*This document discusses the Mapinfo files supplied as part of the Analysis Output Data from the School Travel Health Check, and is divided into the following sections:-*

1. Introduction
2. Getting started
3. A note on data protection
4 The summary Mindmap
Annex 1. File naming and folder structure
Annex 2. Tips for working with the GIS data
Annex 3. Summary Mindmap

It is one of a series supporting the delivery of the service to existing and potential users. The latest versions, along with sample data, are available to download from our website
www.schooltravelhealthcheck.co.uk
Or if you prefer the short address:
www.sthc.co.uk
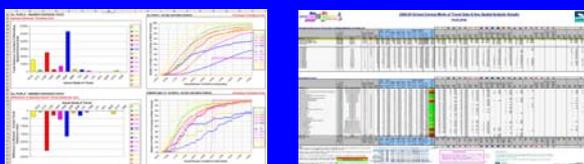
"The School Travel Health Check is, in my opinion, an invaluable tool for all those interested in improving the health and wellbeing of children. It provides such crucial information that I don't see how we can do without it."
Dr Gabriel Scally - Regional Director of Public Health for the South West

1. Introduction to The GIS Data (MapInfo output)

1.1 First thing to do
Go to Annex 3 and print off the Summary Mindmap on to a sheet of A3 paper and take some time to work through it.

Note
If you can't easily access an A 3 printer, copy and paste the image in MS Paint and print it onto two sheets of A4.

1.2 Second thing to do
Get a copy of MapInfo on your computer. Although you can muddle along grabbing time on other peoples machines that already have MapInfo, you will soon find that as word spreads about the rich map data you have you will need a copy of the software on your own machine.

If you need help / get stuck preparing some words for a business case for the software, contact us via the website www.sthc.co.uk we are happy to help you make the case.

Note
i. We are able to provide output for other GIS formats such as Arc View. Contact us for details.

*ii. For those completely new to MapInfo we suggest you **don't** dive straight in to a standard MapInfo training course – it is too broad and will scare the life out of you! Far better to get going with the help of colleagues. When you do feel ready for some formal training make sure the training is tailored to the output and your likely day to day needs.*

1.3 Don't Panic...
If you have limited (or even no!) familiarity with MapInfo / GIS you may feel overwhelmed when you first start to view the map files. This is perfectly normal....

The five steps to success:
- Don't Panic
- Put the kettle on…
- Get friendly with your GIS team / closest MapInfo user to your desk.
- Have a play with the maps – you won't break them (but best to keep the original files somewhere safe, just in case!).
- Don't be too proud to write crib notes to help you navigate the file structure and MapInfo Itself

1.4 If you are confident with MapInfo then there is no substitute for getting "stuck in". **All the files you will need on a routine basis are in the Individual School, Pan-LEA and Pan-Region folders** so go on, have a play. Just make sure you have installed the Custom Symbols before starting (see section 2.1).

The other thing to remember is that schools are filed by their DCSF number – keep a copy of the school summary spreadsheet handy for looking up their numbers.

1.5 Brief Summary
The suite of MapInfo files will enable users to:-
- See their data plotted on a digital map or aerial photography background within their own authority GIS environment
- Undertake further geospatial analysis as required (it is usual for the data to generate as many more questions as it answers!)
- Produce output that supports active and sustainable school travel work at the local and strategic level.

The GIS data files are briefly described below.

Note
It will help to keep a paper copy of one of the maps from the school packs handy – these contain the key for school type and mode

1.5.1 Pupil Mode of Travel ("Postcode Plot") files
These consist of point or line data files with different tabular data attached.

- **Pupil Point data** – Consists of a point for each pupil record in the form of a coloured symbol depicting the mode of travel .The point is located at the centre of the pupils' home postcode i.e. not the pupils' actual home itself (the vast majority of postcodes cover more than one property).

- **Pupil Line (Spider) Data** - Straight ("as-the-crow-flies") lines of travel between the pupil data point and the school they attend, again colour coded by mode of travel. These "spider" plots provide an immediate visualisation of the journey origin and destination.
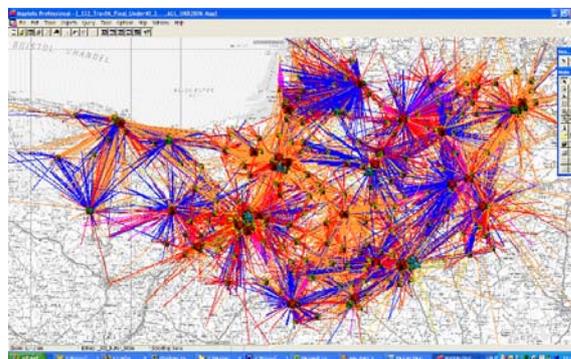
- **Pupil Nearest School Data (Point and Spider data)** Same as the point and line data above but with the symbols or lines for pupils who do not go to their nearest school coloured in grey. This is a powerful way of visualising the scale of the issue!
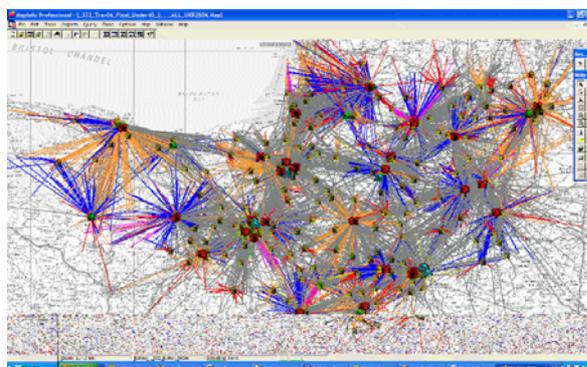
Notes
i) Why map "as-the-crow-flies" and not against road centre line? – 3 reasons:
- *Mapping to road centre line implies that this*

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is the route children actually follow to school. Experience shows that this is often not the case!

o *Analysis of transport networks is a much more complicated, time consuming and therefore and a lot more expensive to undertake!*

o *There is not a single transport network dataset available that contains all possible routes to school by all possible modes - results by this more complex methodology will be compromised anyway!*

1.5.2 School files
Data pertaining to the individual schools

- **School Point Data** – Consists of a data point for each school it depicts the school as a coloured symbol depending on "type". To see the data attached to the point– select the info tool and click on the icon.

- **School Walk Threshold data** - Consists of a circle around each school, coloured to match the school "type" symbol, with a radius equal to the walk threshold (800m for Primary and 2000m for Secondary). Middle and Special schools show both walk thresholds as they have pupils that fit in both phases. School summary data is attached to these thresholds.

1.5.3 LEA Files
These files contain data for the individual LEAs that make up the data consortium in your region including boundary data.

2.0 Getting started
Ok you want you have a play with the data. One thing you will need to do before starting is to:

2.1 Add the custom symbols to your PC…
We have had to develop our own custom symbols for 'Boarder' (BDR), Car Sharing (CRS), and Other (OTH).

In order for these symbols to display they must first be added to the MapInfo custom

symbols directory on the local hard disk of each PC using the data.
Follow the instructions in the "Read Me" document contained in the "Custom Symbols" subfolder in the "Supporting Files" folder. It will only take a couple of minutes to do and you only need to do it once.

Note
Seeing little grey squares on the map? = You have not added the symbols correctly.

2.2 Let's take a look at some of the commonly used files:

2.2.1 Suggested Approaches
There's no single path through the GIS data, you've just got to plunge in…Just remember you can mix and match the all the different MapInfo files as the impulse takes you - go on have a play!

- **Top-Down** - Start at the pan-LEA level, perhaps just with one particular school type, and have a look around to see if anything catches your eye…

- **Bottom-Up** - Another possible route into the GIS data would be to look at the Excel data first and identify individual schools that catch your eye for some reason (e.g. high incidence of a particular mode of travel). The screenshots on the following pages illustrate this process…

2.2.2 Can they really be walking that far?!

Even though we filter (U40km files) the data you will still spot "wrong" data points - 39.99 km is still a considerable one-way school journey by any mode! Also some pupils will inevitably have been mis-coded for mode of travel e.g. walking when they in fact come by car**.**

The best way to deal with this is create a positive feedback loop by putting the maps back in to schools – the data improves rapidly!

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2.3 Looking at the data from the bottom up:

*1) Open up the **Pupil** file from the relevant folder in the "**Individual Schools**" directory (remember schools are listed by their 4 digit DCSF number)...*
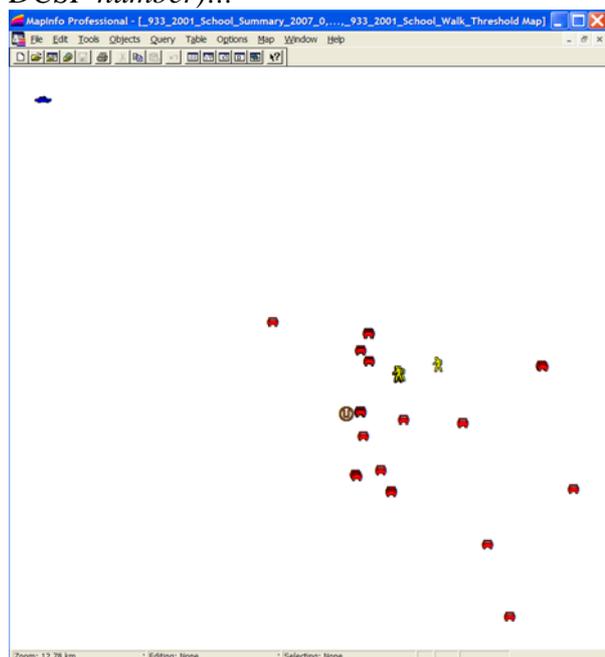
*2) Add in the **spider** lines...*
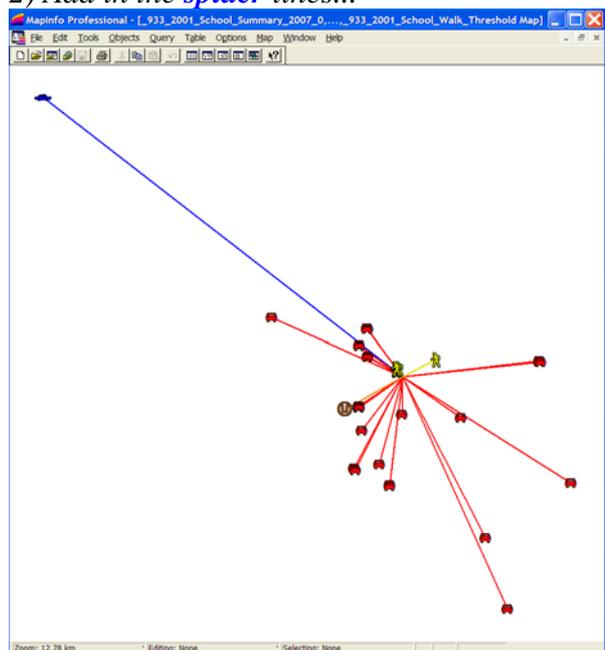
*3) Add in the school info (**summary** and **walk threshold**)...*
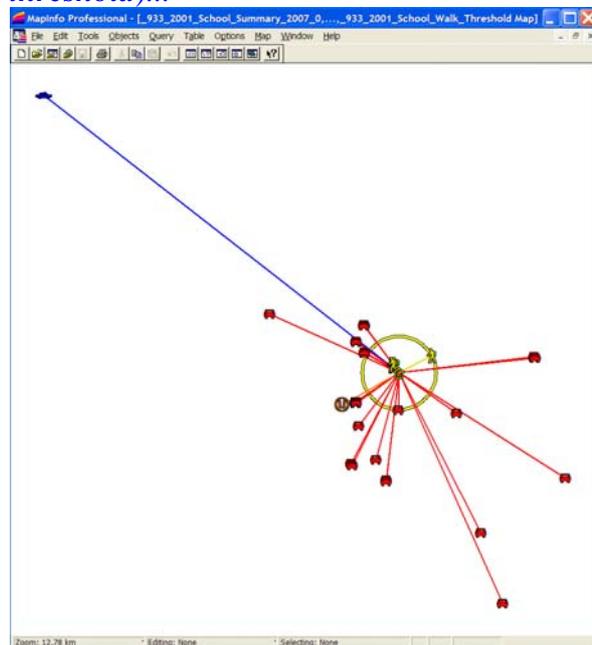
*Now see what things look like using the "**Grey**" "**_Pupil_**" and "**_Spider_**" files to identify those pupils not attending their nearest eligible school*

Hint
*Open the layer that shows all your schools of this type and their walk radii – **School Summary** and **Walk thresholds** files – you will then be able to see their nearest eligible school*
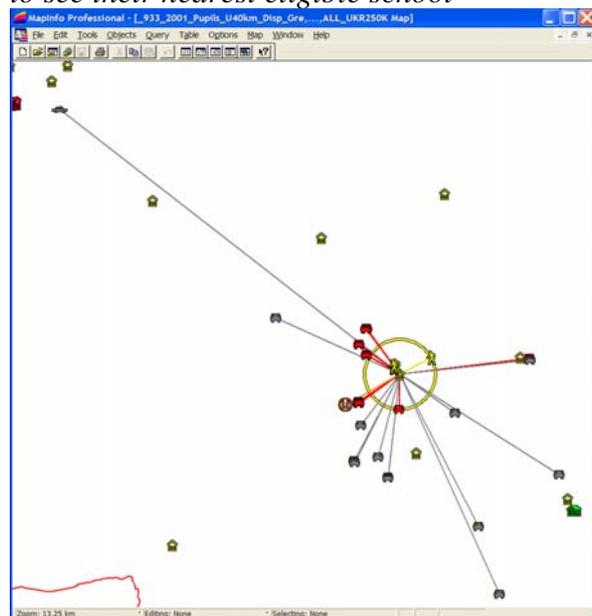
Note
Eligibility is determined in terms of the pupils falling within the range defined by the minimum and maximum NCY values given in the School Gazetteer file supplied to us.

4) And once you've got the handle on one school you can start making sense of them all together...
Pan LEA All Schools (Grey)
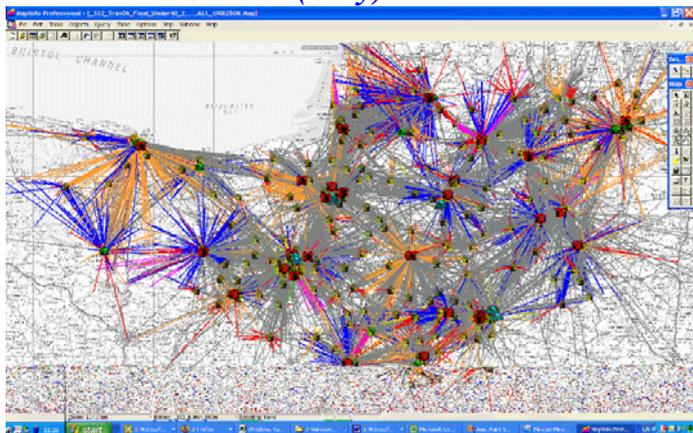
Note
The "Spider" files come in to their own when looking at the flows of pupils between schools. It will take a little while for you to get your eye in with these maps but it is worth the effort.

2.4 Away you go!
This should get you to a point where you have a feeling for the data and the file structure. Equally you should see the value of this data at the local and strategic level.

Remember if stuck, contact us via the website – we have many years experience of using this data within the local authority environment so can help with technical and policy questions – all part of the service! www.sthc.co.uk

3.0 A note on data protection
Although the postcode data is depersonalised data under the terms of the Data Protection Act, you do however need to be aware of the sensitivities involved with the use and sharing of

this data. Yes you can put the maps back in to schools and yes you can use them with your colleagues. The thing to be wary of is publishing the maps on general public facing media - websites or paper.

Note
We do not feel there is a great deal to be gained from a 'scattergun' approach. Providing the schools are receiving their maps through the School Travel Health Check packs and that your colleagues have access to the data; untargeted / poorly considered publishing will raise concerns about data protection that you will then have to take considerable time to answer!

4. Summary Mindmap

A summary Mindmap of the processing and output is shown in Annex 3. It provides a single, page-at-a-glance summary for quick reference and sharing with colleague. It is best printed off at A3 or larger. A copy is included within the final data output bundle.

Annex 1: File naming system and folder structure

1.1 File Naming System

MapInfo expert or novice all will need to familiarise themselves with the file naming system and folder structure.

If stuck do contact us via the website: www.sthc.co.uk

Files are called something like *"835_4001_ Pupils_U40km_Disp_2007- 08_MoT.TAB"*. The separate components of this name are shown below:

- **LEA Identifier ("835_")** = DCSF LEA code (files prefixed with letters such as "SW_" or "Lon_" contain data from all members of the regional consortium).
- **School Identifier ("_4001_")** = DCSF Establishment Number.
- **File Type ("_Pupils_")** = The type of data ("_Pupils_, "_Spider_" or "_School_...")

Spider plot:
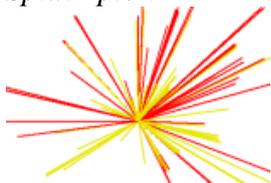
- **Filter Status ("_U40km_")** = whether pupil records have been filtered on actual travel distance or not ("_U40km_" or "_All_")

Before filtering(All).
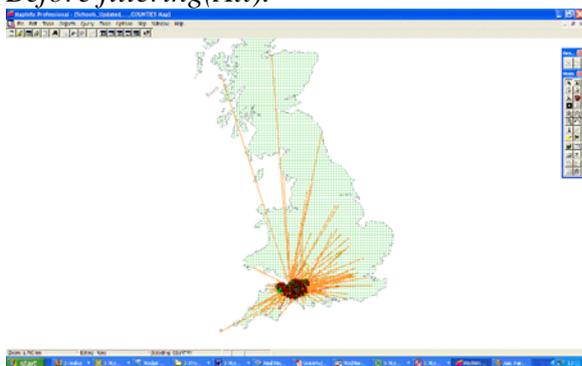
After filtering -removing postcodes over 40km from the school (U40km)
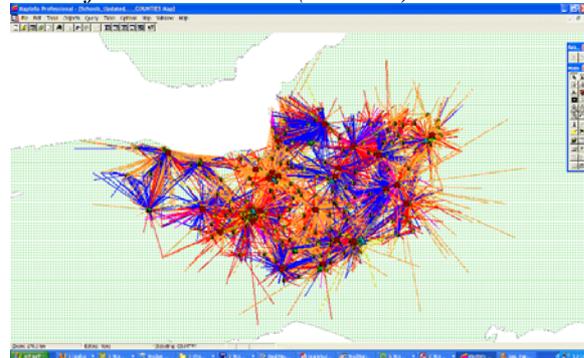
- **Dispersal Status ("_Disp_")** = Whether the data points in the file have been dispersed or not ("_Disp_" or "_Undisp_")

- *Before dispersal……. After dispersal….*
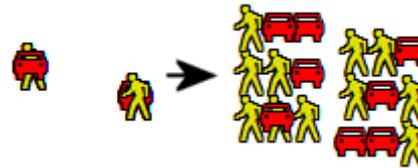
- **School Year ("2007-08")** = The academic year of the census data used in the analysis process.
- **"MoT"**= Short for "Mode of Travel".
- **".TAB"** = MapInfo file extension. **Just remember that you only have to open the .TAB file!**

1.2 File Folder Structure

The files are contained in various folders and sub-folders. If you look in Windows File Explorer you will see the structure shown over. A brief description of each of the folders and their contents then follows. **Remember that all the files you will need on a routine basis are in the "Individual Schools", "Pan-LEA" and "Pan-Region" folders:-**

Note:
 i. We encourage authorities to retain the same structure as we send the data out!
ii. It may help to print off a copy of this structure and add your own notes to help you find your

way around the various folders and their content.
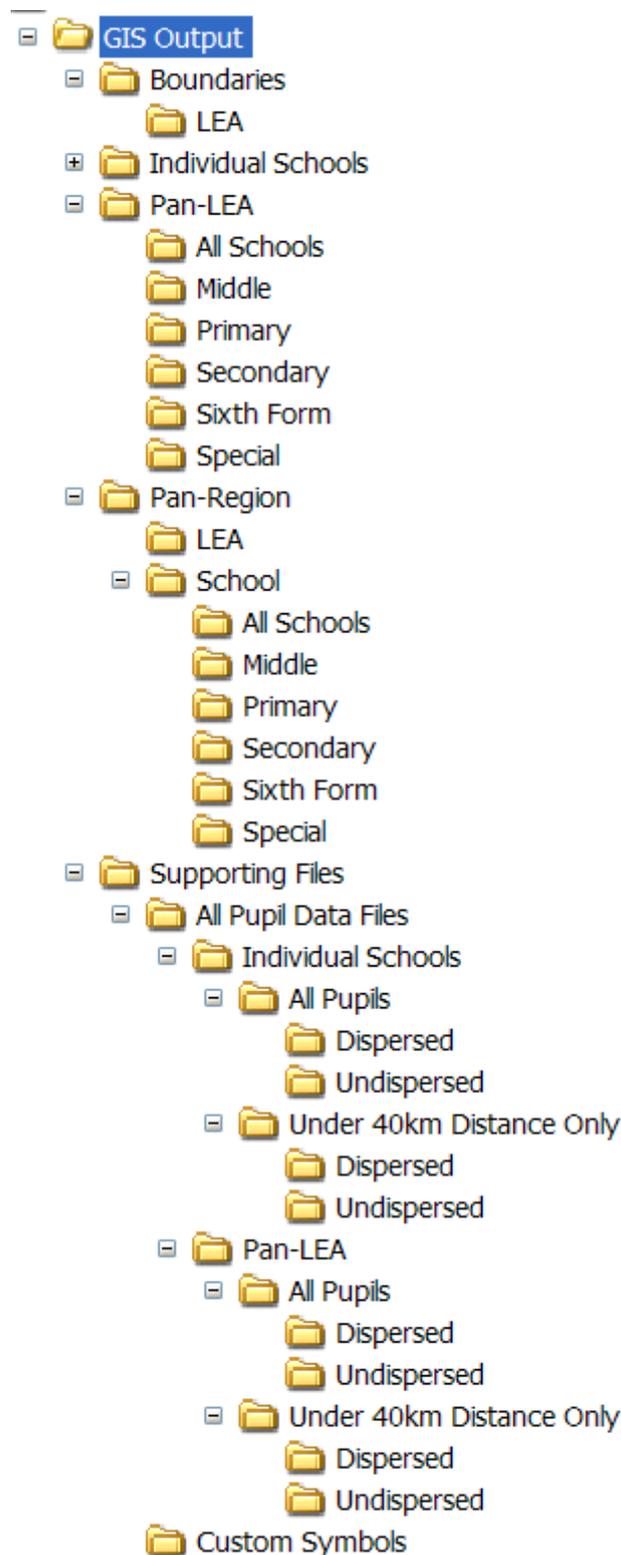
1.2.1 "Boundaries" Folder
- **"LEA" sub-folder -** Contains LEA boundaries taken from the OS Boundary Line dataset

1.2.2 "Individual Schools" Folder
The "Individual Schools" folder contains a sub-folder of map files for each school. Sub-folders contain "Under 40 km", "Dispersed Pupil" and "Spider" files for all pupils attending the school, as well as the appropriate entry from the "School Gazetteer", "School Summary" and "School Walk Thresholds" file. **For "every-day" use by STAs this is the place to look for school-specific files, including all those that are plotted out onto paper for School Travel Health Checks.**

1.2.3 "Pan-LEA" Folder
Files in the "Pan-LEA" folder contain records for all pupils or schools in the LEA, or just those of a particular type / phase of education. Again sub-folders contain "Under 40 km", "Dispersed Pupil" and "Spider" files, as well as the LEA-wide "School Gazetteer", "School Summary" and "School Walk Thresholds" files.

1.2.4 "Pan-Region" Folder
Files in the "Pan-Region" folder cover all authorities in your region engaged with the STHC. It contains 2 sub-folders:-
- **"LEA" sub-folder** - Contains "LEA_Summary" files for each. These have the same BoundaryLine polygon as the files in the "Boundaries/LEA" sub-folder but the data attached to them is the data from the "LEA Summaries" spreadsheet..

- **"Schools" sub-folder** - This folder contains the Regional consortium-wide School Gazetteer, School Summary and School Walk Thresholds files for all schools in the LEA or just those of a particular type / phase of education.

1.2.5 "Supporting Files" Folder

The "Supporting Files" folder contains anything else of relevance but which is probably not required on a routine basis. Best left till you are confident with the rest of the files! Currently 2 sub-folders:-

- **"All Pupil Data Files" sub-folder** – Unmodified data necessary for any further processing of the data.

- **"Custom Symbols" sub-folder** – As discussed in section 2.1.

1.3 A quick note on the sixth form data

As we are interested in the changes in travel that occur at the transition in to the sixth form we have split secondary level education in the following way:

- "**_Secondary_**" - All pupils attending a "Secondary Phase School" (i.e. NCY 7 -14). These are stored in the "Secondary" sub-folder.
- "**_Sec_7-11_**" - Only "Secondary" pupils with an NCY in the range 7 –11. These too are stored in the "Secondary" sub-folder.
- "**_Sec_12-14_**" - Only "Secondary" pupils from NCY 12 - 14 i.e. secondary pupils attending sixth form. These are stored in the "Sixth Form" sub-folder.

1.4 Why so many files?

Each MapInfo 'map' is actually made up of a bundle of up to 5 files, all with the same name but a different file extensions (.DAT, .ID, .IND, .MAP & .TAB), each of which has it's own purpose for linking the different data types together. Thus if your first encounter with the data is through Windows File Explorer you will see a sea of files with seemingly identical names arranged into a huge pile of folders and sub-folders! All you need to remember with MapInfo is that you **only open the .TAB files.**

Rather than by double clicking on the .TAB files in Windows File Explorer though, it is much easier to open a map within MapInfo itself (File > Open) as only the .TAB files are listed, which considerably cuts down on the confusion!

Annex 2: Tips for working with GIS data.

We suggest you do the following, especially if this is the first time you have used GIS software.

- **Upgrade Your IT Setup If Necessary** – GIS is memory intensive and can cause older PC's to struggle, so if your machine is running slow, have a word with your IT support about getting some extra memory added. It also helps when viewing the data if you have a big monitor (22 inch is ideal).

- **Keep A Copy Of The Original Files Supplied To You**
  Enough said.

- **Set Up A Workspace -** If you set up a Workspace then all the different files you need will be automatically loaded and opened with a single click of the mouse next time.

  Notes
  i) Workspaces in MapInfo are entirely dependent on file paths being preserved so it is likely that the same workspace file will not open properly on a different computer to the one on which it was created.

- **Use The Layer Control** – The Layer Control box sets the order in which the different map files are displayed as well turning particular layers on or off. Use it to move layers up or down the display order to ensure the features you are interested in do not get hidden behind a load of other stuff.

  Note
  i) If creating a Workspace then load all the files you think will need as part of the session but use the Layer Control to temporarily turn off the ones you don't want to display immediately. That way you won't have to go hunting for them when you do need them.

- **Set Base Maps To Greyscale -** The data features become easier to see on-screen if you set the underlying base mapping to greyscale (in MapInfo go to Layer Control > Display > Style Override > Greyscale).

- **Set Up Zoom Ranges To Display Your Base Maps** – Different scales of map are designed to be displayed within a specific range of viewing scales. Most GIS software will allow you to set the zoom range over which specific data is displayed so that the most appropriate scale of map is always displayed behind your data.

Stuck and nowhere to turn in your authority?
Contact us via the website: www.sthc.co.uk

KnowledgeMappers.com
Mapping the knowledge landscape ....

Central node: KnowledgeMappers.com — Mode of Travel Spatial Analysis Service Quick Guide Document — 3a. *Analysis Output Data: MapInfo GIS*

Main branches: 2. Explanation of the Different File Types | 1. Working With The Files

Left side — Mode of Travel legend
- Walk = WLK
- Cycle = CYC
- Car/Van = CAR
- Car Share = CRS
- Public Service Bus = PSB
- Dedicated School Bus = DSB
- Bus (type not known) = BNK
- Taxi = TXI
- Train = TRN
- London Underground = LUL
- Metro/Tram/Light Rail = MTL
- Boarder = BDR
- Other = OTH
- Unknown = UNK

"_Pupil_"
Data: Pupil Census Data + Geoanalysis Results

- Walking = Yellow
- Cycling = Green
- Car (Booo!) & Car Share (smaller Booo!) = Red
- Public Transport = Pink
- Dedicated School Transport = Blue
- Unknown or Boarder = Orange

"_Spider_"
Data: As for "_Pupil_"

- Primary
- Middle
- Secondary
- Secondary with Sixth Form
- Special
- FE College

"_School_Gazetteer_"
Data: School Census Data

Same Points

"_School_Summary_"
Data: Summary Geoanalysis Results

"_School_Walk_Threshold_"
Data: As per "_School_Summary_"
- Primary = 800m
- Secondary = 2000m (Both!)
- Middle & Special

Consortium authority polygon boundaries in red

LEA boundaries
Data: BoundaryLine

Same Polygons

"_LEA_Summary_"
Data: Geoanalysis Results

- Single LEA
- Individual School
- Other — By prior arrangement as an Additional Service

Pupil / School / LEA — Geographic Level

2.1 Subject matter & GIS Structure

2.2 Sub-setted by
"_All_" — All pupils in the analysis dataset
"_Primary_" — All pupils attending a "Primary Phase School"
"_Middle_" — All pupils attending a "Middle Phase School"
"_Secondary_" — All pupils attending a "Secondary Phase School"
"_Sec_7-11_" — Only pupils within the NCY range 7-11 attending a "Secondary Phase School"
"_Sec_12-14_" — Only pupils within the NCY range 12-14 attending a "Secondary Phase School"
"_Special_" — All pupils attending a "Special School"

Generic" School Type / Phase of Education

2.3 Dispersal of Point Data
Alters grid reference of point so only do geoanalysis on Undispersed data
"Unstack" mode of travel icons by dispersing around the postcode centroid point
"_Undisp_" vs "_Disp_"

2.4 Filtering for Erroneous Postcodes
Makes dataset "look better" for plotting & sharing but does not remove all spurious data points
Records with Actual Travel Distance >= 40km removed from analysis dataset
"_All_" vs "_U40km_"

2.5 Identifying Pupils Attending Their Nearest Eligible School
Points & Lines of all pupils not attending their nearest eligible school are coloured grey
"_Grey_"

Right side — 1. Working With The Files

Accessing the Files
- MapInfo GIS software
- Other desktop / web based GIS — Should be able to import MapInfo files but may lose some formatting
- If you don't have access to GIS — Seek advice from:
  - Authority GIS unit
  - An existing user of GIS / Digital mapping software
  - Authority Lision Officer (ALO)
  - IT Department

Provision of our data is the perfect excuse to get it!

THE VALUE OF BEING ABLE TO VIEW (AND EVENTUALLY QUERY) THE MODE OF TRAVEL ANALYSIS DATA WE SUPPLY TO YOU WITHIN A GIS ENVIRONMENT CANNOT BE OVER-EMPHASISED. THE SOONER YOU ARE SET-UP TO DO IT, THE SOONER YOU WILL BENEFIT!

Opening the Files
Up to 5 different files for each MapInfo 'map'
- .DAT
- .ID
- .IND
- .MAP
- .TAB — Only one visible within MapInfo

Only need to open the .TAB file in Windows File Explorer
Easiest to open from within MapInfo — Minimises confusion!

File Name
e.g. "835_4001_Pupils_U40km_Disp_2007-08_MoT.TAB"
- "835_" - LEA Identifier
- "_4001_" - School Identifier
- "_Pupils_" - File Type
- "_Disp_" - Dispersal Status
- "2007-08" - School year
- "MoT" - Mode of Travel".
- ".TAB" - MapInfo file extension.

File Folder Structure
Boundaries
- LEA
- Individual Schools
- Pan-LEA: All Schools / Middle / Primary / Secondary / Sixth Form / Special

School
- LEA
- Pan-Region: All Schools / Middle / Primary / Secondary / Sixth Form / Special

Supporting Files
Once Custom Symbols have been loaded, files in this folder not required on a routine basis.

All Pupil Data Files
- Individual Schools: All Pupils (Dispersed / Undispersed); Under 40km Distance Only (Dispersed / Undispersed)
- Pan-LEA: All Pupils (Dispersed / Undispersed); Under 40km Distance Only (Dispersed / Undispersed)

Custom Symbols
Must be added to Mapinfo custom symbols directory on the local hard disk of each PC that will be used to view the Analysis Output data.
Follow instructions in "Read Me" document in folder
- Car Share = CRS
- Boarder = BDR
- Other = OTH

Using the Data
- No single starting Point
- "Top Down" Approach
- "Bottom-Up" Approach