

QUEENSLAND NORTHERN TERRITORY

IPWEA

INSTITUTE OF PUBLIC WORKS
ENGINEERING AUSTRALASIA

Solutions



Transport



PRACTICAL TTM

IMPROVING PRODUCTIVITY

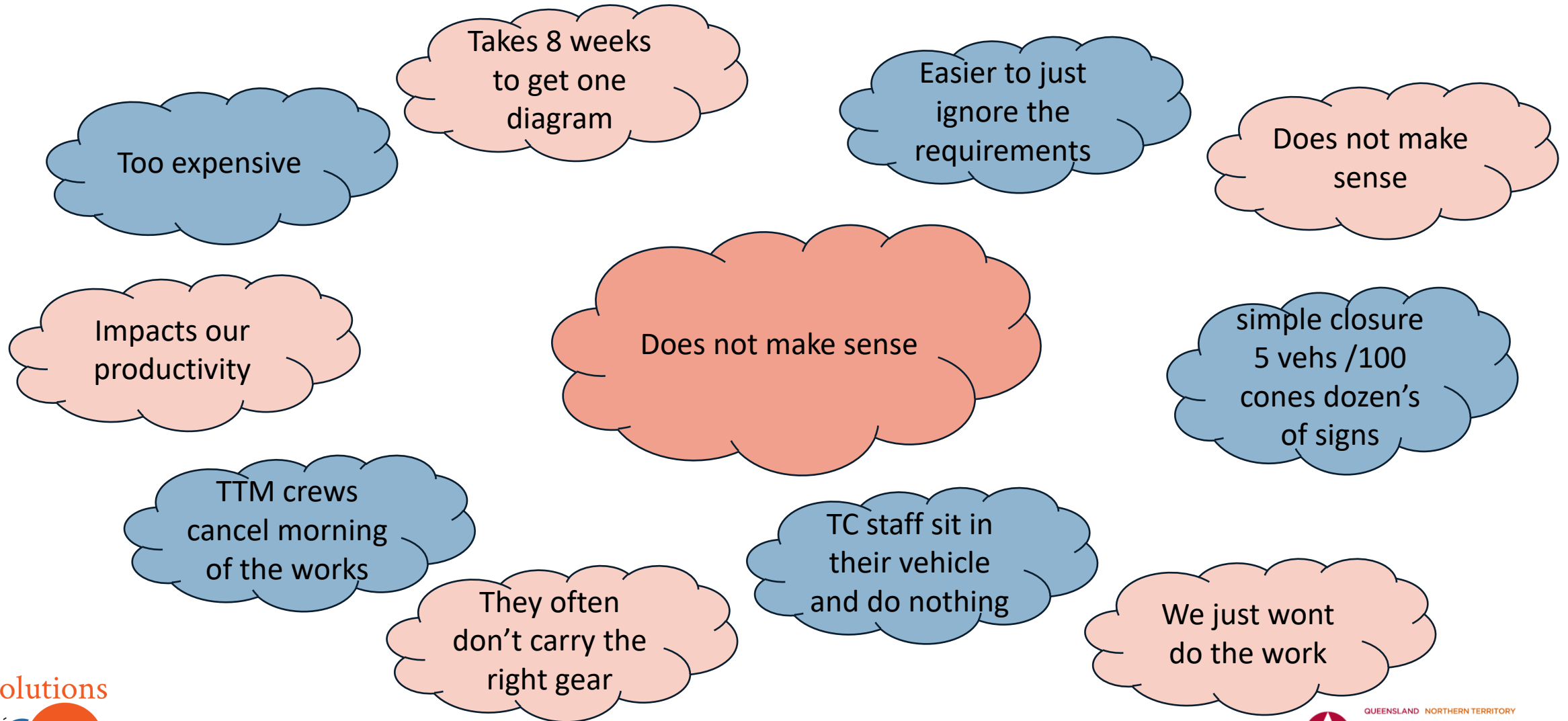
LOWERING COSTS

SAFER OUTCOMES

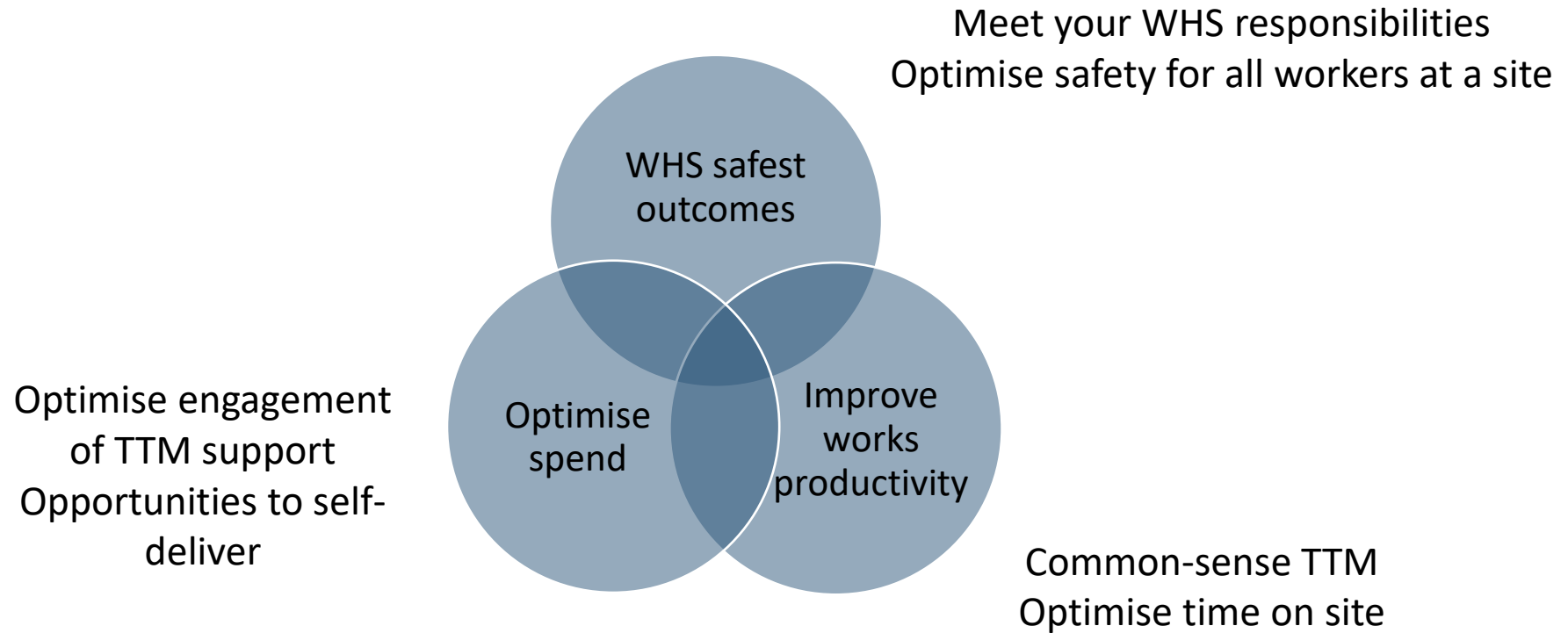
DR. DAN SULLIVAN



WHAT IS LOCAL GOVERNMENT SAYING ABOUT TTM?

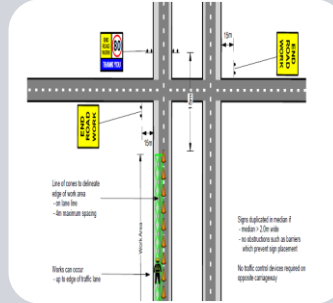


THERE IS A BETTER ANSWER



SOLUTIONS IN TRANSPORT

SKYRING TRAFFIC



Advisory Services

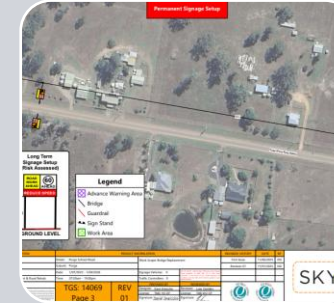
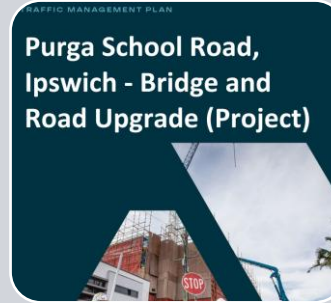
TTM
Road Design
Traffic Management
Road Safety

TTM Training & Education

Technical training
Overview
In-house / industry

Generic TGS software

> 10,000 designs
Ideal for maintenance activities
Fully compliant



Planning

Traffic Management Plans for all size works and maintenance activities

Design

Traffic Guidance Scheme diagrams

Audit

Independent project, surveillance and TMRS audits

PROFESSIONAL OBSERVATIONS – TTM I SEE REGULARLY

Road
maintenance
& construction



You are paying way too much

Parks and
gardens



Works productivity is badly affected

Surveying

Inspections



It's creating safety problems

Utilities

Drains and
sewers

Roadside
infrastructure

Developments

OBSERVED OUTCOMES – TTM INDUSTRY APPROACH

Conservatively safe

- Better to have more
- Better to slow traffic down
- Better to close lanes
- Place cones around all works vehicles
- Divert all pedestrians to the other side of the road

So what? – isn't that good

No - because

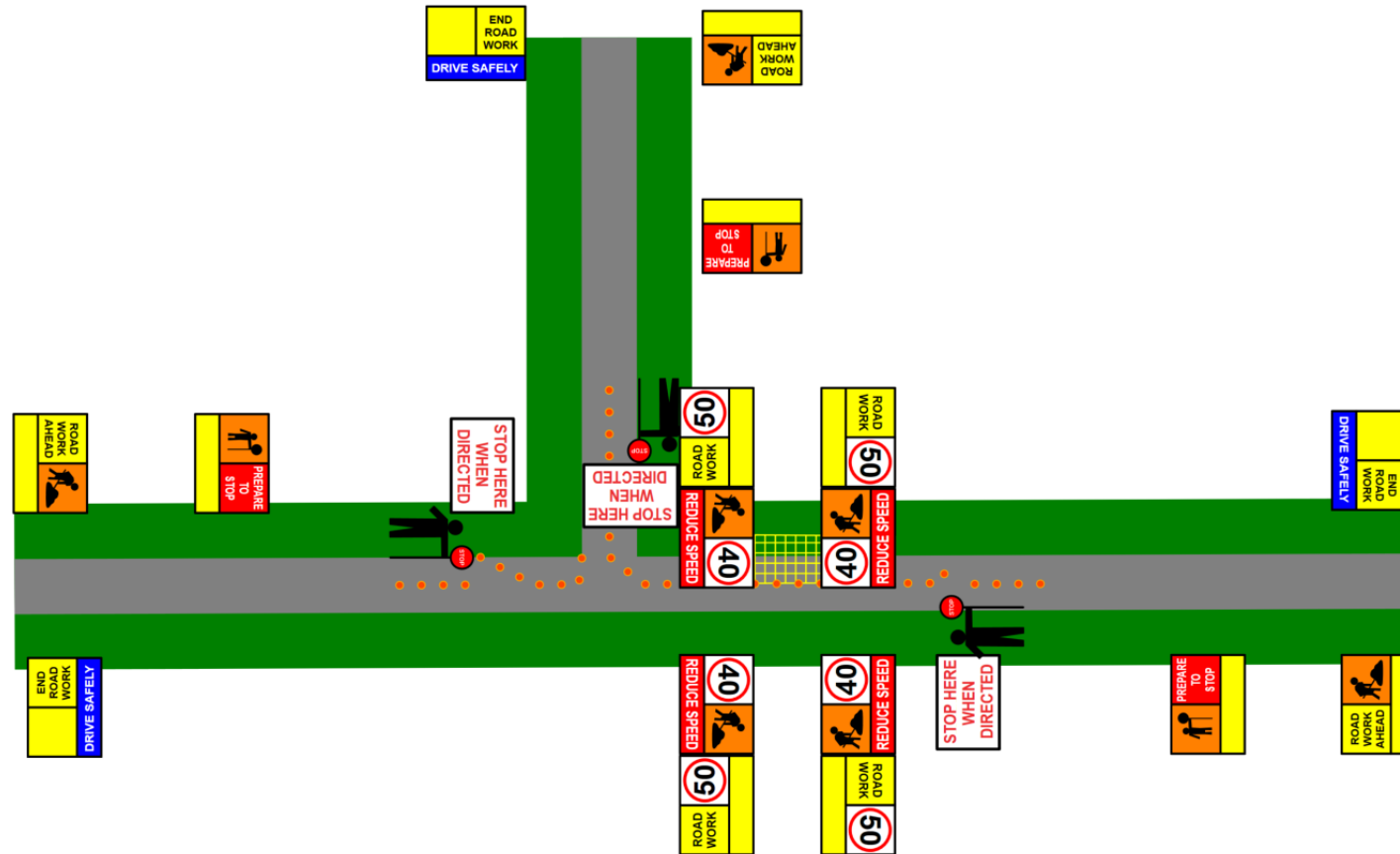
- Excessive TTM
- Works productivity reduced
- TTM costs increased
- WHS outcomes are actually worse

Redland Council (2 x tree crews)

- Crews could deliver 90% of sites themselves with signs they carry
- Productivity tripled
- TTM costs reduced by > \$400k per year
- Safer overall

CASE EXAMPLE 1

SEQ COUNCIL WORKS - TTM COMPANY DESIGN



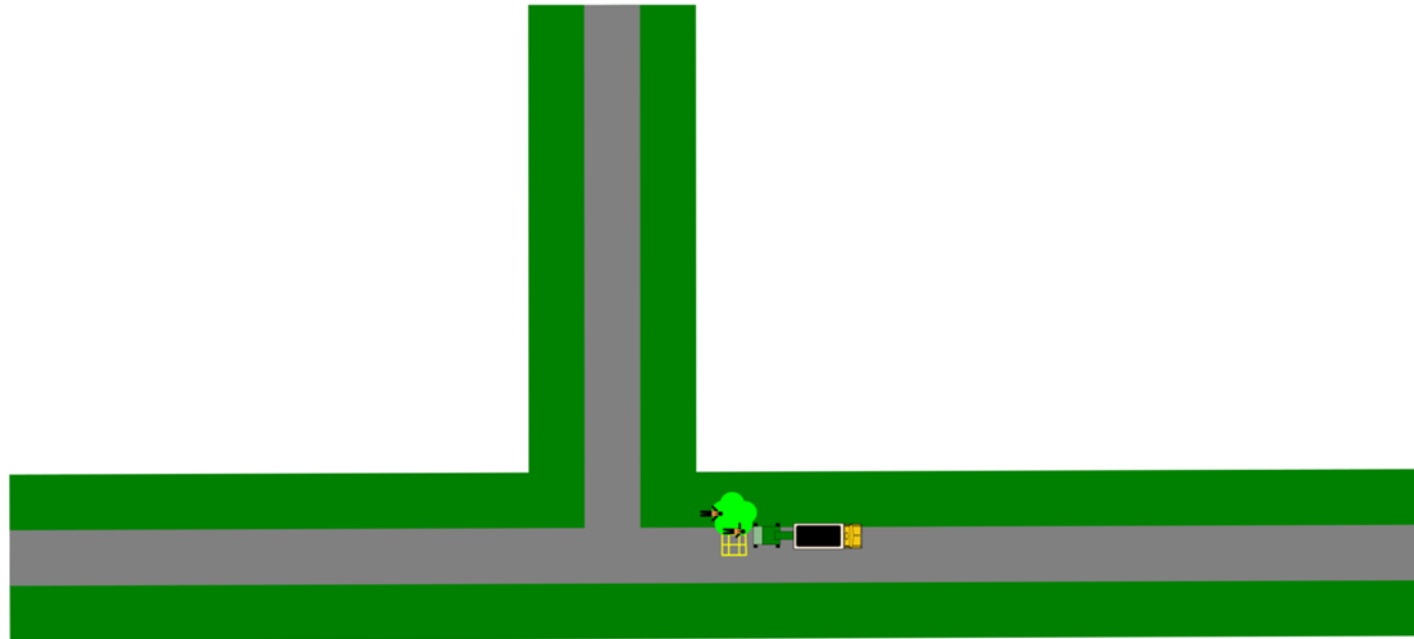
CASE EXAMPLE 1

WHAT WAS REALLY BEING DONE



CASE EXAMPLE 1

MORE APPROPRIATE PRACTICE



CASE EXAMPLE 1

CLARIFYING THE WORKS ACTIVITY

Best TTM outcome occurs when

- Discussion between works crew and TTM team
 - Describe the works activity
 - Understand why road occupancy is required
 - Prepared to consider alternatives / adjustments to works practices
- TTM team
 - aware of full range of options available
 - Prepared to consider options with less TTM - that works crew can self-deliver



CASE EXAMPLE 2

CQ COUNCIL - MEDIAN GARDEN WORKS

TTM company design

- 25 signs, 575 cones
- Insufficient devices to be set up
 - Completed as 3 setups over 3 days
 - 2 hours to setup / pack-up each day
 - 2 TTM vehicles and 1 TTM Truck required



CASE EXAMPLE 2

CQ COUNCIL - MEDIAN GARDEN WORKS

What led to this outcome?

- Council
 - Works vehicle needs to be parked in the middle lanes next to the works
- TTM Company response
 - Need to close lanes $\Rightarrow$ Static works
 - Workers within 1.2m $\Rightarrow$ 40km/h speed limit
 - 2 utes + truck with cones – 6 TTM staff
- 3 day job with TTM to be set up



CASE EXAMPLE 2

WHAT WAS REALLY BEING DONE



CASE EXAMPLE 2

MORE APPROPRIATE PRACTICE

Can works vehicles be parked a short distance from the site? - But then we need to cross the road!

Can workers safely remain in the median?

- New design
 - Short Term Low Impact works practice
 - Limited to signs (8) and a spotter
- 4 hours to complete all works



CASE EXAMPLE 2

EXPLORING ALL TTM OPTIONS

Need to review the TTM and the work task

- Are any elements of the work task flexible
 - Where vehicles are located
 - Where workers operate from
- TTM options
 - Be aware of full range of TTM options
 - Small change to work practice can result in substantial reduction in TTM
- Cost saving of \$20k per occasion for these works (over \$100k per year)



CASE EXAMPLE 2

EXPLORING ALL TTM OPTIONS

Short Term Low Impact Works

- In the Lane
 - Gaps in Traffic
 - Short term work in traffic
 - Frequently changing work areas
- Outside of the lane
 - Works on verges, medians, shoulders & paths
 - Frequently changing works areas
 - Short term work near the road
- Inspections

Static worksites

- Relaxations
 - Residential Street – Lane closure with no TCs required
 - Give Way sign control instead of TC
- Limit impact on traffic
 - Shoulder Closure only
 - Closure of road section where parking normally occurs
 - Road narrowing with lateral shift

CASE EXAMPLE 3

GRAVEL ROAD GRADING

Daintree DRFA works

- Gravel resurfacing works
 - 51km of roads to be resurfaced
 - Across 58 separate sites
 - Most roads < 5m width
 - All roads < 250vpd, most < 25 vpd
- TTM company advised on required traffic management
 - Need Traffic Controllers to hold traffic
 - \$150k spent on TTM in first three months



CASE EXAMPLE 3

WHY WAS THIS TTM SOLUTION ADOPTED?

- QLD and Austroads Guides do not deal well with gravel road works
 - Only considers single maintenance grader
 - Need to allow vehicles sufficient space to pass the works vehicles
 - Only compliant solution is to hold traffic with TC or Traffic Signals
- But really – what is the level of risk



CASE EXAMPLE 3

RISK BASED APPROACH - DESIGN BALANCE

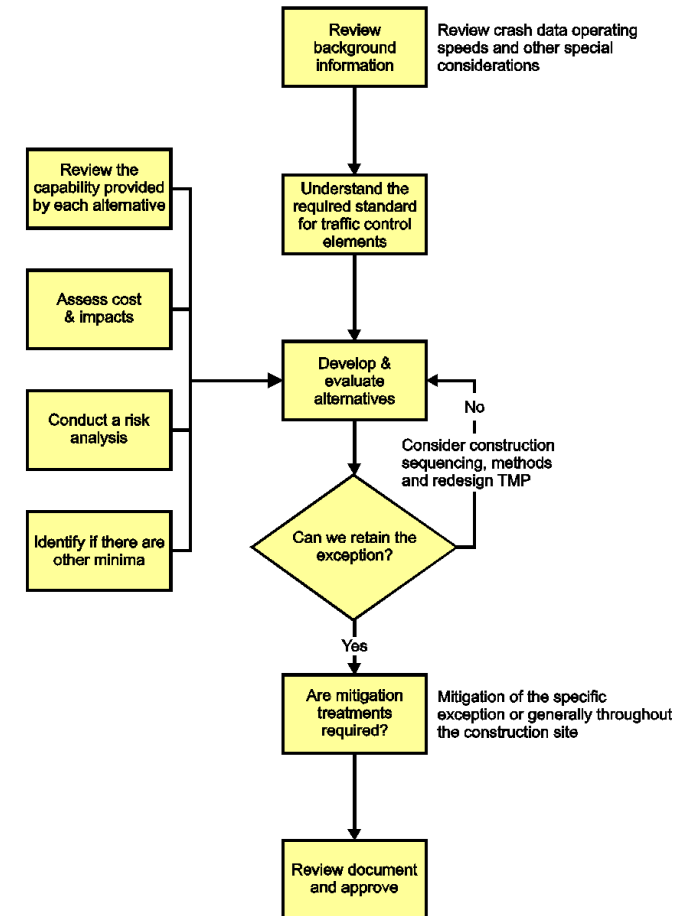
- TTM - appropriately scaled for the risk / extent of works / traffic impacts
- Each device installed should lead to a positive reduction in overall risk
- PCBU accountable for total overall risk



CASE EXAMPLE 3

PROCESS FOR ALTERNATIVE PRACTICES

- Exception Process
 - What is the safety performance of the standard arrangement?
 - What is the expected safety performance of the arrangement that incorporates the Exception?
 - What should the safety performance of the temporary traffic arrangement be?
 - Is the difference acceptable?
- Risk assessment & Traffic Guidance Scheme - certified by a RPEQ



Source: TMR Guideline – Traffic Management at Works on Roads

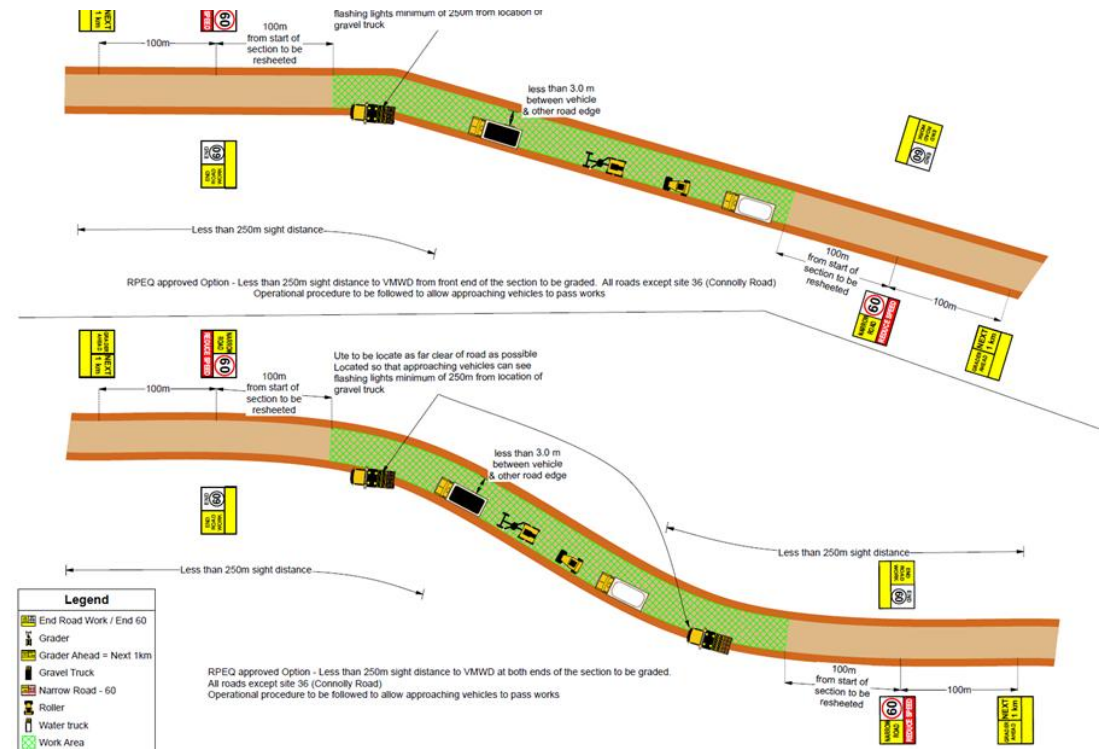
- Outcomes

-
- The diagram illustrates the RPEQ approved Option for road resheeting operations, showing two scenarios based on the sight distance to the Variable Message Warning Display (VMWD).
- Scenario 1: RPEQ approved Option - More than 250m sight distance to VMWD for full length of the section to be graded.**
- Operational procedure to be followed to allow approaching vehicles to pass works
- This scenario shows a straight road section. The work area is marked with a green hatched pattern. The length of the section to be graded is indicated as 'Less than 3.0 m between vehicle & other road edge'. The sight distance to the VMWD is indicated as 'More than 250m sight distance'. The diagram shows the placement of signs (End Road Work / End 60, Grader Ahead - Next 1km, Gravel Truck, Narrow Road - 60, Roller, Water truck, Work Area) and the timing of the resheeting operation (100m from start of section to be resheeted).
- Scenario 2: RPEQ approved Option - Less than 250m sight distance to VMWD from behind end of the section to be graded.**
- Operational procedure to be followed to allow approaching vehicles to pass works
- This scenario shows a road section with a curve. The work area is marked with a green hatched pattern. The length of the section to be graded is indicated as 'Less than 3.0 m between vehicle & other road edge'. The sight distance to the VMWD is indicated as 'Less than 250m sight distance'. The diagram shows the placement of signs (End Road Work / End 60, Grader Ahead - Next 1km, Gravel Truck, Narrow Road - 60, Roller, Water truck, Work Area) and the timing of the resheeting operation (100m from start of section to be resheeted). A note indicates that the 'Ute to be locate as far clear of road as possible' and 'Located so that approaching vehicles can see flashing lights minimum of 250m from location of water truck'.
- Legend:**
- End Road Work / End 60
 - Grader
 - Grader Ahead - Next 1km
 - Gravel Truck
 - Narrow Road - 60
 - Roller
 - Water truck
 - Work Area

CASE EXAMPLE 3

RPEQ ALTERNATIVE PRACTICE

- Outcomes
 - Investment of \$5k in additional RPEQ design costs
 - Savings of approx. \$400k
 - Site productivity improved
 - No safety issues reported
- Contractor engaged RPEQ work for subsequent gravel road works in FNQ
- Local Authorities and Site Superintendent happy with outcomes



CASE EXAMPLE 3

BE PREPARED TO INVEST IN ALTERNATIVE SOLUTIONS

- Guides were developed to address 80-90% of possible scenarios
- Principles documented for Designers to apply in all cases
- Opportunities for alternative TTM treatments – Risk Based consideration
- RPEQ approval required for these practices
- Returns of 10:1 to 100:1 on RPEQ design advice



OPTIMISING YOUR TTM SPEND

Clarify the extent of TTM actually required

Need to be an informed buyer - Staff requesting TTM need level of TTM understanding

Trusted Traffic Management Designer (TMD) if external

Willing to consider all alternatives

Build relationship to discuss work tasks and operational issues

Explore all TTM options

Review the TTM and the work task

Are any elements of the work task flexible

Be aware of full range of TTM options

Small change to work practice can result in substantial reduction in TTM

Invest in alternative solutions

Be prepared to accept solutions outside the Guides

Opportunities – Risk Based consideration

RPEQ review and approval

Returns of 10:1 to 100:1 on RPEQ design advice

Consider self-delivery of some TTM

What TTM can be self delivered?

Staff generally already training to implement TTM

Devices for use in field & Generic TGS set

TMD available - Internal / external (24/7)

A COPY OF TODAY'S PRESENTATION AVAILABLE AT



<https://solutionsintransport.com.au/media>

Solutions



Transport



THANK YOU



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