Worksite Safety Update

Promoting safety in road construction

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Speed Enforcement Initiatives on M80 Project

Safety barriers and Truck Mounted Crash Attenuator Trucks have made a significant difference to the safety of road construction and maintenance personnel of recent years. However, speed compliance is a very necessary part of the combination of safety controls necessary for roadwork workplace safety.

Experience has shown that speed enforcement is necessary to encourage drivers to slow down and respect the safety of roadworkers who are building and maintaining the roads.

Speeding trucks present the most significant risk because of their higher weight and the support of the trucking industry in complying with roadwork speed limits is both necessary and appreciated.

The interlocked concrete barriers have effectively protected the worksites on the M80 with an estimated 60 million vehicles, including trucks, having passed through the project since commencement. Speed limits up to 80 km/h on the project reduce traffic congestion and public inconvenience. However, speeding above the posted speed limits cannot be tolerated because of the potential for increased barrier deflection into the worksite and further resulting vehicle crashes on the freeway.

The VicRoads M80 Project has been working with Construction Personnel, WorkSafe, Police, Transport Safety Services, Department of Justice and the Project Safety Team to achieve necessary speed compliance.

On the M80 Upgrade very conspicuous VMS illuminated colour displays (red, white, green and amber colours) and variable speed limit signs are used to clearly communicate and warn drivers of the required speed limit and that SPEED LIMITS ARE ENFORCED AT ROADWORKS. These signs are intended to reinforce the required behaviour.

Frequent Police and VicRoads Transport Safety Services (TSS) Patrols are in place to enforce the speed limits, together with Department of Justice Portable Road Safety Cameras.

Modern Laser Radar Guns are required for enforcement officers on freeways because of the multiple lanes and vehicle targets. In February another Laser Radar Gun was presented to Metro North West Metro Region TSS by Trevor Boyd, the M80 Project Director, to enable the TSS Officers to support the Police and Department of Justice to facilitate a safer worksite for everyone.

The M80 Upgrade Project is to be congratulated for this safety initiative as are Victoria Police, Transport Safety Services and the Department of Justice for their contribution to providing safer road construction worksites on freeways.

Are seat belts worn on your site?
In the event of a roll-over or crash a seat belt will prevent serious injury

Trevor Boyd, Director M80 Upgrade Project (left) presents the Laser Radar Gun to Darrell Gascoyne, Manager Transport Safety Services Metro North West Region.

Presentation representatives from Transport Safety Services, M80 Project, WorkSafe, Victoria Police and Project Safety Team.

West Gate Bridge Underbridge Inspection & Maintenance

The existing West Gate Bridge Underbridge Inspection and Maintenance Gantries are coming down and will be replaced by a modern mobile Underbridge Inspection Unit. The proposed Maintenance Unit will be similar to those used on the Millau Viaduct Bridge between Paris and Barcelona - which is the highest bridge in the world.

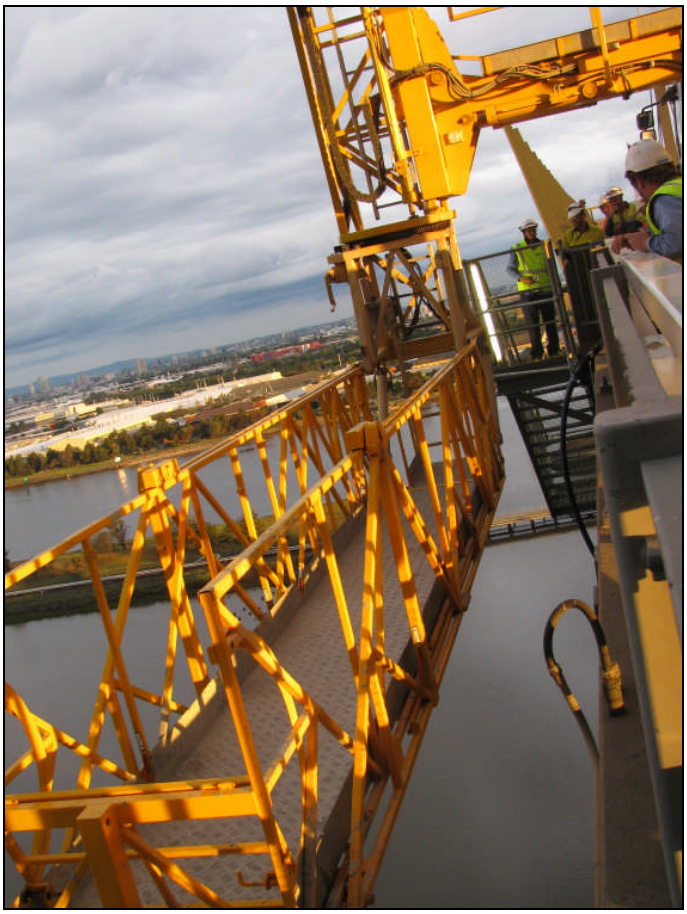
The West Gate gantries have provided effective maintenance and inspection access for a number of years but are no longer practical because the necessary strengthening props on the bridge parapets will not permit the gantries to be moved longitudinally. The first gantry was lowered and removed in February.

The first Gantry being removed from the bridge in February.

The bridge Inspection and Maintenance Unit will be designed and manufactured to specifications being prepared by the VicRoads West Gate Bridge Maintenance Engineers who have been part of the bridge upgrade construction team. Applicable Australian safety standards will be complied with. The unit will need to reach over the newly installed Public Safety Barriers on the bridge parapets, and then down and under the bridge for access by bridge inspection and maintenance personnel.

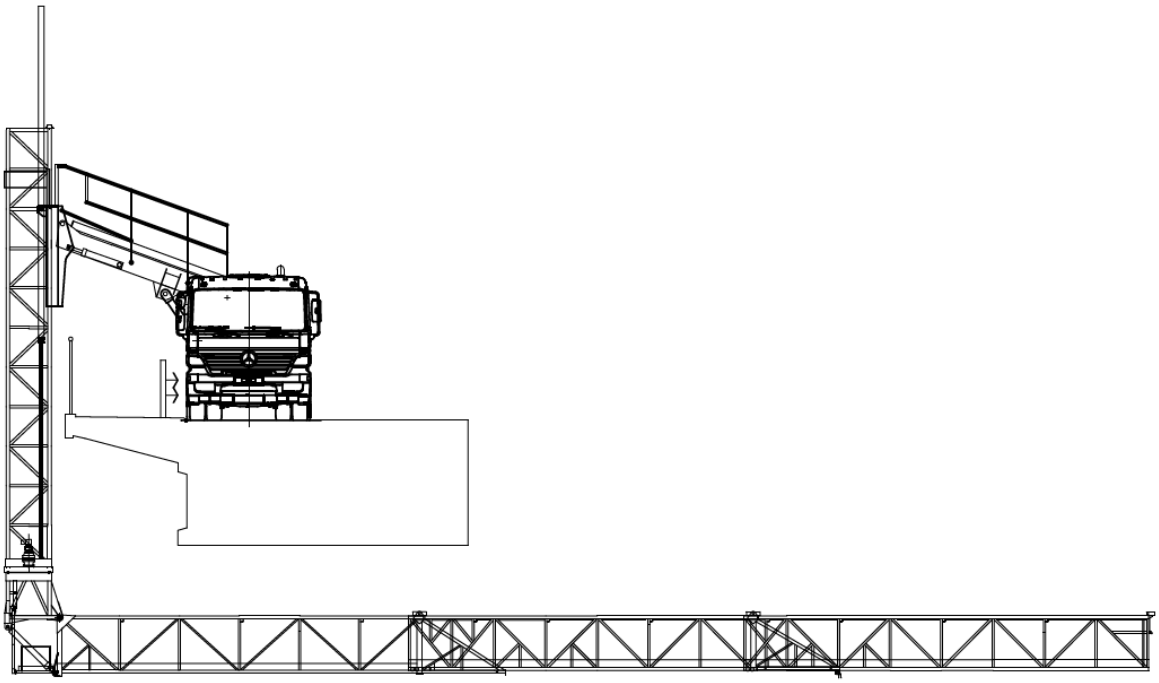
It will be similar but larger then a unit used to access the underside of smaller bridges in Australia and which was trialled by the engineers as part of the employee consultation and evaluation process. The trial unit shown on the following pages has a boom length of about 10 metres and the West Gate unit will require a boom length of approximately 23 metres. Slow lane closures at night and TMA protection will be expected to apply.

Small Underbridge Inspection Truck with 10 metre access boom retracted and secured for road travel. The proposed unit will be significantly larger with a boom length of 23 metres.



Boom swung over the side of the West Gate Bridge

Lower horizontal boom being swung under West Gate Bridge.



Drawing showing typical arrangement of boom when fully deployed under the bridge.

Access between truck tray and enclosed vertical ladder

Wheeled outriggers which are lowered when the inspection arm is deployed facilitating relocation along the bridge length (shown retracted). Unlike crane outriggers which are extended these are retained within the width of the unit.

Additional feature to be included on the West Gate Bridge Inspection Unit will include:

1. An air compressor;
2. Generator;
3. Water tank with pump;
4. LED lighting to allow the unit to operate without the generator or the engine of the truck working for a period of 12 hours;
5. Customise platform end that is adjustable to the slope of the bridge;
6. Full mesh enclosure of the platform to prevent objects falling;
7. CCTV cameras to allow visual communication between the platform and the cabin;
8. The unit will be designed to impose lower axle loading on the bridge so that it can be used on other VicRoads bridges that have a lower capacity then the West Gate Bridge.

Safe Work Method Statements for Road Construction

Road Construction work includes up to 16 of the prescribed 19 high risk construction activities under the OHS Construction Regulations 2007. All of these activities are rarely present on any one site but the following are present at times on road construction sites:

1. Work on or adjacent to roads used by traffic
2. Work on site with movement of powered mobile plant
3. Work near underground power and gas services
4. Work near overhead power lines
5. Work at height greater then 2 metres
6. Excavations deeper then 1.5 metres
7. Work near rail traffic
8. Work involving tilt-up concrete
9. Work involving structural alterations that require temporary support to prevent collapse
10. Work involving demolition
11. Work in, adjacent or over water where a risk of drowning exists
12. Work involving explosives
13. Work involving a confined space
14. Work involving a tunnel
15. Work involving the removal or likely removal of asbestos
16. Work in an area that may have contaminated of flammable atmosphere

The *OHS Act 2004 and the OHS Regulations 2007* places an emphasis on hazard identification and control via the hierarchy of hazard / safety controls as described in the applicable WorkSafe *Compliance Codes and the VicRoads Worksite Safety – Traffic Management Code of Practice 2010*, rather than risk assessment. The regulations have classified the above activities as high risk so the obligation is to implement hazard controls which will either eliminate the hazard or reduce the hazard risks, so far as is reasonably practicable.

The generic hierarchy of hazard / safety control under the OHS Act 2004 is:
(a) To eliminate risks to health and safety so far as is reasonably practicable; and
(b) If it is not reasonably practicable to eliminate risks to health and safety, to reduce those risks so far as is reasonably practicable.

Under the OHS Construction Regulations 5.1.7 Control of Risk the generic hierarchy of safety / hazard control is expanded to:

(1) An employer must eliminate any risk to health or safety associated with construction work, so far as is reasonably practicable.
(2) If it is not reasonably practicable to eliminate a risk to health or safety associated with construction work, the employer must reduce that risk so far as is reasonably practicable by—
(a) Substituting, for the hazard giving rise to the risk to health or safety, a new activity, procedure, plant, process or substance that gives rise to a lesser risk to health or safety; Or
(b) Isolating persons from the hazard; or (c) using engineering controls; or
(d) Combining any of the risk control measures in paragraphs (a), (b) and (c).

(3) If an employer has complied with sub regulations (1) and (2) as far as is reasonably practicable and a risk to health or safety associated with the construction work remains, the employer must, so far as is reasonably practicable, use administrative controls to reduce that risk.

(4) If an employer has complied with sub regulations 1), (2) and (3) so far as is reasonably practicable and a risk to health or safety associated with the construction work remains, the employer must control that risk by providing appropriate personal protective equipment that is suitable to the task to persons at risk.

The hierarchy of safety / hazard controls has been established for most of the high risk construction work areas.

The OHS Regulation 5.1.5 requires that a Safe Work Method Statement (SWMS) document be prepared that:

(a) Identifies work that is high risk construction work; and
(b) States the hazards and risks to health or safety of that work; and
(c) Sufficiently describes measures to control those risks; and
(d) Describes the manner in which the risk control measures are to be implemented.

As an example of a SWMS which addresses the requirements under (a), (b), (c) and (d) above it is advantageous to consider traffic management because the SWMS in this area are sometimes not well documented and rarely fully documents expectations under the hierarchy of controls obligations.

SWMS for Traffic Management

Work on or adjacent to all roads used by traffic is high risk construction work as defined in the OHS Regulations 2007.

The hierarchy of safety / hazard controls for worksite traffic management has been specified in the Worksite Safety – Traffic Management Code of Practice 2010 (WS-TM Code).

There is also a requirement in the WS-TM Code to document the reason why higher level controls may not be practical for a location – it is not always practical to close roads or install temporary safety barriers and the reason can be documented in the SWMS. The manner in which the risk control measures are to be implemented should include a

simple description on how the works to deploy the control measure will be protected from traffic.

An example of a SWMS for Traffic Management which complies with the Victorian OHS Regulations and the Worksite Safety – Traffic Management Code of Practice 2010 is appended to this Update. The example identifies the SWMS (a), (b), (c) and (d) regulation requirement in each column. This is an example and may not include all of the hazards and controls applicable to a site e.g. movement of powered mobile plant, work at height, etc.

The layout of the table is to facilitate comparison with OHS regulation 5.1.5 expectations. However, the actual SWMS may follow another table layout provided it meets the regulation (a) to (d) expectations as specified.

Worksite Site Safety Update is produced monthly by VicRoads Major Projects Division to communicate industry safety information and initiatives within VicRoads and to our contractors. It is also circulated via the WorkSafe Safety Soapbox to industry. The content reflects civil road construction and maintenance safety and includes works conducted on or beside operational roads. The editor may be contacted at: michael.rose@roads.vic.gov.au

(a) HIGH RISK WORK	(b) HAZARDS & RISKS	(c) RISK CONTROL/S	(d) IMPLEMENTATION OF CONTROLS
Work on or adjacent to road used by Traffic	**Hazard: Out of control vehicle impacting workers.** **Risk: High. Consequence serious injury or fatality.**	**Isolation: Temporary Concrete Safety Barriers & Non gating terminals.** **80 km/h maximum speed limit with barriers deployed.** **Note 1: Elimination of traffic not practical long term due to lack of alternative capacity roads.** **Barriers to be installed as per manufacturer's installation manual.**	**The barriers will be deployed under the protection of a full lane closure and a TMA. TMA to be positioned within lane closure and close to actual maintenance area to protect against local barrier impact.** **The traffic management signage and will be as per approved Traffic Management Plan XYZ. Memorandum of Agreement 123 applies.**
	Hazard: Barrier unit dropped during deployment. **Risk: High. Consequence serious injury.**	**Engineering: Mobile crane, lifting equipment, tag line/s used as per barrier installation specifications.** **Note: Higher level control not practical (refer Note 1 above).**	**As above**
	Hazard: Barriers struck by vehicle and deflect into workplace. **Risk: High. Consequence barriers strike and injure pedestrian worker.**	**Engineering: Barriers selected with low TL-3 deflection.** **Barriers anchored in bridgework or other tight work areas.** **Behavioural: 80 km/h in general but 60 km/h speed limit in tight work areas such as bridges. Speed enforcement.** **Establishment of designated 'No Go Zone' behind barriers based on manufacturers TL-3 crash test results. Induction training.** **Note: Higher level controls not practical. (Refer Note 1 above).**	**Barriers and terminal crash attenuators fit for purpose as specified in contract.** **MOA and TMP as above** **Containment fence or signs to warn of No Go Zone to be installed prior to barrier deployment or under lane closure and TMA protection.**
	Hazard: Objects falling from passing vehicles and entering worksite at high speed.	**Isolation: Barrier screens for > 60 km/h.** **Note: Higher level controls not practical (refer Note 1 above).**	**Screens installed prior to barrier deployment.**
	Barrier / screen maintenance.	**Isolation: TMA and lane closure.** **Note: Higher level controls not practical (refer Note 1 above).**	**Lane closure under TMA protection. TMA to be positioned within lane closure and close to actual maintenance area to protect against local barrier impact.**