

Solutions



Transport

RISK AT A WORKSITE

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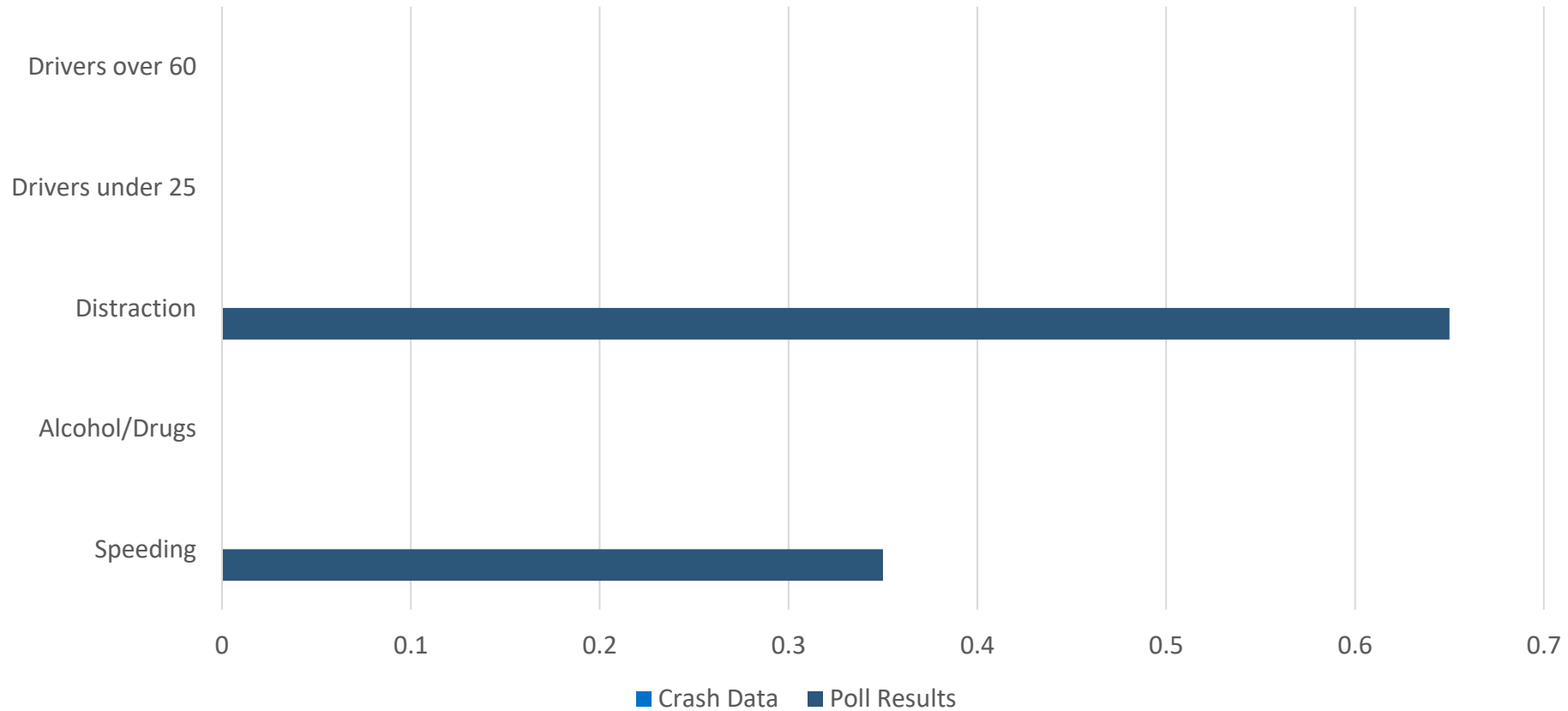
DAN SULLIVAN

- 30 years involved with TTM
- Austroads Project Manager for AGTTM
- Queensland
 - TMR specialist panel
 - TMD course developer
 - TMD Open – 001
 - Registered Professional Engineer Queensland (RPEQ)



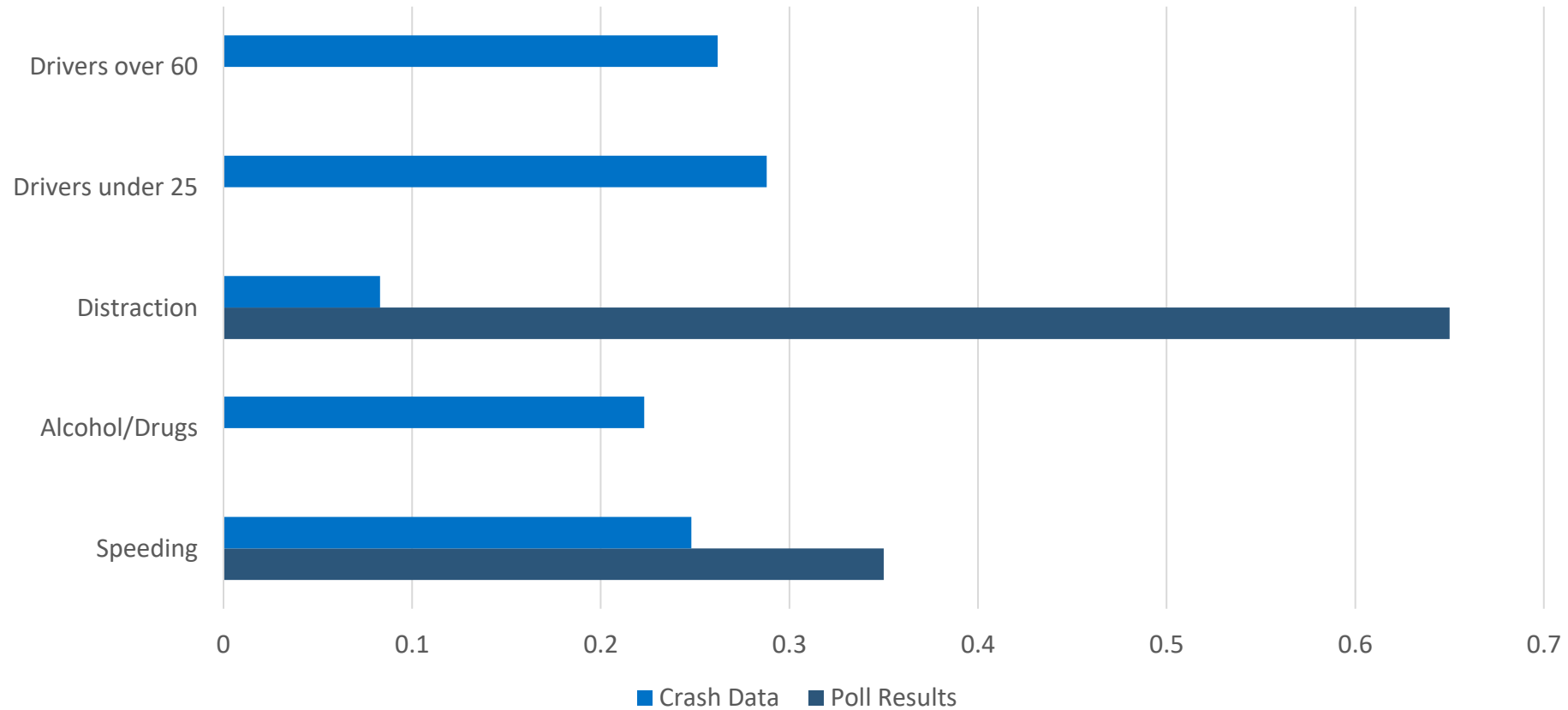
POLL 1

WHICH FACTOR IS INVOLVED IN THE HIGHEST % OF SERIOUS CRASHES

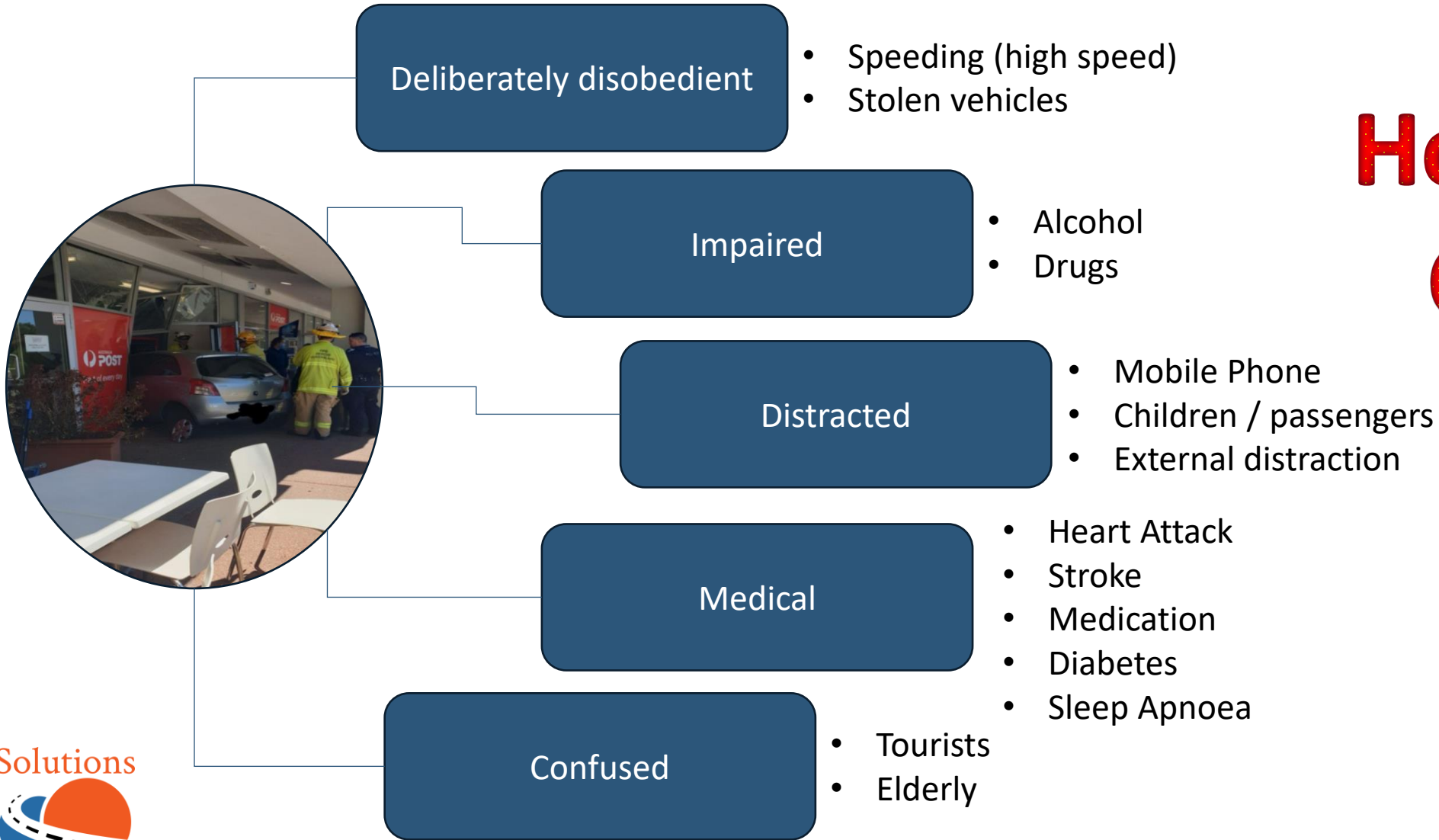


POLL 1

WHICH FACTOR IS INVOLVED IN THE HIGHEST % OF SERIOUS CRASHES



WHICH DRIVERS ARE DANGEROUS?



**How much
Control
do you
really
have?**

WHICH DRIVERS ARE DANGEROUS TO YOU

A traffic controller, 50, has been killed after being hit by a car at Redbank Plains

A traffic controller has been killed in an incident west of Brisbane. Investigations into the incident are underway.

Paige Carfrae

🕒 less than 2 min read September 8, 2015 - 12:05PM Quest Newspapers

💬 0 comments



Generic photo of Queensland Ambulance.

WHAT CAN YOU DO FOR YOUR PERSONAL SAFETY



WHAT CAN YOU DO FOR YOUR PERSONAL SAFETY



WHAT CAN YOU DO FOR YOUR PERSONAL SAFETY



POLL 2

WHAT IS THE GREATEST RISK AT A WORKSITE

- Bad communication
- Sub-contractors not managed by Tier1
- Fatigue
- Plant / machinery on site
- Incompetent staff member
- Workers walking out into the live lane
- TMAs not fit for purpose
- Time pressure from clients
- Workers making bad decisions – lazy / unsafe
- Clients working in the lateral
- People
- People running the red light
- Vehicle overtaking vehicles in queue (2)
- Poor drivers
- Speed
- Distracted drivers
- Traffic / Traffic through site
- Public / public road users (3)

RISK MANAGEMENT – STAGES



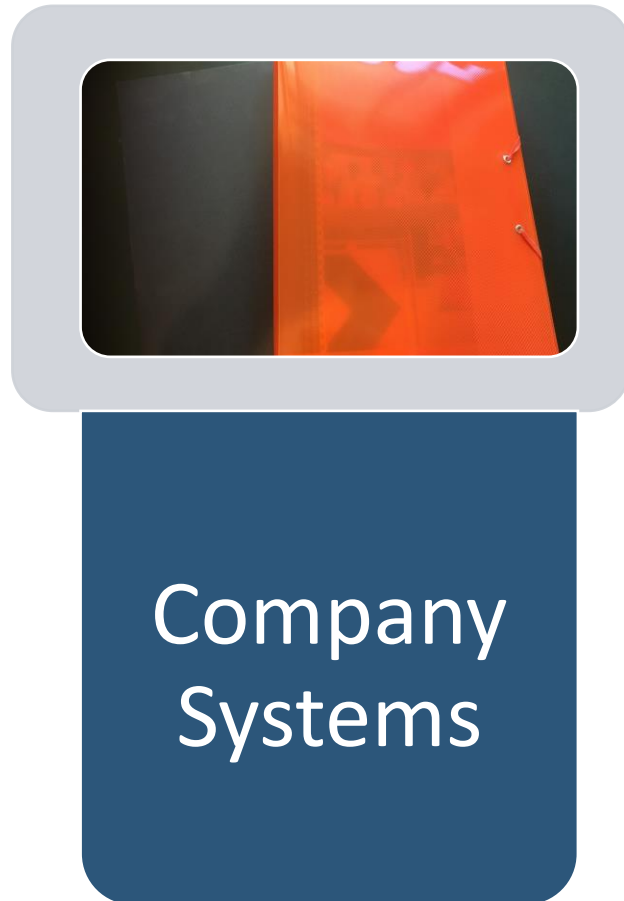
Company
Systems

Planning
TMP

Design
TGS

Field
TMI

RISK MANAGEMENT – COMPANY SYSTEMS



Typical elements may include

- Training / ongoing competency
- Fitness to work
- Work safety requirements – e.g. fatigue
- Vehicle / equipment requirements / checks

Outputs for TTM risk management

- Planning / design procedures
- Risk management system
- Risk register proforma - Planning / Design / Field

RISK MANAGEMENT – PLANNING



AGTTM Part 2 outlines TMP process

- Every TTM task requires planning
- Repetitive tasks ⇨ overarching TMP
- Major works ⇨ more complex TMP

Risk management in the TMP

- 1st identification of foreseeable risks for works
 - Typical risks (list / template)
 - Specific risks - particular works / site
 - Risks addressed in planning the works
- Risk register
 - Risks addressed in planning
 - Residual risks to be addressed in design / field

RISK MANAGEMENT – DESIGN



Design
TGS

AGTTM Parts 3, 4 & 5 to design TGS

- Every TTM task requires design
- Repetitive tasks ⇨ Generic TGS
- Major works ⇨ Specific TGS

Risk management in the TGS

- Detailed evaluation of foreseeable risks
 - Typical risks (list / template)
 - Specific risks - particular works / site
 - Risks (residual) identified in planning
 - Risks addressed in designing the works
- Risk register
 - Risks addressed in design
 - Residual risks to be addressed in field

RISK MANAGEMENT – FIELD



Field
TMI

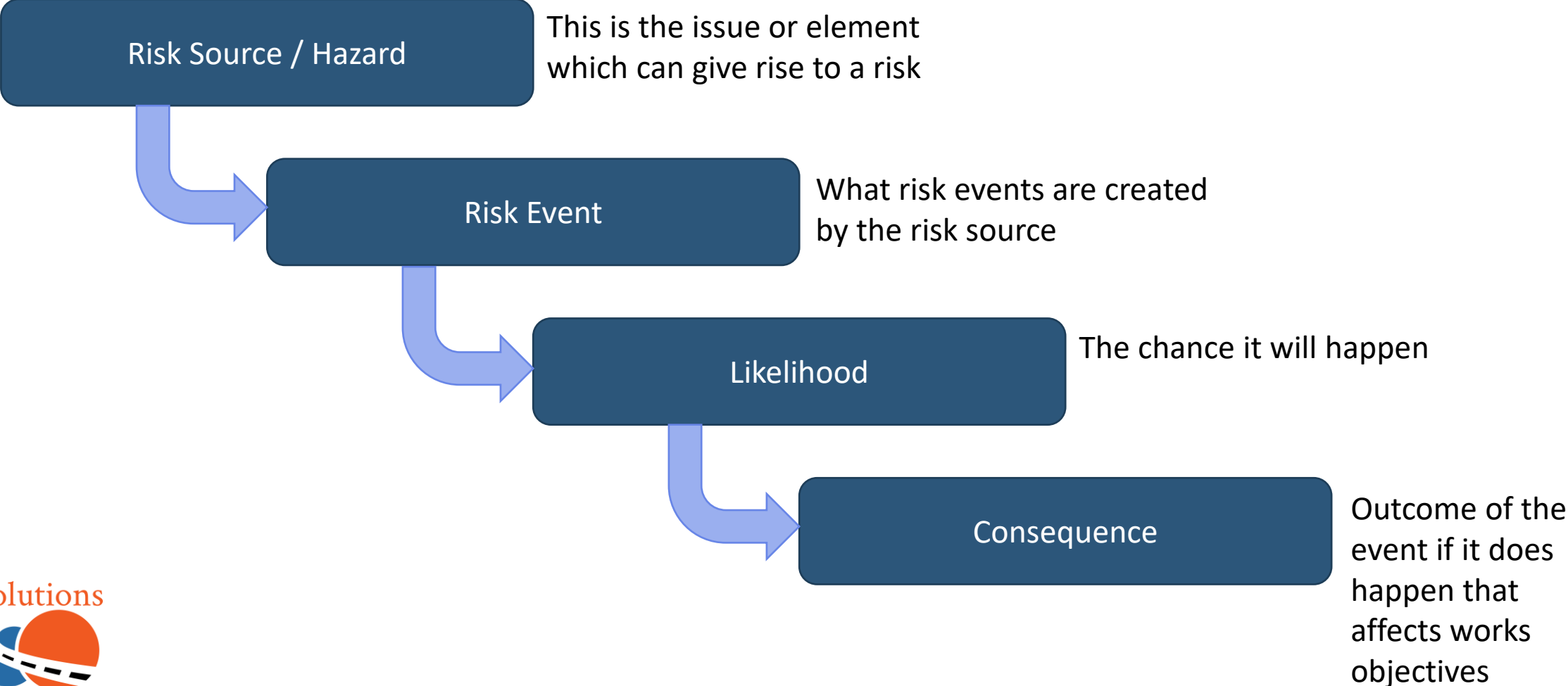
AGTTM Parts 6 & 7 for field staff and TCs

- Risk assessment required for
 - Every site
 - Every variation in TTM
 - Every key change in works

Risk management in the Field

- Ongoing / Final evaluation of risks on site
 - Risks (residual) from planning / design
 - Specific risks - particular works / site (list / template)
- Risk register
 - Risks addressed during implementation
 - Residual risks to monitor

AS / ISO 31000:2018 KEY TERMS



COMMONLY SEEN RISK REGISTER ISSUES

- Risks
 - Irrelevant items
 - Items addressed in company systems
 - Vague descriptions - don't describe a risk
 - Lack of items related to a site
- Risk Rating
 - No support for either the initial or revised risk ratings
 - Every risk reduced to low with standard measures
- Control measures
 - Not relevant to the risk identified
 - List with no clear link to risk or "action by"
 - Company system or compliance issues that address everything
 - Measures that are impractical
- Action by
 - List of everyone on the job with no defined actions
 - Roles that are not correctly defined
- Clearly copied - template / other works

EXAMPLE – LESS THAN ADEQUATE PRACTICE

- Traffic Controllers
 - Risk - TC being struck by vehicle
 - Risk rating - High
 - Control – All TC to have appropriate qualifications
 - Revised rating – Low
 - Action by NTO, Principal Contractor, Supervisor, TMI, TCs
- What is wrong with this
 - Does not consider initial source of the risk.
 - Assumes qualification (training and admin) is sole fix
 - Company systems - should address qualification requirements
 - Planner / Designer - focus on the issues related to the planning and design of the works that will create or impact on risks
 - What actions are actually required?

EXAMPLE - BETTER PRACTICE

- Traffic Controllers
 - Risk source
 - Vehicles approaching at high speed
 - Inadequate sight distance
 - Event - vehicle is unable to stop
 - Drives through TC station
 - Hits queued vehicles
 - Consequence
 - TC Injured / killed
 - Crash / Injury to public
 - Likelihood – depends on site specifics
- Risk rating should be based on relative risk compared to normal TC operations
- Potential control measures
- Selected control measure (examples)
 - Spotter in advance of TC station to advise TC of approaching higher risk vehicles
 - TC station to be located immediately at end of safety barrier segment to allow escape route behind barrier
- Action by
 - TMD – TC & spotter location selected
 - Field – TC & spotter located correctly
 - TMI – ensure TC compliance with quals

EXAMPLE – LESS THAN ADEQUATE PRACTICE

- Children
 - Risk - Children
 - Risk rating - Medium
 - Control – Works to be scheduled at night
 - Revised rating – Low
 - Action by Principal Contractor, Supervisor, TMI, TCs
- What is wrong with this
 - Appears to be more just ticking a box
 - No identification of what the risk actually is
 - Single measure does not actually seem related to the risk
 - What actions are actually required?

EXAMPLE - BETTER PRACTICE

- Children
 - Risk source
 - Nearby school / beach / playground - many children passing the site
 - Event
 - Child enters worksite – struck by plant
 - Child walks on road – doesn't use crossing & struck by road traffic
 - Consequence
 - Child injured / killed
 - Likelihood – assess based on age of children, frequency, proximity to child activities etc
- Risk rating - compared to normal site
- Potential control measures
- Selected control measure (examples)
 - Measures to prevent entry to site
 - Regularly check TTM devices
 - Children directed to crossing
- Action by
 - TMD - design in TGS
 - Fencing / barriers around site
 - Signage for peds / crossing
 - TMI
 - Regularly inspect TTM
 - Spotter to assist direct children

RECOMMENDED RISK PRACTICE FOR TTM PLANNING

STEP 3 – RISK TREATMENT

Risk		Initial Risk		
Source	Event	L	C	Rating
Reduced sight distance on approach to worksite	Vehicle unable to stop runs into queued vehicles	L	Mod	High
	Vehicle unable to stop runs into TC station	P	Maj	High
	Vehicle hits TMI during installation of TTM	p	Maj	High
	Vehicle enters site at speed higher than posted for worker / traffic safety	AC	Mod	High
Traffic travelling within the work area in lane past the worksite	Vehicle enters work area and hits TTM or road workers	P	Cat	High
	Vehicle enters work area and hits work plant	U	Min	Low
	Vehicle enters work area and crashes in excavation (<500m)	U	Min	Low
	Vehicle enters work area and hits TTM devices	L	Insig	Low



RECOMMENDED RISK PRACTICE FOR TTM PLANNING

STEP 3 – RISK TREATMENT

- Options identified

Risk		Initial Risk			Proposed Control Measures		Revised Risk			Selected
Source	Event	L	C	Rating	Options	Considerations	L	C	Rating	
Reduced sight distance on approach to worksite	Vehicle unable to stop runs into queued vehicles	L	Mod	High	A) Eliminate - close road to traffic					
					B) Eliminate - remove TC station to remove queue issue					
					C) Engineer - relocate queue to alternative location					
					D) Engineer - introduce additional treatments to reduce vehicle speeds on approach					
					E) Admin - TCs to operate shuttle flow with priority to vehicles on southern approach to eliminate / reduce queues					

RECOMMENDED RISK PRACTICE FOR TTM PLANNING

STEP 3 – RISK TREATMENT

- Suitable option selected – Risk closed out

Risk		Initial Risk			Proposed Control Measures			Revised Risk			Selected
Source	Event	L	C	Rating	Options	Considerations	L	C	Rating		
Reduced sight distance on approach to worksite	Vehicle unable to stop runs into queued vehicles	L	Mod	High	A) Eliminate - close road to traffic	Suitable Detour available	R	Mod	Low	Yes	
					B) Eliminate - remove TC station to remove queue issue	Would substantially impact works efficiency and increase works duration from 1 to 3 days	R	Mod	Low	No	
					C) Engineer - relocate queue to alternative location	Assess at Design phase	P	Mod	Med	No	
					D) Engineer - introduce additional treatments to reduce vehicle speeds on approach	Assess at Design phase	P	Mod	Med	No	
					E) Admin - TCs to operate shuttle flow with priority to vehicles on southern approach to eliminate / reduce queues	Assess at Design / Implementation phases	P	Mod	Med	No	

RECOMMENDED RISK PRACTICE FOR TTM PLANNING

STEP 3 – RISK TREATMENT

- Suitable option needs further evaluation at design phase – Residual risk

Risk		Initial Risk			Proposed Control Measures		Revised Risk			Selected
Source	Event	L	C	Rating	Options	Considerations	L	C	Rating	
Reduced sight distance on approach to worksite	Vehicle unable to stop runs into queued vehicles	L	Mod	High	A) Eliminate - close road to traffic	Not feasible - no alternative route	R	Mod	Low	No
					B) Eliminate - remove TC station to remove queue issue	Would substantially impact works efficiency and increase works duration from 1 to 3 days	R	Mod	Low	No
					C) Engineer - relocate queue to alternative location	Assess at Design phase	P	Mod	Med	Possible
					D) Engineer - introduce additional treatments to reduce vehicle speeds on approach	Assess at Design phase	P	Mod	Med	Possible
					E) Admin - TCs to operate shuttle flow with priority to vehicles on southern approach to eliminate / reduce queues	Assess at Design / Implementation phases	P	Mod	Med	Possible

RECOMMENDED RISK PRACTICE FOR TTM PLANNING

STEP 3 – RISK TREATMENT

- Suitable option needs further evaluation at design phase – Residual risk

Proposed Control Measures		Revised Risk			Selected	Actions	
Options	Considerations	L	C	Rating		Who	What
A) Eliminate - close road to traffic	Not feasible - no alternative route	R	Mod	Low	No		
B) Eliminate - remove TC station to remove queue issue	Would substantially impact works efficiency and increase works duration from 1 to 3 days	R	Mod	Low	No		
C) Engineer - relocate queue to alternative location	Assess at Design phase	P	Mod	Med	Possible	TMD	TGS designer to further consider these potential control measures, and any other suitable measures, to target revised risk = LOW
D) Engineer - introduce additional treatments to reduce vehicle speeds on approach	Assess at Design phase	P	Mod	Med	Possible		
E) Admin - TCs to operate shuttle flow with priority to vehicles on southern approach to eliminate / reduce queues	Assess at Design / Implementation phases	P	Mod	Med	Possible		

RECOMMENDED RISK PRACTICE FOR TTM PLANNING OUTPUTS

1. Company level risk assessment



Risk Assessment document

Register of closed risk items

- Risk analysis is completed
- Always include in risk document
- Shows the risks identified, treatment applied and accept of resultant risk rating

Residual risk register

- Risk analysis requires further consideration
- Any risks that remain to be addressed further in the design phase or in the field
- Further risk consideration is required

Action List

- Risk analysis is completed
- Actions have been identified to be addressed
- Clearly identify who is responsible

RECOMMENDED RISK PRACTICE FOR TTM PLANNING OUTPUTS

1. Company level risk assessment

2. Planning stage risk assessment

Risk Assessment document

Register of closed risk items

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Action List

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RECOMMENDED RISK PRACTICE FOR TTM PLANNING OUTPUTS

1. Company level risk assessment

2. Planning stage risk assessment
Risk Assessment <ul style="list-style-type: none">• Assess residual risks• Complete all actions• Identify additional planning level risks
Outputs <ul style="list-style-type: none">• Further closed risks• Update residual risks• Update action list

Risk Assessment document

Register of closed risk items

- Risk analysis is completed
- Always include in risk document
- Shows the risks identified, treatment applied and accept of resultant risk rating

Residual risk register

- Risk analysis requires further consideration
- Any risks that remain to be addressed further in the design phase or in the field
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Action List

- Risk analysis is completed
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ON SITE RISK ASSESSMENT



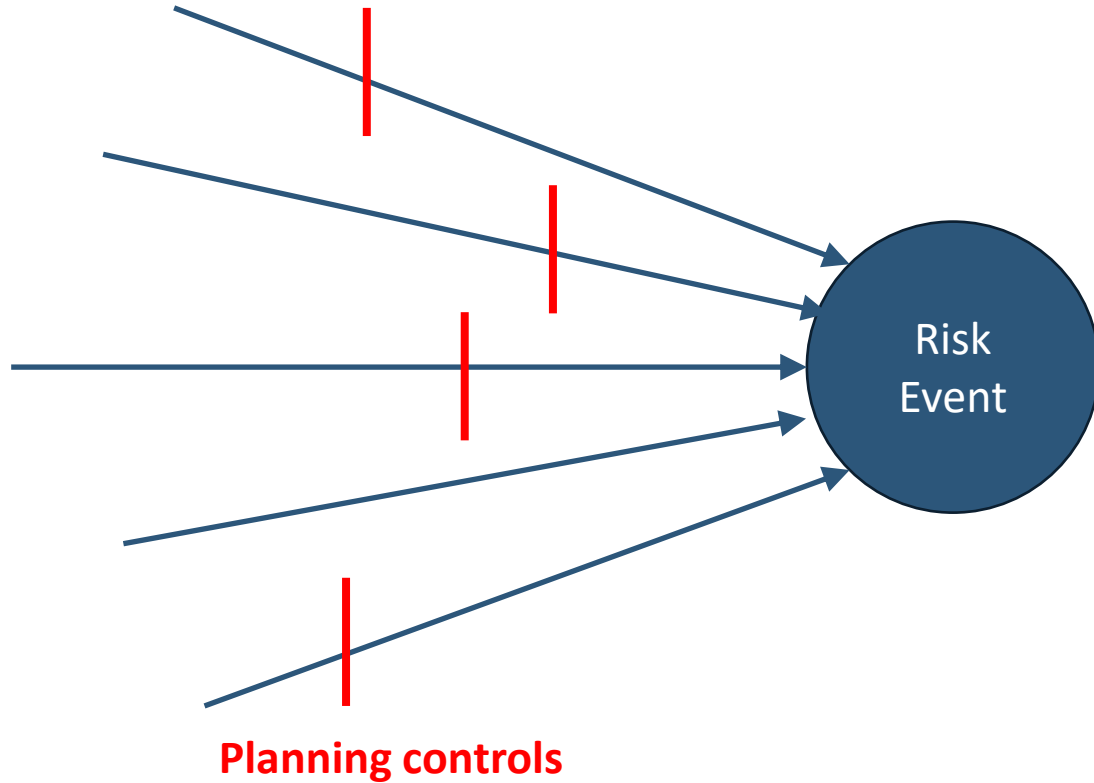
ON SITE RISK ASSESSMENT



ON SITE RISK ASSESSMENT



WHAT CAN YOU DO TO ADDRESS RISK



- Assume that someone may break your control
- Plan for success / Prepare for breach
- Who do you trust?
- I can only design so much
- Who experiences the risk

TAKE AWAYS

- The final control is for staff in the field
- How do we inform them of what we want them to look out for
- How do field staff behave in the field
- Speak up if you see someone acting unsafely
- Look out for yourself – look out for your mates – work as a team

Solutions



Transport



THANK YOU!



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