

## **NETWORK SAFETY COORDINATION**

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### **ABSTRACT**

Partner coordination in the delivery of road safety not only makes good sense, but also has good results.

The balanced use of safety initiatives utilising a three 'E's approach (Engineering, Enforcement and Education) has yielded positive road safety results along key corridors of New Zealand's roading network. Significant reductions in fatalities as a result of work implemented on State Highway 2 between Katikati and Bethlehem (near Tauranga) in September 2001 has already shown us the power of this approach.

In April 2005, the Ministry of Transport organised a workshop involving Transit New Zealand, New Zealand Police and Land Transport New Zealand. The purpose of the workshop was to develop a Network Safety Coordination model for how this coordinated approach could be used consistently nationwide. A commitment was made at the workshop for the coordinated approach to be used on the 'worst' state highway corridors in New Zealand.

Robyn Denton (Manager Transport Relationships Midland, Land Transport New Zealand) will provide an overview of the projects that have been implemented in the Waikato and Bay of Plenty regions, their progress and the lessons learnt. David Eyre (Senior Advisor, Ministry of Transport) will provide an outline of the current Network Safety Coordination project including its progress throughout the country.

## **BACKGROUND**

The *Road Safety to 2010* strategy is the government's formal response to meeting the community's concerns about the safety of the road network. The strategy specifically addresses the New Zealand Transport Strategy objective of assisting safety. In its *Road Safety to 2010* strategy the government has committed to achieving road safety goals of:

- no more than 300 road deaths a year by 2010, and
- no more than 4500 hospitalisations a year by 2010.

The goals were developed with a strong analytical and evidence-based approach that incorporated extensive consultation. The goals are ambitious, realistic and achievable with an appropriate mix of engineering, enforcement, and education interventions. Achieving this mix of interventions requires collaborative and coordinated partnerships between road safety partners.

Other key collaborative processes are road safety action plans (RSAPs) these involve partners such as Land Transport New Zealand, New Zealand Police, Transit New Zealand (the manager of the state highway network), local authorities and community representatives. RSAPs involve assessing risks, identifying objectives, setting targets, developing plans, directing tasks, then monitoring and reviewing progress.

## **NETWORK SAFETY COORDINATION**

Managing the safety of the network is an important task that road safety partners have been working on at a national and regional level for many years. The planning and coordination of land transport safety is constantly being improved by processes such as RSAPs and risk targeted patrols.

The *Road Safety to 2010* strategy includes moving towards:

- developing a more targeted approach to safety initiatives which involve identifying and dealing with the particular stretches of road, types of vehicles and offenders who pose the most significant risks
- stronger coordination and collaboration between road safety partners in order to capitalise on the benefits of current safety initiatives.

Towards the end of 2004 feedback had raised questions over the consistency of regional coordination and the targeting approaches used. To improve consistency it was decided to target the 'worst' corridors on the state highway network. The network safety coordination project was set up to maximise the effectiveness of current resources and road safety partnerships with the aim of improving the safety of these 'worst' corridors on the state highway network.

Network safety coordination involves:

- identifying the worst performing corridors
- ensuring that effective coordination takes place
- ensuring the best possible combination of engineering, enforcement, and education safety initiatives are used

- optimising the existing combined resources of road safety partners
- developing action plans that deliver optimal results.

This project began as a ‘bottom up’ initiative, as it expands on successful partnership coordination results in the regions. The project will enhance and encourage those initiatives on a nationwide basis.

## **REGIONAL INITIATIVES**

Following a series of high profile fatal crashes in 2000 (including a logging truck crash which killed four people), a corridor on State Highway Two (SH2) between Katikati and Bethlehem (near Tauranga) became known as the ‘Horror Highway’.

The regional road safety partners considered that the level of trauma on that corridor was unacceptable. In the longer term major upgrading work has been proposed, but the work was not scheduled for at least 10 years. Individual sites had been studied and some engineering safety improvements had been completed (as part of the crash reduction study programme), but an assessment of the entire corridor had not been conducted.

In mid 2001 a group of road safety partners met and developed a plan to improve the safety levels on the corridor. This plan was based on an approach using Engineering, Education and Enforcement (the 3Es) along the full length of the corridor. The plan required the skills of all those involved, plus the programmes and resources of their respective organisations.

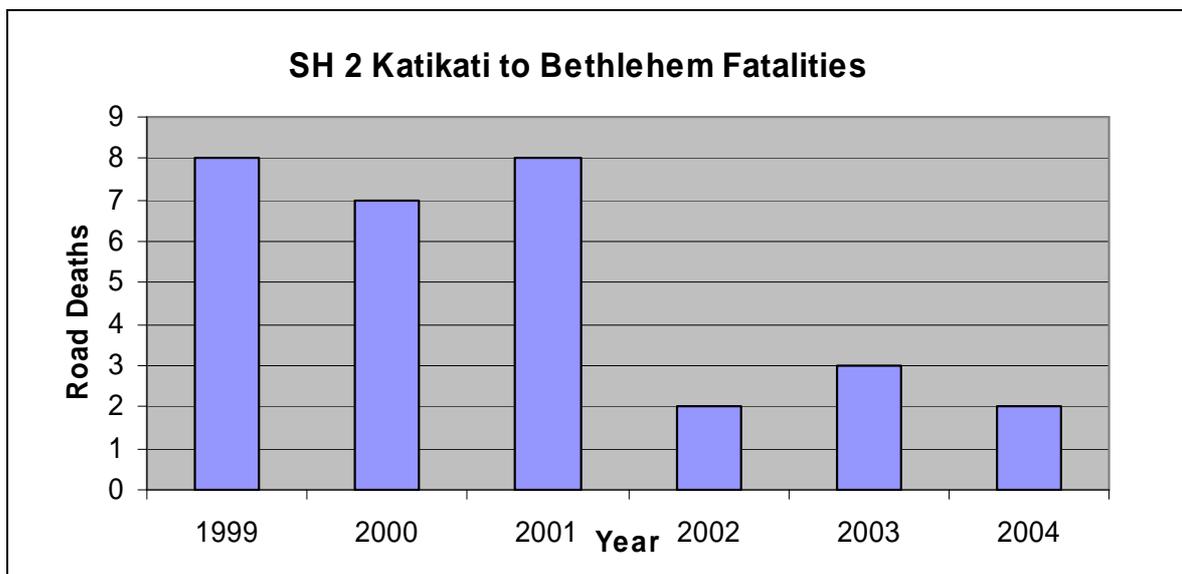
The following solutions were identified and implemented:

- improvements to curve advisory signs and road markings
- minor intersection improvements at several key locations
- the installation of billboard signs warning drivers of the high crash rate in the area and providing advice such as ‘Slow Down’ and ‘Keep Left’
- newspaper advertising outlining proposed engineering improvements, the reason for them, and the desired behaviours of drivers along the corridor
- radio advertising to remind motorists to take care when driving along this section of road
- TV coverage via the local station
- increased and highly visible Police enforcement activities.



Figure 1 shows the dramatic decrease in fatalities on this corridor since the initiatives were implemented in 2001. The project is regarded as a success and an example of the benefits of a coordinated and collaborative approach.

**Figure one**



Further projects are now being developed to counter increasing traffic volumes on this corridor. These will again involve a 3Es approach to build upon the success of the first initiative.

A similar approach has been used to improve safety in other parts of the region, for example:

- SH2 between Pokeno and Mangatarata (34 km) – implemented in March 2005. This corridor is a two lane section of state highway which connects Auckland with the Coromandel. The corridor has experienced major growth in traffic volumes, in particular heavy vehicle traffic. Typically traffic on the corridor is between 12,000 to 14,000 vehicles per day. The high concentration of heavy vehicle traffic on the corridor means that any mistakes made have a high probability of a serious or fatal consequence
- SH2 Waioeka Gorge (60 km) – to be implemented late 2004. This corridor provides access into and out of Gisborne from the north and is characterised by its narrow and winding geometry.

## **HOW THE PROJECT HAS PROGRESSED**

Given the success of this approach on the Katikati to Bethlehem corridor and other similar projects, the Ministry of Transport wanted to encourage this coordinated approach on a nationwide basis as part of implementing the *Road Safety to 2010* strategy. The first step was to obtain a general understanding and support for this coordinated approach. A 1.5 day workshop was held in April 2005 to develop a framework and broad action plans for effective coordination to enhance the safety of the state highway network.

Participants in the workshop were:

- representatives from the Ministry of Transport
- Regional Managers from Land Transport New Zealand and Transit New Zealand
- District Road Policing Managers from New Zealand Police
- representatives from the national offices of Land Transport New Zealand, Transit New Zealand, the Office of the Police Commissioner, Local Government New Zealand, and the Accident Compensation Corporation.

The workshop began by stressing the project's links with the *Road Safety to 2010* strategy and the need to show the Minister of Transport that safety was being effectively managed on the network. Examples of corridors where safety was being effectively managed (including SH2 between Katikati and Bethlehem) were presented. The participants then formed working groups to develop a framework for effective coordination. After the workshop the input was used to develop a guidance document.

On the second day of the workshop, participants formed regional groups to identify the 'worst' corridors in their respective regions and the key parties that would be required to develop solutions for the corridors. The Ministry of Transport assisted the decision making by providing regional maps that showed where fatal and serious crashes were concentrated.

A Network Safety Coordination Group (NSCG) has been established to coordinate the process as a whole, and to ensure momentum is maintained. The NSCG is coordinating this process by:

- communicating progress in each region and disseminating best practice models
- facilitating the removal of any barriers to regional action where possible
- providing national office technical support
- reporting to the National Road Safety Committee to inform and gain support from the chief executives of the organisations involved.

Regional teams have been set up in:

- Auckland (covering Northland and Auckland)
- Hamilton (covering Waikato and Bay of Plenty)
- Wanganui (covering Taranaki and Wanganui/Manawatu)
- Napier (covering Hawke's Bay and Gisborne)
- Wellington (covering Wellington and Nelson/Marlborough)
- Christchurch (covering Canterbury and the West Coast)
- Dunedin (covering Otago and Southland).

The regional teams have been providing monthly progress reports to the NSCG. The reports outline the proposed approach for each corridor and the progress in implementing safety initiatives.

The teams in Auckland, Hamilton, Wanganui, Wellington, and Christchurch have set up steering groups (to oversee the projects) and individual project teams for each corridor. The teams, typically, comprise representatives from Land Transport New Zealand, Police, Transit New Zealand, local authorities and the network maintenance contractor (i.e. a contractor who has the responsibility for maintaining Transit New Zealand’s regional network).

Work is underway on 22 of the 50 ‘worst’ corridors identified by the regional teams. At this point the Napier and Dunedin regions are at the investigatory stage, while the others are preparing action plans with some corridors entering the implementation stage.

<b>Region</b>	<b>No. of corridors identified</b>	<b>No. of corridors currently working on</b>
Auckland	7	4
Hamilton	10	5
Wanganui	6	4
Napier*		
Wellington	13	5
Christchurch	4	4
Dunedin	10	

\*Napier is still prioritising its corridors.

The key to delivering good results is the coordination and collaboration between the parties that provides a joint understanding and synergies. Issues raised to date confirm that this core role needs encouragement and support.

## **SOLUTION DEVELOPMENT FOR A NETWORK SAFETY COORDINATION PROJECT**

For the corridor projects undertaken to date, Transit New Zealand has undertaken the ownership role for the overall project management. This fits with their role as the manager of the State Highway network.

The process to develop solutions for a Network Safety Coordination project was discussed and outlined at the workshop. The following is an overview of the process:

- use crash data and local knowledge to identify ‘worst’ corridors. Local knowledge provides information on any recent improvements that have been undertaken or other factors relevant to the corridor that would create a change in crash patterns
- form a project team by identifying key safety partners for that corridor. The project team then agrees on:
  - the nature of the problem and the need to work together
  - the broad approach to be taken based on the 3Es
  - the scope and time frame of the project (with key milestones such as the project launch, letting of contracts, key meetings of the partners)
  - the available data and who will undertake the detailed analysis
  - the parties that need to be involved
- undertake detailed data analysis from the perspective of each of the 3Es, to enable effective targeting to relevant behaviours, locations and audience. This data is

mainly obtained from the Crash Analysis System (CAS), the national database maintained by the Ministry of Transport and Land Transport New Zealand. CAS contains information from the traffic crash reports completed by the New Zealand Police. In many cases the CAS data can be supplemented by additional information held by the network maintenance contractor, New Zealand Police and local authorities (such as recent physical works, changes in traffic flows etc)

- reconvene the project team to confirm the:
  - scope of the project
  - key issues that will be addressed
  - need to involve any additional parties given the issues identified
  - formation of sub-teams, if required, to concentrate on each component of the project – typically based on the 3Es
  - need for expert advice if necessary
  - timelines and key milestones
  - meeting timetable for the project team and reporting lines for any sub-teams
  - budget and resource availability
  - monitoring and evaluation methods that will be used for the project
- develop and implement solutions based on the 3Es
- prepare a debrief on project implementation and develop maintenance strategies for the education and enforcement initiatives
- monitor and evaluate the project. The safety improvements on the ‘worst’ corridors can be monitored using CAS
- consider the use of an audit of ‘best practice’, i.e. for someone with the relevant expertise to visit each region to determine ‘best practice’ in process, initiatives, coordination etc. This will enable the NSCG to provide feedback to the regions that identifies and encourages ‘best practice’.

## **TYPES OF INITIATIVES**

Based on the projects undertaken to date, a suite of relatively low cost solutions has been identified. While not intended to be exhaustive, the following list gives an indication of possible safety initiatives:

### **Engineering Initiatives**

- road marking upgrading and improvements
- sign upgrading and improvement
- hazard removal or protection
- consistency of treatment along the corridor – particularly in terms of road markings and signs.
- surfacing and skid resistance consistency and standards
- crash location treatment
- pull off/rest areas
- passing lane or slow vehicle bay treatments
- speed zoning.

## Enforcement Initiatives

- high profile and well publicised enforcement activities
- enforcement activities targeted to risk behaviours, at risk times and locations, utilising the various road policing resources (e.g.: State Highway Patrol, Strategic Traffic Unit, Commercial Vehicle Investigation Unit, Traffic Alcohol Group, traffic camera operations).

## Education Initiatives

- threshold signs (at the extents of the corridor) and educational billboard signs that are specific to the area
- newspaper articles and advertisements explaining projects and proposed initiatives, as well as dispelling any myths
- local television coverage
- conducting fatigue stops in conjunction with New Zealand Police and the Accident Compensation Corporation
- working with community and other interest groups, such as Department of Conservation
- getting to know community behaviours and assisting them to develop appropriate initiatives.

## LESSONS LEARNT

Lessons have been learnt from the projects that are considered crucial to ensuring that future projects are run effectively and efficiently:

- **effective project management** across the 3Es is needed to ensure coordination between all the activities. Clear and concise communication is required to keep the parties fully informed of progress and of any changes to the proposed timelines
- **detailed data analysis** is required and must be undertaken specifically for each of the 3Es. Such analysis enables resources to be targeted to risk, and provides an objective and evidence based rationale for decision making
- **all stakeholders** must agree on the key issues and work collaboratively in the development of solutions. Key parties in this procedure include Transit New Zealand, New Zealand Police, Land Transport New Zealand, local authorities, regional councils, Accident Compensation Corporation and other emergency services such as Fire Service. Depending on the circumstances other parties maybe required such as community groups, industry representative groups (e.g. road freight), Department of Conservation, local schools etc
- the **3Es approach** achieves good results, and projects need to fully utilise the skills from each of the 3Es. Sometimes, it is necessary to think outside the square by utilising the expertise of other professionals (such as psychologists) in order to develop innovative solutions
- **education is the critical link** to enable road users to understand the reasons for the various engineering and enforcement initiatives
- network safety coordination projects are **resource intensive** because they require significant staffing resources to function properly. While funding can be

reprioritised within existing budgets, there is a limit to the number of projects that can be completed within current resources in any one year

- **opportunities to foster community involvement** need to be identified and actioned. Examples include presentations to local authorities and/or regional councillors, a public launch combined with a fatigue stop, relevant competitions for the general public and/or local community
- education and enforcement initiatives need to be **continually reinforced** to help prevent driver complacency. The development of ongoing maintenance strategies assist in addressing this problem.

These projects enable a proactive opportunity seeking approach instead of a reactive problem solving approach. A crucial success factor is for the team leader to pull the individuals together and make the team work collaboratively. It is this different approach and team focus that is needed for these projects to be successful.

## SUMMARY

The Network Safety Coordination project is in infancy as a nationwide initiative to improve road safety. Partnerships continue to develop and lessons are still being learnt. The expectation is that this project will result in the better targeting of resources and improvements to treated corridors because of enhanced coordination between road safety partners.

Monitoring will be ongoing and the intention is that ‘best practice’ examples from one region will be encouraged throughout the country.

Potential future developments are to:

- extend this approach to critical parts of the road network controlled by local authorities
- consider whether the maximum safety gains have been obtained from existing resources and if additional resources would provide an even better return.

This project also raises questions about the responsibilities of those managing a road network. Does responsibility for managing the network go beyond just infrastructure to a complete 3Es service? Does the network manager need certain levels of service in the education and enforcement areas for its network to function safely?

The answers to these questions are not easy, but the Network Safety Coordination projects provide partial answers as the teams develop solutions for corridors.

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