ORDINARY MEETING 27 MAY 2009	**26**

TRAFFIC SIGNAL UPGRADE

Allen Brennan:15/22/1: #2047138

RECOMMENDATION:

That Council:

a)   **note the report and the impending withdrawal, by 31 December 2009, of the Permitted Attached Private Line (PAPL) service which currently provides the communications link to traffic signals;**

b)   **resolves in accordance with Section 486(1)(f)(i) of the *Local Government Act 1993*, to enter into an arrangements with and made by the Department of Transport and Main Roads (DTMR) with Telstra, Transmax and RoadTek to implement the Telstra IP Remote Telemetry solution to replace the current PAPL service for traffic signals on Council's local roads;**

c)   **delegates authority to the Chief Executive Officer in accordance with section 472(2)(d) the Local Government Act 1993 to negotiate with the DTMR, RoadTek and contractors with which DTMR has established arrangements to implement the Telstra Remote Telemetry solution in accordance with the terms set out in this report.**

INTRODUCTION:

The current Permitted Attachment Private Lines (PAPL) service that provides the direct telemetry link for traffic signal operation and management is to be withdrawn by Telstra on the 31st December 2009.

Department of Transport and Main Roads (DTMR) have identified the Telstra IP (Internet Protocol) Remote Telemetry solution as their preferred replacement for the current PAPL service and have commenced a replacement program (see attachment 1 - IP Telemetry Network Architecture Overview).

The DTMR has invited Councils across Queensland to participate in the arrangements it has established to replace the PAPL service. This report sets out the details of the arrangement established by the DTMR and proposes Cairns Regional Council participate in the process established by the DTMR to upgrade traffic signals on Council's local road network.

BACKGROUND:

The DTMR is responsible for the installation, operation, maintenance and upgrades of traffic signals located on the major State controlled roads including, in Cairns, the Bruce Highway, Mulgrave Road, Reservoir Road and Cook Highway. Cairns Regional Council (CRC) is responsible for forty seven sets of traffic signals on its local road network.

CRC has arrangements with DTMR's commercial arm, RoadTek Traffic Services (RoadTek) to maintain traffic lights and with their Traffic Management Centre (TMC) to monitor and operate our traffic signals. The centralised operation of all traffic signals on Cairns road network allows a high level of coordination to optimise the efficiency of the road network and, when accidents occur, to manage signals on both State and Council roads to minimise impacts.

In preparation for the withdrawal of PAPL services by Telstra, the Department of Transport and Main Roads (DTMR) has investigated various options and solutions with a number of potential providers including Hutchinson, Optus and Telstra. The DTMR has negotiated and developed with Telstra an internet based ADSL (Asymmetric Digital Subscriber Line) service to replace the PAPL service and has trialled this successfully at the South Coast Traffic Management Centre.

CRC has recently suffered failures of electronic components to a number of traffic lights which supports an assessment that some of the older installations are reaching the end of their service life. The emergency replacement of these failed components has proved to be a costly exercise. Apart from the imperative to undertake equipment upgrades bought on by the withdrawal of the PAPL service, it also affords the opportunity, as part of the initial equipment audit of each site, to also conduct a condition assessment of our traffic signal installations. This will allow a program of upgrade and replacement to be established as well as satisfying a need to re-value these assets for accounting purposes.

The following is an estimate of the breakdown of costs per site for transitioning to the Telstra IP Remote Telemetry solution based on the arrangements put in place by DTMR with Telstra, RoadTek and Transmax:

Item	Estimated Cost per site($)
Pre-provisioning including assessment of cabinets, remediation works & traffic management	5,000
Supply Transmax field processor	1,500
Testing / Installation of field processor by Transmax	500
Service cutover by RoadTek	850
Installation of Telstra's 256K/64K ADSL	350
Traffic signal controller upgrade	1,700
Total:	9,900

COMMENT:

Benefits in adopting the Telstra IP Remote Telemetry solution:

- Proposal has been established and tested by the DTMR who have technical expertise in this area. Council can therefore have confidence that the proposal is robust and will provide a suitably secure link.
- Migration to ADSL service will be seamless and consistent with the TMC operations to allow overall management of the network by the TMC.
- Allows access by CRC staff via a web portal to monitor signal operation and download traffic data which is collected by the system.
- A dedicated One Stop Shop for new service requests, changes, fault reporting.
- Service Desk for single point of contact for incident management.
- A Bill reporting system that allows online access to 13 month billing database, drill down on charges, search and filtering tools to allow better cost attribution and management.
- Defined service levels whereas the outgoing PAPL service was a physical plant rental and had no service level agreement.
- Maintenance of existing functionality including monitoring of lamp outages, traffic count information, ability to vary signal operation remotely etc.
- Increased functionality and scalability e.g. ability to add Closed Circuit Television cameras, wireless (Next G) connectivity.
- Provides an additional layer of service information that compliments the traffic management software system used by the TMC.

CONSIDERATIONS:

Corporate and Operational Plans:

This report links to:

Corporate Plan
  - Item 2.1.4 and item 2.1.5 under the Key Goal 2.1 "A transport network that better matches the service level expectations and growth of the community" and
Operational Plan
  - Infrastructure Management Activity in the Infrastructure Management Sub Program.

Financial and Risk:

Based on preliminary cost breakdown provided by DTMR, the total cost of the commission will be in the order of $475,000. There are allocations under the 08/09 and 09/10 Capital Works programs sufficient to fund these works.

Failure to implement an alternative communications link to replace the PAPL service by 31 December 2009 will result in loss of remote monitoring and management capacity. With no means of monitoring parameters like, for example, lamp outages and to alter phasing remotely, there is a decreased ability to respond to and manage incidents. This ultimately means that the network would be less efficient and less safe.

Sustainability:

Intersections and the way they are managed is the most critical factor in determining capacity of a road network. It is essential therefore that traffic signals are managed and operated efficiently as possible to accommodate increasing levels of traffic on our roads.

CONSULTATION:

Officers have consulted with the DTMR to ensure that the proposal will provide a seamless transition to an IP based link to replace the current PAPL service.

OPTIONS:

Options available to Council include:

a)   to allow signals to operate independently without any communications link. This would significantly compromise the ability to monitor and centrally manage the network.
b)   to participate in the arrangement established by the DTMR to transition from the current PAPL service to the Telstra IP Remote Telemetry Solution.

CONCLUSION:

It is recommended that Council participate in the arrangements established by the DTMR to transition from the current PAPL service to the Telstra IP Remote Telemetry Solution.

ATTACHMENTS:

Attachment 1: IP Telemetry Network Architecture Overview

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IP Telemetry Network Architecture Overview

Customer remote site

Telstra

Customer (Head End)

Provides Authentication

Managed RADIUS

SMC

Uses existing IP WAN Managed RADIUS server to authenticate Ultralink connections into VPN

Auth Network

VRF

Wireless access will be delivered via the TPIPs platform in the shorter term

Wireless Access Network

PVC

FAE

VRF

FR

IP Network

FR

Customer Server (HE)

Existing CPE device

ADSL

ADSL Access Network

L2TP

DAE

VRF

Customer VPN (IP Evo Platform)

BDSL

UAUI

UltraLink

FAE

VRF

FR

Customer's existing CPE device which will interface with the UL

ADSL Access:
- Single ATM PVC (standard ADSL service)
- Configured as "unrestricted" service (i.e. not "exclusive service")
- No Internet access allowed
- Filters applied to the VPN connection to permit restricted communication

FR

FR

D N S

UltraAgent

D N S

UltraAgent

Windsor Exchange (FOG)

Exhibition Exchange (FOG)

Redundant Virtualised UA & DNS servers will be hosted at two different Telstra exchanges to provide high-level of redundancy.