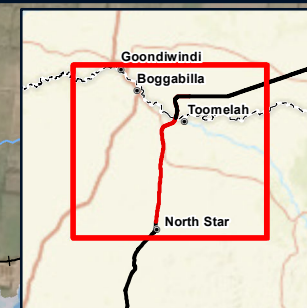
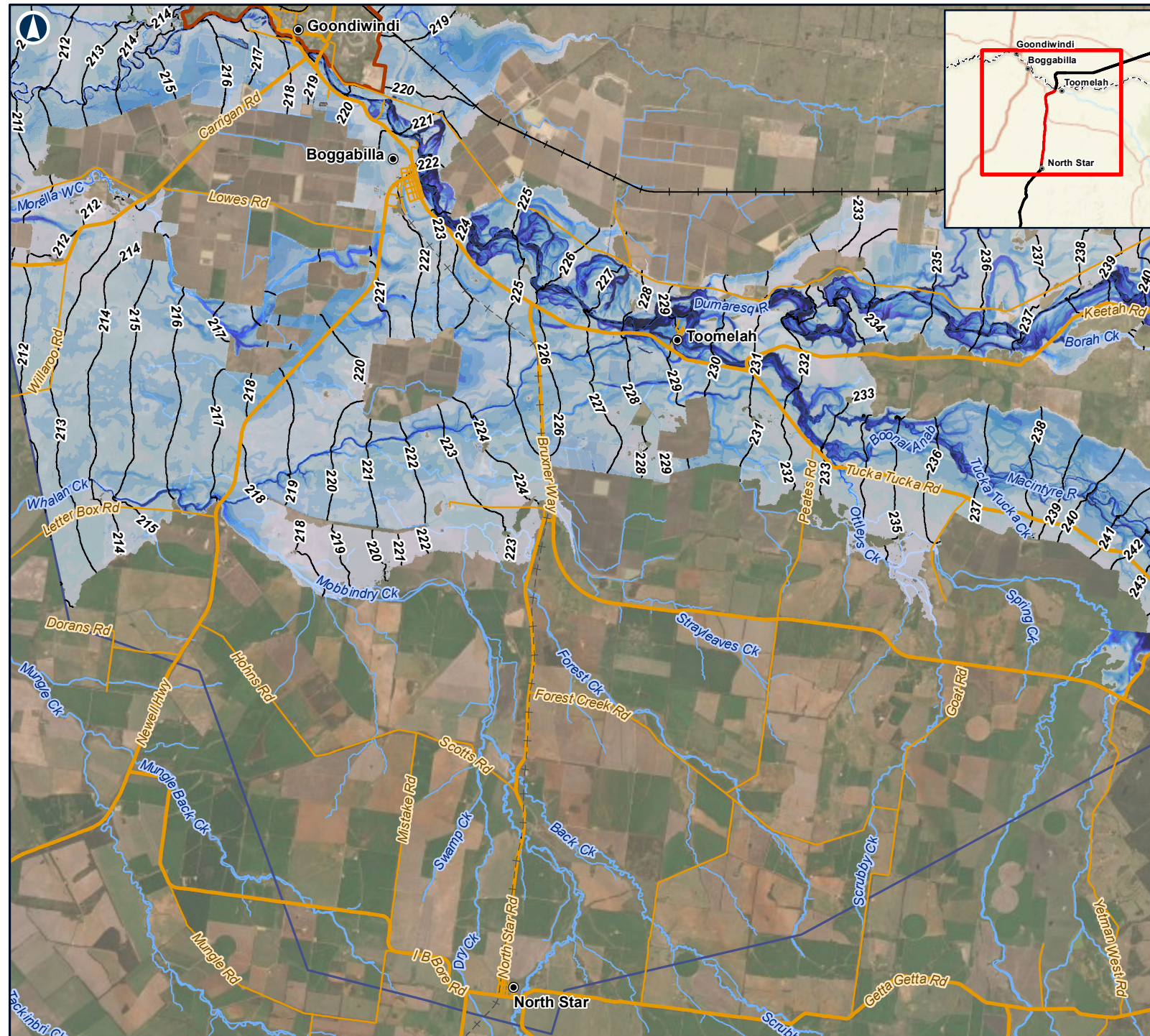


## Appendix D

### Figures – BRVFMP levees and factored flows





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## NORTH STAR TO NSW/QLD BORDER

Figure D1: Existing Case  
BRVFP levees and factored flows  
Peak water levels

### LEGEND

- Localities
- Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/QLD border
- Watercourses
- Goondiwindi levee
- 1m contour (mAHD)
- Sub-model extent

### Depth (m)

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 2.5
- 2.5 - 3.0
- 3.0 - 3.5
- 3.5 - 4.0
- 4.0 - 4.5
- 4.5 - 5.0
- > 5.0

10km

Coordinate System: GDA 1994 MGA Zone 56

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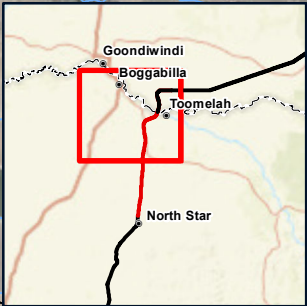
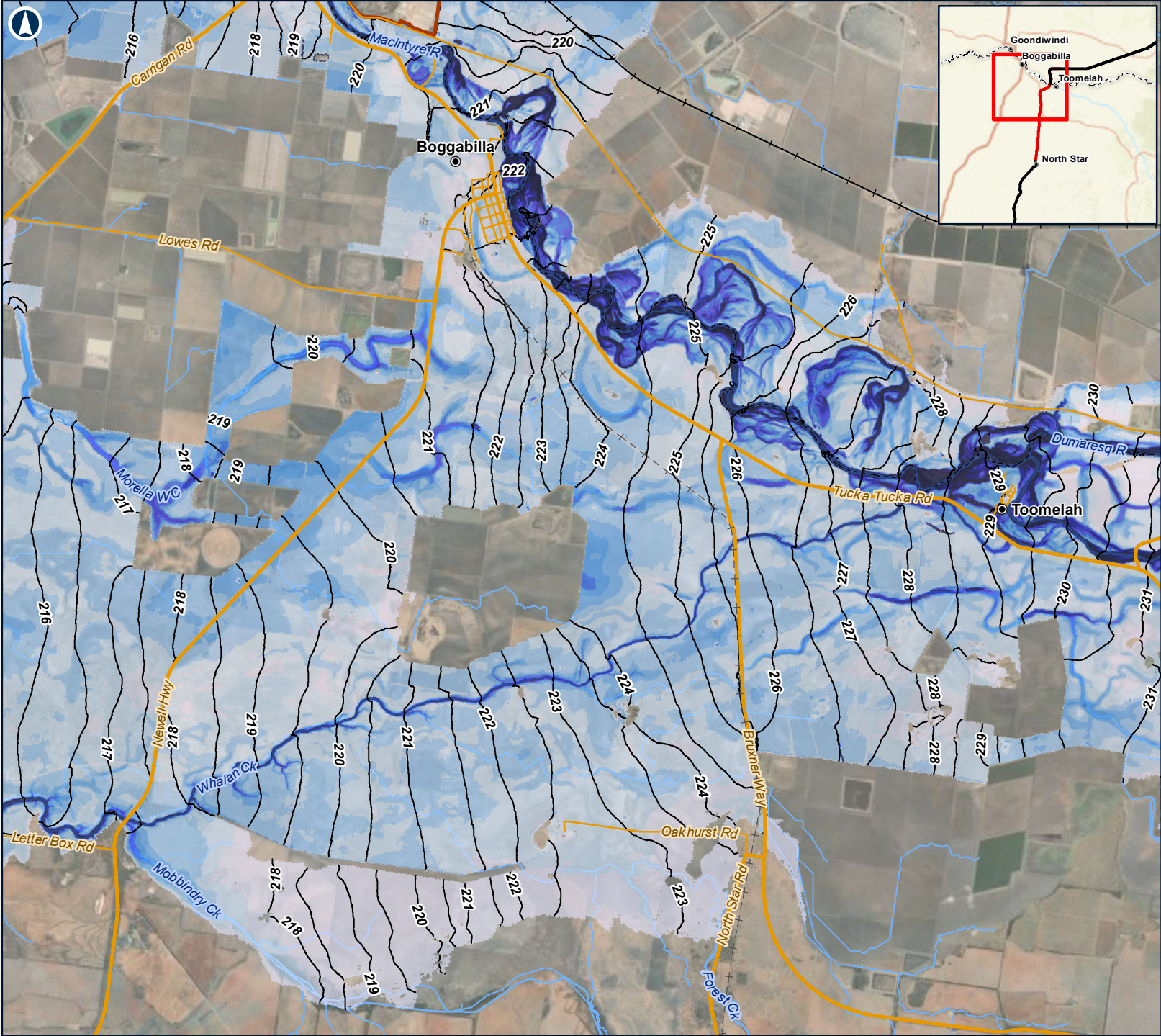
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Paper: A4

Author: FFJV GIS

Scale: 1:240,000





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**NORTH STAR TO NSW/QLD BORDER**

Figure D1-A: Existing Case  
BRFVMP levees and factored flows  
Peak water levels

**LEGEND**

- Localities
- Existing rail (operational)
- Existing rail (non-operational)
- NSW/QLD border
- Watercourses
- Goondiwindi levee
- 0.5m contour (mAHD)
- Sub-model extent

**Depth (m)**

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 2.5
- 2.5 - 3.0
- 3.0 - 3.5
- 3.5 - 4.0
- 4.0 - 4.5
- 4.5 - 5.0
- > 5.0

6km

Coordinate System: GDA 1994 MGA Zone 56

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**NORTH STAR TO NSW/QLD BORDER**

Figure D1-B: Existing Case  
BRVFP levees and factored flows  
Peak water levels

**LEGEND**

- Localities
- +— Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/QLD border
- Watercourses
- 0.5m contour (mAHD)
- ▭ Sub-model extent

**Depth (m)**

- 0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 2.5
- 2.5 - 3.0
- 3.0 - 3.5
- 3.5 - 4.0
- 4.0 - 4.5
- 4.5 - 5.0
- > 5.0

6km

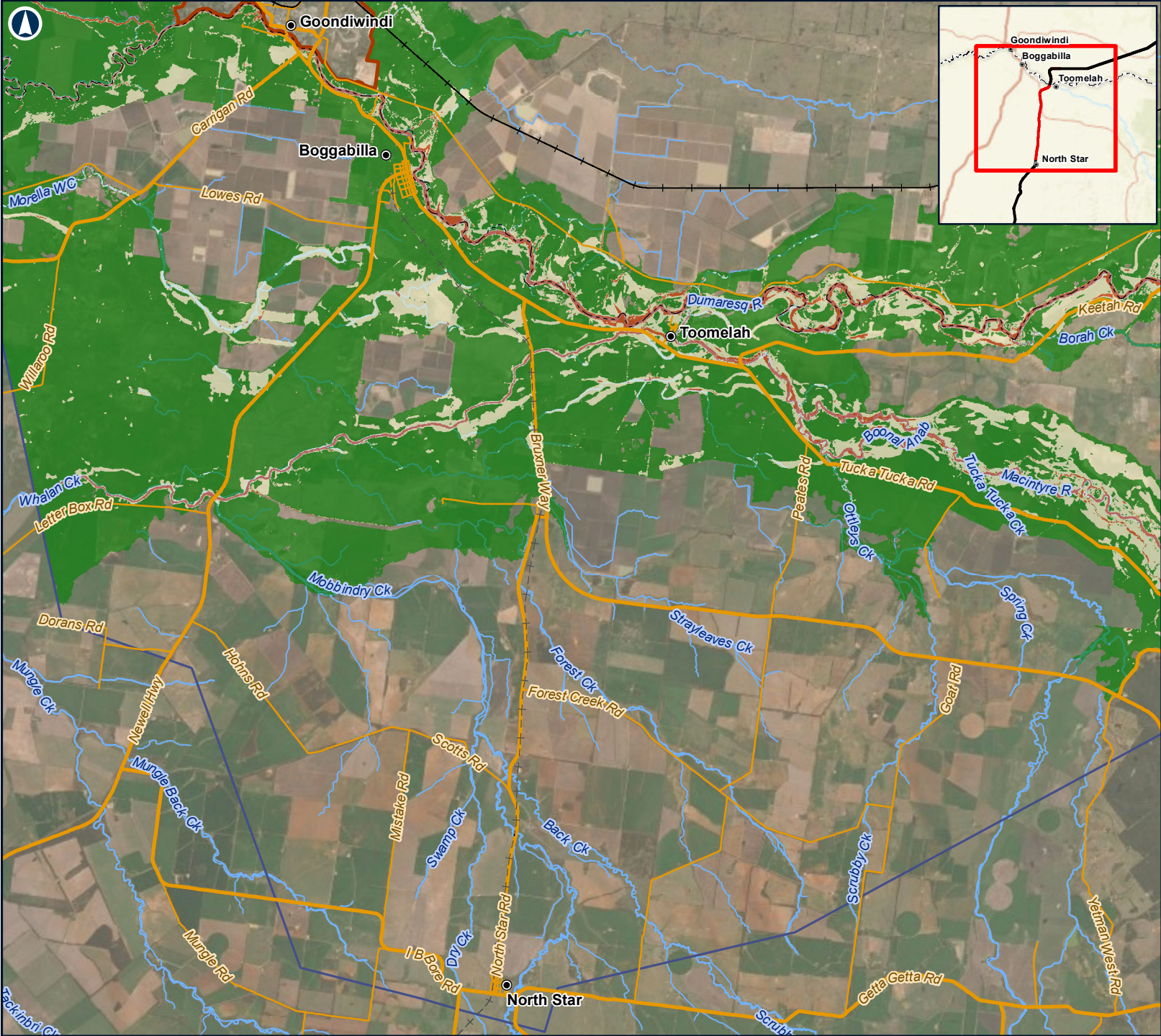
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**NORTH STAR TO NSW/QLD BORDER**

Figure D2: Existing Case  
BRVFP levees and factored flows  
Velocities

**LEGEND**

- Localities
- +— Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/Qld border
- Watercourses
- Goondiwindi levee
- ▭ Sub-model extent

**Peak velocity ( m/s )**

- 0 to 0.5
- 0.5 to 1.0
- > 1.0

10km

Coordinate System: GDA 1994 MGA Zone 56

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**NORTH STAR TO NSW/QLD BORDER**

Figure D2-A: Existing Case  
BRVFP levees and factored flows  
Velocities

**LEGEND**

- Localities
- Existing rail (operational)
- Existing rail (non-operational)
- NSW/Qld border
- Watercourses
- Goondiwindi levee
- Sub-model extent

**Peak velocity ( m/s )**

- 0 to 0.5
- 0.5 to 1.0
- > 1.0

6km

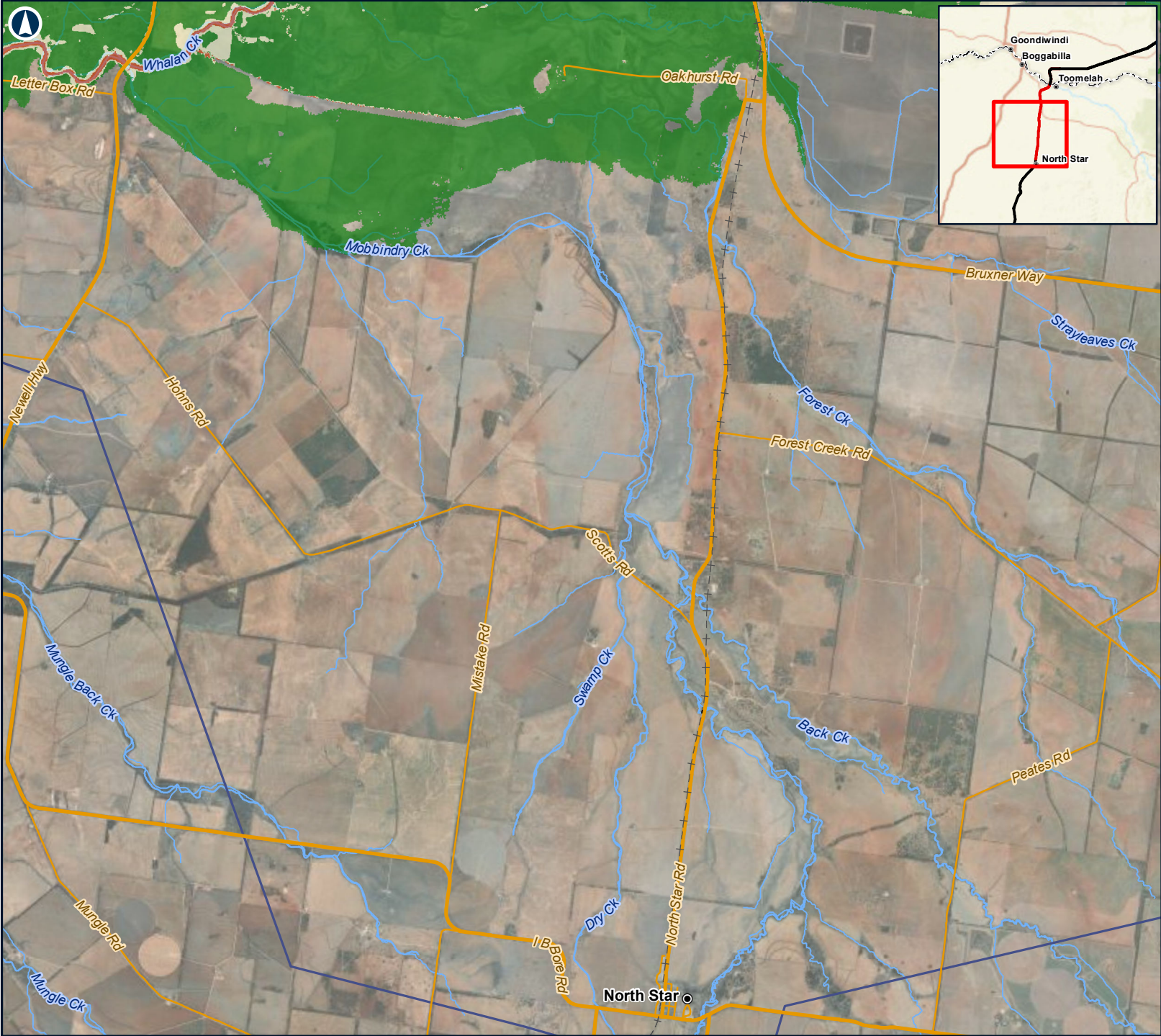
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**NORTH STAR TO NSW/QLD BORDER**

Figure D2-B: Existing Case  
BRVFP levees and factored flows  
Velocities

**LEGEND**

- Localities
- +— Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/Qld border
- Watercourses
- ▭ Sub-model extent

**Peak velocity ( m/s )**

- 0 to 0.5
- 0.5 to 1.0
- > 1.0

6km

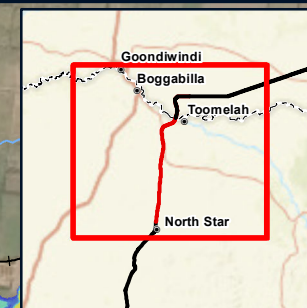
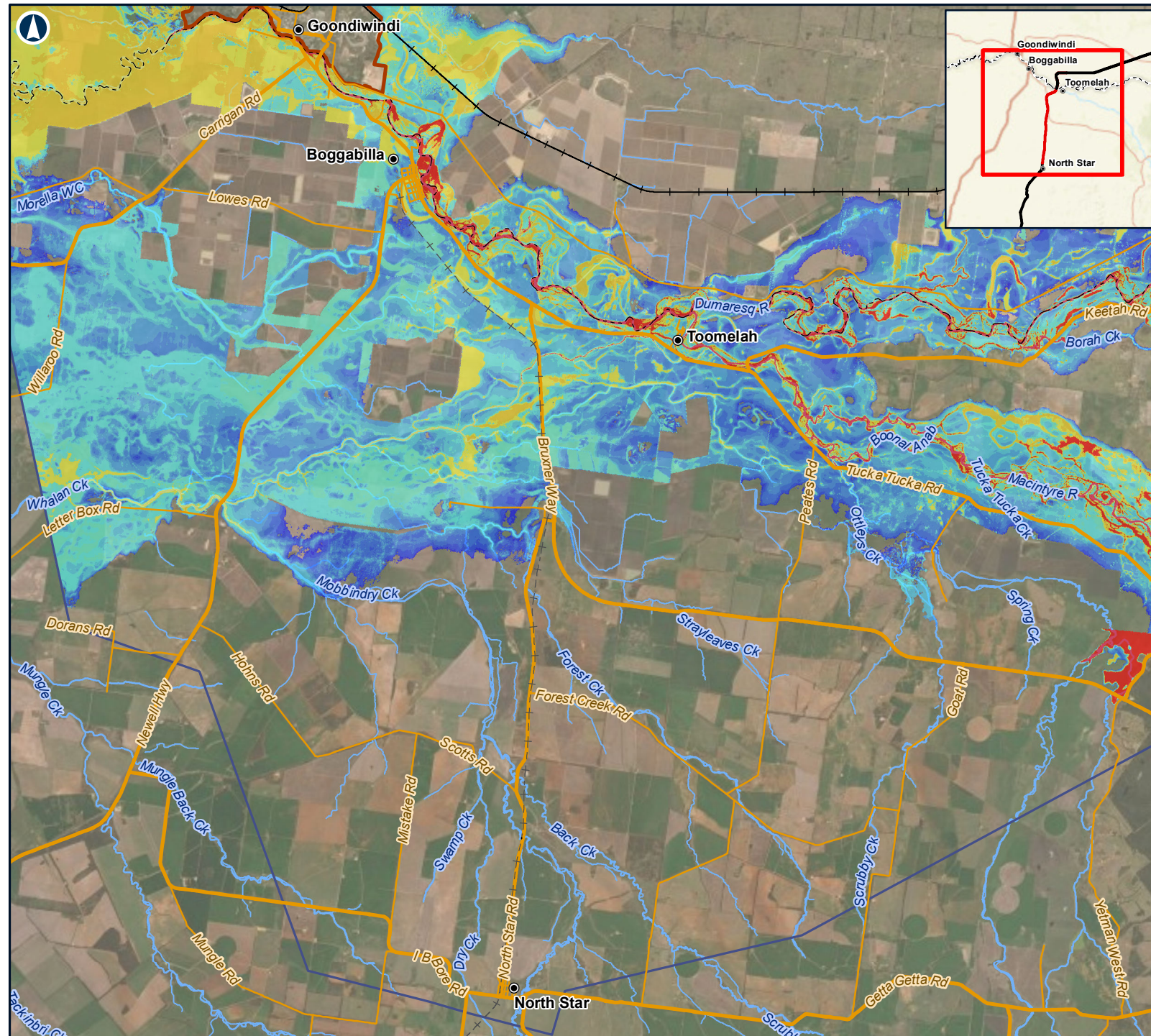
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## NORTH STAR TO NSW/QLD BORDER

Figure D3: Existing Case  
 BRVFP levees and factored flows  
 Duration of inundation

### LEGEND

- Localities
- +— Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/QLD border
- Watercourses
- Goondiwindi levee
- Sub-model extent

### Duration of inundation (hours)

- 0 to 10
- 10 to 20
- 20 to 30
- 30 to 40
- 40 to 50
- 50 to 60
- 60 to 70
- 70 to 80
- 80 to 90
- 90 to 100
- > 100

10km

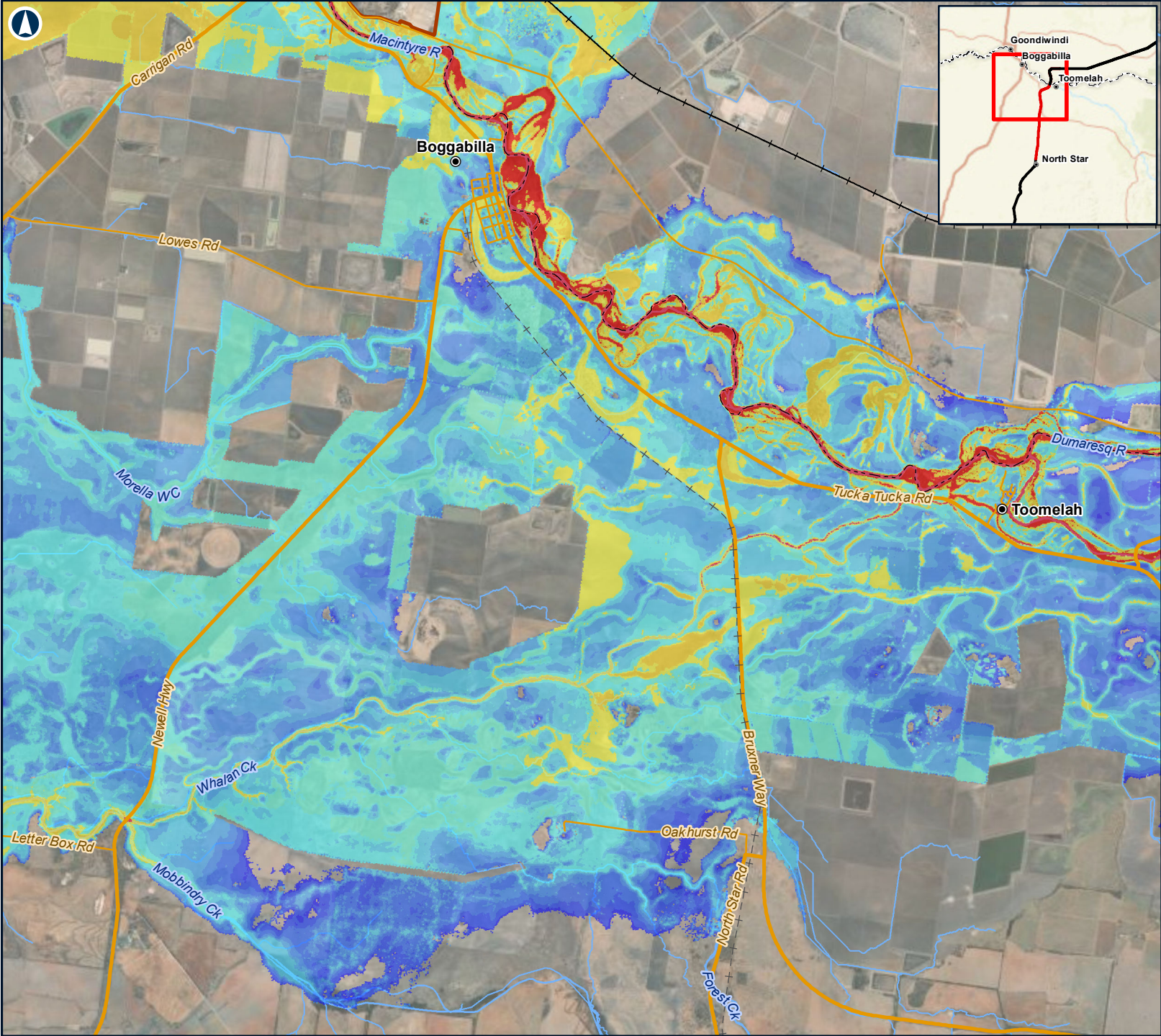
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**NORTH STAR TO NSW/QLD BORDER**

Figure D3-A: Existing Case  
BRVFP levees and factored flows  
Duration of inundation

6km

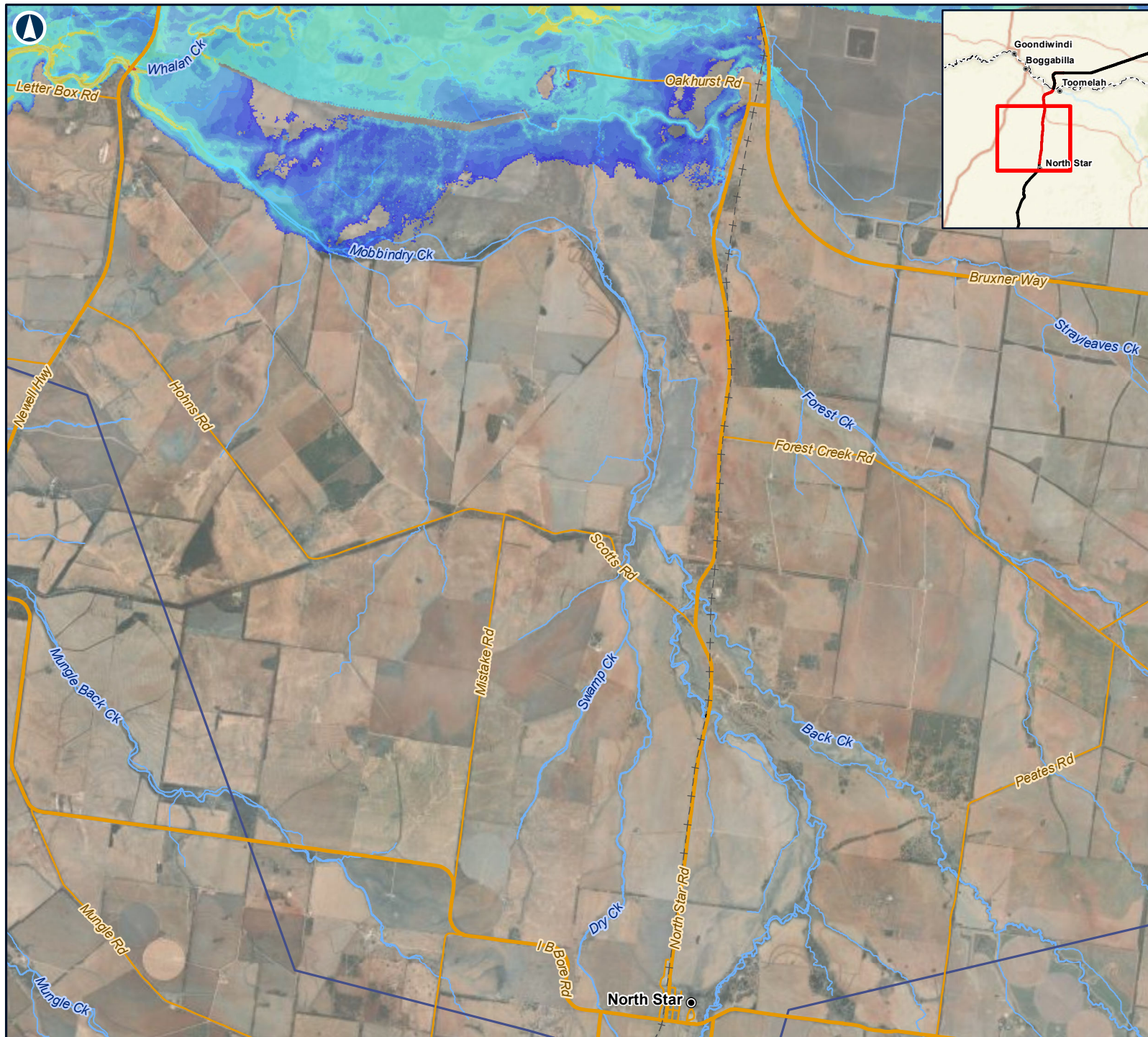
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## NORTH STAR TO NSW/QLD BORDER

Figure D3-B: Existing Case  
 BRVFP levees and factored flows  
 Duration of inundation

### LEGEND

- Localities
- +— Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/QLD border
- Watercourses
- ▭ Sub-model extent

### Duration of inundation (hours)

- 0 to 10
- 10 to 20
- 20 to 30
- 30 to 40
- 40 to 50
- 50 to 60
- 60 to 70
- 70 to 80
- 80 to 90
- 90 to 100
- > 100

6km

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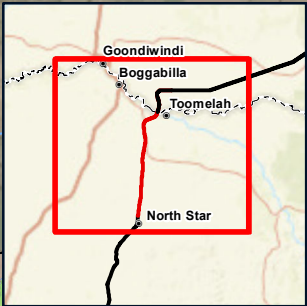
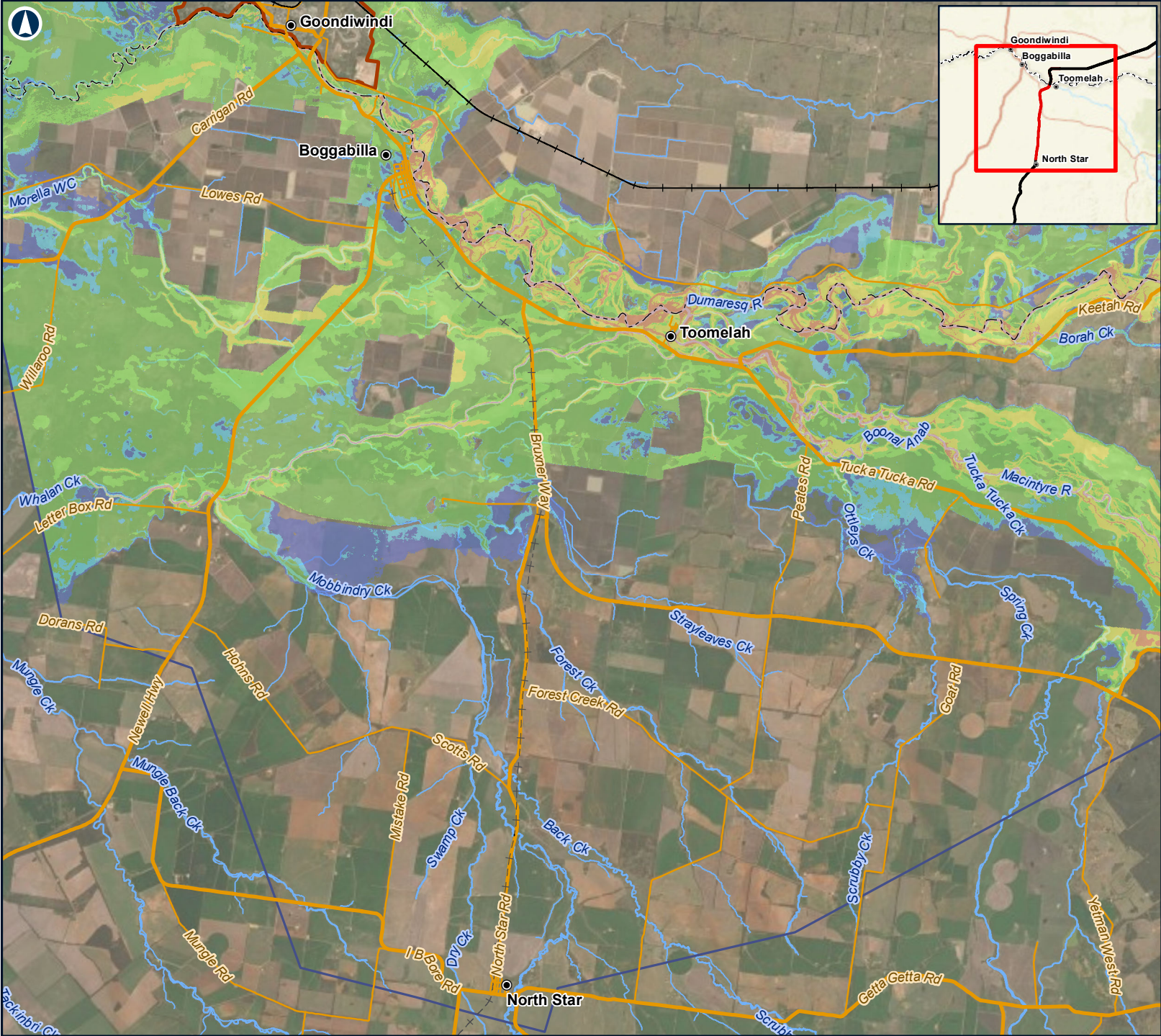
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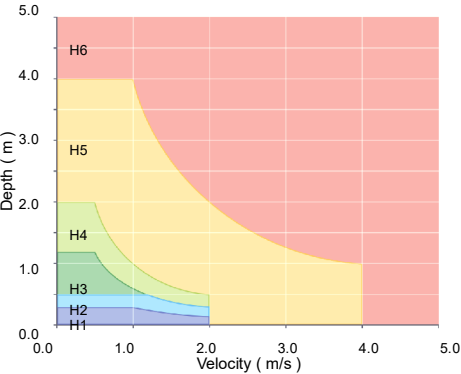
**NORTH STAR TO NSW/QLD BORDER**

Figure D4: Existing Case  
BRVFP levees and factored flows  
Hazard categories

**LEGEND**

- Localities
- +— Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/Qld border
- Watercourses
- Goondiwindi levee
- Sub-model extent

**Hazard Categories**



Source: Australian Disaster Resilience Handbook Guideline 7-3 (AIDR 2017)

10km

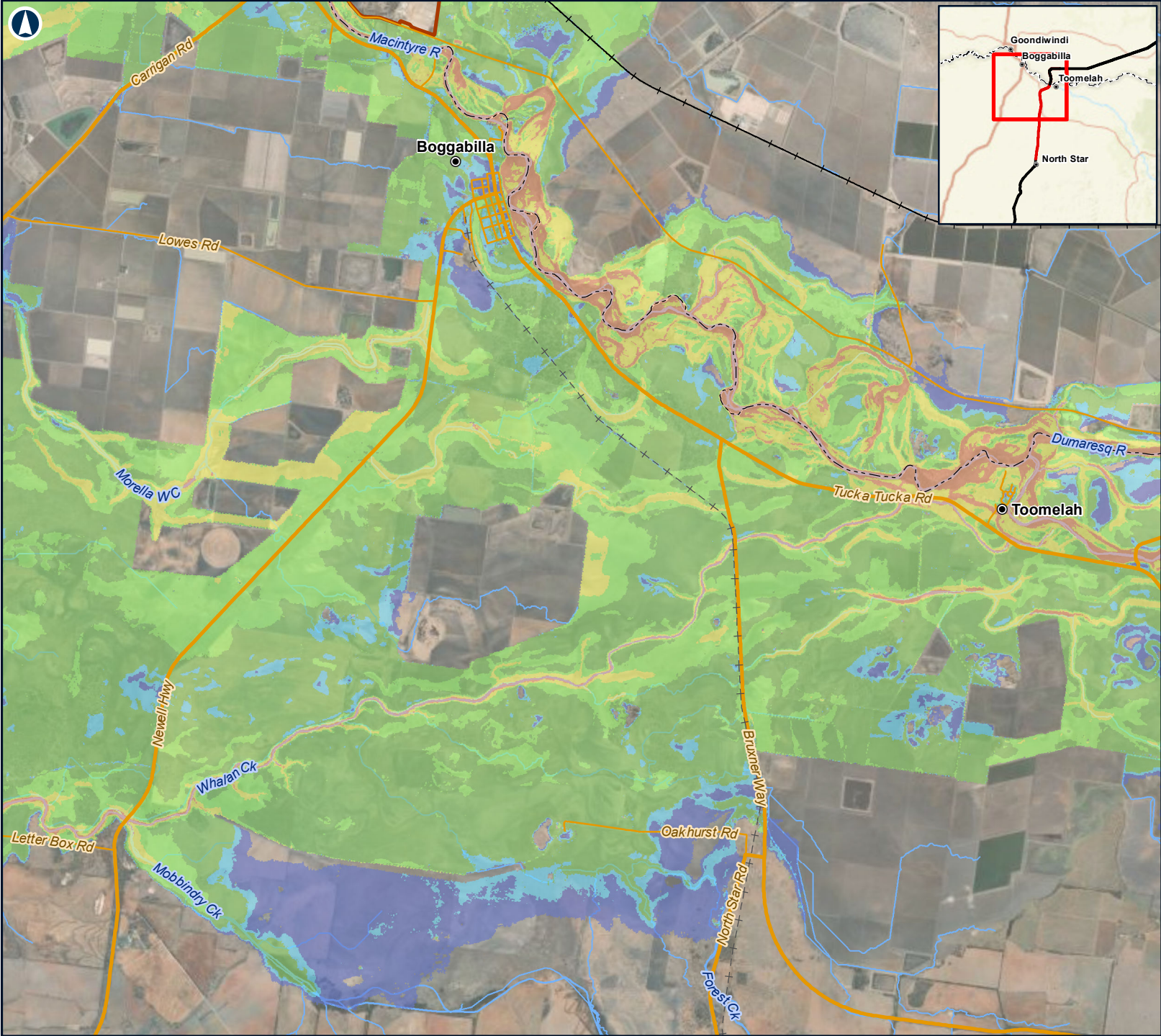
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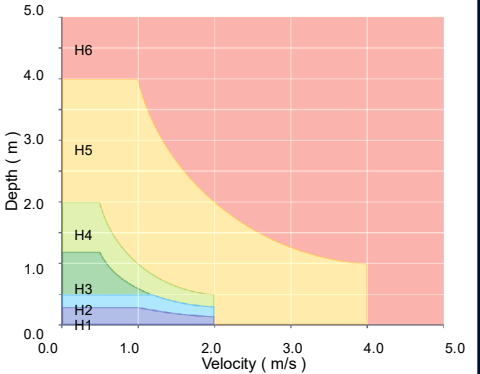
**NORTH STAR TO NSW/QLD BORDER**

Figure D4-A: Existing Case  
BRVFMP levees and factored flows  
Hazard categories

**LEGEND**

- Localities
- +— Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/QLD border
- Watercourses
- Goondiwindi levee
- Sub-model extent

**Hazard Categories**



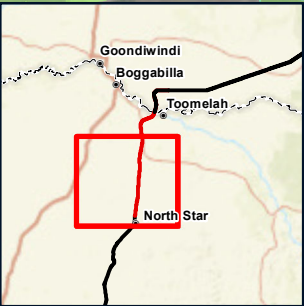
Source: Australian Disaster Resilience Handbook Guideline 7-3 (AIDR 2017)

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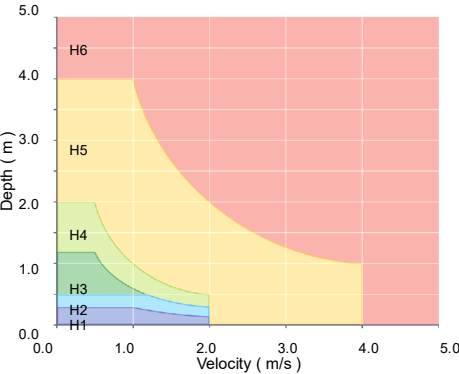
**NORTH STAR TO NSW/QLD BORDER**

Figure D4-B: Existing Case  
BRVFP levees and factored flows  
Hazard categories

**LEGEND**

- Localities
- +— Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/QLD border
- Watercourses
- ▭ Sub-model extent

**Hazard Categories**



Source: Australian Disaster Resilience Handbook Guideline 7-3 (AIDR 2017)

6km

Coordinate System: GDA 1994 MGA Zone 56

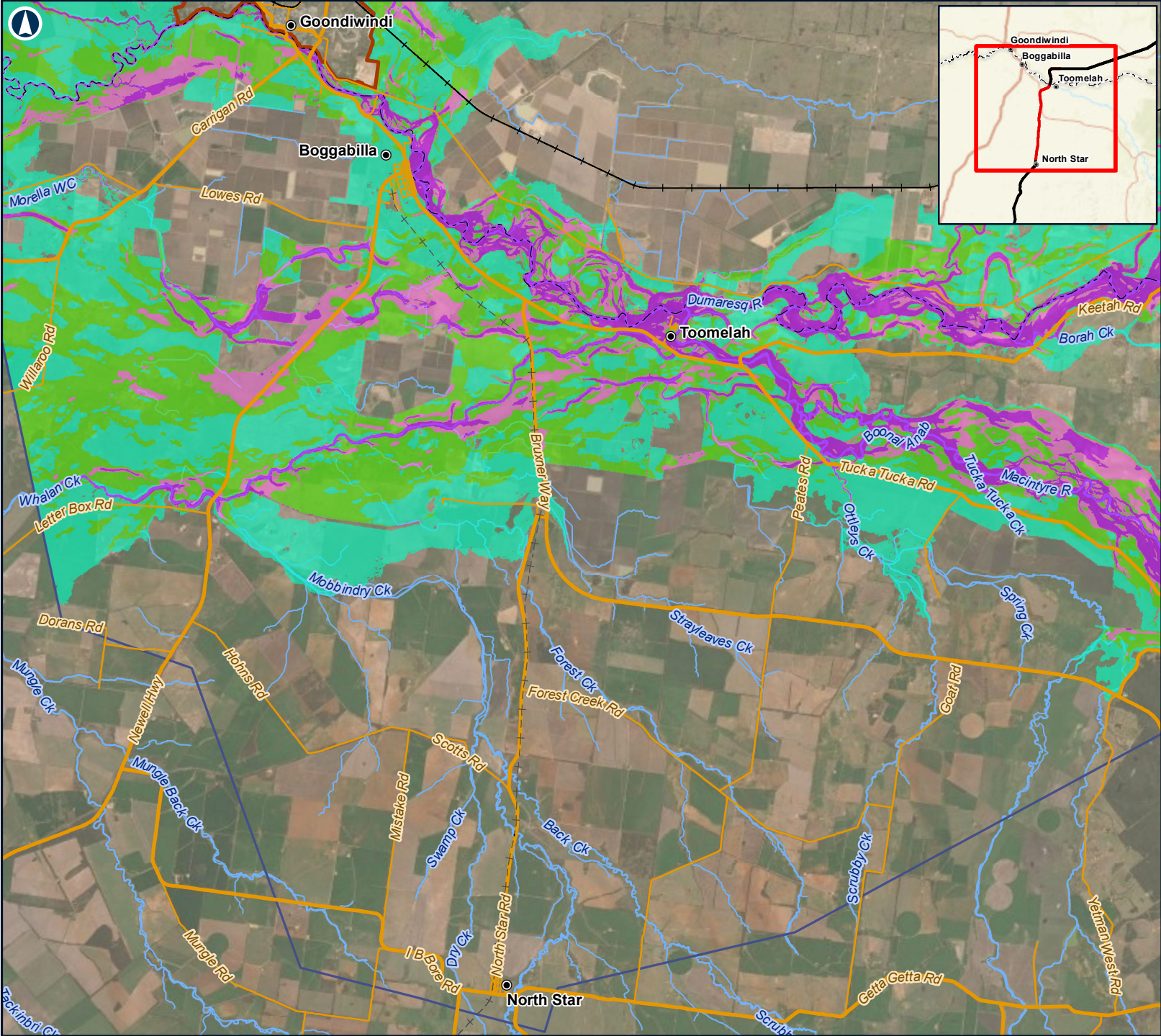
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**NORTH STAR TO NSW/QLD BORDER**

Figure D5: Existing Case  
BRVFP levees and factored flows  
Velocity x depth product

**LEGEND**

- Localities
- +— Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/QLD border
- Watercourses
- Goondiwindi levee
- ▭ Sub-model extent

**Velocity x Depth product (m<sup>2</sup>/s)**

- 0 to 0.3
- 0.3 to 0.6
- 0.6 to 1
- 1 to 40

10km

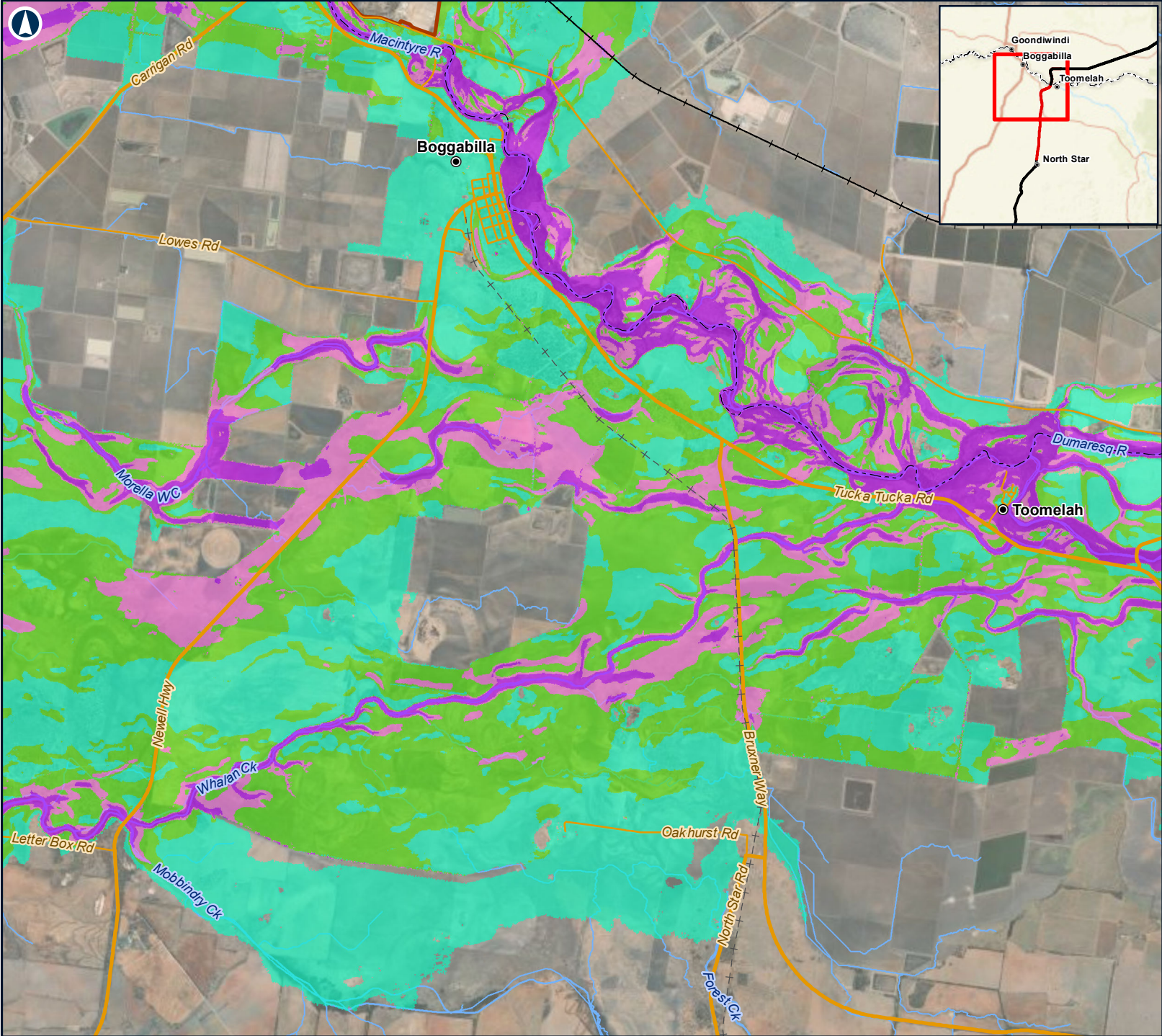
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**NORTH STAR TO NSW/QLD BORDER**

Figure D5-A: Existing Case  
BRVFP levees and factored flows  
Velocity x depth product

**LEGEND**

- Localities
- +— Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/QLD border
- Watercourses
- Goondiwindi levee
- ▭ Sub-model extent

**Velocity x Depth product (m<sup>2</sup>/s)**

- 0 to 0.3
- 0.3 to 0.6
- 0.6 to 1
- 1 to 40

6km

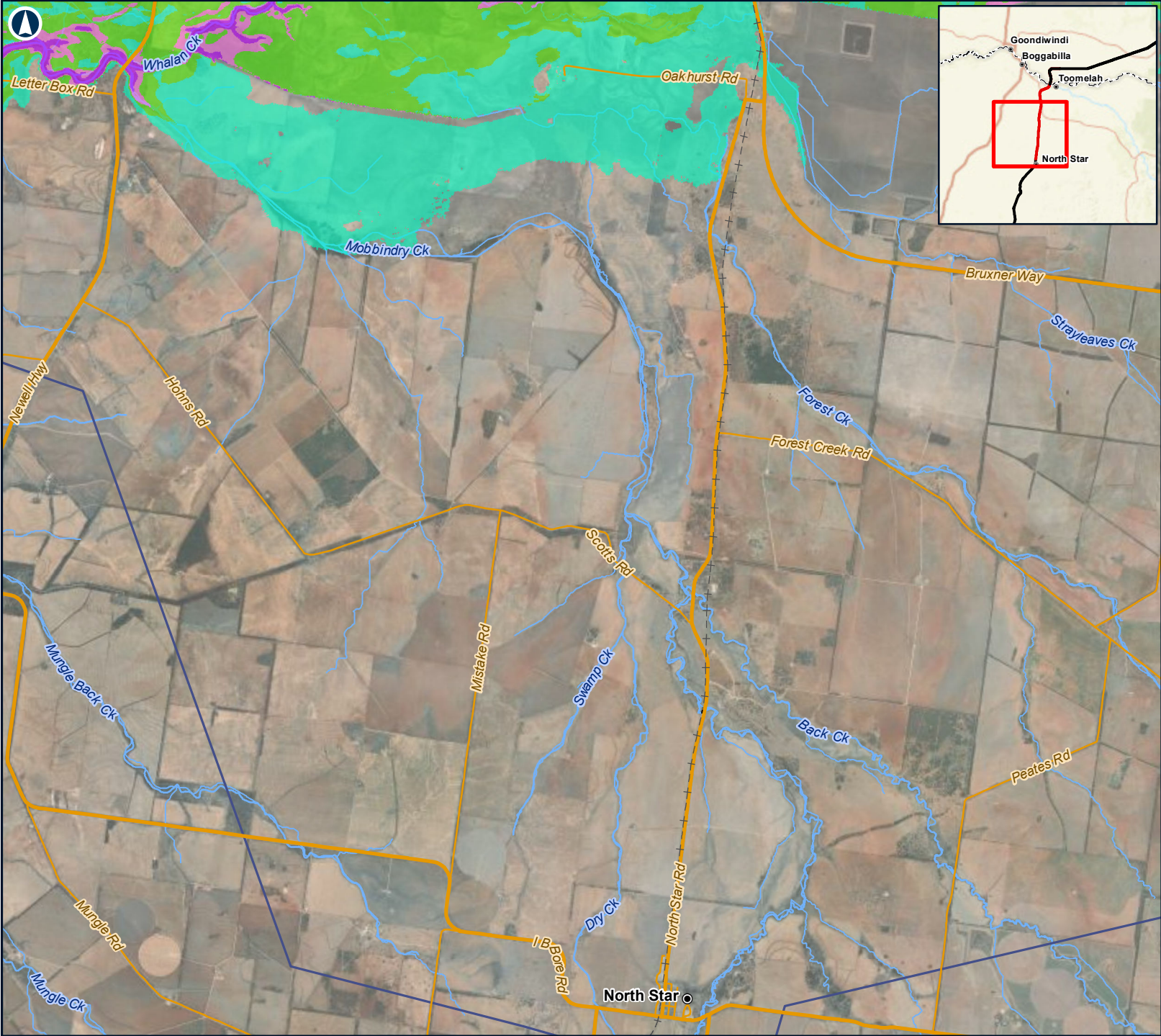
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NORTH STAR TO NSW/QLD BORDER

Figure D5-B: Existing Case  
BRVFP levees and factored flows  
Velocity x depth product

LEGEND

- Localities
- +— Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/Qld border
- Watercourses
- Sub-model extent

Velocity x Depth product (m<sup>2</sup>/s)

- 0 to 0.3
- 0.3 to 0.6
- 0.6 to 1
- 1 to 40

6km

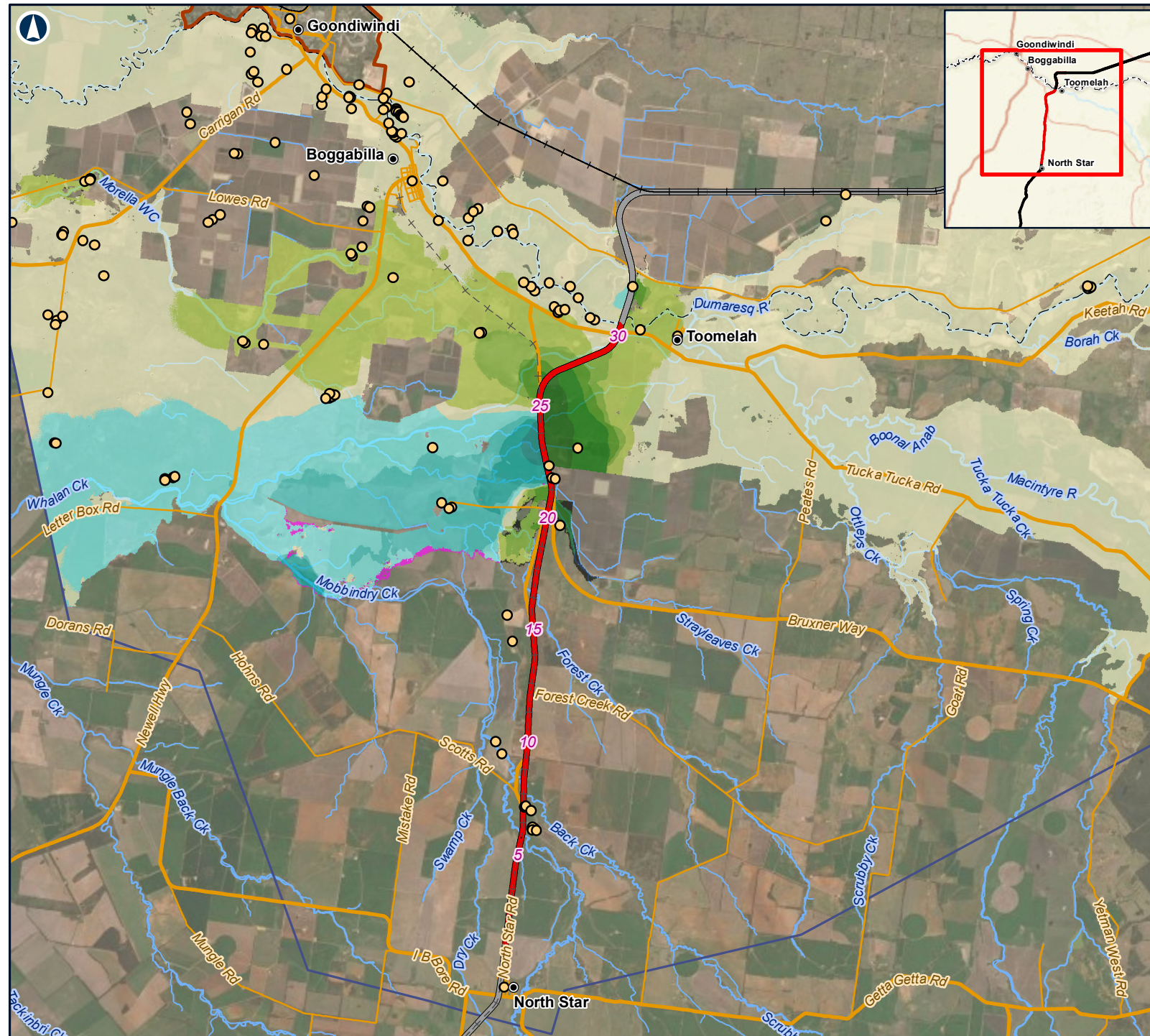
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## NORTH STAR TO NSW/QLD BORDER

Figure D6: Developed Case  
BRVFP levees and factored flows  
Change in peak water levels

### LEGEND

- Flood sensitive receptor
  - Localities
  - 5 Chainage (km)
  - North Star to NSW/QLD border alignment
  - Adjoining alignments
  - Existing rail (operational)
  - - - Existing rail (non-operational)
  - - - NSW/QLD border
  - Watercourses
  - Goondiwindi levee
  - Sub-model extent
- Change in peak water levels (m)**
- < -0.5
  - 0.5 to -0.2
  - 0.2 to -0.1
  - 0.1 to -0.05
  - 0.05 to -0.01
  - 0.01 to 0.01
  - 0.01 to 0.05
  - 0.05 to 0.1
  - 0.1 to 0.2
  - 0.2 to 0.5
  - > 0.5
  - Was Wet Now Dry
  - Was Dry Now Wet

10km

Coordinate System: GDA 1994 MGA Zone 56

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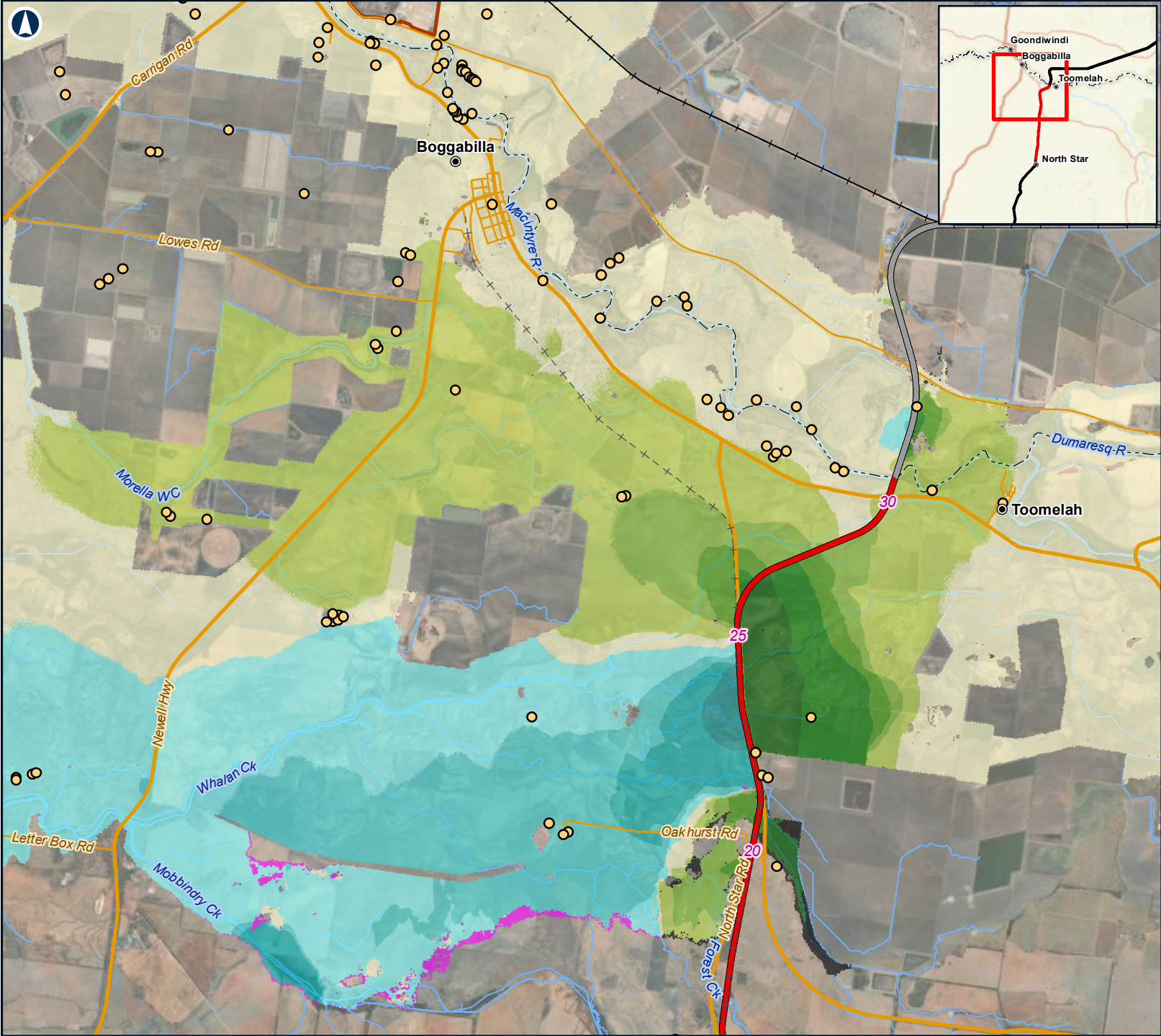
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Author: FFJV GIS

Scale: 1:240,000





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**NORTH STAR TO NSW/QLD BORDER**

Figure D6-A: Developed Case  
BRVFP levees and factored flows  
Change in peak water levels

**LEGEND**

- Flood sensitive receptor
- Localities
- 5 Chainage (km)
- North Star to NSW/QLD border alignment
- Adjoining alignments
- Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/QLD border
- Watercourses
- Goondiwindi levee
- Sub-model extent
- Change in peak water levels (m)**
  - < -0.5
  - 0.5 to -0.2
  - 0.2 to -0.1
  - 0.1 to -0.05
  - 0.05 to -0.01
  - 0.01 to 0.01
  - 0.01 to 0.05
  - 0.05 to 0.1
  - 0.1 to 0.2
  - 0.2 to 0.5
  - > 0.5
- Was Wet Now Dry
- Was Dry Now Wet

6km

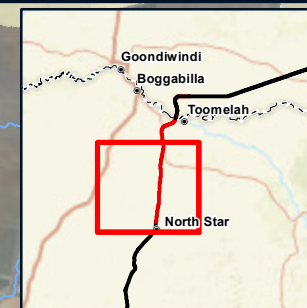
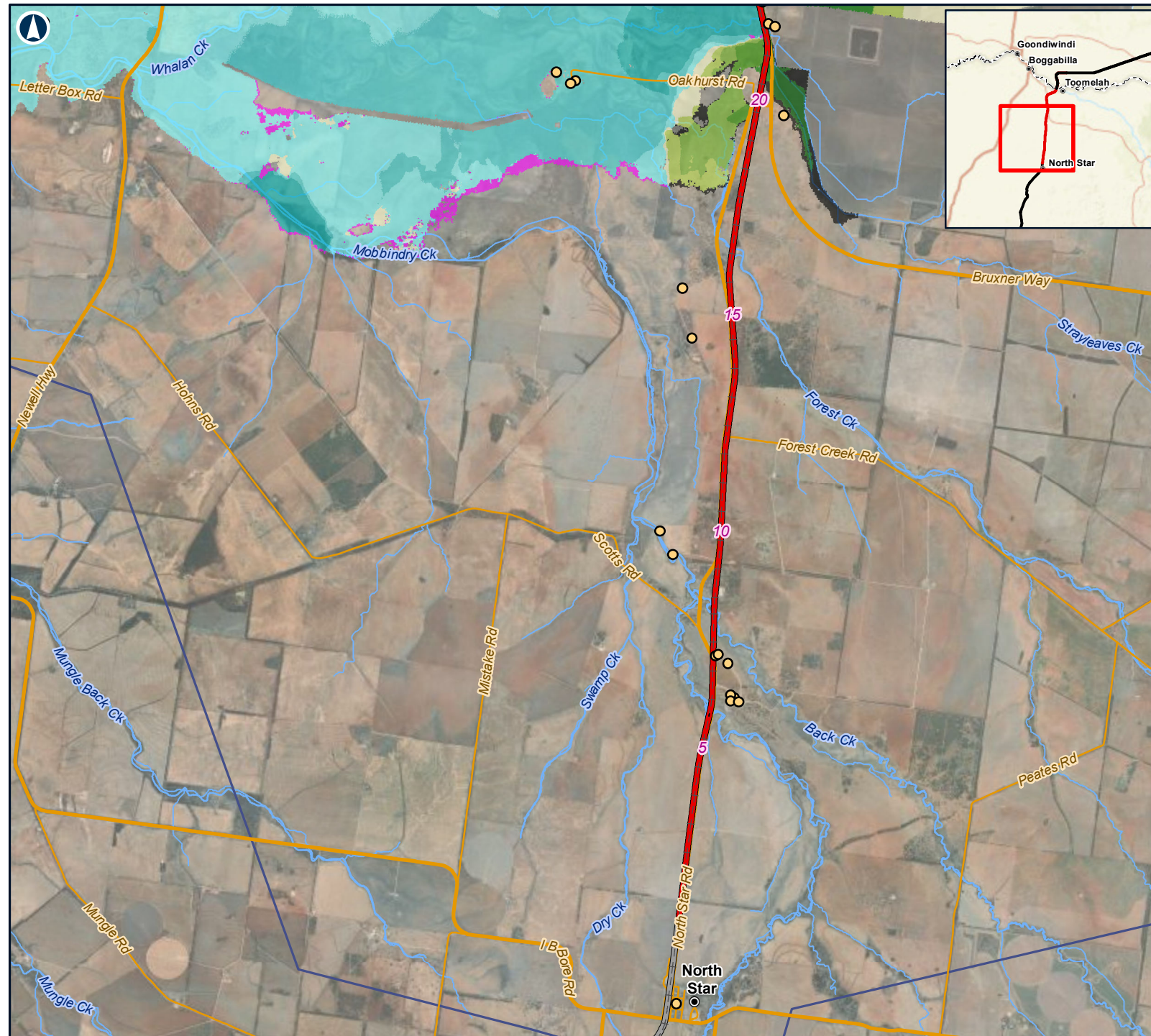
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## NORTH STAR TO NSW/QLD BORDER

Figure D6-B: Developed Case  
BRVFP levees and factored flows  
Change in peak water levels

### LEGEND

- Flood sensitive receptor
  - Localities
  - 5 Chainage (km)
  - North Star to NSW/QLD border alignment
  - Adjoining alignments
  - + + Existing rail (operational)
  - - Existing rail (non-operational)
  - NSW/QLD border
  - Watercourses
  - Sub-model extent
- Change in peak water levels (m)**
- < -0.5
  - -0.5 to -0.2
  - -0.2 to -0.1
  - -0.1 to -0.05
  - -0.05 to -0.01
  - -0.01 to 0.01
  - 0.01 to 0.05
  - 0.05 to 0.1
  - 0.1 to 0.2
  - 0.2 to 0.5
  - > 0.5
  - Was Wet Now Dry
  - Was Dry Now Wet

6km

Coordinate System: GDA 1994 MGA Zone 56

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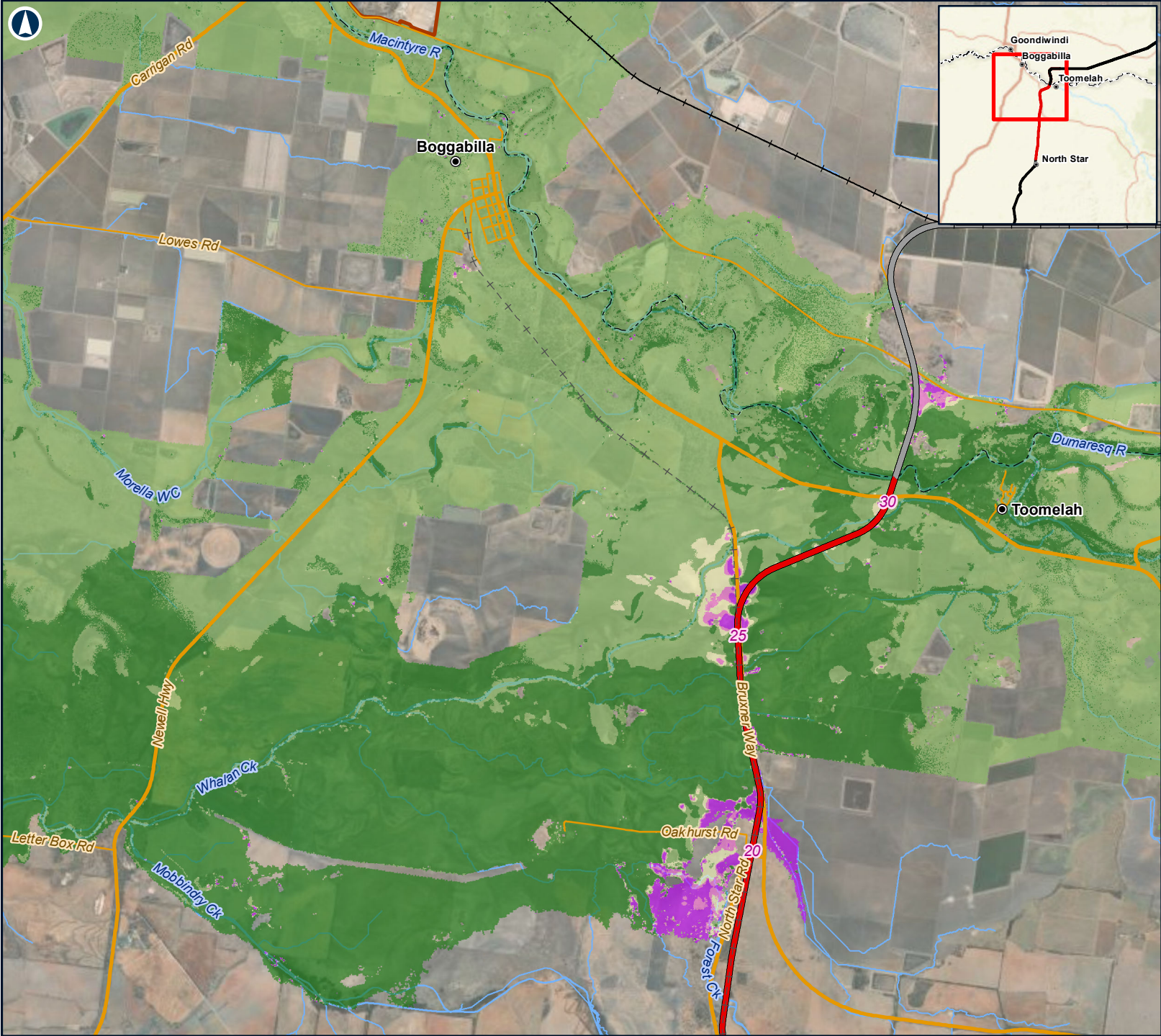
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**NORTH STAR TO NSW/QLD BORDER**

Figure D7-A: Developed Case  
BRVFP levees and factored flows  
Percentage change in velocities

**LEGEND**

- Localities
- 5 Chainage (km)
- North Star to NSW/QLD border alignment
- Adjoining alignments
- Existing rail (operational)
- - - Existing rail (non-operational)
- - - NSW/QLD border
- Watercourses
- Goondiwindi levee
- Sub-model extent
- Change in velocities ( % )**
- < 0
- 0 to 10
- 10 to 20
- 20 to 30
- > 30

6km

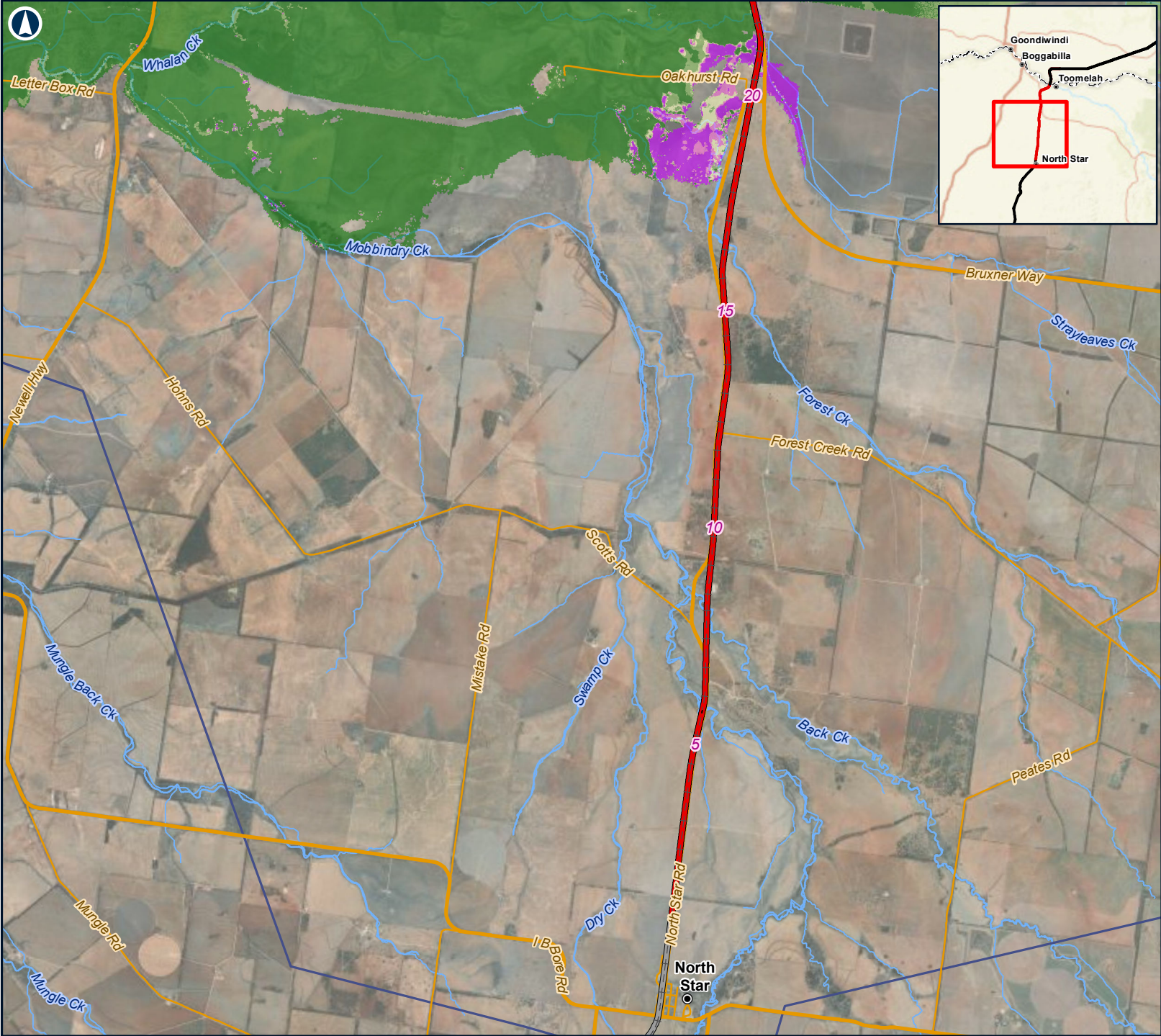
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**NORTH STAR TO NSW/QLD BORDER**

Figure D7-B: Developed Case  
BRVFP levees and factored flows  
Percentage change in velocities

**LEGEND**

- Localities
- 5 Chainage (km)
- North Star to NSW/QLD border alignment
- Adjoining alignments
- Existing rail (operational)
- - - Existing rail (non-operational)
- NSW/QLD border
- Watercourses
- Sub-model extent
- Change in velocities ( % )**
- < 0
- 0 to 10
- 10 to 20
- 20 to 30
- > 30

6km

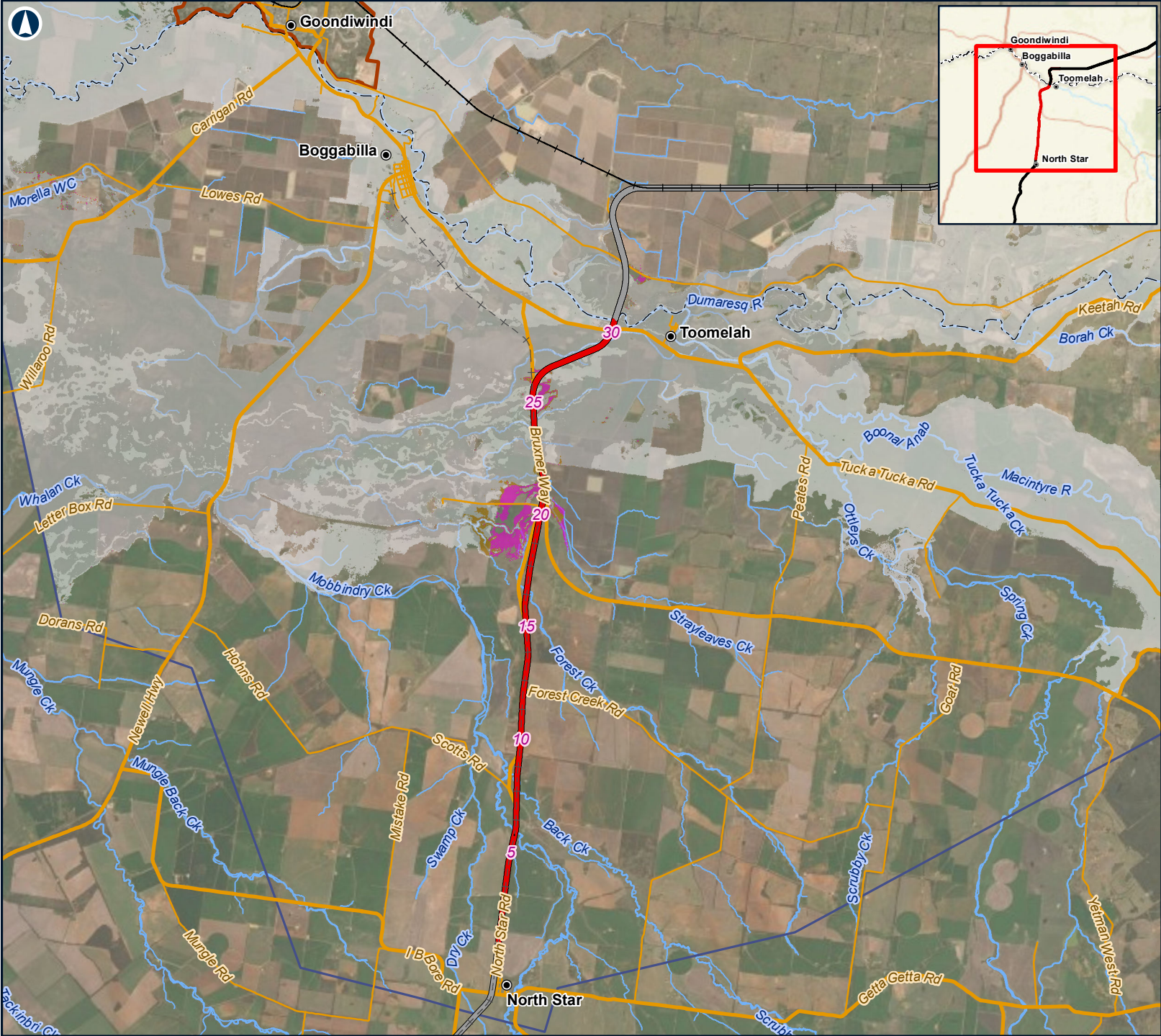
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**NORTH STAR TO NSW/QLD BORDER**

Figure D8: Developed Case  
BRVFP levees and factored flows  
Percentage change in duration of inundation

**LEGEND**

- Localities
  - 5 Chainage (km)
  - North Star to NSW/QLD border alignment
  - Adjoining alignments
  - Existing rail (operational)
  - - - Existing rail (non-operational)
  - - - NSW/QLD border
  - Watercourses
  - Goondiwindi levee
  - Sub-model extent
- Change in duration of inundation ( % )**
- < 0
  - 0 to 10
  - 10 to 20
  - > 20

10km

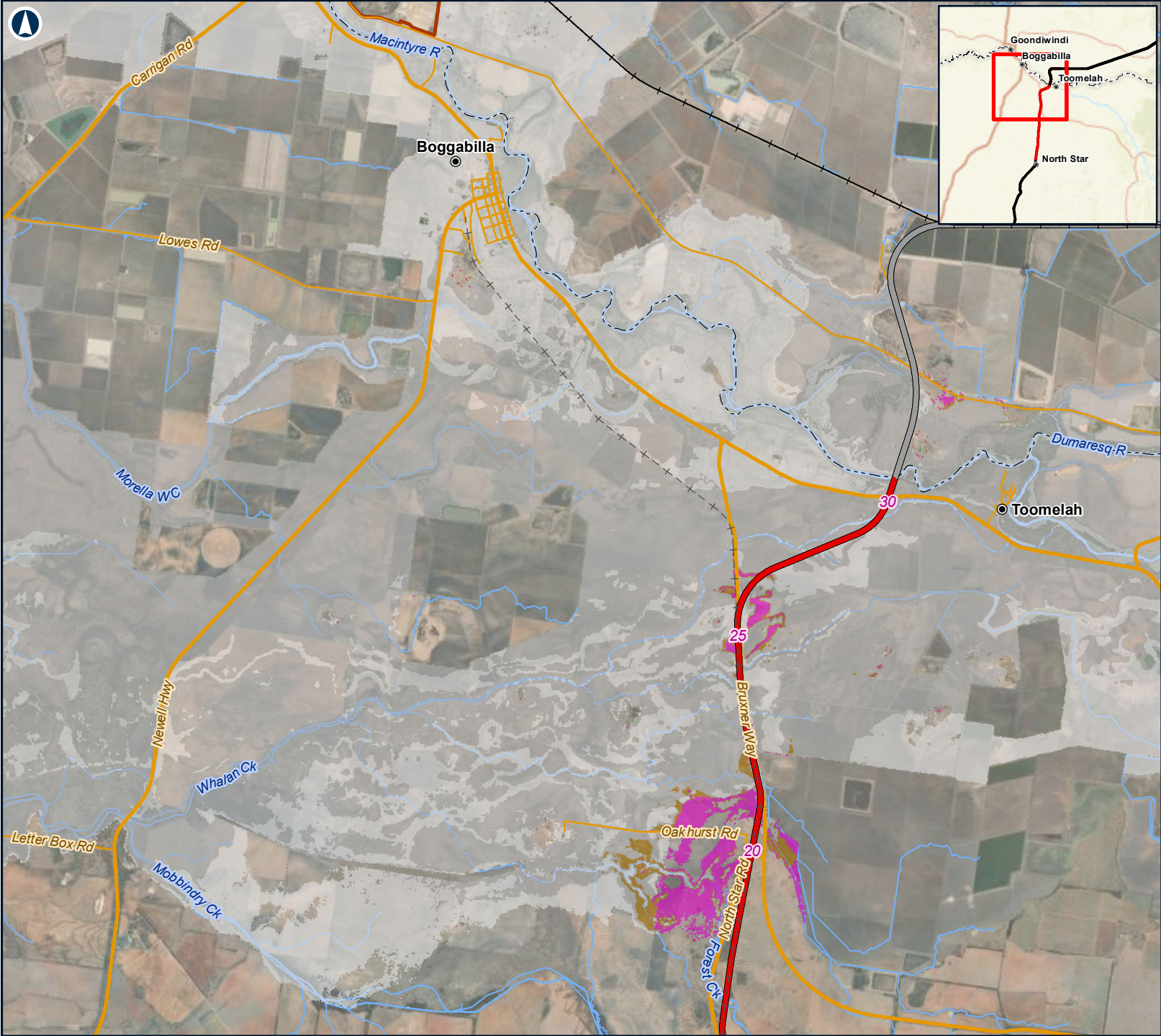
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NORTH STAR TO NSW/QLD BORDER

Figure D8-A: Developed Case  
BRVFMP levees and factored flows  
Percentage change in duration of inundation

LEGEND

● Localities

5 Chainage (km)

North Star to NSW/QLD border alignment

Adjoining alignments

Existing rail (operational)

Existing rail (non-operational)

NSW/QLD border

Watercourses

Goondiwindi levee

Sub-model extent

Change in duration of inundation ( % )

< 0

0 to 10

10 to 20

> 20

6km

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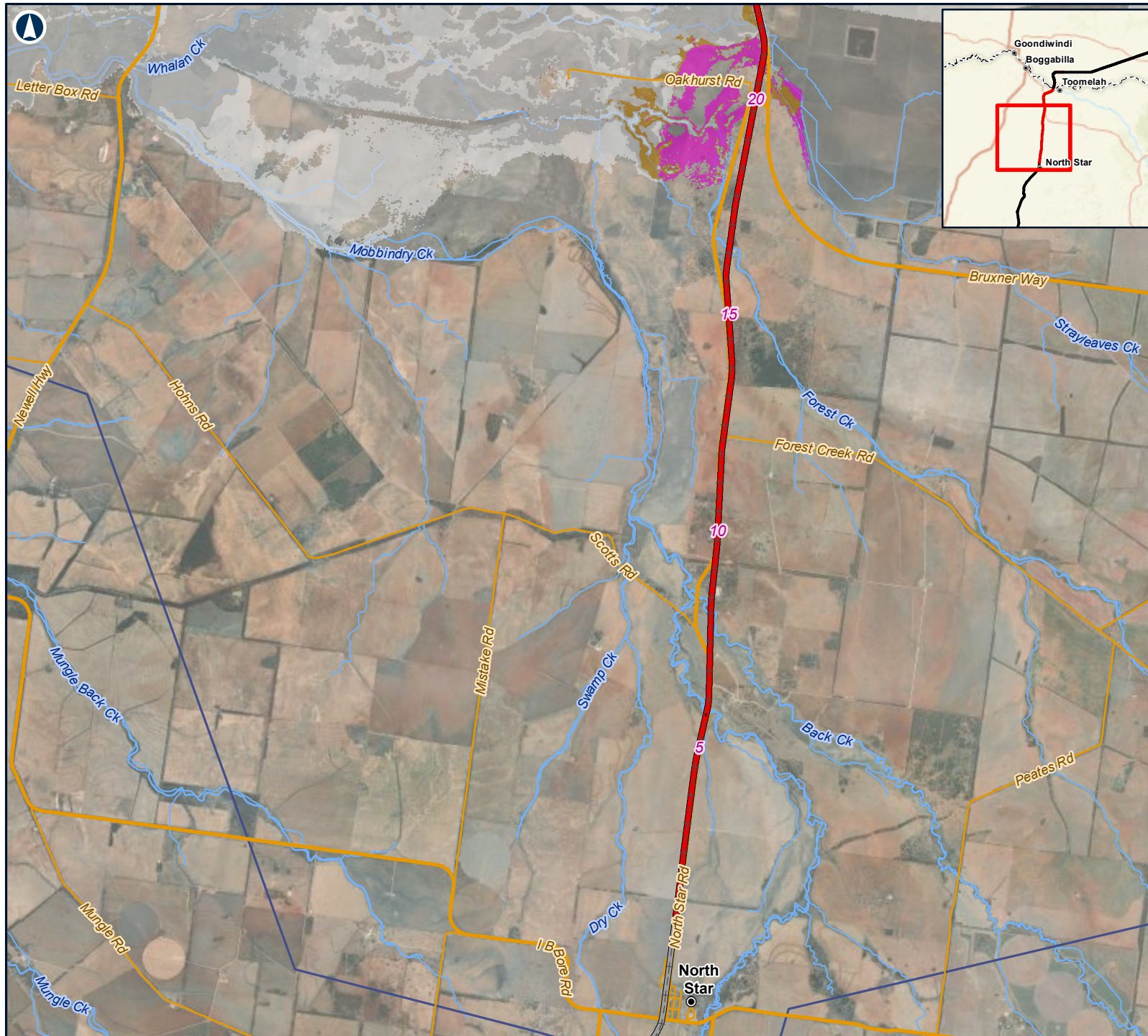
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## NORTH STAR TO NSW/QLD BORDER

Figure D8-B: Developed Case  
 BRVFP levees and factored flows  
 Percentage change in duration of inundation

### LEGEND

- Localities
- 5 Chainage (km)
- North Star to NSW/QLD border alignment
- Adjoining alignments
- +— Existing rail (operational)
- +- Existing rail (non-operational)
- - - NSW/QLD border
- Watercourses
- Sub-model extent

### Change in duration of inundation ( % )

- < 0
- 0 to 10
- 10 to 20
- > 20

6km

Coordinate System: GDA 1994 MGA Zone 56

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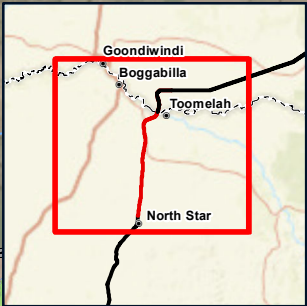
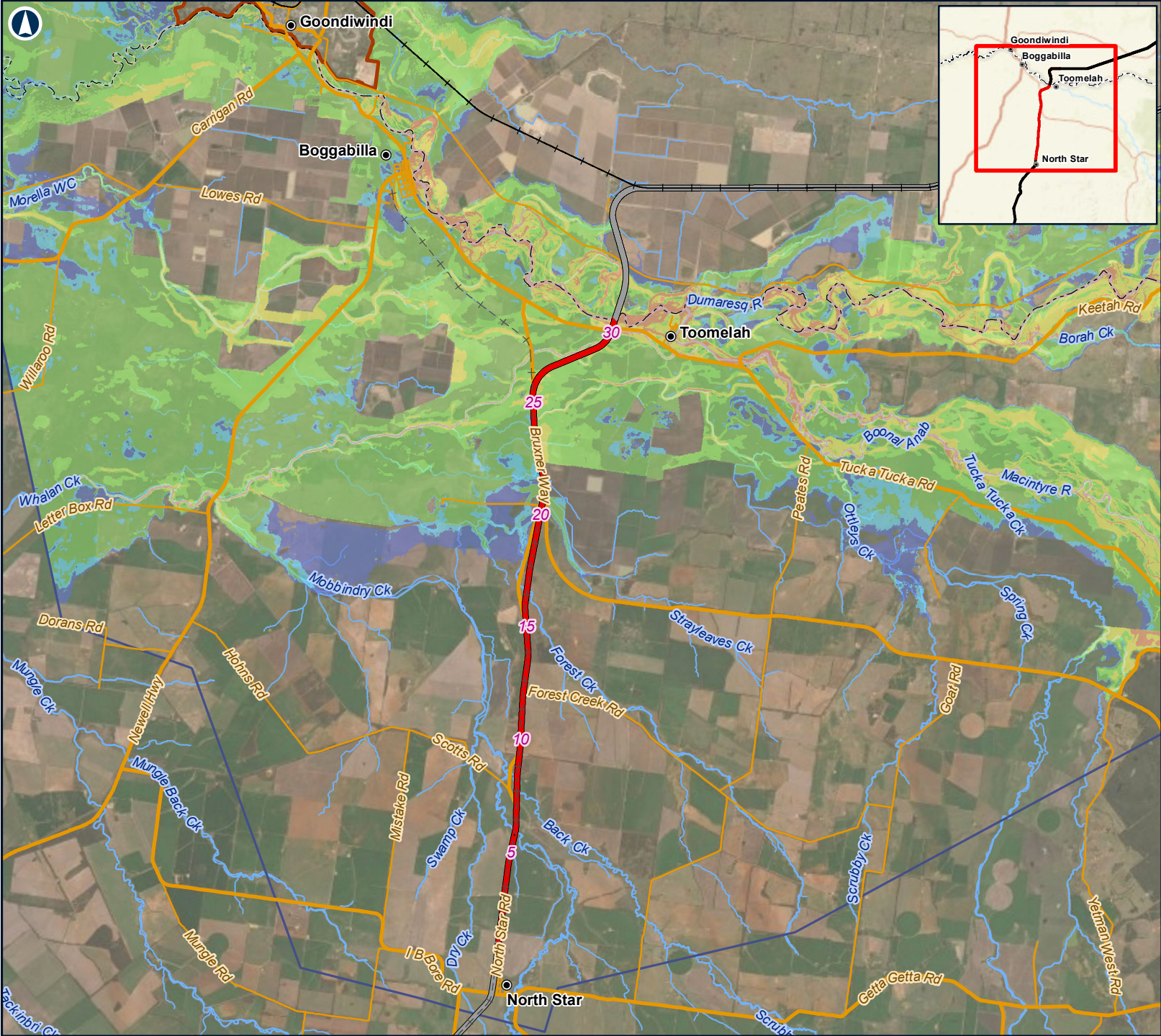
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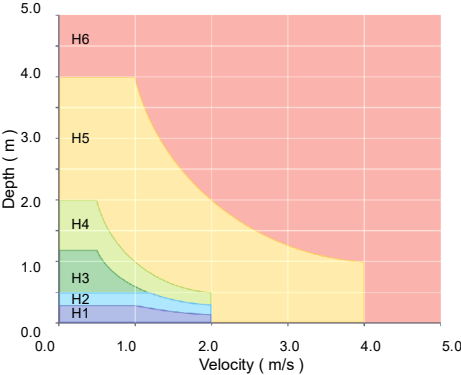
## NORTH STAR TO NSW/QLD BORDER

Figure D9: Developed Case  
BRVFP levees and factored flows  
Hazard categories

### LEGEND

- Localities
- Chainage (km)
- North Star to NSW/QLD border alignment
- Adjoining alignments
- Existing rail (operational)
- Existing rail (non-operational)
- NSW/QLD border
- Watercourses
- Goondiwindi levee
- Sub-model extent

### Hazard Categories



Source: Australian Disaster Resilience Handbook Guideline 7-3 (AIDR 2017)

10km

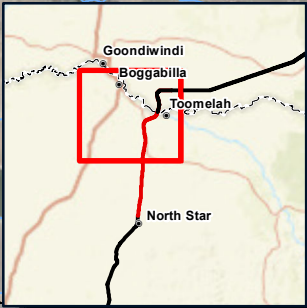
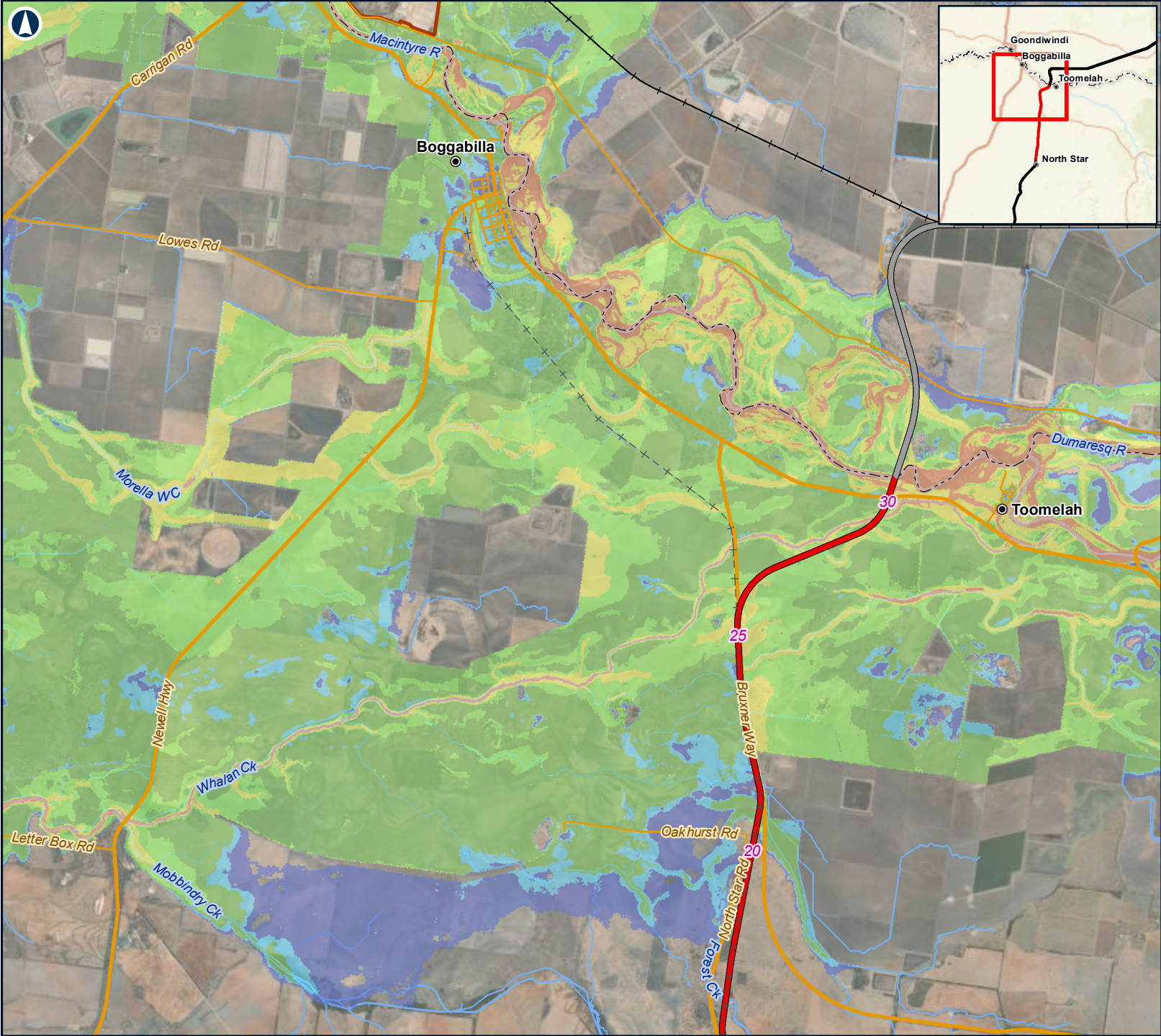
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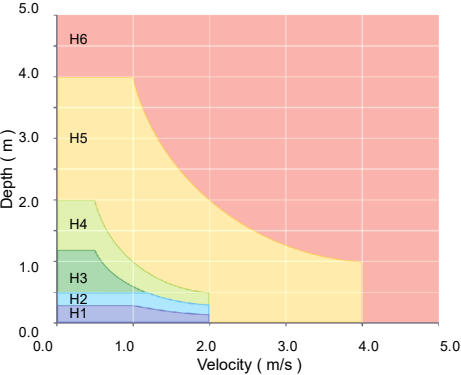
**NORTH STAR TO NSW/QLD BORDER**

Figure D9-A: Developed Case  
BRFVMP levees and factored flows  
Hazard categories

**LEGEND**

- Localities
- 5 Chainage (km)
- North Star to NSW/QLD border alignment
- Adjoining alignments
- Existing rail (operational)
- Existing rail (non-operational)
- NSW/QLD border
- Watercourses
- Goondiwindi levee
- Sub-model extent

**Hazard Categories**



Source: Australian Disaster Resilience Handbook Guideline 7-3 (AIDR 2017)

6km

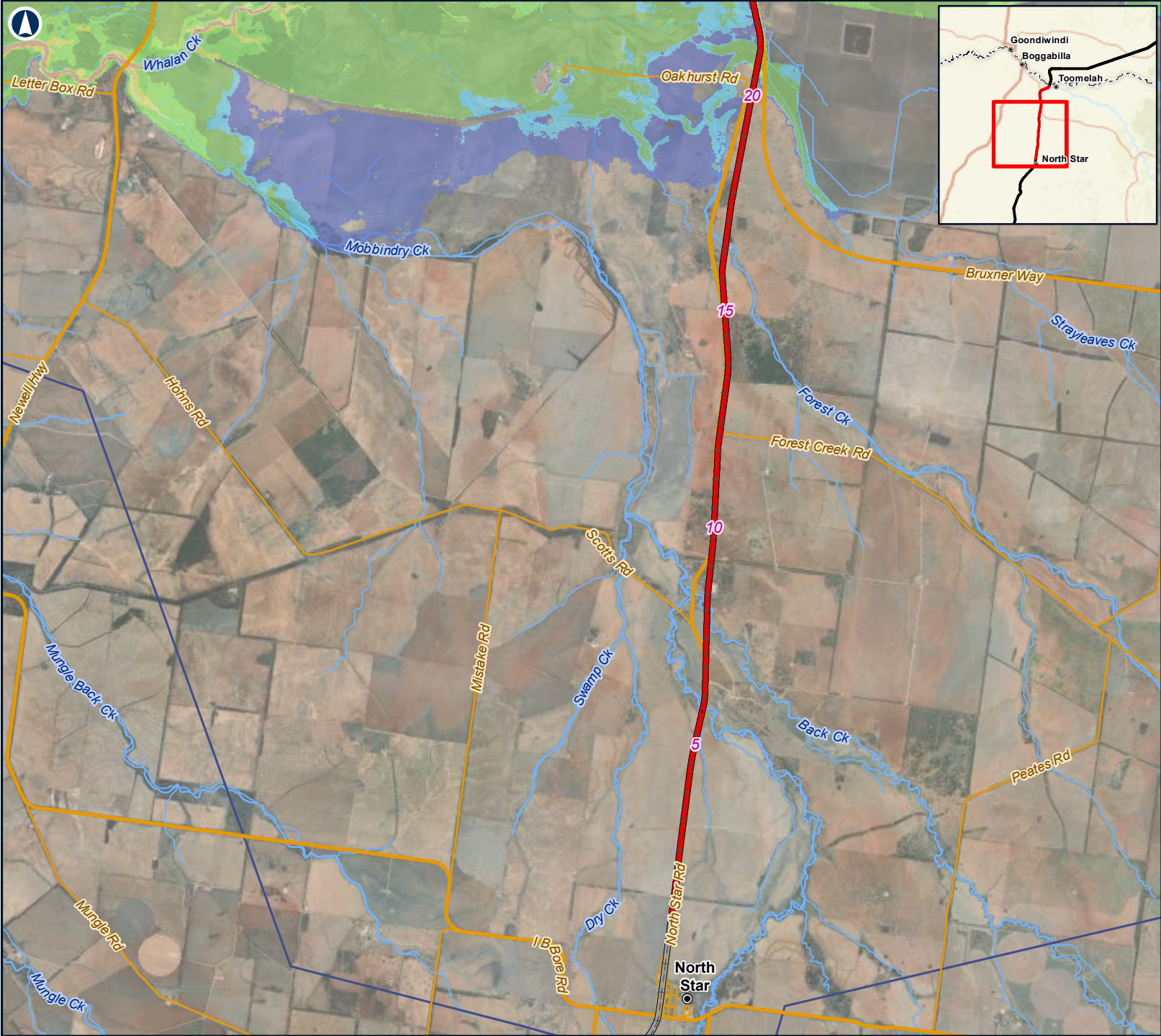
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### NORTH STAR TO NSW/QLD BORDER

Figure D9-B: Developed Case  
BRVFP levees and factored flows  
Hazard categories

#### LEGEND

- Localities
- Chainage (km)
- North Star to NSW/QLD border alignment
- Adjoining alignments
- Existing rail (operational)
- Existing rail (non-operational)
- NSW/QLD border
- Watercourses
- Sub-model extent

#### Hazard Categories

Source: Australian Disaster Resilience Handbook Guideline 7-3 (AIDR 2017)

6km

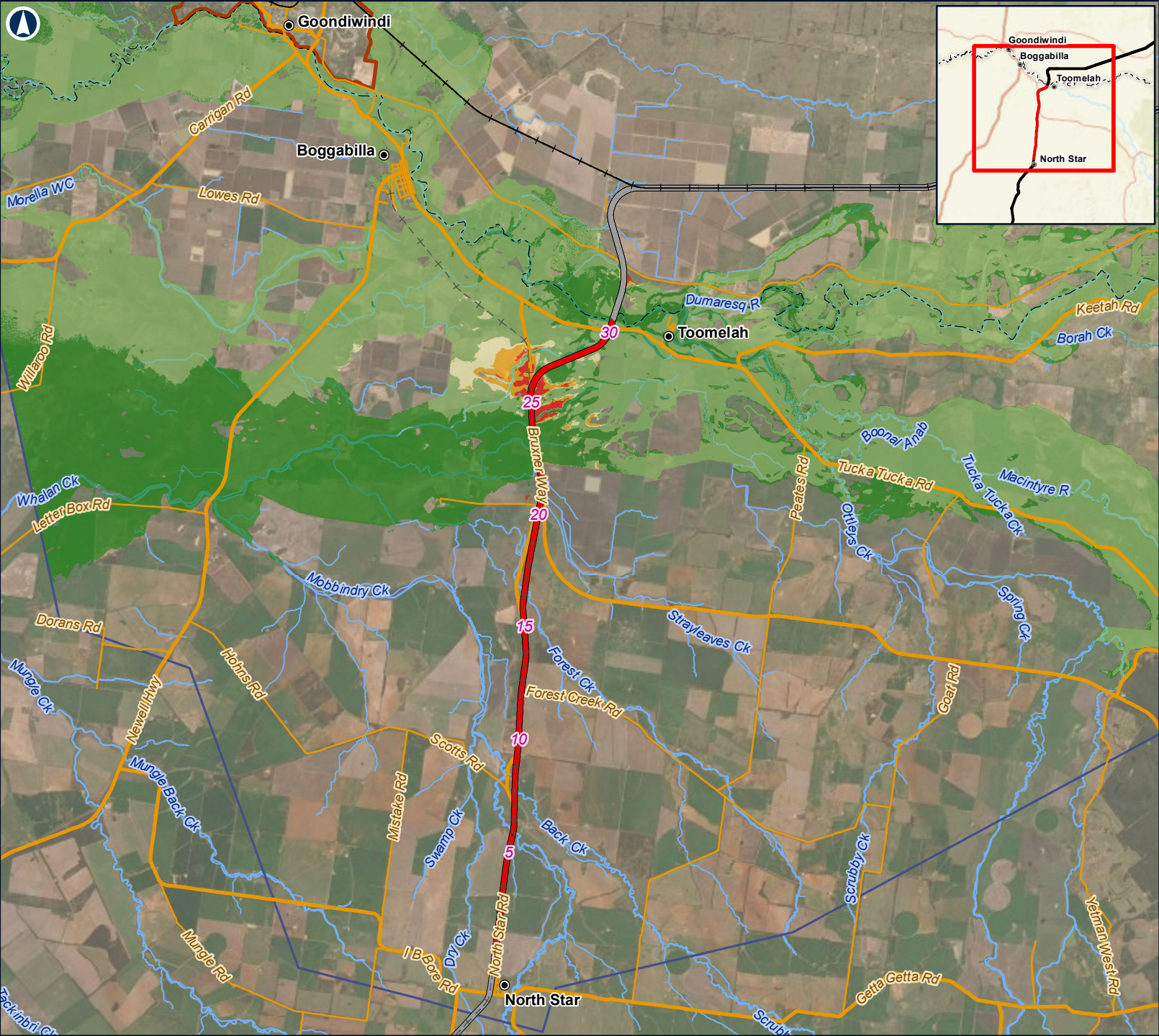
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### NORTH STAR TO NSW/QLD BORDER

Figure D10: Developed Case  
BRVFP levees and factored flows  
Percentage change in velocity x depth product

#### LEGEND

- Localities
- Chainage (km)
- North Star to NSW/QLD border alignment
- Adjoining alignments
- Existing rail (operational)
- Existing rail (non-operational)
- NSW/QLD border
- Watercourses
- Goondiwindi levee
- Sub-model extent

**Change in velocity x depth product ( % )**

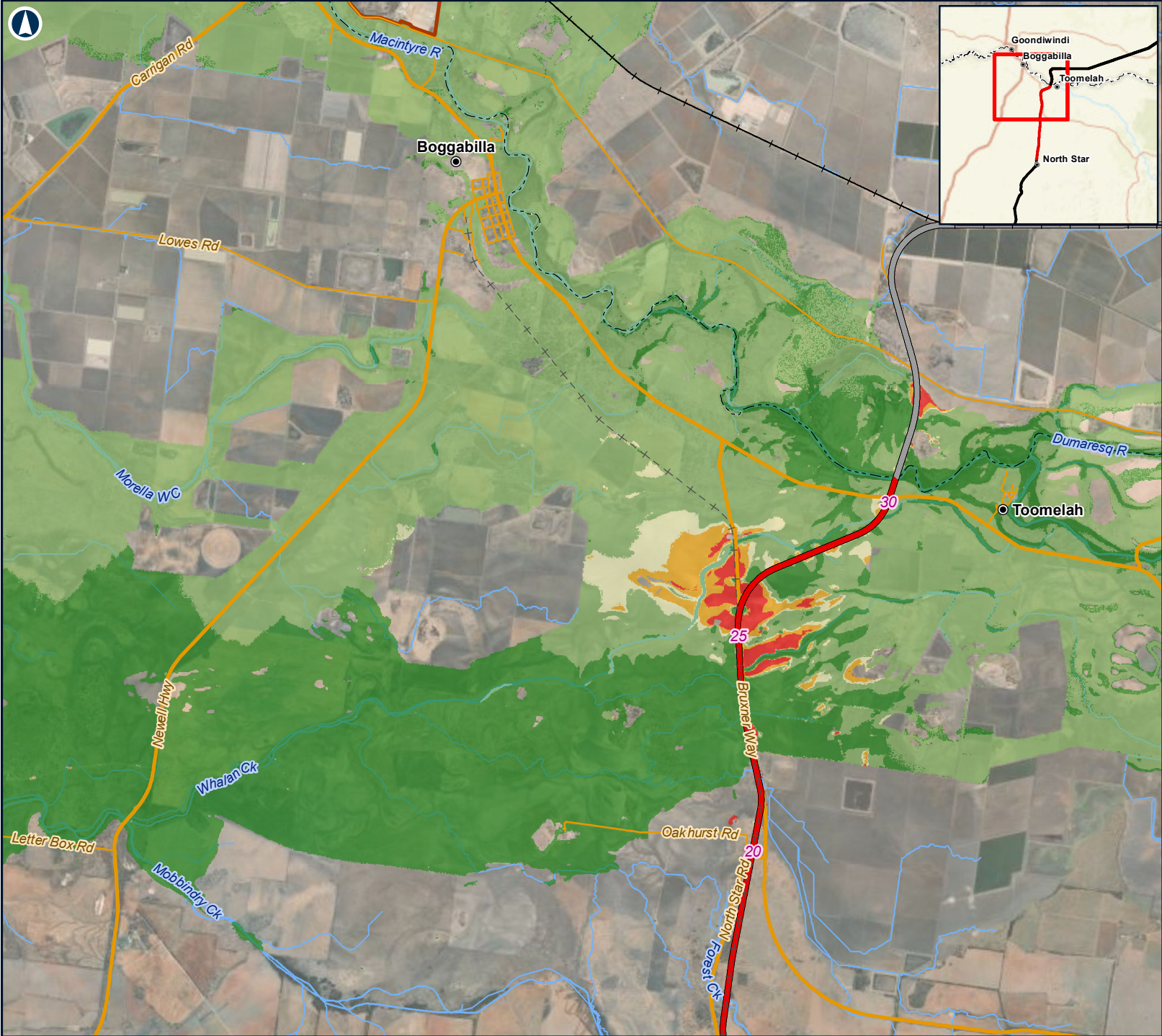
- < 0
- 0 to 10
- 10 to 20
- 20 to 30
- > 30

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**NORTH STAR TO NSW/QLD BORDER**

Figure D10-A: Developed Case  
BRVFP levees and factored flows  
Percentage change in velocity x depth product

**LEGEND**

- Localities
- Chainage (km)
- North Star to NSW/QLD border alignment
- Adjoining alignments
- Existing rail (operational)
- Existing rail (non-operational)
- NSW/QLD border
- Watercourses
- Goondiwindi levee
- Sub-model extent
- Change in velocity x depth product ( % )
  - < 0
  - 0 to 10
  - 10 to 20
  - 20 to 30
  - > 30

6km

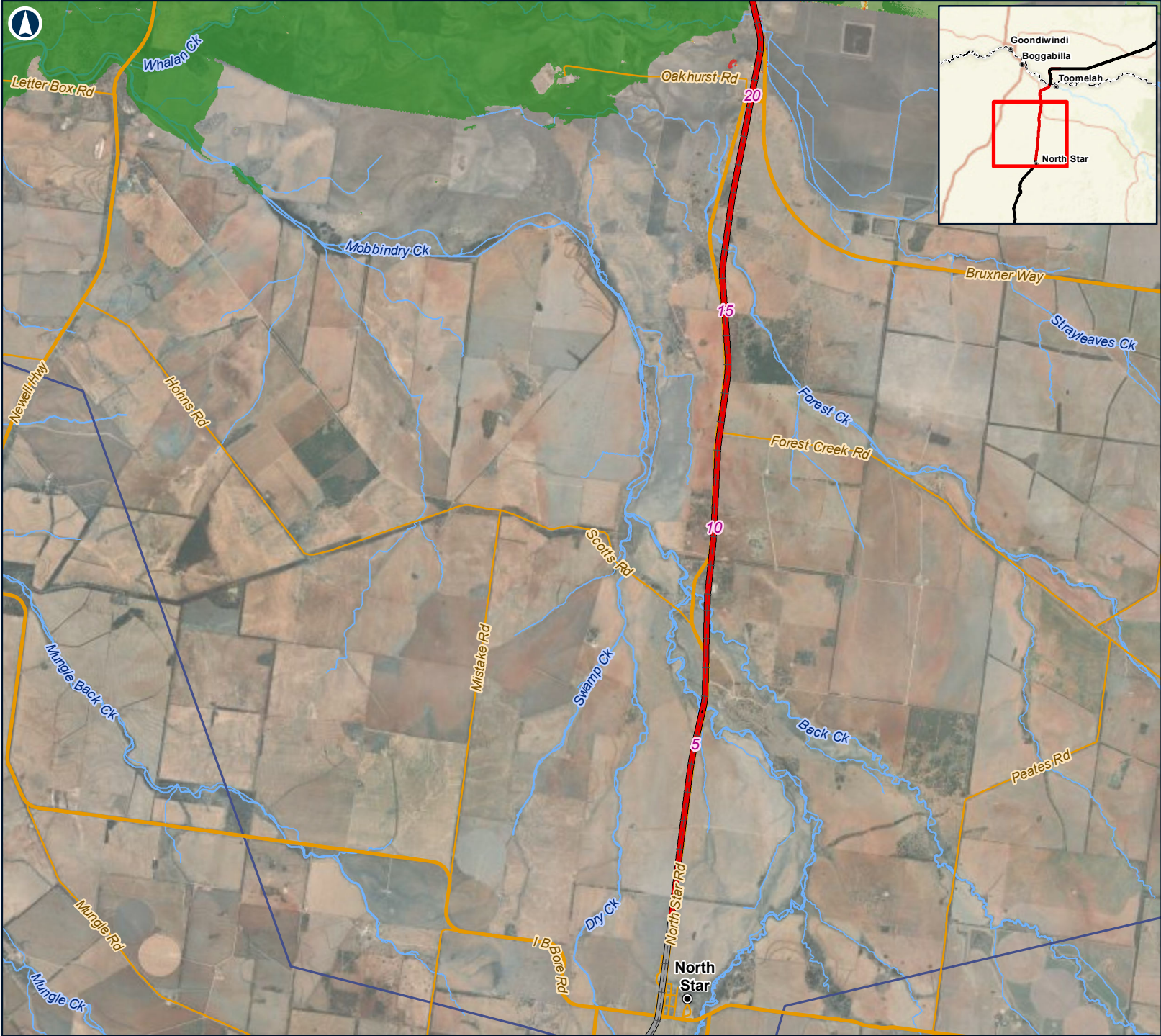
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**NORTH STAR TO NSW/QLD BORDER**

Figure D10-B: Developed Case  
BRVFP levees and factored flows  
Percentage change in velocity x depth product

**LEGEND**

- Localities
  - 5 Chainage (km)
  - North Star to NSW/QLD border alignment
  - Adjoining alignments
  - Existing rail (operational)
  - - - Existing rail (non-operational)
  - - - NSW/QLD border
  - Watercourses
  - Sub-model extent
- Change in velocity x depth product ( % )**
- < 0
  - 0 to 10
  - 10 to 20
  - 20 to 30
  - > 30

6km

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