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THE HOME SCREEN

Logging into the Asset Management System (AMS) should bring you to the home screen. There are four main areas of the home screen: The **Gutter**, **Dashboard**, **Modules**, and **Menus** (fig. 1).

![Home Screen Diagram](image)

Figure 1

1. **Gutter** – This area contains clickable icons to execute commands such as retrieving & saving data, help menu, logging out, etc…as well as color schema preferences, location reference options and quick links for each user to customize. The Gutter can also be collapsed to allow a larger screen size to view data within the system.

2. **Dashboard** – This area will allow users to store up to 4 live reports at the same time on their home screen.

3. **Modules** – This area contains tabs for all of the individual modules for each management system. Users with admin credentials will also see modules for “Resources” and “System” for design and maintenance purposes.

4. **Menus** – This area contains menu items and their branches specific to each module. These menus will vary between users and their rights.
Pavement Management System Overview

THE GUTTER

This area contains clickable icons to execute commands such as retrieving & saving data, logging out, etc. as well as color schema preferences, location reference options and quick links for each user to customize. The Gutter can also be collapsed to allow a larger screen size to view data within the system.

ICONS

Circled in the image below (fig. 2) are Icons which the user can click on to execute particular commands.

![Figure 2](image)

- **Logout** – Logs the user completely out of the AMS and closes the application.
- **Retrieve Data** – Retrieves the latest data from the database for the displayed window.
- **Save Data** – Stores settings, data and reports users have created or edited where allowed.
- **Help** – Displays help information for the displayed window.
- **Add Window Link (Quick Link)** – Creates a link of the displayed window in the users Quick Links list.
- **Home** – Returns the user to the AMS home screen (Dashboard).
- **Login to a different Admin. Unit** – Allows the user to access the data of a different administrative unit.
Manage Window Links (Quick Links) – Displays a window where users may configure Quick Links groups.

Define Selection – Displays a window with a set of columns used to filter the data to be displayed.

Send a link to the window by email - Opens a window to allow the user to send an email that has a link to the current open window.

**QUICK LINKS**

*Quick Links* (fig. 3) are bookmarks that quickly display a particular window within a module. They allow the user speedy access to a window they frequently visit.

![Quick Links](image-url)
MISCELLANEOUS

- **Location Reference** – Used to label routes and report milepost values on the NCDOT Network. Should always be set to “NC LRM” for field users.

- **Color Schema** – Allows the user to change the default color scheme of the PMS.

- **Design Mode** – Allows power users the access to operate in design mode. Field users should not see this option.

- **Open/Close** – Frees up more screen space by collapsing the Gutter area with one click and another click will expand it. Icons are still viewable in “closed” mode.

![Figure 4](image-url)
PMS MENUS

There are currently four available PMS menus for field users:

1. **Setup** – Defines various treatments and materials and their details used throughout the PMS.
2. **Database** – Contains most of the data stored in the PMS including condition, construction, skid and profile data.
3. **Analysis** – Contains recommended treatments for road sections as well as work plans.
4. **Reports** – Allows the user to view and build reports for all data types.

Under each of these menus contains submenus with links to their data windows. The rest of this manual will detail what information these submenus contain.

**Setup Menu**

The Setup menu provides descriptions of material codes, standard sections, and treatment details. A user can, for example, use the Material Codes window to discover that ECP is Elastomeric Concrete Patching, or look up the work code of a Slurry Seal treatment (Resurface). A data map window is also provided to allow users to look up survey data via a visual map.

**Construction Setup**

Construction Setup submenu contains three windows for users to view (fig. 5):

1. **Material Codes**
2. **Standard Sections**
3. **MMS Activities**
1. Material Codes

The Material Codes window (fig. 6) contains the list of construction materials coded by color type used in PMS analysis and for storing construction data.

![Figure 6](image)

2. Standard Sections

The Standard Sections window (fig. 7) contains the list of materials and thickness layers used for various treatments in the PMS decision tree analysis.

![Figure 7](image)
3. MMS Activities

The purpose of the MMS Activities window is to designate those MMS activities that will cause the system to create a PMS construction history section record when any work orders such as resurfacing contracts and chip seal project are closed in the MMS. This function is currently disabled and will be available in the future.

Network Setup

Under the Network Setup menu there is one window for field users to view (fig. 8):

1. Treatments (Old Analysis Module)

The Treatments (Old Analysis Module) window (fig. 9) contains details of treatments used in the PMS including materials and estimated statewide costs. These costs are complete and include mobilization and traffic control.
Data from Map

The Data from Map window (fig. 10) allows the user to select an active theme and then display a new window showing all data found within a particular area.

**DATABASE MENU**

The Database menu is where all raw survey data including PCS, Skid and Profile, as well as construction data. It is here that the field user can drill down into the collected data of our condition surveys as well as construction history.

Construction

The Construction submenu (fig. 11) contains one submenu and two windows.
1. Construction History

The Construction History window (fig. 12) lists all construction contracts PMU has entered into the PMS. The contract details are shown in tabular form providing an extensive look at the work that was performed on a section of road.

The Construction History window contains the following project information:

- Contract ID - a unique record number that may be the contract or Tip number.
- 8 digit route number.
- Physical limits of the section by mile post.
- Year the work is completed.
- The type of work performed on the road section - listed by the work code category.
- The materials placed or removed during the work, listed by layers with their thicknesses.
- Materials code definitions.
2. Pavement Profile and Cross Section

The Pavement Profile and Cross Section window (fig. 13) serves as a “virtual core” for road sections. The window provides depth and descriptions of material layers in a visual form as well as the tabular layer data.

By clicking in any section of the Pavement Profile, the user will return a view of the Cross Section for that particular mile post in the bottom right portion of the screen (fig. 14).
3. Pavement Structure

Under the Pavement Structure submenu (fig. 15) there are two windows for field users to view data:

![Figure 15](image)

### a. Pavement Structure Data

The Pavement Structure window (fig. 16) provides a tabular summary view of the overall structure detail of road sections including: Last Rehab Year, Last Overlay Material, Last Overlay Thickness, Construction Date, Construction Type, Total Thickness, Total Thickness, etc… This is a more general look at the structure since it omits the individual layers of the sections.

![Figure 16](image)
b. *Pavement Structure Graph*

Any Pavement Structure data can be plotted in the Pavement Structure Data window.

**EXAMPLE:** *Figure 17* displays US 64 in Edgecombe County showing total thickness.
Conditions

The Conditions submenu (fig. 18) contains three submenus:

1. Distresses
2. Skid Tests
3. Profiler - Ride and Rutting

Prior to the creation of the AMS only pavement distress data was available to field personnel. The AMS makes it possible for the Pavement Management Unit to provide all current and historical data collected by Pavement Management Unit personnel such as concrete distress data, skid data and profiler data.

![Figure 18](image18.png)

1. Distresses

This submenu (fig. 19) contains current and historical surface distress data collected from the Pavement Condition Survey and Interstate & Concrete Survey, as well as the ability to graph said data in useful ways.

![Figure 19](image19.png)
a. **Asphalt/JCP/CRC Ratings Data Windows**

These windows contain all current and historical surface distress data collected from the biennial Pavement Condition Survey and the annual Interstate and Concrete Survey.

![Figure 20](image)

b. **Asphalt/JCP/CRC Ratings Graph Windows**

These windows allow the user to plot all surface distress data collected. **EXAMPLE:** US 64 in Edgecombe County showing the 2008 NCDOT Rating Number.

![Figure 21](image)
2. Skid Tests

This submenu (fig. 22) contains current and historical Skid Test Data as well as the ability to graph said data in useful ways.

![Figure 22](image)

a. Skid Test Data Window

Skid Test Data Window (fig. 23) provides access to all current and historical Skid Test Data. Skid Test Data is collected every ½ mile on primary routes on a two year cycle. Secondary routes are only collected by request. Data is reported in a unit-less number where a higher skid number represents more friction between the tire and the road. The NCDOT minimum safe skid number is 37.

![Figure 23](image)
b. **Skid Test Graph Window**

Much like the distress data any of the Skid Test data can be plotted by the user in this window.

**EXAMPLE:** *Figure 24* displays US 64 in Edgecombe County showing the 2009 Skid Number.

![Figure 24](image)

3. **Profiler – Ride and Rutting**

This submenu (*fig. 25*) contains current and historical Profiler Data as well as the ability to graph said data in useful ways.

![Figure 25](image)
a. **Profiler Data Window**

This window (fig. 26) contains current and historical Profiler Data. Profiler data has two main components; **roughness** and **rutting**. The roughness, also known as the **International Roughness Index** (IRI), portion of the profile data is collected in units of inches per mile. The data is collected and reported on both the right and left wheelpaths. The PMS also provides an average IRI of both wheelpaths. A lower IRI number indicates a smoother riding surface. NCDOT prefers the IRI number to be less than 100. The IRI data is reported using one-tenth mile sections. Bridges and railroad crossings can have a large impact on IRI numbers by causing large increases or “spikes” in the data.

The second component of Profiler Data is rutting. Rutting is collected in units of inches and reported using one-tenth mile sections. The data is collected on both the right and left wheelpaths; however the PMS only reports an average rutting value of both wheelpaths.

Both IRI and rutting data is collected every year for the National Highway System (NHS) and collected on a two year cycle for the remaining primary system. Some secondary roads are collected as part of the Highway Performance Monitoring System (HPMS) or as requested.
b. **Profiler Graph Window**

Like the distress and skid data any of the Profiler data can be plotted by the user.

**EXAMPLE:** Figure 27 displays US 64 in Edgecombe County showing the 2008 average IRI values.

*Note the spikes in the data likely caused by railroad crossings and bridges.*
NC Features and Tiers

The NC Features and Tiers window (fig. 28) provides the user with a table indicating what tier system a section of roadway belongs to. The three tiers are Statewide, Regional and Sub-Regional.

![Figure 28](image)

**ANALYSIS MENU**

The Analysis submenu (fig. 29) is where all inputs and outputs from analysis scenarios can be viewed. The field user will find it useful for summarizing survey data when looking at particular routes, or for viewing recommended treatments.

![Figure 29](image)
Network Analysis

Under the Network Analysis submenu there is one submenu and two windows:

1. Work Plan Data
2. Network Master
3. Current Section Needs

1. Work Plan Data
The Work Plan Data window shows custom analysis results consisting of recommended treatments for pavement sections using desired constraint criteria, such as budget. The custom analysis is run by PMU personnel and loaded into the Work Plan Data window. Users can also create a new work plan from scratch as a planning tool. The results include total costs for the recommended project.

In future AMS releases these work plans can be sent to the MMS for the creation of work requests. Once the work requests are completed in the MMS, the completed projects can be sent back to the PMS to automatically update construction history.

EXAMPLE: Figure 30 shows the dropdown list of all the analysis runs that can be viewed in the Work Plan Data Window.

![Figure 30](image-url)
EXAMPLE: Figure 31 shows all sections and their recommended treatments for the analysis run chosen in the work plan dropdown list.
2. Network Master

The Network Master submenu (fig. 32) is used as the basis for all PMS analysis.

**a. Network Master Data Window**

This window (fig. 33) summarizes multiple types of data for all pavement sections (asphalt and concrete) and represents the current structure, traffic, classification and condition for the network as a whole. Roughness data is conveniently averaged over a pavement condition survey section. The data in this window is created by PMU personnel and will have only two to four years of data stored. Thus, it should be noted that the Network Master window should not be used when the user wants to see long trends in performance. If the user wants to see long trends in data it is recommended to use the source data windows (see the Conditions section) where historical data is stored. Also, do not use the Network Master window if you want to see the localized spikes in the roughness data since this window averages the IRI over a survey section instead of the one-tenth mile increments used in the Profile Data window.
b. Network Master Graph Window

Like all other tabular data in the PMS, the Network Master Graph window allows the user to plot any data contained in Network Master. Figure 34 is an example of a small section of US 64 in Edgecombe County showing the 2008 NCDOT Rating Number.
3. Current Section Needs

The Current Section Needs window (fig. 35) shows recommended treatments for each survey section of a given route. These treatments are calculated “on the fly” using the most recent condition of the route and the PMS decision tree, assuming no budget constraints.
REPORTS MENU

The Reports menu (fig. 36) provides commands for displaying standard and graphical reports, providing a great number of “views” of the database to suit the field user’s needs. Users can view existing reports as well as customize their own. There is also the capability to share reports between users or place any reports you find useful to your dashboard.

Figure 36
Standard (Tabular) Reports

Standard reports (fig. 37) show tabular data in a new browser window. Data can be summarized, averaged and grouped by nearly any field. The report data can be exported to Excel for further manipulation.

![Image of a tabular report]

Figure 37
Graph Reports

Graph reports (fig. 38) are the most flexible type of report. The user can view both the graph and tabular outputs after the report is created. Graph types include bar, line, and scatter plots. All graph properties can be customized within the window.
GIS Reports

GIS reports (fig. 39) use a base map that data can be overlaid on by color coding. Data is grouped into ranges where the user can then adjust data ranges and color coding to their preference.

![GIS Report](image-url)
Jasper Reports

Jasper Reports (fig. 40) is a type of reporting that goes beyond the basic capabilities of the previously mentioned report types. These reports provide a much more professional look and can provide specific combinations of data that are not easily found elsewhere in the AMS. These reports can be made specifically to create Excel spreadsheets, PDF files and HTML files. These reports cannot be created by the field user. They are created by PMU personnel upon request. Figure 40 is an example of a Jasper Report designed as a PDF file.