Making Victorian Roads Safer with the SRIP Program

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keeping victorians connected
This presentation includes:

- Overview of the Safer Road Infrastructure Program (SRIP)
- The Process
- The development of projects
  - Intersection program
  - Run off road program
  - Greyspot program
  - Innovative treatments program
- Program Evaluation
Victoria’s Safer Road Infrastructure Program (SRIP) - Overview

- Victoria’s largest road safety infrastructure program in record
- Aligned with Victoria’s road safety strategy **arrive alive 2008-2017**
- Moving towards a **Safe System** approach
- Funded from the Transport Accident Commission (TAC)
While Victoria is regarded as a world leader in road safety, on Victoria’s roads in 2009 ...
- 290 people were killed
- About 7,000 were seriously injured, including
  - 1,000 people with brain injuries or confined to a wheelchair
- Road trauma costs each Victorian household around $1,800 every year
A new strategy
arrive alive 2008-2017

- Aims to reduce deaths and serious injuries by 30 per cent
- Aims to reduce the severity of injuries
- 10 year strategy
- 3 short term action plans
- Community indicated strong support for road safety
Victoria’s move towards a Safe System approach

The Safe System recognises that crashes will occur

The road system must be designed to reduce the likelihood of a crash and when a crash happens, death and serious injury are minimised
The SRIP Program to date

- 2004-2007: SRIP1 $130 million - completed
- 2006-2008: SRIP2 $110 million - completed
- 2007-2017: SRIP3 $650 million - on-going
Some Statistics of SRIP3 to date

- **111 run off road projects @ $200m (1264 km)**
  - 247 km wire rope barrier @ $58m
  - 98 km guard fence @ $23m
  - 542 km sealed shoulders @ $62m

- **233 intersection projects @ $90m**
  - 19 new traffic signals @ $9.4m
  - 22 new roundabouts @ $22.5m
  - 135 signal remodels @ $14m including 52 FCRT @ $4m

- **148 Greyspot projects @ $31m**
  - 61 Y intersections @ $16.6m incl. realignment 43@ $11m
  - 83 RTL/LTL @$11.4m
  - 12 splitter islands/median @$1.4m

- **8200km edgeline for C roads @ $9.4m**

- **1945km tactile centreline for A roads @ $3.2m**

- **24 strip shopping centres 40km/h speed reduction @ $5m**

- **13 Innovative projects @$7.4m**
The SRIP Process

- Evaluations
- Business Cases
- Guidelines
- Project Proposals
- Project Approval
SRIP Process – Development of Business Cases

**MEETING OUR TRANSPORT CHALLENGE**
Maintaining Victoria's Leadership in Road Safety

- **Safer Road Infrastructure Program**
  2007/08 – 2009/10

- **Business Case**
  April 2007

- **Safer Road Infrastructure Program**
  2008/09 – 2010/11

- **A Business Case**
  For the Supplementary $50 million announced on 6 February 2009 by the Government
  July 2008

- **Safer Road Infrastructure Program**
  2009/10 – 2012/13

- **A Business Case**
  $100m to counteract Run off Road and Intersection Crashes
  December 2008
Proposals targeting intersection crashes and run off road crashes

- Requires minimum crash rates to be eligible
- Scanning of road network using VicRoads’ Road Crash Information System
- Serious casualty crash focussed
- Further examination of crash records of individual sites
- Develop project proposals
- Statewide Priority ranked on Benefit Cost Ratio
Intersection Projects - Criteria

Criteria based on the latest five year period:
- General crash types
- Skid resistance
- Right turn against
- Intersection grouping
New roundabout and new intersection signals
Installation of turning lanes, splitter island, linemarking, and roadside kerbs
Run off Road Projects - Overview

- Run off road crashes represent approximately 28% of all serious casualty crashes and approximately 41% of all fatal crashes
- Crashes scattered along a length of road
Why do ROR Crashes Happen?

- Driver related issues: speed, fatigue, inattention etc...
- Road environment issues: road width, alignment, maintenance, delineation, road & roadside hazards, wet, dark etc...
  - Road hazards: road alignment, narrow pavement, dark & wet conditions, pavement surface...
  - Roadside hazards: trees, poles close to traffic lane, culverts, embankment, steep batters...
- Single vehicle is common in run off road crashes
- Injury severity is high for run off road crashes due to high speeds and impact with roadside objects
Bridge and deep gully

Right hand bend downhill
Road and Roadside Risks

- Trees close to road
- Horizontal Curves
Roadside hazards

Culvert close to road
Development of Run Off Road Projects

- Identify road lengths that meet program criteria
- Determine various level of risk along the length
- Select most cost effective treatments
- Run the Run off Road Risk Model to obtain overall crash reduction factors (CRF) and treatment life (TL)
Run Off Road Risk Model
to determine total Crash Reduction Factor and Treatment Life for each proposal
Example of Pre Treatments Risk Score

- Guardfence
- Delineation
- Shoulder Sealing
- Tree Removal
- ROR Crash

Map: Colac Bound

Graph: Chainage (km)

Risk Score:
- 3500
- 3000
- 2500
- 2000
- 1500
- 1000
- 500

Values:
- 8000 to 22000
Example of Post Treatments Risk Score

![Graph showing risk score vs. chainage (km)]
Typical Treatments for ROR Projects

- Delineation: Linemarking, raised pavement markers, tactile edgeline/centreline, curve alignment markers, guideposts
- Surface recovery: Shoulder sealing, bellmouth sealing
- Hazard shielding: Safety barriers
- Hazard removal: culvert works, vegetation, poles, steep batters, embankment
- Pavement widening including right turn bypass at intersections
Shoulder Sealing
Wire rope safety barriers
Wire Rope Safety Barriers and removal of trees
Guard fence and Curve Alignment Markers
Poles shielded by Guardfence
Guard fence and Linemarking
Driveable Culvert Endwalls
Reducing Risk of run off road crashes with vehicle activated warning signs on the approach to a series of curve
Greyspot Program - Overview

- Total program value $31m with 148 projects
- Intersections not qualified as blackspots but represent a risk to road users and require infrastructure improvements to prevent potential serious crashes in the future
- Perceived as ‘high risk’ by the travelling public or by road authorities.
- Priority ranked based on Risk Reduction and Treatment Cost Effectiveness
- Common treatments include: realignment, Y to T conversion, signing including vehicle activated sign, signals, roundabout, channelisation...
A Greyspot Intersection - Example

Risk of going through intersection
The Development of Greyspot Program

- Source of site identification: VicRoads, local councils, public, emergency and police
- Site inspection and survey
- Examine crash record
- Develop treatments
- Risk Score - determined using risk factors associated with geometric layout, speed zone, traffic volumes, and speed
- Cost Effective Score - determined by Risk Score, crash reduction factors and treatment costs
- Statewide ranking and approval
The Innovation Fund – Overview

- Up to $3 million per annum available
- Unique infrastructure based solutions targeting road trauma
- Can vary from larger projects (such as unique roundabout designs, or intersections configurations) to lower cost projects (such as linemarking initiatives)
- A number of unique solutions from Europe have been under consideration
Trials funded in Victoria

- A number of trial projects have been funded to date
- Many of these are not yet installed/constructed, and evaluated. Some of the projects include:
  - Various linemarking initiatives including narrowing/perceptual Vehicle Activated Signs detecting vehicles on the side road
  - Dynamic Speed Reduction Signs on interstate freeway
  - Signalised roundabout
  - Centreline wire rope safety barrier
  - Virtual speed humps
  - LED lights defining the edges of the Great Alpine Road during the snow season
Perceptual Transverse Lines on approaches to Curves

Lines across the road with progressively reduced distance between the lines - to give the illusion that you are travelling faster.
Swedish Road Hump

Speed sensor on parcel shelf of vehicle facing oncoming traffic

Crossing

END

80-100m

START
LED Lights on Snow Poles
VAS on major road approach to minor road intersection
Vehicle Activated Sign on major road (detecting vehicles on minor road)

New Cooriemungle Road
(Detection location No. 2)

Relocate existing Direction Sign to the south & Install new VAS

Cobden - Port Campbell Road  20/06/2008

Cobden - Port Campbell Rd, looking north towards New Cooriemungle Road
VAS on major road approach to minor road intersection

Replace existing W5-22 & Install new VAS

New Cooriemungle Road (Detection location No. 2)

Remove existing W2-4(R)

Cobden - Port Campbell Road

20/06/2008

Cobden - Port Campbell Rd, looking south towards New Cooriemungle Road
Vehicle Activated Sign (VAS) for speed limit change on major road activated by minor road traffic volumes.
Vehicle Activated Sign (VAS) for speed limit change on major road activated by minor road traffic volumes

Sand Road looking towards Princes Freeway East
Vehicle Activated Sign (VAS) for speed limit change on major road activated by minor road traffic volumes

Princes Freeway East view to Sand Road
Signalised Roundabout
Preliminary Evaluation of SRIP1 (Oct 2008)
Key Findings

- SRIP1 has been effective in reducing casualty crashes at treated sites
  - 19% of casualty crashes
  - 21% of serious casualty crashes
- SRIP1 provides economic benefits from crash savings
  - BCR 2.3
  - NPW $153 million
- Analysis by category - estimated reduction in crashes
  - Run off road projects: 16% all casualty; 15% serious casualty
  - Intersection projects: 44% all casualty; 54% serious casualty
  - Metro Melbourne area: 30% all casualty; 44% serious casualty
  - Rural area: 14% all casualty; 9% serious casualty
Evaluation of SRIP

- SRIP1 (Final) - late 2010
- SRIP2 - late 2010
- SRIP3 - early 2011
- SRIP3 Innovative projects – in progress
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