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Background

• Local councils, as road authorities, face the growing challenge of maintaining and eventually replacing ageing bridges on their regional and local roads.
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Why Roads and Maritime?

• NSW Government is developing an innovative and cost effective solution to enable regional councils to replace bridges on their roads

• Roads and Maritime chose to undertake this ambitious project, utilising its expertise in bridge design:
  ✓ To provide assistance to local government to maintain its network availability
  ✓ To contribute to well informed proposals seeking funding from State and Federal sources
  ✓ To provide a consistent standard of infrastructure
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Benefits

Delivers benefits to businesses, industry and the communities of NSW by:

Improving access
✓ Provides ongoing solution for councils
✓ Connects local communities
✓ Removes load limited bridges
✓ Natural disaster resilience
✓ Minimal disruption to communities during construction

Growth and economic benefits
✓ Enhances and supports regional communities and council workforces
✓ Improves freight movement (‘last mile’)
✓ replaces deficient assets

Strategic alignment
✓ Opportunity to link Fixing Country Roads, Federal Government Bridges Renewal Programme funding
✓ Aligns three levels of government and industry to deliver a fit for purpose solution

Industry collaboration
✓ Utilises specialist technical expertise
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Elements

Targets the smaller bridges:

✓ Maximum 12 metres span
✓ Maximum 1000 VPD
✓ One or two lanes
✓ Spill through or walled abutments
✓ SM1600 superstructure
✓ Design loadings for substructure tailored to location, and vehicle requirements
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Features

Delivered through:

✓ A collaborative approach with local government
✓ Simple, safe and easy to build solutions
✓ Using existing council resources
✓ Development of guides to assist investigation, design, construction, and maintenance
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Phases

- **Phase 1: Development**
  - Liaise with local government
  - Develop draft designs
  - Develop draft guides
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Phases

• **Phase 2: Proof of concept**
  ✓ Select, design and construct a pilot bridge (Bookookoorara Creek Bridge in Tenterfield Shire)
  ✓ Feedback into designs and guides
  ✓ Finalise designs and guides

• Provide country bridge solutions to local government
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Framework

• **Drawings**
  – Type 1: Two lanes, 8/10/12 metres span
  – Type 2: Single lane, 8/10/12 metres span
  – Type 3: Single lane – butted joint, 8/10/12 metres span

• **Guides**
  – Overarching
  – Suitability and Investigation
  – Design
  – Construction
  – Operations and Maintenance
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Delivery process

- **Suitability and Investigation Guide**
- **Suitability** – criteria (type 1/2/3, 8/10/12 metres?)
- **Investigation**
  - Site, survey, hydrology, geotechnical, etc

![Typical Section Diagram]
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Delivery process

- **Design Guide**
  - Standard drawings
  - Council requirements
    - In-house
    - Consultant

[Diagram of delivery process]
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Delivery process

- **Construction Guide**
  - Council staff
  - Tenders
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Delivery process

- Operations and maintenance guide
  - Council staff
  - Contractors

Country Bridge Solutions delivery process
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Construction sequence

- Survey control
- Foundations
- Piers
- Headstocks
- Abutments
- Bearings
- Modular decks
- Wingwalls
- Stitch pours
- Curing
- Traffic railing
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Actual costs: Type 1 - 3x10 metres (Trial bridge $2016)

- Total: $4,247/metre²
- Superstructure: $1,750/metre²
- Substructure: $2,073/metre²
  - (Headstocks: $730/metre²)
- Site + Project Management: $424/metre²
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Actual costs: Type 1 - 3x10 metres (Trial bridge $2016)

- Estimated cost: $1.05 million
- Actual cost: $1.08 million
- Cost effective
- Remote location
- Six months construction
  - Eight weeks superstructure
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Next steps

- Country Bridge Solutions design drawings and guides are available for general use
- Promote Country Bridge Solutions to NSW Councils
- Provide Roads and Maritime technical support for drawings
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Big picture…….

• Three tiered political support
• Opportunity to showcase skills
• Establishes and maintains a collaborative relationship with local government
• Ongoing improvement of assets
• Guides suitable for general use
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Questions ?