Purpose: In 2016 sample of crashes and near misses at road work sites, over 10% occurred where traffic had stopped or queued. More than half of these were actual or potential rear end crashes. This fact sheet identifies key issues and suggests options for Traffic Controllers and Site Supervisors to avoid rear end crashes.

Audience: People who prepare and administer roadwork contract documents, traffic management companies, Traffic Management Design professionals and contractors (PCBU).

Research findings

- In 66% of cases the vehicle was travelling too fast to stop in time at the control point.
- A third of cases involved heavy vehicles, with the heavy vehicle locking up its brakes to stop in time.
- Wet weather is also issue in rear end crashes at traffic queues.

Examples

- A car travelling west approached the traffic control point on the eastern end of the job site, obviously not paying attention. It was coming too fast and could not stop at the rear of the queue, so it swerved around the queued traffic and eventually stopped. (Downer, 2016)
- Night works with stop slow traffic on hold. An approaching heavy vehicle fails to slow down safely until the last car in the queue puts on their hazard lights. The heavy vehicle had to lock up their brakes and come to a skidding stop, with its trailer slightly sideways towards the shoulder of the road. (Altus, 2016)
- A two vehicle nose to tail collision occurred at the traffic control point. The second vehicle appeared to be speeding and failed to stop in time, hitting the vehicle in front. It was raining at the time. (TMR, 2016)

Did you know?

There is a new temporary hazard marker which gives clearer directions to drivers than previous versions. The new sign was developed in partnership with the traffic management industry.

Training and responsibilities

The first step for all site supervisors is to make sure that your Traffic Controllers hold current accreditation and have had the appropriate training for the job that they will be working on. It is your responsibility to make sure your Traffic Controllers are alert and medically fit, and are not fatigued or affected by alcohol or drugs. Include your Traffic Controllers in your pre-start meeting to discuss job expectations and any site-specific issues.
A safe road is one where drivers can see a traffic queue and are travelling slow enough to stop in time.

**RISK: Queued traffic cannot be seen from a distance because of the site layout or road geometry, or signs are in the way.**

**What do you see?**

- Rear end crashes and near misses as drivers brake too late.
- Drivers swerving around the last car in the queue and you hear squealing of brakes.
- Cars running over cones and barriers as they swerve at the end of the queue. Delineation may become displaced or moved.
- Drivers swerve into closed lanes as they try to avoid hitting queued traffic.

**What can you do?**

- **Traffic controllers:**
  - Tell the site supervisor you think drivers cannot see the end of the traffic queue in time to stop.

- **Site supervisors:**
  - Shut down the site until traffic is less busy.
  - Drive through the site with traffic to see what speed drivers are travelling at.
  - Use a portable speed device to measure approach speeds to see if they are too high for drivers to stop safely at the end of the queue.

Speak to your Traffic Management Designer about:

- Moving any signs or screens that are blocking the view of the queued traffic.
- Installing LED warning signs for queued traffic (TC2232, 3-A and 3-B).
- Installing flashing lights on traffic queue warning signs (TC2232, 3-C).
- Installing signs telling the last vehicle in the queue to turn on their hazard lights (TC1992_1 and TC1992_2).

**Did you know?**

There are signs designed for managing traffic queues at road work sites. These are:

- Signs to indicate the last vehicle in the queue should turn on their hazard lights help prevent rear end crashes.
- Extra delineation to reduce illegal overtaking.
- LED warning signs for queued traffic.

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**RISK: Wet roads make it hard for drivers to stop.**

**What do you see?**

- Rear end crashes and near misses as drivers cannot brake properly on the wet road.
- Heavy vehicle brakes “lock up” and trucks skid as they try to stop.
- Drivers swerving around the last car in the queue and into closed lanes as they try to brake and avoid hitting queued traffic.
- You hear spinning of tyres and squealing of brakes.

**What can you do?**

- **Traffic controllers:**
  - Tell the site supervisor if you think drivers are not stopping safely because of wet roads.

- **Site supervisors:**
  - Shut down the site until the weather and road conditions allow drivers to stop safely.
  - Use a UHF broadcast to warn heavy vehicles of queued traffic and wet slippery roads.
  - Check if traffic is queued so far back that the speed taper is now too short for traffic to slow safely.

Speak to your Traffic Management Designer about:

- Installing a variable message sign telling drivers to slow down in wet weather and prepare to stop.
- Installing signs warning of the slippery surface at the queue ahead: TC1218 (Slippery), T3-16-1 (Advisory Speed) and TC1220 (Reduce Speed).
- Reducing traffic to a lower speed through the site until the roads are dry enough for traffic to stop safely.
- Changing the location of the speed taper if necessary.
- Installing rumble strips and rumble pads to slow traffic down.
A safe speed is one that makes sense to drivers and gives them enough time to stop if they need to.

RISK: Drivers are not slowing down because the speed limit does not seem reasonable to them.

What do you see?
- Drivers are speeding through the site.
- Drivers do not obey the “slow” baton.
- Drivers overshoot the stopping point.
- There are rear end crashes and near misses at the end of the traffic queue.
- You hear squealing tyres as drivers try to brake in time.

What can you do?

Traffic controllers:
- Tell the site supervisor that drivers are not slowing down enough to stop safely.

Site supervisors:
- Drive through the site with traffic to see if they reduced speed limit starts too far ahead of the road work site so that motorists start to speed up again.

Talk to your Traffic Management Designer about:
- Reducing lane width with delineators or temporary curbing so motorists “feel” like they are going too fast.
- Using rumble strips and rumble mats to alert drivers to the lower speed limit.
- Installing portable speed humps to encourage drivers to slow down.
- Using portable speed display devices to let motorists know that they are speeding.
- Installing a second traffic controller further along the queue to slow down traffic before they reach the stopping point.

RISK: Queue lengths are so long that the speed taper is now too short for drivers to react and slow down.

What do you see?
- There are rear end crashes and near misses at the end of the traffic queue.
- You hear squealing of brakes and see cars swerving to avoid hitting queued traffic.
- Cars run off the road or enter closed lanes as drivers try to avoid hitting queued traffic. You may see tyre marks on the road from braking too late.

What can you do?

Traffic controllers:
- Tell the site supervisor that drivers are not slowing down enough to stop safely.

Site supervisors:
- Drive through the site with traffic to see if they reduced speed limit starts too far ahead of the road work site so that motorists start to speed up again.

Talk to your Traffic Management Designer about:
- Reducing lane width with delineators or temporary curbing so motorists “feel” like they are going too fast.
- Using rumble strips and rumble mats to alert drivers to the lower speed limit.
- Installing portable speed humps to encourage drivers to slow down.
- Using portable speed display devices to let motorists know that they are speeding.
- Installing a second traffic controller further along the queue to slow down traffic before they reach the stopping point.

RISK: Glare from bright sunlight makes brake lights hard to see in the daytime.

What do you see?
- Drivers are holding their hands over their foreheads and moving their car visors to reduce the glare in their eyes.
- There is late braking and cars are following too closely.
- You hear squealing of brakes and see cars swerving to avoid hitting queued traffic.
- There are rear end crashes and near misses at the end of the traffic queue.

What can you do?

Traffic controllers:
- Tell the site supervisor if you think glare from bright sunlight is stopping drivers from seeing brake lights in front of them.

Site supervisors:
- Make sure queued traffic warning signs have been installed according to the TGS.
- Use a UHF broadcast to warn heavy vehicles of queued traffic ahead.
- Speak to the Queensland Police Service about mobile phone enforcement at the site.

Talk to your Traffic Management Designer about:
- Installing LED warning signs for queued traffic (TC2232, 3-A and 3-B).
- Installing flashing lights on traffic queue warning signs (TC2232, 3-C).
- Installing a variable message sign telling drivers to watch for traffic braking ahead.
- Introducing a second traffic controller further along the site to slow traffic down before they reach the stopping point.

In practice ...
If you move the speed taper to allow for queuing traffic, make sure that you return it to the original position as soon as possible. If the speed taper is too long drivers will start speeding up again before they reach the TC.
A safe road user is one that is alert and compliant.

RISK: Traffic controllers do not give drivers enough time to react and slow down safely.

What do you see?
- Drivers are braking at the last minute.
- There are rear end crashes and near misses.
- Drivers are overshooting the stopping point at the TC.
- You hear squealing of brakes and see cars swerving to avoid hitting the vehicle in front.
- Drivers are abusing the TC.
- Drivers are revving engines while they wait or spinning their tyres as they drive away.

What can you do?

Traffic controllers:
- Operate according to the TC Approved Procedures.
- Think about the weather conditions and the road surface when you are stopping traffic. Give drivers enough time to react and slow down safely.
- Be respectful and considerate of drivers when controlling traffic.

Site supervisors:
- Remind the TC of their operating requirements.
- Remove the TC from the task if they are disrespectful and inconsiderate of motorists.

Did you know?
There are signs designed for managing traffic queues at road work sites. These are:
- Signs to indicate the last vehicle in the queue should turn on their hazard lights to help prevent rear end crashes.
- Extra delineation to reduce illegal overtaking.
- LED warning signs for queued traffic.

Where to go for advice

Manual of Uniform Traffic Control Devices (MUTCD)
The MUTCD Part 3 – Works on Roads and its supplement contain guidelines for traffic management. You can find it by typing “MUTCD” into the search bar on the Transport and Main Roads website (www.tmr.qld.gov.au). Variations to the optimal treatments should only be made on the basis of a documented risk assessment.

MRTS02 — Provision for Traffic
The MRTS02 — Provision for Traffic is the TMR technical specification that applies to the control of traffic during roadworks and describes the project-specific requirements for control of all traffic through the worksite. You can find it by typing “MRTS02” into the search bar on the Transport and Main Roads website (www.tmr.qld.gov.au). This specification makes provision for mandating extra requirements for preventing end of queue incidents and accidents.

Traffic Controller training
Up to date training in safe traffic control practices can help protect TC’s from near misses and crashes on the job site.
To operate in Queensland TC’s must successfully complete a Queensland Department of Transport and Main Roads approved TC training course that provides both classroom and supervised on-road training in safe operation of STOP/SLOW traffic control activities.
The TC training course is offered by a range of Registered Training organisations. It includes a number of national units of competency. Further information about the TC training course can be obtained by contacting Statewide Capability Development, Department of Transport and Main Roads on 07 3066 8672.
The Traffic Controller Accreditation Scheme Approved Procedure can be downloaded from the Department of Transport and Main Roads website (www.tmr.qld.gov.au) by typing “tcas approved procedure” into the search bar.

Other fact sheets in the series include:
- Entering closed lanes at road works
- Disobeying the traffic controller
- Traffic controller near misses

For more information please contact Coryn Hedges on (07) 3066 8646, or email Coryn.J.Hedges@tmr.qld.gov.au.