Smart Data Systems for FWP Development

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July 2007
IN³ROADS - PBC

- 10Yr Performance Based Contract with two clients and networks
  - Transit New Zealand
  - Western Bay of Plenty District Council
- Awarded to OPUS with alliance partners
  - Works & McBreen's
- Currently in Year 5 of 10
- Purely Performance Driven, Lump sum
  - Innovation!
IN$^3$ROADS - Location

[Image of a location with a mountain and coastal area]
IN³ROADS – LA Network Composition

- **Total Local Road Network Length**
  - 1030km
    - Sealed: 751km
    - Unsealed: 279km

- **Low Volume Length (AADT < 500)**
  - 795km
    - Sealed: 519km
    - Unsealed: 276km
PERFORMANCE MEASURES

- MPM’s – 25 Management Measures
  - Quality Control, Documentation
  - Reporting, Design, Planning, Data Management
  - Customer Care

- OPM’s – 175 Operational Measures
  - Short Term (daily/weekly/monthly)
  - Safety & comfort of road user

- KPM’s – 54 Key Measures
  - Protect Long Term Condition
  - Strategic and Big Picture
PERFORMANCE MEASURES

- Mean Roughness
- Smooth Travel Exposure
- Texture Depth
- Surf Cond Index

Frequency

KPM’s

OPM’s

EXCELLENT ➔ Condition ➔ VERY POOR
DATA COLLECTION - SEALED

- Data Driven Contract
- LVR Key Measures Reported Every 2 Yrs
- 4 Primary Data Sources
  - RAMM Inventory
    - Collected continually
  - RAMM Rating Data
    - 10% LVR Collected every 2 years
  - High Speed Data
    - 100% LVR Collected every 2 years
  - Maintenance Data
    - Collected Daily
    - 2 inspectors cover entire network in 6 week cycles
1. Network Overview
   - Identify local trends and issues

2. Drilldown
   - Utilise resources
   - Identify exceptions
   - Compare programmes

3. Drive-over
   - Finalise treatments
   - Hard copy decisions
EXRD – Exception Report Drilldown

WELCOME TO EXCEPTION REPORT DRILL DOWN

LOCAL AUTHORITY EXRD

NETWORK LEVEL SUMMARY
CLICK HERE

TREATMENT LENGTH ANALYSIS
CLICK HERE

RAW DATA DETAILS/GRAPH
CLICK HERE

CLICK TO OPEN DRIVOVER SHEET

CLICK TO ADJUST THRESHOLD VALUES

CLICK TO OPEN AWT FORM

CHANGE NETWORK
1. Network Overview
   - National and local analysis/trends
   - RAMM contains many reporting functions
     - SCI (Surface Condition Index)
     - PII (Pavement Integrity Index)
     - STE etc etc
   - Key Performance Measures
     - Contractual obligation to meet

Identify network level risk areas
EXRD – Network KPMs

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DEVELOPING FWP - SEALED

1. Network Overview

2. Drilldown
   - Drill into issues identified at network level
   - Utilise all data available
   - Identify exceptions
     - Compare FWP with dTIMs outputs
   - Optimise resources
     - FWP
     - Data
     - dTIMs

Utilise All Resources to Develop Robust FWP
EXRD – Exception Report Drilldown

LOCAL AUTHORITY EXRD

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CLICK TO OPEN AWT FORM

CHANGE NETWORK

Inroads

OPUS
Example: SCI

- Composite National Measure
- Calculated from RAMM Rating and Surface

\[
SCI = \min(100, \min(100, (4 \times ACA + 0.5 \times ARV + 80 \times APT + 20 \times APH + 1.2 \times AFL)) + 3 \times \min(100, \max(0, ((AGE2 - SLIF) / SLIF \times 12))))
\]

- 2 parts CI and AI
- Interpreting Index

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Nothing in FWP
DEVELOPING FWP - SEALED

1. Network Overview
2. Drilldown
3. Field Drive-over
   - Print Exception Report
     - Hard copy for Drive-over and future reference
   - Verify RAMM data in field
   - Finalise FWP

Finalise Decisions in Field
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EXRD DRILLDOWN FEATURES

- Calculate Network Level KPMs
- Analyse Treatment Length
  - All data combined in one form
  - Compare dTIMs with NOMAD
  - Filter Exceptions
  - Sort Worst Conditions
- Interrogate Raw Data/Graphs
- Print Exception Reports for Field Drive-over
SUMMARY - ROBUST FWP

- Network Trends
  - Understand network drivers, risks, trends

- Data
  - Maintain data sources and validate

- Decision Making
  - Utilise all valid data sources/resources
  - Identify exceptions
  - Conduct field drive-over to validate data and decisions
QUESTIONS?