AUTOMATING ROAD CONDITION SIGNS

DEPARTMENT OF PLANNING, TRANSPORT AND INFRASTRUCTURE

NORTHERN AND WESTERN REGION
SOUTH AUSTRALIA
Ayres Rock
Uluru
Ayres Rock
Uluru
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>3,794,000 Mi²</td>
</tr>
<tr>
<td>Size</td>
<td>2,968,000 Mi²</td>
</tr>
<tr>
<td>Distance</td>
<td>3000 Mi East to West Coast</td>
</tr>
<tr>
<td>Distance</td>
<td>2485 Mi</td>
</tr>
<tr>
<td>Distance</td>
<td>2000 Mi North to South Coast</td>
</tr>
<tr>
<td>Distance</td>
<td>1988 Mi</td>
</tr>
<tr>
<td>Population Density</td>
<td>83.38 people Mi²</td>
</tr>
<tr>
<td>Population Density</td>
<td>7.55 people Mi²</td>
</tr>
</tbody>
</table>

Data obtained from World Atlas.com
Australian Government

Australia is a representative democracy in which all Australians over 18 years vote for people to represent them, and make decisions on their behalf in each of the three levels of government. The three levels of government are:

• Federal Government

• State and Territory Government

• Local Government

If there is a conflict between state legislation and federal legislation, federal legislation overrules state.
Department of Planning, Transport and Infrastructure

The Department of Planning, Transport and Infrastructure provides safe, effective and efficient planning, transport and infrastructure networks, supporting the interest of all South Australians.

The Department is made up of 9 Divisions:

Transport Services Division – Manages, controls, maintains, upgrades and operates state-owned road and marine transport assets; manages traffic on the road network; provides services to plan and deliver state transport infrastructure projects; and contributes to the development of transport and road safety policy. The Division is also responsible for safety regulation of road, rail and marine transport and for compliance and enforcement operations.
South Australia Population – 1.65 million
Metropolitan Population – 1.23 million
Northern & Western Region Responsibilities

- 92% of South Australia
- Area of 247,000 Mi²
- Maintain 6200 miles of unsealed road network
- Sealed road network
- Aboriginal Lands
- Temporary Road Closures
BACKGROUND

Road Closure Procedure

- Public informed through various media channels
- The department managed a group of volunteers to change the signs MANUALLY
- Road condition signs had a hinged metal flap to show the status of the road
ROAD RESTRICTIONS
ROAD CONDITIONS PH 1300 361 033
TRAVEL ON CLOSED ROADS IS PROHIBITED
SEVERE PENALTIES APPLY

OODNADATTA TRACK
MARLA TO LAMBINA
MARLA TO OODNADATTA
OODNADATTA TO WILLIAM CREEK
WILLIAM CREEK TO MARREE
OODNADATTA TO MT DARE
OODNADATTA TO COOBER PEDY
PAINTED DESERT ROAD
WILLIAM CREEK TO COOBER PEDY
WILLIAM CREEK TO ROXBURY DOWNS

4WD UNDER 3 TONNE
OPEN
OPEN
OPEN
OPEN
OPEN
OPEN
OPEN
OPEN
WARNING
REMOTE AREAS AHEAD

THE FOLLOWING PRECAUTIONS ARE ADVISED

- Carry adequate fuel, water, food, current road maps, two spare tyres
- Two jacks, shovel, first aid kit, tool kit and tow rope
- Drink water at regular intervals to avoid dehydration
- Travel at speeds appropriate to road conditions
- Avoid night driving when wildlife and livestock may be active
- In the event of breakdown - NEVER LEAVE YOUR VEHICLE
- Do not camp in waterways - flash floods can occur without warning
- Avoid wet weather driving - roads can become dangerous and impassable
- Keep friends or relatives informed of your outback travel itinerary

FOR ROAD CONDITION INFORMATION PHONE 1300 361 033
Frome Gang camp, Strzelecki Track
Issues

• Time consuming for following up volunteers
• Could not accurately record when a sign was changed
• Volunteer often unable to change sign promptly or may be unavailable
• Occupational, Health, Safety & Welfare issues
BOOLCUNDA CREEK
STRZELECKI TRACK
BIRDSVILLE TRACK
BIRDSVILLE TRACK
INNAMINCKA

ROAD CONDITIONS PH 1300 361 033
TRAVEL ON CLOSED ROADS IS PROHIBITED
SEVERE PENALTIES APPLY

INNAMINCKA TO ARRABURY CLOSED

INNAMINCKA TO SA BORDER (VIA CORDILLO DOWNS) 4WD

HEAVY VEHICLE (OVER 3 Tonne)

FOUR WHEEL DRIVE (UNDER 3 Tonne)
OBJECTIVE

• Improve road safety by providing motorists accurate information on road conditions
• Improve the efficiency of operating South Australia’s Outback roads
• Allow the department’s personnel to ‘dial up’ the signs remotely
• Address Occupational, Health, Safety & Welfare issues
THE PROJECT TEAM

The Internal and External Project Team consisted of:

Intelligent Transport System Engineers
Sign Designers
Structural Engineers
Project Managers
Construction Supervisors
DESIGN

Front View of Automated Sign

Rear View of Automated Sign
DESIGN

Control Box with Electronic Boards

Control Box with Manual Over-Ride Switch
DESIGN

Automated Sign changed to 4WD / HV

Automated Sign changed to Open
SIGN FEATURES

Software

• Interfacing the STREAMS system into the project
• Controlled via SMS commands sent from a control centre
• Confirm current status of sign via return SMS
• Standby mode
SIGN FEATURES

Software

• Self diagnostic
• Change the status of a road within ten minutes
• Receive confirmation of the date and time changed
• Consistent timely information
SIGN FEATURES

Hardware

• Withstand extreme weather conditions (-10° to 50°, strong wind, dust and humidity)
• Manual over-ride switch
• Emergency power over-ride
SIGN FEATURES

Satellite Communications

• Utilizes the Thuraya satellite system
• Have at least one satellite in view of any sign
• Communication through SMS
SIGN FEATURES

Solar Panel

• Green Energy
• Backup with a rechargeable battery
• Minimal Maintenance
• Reliable
• Cost Effective $15,000 - $20,000
SIGN DESIGN

ROAD RESTRICTIONS

ROAD CONDITIONS PH 1300 361 033

TRAVEL ON CLOSED ROADS IS PROHIBITED
SEVERE PENALTIES APPLY

HV - HEAVY VEHICLE (OVER 3 TONNE)
4WD - FOUR WHEEL DRIVE (UNDER 3 TONNE)
SIGN FEATURES

Poles and Footing Design

• Poles designed according to sign area, sign clearance height, wind region and frangibility

• Capped posts

• Footing designed to ‘lock’ into the ground

(During Construction)
BENEFIT

• Improve road safety by providing accurate information
• Provide assurance that signs reflect current road conditions
• Reduce environmental damage
• Reduce road damage
BENEFIT

• Contribute to the economy of Outback South Australia
BENEFIT

• Provide local businesses, tourism, pastoralists and the mining industry with accurate information
BENEFIT

- Address Occupational, Health, Safety & Welfare issues
OUTBACK ROAD CONDITIONS INTERACTIVE MAP
Area 1 - Flinders and Gammon Ranges including north and south of Barrier Highway

For more information regarding the status of each road, please click on the road section on the below map.
ACKNOWLEDGEMENTS

DEPARTMENT OF PLANNING, TRANSPORT AND INFRASTRUCTURE
• Northern & Western Region
• Traffic and Access Standards Section
• Contracting and Procurement
• Project Section

PROJECT TEAM
• Peter Short Project Sponsor and Regional Manager, Northern & Western Region
• Mick Horner Project Manager, Projects Unit, Northern & Western Region
• Steve Scott Site Supervisor, Projects Unit, Northern & Western Region
• Mark Shotton Supervisor Traffic Management Centre, Metro Region
• Neil Wilson ICT Project Manager, Metro Region
• David Gammon Engineer Electronic Systems, Electrical Assets Section, Metro Region
• John Fitzgerald Senior Procurement Officer, Metro Region
• Juanita Roe Administration Officer, Northern & Western Region
EXTERNAL ORGANISATIONS / PARTIES

Design of Automated Device
• Transmax Pty Ltd
  John Lees, Design Consultant

Sign Installation
• RTA, New South Wales, Regional Operations & Engineering Service Directorate
  Qudus Wazirzada, Project Manager

REFERENCES
• Government of South Australia – www.sa.gov.au
• Department of Planning, Transport and Infrastructure – www.dpti.sa.gov.au
• Automated Road Condition Signs – www.dpti.sa.gov.au/outbackroads
Questions?
Red Kangaroo

www.michalturski.com
Sydney Harbour Bridge
Great Barrier Reef
Outback South Australia
South Road Superway
12 Apostles
Emu
Flinders Ranges
Sydney Opera House
Outback South Australia
ROAD RESTRICTIONS

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SEVERE PENALTIES APPLY

OODNADATTA TRACK

MARLA TO OODNADATTA OPEN
OODNADATTA TO WILLIAM CREEK OPEN
OODNADATTA TO MT DARE OPEN
OODNADATTA TO COOBER PEDY OPEN

HV-HEAVY VEHICLE (OVER 3 TONNE)
4WD-FOUR WHEEL DRIVE (UNDER 3 TONNE)
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