

# National Reporting of Road Condition

Development of a national road condition database

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## A brief diversion – the mini SCANNER project

- Smaller, quicker, cheaper automated carriageway surveys
  - “Mini SCANNER”
  - Would it be appropriate to extend SCANNER surveys to minor (U) roads?
- The report is now published – will be placed on the website

## Mini SCANNER project - Conclusions

- The work reviewed LA's approach to measuring condition
  - Recommended a targeted approach to condition surveys
  - Recommended different types of survey on town roads and country roads, including an automated (machine) survey
- It is not yet possible to develop a machine survey specification that will lead to widespread acceptance and use on urban U roads
- It should be possible to develop a machine survey specification that would be acceptable on rural U roads.
  - A specification was proposed
  - In many respects a cut down version of the SCANNER specification (no cracking)
- For good value to be obtained on rural U roads we still require
  - A robust measure of surface deterioration
  - A practical proven method of network referencing and locational referencing

## Mini SCANNER project - Conclusions

- There are relatively few rural U roads
  - Little incentive to build a machine to a new specification.
  - For many U roads the full SCANNER vehicle would be acceptable, if it was practical to survey the roads.
- In the short term it may be more appropriate to encourage LAs to extend existing SCANNER surveys to minor roads
  - Which are important (e.g. in terms of traffic flow)
  - Where the data would be of value to the authority
  - Where high coverage is achievable (most local link roads)
  - Survey contractors are best placed to decide which roads are safe to survey using existing machines
    - There may be a need for external checking to ensure that SCANNER is not applied incorrectly to unclassified roads
- In the longer term the full specification could be implemented on a smaller vehicle
  - To deliver practical machine surveys over the whole network

# National Database - Background

- SCANNER and TRACS
  - Provide national condition measurement
  - Good local use of data
  - Difficulty in making use of the data centrally
    - Only see NIs for each LA
- Central uses?
  - Generation of annual statistics
  - Develop new national reporting methodologies (NRMCS?)
  - Trending
  - Assessing behaviour of both RCI and defects
  - Simplifying research into changes to indicators
  - Combining SCANNER data with other network level measures
  - .....

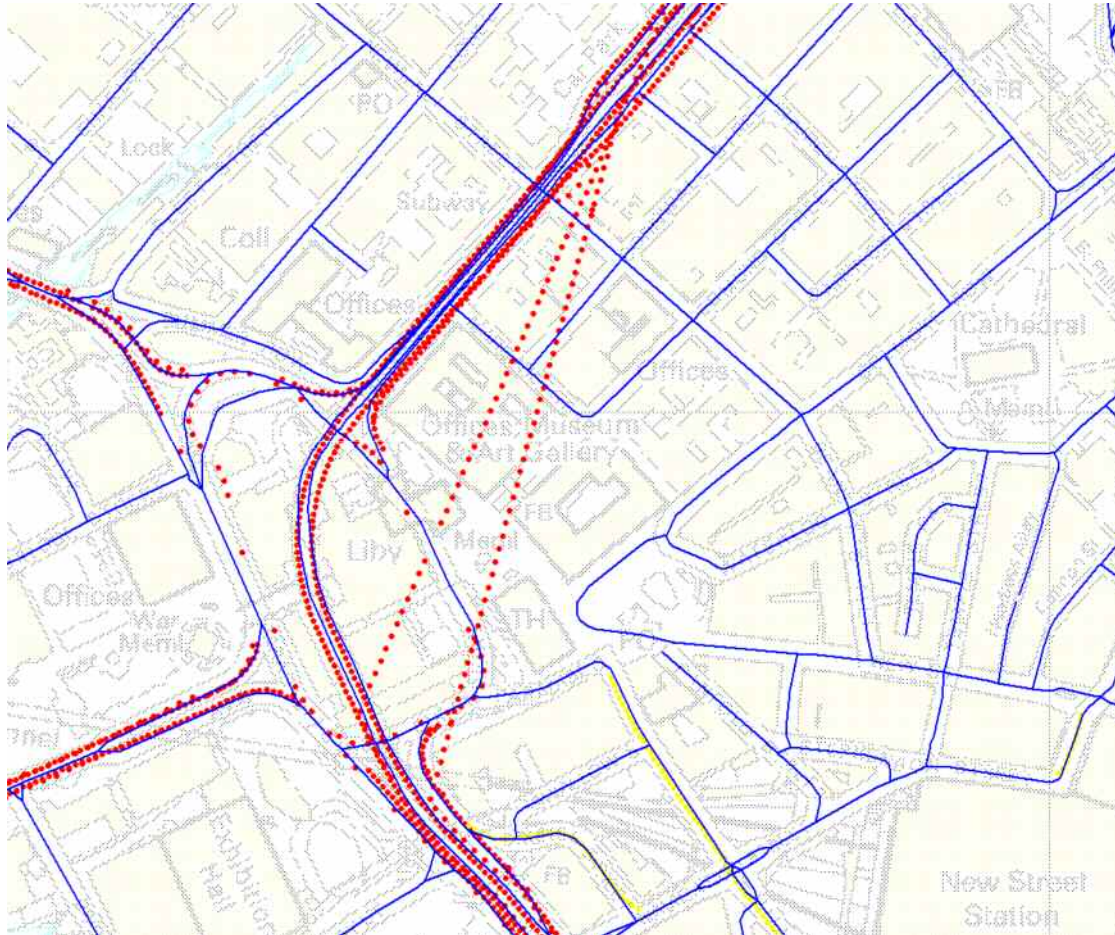
# National Database - Background

- Central use
  - Requires a single repository for data
  - Requires ability to collate and report data against a single network definition
  - Will exploit the accurate OSGR data provided by TRACS and SCANNER
- Research undertaken (Jan to Sep 08) to
  - Establish a national network (“framework”)
  - Develop and demonstrate data fitting rules
  - Establish data processing methods
  - Assess the performance of the fitting process
  - Hence assess the likely success of the proposed approach

## Review of Research – National network

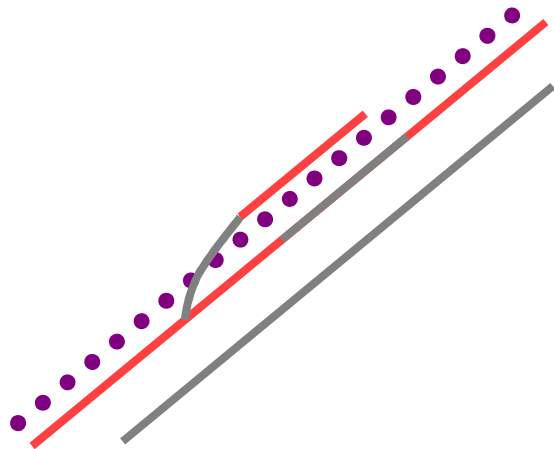
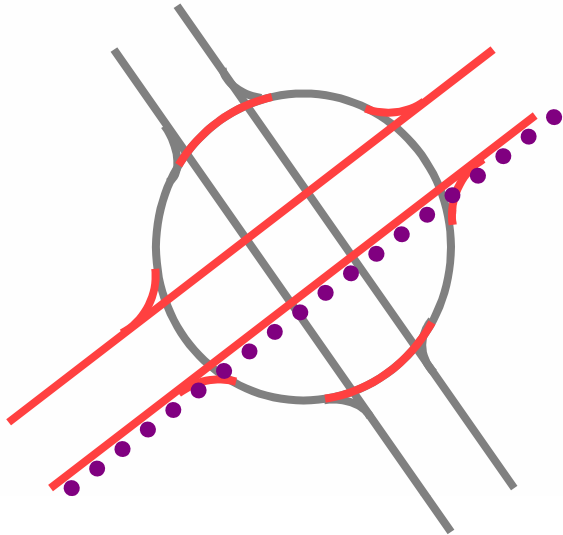
- LA networks are
  - Defined as section and chainage
  - Not all geo-referenced
  - Not consistent
  - “Live”
  - Not centrally defined
- OS ITN selected as the national network definition
  - Relates road sections (TOIDs) with geographical position
  - Is centrally defined
  - Is used throughout Government for mapping and displaying data
  - Is updated more frequently than alternative networks
  - Is already licensed to DfT
- SCANNER OSGR data can be used to “fit” the data to the ITN

## Review of Research - Fitting



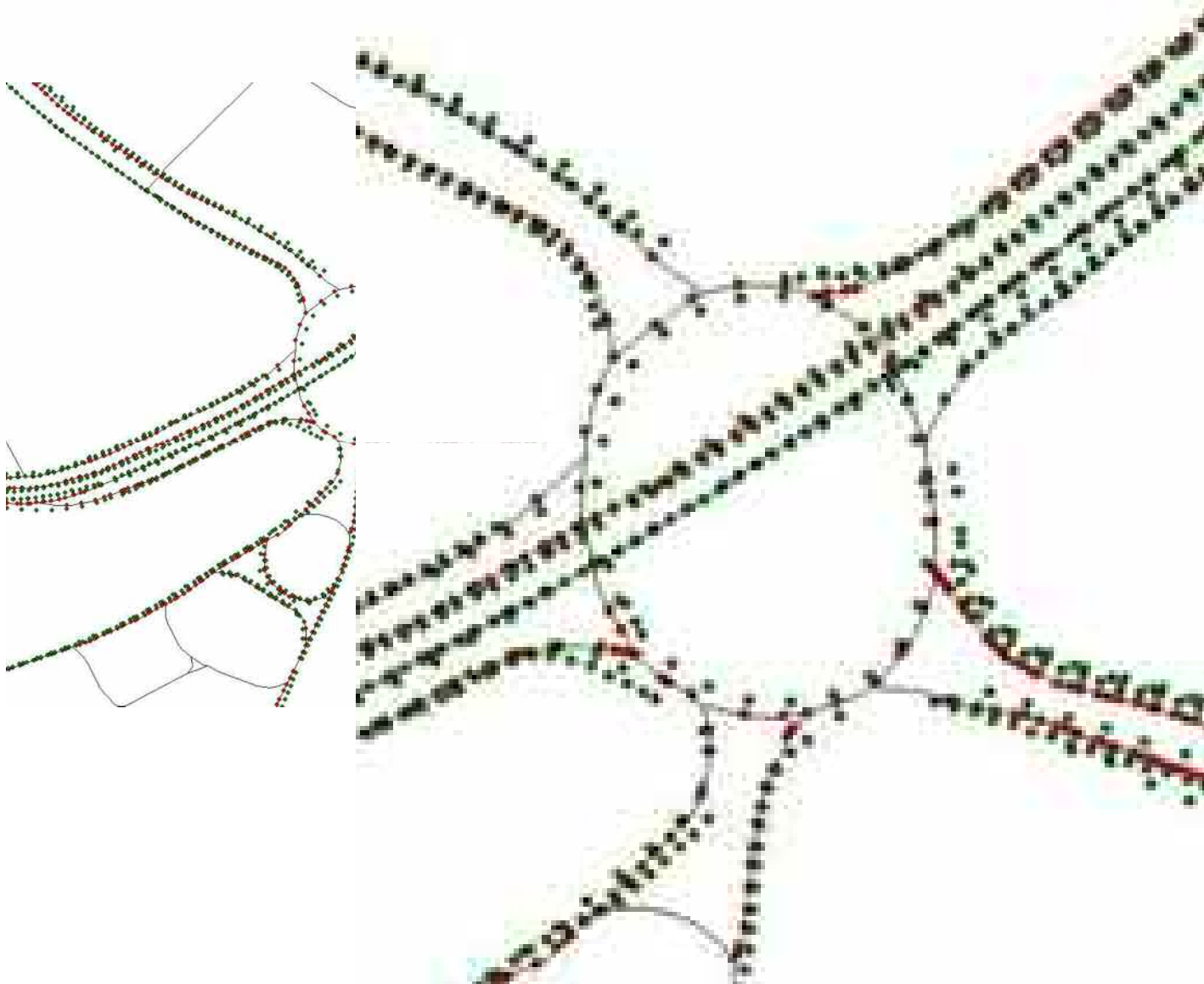
- SCANNER data is provided referenced to OSGR co-ordinates
- Fitting is the translation of these points to the ITN
- Not always easy (older data?)

# Review of Research - Fitting



- Dealing with exceptions
  - Roundabouts / crossing roads
  - Slip roads
  - Duals

# Review of Research - Fitting



## Review of Research – Processing and assessment

- Rules defined for fitting SCANNER data to ITN
  - <0.5% mismatched points (wrong TOID)
  - <0.05% points matched to roads of the wrong classification
  - <1% of SCANNER points were identified as “unmatchable”.
- Further processing adds (for each data point)
  - urban/rural attribute
  - The survey year
  - The road classification
  - The road type
- From this can be obtained
  - RCI
  - NI
- On sample networks the same NI was obtained using “UKPMS” and using the fitted data
- The report is now published – will be placed on the website

## Development of a National Road Condition Database – Project Objectives (May – Dec 09)

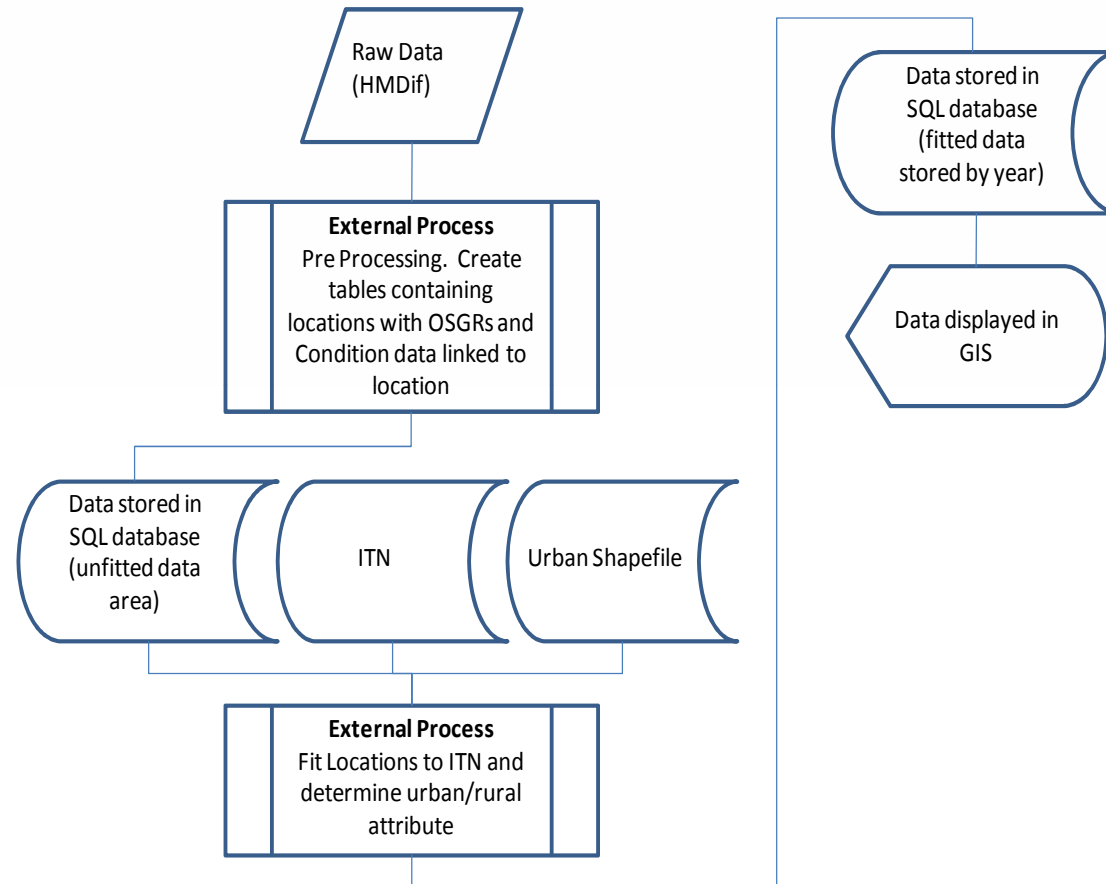
- Specifically:
  - Develop a Database structure to allow input, processing, and analysis of road condition data.
  - Develop the Database itself as an SQL database, and populate it with road condition data.
  - Test the robustness of the processes for inputting and fitting the data by loading road condition datasets onto the Database.
  - Migrate the Database to DfT's IT systems
  - Handover the Database, including documentation, handover sessions and training.
  - Provide expert assistance to DfT in their development of queries and extraction routines to analyse the data at national, regional and local level. This will include replicating the RCI values.
  - Provide support and advice to the two Task and Finish groups chaired by DfT.
  
- The National Road Condition Database is NOT a PMS

# Approach

- Part 1: Agree overall approach and objectives, and Database structure
- Part 2: Developing and implementing routines to import the annual provisions of road condition data
- Part 3: Developing and implementing routines to fit the condition data to the OS ITN network
- Part 4: Production of the Database, initial testing, and production of documentation
- Part 5: Population of the National Road Condition Database
- Part 6: Delivery of the National Road Condition Database
- Part 7: Assistance to the DfT – Training, Extraction and Reporting, Interaction with GIS and Support for the National Road Condition Database
- Part 8: Support for the Task and Finish Groups

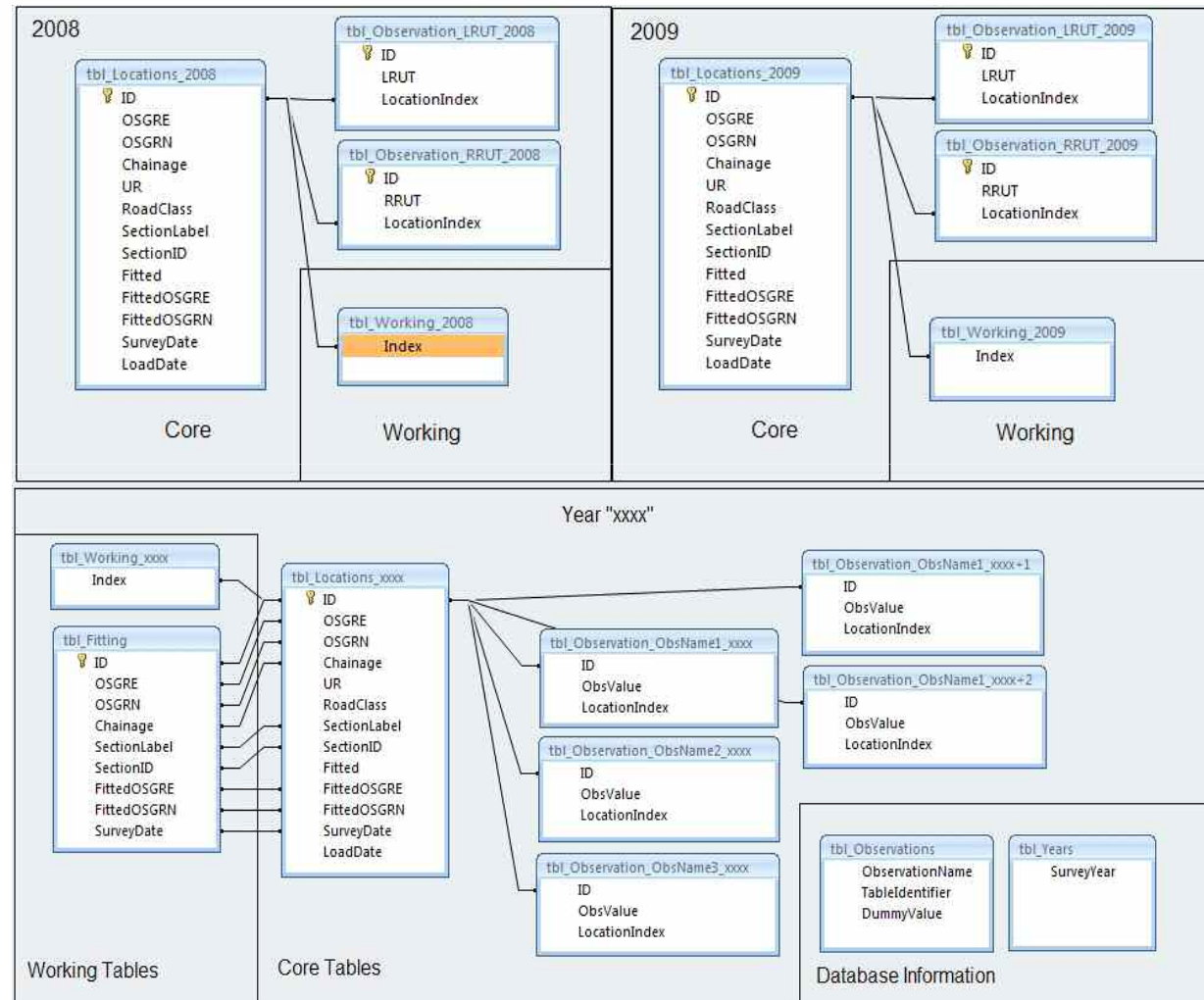
# Progress

- Part 1 Completed
- Outline approach:
  - Convert HMDIF files
  - Create Table (s)
  - Fit to ITN externally
  - Allocate Urban/Rural
  - Create fitted tables
  - Report in GIS
  - Calculate RCI



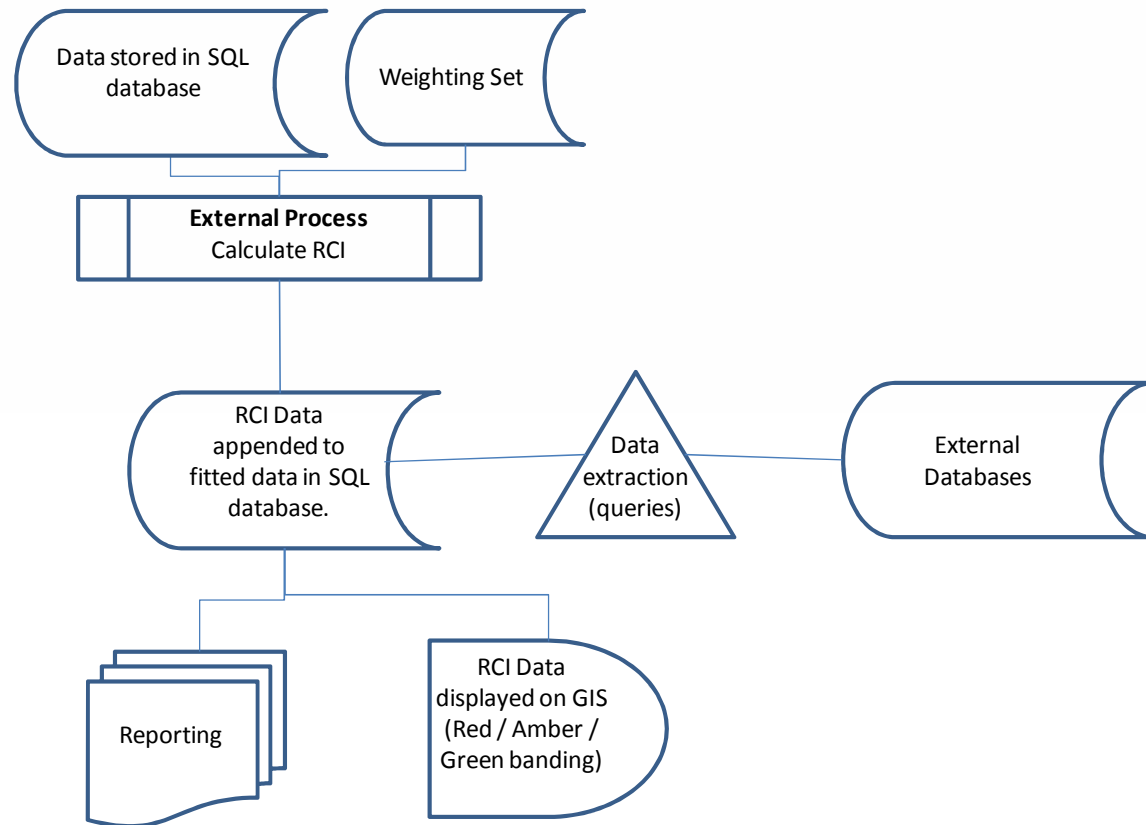
# Progress

- Content of database tables broadly agreed
- Part 2-4 now underway
  - Implement loading routines
  - Implement fitting algorithms
  - Assemble the database
- Data from last three year's being obtained from survey contractors
- Then will populate and deliver (parts 5-6)



# Part 7 Assistance and reporting

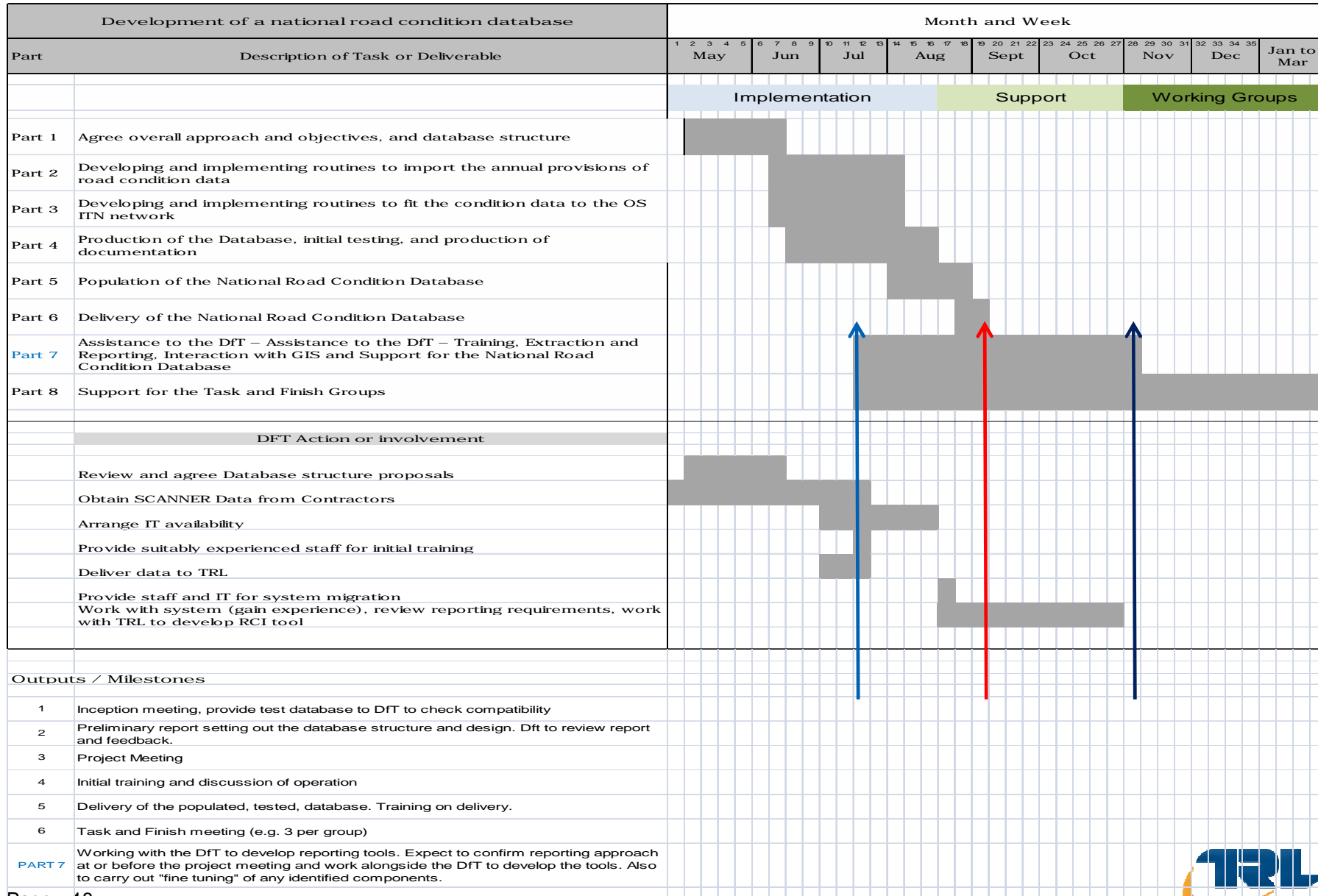
- **Training**
  - Three stages
  - At TRL
  - On delivery to DfT
  - After time to gain experience
- **Reporting**
  - Simple SQL routines
  - An RCI tool
    - May be External
- **GIS**
  - Support in GIS display



## Part 8 Task and Finish Groups

- Will support the groups developing
  - NRMCS
  - Reporting condition on U roads
- Initial proposals drawn up
- Meetings to be held in the summer

# Project Timescale



# Final Notes

- The National Road Condition Database is NOT a PMS
- The National Road Condition Database is NOT an Asset Management System
- It will enable SCANNER, TRACS (and other) data to be visualised using a GIS and will provide database functionality
- It won't provide “engineering” functionality – such as reporting by length, schemes etc
- The DfT will be able to undertake further development
  - All software code provided and documented
- The ITN network does not include C and U road designations
  - Possible confusion where surveys cover U roads.