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Maintaining Better Networks Unlocking The Potential

On Site Monitoring

Andrew Metge & Jeff Greenough – GHD Limited (Manukau)



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Onsite Monitoring



Onsite Monitoring

- The process of maintaining the network at the optimum efficiency.
- An ongoing process

Approach to Network Operations

Operational Management

- 580 Traffic Signals Intersections
- 7 TLA's

ATTOMS – Network Management Centre

- CCTV (partial coverage of network)
- Fault Monitoring and Reporting
- SCATS Operations

Onsite Monitoring – Traffic Signal Engineers – 3FT equivalents

Proactive Work

Reactive Work

Onsite Monitoring Functions

Primary Function

- **Safety**

Promote safety through operational changes & recommendations

- **Efficiency**

To achieve the TMU's goal of an efficient network

Secondary Function

- **Advising**

To identify, promote & report on areas of improvement or maintenance upgrade.

Proactive VS. Reactive Onsite Monitoring

Reactive

- Undertaking a request to investigate issues relating to the operation of traffic signals and the road network
- Receive requests from ATTOMS and TLA's

Proactive

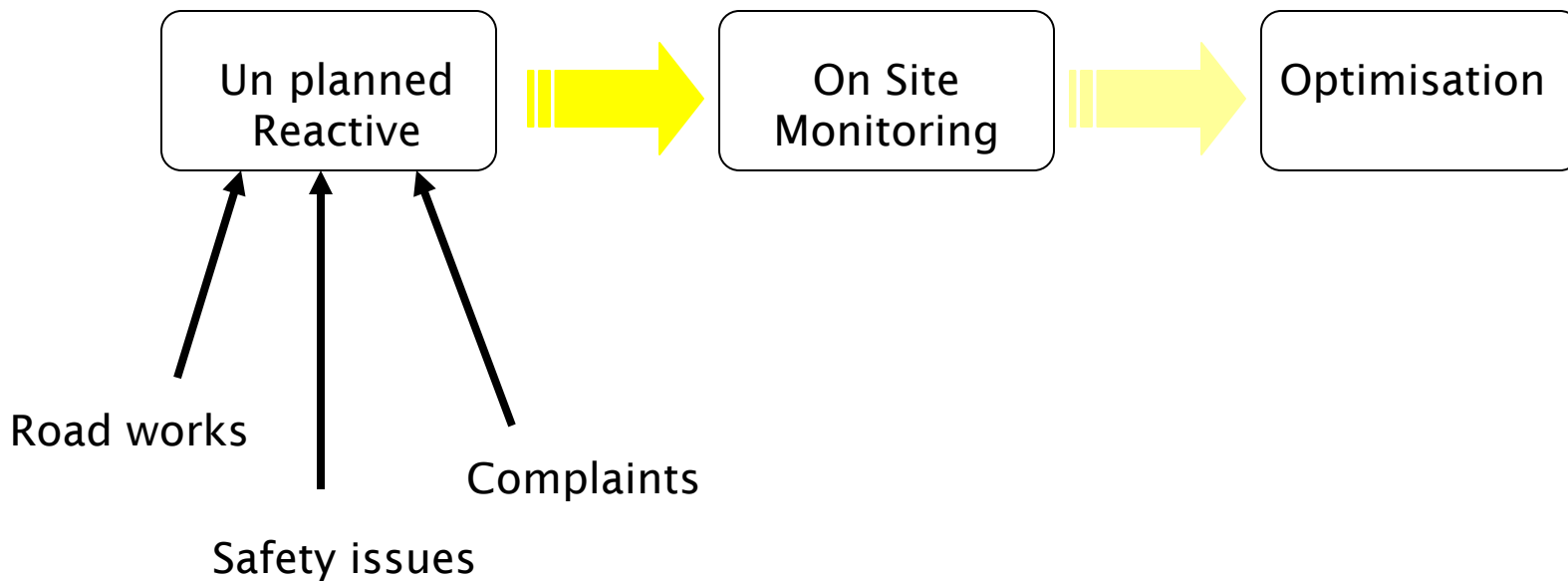
- A programmed, structured approach to capturing, assessing and improving the operational state of the traffic signals
- Currently being undertaken as 'Route Audits'
- Recording Identified Issues in databases

Identifying the Issues

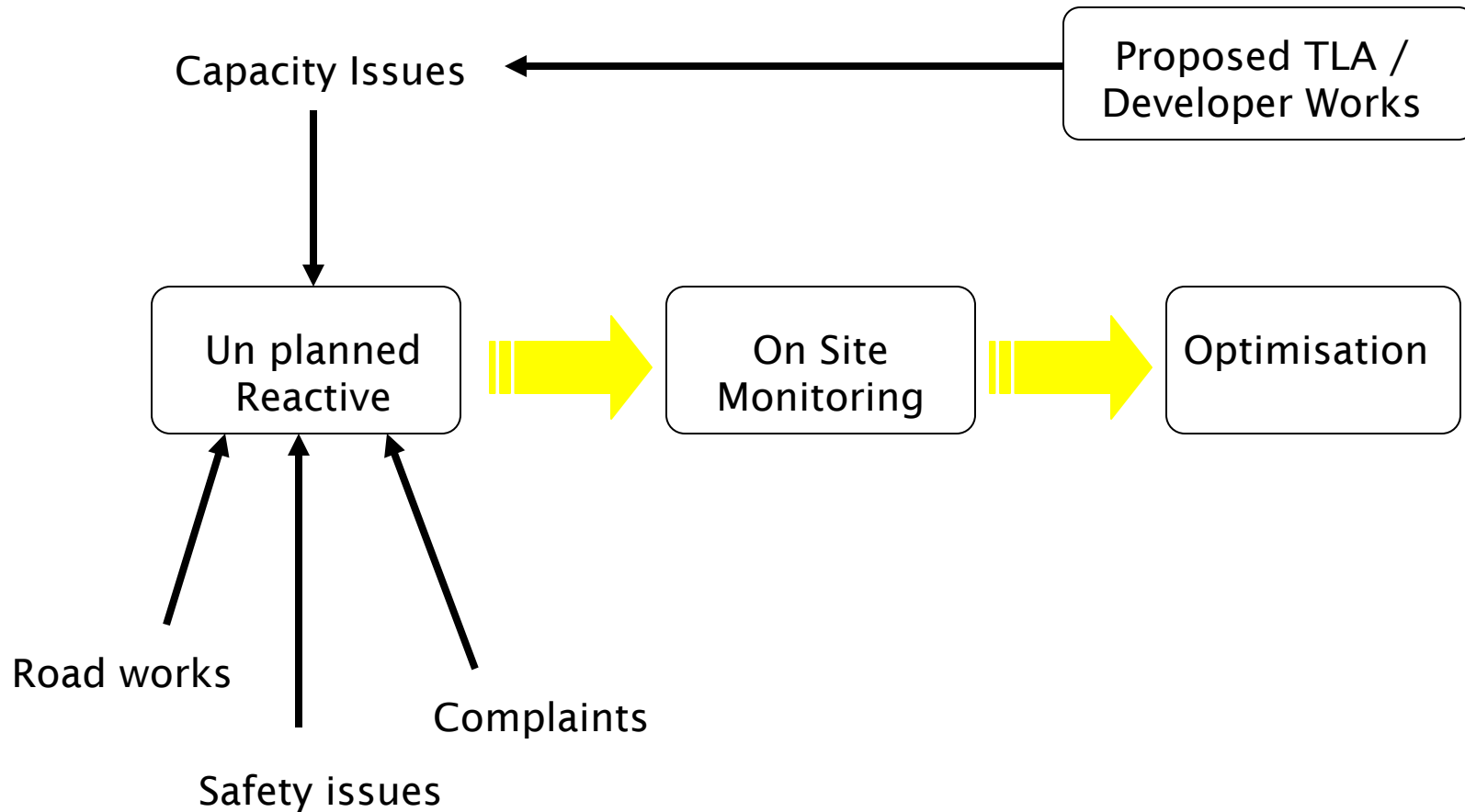
Issue Categories

- Operations
 - Issues immediately relating to traffic signal operation
- Maintenance
 - Reporting on faults to be repaired
 - Issues predominantly covered by Maintenance Contract
- Advisory
 - Issues requiring planning or have an impact on budget
 - Examples include recommending new software

Reactive Process



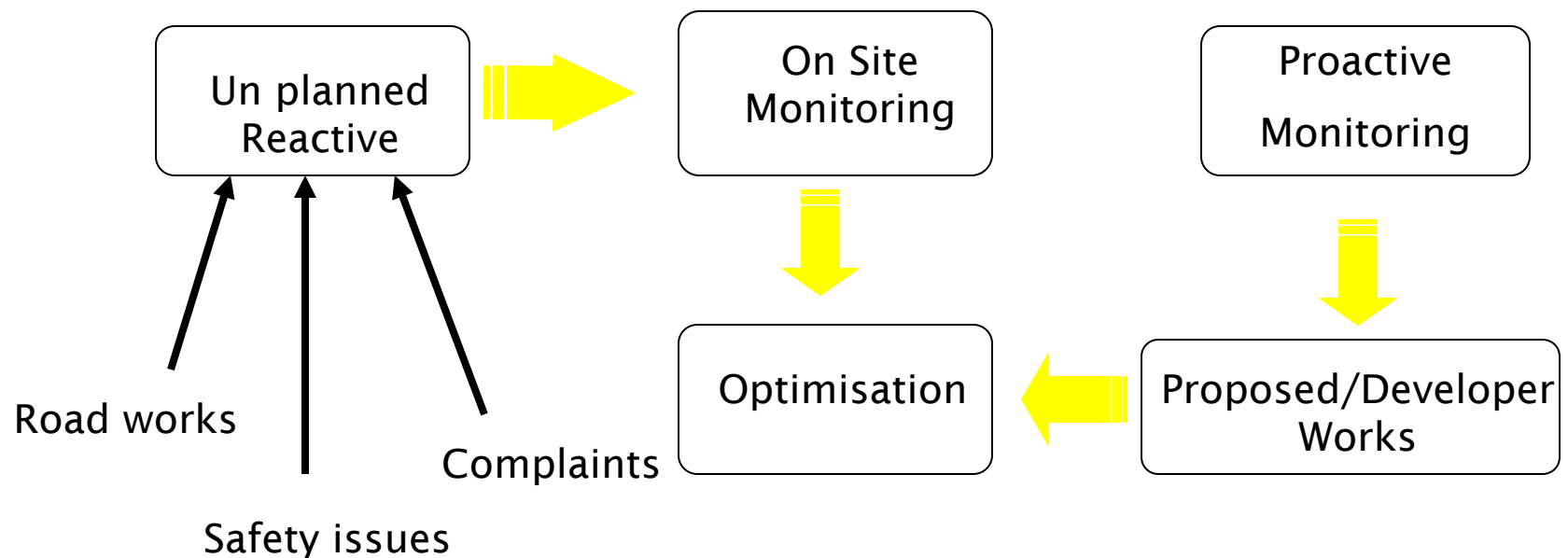
Reactive Process



Taking A Proactive Approach

Getting the network operation issues addressed at an early stage

Early involvement of developers or TLA's with the Network Operators





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Building Better Networks Intelligently

Optimisation

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Optimisation



What is Optimisation...

Maximising the Efficiency of a given Transport Network using Intelligent Systems and Solutions to develop a safe, reliable, more environmentally friendly and user friendly Network

Levels of Optimisation

Through carrying out one or more levels or a mix from the levels...

Level 1	Individual Intersection
Level 2	Multiple Intersection Optimisation
Level 3	Geometric Route Optimisation
Level 4	Corridor Optimisation
Level 5	Area Wide

Level 2 – Multiple Intersection Optimisation

Groups of adjacent Intersections optimised along routes through time setting and SCATS data changes to form marriage chains

EECA Pilot Study

A pilot study to demonstrate the viability and effectiveness of Route Optimisation

- 215,000L (10%) Fuel Savings
- 547 T (10%) CO₂ Savings
- 63,500 Hours (13.5%) Travel Time Savings
- 17 Seconds / Vehicle Average Saving



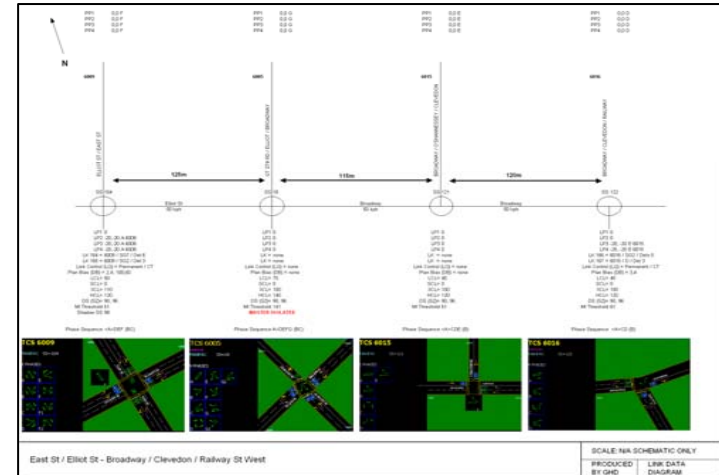
Level 3 – Geometric Route Optimisation

Enhanced version of Multiple Intersection Optimisation with emphasis on intersections and route geometric constraints

Papakura Town Centre Routes

Two routes optimised following town centre upgrades, capacity improvement suggestions, Right turn investigation study

- **27% Travel Time Saving on Northern Route**
- **16% Travel Time Saving on Eastern Route**
- **Investigation into Banning a Right turn**



Level 4 – Corridor Optimisation

Optimisation of a corridor with more emphasis on the wider impacts of traffic management with a view to improving street appeal, access to public amenities etc...

Lake Rd, Takapuna – North Shore

Signals optimisation, concept capacity improvement options, community consultation and economic assessment

- Northbound AM Travel Time Savings – 24%
- Northbound PM Travel Time Savings – 10%



Level 5 – Area Wide

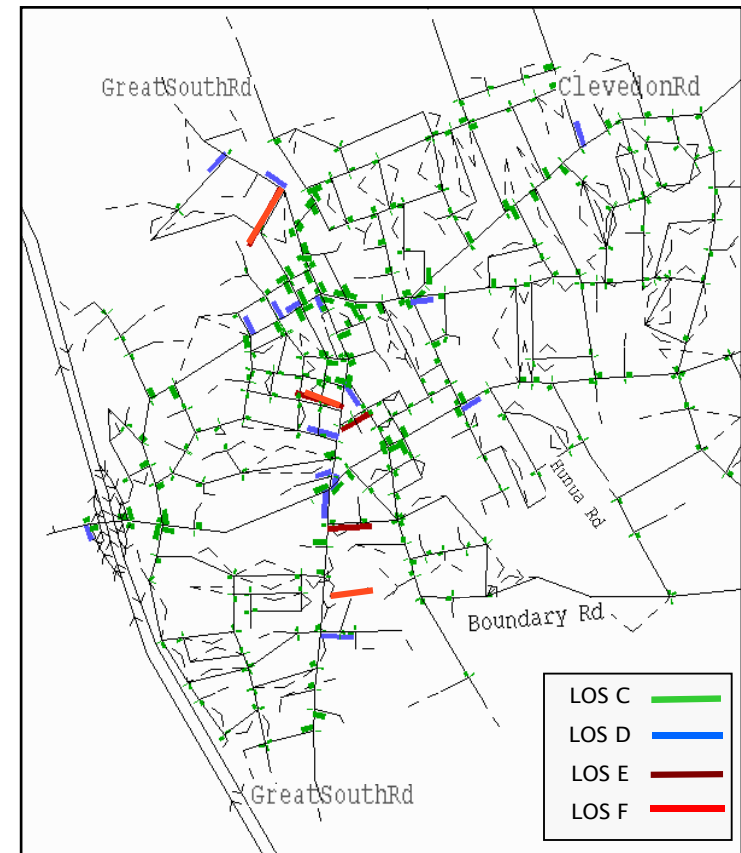
An extension of corridor optimisation with a wider view of how an area may be treated to more effectively manage traffic

Papakura Town Centre Road Network Study

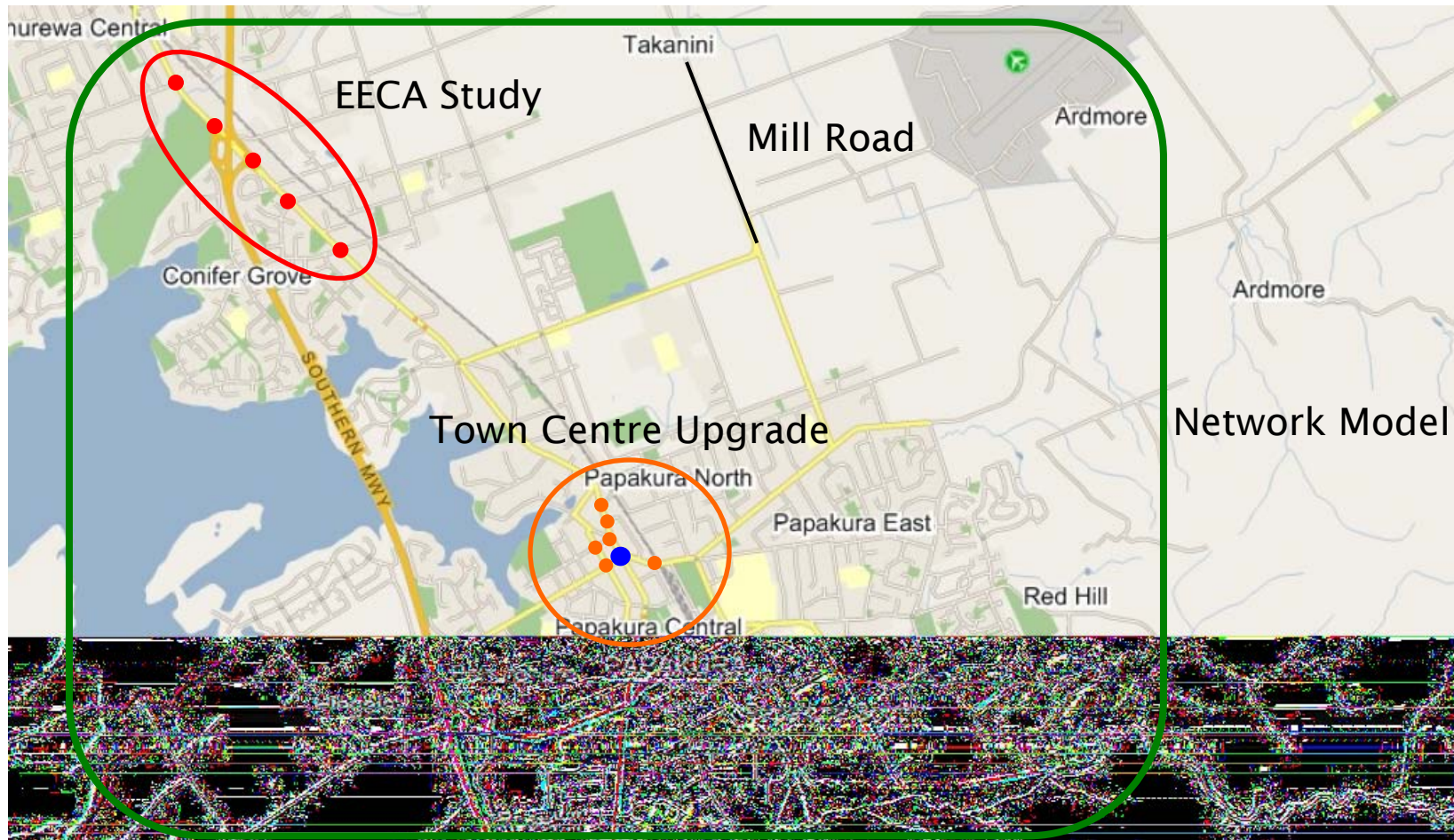
Beginnings of an area wide study with focus on town centre, future improvement scenarios identified and tested

Included in the Area Wide Work:

- Right Turn Ban Investigation
- Roundabout Upgrade Investigation
- Signalised Routes Optimised



Levels of Optimisation – Papakura Example



Benefits

Papakura Town Centre

27% Travel Time Saving on Northern Route

16% Travel Time Saving on Eastern Route

Lake Rd, Takapuna – North Shore

NB AM Travel Time Savings – **24%**

NB PM Travel Time Savings – **10%**

EECA Pilot Study

10% Fuel Savings

10% CO₂ Savings

13.5% Travel Time Savings

17 Seconds / Vehicle



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Questions...

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EECA Pilot Study

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**If you have any comments or want further information
come see us during the pre-dinner drinks...**

The Traffic Engineer...

