NZ TRANSPORT AGENCY
WAKA KOTAHI

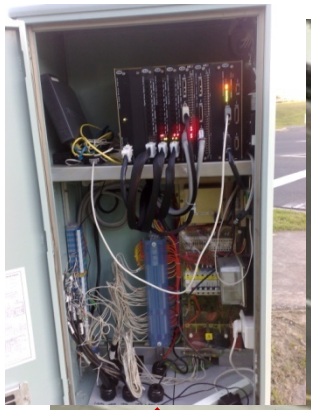
The Future of Traffic controller

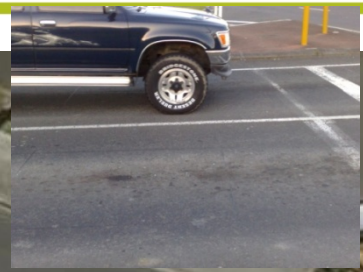
PRESENTER (Bruce Kassir)

New Zealand Government

What is Traffic Controller?

Signalised Intersection





SCAT
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Early Days of Traffic Signals

First Traffic signal was invented in 1920

by:

William L. Potts of Detroit, Michigan.

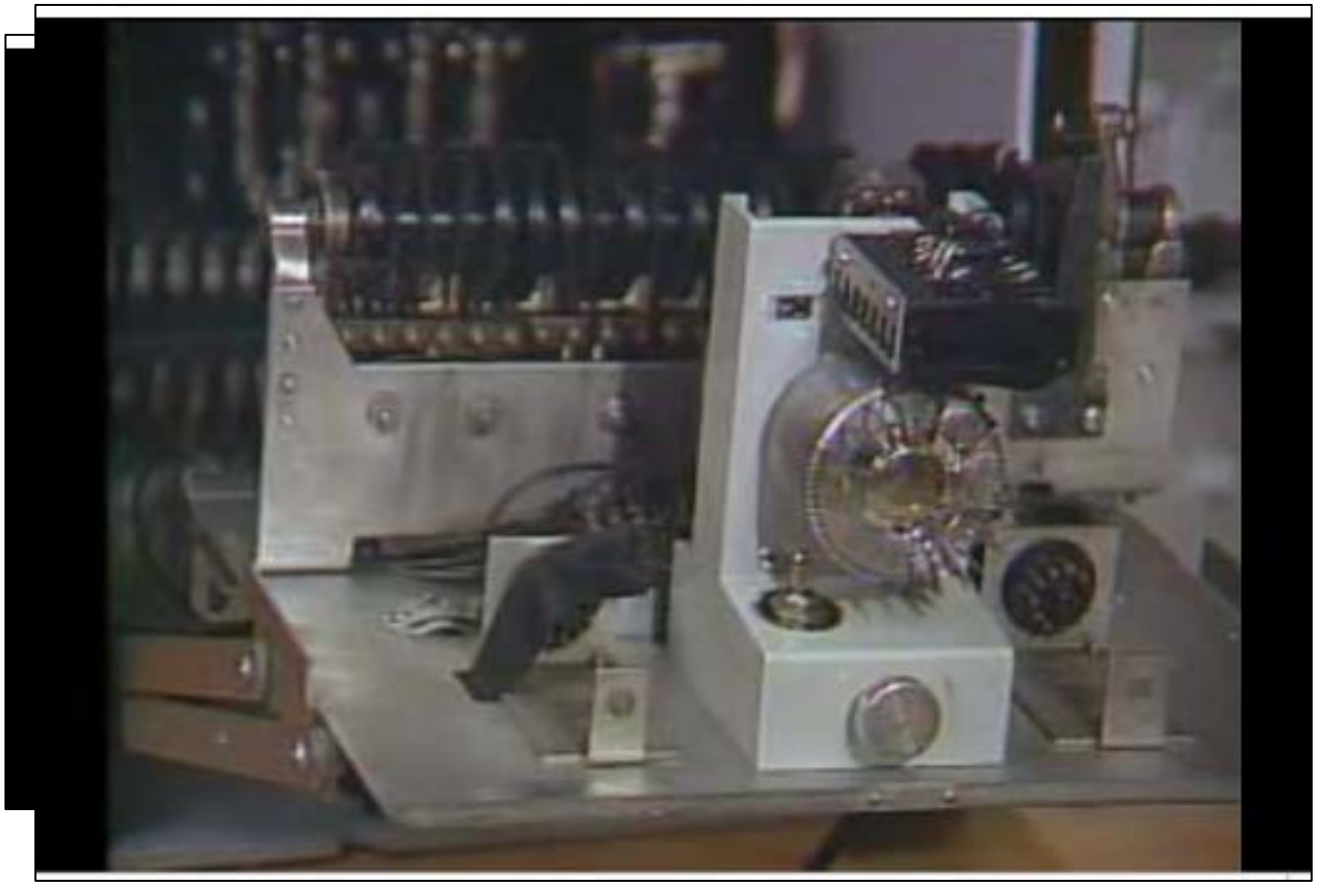
Automatic Traffic signals

Garrett Morgan of Cleveland,Ohio was the first man invented the automatic traffic signal 1923

First Detector

CHARLES ADLER, JR in 1928 he developed and installed in Baltimore the first Detector

Mechanical Controller



Current Traffic controller

In 1999 RTA has developed the architecture of the current TSC4 controller.

Three Australian manufacturers have invested in the development of controllers that met TSC4 specifications and requirements .

- **Aldridge**
- **QTC**
- **Tyco**

TSC4 General Specifications

- **5 Modes of operations:**
  - **Isolated**
  - **Flexilink**
  - **Masterlink**
  - **Fault mode**
  - **Site diagnostic mode for diagnostic test**

- **The controller logic provides seven (7) Phases**

- **The control program shall be written exclusively in the ANSI C programming language**

TSC4 General Specifications

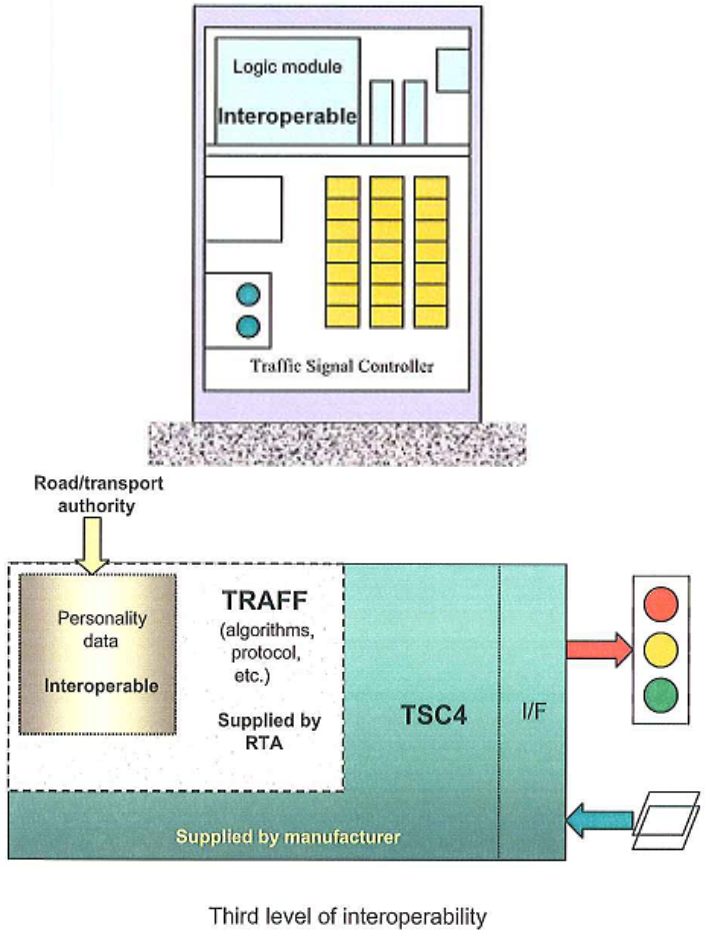
- ***The control equipment is required to provide a Primary and a Secondary Conflict Monitor.***
- **Provided with Serial port, 25 Pin for SCATS modem.**
- **Supplied with Site Identification Encoder.**
- **Minimum service life of fifteen (15) years.**
- ***All functionality provided by the TRAFF software.***
- ***Has 24 vehicle detector inputs and 8 pedestrian pushbutton inputs).***

TSC4 General Specifications

- **Interoperability in three level:**

- **First level any controller will be interchangeable on site by any other controller supplied by different manufacturer.**
- **The second level is the Logic modules supplied by any manufacturer could be installed in another supplier's cabinet.**

- **The third level any personality could be installed in any controller of the same generation.**



Third level of interoperability

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Current controller **Deficiencies**

- **No Traffic operations performance data.**
- **Difficulties in Generating and Testing Personality**
- **Close system and does not allow different vendors to provide alternative solutions.**
- **No additional functions to control external device .**

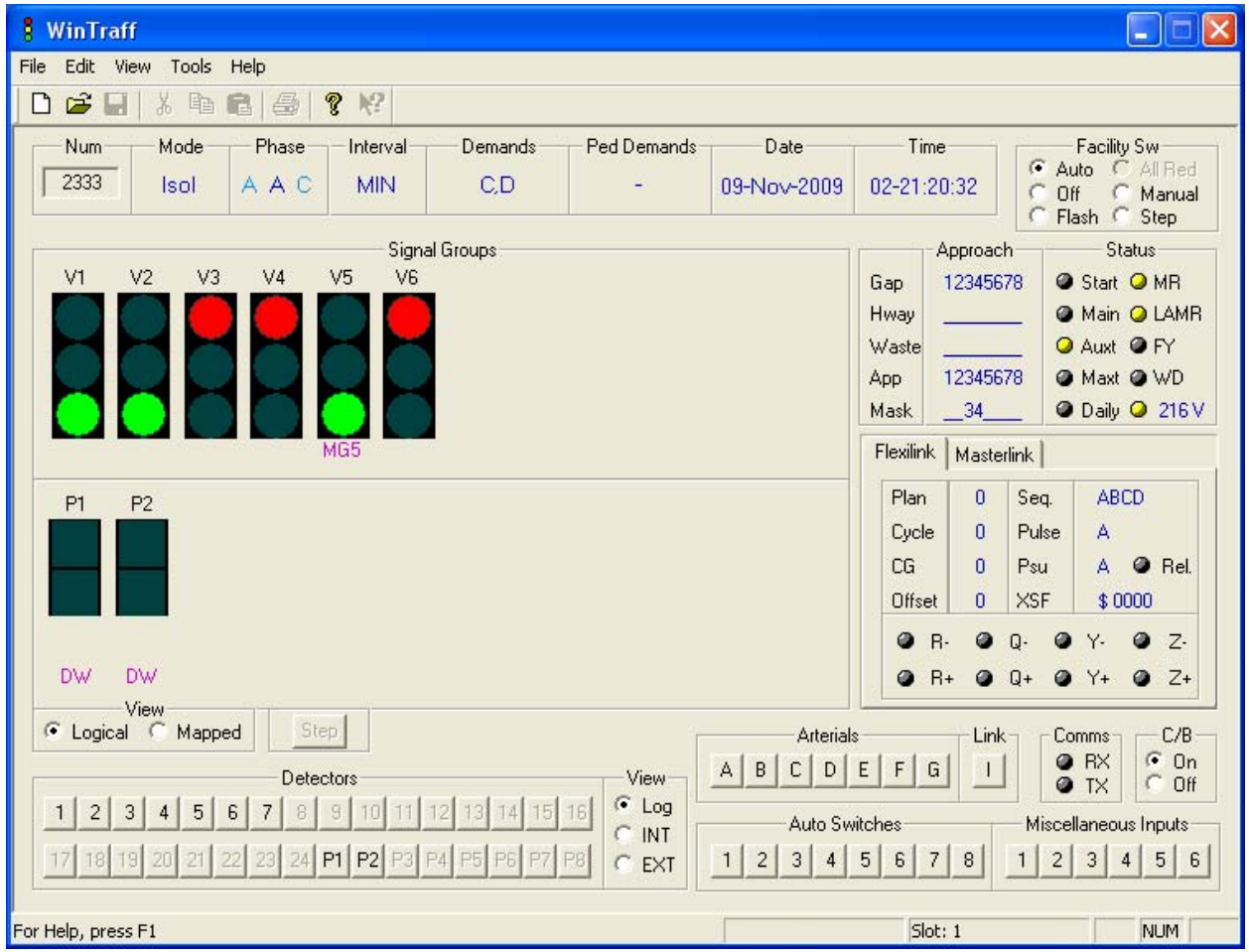
Austroads Project

- Roads and Traffic Authority New South Wales
- Roads Corporation Victoria
- Department of Transport and Main Roads Queensland
- Main Roads Western Australia
- Department for Transport, Energy and Infrastructure South Australia
- Department of Infrastructure, Energy and Resources Tasmania
- Department of Planning and Infrastructure Northern Territory
- Department of Territory and Municipal Services Australian Capital Territory
- Department of Infrastructure, Transport, Regional Development and Local Government
- Australian Local Government Association
- New Zealand Transport Agency.

Why we need a new generation of Traffic controller?

- **TSC4 has not been designed to implement traffic control Algorithms Like(MOVA,LHOVRA,VS-PLUS).**
- **Continuing using the current personality program which needs a high level of skill while it need to be simplified or may generating the personality directly from CAD plan of intersection.**
- **Also needs automated testing systems in order to have more confidence in the personality and reduce the risk of undetected errors.**

Why we need a new generation of Traffic controller?



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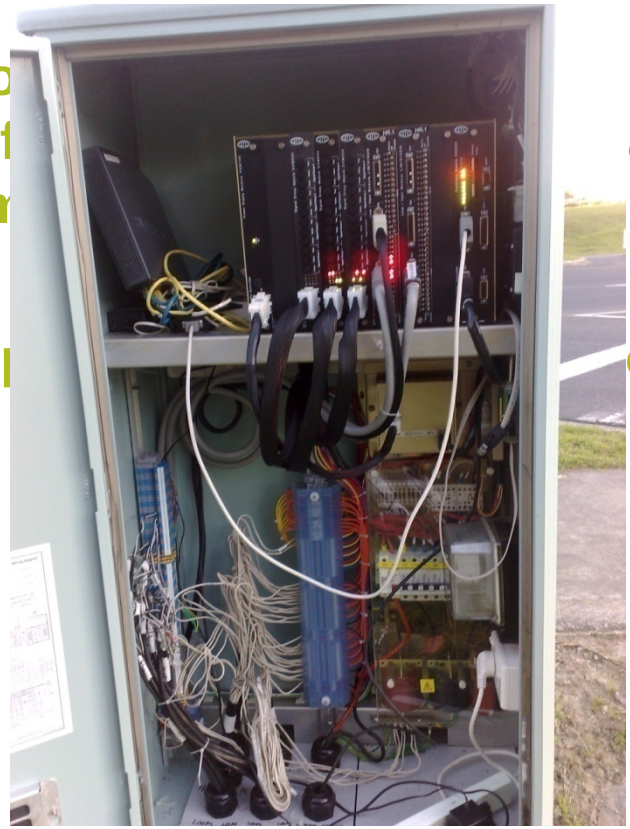
Why we need a new generation of Traffic controller?

- **TSC4 has not been designed to easily implement new hardware components or new Telecommunication network.**
- **The controller has no open system structure to allow diff alternative functions (Detector m**
- **Does not implement p onal data logging and retrieve.**



Proposed Specification

- **Fast communication with inputs and outputs devices) Fiber,Ethernet, Wireless).**
- **Extra low voltage(ELV).**
- **Access to controller operational data by using a web browser.**
- **Ability to download personality.**
- **Stand by power supply.**

Proposed Specification

- **Phase based controller.**
- **Doubled number of phases.**
- **Speed detection.**
- **GPS - can be used for locating emergency vehicles .**
- **Vehicle classification (measure the vehicle length) to use these data as an input to alter other setting (Clearance time,gap time…).**

Proposed Specification

- Changeable speed sign near the school or comn
- Using a new algorithms to control the isolated controller(Mova or LHOVRA..)
- More application(RAMP Metering,VMS ,CCTV ,R weather information,Speed monitoring ..)
- Roadway weather information systems.

The Future of Traffic controller

Questions?

Some worldwide Traffic signal

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