t2.17

Spatial transport database: The STRAND

Nick Youngs, Systems Development Manager, London Buses
Robert Southern, Transport Group Manager, Informed Solutions

- AGI Conference 2001
  - Spatial Transport Database
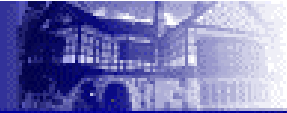
Spatial Transport Database
The Strand

Nick Youngs (Systems Development Manager,
London Buses)

Robert Southern (Transport Group Manager,
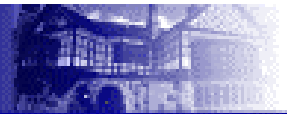Informed Solutions)

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Presentation Format

- Background
  - Who are London Buses ?
  - Drivers for change
- STRAND
  - Objectives
  - GIS Technical Baseline
  - Project Approach
    - Roles and Responsibilities
  - Organisational, Business and Technical Benefits
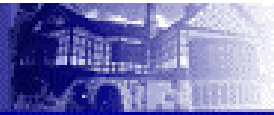- Conclusion and Questions

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London Buses

- Manage Bus Services in London
  - 4 Million journeys per weekday
  - 1.3 Billion journeys in 2000/1, over 3% up
- Private Operators
- Plan Routes
- Specify service levels & monitor quality
- Bus stations and stops

London Buses

Drivers For Change

| External Influences	Internal Influences
• Business Drivers	• Business Drivers
• Organisational Change	• Organisational Change
• Technological Innovation	• Technological Innovation
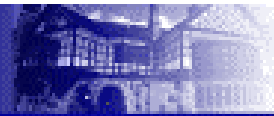
Business Drivers

- Requirement to monitor and geocode business critical accident and assault data
- Greater requirement to provide strategic bus service and route planning information
- Requirement to provide improved quality of and more timely information
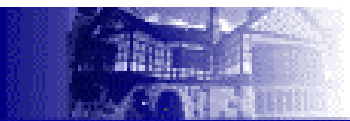- Requirement to integrate all modes of transport for strategic impact analysis
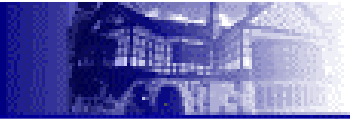
Organisational Drivers

- TƒL - New governance
- Integration
- Responsiveness to the public
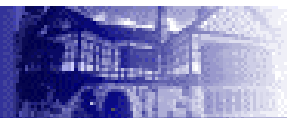- Share data more broadly

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Technical Drivers

- Enhance business information within an ORACLE environment.
- GIS Projects utilising open systems across the enterprise
- Legacy systems unable to provide timely information in the desired format
- Integration of transport information requires precise base mapping for spatial analysis and decision support.
- Availability of Innovative Technology - Oracle 8i Spatial, MapX and MapInfo Professional
    - Ability to utilise standard components corporate wide
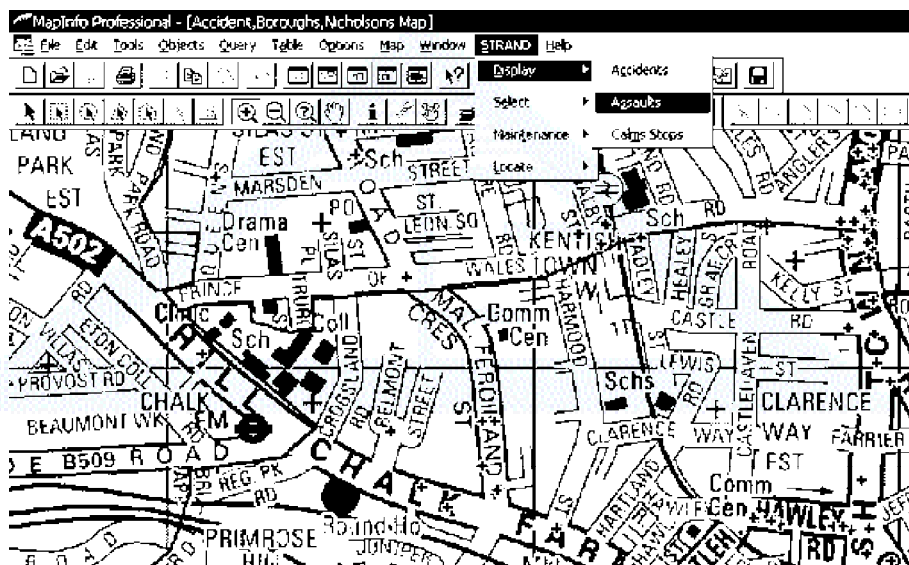   - OLE / COM to integrate spatial systems with the business systems

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STRAND

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STRAND Objectives

- Display, integrate and analyse London Buses business information

- Data Migration of Accidents, Assaults and Computer Assisted Location Management Stops (CALMS) data from legacy systems to Oracle 8i environment.

- Automatically geocode accident and assault data

- Display and Edit Accident, Assault and CALMS Points

- Gazetteer by Street, Bus Stop and Bus Route

London Buses

Technical Baseline

- Oracle Spatial
- MapInfo Professional

ORACLE Selection Criteria

- **Low Risk** - Oracle 8i ensured data security and availability across 'TfL' enterprise.

- **Scalable** - Oracle 8i ensured application and database scalability.

- **High Value** - Business information could be integrated, analysed and shared across the enterprise.

- **Low Cost** - Data could be migrated and enhanced within an integrated IT infrastructure

MapInfo Selection Criteria

- **Low Risk** - MapInfo Professional is being used across the 'TƒL' enterprise.

- **Scalable** - Ability to utilise the MapInfo product suite to benefit architectural and design considerations

- **High Value** - Design of GIS as a component based architecture meant that business operations could be shared across the enterprise.

- **Low Cost** - Using industry standard languages "quick wins" could be achieved and the system could be used immediately.
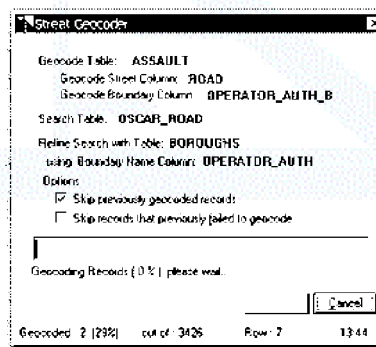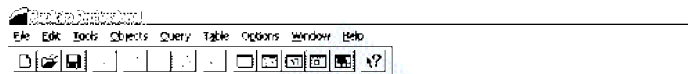
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STRAND Functionality

London Buses

STRAND Functionality

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• AGI Conference 2001
• Spatial Transport Database

STRAND Functionality

- Database Management
  - The ability to load external datasets
  - Migrate historical information
  - Update latest Ordnance Survey Road and Boundary information
  - Spatially enable business information

- Analysis
  - Ability to view the geographic network
  - Ability to edit, update and analyse Accidents, Assaults, Stops and Shelters
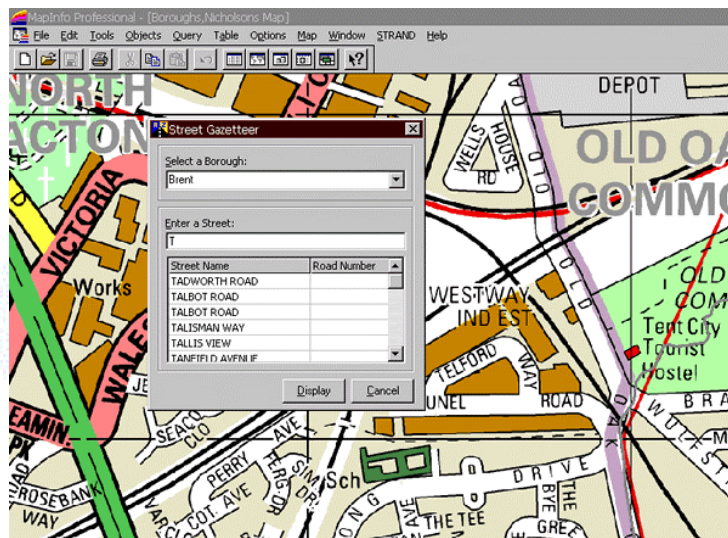
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STRAND Functionality

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Project Approach

- Determine Business, Organisation and Technical requirements
- Technical Review of appropriate technology by 'T*f*L' Organisations in partnership with Informed Solutions
  - Selected Oracle 8i Spatial and MapInfo Corporation's Mapinfo Professional
- Implementation of 'STRAND' project - gain early success

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STRAND Implementation

- Informed Solutions partnered with London Buses
- Specification of system requirements
- Spatially enabled by:
  - Installation and configuration of Oracle 8i Spatial
  - Configuration and development of environment
  - Integration and development of Mapinfo Professional functionality
- Structured RAD approach to develop spatial front-end

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STRAND Datasets

- External Datasets
  - Ordnance Survey base mapping (For Roads and Administrative Boundaries)
  - Nicholsons colour raster maps (like A to Z of London)
- Internal Business Data
  - Accidents and Assaults
  - Computer Assisted Location Management Stops (CALMS), Bus Stops and Shelters
  - TfL corporate information

London Buses
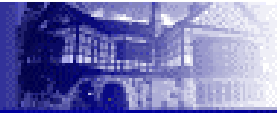
Business Datasets

- Addition of Further Internal Business Data
    - Bus Routes
    - Bus Authority Boundaries
    - Performance and Service Information
    - Supply and Demand Data
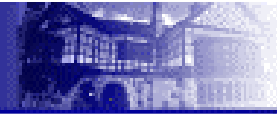   - Origin and Destination Surveys

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Business Benefits

- Improved format for presenting business and Management Information
- Better and more timely reports
- Migration and storage of historical and current accident and assault information
- Semi-automatic capture of accident and assaults based upon business information
- MapInfo Professional environment has enabled London Buses to design work flows that meet the needs of the Network Analyst

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Organisation Benefits

- For the first time the geographic Accident and Assault information can be shared across 'T*f*L' companies
  - Enabling integrated approach
- Better enabled the monitoring and review process of the London Buses system
- Facilitates long term strategic planning
- Maximum benefits gained in sharing project roles and responsibilities with Informed Solutions and effecting a skills transfer

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Technical Benefits

- Scalable Technical Environment
- Centralised business data management
- The ability to capture, store, visualise and analyse Bus Service information quickly and accurately.
- Analysis of data using SQL statements
  - Data may be accessed directly without the need for GIS application
  - Oracle Forms, Visual Basic Web applications
- Faster processing and lower costs
- Different methods for analysing data

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Futures

- Improve Technical Platform
  - ORACLE 9i
  - Improved performance
- Increase Business Analysis
  - Integration of information from:
    - 'T*f*L' Integration
  - Service / Demand
    - Census information
    - Accessibility Indices
- Increase Awareness
  - Intranet

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Questions

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