Completing the Western Ring Route

SH16 Lincoln Road Interchange Improvements

Presentation to REAAA
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AGENDA

1. Western Ring Route
2. Lincoln Road Interchange
3. Project details
4. Construction
   1. Challenges of staged construction
   2. Safety
   3. Bridge construction
   4. Ground improvement
5. Thoughts on Early Contractor Involvement
Western Ring Route – Road of National Significance

• Lincoln Road Interchange Project part of $2bn Western Ring Route (WRR) road of national significance (RoNS).

• WRR RoNS will be largely completed and operational by the end of 2018 and will:
  • Support economic growth and vitality
  • Provide alternative routes and network resilience
  • Increase trip reliability for motorway users
  • Shape smarter travel choices for a growing Auckland
  • Improve overall efficiency on our transport network

• WRR RoNS consists of seven key packages for completion.
Lincoln Road Interchange Project

Key features and benefits

• A new, improved interchange at Lincoln Road
• New six-lane bridge at Selwood Road (future-proofed for seven)
• Widened and lengthened bus shoulders along SH16
• Widening the motorway to three lanes in each direction
• New motorway bridge over the Henderson Creek
• Wider and realigned on and off-ramps for better safety and traffic flow
• Signalised intersections at either side of the interchange
• Better access to the busy industrial area on Lincoln Road
• A new 3m shared pedestrian/cycle path across the Selwood Road Bridge
• A wider and better quality shared path over the Henderson Creek Bridge
• Extension of the North-Western Cycleway between the Henderson Creek Bridge and Lincoln Road
Lincoln Road Interchange Project

• Awarded in March 2010 – 3 Separable Portions

• ECI Contract - $115m

• Project team comprised Fulton Hogan with URS as head designer. Aurecon is Client's Advisor

• Physical works began in January 2011 with the first phase of Selwood Road Bridge replacement. Design of the balance of the project continued in parallel

• Stage 2 comprising Westbound off-ramp works added in October 2011 - required for Waterview Tunnels opening

• Stage 3 added in May 2012 - Eastbound works to complete three legs of the full diamond
Lincoln Road before January 2011
Lincoln Road December 2011
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Lincoln Road June 2013
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Construction – Staged delivery

• Each stage has to operate independently but to be designed with additional stages in mind - both design and construction.

• Ensured that we future proofed as much work as possible - e.g. Stage 4 Triangle Road upgrade

• Traffic management - often completing work which cannot be utilised until the next stage is ready.

• Commercial - different escalation dates.

• Negotiating other stages as much as possible with existing rates. Site team delivering works and pricing next stage.

• Makes it more interesting!
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Construction – Safety

• Some significant safety challenges on an urban motorway

• Transpower conductors - 220Kv and 110Kv and lots of crane work

• Motorway traffic - and speed of it

• Local Traffic - driver behaviour

• Confined working space - e.g. Eastbound widening

• Phased construction of bridges - 4 phases for HCB and over creek and adjacent to traffic and conductors

• Getting on and off the motorway into site gates

• Stats - TIFR around 12. No LTI for 953 days
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Construction – Henderson Creek Bridge
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Completing the Western Ring Route

Construction – Henderson Creek Bridge
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Construction – Henderson Creek Bridge
A method we can’t use to deconstruct!
Construction – Ground Improvement

- Site underlain by poor ground - peat and liquefiable layers - especially at HCB and EBOR Bridge
- Effort put into finding the most cost effective solution during design
- Wicks and Preload on WB off-ramp - Peat
- H6 Timber poles on eastbound widening - Peat
- Mass stabilisation for liquefiable areas - up to 8m deep
- Deep soil mixing for deeper areas or difficult access
- Risk for GI significant - agreed a TOC
- Very successful GI - TOC will produce a saving
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Construction
H6 Poles – not much room to work!
Walls and barrier in position
Mass stablisation
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Construction
Mass stabilisation – Henderson Creek Bridge
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Construction

[Image of construction site]
Completing the Western Ring Route

Construction – Deep Soil Mixing (DSM)
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Construction
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Lincoln Road Interchange
Early Contractor Involvement

• This is a technically challenging project delivered in a difficult economic climate and pressure on government funding

• The open collaborative relationship between the parties has found solutions to significant challenges and enabled much of the value of the full interchange to be unlocked for the benefit of the motorist

• Seamless transition through concept, consenting, final design and construction has delivered the project in a shorter time than would have been possible in a planning, design, procure, and build.

• TOC within a lumpsum - innovative risk sharing
Thank you