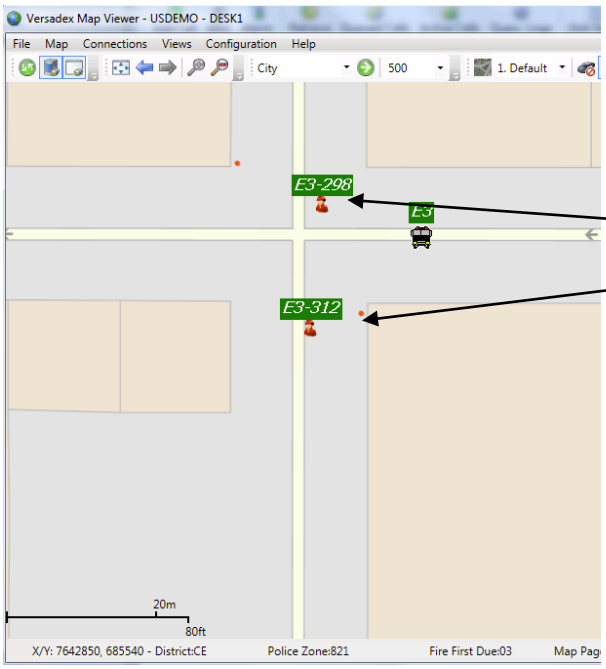
The Versadex vMobile enables field units to increase situational awareness with the ability to monitor current operations directly from their handheld device.

vMobile also allows responders to stay connected while they are away from their vehicle. Using their handheld device, they can receive dispatches, view premise information, update their unit status and message other units or dispatch. The following screen shot illustrates a sample dispatch viewed on the responder's handheld device.




Additionally, Versadex vMobile provides an extra level of responder safety, as it is AVL enabled, it allows operations to locate and track individuals. The following screen shot illustrates responder locations on the dispatcher's MapViewer.




vMobile provides the ability to track AVL locations of individuals.

For vMobile, the following table provides, by platform, the minimum OS level, minimum Model (if applicable) and then minimum CPU/RAM and free space. Often times, it is either the OS version of the device that will drive other requirements. All iOS devices either at the minimum level or greater, have fast CPUs and more than enough memory for the Versadex vMobile app.

| Platform | Minimum OS Version | Minimum Model | Minimum Device CPU | Minimum Device RAM | Minimum Device Free Storage |
|---|---|---|---|---|---|
| Android | 4.0 | N/A | 1.2 GHz dual core | 1 GB | 50MB |
| iOS | 7 | iPhone 4S<br>iPad 2 | Minimum as per supported model | Minimum as per supported model | 50MB |
| BlackBerry | 10.2 | N/A – all models that run the version of the OS. | Minimum as per supported OS version | Minimum as per supported OS version | 50MB |

vMobile can also be fully integrated with the Versadex RMS solution providing query capabilities similar to those provided in the MWS environment. The following display shows the results of a query into the RMS and the ability to display an associated mugshot.

## Versadex Technology Overview

Versaterm has decades of experience and a proven track record of success in delivering and supporting medium to large scale CAD systems. Our solution is based on a proven architecture that is capable of handling the volume and workload of busy communication centers as well as delivering the reliability, predictability and resilience required to support the mission critical demands of your agency.

Our solution is based on the most modern architecture supporting a fully virtualized, highly available, fault tolerant configuration leveraging the latest VMware technology.

The recommended configuration includes a high availability Production/Training cluster consisting of 3 servers. A second smaller cluster of 2 servers, to host the Implementation (Configuration)/QA Testing environment. And a third DR cluster consisting of 2 servers, hosting an offsite fully replicated copy of the production environment allowing for failover from the primary location in the event of a planned or unplanned service interruption at the primary location.

The Implementation (Configuration)/QA Test environment is used prior to go-live as an area for a team of agency subject matter experts to begin the process of configuring the various components of the Versadex Suite of applications. Once the system goes live, this environment continues to be used as a Quality Assurance Testing platform. When any changes or fixes are installed, these are put in the QA Test environment for the agency to test and sign off on prior to moving the change into Training and Production.

The QA Testing environment is configured as a separate cluster from Production in order to provide an isolated area for testing both Versadex software, and any other system related changes such as operating system patching, testing VMware, database, and hardware features without impacting Production. The QA Test environment contains a full development environment, including any necessary compilers along with the Versadex source code.

The Versadex VMware deployment logically separates the system into VMware appliances for manageability and business continuity. The VMware appliances are spread across multiple hardware servers providing for maximum protection.

System health is monitored with VMWare's vMotion so that appliances can be moved/migrated (live) between servers within the cluster. As the 'CAD server appliances' can run on any one of the physical (hardware) servers, the system provides complete redundancy within the primary production server cluster with automatic failover between servers in the cluster. The architecture has the advantage of built-in redundancy and mirroring to lessen any impact due to hardware failure. The configuration provides for 99.99% uptime.

The Versaterm solution makes use of an enterprise grade fiber-attached SAN that has the ability to scale to a large number of drive enclosures, which will allow for growth well into the future.

The system architecture includes RedHat Enterprise Linux as the server operating system, delivering extremely high-availability and a stable and predictable platform. Microsoft Windows is supported on the CAD Desktops, and Mobile Workstation laptops in both police and Fire apparatus. Our vMobile hand held solution supports IOS, Android and Blackberry devices.

The Versadex CAD supports the IBM Informix database, the Oracle database, and we have recently ported to SQL Server. We will generally recommend the IBM Informix database because of its solid track record of providing an incredibly robust database with very limited administrative overhead. It is in use in many of our large-scale public safety deployments, including the Phoenix Police Dispatch Center, who enter approximately 2 million CAD calls per year. The Informix database engine also includes the ability to support up to 3 nodes of replicated instances, at no additional cost.

## Disaster Recovery

In addition to the primary high availability production cluster, Versaterm also recommends a DR solution that makes use of VMware replication technology as well as native database replication features.

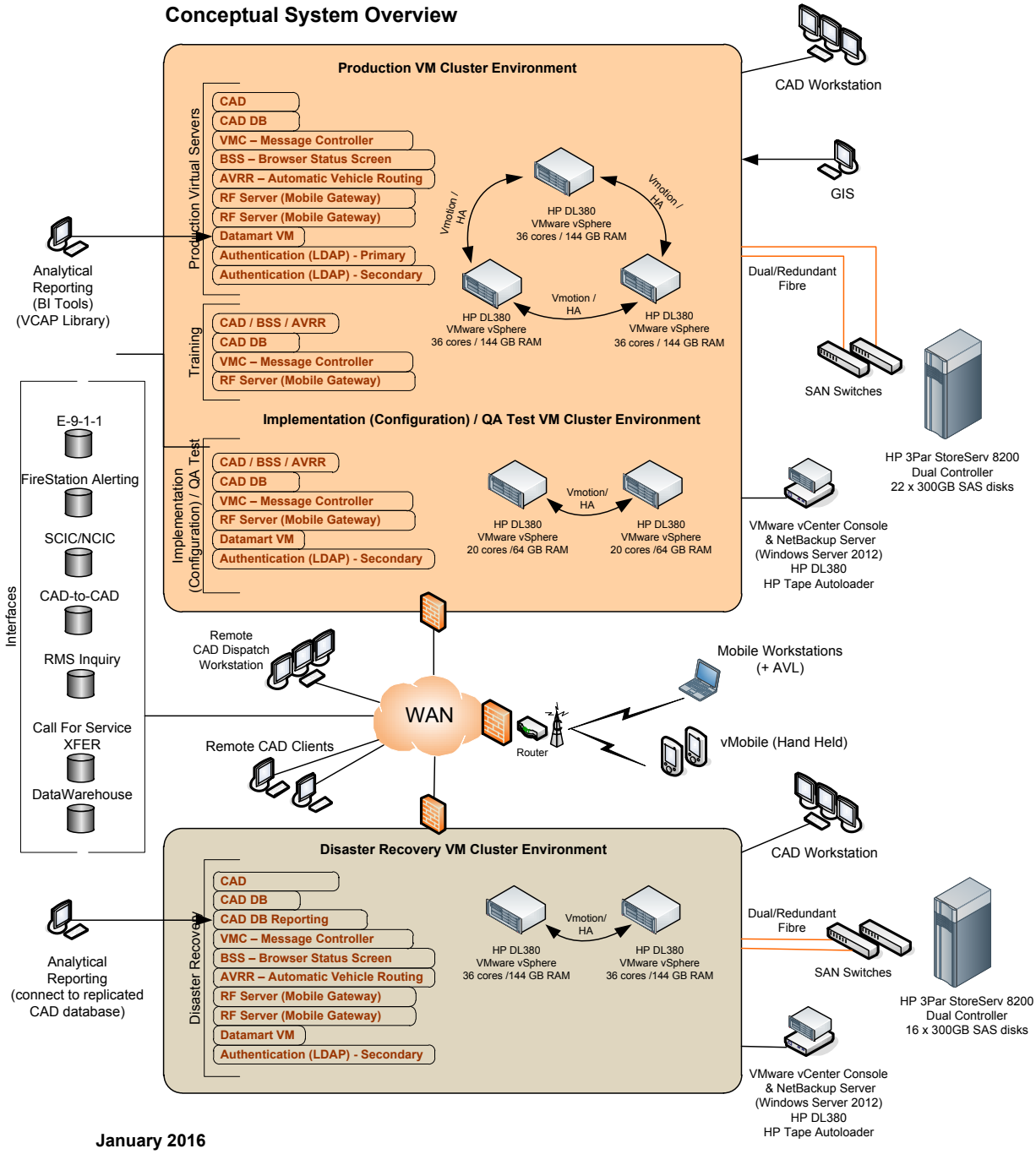
The DR strategy consists of using a VMware component called vSphere replication in order to replicate the application VMs to the secondary site. vSphere replication will take block level changes from the primary site and apply them to a VM at the secondary site. At the database level, Informix High Availability Data Replication is used to apply those transactions on the secondary database. If an event were to take place that necessitates a fail-over, the secondary site would be brought into service. Users connect to the production applications in the same way they would at the primary datacenter. No changes are required on the user's desktop configuration.

The VMware vSphere replication and Informix HDR technologies because of their simplicity are able to work over slower network connections (i.e. a gigabit network connection between sites is not required). Both of these replication technologies run in an asynchronous mode, so they do not negatively impact performance at the primary site, yet still copy data to the protected site in near real-time.

There are numerous ways to configure a Disaster Recovery datacenter, ranging from more costly and complex to inexpensive and simple. Versaterm has experience with many of these. For example, we have customers who have implemented advanced VMware 'stretched' clusters over geographically dispersed locations. We have others who rely heavily on SAN based replication, making use of VMware's Site Recovery Manager add-on designed specifically for these DR scenarios. Versaterm will discuss your agencies requirements and partner with you to design an optimal DR configuration.

The following diagram illustrates one possible VMware environment:

## Conceptual System Overview




**January 2016**

The above configuration provides a highly available and reliable environment capable of delivering the resilience and predictability required to support the mission critical demands of an agency, while offering major benefits for future growth.

The following sections detail many of the advantages of the recommended configuration.

**Hardware Agnostic:**

Since the Versadex suite can be entirely virtualized, our Virtual Machines (VMs) can be deployed on a large selection of commodity servers. Any servers that support the VMware operating system can run Versadex (HP Proliant servers, IBM System xSeries servers, or Dell PowerEdge servers).

**Hardware Redundancy:**

Versaterm always recommends fully redundant server configurations (equipped with multiple power supplies, fans, network interfaces, SAN fabric interfaces, error correcting memory, etc.), capable of withstanding a number of hardware failures without affecting the end users.

In addition, while the total amount of resources required to fully power the production and training systems can be handled by only 2 hosts, Versaterm typically recommends 3 servers in the production cluster. The N+1 architecture is designed to allow for the loss of one host without any impact or loss of operational performance. At Versaterm, we deal exclusively with public safety systems, and as such, we are very aware of the requirement for mission critical systems designed to operate reliably and predictably at all times.

**Hardware Life-Cycle Cost Effectiveness:**

One of the major advantages of a fully virtualized environment is the ability to migrate live systems to different hardware without user interruption. For example, if additional server capacity is required in the future, or when older hardware is in need of replacement, newer servers can be added to the cluster. Virtual machines can then be migrated (live) to the new hardware without the need for any user downtime. User workloads are moved to the new hosts by means of the VMware vMotion technology. Once the migration is complete, older hosts can be decommissioned. When using systems installed on bare-metal servers, system migrations are an expensive, time-consuming operation. With VMware a server migration is, quite simply, a non-event.

**Versaterm Evergreening Approach to Software Deployment:**

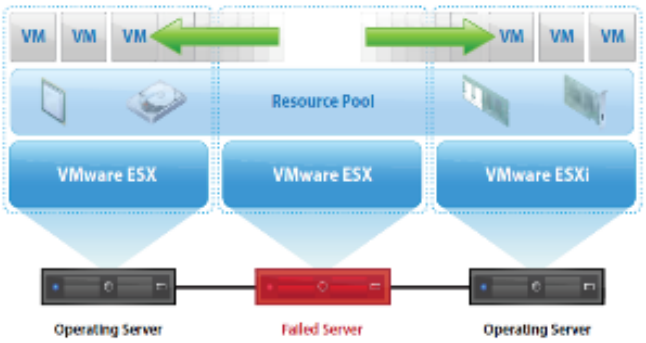
Versaterm considers itself somewhat of a pioneer in making use of virtualization software as a means to develop and distribute its software to client agencies. Versaterm has adopted a deployment approach that is used at all of its virtualized client datacenters. Versaterm maintains a set of “master” virtual machine appliances. These master VMs contain new versions of the RedHat operating system. The new version of the Versadex application is developed, tested, QA’d on the new, updated master VM. The VM is then delivered to the clients as upgrades take place. This approach has a benefit to the clients as they continually receive a well-tested and proven system, on a modern operating system.

**VMware Key Features:**

A number of VMware’s key features are leveraged as part of the recommended solution. Some of these are outlined below:

**High Availability:**

VMware’s High Availability (HA) feature is used to protect the system from host and operating system failures. VMware HA is a monitoring technology that detects hardware problems and provides automatic, self-healing actions. For example, should HA detect that a host is unresponsive, it will automatically start the virtual machines that were running on the failed host on a surviving host. All, without any user intervention.




VMware HA also protects and monitors individual virtual machine operating systems. Should an individual VM become unresponsive, it will be restarted automatically, minimizing unplanned downtime.

As well as monitoring hosts and VMs using network heartbeats, HA will also leverage its communication with the shared storage in order to help determine if a system has stalled, and allow a new host to take over the failed workload.

**VMotion and Storage vMotion:**

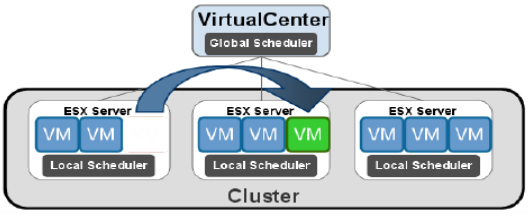
One of the most compelling features of VMware's virtualization technology, and one that was paramount in making VMware the most popular virtualization software, is vMotion.

VMotion allows for running virtual machines to migrate from one physical server to another without disruption to the end user. The key to this ability is having all of the virtual machine data files stored on a central storage system. The VMs only make use of the physical server's processor, memory, and networking components. VMware has the ability to transfer those tasks systematically to a separate physical server online.

The vMotion technology becomes very useful when it is used is such a way as to enable system load balancing and physical server life-cycle migrations.

**Dynamic Resource Scheduling:**

Another key feature of VMware vSphere, is Dynamic Resource Scheduling (DRS.) This feature, although not a requirement for a Versaterm installation, is recommended. DRS is an automated virtual machine load balancer. It will automatically balance workloads across cluster hosts in order to achieve the best possible performance. DRS will determine if a host is becoming over loaded, and automatically live migrate (using vMobition) virtual machines to less busy servers.




The migration process is executed without user downtime or disruption of any kind. This feature is also handy when used in collaboration with the HA feature. If an HA cluster experiences a physical hardware failure, virtual machines will automatically be started on a surviving host in the cluster. DRS will step in and balance

the VMs on the surviving hosts, live-migrating them in such a way as to achieve an optimal performance configuration.

**vSphere Replication:**

vSphere Replication, VMware's proprietary replication engine, copies only changed blocks to the recovery site. This approach lowers bandwidth utilization and enables more aggressive recovery point objectives (RPOs) than manual, full-system virtual machine replication. The process includes setting an RPO. vSphere Replication will then replicate data to meet the RPO at all times, ensuring that virtual machine content never ages past its defined replication policy. The virtual machine replication process is non-intrusive and takes place irrespective of the operating system. It is transparent to protected virtual machines and requires no changes to their configuration or ongoing management.

As described above, Versaterm's solution is based on a virtualized, high availability server cluster, comprised of multiple physical servers. Each server in the cluster is configured with fully redundant components, capable of withstanding a number of hardware failures. Additionally, the N+1 server architecture is designed to allow for the loss of one complete host without any impact or loss of operational performance.

As the 'CAD server appliances' can run on any one of the physical (hardware) servers, the system provides complete redundancy within the primary production server cluster with automatic failover between servers in the cluster. VMware's High Availability (HA) feature is used to protect the system from host and operating system failures. HA detects hardware problems and provides automatic, self-healing actions and will automatically start virtual machines that were running on the failed host on a surviving server - all without any user intervention.

A key advantage of a fully virtualized environment is the ability to migrate live systems (using vMotion) to different servers within the cluster without user interruption. This facilitates planned server hardware maintenance where (running) CAD virtual server appliances can be migrated (live) to other servers in the cluster as required.

A disaster recovery environment is also recommended to allow business continuity in the case of a major disruption (failure) at the primary site. If an event takes place that necessitates a fail-over, the secondary site is brought into service and promoted to primary. Users connect to the applications at the secondary site as they would at the primary site (no changes required to the user desktop configurations).

At the application level, the Versadex software includes a self-healing health checking process to maintain overall system uptime. Should a vital application process become unresponsive, the health checking monitor will restart the process, typically without any user interruption.

Versaterm takes a proactive approach to system monitoring that is intended to detect impending system performance issues before they become apparent to the end user. Versaterm's VersaNanny monitoring and alerting tool will notify system administrators when a component reaches a specified warning, or critical level. VersaNanny performs an array of checks, and will monitor system disk space, disk nodes, CPU usage, system load average, memory usage, and various Informix DBMS related (database space usage, continuous logical logging, table extent sizes, table page usage, etc.). In addition to VersaNanny, we also have an 'OS Monitoring' tool that logs various server performance data metrics.

The production server cluster (and backup DR cluster) is sized to support the entire CAD user community, including users at the primary and secondary dispatch centers as well as users at bureau offices, and other remote CAD users. As long as each user (CAD desktop client) has network access (10 Mb network connection) to the production CAD application, they will be able to run CAD. We also have several customer sites (Portland BOEC, Phoenix Police CAD, the Province of British Columbia, and others) currently supporting multiple dispatch/communication centers, all connected to a central CAD production environment.

Our solution routinely achieves an up time of higher than 99.99%, measured on CAD System availability, excluding planned maintenance activities (for operating system patch updates and the likes). In this case, CAD is considered 'down' if all CAD workstations are simultaneously unable to perform application software

functions. Individual workstation failures, such as issues with the Windows operating system, or network failures, or problems with hardware and components not provided (or certified) by Versaterm, are not considered system 'down'.

Updates to the CAD application source code can be done with a simple restart of the CAD web service(s) – with very minimal impact to the CAD users (typically between 2-5 seconds to re-start the web service(s)). Updates to core CAD application server components (Apache for instance), which are generally very limited, typically require less than five minutes to restart the affected component(s). Where an operating system (Linux) patch needs to be applied, this can typically be installed with little to no user impact, except where the operating system kernel is being updated, which requires a server reboot (typically less than 5 minutes for the application to come back up). When any changes or fixes are installed, these are first put in to the Implementation QA Test environment for an agency to test and sign off on prior to moving the change into training and production.

## Versaterm Project Management

Versaterm is unique in the industry by the way in which we approach a new project, understanding it completely, and developing the contract. This begins before contract signing during the 'scoping' or definition phase where we, along with the Agency's key personnel, will spend considerable time confirming our understanding of the key deliverables, license counts, architecture, methods of delivery and acceptance as well as roles and responsibilities of all involved. Versaterm has considerable experience with large projects and we will bring our wealth of *best practices* to the scoping session while collaborating with the Agency to set deliverables and project approach. Scoping will produce a number of significant documents that will serve as the recipe for the project including:

- Statement of Work (SOW)
- Project Schedule
- Acceptance Testing Plan
- Training plan
- Interface Control Document (ICD) and
- Enhancement Control Document (ECD)

Versaterm performs all of this work including the necessary on-site meeting(s) and developing the documents for Agency review without any obligation by the Agency or compensation. All of these documents become part of the Contract. This ensures that the project begins on solid ground where both the Agency and Versaterm are confident with the work to be completed and when it will occur. Once the Contract is signed, we are simply executing based on this recipe.

Finally, as a result of this scoping phase, Versaterm's projects have virtually no change orders that impact budget as the definition is agreed to up-front. In our experience, this leads to on-time and on-budget projects.

For day-to-day management of the Project, the Statement of Work (SOW) is the cornerstone of the deliverables for this project and the primary guide for the Project Manager and the Agency. Versaterm's statement of work is a very complete document as it verbalizes the project plan providing concrete definition and completion criteria for the major SOW tasks.

The following is a sample SOW for implementation of our CAD/Mobile applications:

### Sample CAD Project Approach

*Task #1 – Execute Contract*

This begins the implementation phase of the project. The project is identified in detail through each task item in this Statement of Work. Each task is also identified in the Project Plan. Please use both to understand what each task is, who is responsible for it, and when it is to take place.

*Task #2 – Approve Formal Project Plan*

Project personnel representing Versaterm and the Customer shall participate in a series of meetings and/or conference calls to finalize the project plan.

**Completion Criteria:** This task shall be complete when Versaterm and the Customer project staff have approved the project plan.

*Task #3 – Project Management Initiation*

Project personnel representing Versaterm and the Customer shall participate in a series of meetings and/or conference calls to review initial progress, and make any adjustments subsequently needed in the project plan or procedures. Topics of discussion and review, and actions to be completed during the joint sessions include:

- Review roles of key participants;
- Establish a clear chain of communication;
- Review overall project scope, objectives and phases;
- Review the overall plan of action, timing and expected results;
- Identify overall project constraints and priorities;
- Review overall project schedule; and
- Review resource and scheduling requirements.

**Completion Criteria:** This task shall be complete when the project initiation session(s) have been held and Versaterm and the Customer project staff have agreed, as recorded in writing (where appropriate), on resolutions for each of the discussion topics.

**Estimated Completion Date**: This task shall be completed within {insert # of months} from the Effective Date of this Agreement. Typically a CAD/Mobile solution can be placed in operation within 12 months.

*Task #4 – System Hardware (Servers, etc.)*

Project personnel representing the Customer and Versaterm shall meet to install the initial setup and the configuration for the software. Specific actions to be completed in **Task 4** include:

- Versaterm shall install system software on server(s), including the RDBMS at designated locations;
- Versaterm shall provide VMware images for implementation
- Versaterm shall configure Images and perform Server and Connectivity Testing

*Task #5 – CAD & MWS & AFR Implementation System*

Project personnel representing the Customer and Versaterm shall meet to install the initial setup and the configuration for the software. Specific actions to be completed in **Task 5** include:

- Versaterm shall load Implementation CAD & MWS/MRE systems
- Versaterm shall load initial tables (officer number and call types) as provided by the Customer;
- Versaterm shall load the street files (geo-code files) for Customer review;
- Versaterm shall configure database and application on the server; and
- The Customer, with guidance from Versaterm, shall install Versadex CAD/MWS/MRE client software on each desktop/mobile workstation(s) required for configuration and training activities;
- Test application and connectivity, status screen, monitor, Mobile servers and MWSs

**Completion Criteria:** This task shall be complete when CAD and MWS software is functioning on required workstations as designated by the Customer.

*Task #6 - Initial Administration Training*

Versaterm shall provide initial CAD administration training to the Customer's key system administration personnel. The purpose of this training is to equip the Administrator(s) with the ability to ensure the implementation system, including data entered, will be backed up, that the implementation team will be able to have access (login accounts) and the system can be monitored for performance. Specific training activities to be completed by Versaterm include:

- Supply designated system administration personnel with the materials necessary for training;
- Review implementation team activities in relation to the required CAD and database administration;
- Review Unix level administration tasks such as creating login accounts and backing up file systems relative to CAD requirements;
- Review database backup strategy and suggested frequency; and
- Review system layout, configuration and file locations.

**Completion Criteria:** This task shall be complete when Customer employees trained can provide the above mentioned administration functions.

*Task #7.1 - Implementation Session #1*

Project personnel representing Versaterm and the Customer shall meet to review CAD/MWS and MRE configuration options illustrating the choices and highlight re-engineering procedures within the agency. Versaterm shall work directly with the Customer Implementation Team members in the implementation actions listed below:

- Versaterm shall conduct in-depth demonstrations of the CAD/MWS/MRE application, identifying functionality supported, re-engineering points and configuration choices;
- Versaterm shall assist the Customer in a review of existing dispatch processes compared with Versadex CAD options;
- Versaterm will discuss the impact with mobile workstations and the MRE solution;
- Versaterm shall provide initial hands-on training; and
- Conduct in-depth demonstration of Mobile Data and CAD integration;

**Completion Criteria:** This task will be complete once the hands-on training is complete, providing the Customer's implementation team with the ability to navigate and begin the CAD configuration. Any issues will also be documented.

*Task #7.2 - Implementation Session #2*

Versaterm and Customer project personnel shall meet to review CAD/MWS/MRE configuration options, reviewing the choices and highlighting re-engineering procedures within the agency. Versaterm's Project Manager will meet with the Customer's Project Manager and key implementation team members, and complete the following actions:

Review the CAD/MWS application and the configuration progress to-date; Review additional CAD/MWS functionality and choices;

- Configures desks, users, security profiles, area coverage, dispatch recommendations, and other tables
- Update Policy and Procedures

- Review outstanding implementation issues,
  answer questions and demonstrate CAD/MWS/MRE systems as required; and
- Review project plan and status of various development, conversion and implementation tasks; and document, with the Customer project manager, any issues and assignments made with target completion dates.

**Completion Criteria:** This task shall be considered complete once the session is completed and issues have been documented.

*Task #7.3 – Implementation Session #3*

Versaterm and Customer project personnel shall meet to install and configure the specified production server.

- Install and Configure Web Server (for Browser Status Screen)
- Install and Configure Production RF Server
- Establish RF connectivity & define Radio/Modem IDs for RF Server
- Configure and test Mobile data support
- The Customer shall test interface requirements;

**Completion Criteria:** This task shall be considered complete once the production server and software is demonstrably available to the users.

*Task #7.4 – Implementation Session #4*

Both Customer and Versaterm shall review the Production Environment.

- Deliver training material relative to administering the CAD/MWS applications for a production environment;
- Review production system and monitoring requirements;
- Review routine maintenance requirements;
- Review Unix level administration of creating user accounts, database administration, file system backups; and
- Review Versadex system installation procedure and locations.

**Completion Criteria:** This task shall be considered complete once the Customer employees trained are able to administer the application on the production server.

*Task #8 - GIS/Street Data Support*

Versaterm will load GIS/Street data files into the system for Ventura to test. The following will take place:

- Initial CAD street load and testing
- GIS Refinement & Contingency

*Task #9 – Hazards & Premise Conversion*

Versaterm has agreed to run a conversion on Hazards and Premises from the old CAD system to the Versaterm CAD

- Review and Document Requirements
- Provide sample data set
- Run initial conversion
- Review Conversion

*Task #10 – Interfaces (via the County Message Switch)*

Versaterm and Customer project personnel shall meet to review CAD interfaces and conduct provisional acceptance where the interfaces are demonstrated.

Versaterm personnel will:

- Demonstrate each CAD interface and, with the assistance of Customer employees, test to ensure that each interface meets or exceeds the functionality and performance measurements specified;
- Provide training on setup, configuration and administrating the interfaces; and
- Provide training on use of the interfaces.

**Completion Criteria:** This task shall be considered complete once the Customer employees trained are able to fully use each interface.

*Task #11 – Interfaces (Other)*

Versaterm and Customer project personnel shall meet to review CAD interfaces and conduct provisional acceptance where the interfaces are demonstrated. Versaterm personnel will:

- Demonstrate each CAD interface and, with the assistance of Customer employees, test to ensure that each interface meets or exceeds the functionality and performance measurements specified;
- Provide training on setup, configuration and administrating the interfaces; and
- Provide training on use of the interfaces.

**Completion Criteria:** This task shall be considered complete once the Customer employees trained are able to fully use each interface.

*Task #12 – Production System Install*

Versaterm will install the Production System using the Implementation system and all its configuration by the implementation team as the basis for the install.

- Clone Implementation system VMs to Production system VMs
- Configure images
- Configure Interfaces
- Final GIS/Street Load
- Install and Test System Processes
- Test server boot process

*Task #13 - Train the Trainers Session*

Versaterm shall provide selected Customer personnel with "train-the-trainer" instruction. This task, using the training material and system prepared by Versaterm and tailored for the Customer's requirements and specific configuration, shall include the following specific actions:

- Versaterm shall deliver a re-settable training database prepared using Customer-provided scenarios;
- Versaterm shall deliver appropriate training material, reflecting the training database material, in both hard and soft copy;
- Customer shall provide a suitable training facility, including PCs, projection facilities and classroom for up to 8 persons;
- Versaterm shall conduct train-the-trainers session; and provide training on re-setting and administering the training database.

**Completion Criteria:** This task shall be considered complete when the session ends and the Customer personnel who attended the classes can administer the training database and complete the training assignments/scenarios.

*Task #15 - Ready for Use (RFU)*

This task identifies a specific milestone where Versaterm has delivered all training, interfaces and software necessary for the Customer to cut-over to production use once end-user training and initial acceptance has been performed.

**Completion Criteria:** This task shall be considered complete once effort associated with Task 15 has been fulfilled.

*Task #16 – Functional Acceptance Testing*

Customer project personnel shall conduct functional testing of the CAD to ensure that the functionality specified for the CAD phase has been attained. Functional testing, reporting errors and correcting errors will conform to Section 7 of the Agreement.

**Completion Criteria:** This task shall be considered complete after the Customer has formally conducted functional acceptance testing, and is satisfied the system delivered meets all requirements identified in this Agreement.

*Task #17 – End User Training*

Trainers that have been trained by Versaterm Staff will train the end users. Scenarios that have been developed and provided to Versaterm for the use of Training manuals will be used as a template for end user training

**Completion Criteria:** This task shall be considered complete when Ventura County has determined that all appropriate personnel have taken and accomplished internal objectives of the course.

Task #18 and # 19 – Production Preparation and Cut over to Full Production

Versaterm shall consult and provide on-site assistance and support for the final conversion load and production use of the CAD. Specific actions to be completed include:

Versaterm shall provide assistance and support for first 3 days of production use of the CAD. CAD and MWS Clients are prepared for production use.

**Completion Criteria:** This task shall be considered complete after the system is cut-over to production use.

*Task #20 – CAD & MWS System Acceptance Tests*

The Customer shall conduct reliability and performance tests as outlined in Section 7 of the Agreement and Attachment G - Acceptance Testing Criteria pursuant to the CAD phase. At the successful completion of this task, it is deemed that Final Acceptance has been achieved. Specific actions to be completed include:

- The Customer shall conduct performance tests as identified in the acceptance test and under user load with converted data; and
- The Customer shall ensure that reliability requirements are met by formally identifying start of reliability period and end of period as defined in the performance test.

**Completion Criteria:** This task shall be considered complete after the system has met the performance and reliability requirements.

Task #21 – Final CAD & MWS System Acceptance

The system has passed the 90 day Response Acceptance and Reliability Acceptance test periods.

**Required resources and Level of effort (typical):** Here is a description of what agency resources are typically required when a Versaterm CAD is implemented.

The agency would set up a CAD Implementation Team, who (with Versaterm's project team) would guide the configuration of the system, the end-user training and then transition to production. In addition to involving the full-time Project Manager, we recommend the following resource allocation for the duration of the CAD project (*):

- 1 Dispatch Supervisor almost full time to act as CAD Lead (80% of project duration)
  - Role & responsibilities: This individual, who is expected to be an expert in how the CAD system functions currently, will be responsible for decisions on how the new system will be used. This person should have sufficient seniority to authorize (or get authorization for) operational and policy changes (in the context of reengineering the operation of the Comm center with the advent of the new system).
  - Skills: superior writing and communications skills; thorough knowledge of current CAD system operation.
- 2 Dispatchers (or Supervisors) part time (60%)
  - Role & responsibilities: Generally, assist the CAD Lead; perform research tasks as required; document findings; etc.
  - Skills: superior analytical skills; superior writing and general communications skills; thorough knowledge of current CAD system operation.
- 2 Fire commanders (50%)
  - Role & responsibilities: This individual will represent the Fire user community, as affected by the new mobile software. He/she is expected to be an expert in how the mobile system functions currently, and will be responsible for decisions on how the new system will be used. This person should have sufficient seniority to authorize (or

get authorization for) operational and policy changes (in the context of reengineering the operation of the police members with the advent of the new system).

- Skills: superior analytical skills; superior writing and general communications skills; thorough knowledge of current mobile system operation.

- 1 EMS member (50%)
  - Role & responsibilities: This individual will represent the EMS user community, as affected by the new mobile software. He/she is expected to be an expert in how the mobile system functions currently, and will be responsible for decisions on how the new system will be used. This person should have sufficient seniority to authorize (or get authorization for) operational and policy changes (in the context of reengineering the operation of the police members with the advent of the new system).
  - Skills: superior analytical skills; superior writing and general communications skills; thorough knowledge of current mobile system operation.
- 2 IT persons (50%)
  - Role & responsibilities: These individuals will support the implementation team by providing technical expertise and support as required.
  - Skills: understanding of the wireless and internal networks; technical understanding of current CAD and MWS systems; system admin and OS knowledge, including ability to extract data from current systems, if needed.
- 1 GIS Analyst (30%)
  - Role & responsibilities: This individual will provide the GIS data required for both the maps that will be used in the Mobiles and in CAD, and for the street files (geofiles) that will be used by CAD. Guidance on the requirements and format will be provided by Versaterm
  - Skills: GIS professional with detailed knowledge of ESRI products; understanding of Police geocoding requirements, as well as Fire and EMS geocoding requirements.

*This list is only a suggestion based on similar implementations and does not include additional part-time resources from specific functional areas such as DataMart analyst, etc.

You will also need IT resources for assist in the system's technical design – first to finalize the details of the physical plant that will support the new system, and then to assist in putting it in place. Versaterm will offer a proposed configuration, but your IT team will be needed to review/approve it, and then implement it. To that end, we expect that you will provide technical resources such as:

- System architects (who understand the current infrastructure, as well as being knowledgeable in the desired future directions)
- Network specialists
- Desktop Specialist
- Wireless/Mobile Specialist
- Security Specialist (user authentication)

You will also have to provide those IT resources that are knowledgeable about the interfaces you wish to implement. They will be required initially in the planning/scoping phase, when the Interface Control Documents will be prepared. They will also be involved when we are ready to test the interfaces, and then also when they are put into production.

**Project implementation timeline:** Versaterm has the experience and the staffing to deliver a CAD implementation in 12 months or less (from contract award to go-live); we have implemented our CAD in dozens of sites across North America, and almost all of them were completed in a 12 to 18 month time span. One was done in 9 months, and one was extended to almost two years, at the customer's request. In all cases, the pace is dictated mainly by the Customer's preparation work and resource availability. Our general rule of thumb is that for every 1 day Versaterm spends on the project, the Customer will expend 15+ days.

## Versaterm's Training Approach

Versaterm's knowledge transfer philosophy is really quite simple, we believe in continuous knowledge transfer through on-going training and education. Versaterm incorporates both informal and formal training over the lifetime of the project, when the agency is operating under Warranty, and finally as part of our annual on-going support and maintenance program. Effective training and knowledge transfer is one of many critical factors that determines the success or failure of a project.

During training, Versaterm will also work with our customers to create a Sustainment group. This group comprising both permanent members and members who rotate in and out then becomes the collective shepherd to the system making sure requirements for new features are forwarded to Versaterm and that users continue to get the most from the CAD/Mobile system. This group should attend Versaterm's user meeting and participate with presentations and in classes and then brief the rest of the agency on what's new each year.

The following is a discussion of the type of training that is provided. During the pre-contract scoping meetings the Versaterm Project Team will work with the agency to craft a training program that meets your needs.

### Implementation and Configuration Workshop Training

System configuration training begins right away during the very first on-site configuration workshop session. As the proposed products are all off-the-shelf, Versaterm can quickly establish an implementation system that looks and feels just like the eventual production system. During this time, Versaterm will begin sharing our knowledge of how the systems work and can be configured by the agency Implementation Team. The purpose is to familiarize the customer personnel with enough system knowledge that they can begin to make initial system configurations and consider operational choices.

During the configuration (implementation) period, Versaterm will typically be in daily contact with the agency Project Team providing additional training/organizational reengineering guidance via telephone, email and web conferencing. What we find is that by the end of this configuration period, the agency team members will have become experts in how the system functions; how it has been adapted for local use which in turn makes them ideal candidates to lead or assist with end-user training; and will provide the Versaterm team a great opportunity to better understand agency operations and priorities. We have found that this mutual understanding becomes one of the keys to the long established partnerships that we form with our customers.

This initial process also equips both teams with the necessary knowledge needed to integrate and reflect the agency's selected business processes and decisions within the training courses that Versaterm prepares for the department's train-the-trainer program and end-users courses.

## Formal Training

The Versaterm train-the-trainer program is a structured program that is developed to assist the agency trainers in training the end-users.

Train-the-trainer is an ideal methodology when there is a need to deliver initial training to a large group and continue to provide recurring refresher training. In addition to being the most cost-effective approach, using agency resources as trainers will add the additional benefit of providing a local flair to the content as the trainers will typically be users themselves and can effectively relate to the participating students.

Versaterm will assist the customer's trainers in the following manner:

- Using scenarios developed by the Implementation Team, develop site-specific training guides. The training guides will be delivered in MS Word and can be further tailored by the customer as required. Versaterm can also provide a re-settable training database to assist 'repetitive' type training.
- Train the customer trainers
- Provide on-site assistance for the initial two-weeks of end-user training sessions delivered by the customer's trainers

Although the majority of a customer's training needs can be met using a train-the-trainer approach, there are a few specialized courses that Versaterm will deliver directly to the end users. These courses usually have a much smaller target audience and have a higher technical content and are not as suitable for the train-the-trainer method.

Those courses are:

- Versaterm GIS (Street Index) training to maintain street attributes and convert ESRI shape files into validation files required in the RMS.
- Versaterm Data Mart training for Crime Analysts. This training consists of building data cubes using Cognos Business Intelligence tools.
- System Administration training covers technical troubleshooting and maintenance
- Database Internals training provides internal database structure overview for additional analysis.

Versaterm expects that during the contract development phase to refine the Training Plan in order to meet the specific needs of the customer.

The following table outlines the courses that will be provided during the Train-the-trainer training and following that course outlines have been provided.

| Description of Training | Recommended Number of Participants | Prerequisites | Hours | |
|---|---|---|---|---|
| | | | On-Site | Off-Site |
| **CAD** | | | | |
| Call taking/Dispatching | Up to 10 | | 24 | |
| CAD Supervisor | Up to 10 | | 8 | |
| | | | | |
| **Mobile Applications** | | | | |
| Mobile Data Functions (MWS) | Up to 10 | | 8 | |
| Mobile Report Entry (MRE) | Up to 10 | | 16 | |
| MRE Data Transcription (TRANS) | Up to 10 | | 4 | |
| | | | | |
| **Administrative Training** | | | | |
| MAP Administration and VGI | 2 | | 24 | |
| CAD System Administration | 2 | | 8 | |
| Database Administration | | | 8 | |
| Versadex Administration (ADMIN) | 2 | | 24 | |
| MWS Administration (MWSADMIN) | 2 | | 8 | |
| | | | | |

## On-going Training and Knowledge Transfer

Once the original project is complete Versaterm can also provide a variety of on-going training and consultation programs to our customers. These on-going programs include:

- **Upgrade Feature Training**

As previously noted we provide all of our customers with Release Notes which document our new software releases and how each of the new features/functions operates.

Depending on the number of new features and their complexity we will hold web-seminars to review and discuss the impact of each new feature. In addition, after the installation of the new release, and depending on the complexity of the features and functions, we will provide new feature training to your training staff once the upgrade has been completed. All of this is done for no additional cost as long as the agency has an active annual support/maintenance contract.

- **Remedial Application/System Administration Training**

Versaterm can provide remedial training programs for any of the application software training or System Administrative Training that was outlined earlier in this section. As frequency of this type of training request is low, we do not hold regularly scheduled training programs, but base the training on a customer by customer basis. Typically this training will be provided as an on-line webinar but it can also be held on-site at the agency. An individual cost proposal will be provided depending on the type of training, number of trainees and the applications for which training is requested.

## The Versadex Users Training and Best Practices Conference

In addition, to providing critical input into our future product enhancements, our Versadex User Group is extremely active and once a year, a customer will host the user's workshop bringing together the best practices and ideas from across North America. Unlike many such conferences, the Versadex Users Workshop is truly user-run and the quality of the topics and presentations is truly remarkable, attracting both technical and management (Chiefs and Deputy Chiefs) alike from our customer base. It is also not unusual to have many non-customers attend. It's a great place to learn about how others are using the Versadex solutions and about Versaterm. The annual Users Conference regularly boasts nearly 100% customer participation. The conference location alternates between the U.S. and Canada. The 2015 conference was held in Salt Lake City, Utah and in 2016 the conference will be hosted in Toronto, Ontario.

## The Versaterm VConnect Website

The Versaterm Private Customer Web-site is a valuable source of critical information for customers and Versaterm employees alike. This website is used by us to communicate with our customers, and for our customers to communicate amongst themselves.

Here are some of its features:

- Versaterm Project Forum: Here, we post information on some of the R&D projects we are working on. Interested users can stay informed of the latest developments by regularly visiting this forum.
- Change Request Forum: This is one of our site's busiest areas. Clients use it to post ideas and suggestions for the next release, or to review other people's ideas and comment on them, in anticipation of the next product release.
- Documentation Area: We make our "user guide" and "administration" documentation available through this area. Authorized client representatives can download the guides they need, and print off the number of copies they require.
- Release Notes: This is where we post the Release notes that document the changes in each product release; they are organized by product (RMS, CAD, and MWS/MRE). We also issue PRE- release notes, to give the training section a preview of the changes so that they can start assessing the training impact of the new release. As these notes are available in soft copy, most of our clients "cut and paste" from them to produce their own training package.
- Discussion Forums: A customer can set up a discussion forum, or participate in an existing one. Examples of currently active forums include: Integrated Justice projects; Data warehousing/Web publishing; Mobile workstation administration.
- File Transfer Area: This area can be used by clients to share custom programs (such as custom reports they have developed). It is also used for us to post new "installs" of various components (desktop client, MWS, etc.). It is especially useful for large file transfers.

As you can see, Versaterm is committed to ensuring that the AGENCY and our existing customers receive that training and information which is required for them to successfully utilize our software solutions.

## Versaterm Customer Care Program

### Annual Support and Maintenance

One of the key secrets to our customer's success, and thus Versaterm's success, is our customer care program. Our people make the difference. The same Project Manager and Technical Leads that manage your successful implementation will become your support team. This establishes a long-term continuity of support. These people understand your organization, your business process and how your system is configured for operation.

Supporting your Versaterm Account Manager and Technical Lead are dedicated Product Teams that have been responsible for designing and developing the applications. These product teams are, in turn, supported by people with experience varying from 2 years to over 20 years. This means that you will always get the "A" team with years of experience and best practices knowledge when you have a problem.

Unlike the industry norms, our new hires do not learn our systems at the customer's expense. That is, we do not place them on a traditional help desk and have them answer support calls (i.e. learning the system by attempting to resolve problems). Rather, they are mentored in system development and are only permitted to talk to a customer once they are able to actually "help" the customer (usually after 2 years).

Therefore, when you call us, you will be connected directly to someone who can help you – now. Questions are answered, now. Problems solved, now. And if we find a bug in the system, we fix it now. No waiting for a patch or an update. However, we still provide flexibility as many sites only want severe or critical fixes immediately resolved while minor issues can wait until a product update or, in some instances, an enhancement release.

The Annual Support and Maintenance Program includes:

- Hot-line support during regular business hours from 7:30 a.m. EST – 5:30 pm PST (Customer local time). We guarantee 30 minute response for high priority errors but typically the average is less than 10 minutes;
- Remote VPN connection for software diagnosis and repair;
- 24x7 emergency hot-line support is provided for in the proposal for out-of-hours and all recognized holidays;
- On-site emergency support is also available in the event remote support cannot resolve the problem or provide a workaround;
- upgrade releases including enhancements suggested by customers, mandated changes, emerging trends and generally "good ideas";
- Access to the Versaterm Customer private website;
- Newsletters;
- Delegate status at the Users Conference including two conference registrations;

Support is offered from both our Ottawa, Ontario headquarters and from our U.S. subsidiary located in Scottsdale, AZ. Both of our locations have technical staff who excel in customer support (please talk to any of our other references).

Typically when a support request is received (either via email or telephone from designated agency personnel), Versaterm staff will attempt to immediately re-create the problem on your system using a VPN connection. Once we have diagnosed the problem and determined the fix, we make the fix and then put the fix into production use – often while the customer is on the phone. With RMS, the fix is actually made on your system via the connection. With our Mobile software and our CAD we make the fix at our offices and then send the fix to our customer over the VPN for installation on the clients. We provide

flexibility as many sites only want severe or critical fixes while minor issues can wait until a product update or, in some instances, an enhancement release.

In the event that we are unsure of the specific problem, we may install diagnostics and/or have the customer test on the training system first – it depends on severity and/or nature of the problem. We then review if other sites require this fix and determine its urgency.

All support calls/emails are logged in the Versaterm customer support database, an appropriate priority is assigned and remains visible to all within Versaterm, including the Director of Support (reviewed each week). Further, the Account Managers and Tech Leads also review problems for their accounts so they stay "on top" of any problems/issues. Once resolved, a review process ensures that the fix is applied to all other applicable customers. Therefore any "bug fixes" found at any other customer sites will also be updated for the agency's system.

Versaterm's upgrade program, which is included with the maintenance contract, covers both the software's functionality and its underlying technology. Working together, these two upgrade paths ensure that our customer's systems never become functionally stale or technically obsolete. As a result, they never need replacing and this is a key reason why that, since this dual upgrade program was introduced in 1987, no Versaterm customer has replaced their system with a competitor's.

When a new release is available, Versaterm personnel will remotely install it on the agency's training/development server. At the same time, release notes will be provided so that agency personnel will have ample time to acquaint themselves with the enhancements (typically one month or more prior to putting it into production). This provides agency personnel and operational personnel time to review the

new software features and determine which new features and functions will be used. Agency personnel can also apply local configuration factors to any of the new feature that can be adapted to agency workflow or policy. Once the agency confirms their "go-live" date for the new release we will schedule a trip and arrive beforehand to begin the migration to the new release. If necessary, we upgrade the database (apply the SQL scripts to change the database definitions, when required) and put the system into production use testing the system all along the way.

All software configuration parameters, site configurations, selection and edit tables, all text templates, all help text added for local policy, etc. (everything uniquely configured for this customer) is accommodated and automatically "ported" during the release transition process. This also applies to standard interfaces and all of this is performed by Versaterm personnel.

As part of this process, we typically would have the agency's subject matter expert users available to assist in the testing and final verification prior to allowing general access to the updated system.

Updates to Mobile software are handled a bit differently. Versaterm personnel will stage the new version of the software on a couple of mobile devices for testing, but the roll-out to the field is the agency's responsibility. The installation of new mobile software has been done in a variety of different ways by our existing customers. Since the server applications will simultaneously support both old and new client software, the migration can occur when convenient. Some agencies wait on the installation of new mobile software until their yearly detailed maintenance inspection- where a technician installs new software while the vehicle is undergoing maintenance; others have their officers remove their laptop devices and upload new software across their land based network; and we have a growing number of customers who are upgrading software on their mobile devices utilizing software products that will deliver software and other data files at "hot spots" across a broadband WIFI wireless network. In essence an officer proceeds to a "hot spot", establishes wireless connectivity and has the software upgrades, new maps, and other files downloaded onto their devices. Versaterm will closely consult with the agency in the selection of a network product should one not already exist.

Also, the agency is under no obligation to upgrade to the new release at the time of its release. We will support and maintain the application software up to three releases back. This is a very rare occurrence since our customers are typically eager to add the new features and functions that will keep their solution fresh.

Training on the new release features, at the time of upgrade, is also included as part of the new release. We take whatever time is necessary to train in-house trainers, personnel and Subject Matter Experts on the new features. This training is designed as refresher training and not as end user training. Should the agency require the training of additional personnel we can provide a separate cost proposal.

**All Versaterm upgrade assistance (remotely and on-site) is provided at no additional cost to the agency, as long as an active Annual Support contract is in place.**

System Upgrades--- "Evergreening"

In our marketing and sales presentations potential customers will often hear us say that we are not interested in selling you your next system, but the last system that an agency will ever buy.

In order to reach this goal our systems must be sustainable and continue to evolve over time in response to our customers' needs. The functionality and configurability included in our solutions has evolved over the last 25 years through an upgrade process we call ***"Evergreening"***.

Evergreening has been so successful, that since its introduction in 1987, no customer has ever replaced a Versaterm system and all customers are considered references. In fact, our Evergreening process is one of the principle reasons to purchase from Versaterm as this process will ensure that the system you invest in today will remain functionally relevant and technically up-to-date as the years and decades go by – thus protecting and improving agency's investment in the system.

Evergreening is a functionality and technology release program that combines the best of both worlds – the reliability and the cost savings of a COTS environment with the flexibility and responsiveness of a custom system. There are two main components to this program as follows:

The **Functional Enhancement Release** is where Versaterm collects input and suggestions for enhancements and changes throughout the year. These come from input from our customers, from RFP's, and from monitoring industry trends. At the end of the year this information is compiled and these items become part of the future release. We automatically include any NCIC and/or State mandated changes – these are not extra cost items provided we can fit them into a release cycle.

A typical release may have upwards of 100+ enhancements in it. The number of new features will vary depending on the size and complexity of the new features and their depth and whether any complex technology re-designs are included. These are not bug fixes but are actual improvements in functionality. Bug fixes are taken care of in real time by seasoned people with whom you will be working directly– no help desk and no quarterly patch releases.

The **Technology Refresh** cycle is important to keep the products relevant and up-to-date with modern expectations and architectures. In a product business, Versaterm needs to keep our products "fresh" while ensuring that we are delivering reliability and predictability. "Flavor of the day" may be nice on your home computer but when lives depend upon your software, there is no margin for failure. We are constantly upgrading our system to support new operating systems, toolsets and databases. Whenever there is a "sea change" in architecture, we evaluate and analyze so that we minimize risk and costs while

maximizing the benefits. This preserves your investment without the nasty surprise of an unforeseen upgrade cost.

We have always been able to keep our technology "fresh" and have a knack for introducing technology advancements without cost to our customers. Since 2005, the CAD and MWS software systems have all gone through a technology refresh and our Mobile Report Entry system is currently going through a product refresh and will be available to the AGENCY.

We are constantly evaluating emerging technologies. As appropriate technologies become robust enough for the rigors of the public safety environment, they are included in a major release.

Both aspects of this process, the upgrades and refreshes, are included with our base maintenance program, so no additional payments are necessary. Our customers' systems remain up-to-date through the decades without expensive customizations – or any additional expense at all. Not only does this make Versaterm systems inexpensive to own over the long haul, but it makes them extremely easy to budget for since each enhancement does not come with a quote and a price tag. This is why we are able to say confidently that we "… expect this to be the last system your agency will ever need to buy".

Functional Releases occur every 12-18 months and Technical Refreshes occur on the average every 5-7 years.

Although there are many factors that contribute to the content of our next and future product releases; customer input is the major one. Changes are posted to a discussion forum on the Versaterm private customer web site, by product and specific areas addressed within the product (there are always about 250-300 suggestions on the web site at any one time). Customers can be automatically notified by e-mail of changes requested to areas they are specifically interested in. There is then a hot link to view the specific change and the dialogue to date about it as well as a screen to add your own comments. We find that most suggestions and ideas from other interested customers greatly improve the ideas after this critical and often times, enthusiastic input. Versaterm staff also comment and ask questions about the requested changes so that our input is reflected too. We specifically invite customers to comment on a suggested change, would they use it themselves, would they see harm from the change or would they see a big problem with it?

Throughout this process we provide our customers with access to the latest status of every change, the person submitting each change, what others have said about it and whether or not it is scheduled for a release. Customers have often told us how they value this visibility.

Our ultimate goal is to provide the features and functions that our customers require, and to ensure that the technical architecture remains fresh and current. We are very careful with our technology refreshes, continually building on our customers' investment so that we have we have product evolution as opposed to "revolution".