UTMC integration in Barnsley
Keeping traffic moving in Barnsley

Continued growth in traffic levels increases pressure on existing road networks and infrastructure

SCOOT as part of a strategic UTMC solution offers efficient network management whilst minimising operator intervention

Accurate, real time driver information is a key element of effective network management

Solutions must be expandable and supportable to accommodate future growth easily
Barnsley overview

- 23% traffic growth 1993 – 2003
- 7th traffic growth hotspot
- Single carriageway roads
- Variable traffic flows
- Scarce staff resources
- Almost automatic system required
SCOOT in Barnsley

Siemens Alpha UTC/SCOOT installed in 2003
  - Combination of BT and private copper circuits initially
  - Expanded later with private fibre connections to UTMC outstations

Upgraded to PC SCOOT in 2008, including MC3

Integrated into Comet UTMC management system for strategic control
  - Used as a key element of the overall ITS solution to manage congestion

SCOOT is operated on 53 nodes across 36 outstations

Some sites also use a combination of SCOOT and MOVA with switching controlled by UTC in conjunction with Comet UTMC
Detection and monitoring

Existing SCOOT information is complemented by the addition of queue and ANPR detection

- Queue detection is implemented by the dual configuration of SCOOT loops at key, selected outstation

- Use of a dedicated local queue detector provides an immediate indication of localised queuing

- ANPR cameras on strategic routes provide journey time information which is used to deliver key, real-time data to drivers
Information dissemination

- Strategically placed VMS used to advise drivers of current network conditions
- Used as ANPR detection locations with shared communications infrastructure
- Real time information used to advise of typical journey times or queue and congestion hotspots, allow alternative route choices to be made
- Messages are chosen automatically based upon the frequency of queuing and congestion levels
Information dissemination
Operational scenarios

SCOOT on / off from traffic flows
- SCOOT control is configured according to monitored conditions on street rather than by time of day
- Allows most appropriate method of control to be determined in real time rather than “best guess”
- Can be configured directly within SCOOT (monitoring cycle time in background) and via Comet UTMC system with wider range of triggers – including non-SCOOT information

Queue relocation strategies using flow, speed and congestion
- SCOOT parameters can be modified in real time to assist in gaining the desired result

Variable message sign control
Automatic operation

Limited operational resources make fully automatic operation essential

Changes and updates are easily configured and reviewed with visual configuration toolsets

Data triggers and thresholds are key to the successful automatic operation

Continued periodic network analysis is undertaken to ensure the ongoing validity of the key trigger conditions used
Network analysis – SCOOT and Astrid

Regular ASTRID data analysis of all nodes
- Flow, congestion, saturation and delay

Tabulated results include consideration of cost of future delay which is used to help prioritise network management improvements

MC3 congestion supervisor analysis to discover weaknesses / problems with links in the network
- Wasted capacity
Summary

- UTMC integration of SCOOT, ANPR and VMS is key to the overall Barnsley ITS scheme
- Automated operation is essential in an environment of limited staff resources
- Flexibility of operation is key to maximising the benefits from the system
- Targeting of resources is evidence led with the rich data available from SCOOT and other sources via UTMC integration
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