



Australian Government

Department of Transport and Regional Services

TNIP-Compact

Transparent Noise Information Package

Setup Manual

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1. TNIP-Compact Concept

1.1 Overview

TNIP-Compact is an easy to access subset of **TNIP** (Transparent Noise Information Package), the Australian Government Department of Transport and Regional Services' core aircraft noise transparency software.

The program has been designed to run off a CD in order to make access to aircraft noise information as simple, and widely available, as possible. **TNIP-Compact** is a 'Viewer' which gives the user an insight into the components that make up noise contours and allows the user to perform simple 'what-if' analyses.

The data files on the CD are generated within **TNIP** using noise and flight track information derived either from studies carried out using the US Federal Aviation Administration's Integrated Noise Model (INM) or from noise and flight path monitoring systems.

1.2 Accessibility

One of the prime thrusts of the Department's noise disclosure work has been to take aircraft noise information out of the realm of the 'expert' and make it accessible to the 'non-expert'.

In the early stages of its development **TNIP** was a simple tool which could be used by a layperson. However, as **TNIP** has evolved and become more powerful it has inevitably become more complex and less able to be used by an untrained user. One of the key design parameters of **TNIP-Compact** has therefore been to develop a 'spin-off' product that can re-establish the **TNIP** goal of facilitating easy access to information.

Designing **TNIP-Compact** so that it can be run off an autostarting CD means that it can be run on almost any personal computer without the need for the user to understand how to navigate to find files or how to load files on to a hard drive. The 'one-screen' graphical user interface means that there is no need for the user to navigate between multiple layers to interrogate data. Similarly, the 'one-screen' file loader feature on the **TNIP-Compact** main menu means there is no need for the user to hunt around to load different types of files.

1.3 Transparency

It is a fundamental transparency principle that members of the public have the right to know how any statutory 'line' has been arrived at. Unfortunately to date aircraft noise contours have essentially been the product of a 'black box' – there has been very little effective public disclosure of the data that has been used as input into the model that generates noise contours.

There is strong public awareness of the 'garbage in; garbage out' principle and **TNIP-Compact** has been designed as a tool to build confidence in noise contours through facilitating an understanding of the inputs into noise modelling studies.

Providing access to information cannot be defined as transparent if the information is not comprehensible or is presented in such a way that it is totally indigestible. Many forms of aircraft noise contours have been shown to be hard to understand and to not provide a realistic 'picture' of the noise. However, breaking contours down to the constituent components such as the location of flight tracks and the numbers and types of aircraft using those tracks provides information that is readily comprehensible to the non-expert. **TNIP-Compact** allows the user to access this information in 'bite size' pieces and supplements it with single event noise contour information. Very importantly, much of the information revealed by **TNIP-Compact**

relates to aircraft noise exposure patterns over areas outside conventional land use planning contours.

1.4 Potential uses

The 'one-screen' interface, set up on an autostarting CD, means that **TNIP-Compact** is able to considerably extend the **TNIP** concept of enabling non-experts to gain access to comprehensible aircraft noise information.

Potential uses of **TNIP-Compact** include:

- *EIS/Master Plans* - a CD could be produced to accompany formal documents such as EISs and airport Master Plans; this would allow the user to 'look inside' any or all of the noise contours appearing in these documents.
- *Community consultation* - the 'one-screen' graphical user interface is ideally suited to carrying out interactive sessions with community groups, noise abatement committees, etc on the composition of an airport's noise contours and the location and activity levels of flight tracks.
- *Aircraft noise disclosure in house purchasing* - the CD and 'one-screen' format means that information on flight tracks and activity levels can be readily accessed by a potential house buyer seeking to understand the patterns of aircraft overflight at particular house sites.

The CD could be distributed to real estate agents active in areas surrounding an airport.

- *Advising decision makers* - providing decision makers with the CD would give them access to information on the composition of noise contours in a digestible format which they can access themselves; this would facilitate more informed decision making than is currently practical.
- *Informing airport managers* - if a **TNIP-Compact** CD were routinely produced as an integral part of delivering INM contours to a client, it would enable 'customers' such as airport managers to gain a much greater appreciation of the aircraft noise exposure patterns around their airports.
- *Checking the veracity of contours* - the 'one-screen' interface provides a simple avenue for checking how the modeller has allocated aircraft to flight tracks in an INM study.
- *State of the Environment reporting* - a **TNIP-Compact** CD could be prepared and released say annually to capture information on the historic patterns of aircraft noise exposure around an airport; this would enable changes in the noise environment over time to be monitored and promulgated.
- *Alerting land use planners* - providing land use planners with a copy of a **TNIP-Compact** CD to accompany all sets of land use planning contours would enable the planners to have some appreciation of the patterns of aircraft noise in areas outside the noise contours (ie areas where development applications may be approved).

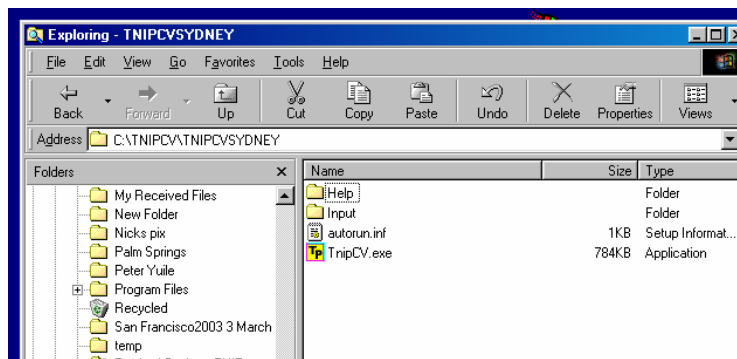
2. What's on the CD

The top level folder on the **TNIP-Compact** CD contains two folders and two files.

The files are

- The **TNIP-Compact** executable
- The **autorun.inf** file which sets the CD up to autostart when it is inserted into a computer's CD drive.

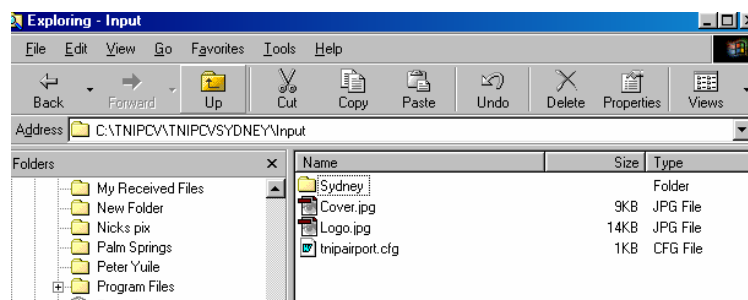
The **Help** folder contains the Help files. These are Microsoft Word files and can be edited (see Section 5).



The **Input** folder contains one folder and three files.

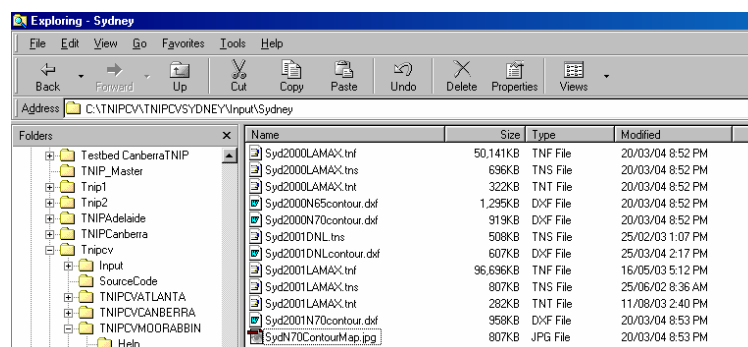
The files are

- the program's configuration file - **tnipairport.cfg** (see Section 3)
- two 'customising' files – **Cover.jpg** and **Logo.jpg** (see Section 5)



The folder within the **Input** folder contains

- the base map (or maps) as a jpg image (see Section 4)
- the noise contouring and flight track data files (see Section 6)



3. Steps For Setting Up An Airport

It is recommended that when setting up the package for an airport all the necessary files be gathered and tested using a folder on the user's hard drive. Once the setup has been fully tested the package may be transferred to a CD if so required.

In **Section 7** of this manual there is a general description of the process for generating data files – the user will need to refer to the [TNIP User's Manual](#) to get details of how to generate these files.

Once a user is familiar with the setup process it typically takes approximately two to three hours to set up a CD for an airport. This time estimation assumes that the user already has the necessary geo-referenced image and an INM study for the airport in the case of setting up the contour modules (the estimation does not include the time taken to run the INM detailed grids).

The following files which are available on the **TNIP-Compact** demonstration CD are required for setting up a new CD:

- i. **TNIP-Compact** executable
- ii. Help files' folder
- iii. **Autorun.inf** file (for launching the program automatically)
- iv. **Cover.jpg** and **Logo.jpg** in the **Input** folder on the CD (these images may be customized for a particular airport)
- v. Airport configuration file called **tnipconfig.cfg** which must always reside in the **Input** folder. This file contains information as to which modules to display and the addresses of the data files. The configuration file has to be modified for each airport (see **Section 4** for setting up this file).

The rest of the files are data files which are listed below.

3.1 Contour Modules

Airport specific data files that need to be generated are:

- i. Map of airport and surrounds. At least one map is required and satellite images are preferable. The flight tracks and noise contours are superimposed on this map. An airport may wish to display more than one map by having two or more contour modules of the same type in the **tnipconfig.cfg** file but with each having a different image.
- ii. **INM** detailed grid(s) for LAMAX metric. This file is for producing Single Event Contours and N70 contours. It must be generated since three of the contour modules refer to this file for calculating Single Event Contours.
- iii. **INM** detailed grid(s) for other metrics (e.g. ANEF, DNL, LEQ, etc.)
- iv. **TNIP** generated compressed grid files (**tns**, **tnc**, **tnf** and **tng** files)
- v. **TNIP** generated track information file (**tnt** file)
- vi. **TNIP** generated noise contours (**dx** files)

Steps for Setting up the Contour Modules

- Step 1 Acquire an image of the airport and its surrounds (see **Section 5** for details). Obtain the bottom left and top right coordinates of the map in metres.
- Step 2 Decide on which modules to display for the airport and refer to the example **tnipconfig.cfg** file on the demo CD for determining which TNIP data files are required for the selected modules.

- Step 3 Run **INM** to generate the detailed grids. A detailed grid based on the LAMAX metric is required to generate single event contours. A separate detailed grid is required for each other noise metric (e.g. ANEF, DNL, etc.) that the user wishes to show on the CD. See the INM User's Guide and the 'Grid Files' section of the 'Setting Up TNIP' Part of the [TNIP User's Manual](#) for details.
- Step 4 Use **TNIP** to convert the detailed grid files generated in INM into **tnc** and **tns** files. **Tnc** files are compressed INM detailed grid files whereas **tns** files (text files) contain summary information on all the operations in the INM study. See the '*The tnc (TNIP Compressed) File*' and the '*The tns (TNIP Compressed Summary) File*' sub-sections in the 'Grid Files' section of the [TNIP User's Manual](#) for details.
- Step 5 Use **TNIP** to convert the **tnc** files into **tnf** files. **Tnf** files contain the same information as the **tnc** files but they are structured in a way that allows rapid access to the data. See the '*The tnf (TNIP fast) File*' sub-sections of the 'Grid Files' section of the [TNIP User's Manual](#) for details.
- Step 6 Use **TNIP** to generate a **tnt** file for each INM study. **Tnt** files contain the information which is used to draw the flight tracks on the image. See the '*The tnt (TNIP Tracks) File*' sub-section of the 'Grid Files' section of [TNIP User's Manual](#) for details.
- Step 7 Use **TNIP** to generate a **dx**f and **tn**g file for each descriptor to be shown on the CD (e.g. N70, N80, N65, ANEF, DNL, etc). See the 'N70 Contours' section of the 'Producing Aircraft Noise Information' Part of the [TNIP User's Manual](#) for details.
- Step 8 Set up the airport's configuration file. This is the key **TNIP-Compact** file which sets up the structure for accessing all the files that have been generated in Steps 1 to 7. See **Section 4** for details
- Step 9 Set up the files using the folder structure described in **Section 2**. Following successful testing on the hard drive, copy the folder/file structure onto a CD.

3.2 Non-contour Modules

Airport specific data files that need to be generated are:

- i. A map of the airport and surroundings. This map must show the main flight paths for the **Flight Path Movements** and **Respite** modules and the locations of Noise Monitoring Terminals for the **Measured N70** module.
- ii. A Tracks file containing information about how aircraft movements are allocated to flight paths on the map for the **Flight Path Movements** and **Respite** modules. For the **Measured N70** module a file containing the locations of the Noise Monitoring Terminals (NMTs) is required. See the '*Configuration Files*' section of the '*Setting up TNIP*' Part of the [TNIP User's Manual](#) for details.
- iii. An aircraft type file. See the '*Aircraft Data File*' section of the '*Setting up TNIP*' Part of the [TNIP User's Manual](#) for details.
- iv. Data files containing information from the Noise and Flight Path Monitoring System (NFPMS) in the format required by the modules as described in the '*Monitoring Files*' section of the '*Setting up TNIP*' Part of the [TNIP User's Manual](#).

Steps for Setting up the Non-contour Modules

- Step 1 Acquire a base map of the airport and its surrounds showing the flight paths/noise monitoring terminals.

- Step 2 Set up the Tracks file for the **Flight Path Movements** and **Respite** modules, and the NMT Location file for the **Measured N70** module.
- Step 3 Set up the aircraft type file.
- Step 4 Set up text files of the data from the NFPMS in the format required by the modules.

4. Airport Configuration File

File Name: tnipairport.cfg (resides in the **Input** folder)

This is the key **TNIP-Compact** setup file. It is a text file containing information for a particular airport and the addresses of the data files used in the program. It can be edited using any text editor. **The configuration file must reside in the Input folder which is in the same directory as TnipCV.exe.**

TNIP-Compact offers seven different types of modules: four contour modules and three non-contour modules. These modules will only be available to the user if they are included in the **tnipconfig.cfg** file. Hence the person setting up the **tnipconfig.cfg** file for an airport has control over what modules and data is made accessible. Those modules which are included in the **tnipconfig.cfg** file will appear in the box under **Airport Studies** when the program first starts up.

An example of a **tnipairport.cfg** file for Sydney Airport is shown in **Appendix A**. The structure of this file is described in the following sections.

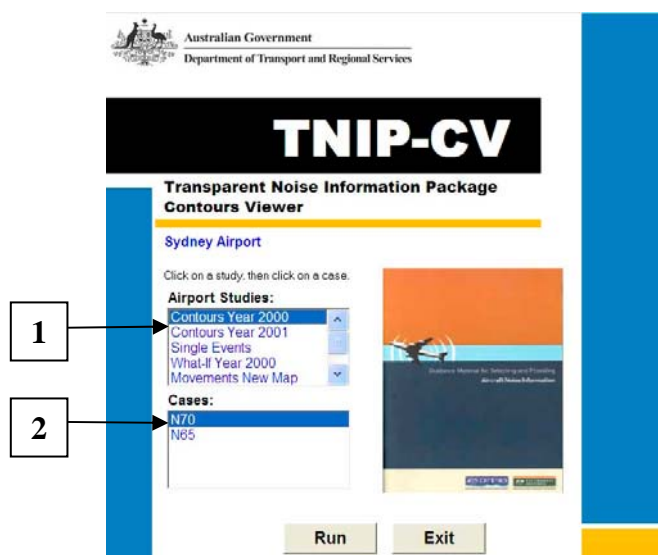
4.1 Airport and Layout Information

The first and second lines in **tnipconfig.cfg** contain the airport and runway names respectively. The airport name appears on the **TNIP-Compact** main menu. A blank line separates the airport information from the module information described below.

4.2 Module 1 : Cumulative Contour Module

This module displays the cumulative noise contour on the map of the airport and allows the user to view the tracks and movement numbers which were used in the model for generating the particular contour. The module is also able to display single event contours for individual operations.

TNIP-Compact allows multiple modules of the same type to be included in the CD package [1] and each module can have multiple data files [2]. In the example of the Sydney Airport configuration file above, there are cumulative contour modules for two different years (2000 and 2001); the first study has two sets of contours (N70 and N65) whereas the second has only one (N70).



To include a cumulative contour module in the package, start with the following line in the **tnipconfig.cfg** file:

```
Contour: <study designation>
```

where <study designation> is the name of the module to appear in the **Airport Studies** box.

The second line has the coordinates (in metres) on the airport's base map which correspond to the origin in the INM study (i.e. the origin of the contours). This is usually the Airport Reference Point (ARP). The coordinates are followed by horizontal, vertical and rotational adjustments for the map in case the generated contours do not quite align with the runways due to differences in coordinate systems. The horizontal and vertical increments are in metres and the rotational adjustment in degrees. These numbers are negative respectively if the tracks are to be shifted to the left, downwards or rotated clockwise. For example, to move the origin of the tracks 10 metres to the left, 70 metres up and 1.3 degrees counter clockwise, the last three numbers on line 2 would be -10 70 1.3. If there are no adjustments, these numbers are left as zero.

The third line is the address of the base map file. This address can be relative to the location of the **TnipCV.exe** file or the full path. The fourth line gives the bottom left followed by the top right coordinates (X, Y) of this map in metres.

The fifth and sixth lines contain the addresses of the **TNIP tnt** and **tnf** LAMAX files respectively. The corresponding **tns** file with the same filename must also be located in the same directory as these two files. The generation of these files is described in *Section 6*. They are required for drawing the flight tracks onto the base map and for calculating the single event contours.

Information regarding the contours in the module is then listed in the next three lines (there should be no empty lines):

```
<Contour Name>
<address of the TNIP tns file for the contour>
<address of the TNIP generated DXF file for the contour>
```

Whatever is placed in <Contour Name> will appear in the **Cases** box in the main window of **TNIP-Compact**. The above three lines are repeated for each of the contours in the study.

If there is more than one module, precede the block of information for each module with a blank line as shown for the Sydney Airport configuration file in **Appendix A**.

4.3 Module 2 : Single Event Module

This module allows comparisons of noise footprints for multiple operations.

A Single Event module starts with the following line in the **tnipconfig.cfg** file:

```
SEContour: <study designation>
```

where <study designation> is the name of the module to appear in the **Airport Studies** box.

As for the Cumulative Noise module, the second line has the coordinates (in metres) of the origin of the contours followed by horizontal, vertical and rotational adjustments for aligning the contours onto the runways. If there are no adjustments, these numbers are left as zero. The

third line is the address of the base map file while the fourth line gives the bottom left followed by the top right coordinates (X, Y) of this map in metres.

Information regarding the INM study to be displayed is then listed in the next four lines (there should be no empty lines):

```
<Model Name>
<address of the TNIP tnt file for the LAMAX contour>
<address of the TNIP tnf file for the LAMAX contour>
<address of the TNIP tns file for the LAMAX contour>
```

Whatever is placed in <Model Name> will appear in the **Cases** box in the main window of **TNIP-Compact**. The above four lines are repeated for each of the INM models to be viewed. Refer to **Appendix A** for an example of including this module in the **tnipconfig.cfg** file.

4.4 Module 3 : What-if Module

This module extends the Cumulative Contour module by allowing the user to observe the effect on the contours of changing the number of movements allocated to tracks. The user is also allowed to display any contour level. In the Cumulative Contour module, the contour levels are fixed by the DXF contour file included in the package.

A What-if module starts with the following line in the **tnipconfig.cfg** file:

```
WhatIf: <study designation>
```

where <study designation> is the name of the module to appear in the **Airport Studies** box.

As for the Cumulative Noise module, the second line has the coordinates (in metres) of the origin of the contours followed by horizontal, vertical and rotational adjustments for aligning the contours onto the runways. If there are no adjustments, these numbers are left as zero. The third line is the address of the base map file while the fourth line gives the bottom left followed by the top right coordinates (X, Y) of this map in metres.

The fifth and sixth lines contain the addresses of the **TNIP tnt** and **tnf** LAMAX files respectively. The corresponding **tns** file with the same filename must also be located in the same directory as these two files. The generation of these files is described in *Section 6*. They are required for drawing the flight tracks onto the base map and for calculating the single event contours.

Information regarding the contours in the module is then listed in the next four lines (there should be no empty lines):

```
<Contour Name>
<address of the TNIP tns file for the contour>
<address of the TNIP tng file for the contour>
<address of the TNIP tnf file for the contour>
```

Whatever is placed in <Contour Name> will appear in the **Cases** box in the main window of **TNIP-Compact**. The above four lines are repeated for each of the contours in the study. Refer to **Appendix A** for an example of including this module in the **tnipconfig.cfg** file.

4.5 Module 4 : Comparing Contours Module

This module allows a second set of contours called the comparison contour to be overlaid on a base contour. The module also calculates a new contour called the difference contour which is the result of subtracting the comparison contour from the base contour. The user is also able to view the actual noise levels at individual locations on the map by moving the cursor over the map.

A Comparing Contours module starts with the following line in the **tnipconfig.cfg** file:

```
DiffContour: <study designation>
```

where <study designation> is the name of the module to appear in the **Airport Studies** box in the main window.

As for previous contour modules, the second line has the coordinates (in metres) of the origin of the contours followed by horizontal, vertical and rotational adjustments for aligning the contours onto the runways. If there are no adjustments, these numbers are left as zero. The third line is the address of the base map file while the fourth line gives the bottom left followed by the top right coordinates (X, Y) of this map in metres.

Information regarding the contours in the module is then listed in the next three lines (there should be no empty lines):

```
<Contour Name>
<address of the TNIP tns file for the contour>
<address of the TNIP tng file for the contour>
```

Whatever is placed in <Contour Name> will appear in the **Cases** box in the main window of **TNIP-Compact**. The above three lines are repeated for each of the contours in the study. Refer to **Appendix A** for an example of including this module in the **tnipconfig.cfg** file.

4.6 Non-contour modules

The following three modules require information regarding aircraft types. The location of the aircraft text file is included in the **tnipconfig.cfg** file with the following two lines:

```
Aircraft Info
<location of aircraft type file>
```

The two lines are preceded and followed by a blank line.

The aircraft file contains entries of all the possible aircraft types to appear in the data file. Each line has three items separated by commas:

- aircraft name
- aircraft type indicated by J for jet, P for propeller and O for other
- an INM model substitution for the aircraft (leave blank if unknown)

An example of some of the entries for the aircraft file for Sydney is shown below:

```
737,J,737300
747,J,74720B
34R,O,
A109,O,H
A124,J,747400
A300,J,A300
A306,J,A300
```

```

A30B,J,A300
A310,J,A310
A319,J,A320
A32,J,A320
A320,J,A320
A330,J,A330
A332,J,A330
A333,J,A330
A340,J,A340
A342,J,A340
A343,J,A340
A345,J,A340
A346,J,A340
A350,O,H
...

```

4.7 Module 5 : Flight Path Movements Module

This module displays information about the number of movements on jet flight paths on a map of the airport.

The module starts with the following line in the **tnipconfig.cfg** file:

```
Movements: <study designation>
```

where <study designation> is the name of the module to appear in the **Airport Studies** box.

The second line contains the location of the flight path map and the third line contains the location of the flight path movements tracks file. This file holds information required by the module such as the labels and conditions for different flight paths and is described further in **Section 6**.

Data files available to the module are then listed by repeating the next two lines (there should be no empty lines):

```

<Data file Name>
<address of the data file>

```

Whatever is placed in <Data file Name> will appear in the **Cases** box in the main window of **TNIP-Compact**. The above two lines are repeated for each of the data files in the module. Refer to **Appendix A** for an example of including this module in the **tnipconfig.cfg** file.

4.8 Module 6 : Respite Module

This module displays information about the respite from jet aircraft movements on main flight paths.

The module starts with the following line in the **tnipconfig.cfg** file:

```
Respite: <study designation>
```

where <study designation> is the name of the module to appear in the **Airport Studies** box.

The second line contains the location of the flight path map and the third line contains the location of the respite tracks file. This file holds information required by the module such as the labels and conditions for different flight paths and is described further in **Section 6**.

Data files available to the module are then listed by repeating the next two lines (there should be no empty lines):

```
<Data file Name>
<address of the data file>
```

Whatever is placed in <Data file Name> will appear in the **Cases** box in the main window of **TNIP-Compact**. The above two lines are repeated for each of the data files in the module. Refer to **Appendix A** for an example of including this module in the **tnipconfig.cfg** file.

4.9 Module 7 : Measured N70 Module

This module displays information about the number of aircraft movements which exceed a certain noise threshold at noise monitoring terminals (NMTs) around an airport.

The module starts with the following line in the **tnipconfig.cfg** file:

```
MsdN70: <study designation>
```

where <study designation> is the name of the module to appear in the **Airport Studies** box.

The second line contains the location of the map showing the NMTs around the airport and the third line contains the location of the file with information about the positions on the map for writing the results for each NMT. This file is described further in **Section 6**.

Data files available to the module are then listed by repeating the next three lines (there should be no empty lines):

```
<Data file Name>
<address of the data file containing the noise measurements>
<address of the data file containing the operating hours of the NMTs>
```

Whatever is placed in <Data file Name> will appear in the **Cases** box in the main window of **TNIP-Compact**. The above three lines are repeated for each of the sets of data files in the module. Refer to **Appendix A** for an example of including this module in the **tnipconfig.cfg** file.

5. Airport Base Map

File Name: *.jpg

[* can be any name to describe the image – the name and address of this file is specified in the `tnipconfig.cfg` file]

The contours produced by **TNIP-Compact** are drawn on an image/base map. The coordinates of the bottom left and top right corners of the image, in metres, are required to correctly locate the contours and flight tracks on the image. The coordinates for the two required corners of the map are recorded in the airport configuration file described in **Section 3**.

TNIP-Compact draws and plots tracks and contours on a map by assuming that the map is a flat grid with units of metres. This is fully compatible with the most popular map projection for small areas: the Universal Trans Mercator (UTM) projection and its variations, which are usually based on the WGS84 datum. If you are a new user and are in the process of obtaining images to use for the base maps it is important to specify to your supplier that the maps use one of the variations of this projection (for example here in Australia we use the Australian Map Grid).

As indicated above, to correctly place contours and tracks on a map **TNIP-Compact** needs the co-ordinates of the **bottom left and top right corner of the map** and the co-ordinates of **the reference point in the INM model** in exactly the same projection as the map itself. This is an important point to check when obtaining maps as there are many variations of the UTM projection which can differ by as little as a few hundred metres which can cause subtle errors in the diagrams produced. It is not absolutely necessary to use a standard map projection and the map can use an arbitrary grid instead (for example with the bottom left corner being 0,0), but the co-ordinates of the maps corners and the INM reference point must be known in the same arbitrary grid system for **TNIP-Compact** to work correctly.

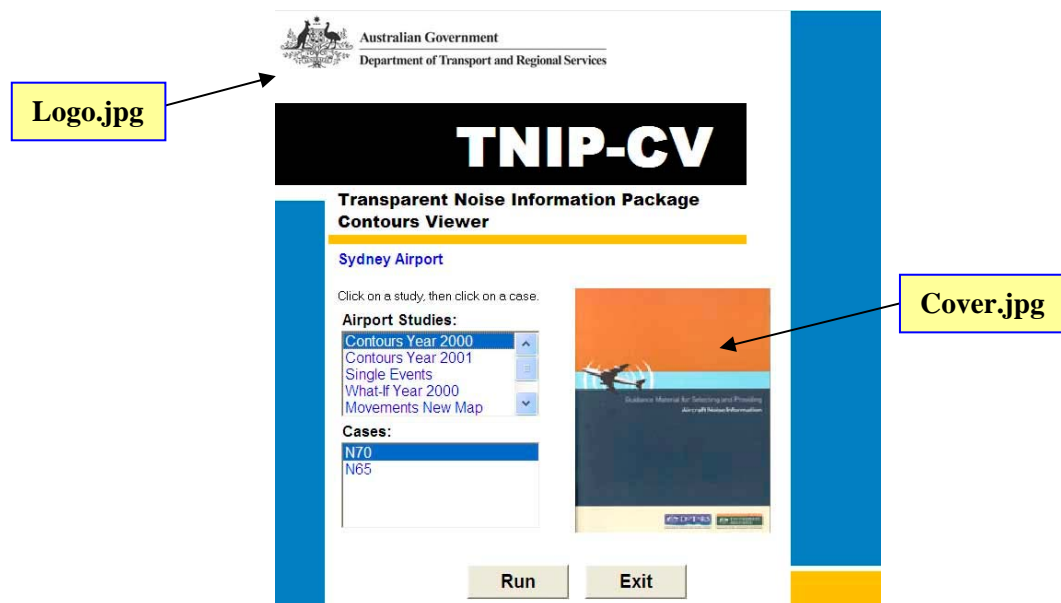
For slight misalignments between the flight tracks and the runways on the map (e.g. if the runways are not drawn correctly on the map), the position of the flight tracks can be adjusted by editing the third line of the `tnipconfig.cfg` file as mentioned in **Section 3**.

6. Customising the CD

File Names: Cover.jpg, Logo.jpg, Help (folder)

6.1 Customising the Main Menu

In order to allow the user to customise the Main Menu two areas have been set up on the front page as jpg images which can be replaced. These are shown on the image below.



In order that the contours being 'viewed' in the CD can be clearly identified it is expected that both of the default jpg images will generally be replaced by study specific images. For example, if **TNIP-Compact** is being used as a transparency tool in an EIS process it is envisaged that the body responsible for generating the noise contours in the EIS document will substitute its corporate logo for the default Australian Government logo. Similarly, substituting the **TNIP-Compact** default cover with, say, a jpg image of the cover of the EIS document would assist in identifying the context of the INM study. The logo is contained in the file **Logo.jpg** and the cover image is contained in the file **Cover.jpg**. Both of these files must reside in the **Input** folder.

6.2 Customising the Help Files

The Help folder contains a file named Overview.doc. The body setting up the **TNIP-Compact** CD may wish to add text to, or substitute text for, that which is in the default Overview file. For example, in an EIS process it may be important to add some EIS study specific information.

Similarly, it may be useful to modify some of the text in the other Help files to draw attention to study specific issues. There are separate Help files for the two **TNIP-Compact** layers.

The Help files, which are Microsoft Word documents, are located in the **Help** folder which is located in the same folder as the **Input** folder and the **TNIP-Compact.exe** file.

7. Generating the Data Files

File Names: *.tnf, *.tns, *.tnt, *.tng, *.dxf

[* - the filename will normally refer to the title of the INM study and the metric of the INM grid eg Syd2001LAMAX.tnf]

The **.tnf** and **.tns** files are used to generate the Single Event Contours. The **.tnt** file contains the flight track information. The **.tng** and **.tnf** file for a cumulative noise contour allows the user to perform what-if calculations. The **.dxf** file contains information on fixed cumulative noise contour levels.

7.1 INM Derived Files

All the information on the **TNIP-Compact** CD (apart from the base map) derives either directly or indirectly from INM studies. The first two of the above files (i.e. **.tnf** and **.tns** files) are extracted directly from INM detailed grid files (grid_dtl.dbf files). The **.tnt** file is derived from four files in an INM study which define the flight tracks that have been specified by the modeller.

The Single Event Contour function in **TNIP-Compact** is based on LAMAX detailed grids generated in INM. Therefore, for a fully functioning version of **TNIP-Compact**, LAMAX detailed grids will need to be generated within INM and the CD will need to contain the relevant LAMAX **.tnf** and **.tns** files. Separate INM detailed grids, and the related **.tnf** and **.tns** files, will need to be generated for each distinct metric being shown on the CD (eg ANEF, DNL, etc).

To generate these files the main **TNIP-Expert** program must be used. This is a straightforward process which is described in the **TNIP-Expert** Package.

7.2 The Cumulative Noise Contours

The **.dxf** file, which contains the information for the cumulative noise contours, is also generated using the main **TNIP-Expert** program.

TNIP-Compact simply views the **.dxf** files generated within **TNIP-Expert**. Therefore the form of the cumulative contours shown on the **TNIP-Compact** CD has to be determined by settings selected in **TNIP-Expert**. The contour intervals for all metrics, and the cut-off level of the 'Number Above' contours (eg N70, N65, etc), are set within **TNIP-Expert** - this allows, for example, an airport to show ANEF contours down to a level of 15 ANEF on the **TNIP-Compact** CD if so desired.

7.3 Flight Path Movements Tracks file

The flight path movements tracks file in **TNIP-Compact** is shown below for Sydney. The format of this tracks file is the same as the one used in **TNIP-Expert** and is described in that package.

```
Sydney Airport
%Note : Track A* is Tracks B and C combined.
MvtsTrackNameFontSize 24
AvrgDailyMvtsFontSize 10
PercentOfMvtsFontSize 10
LineLand2Spacing 19
OtherLinesSpacing 12
track A* 40 810 561 870
```

```

condition
runway 34L
optype D
condition
runway 16L
optype A
condition
runway 16R
optype A
...

```

7.4 *Respite Tracks file*

The format of this file is the same as the one used in **TNIP-Expert** and is described in that package. An example for Sydney Airport is shown below.

Before the lines listing the font sizes, the names of five respite periods and their start and end times have to be included. Any name can be chosen to describe a respite period. Each of these respite period lines end with the word *Show* or *Hide* to indicate whether the period is to be displayed or not on the map. The respite period definitions are then followed by a line showing the respite interval in minutes.

```

Sydney Airport
%Note : Track A* is Tracks B and C combined.
Morning 06:00 07:00 Show
Day 07:00 20:00 Show
Evening 20:00 23:00 Show
Night 23:00 06:00 Show
Total Respite 06:00 23:00 Show
Respite interval 60
RespTrackNameFontSize 24
RespHrFontSize 12
DayHrsFontSize 10
RespHrsLineSpacing 24
DayHrsLineSpacing 17
track A* 40 810 561 870
condition
runway 34L
optype D
...

```

7.5 *Measure N70 Labels file*

The format of this file is the same as the one used in **TNIP-Expert** and is described in that package. An example for Sydney Airport is shown below.

```
Sydney Airport
Morn 06:00 07:00 Show
Day 07:00 20:00 Show
Eve 20:00 23:00 Show
Night 23:00 06:00 Show
NMTNameMapBoxFontSize 14
NMTDataMapBoxFontSize 10
NMTDataBelowMapFontSize 10
NMT 2 Penshurst 70 1410 70 1480 55 2450
NMT 3 Bexley 680 1335 680 1405 650 2450
NMT 4 Eastlakes 1590 1025 1590 1090 1260 2450
...
```

Appendix A – Example of an airport configuration file

Below is an example of a **tnipconfig.cfg** file for Sydney Airport which includes all seven types of modules.

```
Sydney Airport
16R 16L 34R 34L 07 25

Contour: Contours Year 2000
331438.453 6242144.757 0 0 0
Input\Sydney\Contours\SydN70ContourMap.jpg
314330.000 6223070.000 347250.000 6263150.000
Input\Sydney\Contours\Syd2000LAMAX.tnt
Input\Sydney\Contours\Syd2000LAMAX.tnf
N70
Input\Sydney\Contours\Syd2000LAMAX.tns
Input\Sydney\Contours\Syd2000N70contour.dxf
N65
Input\Sydney\Contours\Syd2000LAMAX.tns
Input\Sydney\Contours\Syd2000N65contour.dxf

Contour: Contours Year 2001
331438.453 6242144.757 0 0 0
Input\Sydney\Contours\SydN70ContourMap.jpg
314330.000 6223070.000 347250.000 6263150.000
Input\Sydney\Contours\Syd2001LAMAX.tnt
Input\Sydney\Contours\Syd2001LAMAX.tnf
N70
Input\Sydney\Contours\Syd2001LAMAX.tns
Input\Sydney\Contours\Syd2001N70contour.dxf

SEContour: Single Events
331438.453 6242144.757 0 0 0
Input\Sydney\Contours\SydN70ContourMap.jpg
314330.000 6223070.000 347250.000 6263150.000
Year 2000
Input\Sydney\Contours\Syd2000LAMAX.tnt
Input\Sydney\Contours\Syd2000LAMAX.tnf
Input\Sydney\Contours\Syd2000LAMAX.tns
Year 2001
Input\Sydney\Contours\Syd2001LAMAX.tnt
Input\Sydney\Contours\Syd2001LAMAX.tnf
Input\Sydney\Contours\Syd2001LAMAX.tns

WhatIf: What-If Year 2000
331438.453 6242144.757 0 0 0
Input\Sydney\Contours\SydN70ContourMap.jpg
314330.000 6223070.000 347250.000 6263150.000
Input\Sydney\Contours\Syd2000LAMAX.tnt
Input\Sydney\Contours\Syd2000LAMAX.tnf
N70
Input\Sydney\Contours\Syd2000LAMAX.tns
Input\Sydney\Contours\Syd2000N70.tng
Input\Sydney\Contours\Syd2000LAMAX.tnf
N65
Input\Sydney\Contours\Syd2000LAMAX.tns
Input\Sydney\Contours\Syd2000N65.tng
Input\Sydney\Contours\Syd2000LAMAX.tnf
```

DiffContour: Comparing Contours
 331438.453 6242144.757 0 0 0
 Input\Sydney\Contours\SydN70ContourMap.jpg
 314330.000 6223070.000 347250.000 6263150.000
 ANEI 2000
 Input\Sydney\Contours\SydANEI2000.tns
 Input\Sydney\Contours\SydANEI2000.tng
 ANEI 2001
 Input\Sydney\Contours\SydANEI2001.tns
 Input\Sydney\Contours\SydANEI2001.tng
 N70 2000
 Input\Sydney\Contours\Syd2000LAMAX.tns
 Input\Sydney\Contours\Syd2000N70.tng
 N70 2001
 Input\Sydney\Contours\Syd2001LAMAX.tns
 Input\Sydney\Contours\Syd2001N70.tng
 N65 2000
 Input\Sydney\Contours\Syd2000LAMAX.tns
 Input\Sydney\Contours\Syd2000N65.tng
 N65 2001
 Input\Sydney\Contours\Syd2001LAMAX.tns
 Input\Sydney\Contours\Syd2001N65.tng

Aircraft Info
 Input\Sydney\Mvts&Resp\SydAircraft.txt

Movements: Movements New Map
 Input\Sydney\Mvts&Resp\SydneyRevisedMap.jpg
 Input\Sydney\Mvts&Resp\SydNewMvtsTracks.txt
 June 2004
 Input\Sydney\Mvts&Resp\NewJune2004.txt
 May 2004
 Input\Sydney\Mvts&Resp\NewMay2004.txt
 Apr - Jun 2004
 Input\Sydney\Mvts&Resp\NewApr-Jun2004.txt
 Jan - Mar 2004
 Input\Sydney\Mvts&Resp\NewJan-Mar2004.txt
 Oct - Dec 2003
 Input\Sydney\Mvts&Resp\NewOct-Dec2003.txt
 Jul - Sep 2003
 Input\Sydney\Mvts&Resp\NewJuly-Sep2003.txt

Respite: Respite New Map
 Input\Sydney\Mvts&Resp\SydneyRevisedMap.jpg
 Input\Sydney\Mvts&Resp\SydNewRespiteTracks.txt
 June 2004
 Input\Sydney\Mvts&Resp\NewJune2004.txt
 May 2004
 Input\Sydney\Mvts&Resp\NewMay2004.txt
 Apr - Jun 2004
 Input\Sydney\Mvts&Resp\NewApr-Jun2004.txt
 Jan - Mar 2004
 Input\Sydney\Mvts&Resp\NewJan-Mar2004.txt
 Oct - Dec 2003
 Input\Sydney\Mvts&Resp\NewOct-Dec2003.txt
 Jul - Sep 2003
 Input\Sydney\Mvts&Resp\NewJuly-Sep2003.txt

MsdN70: Measured N70
 Input\Sydney\MsdN70\SydMsdN70Map.jpg
 Input\Sydney\MsdN70\SydMsdN70Label.txt
 June 2001

Input\Sydney\MsdN70\SydMsdN70Jun2001.txt
Input\Sydney\MsdN70\SydOpHrsN70Jun2001.txt
August 2001
Input\Sydney\MsdN70\SydMsdN70Aug2001.txt
Input\Sydney\MsdN70\SydOpHrsN70Aug2001.txt