# Location Services

## How they can help improve safety and efficiency.

**White Paper**

**In the drive for greater business profitability, companies are demanding the greatest efficiencies and returns from their assets and people. Automated Vehicle Location (AVL) on your radio network can be a substantial contributor if it is well understood, specified and designed.**

Companies seeking to purchase new radio networks increasingly request suppliers to provide AVL solutions. However, responding vendors very often find that the requirements are not well specified, and it is unclear precisely what the company seeks to achieve. This suggests the very real benefits of AVL are not widely understood. Without this understanding, an AVL solution is unlikely to deliver genuine returns, and may simply become a drain on your radio network's capacity.

This paper describes how a clearly-specified and well-designed AVL solution can improve your business operation and provide increased return on your investment.

This paper will address the following topics:

▶ **Getting the best from AVL** – what you need to consider

▶ **Efficiency** – AVL brings measurable gains across your organization

▶ **Safety** – protecting your workers and the public

▶ **Defend your organization and your reputation** – avoiding litigation and spurious complaints

▶ **Asset visibility** – protecting your assets from loss or theft

▶ **How AVL contributes to your business** – some common scenarios

▶ **Five simple steps to get the best from AVL on your radio communications network**

▶ **Experience, understanding and flexibility** – how to choose the right communications partner

## GETTING THE BEST FROM AVL - WHAT YOU NEED TO CONSIDER

Even before selecting the technology for your communications network, you and your communications advisor should seek to understand what is important to your business and what can be achieved. From the choice of AVL application, to network design and capacity demands, the better your understanding is of the possibilities and implications, the more successful your implementation will be.

AVL alone can tell you where your crew is deployed. In fact it is difficult to operate in a modern environment without this information. However, AVL is only one aspect of a location solution and as the key element of a larger solution it becomes a powerful business tool.

For example, when location information is combined with sensors detecting status such as "ignition on", "Lone Worker", "access denied", only then do you begin to develop a rich picture of exactly what is going on. With this information at your fingertips, the result is higher efficiency, greater safety, commercial protection and improved asset tracking.

The right solution for your business will depend on your business priorities and how you intend to utilize it. Understanding all the potential benefits that AVL can unlock, the trade-offs and the user acceptance, will allow you to define your complete AVL solution requirements, and select the correct application.

**"...the better your understanding is of the possibilities and implications, the more successful your implementation will be."**

## EFFICIENCY - AVL BRINGS MEASURABLE GAINS ACROSS YOUR ORGANIZATION

The first, and perhaps most compelling business reason for deploying a location services application is to increase the day-to-day efficiency of the vehicle fleet and crew. With AVL as part of a location services application you can:

▸ confirm the correct resources are on specific sites,

▸ escalate location and status updates based on work risk classification,

▸ view active ignition on/off,

▸ use location information to update job progress,

▸ indicate changed operational status or availability,

▸ assist a crew to find a work site.

## SAFETY - HOW AVL PROTECTS YOUR WORKERS

Safeguarding your employees is dictated by legislation and reinforced by industry safety codes. Location services on your communications network provide an important component of your overall safety policy. Location services can save lives and lead to significant reductions in insurance premiums.

Critical information from your location services application identifies the precise location of potential risk, supports decision making in an emergency and helps direct a response swiftly and effectively.

Some safety related situations where AVL may prove invaluable include:

**"Critical information... identifies the precise location of potential risk... and helps direct a response swiftly"**

**WARNING**

Before a situation escalates, a operator can report its exact location:

Before you can identify where your network is heading, you need to be clear about where you are now. An audit will detail all your network assets, both hardware and software. Fully understanding the important features, functionality and performance of your current network is essential.

▶ approaching vehicle warning

▶ failed site security (such as fencing),

▶ regular location updates provide confidence in the success of Lone Worker alarms.

**EMERGENCY**

Location data guides the right assistance to the scene, faster:

▶ location information is included with an emergency call,

▶ Man Down alarm activates emergency call including location.

**RESPONSE**

The location application continues to monitor and inform of the response:

▶ confirms deployment,

▶ reports arrival and departure times from the incident,

▶ detects and reports use of monitored resource,

▶ dynamically creates geo-fencing perimeter around the incident to monitor traffic around the scene or to keep other vehicles and equipment out.

## DEFEND YOUR ORGANIZATION AND YOUR REPUTATION – AVOIDING LITIGATION AND SPURIOUS COMPLAINTS

AVL can provide your organization with a defence against false incident claims or abuse or misuse of assets. If a claim is lodged against your organization for failing to carry out an activity, or damage that has been caused by one of your vehicles, you can incur significant costs. Also proof may be needed to confirm that you are meeting your duty of care as an employer, by adequately monitoring your workforce activities.

A location services solution can save a significant amount of money by providing forensic information from the application as proof. Alerts and reports mean that vehicle movement and activities can be reviewed:

▶ involvement – or otherwise - in an accident,

▶ a speed record for the vehicle - speeding issue,

▶ confirm that the vehicle remained in communication during a work activity,

▶ confirm that an employee has – or has not - been at a specific location at a specific time and date.

## ASSET VISIBILITY - AVL PROTECTS EQUIPMENT AND VEHICLES FROM LOSS AND THEFT

Do you know where all your mobile equipment is right now? Expensive vehicles are often deployed in isolated regions and for a considerable length of time.

A location services application can show you the precise location of your assets. If any monitored equipment or vehicle is moved, AVL lets you know exactly where it is currently and where it has been.

AVL can protect your network assets as well. Advanced AVL can create virtual security, or geo-fencing in a specific area – for example around a mobile asset. Any unauthorized movement of that piece of equipment outside of the geo-fence will be alerted to the operator.

## HOW AVL CONTRIBUTES TO YOUR BUSINESS – SOME SCENARIOS

AVL on your radio network helps you to get the right resource at the right place at the right time – all fully visible and able to be tracked from your office. This impacts on the incident cost in both human and financial terms.

### SCENARIO 1:

One of your vehicles has broken down out in the field. Because AVL lets you know precisely where each of your vehicles and crews are currently working, you can direct the closest, most appropriate equipment and people to the spot.

▶ **Saving crew time**
Only the people who are in the vicinity, and have the right skills and equipment are directed to the broken down vehicle. Other crews can continue their existing duties uninterrupted.

▶ **Resolving issues more rapidly**
With the right people on the scene faster, the issue can be resolved sooner, the vehicle is back in operation faster before it can escalate and impact negatively on your operations.

▶ **Less traveling time**
"Windshield time" – the time your crews spend driving – is an expensive overhead. By knowing where your people and vehicles are, you can minimize traveling time and make significant vehicle operating costs and fuel savings as well.

▶ **Averting potential harm**
By being able to assess the situation faster, you can involve appropriate enforcement, emergency or traffic control to divert other vehicles away from the area, averting potential harm or damage to people and property.

### SCENARIO 2:

A crew member's handportable radio reports a Man Down alert. Voice calls to the handportable and the vehicle radio elicit no response.

▶ **Quickly locate crew in trouble**
AVL means you can pinpoint the precise location of both the vehicle and the portable. Knowing the location helps ensure appropriate assistance and rescue is engaged swiftly.

▶ **Assess risk sooner**
Under extreme weather conditions, a worker is in severe danger of exhaustion or hypothermia. Speed of response is critical and accurate location information could be the difference between life and death.

▶ **Act faster to influence outcome**
The sooner your worker is located and appropriate resources deployed, the more likely a positive outcome for your worker – and your business.

### SCENARIO 3:

A contractor reports that one of your fleet was involved in an accident where their car was damaged.

▶ **Proof of time and place data**
By referencing time and place records for the specific vehicle (or all vehicles) you are able to provide forensic evidence to prove your vehicle was not in the area at the time of the accident, avoiding liability and maintaining your record with insurers.

**SCENARIO 4:**

A large mobile generator has been deployed for many months, providing service in an isolated part of your coverage area.

▶ **Report equipment status**
Alongside the AVL data, your back office can detect the operating status of the equipment. This might include fuel levels or maintenance requirements.

▶ **Relocation**
Any movement can be alerted immediately. Involvement of your own vehicles is immediately registered. In the event of the mobile generator leaving the vicinity of a specific location, geo-fencing will create an alert.

## FIVE SIMPLE STEPS TO GET THE BEST FROM AVL ON YOUR RADIO COMMUNICATIONS NETWORK

Putting in the groundwork before you commit to a communications solution will ensure that your business gains the maximum benefits from your investment.
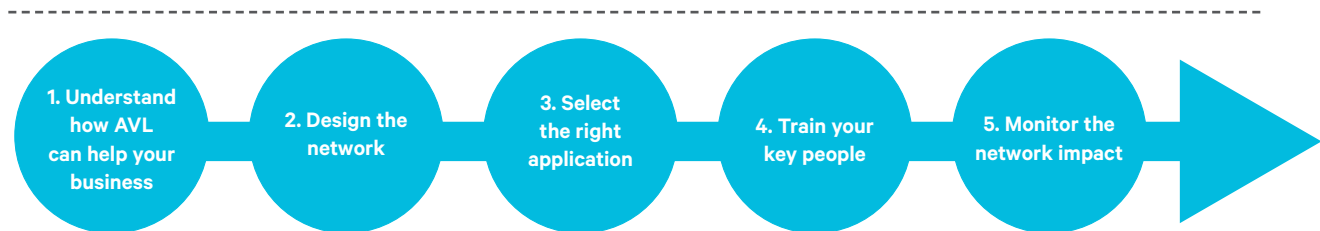
1. **Understand how AVL can help your business.**
   What are the possibilities? What do you want to achieve? How do you ensure worker acceptance? What are your business priorities? Once you have established a clear view of where you are going, you can more easily define your requirements.

2. **Design the network**
   Working with your preferred supplier, you can design the network with your AVL requirements in mind. For instance, do you have sufficient capacity and coverage? Are there areas or users with higher safety and security requirements? Are there geographical challenges requiring additional infrastructure? What is the impact on your communications network capacity of AVL polling?

3. **Select the right application**

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1. Understand how AVL can help your business → 2. Design the network → 3. Select the right application → 4. Train your key people → 5. Monitor the network impact →

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**Five easy steps**
Knowing what you want to achieve before you start implementing anything is highly important to ensure you get the best out of your communications network.

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There are many AVL-based location services applications, all of which have merit. The application you select must deliver timely, well-structured information to your dispatch and operations people.

4. **Train your key people**
   Before your solution is rolled out, engaging and training key people will speed

up acceptance and adoption of the new technology. As AVL champions, they will understand the benefits and limitations of your solution and can help manage expectation post roll-out.

5. **Monitor the network impact**

Once the solution is operating, it is important to monitor patterns of use and detect impacts on the communications network. As user numbers and usage patterns change and new data applications become available, your location solution can be evaluated and reconfigured or upgraded to your new operating environment. It is therefore important that you have a Network Management capability or service on your communications system that allows you to identify these changes and make adjustments to maximize performance.

## YOUR AVL SOLUTION – WHAT IT IS AND HOW IT WORKS

AVL uses your digital radio communications network as a data carrier.
All your digital radio devices, whether installed in your mobile fleet or carried by individuals, can be equipped with a GPS receiver. Much like the GPS in your car, the device computes your location using the data from the satellites. Your mobile radio terminal will normally send this location to the radio network, which then forwards the information to the AVL-based application in your back office.

▸ Depending on your choice of application, other information accompanies the location information for individual vehicles. Some examples: ignition on/off - alerts if a vehicle is on, but has not moved

▸ Emergency or Man Down alert – faster response with accurate location

The application uses the incoming data to compile and display configurable reports to your office teams. Dispatch, operations and emergency response teams can each receive the information that is most relevant to them, in the format they find most useful, because the reports are configurable. Commonly, this will start with a map display of vehicle locations, so vehicle deployment can be assessed at a glance.

## EXPERIENCE, UNDERSTANDING AND FLEXIBILITY – CHOOSING THE RIGHT COMMUNICATIONS PARTNER

As with any new technology, you will know that the best results come from a partnership between you and your supplier. They will demonstrate a depth of experience, so you have confidence in their expertise, and flexibility in their approach so you can be sure the solution you choose will deliver precisely to your requirements. Because this is not a one-size-fits-all situation, ultimately, the partner you choose must understand the current and unfolding needs of your organization.