

IPENZ Transportation group  
Conference 2011

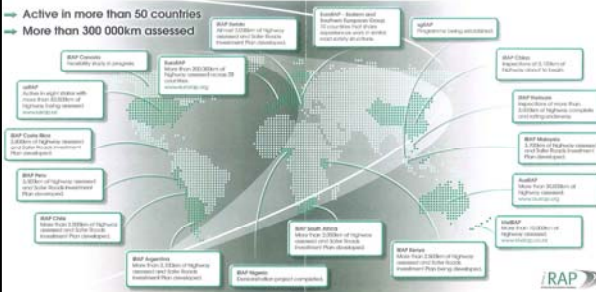
## KiwiRAP, Star Ratings and KAT 3M Traffic safety Innovation Award 2011

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## International Road Assessment Programmes

Active in more than 50 countries  
More than 300 000km assessed

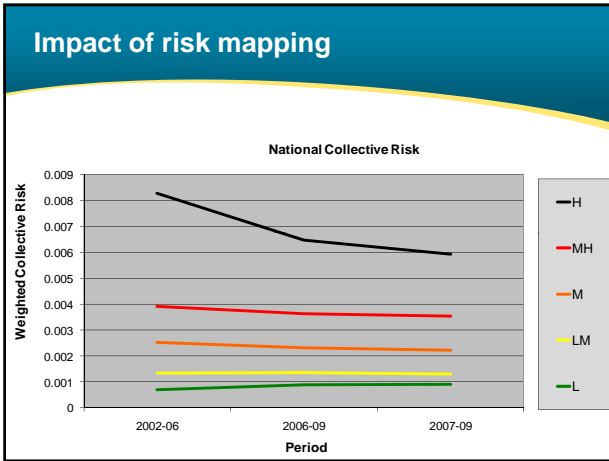


Two Types      iRAPxxxx      typically 3<sup>rd</sup> developing countries using iRAP  
                     xxxxRAP      country specific

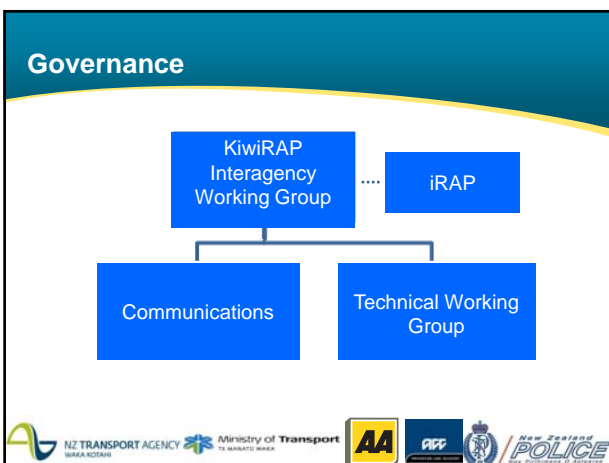
## KiwiRAP Overview

- Project began in earnest 2006
- Three protocols
  - Risk Maps
  - Star Ratings
  - Monitoring and Evaluation
- Aimed at rural roads (speed limits >70km/h)
- Developed and proven on State Highways (2010)

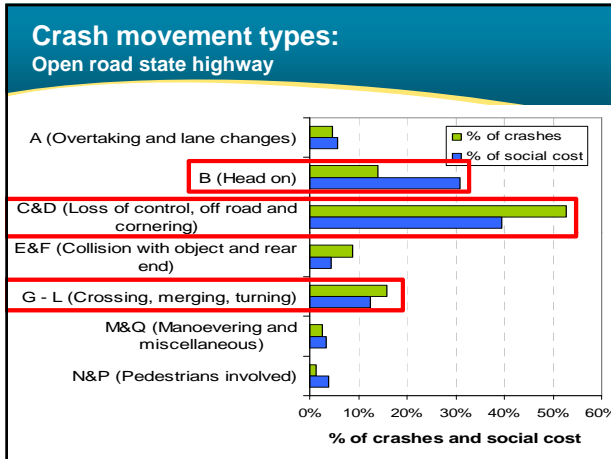




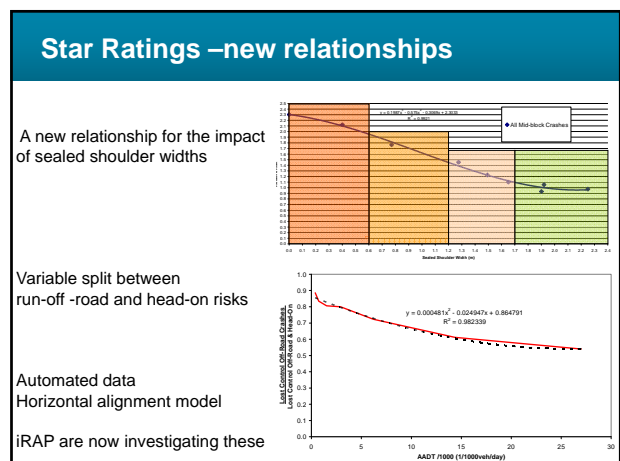
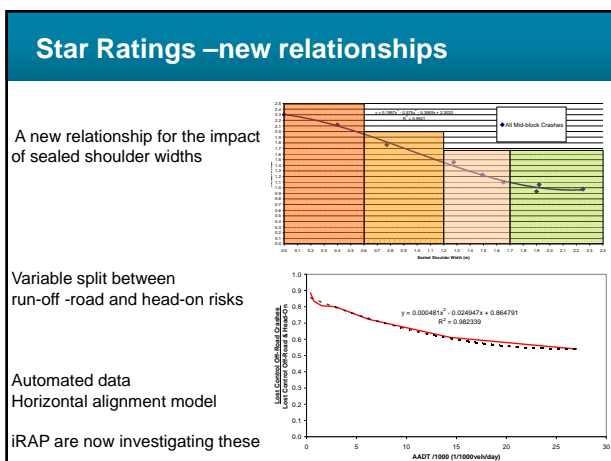
- ### Innovation
- Governance
  - Star Ratings
    - NZ specific relationships (where possible)
    - Automated data routines
    - New relationships
  - KiwiRAP analysis tool (KAT)

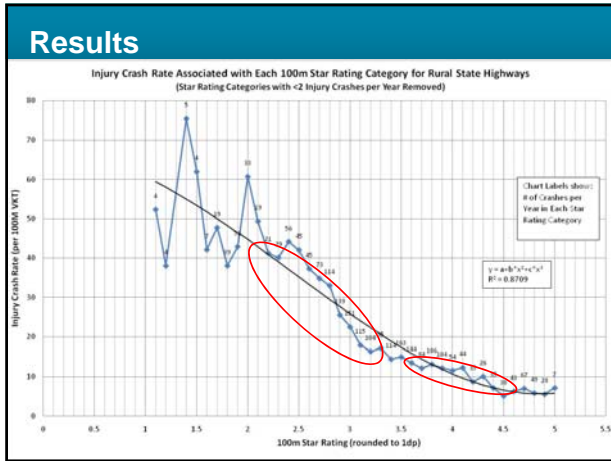


- ### Star Ratings
- Measures safety of road infrastructure
  - A proactive measure of safety
  - Based on a road protection score (RPS) every 100m
- $$\frac{\text{Length of segment} * (A * \text{Run-off road RPS} + B * \text{Head-on RPS}) + \sum(0.2) * \text{Int RPS}}{\text{Length of segment}}$$
- Note: Intersection is abbreviated as *Int*
- RPS is averaged over 5km sections to give the Star Rating



- ### What Elements are Rated?
- Mid-block characteristics - RPS**
    - AADT
    - Road section type
    - Lane width\*\*
    - Sealed shoulder
    - Horizontal alignment\*
    - Terrain\*
    - Delineation
    - Overtaking demand
    - Speed environment\*
    - Offset and severity of roadside hazards
  - Intersection characteristics**
    - Intersection type
    - Side road category
    - Alignment of legs
    - Sight distance
    - Right turn provision
    - Left turn provision
  - Railway Xing**
    - Crossing type
    - Frequency of trains
- A total of 18 features
  - \*Assessed off-line in KiwiRAP - based on speed data at 10 m intervals
  - \*\*Taken from RAMM





- ### KAT
- Bespoke software tool
  - Allows the user to
    - Search and identify road sections of interest
    - Identify what attributes are contributing to the safety score
    - Undertake *what if analysis*
  - Provides a means of
    - Maintaining up to date data
    - Monitoring improvements and performance

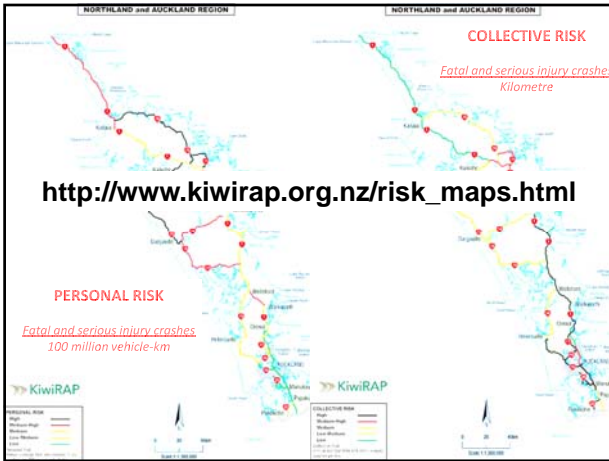


### Thanks To

The wider KiwiRAP Team for their hard work and for allowing me to present this neat project

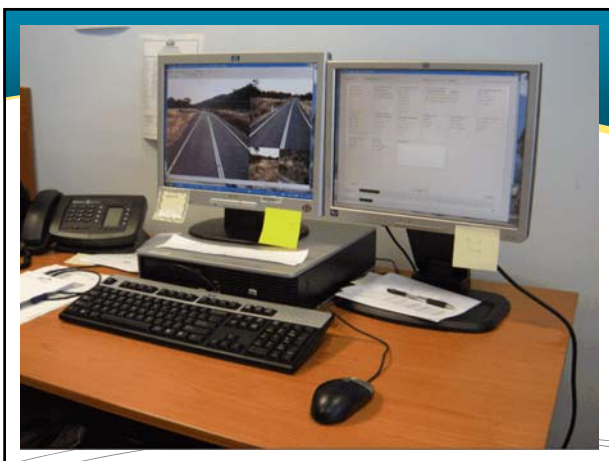
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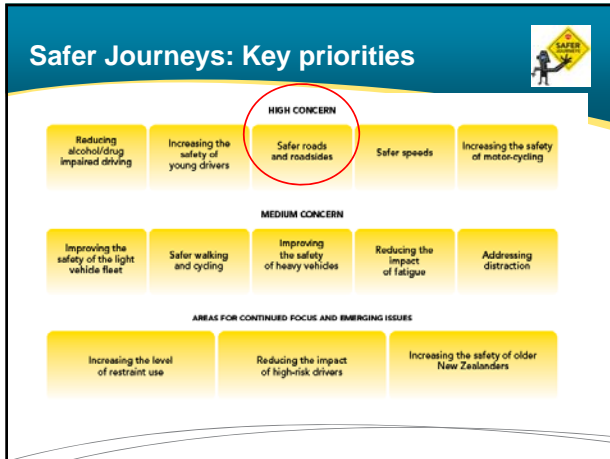
3M for continuing to support this award



### How is the Data Collected?

- Cameras on a vehicle
- Road rating from video





- ### Road and Roadsides : First Actions
- #### Roads and Roadsides
- Develop a classification system
  - **Focus safety improvements on high risk rural roads**
  - Focus safety improvements on high risk urban intersections
  - Change Give Way rules for turning traffic
  - Implement targeted treatments on popular motorcycle routes
  - Strengthen techniques to integrate safety into land use planning