

Submitted to  
IPENZ Transportation  
Conference

# Layout Treatments – Reducing Vehicle Speeds

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**MWH**<sup>®</sup>

***BUILDING A BETTER WORLD***

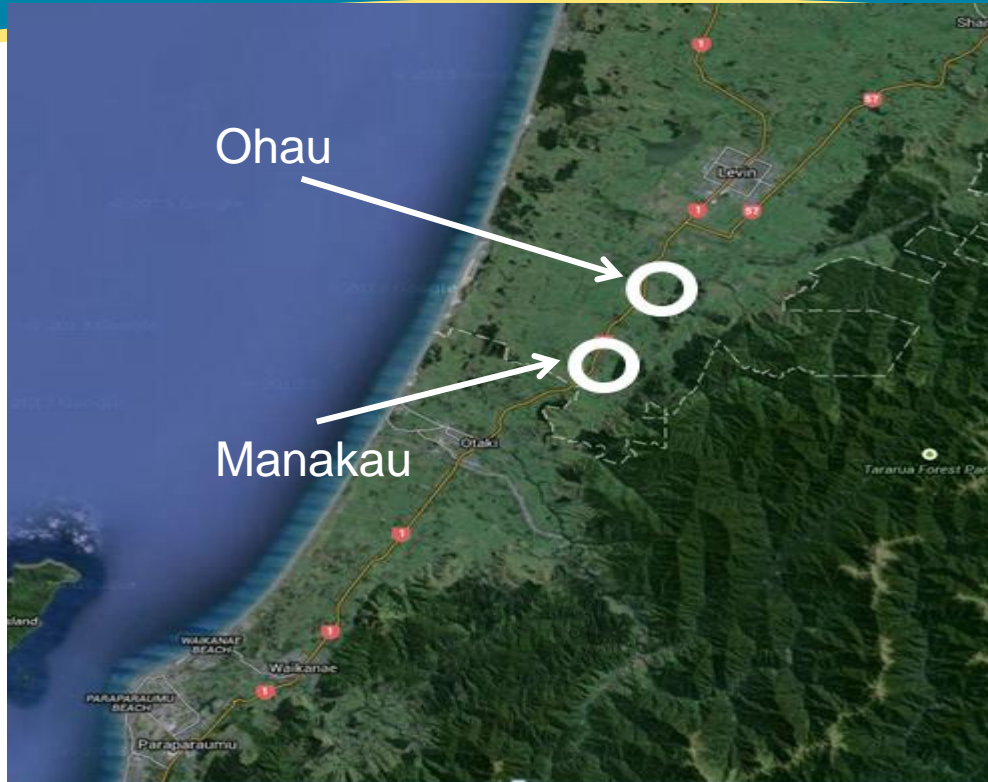
# Self-explaining??



# Visually...



# Project Area



# Openness



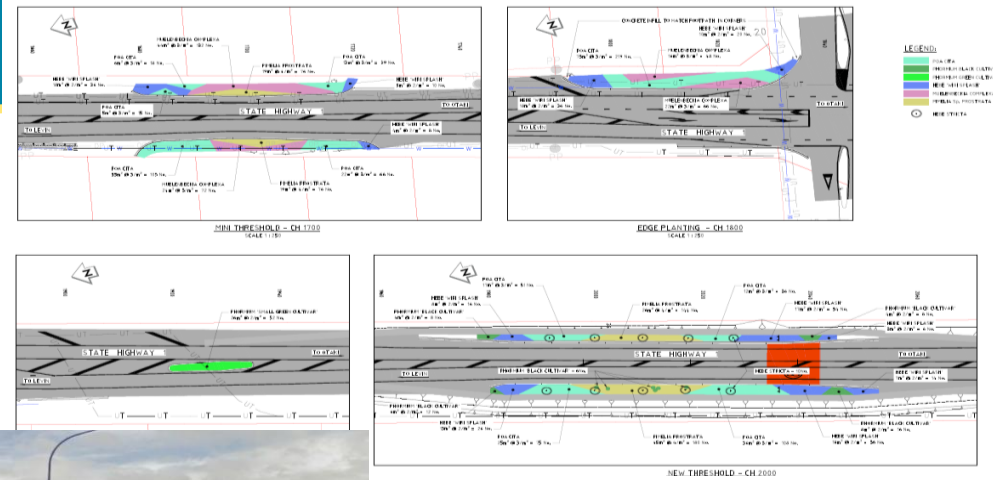
# Speed

Location	Mean Speed (km/h)	85 <sup>th</sup> Percentile Speed (km/h)
Manakau: Northbound	90	99
Manakau: Southbound	94	103
Ohau: Northbound	88	97
Ohau: Southbound	91	100





# Vertical Relief



# Vertical Relief

- Planting (frangible)
  - Thresholds
  - Mini & half thresholds
- Median Islands
  - 4 in Manakau (2 ped refuges)
  - 2 in Ohau
- Street Lighting



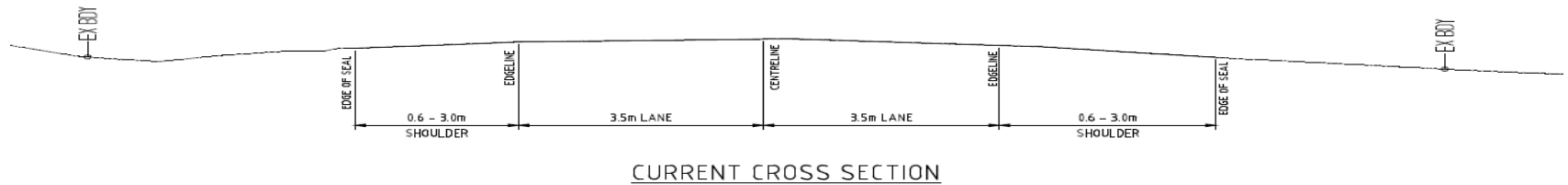
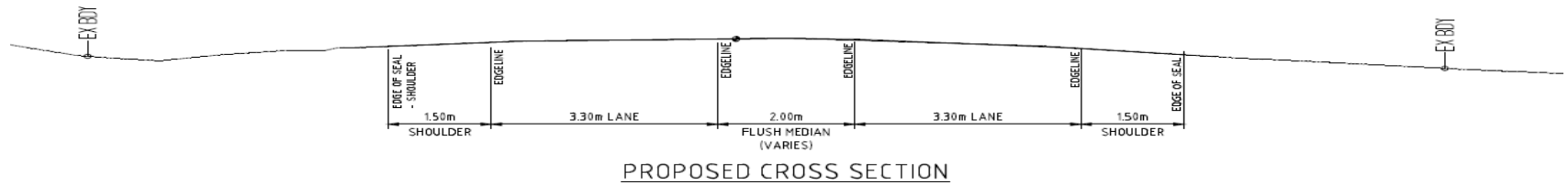


# Ohau Layout





# Cross section





# Expectations

- Construction to finish in May
- Extremely High Return:
  - Ohau 20 DSi / \$100M spend / year
  - Manakau 36 DSi / \$100M spend / year
- Community / amenity improvements



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# Safety

