Good Morning everyone

My name is Craig Lubich and with me is Stuart Jones, the founder and Managing Director of JJ Cleaning Australia.

Welcome and thank you for this opportunity to be here today.

For more than two years we have worked closely with Transurban on the development and proving up of an innovative world first tunnel cleaning solution. As a result, Transurban added the requirement for an Autonomous Tunnel Cleaning solution to the Westgate Tunnel at a requirement in the tender process.

For more than 6 months we worked closely with each of the tenderers to provide the necessary support and information to enable the inclusion in each of their tenders.

At the 11th hour a decision was made to exclude this and other tunnel services in order to get within the final target cost.

We seek partial or full funding from EES to facilitate the implementation of this service.

Our format today is (next slide)
Agenda

What we do

Current cleaning practice

The future –
Automated wall washing system
  Features
  Functions
  Benefits

Some information on who we are,

What current cleaning practices are employed and their challenges,

And importantly what we believe to be the future of our industry

(next slide)
Currently clean >80% of all tunnels in Australia

Currently contracted in 8 tunnel locations throughout Australia of varying size and complexity. All machinery designed and built in Australia. Strong R & D focus, constantly looking at ways to innovate and improve our service.

Our approach to reducing Australia’s overall tunnel cleaning costs has changed the maintenance landscape for tunnel maintenance groups & allowed us to grow interstate and provide our current and future clients with a far higher standard of service than previously experienced. Designing and constructing our own equipment using our in house R&D department, gives us an in depth understanding of our equipment, reduces the capital costs, which in turn translates into significant savings & benefits to our clients.

We are committed to providing our clients with an unsurpassed level of professionalism, proven by having a track record of never having missed a scheduled, or unscheduled, tunnel clean in our allotted time frame.
Current practice – truck mounted, semi automatic cleaning

Dual brushes on our Melbourne unit cleaning up to 4.0m. Brushes interchangeable and available in varying sizes.

Brisbane unit cleaning decorative wall panels with a built-in elevated work platform.

These slides show part of our current fleet and method of tunnel cleaning.

While this has proven very successful we do not intend to stand still in the R&D department.

Using such equipment comes with inherent problems, licencing, insurance, mechanical issues with a large truck/lorry and human operator error – which can be limited by high level training but eventually is unavoidable.
Melbourne unit cleaning concaved walls in the Burnley Tunnel

Melbourne unit cleaning New Jersey Barriers (NJBs)

Showing mobile units cleaning curved walls and jersey barriers without the need to interchange brush dimensions or shape.
Mobile truck enables light cleaning

Mobile units such as this and in previous slides show benefits of an ability to clean tunnel lighting, signage and hand cleaning.
Current cleaning practice – Problems

- Can only be delivered safely in conjunction with traffic management using either rolling, single lane or full tunnel closure.

- Problems associated with this system
  • Impingement on public access, public inconvenience
  • Loss of toll revenue
  • Significant traffic management costs on closure
  • Safety of workmen & public - slow moving vehicles in a high speed environment
  • Limitations on cleaning frequency & timing
  • Rising cleaning costs (minimum at CPI)
  • Political issues related to tunnel closure
Real life work environment
Key safety issue
Hitting an attenuator can be fatal!
Tunnel cleaning - the next step

Our challenge has been to develop and build a robotic solution to deliver reduced and more flexible cleaning times and lower costs

Included by Transurban in tender scope.
Submitted by Tenderers in their final tenders

Not complicated engineering.

Key is in the automation

(run video – only available on PowerPoint version of slide show)

(next slide)
Automated wall washing solutions

Benefits:
• No tunnel closure
• No disruption to traffic flow or tolls
• Ability to clean at clients desired intervals
• Safety – no workmen on site or infringement to public
• Wall panels or wall lining cleaned more frequently = longer life expectancy of asset
• Higher level of light reflectivity = lower power charges

Many benefits of automation

(ask the question - are there other benefits that I have missed that you can see?)

(next slide)
Installation options for JJ Cleaning Australia Auto Washer

• 1. Installation during tunnel construction.
   Preferred method. Simple, cost efficient for the client and design and construct team.

• 2. Installation post fit to pre existing tunnel.
   This is achievable under most circumstances.

Design options include:
• run on crash/jersey barrier (if applicable)
• run on road surface
• run on elevated railing

All versions fully or semi automatic depending on the design brief.

Installation costs
• Cost neutral over x years (specific to each tunnel)
• Fitout costs vary dramatically depending on new tunnel fitout or post fit

There are a number of install options

Our preferred method is to be engaged in the D & C process. This delivers a better design and cost outcome.

There several design options, all fully or semi automatic.

Clearly costs are driven by complexity of each site

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Summary

The benefits of the ATCS within the EES themes are:

Transport - The implemented system enables the tunnel operators to keep all lanes open reducing congestion and significantly enhancing vehicle safety by removing slow moving work vehicles from the tunnel.

Physical Environment - All cleaning chemicals are collected in the Tunnel settlement tanks so as not to contaminate groundwater or ecology. Cleaning frequency is increased resulting in significantly longer tunnel wall panel life expectancy. Higher wall panel reflectivity lowers overall electricity costs, lowering the carbon footprint of the tunnel.

Human health - Reduced carbon build up on panels increases air quality. Automating cleaning removes the risk of having workmen in congested tunnel traffic.
Questions?