

Case Study

**Emergency
Vehicle Priority
(EVP)**

Emergency Vehicle Priority (EVP)



Survivability in life-threatening situations is directly linked to the response time of emergency services. In the specific case of cardiac arrest, traffic delays of as little as three minutes can halve the chances of a patient's survivability. Despite legislation allowing emergency vehicles to progress through red traffic signals, safety procedures, waiting queues of vehicles, and peak hour congestion slow the progression of emergency vehicles through intersections as they must ensure cross-traffic has stopped to allow them to safely proceed.

Transmax's award-winning Emergency Vehicle Priority (EVP) functionality enables emergency vehicles to safely reach their destination up to 26% faster. It is an intuitive and dynamic ITS solution that enables traffic signals to turn green in a safe and controlled environment ahead of an emergency vehicle's arrival at an intersection. When every second counts in an emergency, STREAMS® EVP is helping save lives.

Situation

A growing and ageing population in Queensland has seen an increased demand for emergency services. Coupled with increasing traffic congestion, the need arose to employ smart technologies to maintain and improve emergency services travel times while keeping other road users safe and minimising traffic disruptions.

Emergency Vehicle Priority was the smart solution developed to successfully address this need, the result of a collaborative partnership between leading ITS solutions provider Transmax and the Queensland Government, including the Public Safety Business Agency (PSBA).

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How does EVP work?

Emergency Vehicle Priority tracks the location of ambulance and fire emergency vehicles responding to emergency call outs. It uses computer-aided dispatch, GPS and traffic management technology to determine the location of an emergency vehicle, calculate estimated times of arrival at intersections and send a message to the traffic control system that an emergency vehicle is approaching. The traffic control system then provides a green light in advance of the arrival of the emergency vehicle at the required traffic signal when it is safe to do so. In addition, when an emergency vehicle changes course, EVP adjusts itself accordingly to clear the way for the new route.

Transmax developed new STREAMS functionalities specifically for EVP including dynamic interventions for minimal traffic impact, pedestrian clearance protection, live monitoring at traffic management centres, and user-configurable recovery algorithms.

Outcomes for customers using EVP

Early trials in Southport on the Gold Coast in 2013 saw the 20 EVP-enabled emergency response vehicles receiving more than 600 green traffic lights per week supporting in excess of 100 incidents per week.

EVP-equipped vehicles on the Gold Coast show travel time reductions of up to 26%

There were improvements in travel times of between 10-18% along major routes along with improvements in response times, compared with the previous year. Today, EVP-equipped vehicles on the Gold Coast show travel time reductions of up to 26%.

The successful outcomes of the trial paved the way for EVP to be rolled out across many metropolitan and regional areas of Queensland. In the Brisbane City Council area, this included interfacing with SCATS® adaptive traffic control software system*.

The EVP system has been fitted out across intersections in Bundaberg, Mackay, South East Queensland, Toowoomba and Townsville. Across Queensland, as at 30 June 2017, there were 1,892 EVP-enabled intersections, and 438 emergency vehicles fitted with the technology. There are plans to roll out EVP to Cairns, Gladstone, Hervey Bay, Maryborough and Rockhampton by 31 December 2018.

What are the benefits of EVP?

Every second counts in an emergency and using a smart ITS solution such as EVP to reduce the time it takes for an emergency vehicle to arrive at an incident is helping save lives.

In addition to reducing emergency vehicle travel times it enhances the safety of frontline officers, other road users and the broader community by reducing the number of times an emergency response vehicle needs to cross intersections against a red traffic light. This decreases the number of unpredictable reactions by drivers who attempt to move out of the way of emergency response vehicles whilst in a queue at a red traffic light.

The solution leverages existing technology to deliver an intelligent solution without adding complexity to the workload of frontline officers. The result is faster travel times and a safer work environment (including less stress due to navigating fewer red traffic lights), and with minimal detrimental impact to other drivers.

The solution requires no specialist hardware to be installed and maintained solely for the purpose of providing pre-emption. Mobile Data Terminals installed in emergency vehicles for communications and incident/case information purposes can be leveraged to provide the necessary vehicle tracking information and standard traffic signal control features of STREAMS are used to modify the operations of traffic lights.

SCATS® is a registered trademark of Roads and Maritime Services (a NSW Government agency). The use of the SCATS trademark does not indicate any endorsement by or connection with Roads and Maritime Services.

Emergency Services, road authorities and the community all benefit from EVP



Reduces travel time by providing priority for emergency response vehicles (ERVs) through traffic signals



Reduces noise pollution as EVP allows emergency vehicles to operate in 'lights only' mode more frequently



Reduces the number of times ERV needs to cross intersections against the lights



Reduces the need to increase the number of front-line officers or ERVs to maintain service levels



Contributes to lives being saved by assisting ERVs to progress to incidents more efficiently



No change to frontline officer business procedures required to use the system



Improves safety of drivers, pedestrians and other road users



Improves resource efficiency



Improves incident clearance rates



Minimises impact on other road traffic



Supports emergency response personnel to meet response targets



Minimises installation and maintenance costs by using existing infrastructure



Assists ERVs to more efficiently manage increasing traffic demands



EVP can be adapted for other users such as buses and heavy vehicles



Assists in safely and effectively responding and attending to emergency incidents



Allows a policy-based approach to giving priority to special classes of road users (like emergency vehicles)



Reduces likelihood of accidents during emergency responses



Promotes inter-agency collaboration



Provides a safer work environment for front-line officers

The STREAMS EVP difference

While there are other systems around the world that give a wave of green traffic lights to emergency response vehicles in defined circumstances, EVP is the first system in Australia implementing an ITS solution that automatically manages traffic signals and intersections before and after an emergency response vehicle passes.

In addition to addressing the need of emergency response vehicles to quickly and safely move through the network, STREAMS EVP is designed to minimise disruption to traffic and seeks to return to

normal traffic conditions quickly after the emergency response vehicle has passed.

Significantly, many systems deployed elsewhere require specialist hardware to be installed in emergency vehicles and at traffic signals. By leveraging more general-purpose equipment used by emergency services and road authorities to conduct their core business, Transmax enables EVP benefits to be realised without the complexity and cost of maintaining specialist hardware.

Awards



2014

Emergency Vehicle Priority has received recognition at a state, national and international level for its innovative technology.

EVP won the ITS (Intelligent Transport Systems) *Australian Government category award* for the successful Emergency Vehicle Priority implementation in Samford Road, Brisbane.

2015

EVP won the *Hall of Fame award* in the Local Government category at the International ITS Congress held in Bordeaux, France.

Extending the success of EVP


Transmax is proud of the positive results being achieved in Queensland. While the solution has been implemented for use by emergency response vehicles, there are many other potential users of this technology.

The solution has been designed to be expanded geographically and to other users – potentially police VIP escort, defence vehicle convoy, freight companies with wide loads, and other groups of road users where it would provide community benefit.


Transmax offers and can deliver a nationally-applicable integrated EVP solution in collaboration with emergency services and road authorities. Any ITS solution that contributes to lives being saved is a worthwhile investment for governments and road traffic authorities not just in Australia, but around the world.



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About Transmax

Transmax is the solutions provider of the international award-winning ITS platform STREAMS. The company exists to improve people's quality of life and helps move millions of commuters around Australian road networks every day. The company partners with customers to deliver creative solutions that optimise transport networks and support safer and more reliable road journeys.

We place our customers at the centre of everything we do and work collaboratively to ensure our ITS solutions meet their needs.

Transmax offers customers systems engineering, software design and development, along with a range of consulting and support services throughout the entire ITS lifecycle, all delivered with customer service excellence.

With more than 50 years of ITS experience, Transmax helps customers realise the community benefits of optimising transport networks by providing smarter, more sustainable ITS solutions.

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