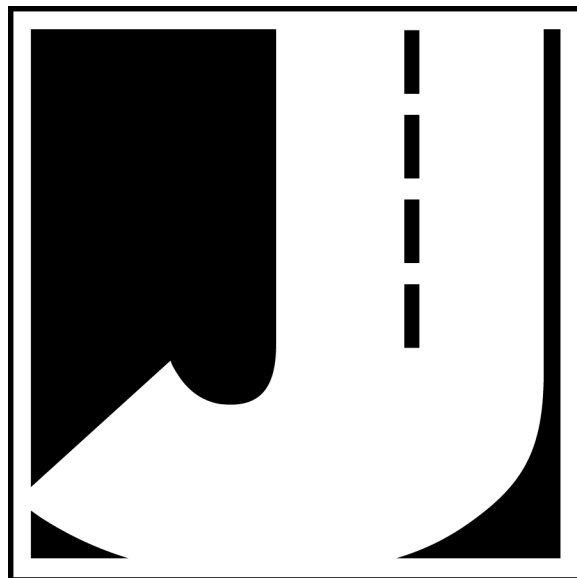


# TRAXPro

*Traffic Data Analysis Software - Version 2*





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**Monday – Friday 8:00 AM to 5:00 PM Eastern time**

You may also contact us by e-mail at:

**[support@jamartech.com](mailto:support@jamartech.com)**

For more information on our products, the latest news in product development, and to download software updates, visit our web site at:

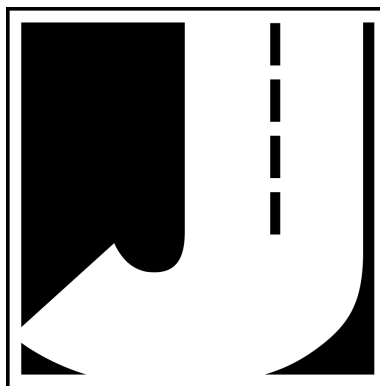
**[www.jamartech.com](http://www.jamartech.com)**

For information on all known issues with TRAXPro, go to:

**[www.jamartech.com/TRAXProsupport.html](http://www.jamartech.com/TRAXProsupport.html)**

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# Table of Contents

<b>Technical Support .....</b>	<b>iii</b>
<b>Chapter 1 — Introduction and Installation.....</b>	<b>1.1</b>
Installing TRAXPro.....	1.4
Running TRAXPro.....	1.6
<b>Chapter 2 — Navigating in TRAXPro and Using the Help System .....</b>	<b>2.1</b>
Navigating in TRAXPro.....	2.2
The Help System .....	2.4
<b>Chapter 3 — Type of Data Collection &amp; Data Flow .....</b>	<b>3.1</b>
Types of Data Collection .....	3.2
Data Flow .....	3.4
<b>Chapter 4 — Learning the Basics of TRAXPro .....</b>	<b>4.1</b>
Lesson 1 – Setting Your Preferences .....	4.2
Lesson 2 – Downloading Data and Opening Existing Files.....	4.7
Lesson 3 – Working with Basic Data .....	4.13
Lesson 4 – Working with Per Vehicle Data .....	4.17
Lesson 5 – Working with the Examine\Edit Screen .....	4.23
Lesson 6 – Producing a Report.....	4.29
<b>Chapter 5 — Advanced Lessons .....</b>	<b>5.1</b>
Lesson 1 – Using the Scheme Editor.....	5.2
Lesson 2 – Using the Script Editor.....	5.5
Lesson 3 – Using the Report Generator .....	5.9
Lesson 4 – Programming the Radar Recorder.....	5.17
<b>Chapter 6 — Interpreting Reports.....</b>	<b>6.1</b>
Per Vehicle Stat Print .....	6.2
Volume Reports .....	6.4
Classification & Length Reports .....	6.6
Gap & Following Distance Reports .....	6.8
Standard Speed Reports.....	6.10
Police Reports – Speed Enforcement Evaluator.....	6.12
<b>Chapter 7 — Troubleshooting.....</b>	<b>7.1</b>
Software Updates .....	7.2
Video Tutorials .....	7.2
Error Messages & Frequently Asked Questions.....	7.2
<b>Appendix.....</b>	<b>A.1</b>
Appendix #1 – Police Reports.....	A.2
Appendix #2 – Installing Apollyon USB Drivers.....	A.15
Appendix #3 – Installing USB Adapter Drivers for Radar.....	A.17
Appendix #4 – Downloading Radar Data from a PDA .....	A.19
Appendix #5 – Retrieving Data from JPDA.....	A.20
Appendix #6 – FHWA Classification Scheme F .....	A.21
Appendix #7 – Registry Entry .....	A.22
Appendix #8 – Statistical Calculations .....	A.23
Appendix #9 – Using the TRAX Stealth Stud.....	A.24



# Chapter 1



## Introduction and Installation



## Introduction & Installation

### What is TRAXPro?

Welcome to TRAXPro, a JAMAR Technologies software program designed to process traffic data collected with JAMAR automatic traffic recorders. This program will enable you to quickly and easily analyze your data and produce comprehensive reports.

*If you would like to get started right away, Chapter 4 of this manual provides an in-depth tutorial on all of the essential aspects of the program needed to start downloading your data and producing reports.*



**Important**

### Video Tutorial Demos

If you are new to TRAXPro, an excellent place to start is the video tutorial demos that can be found on the JAMAR web site. Go to [www.jamartech.com/tutorialdemos.html](http://www.jamartech.com/tutorialdemos.html) to view these tutorials, which cover just about all aspects of the program.

### Minimum Computer Requirements

- Windows XP, Vista, 7 or 8.
- 64 Megabytes of RAM.
- 10 Megabytes of free space on your hard disk.
- Minimum screen resolution of 1024 x 768

### Supported Data Collectors

TRAXPro supports all TRAX traffic data recorders that have download capability. It also supports the JAMAR Radar Recorder and the Black CAT Recorder.

### Software Updates & Support

Updated versions of JAMAR software are released periodically and are posted on the JAMAR web site. Licensed owners of TRAXPro may download updates to the program to make sure they always have the latest version of the software on their computer. To download the latest version of TRAXPro, go to [www.jamartech.com](http://www.jamartech.com) and then select Downloads from the list of options.

If you encounter any problems while using the program, or have any questions on specific operations, refer first to this manual and the program's built-in Help system. For up to the minute information on all known issues with the program, refer to the TRAXPro support web page at: [www.jamartech.com/traxprosupport.html](http://www.jamartech.com/traxprosupport.html).



## Definitions

Like any technical field, traffic data analysis has its share of technical words and phrases. This program makes use of a few of these. Experienced users will be familiar with many (if not all) of these, while new users may not. In any event, before working with the program be sure you have a good understanding of the words and phrases used in the program that may mean something more specific than they imply.

**Basic Data** — Also known as Time Stamp Data, this stands for any data collected in a time-stamp format. In this format, the recorder marks every sensor activation with a time stamp of when it occurs. It is then up to the software to formulate these time stamps into the data that you will actually work with and produce data from.

**Per Vehicle Data** — This stands for data that is stored in a vehicle-by-vehicle basis. In this format the program stores a table of the data of every individual vehicle recorded during the study.

**Binned** — This stands for any data that has been sorted into pre-defined categories. This includes classification, speed and gap data. In this format, the data is not stored for each vehicle, but rather for each category. For example, in a speed study a vehicle traveling at 37 mph would be added to the 36-40 speed category (or bin) of the time period it was recorded.

**Volume** — This is data that has been collected with the purpose of determining the amount of vehicles traveling over the study site for a given period of time. In this format, vehicles can be counted in several ways, such as a vehicle-by-vehicle count, a divide-by-two count, or an axle count.

**Classification** — This is data that has been collected with the purpose of determining what types of vehicles are traveling over the study site for a given period of time. Classifications are based on the spacing and number of axles a vehicle has. The most commonly used scheme for classifying vehicles is the Federal Highway Administration's Scheme F, which is the default used in TRAX recorders.

**Speed** — This is data that has been collected with the purpose of determining how fast vehicles are traveling over the study site for a given period of time. This data is then interpreted to provide statistics such as 85th and 95th percentiles. Speed data can be in MPH or KPH format.

**Gap** — This is data that has been collected with the purpose of determining when no traffic (or gaps) occur at the study site. Once a gap occurs, this format also records how long the gap lasts. Gap data is shown in seconds of time.

**Interval** — This is a pre-defined time period into which the data in a study is divided. The most commonly used interval times are 15 minutes and 60 minutes.

**Site Code** — This is a number, or combination of number and letters, used to help identify where a specific study was done. This is for optional use. You do not have to enter a site code if you do not use them.

**Group Description** — Also known as Direction Description, this is the name assigned to a specific portion of the data. In most cases this is used for speed, class or gap data that has been collected in more than one lane.

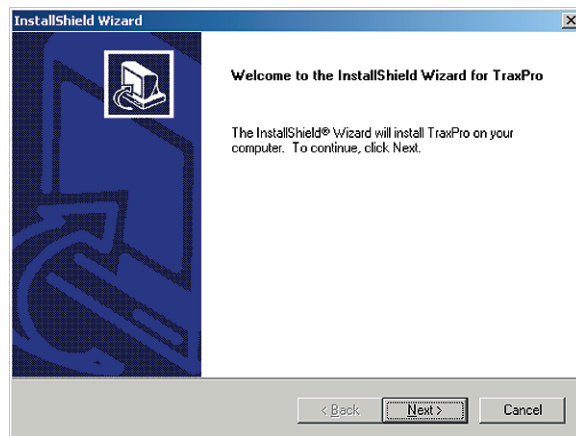


## Installing TRAXPro

Begin the installation by placing the TRAXPro CD into your CD-ROM drive. If your CD drive is configured for Autoplay, the Installation Options program will start after a few seconds. Otherwise, click on the 'Start' button on your Windows desktop. Select Run from the list of options and type the command line 'X:\setup' where X is the letter of your CD-ROM drive. Press OK and you will see the Installation Options for the program.

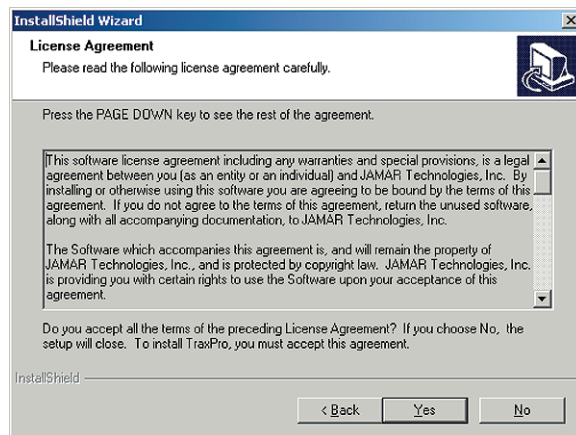
The Installation Options allow you to do a number of things in addition to installing the program. You can view a copy of this manual, register your copy of the software and check out some other JAMAR products. To begin installing the program, click on **Install TRAXPro**.

**Figure 1-1:**  
Welcome  
Screen



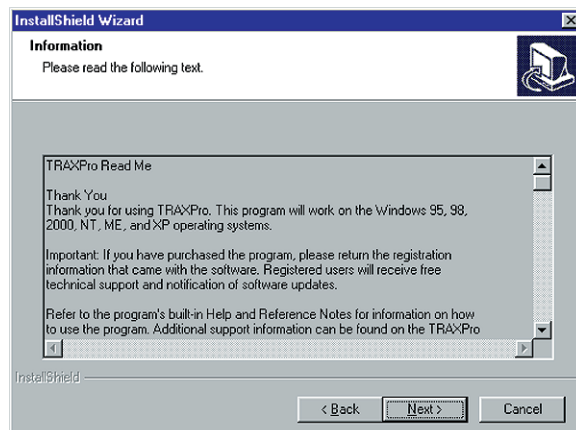
The Welcome screen lets you know that the installation for the program has begun. During the installation, files used by the program will be copied to your computer, including some Windows system files. If other programs are open and using some of the files that need to be installed, an error can occur. Make sure you close any programs that are running before you install this or any Windows-based software. Click Next and the License Agreement screen will appear.

**Figure 1-2:**  
License  
Screen



The License Agreement screen allows you to review the software license for the program. TRAXPro is site licensed, which means you can install the program on as many computers as you like as long as they are at the same location. You must accept the agreement in order to proceed with the installation. If you do not accept the agreement, the program must be returned to JAMAR. If you agree to the license, click Yes.

**Figure 1-3:**  
Information  
Screen



The Information screen of the installation provides an opportunity to review the Read Me file that is included with the program. This file contains additional information on the program and can also be read at the conclusion of the installation. Click next once you have reviewed this information.



**Figure 1-4:**  
Customer  
Information  
Screen

The Customer Information screen requires you to enter your name, as well as your company's name. Your serial number, which is a 20-digit number located on the back of the CD case, must also be entered. When entering the number be sure to include the dashes. If the serial number is entered incorrectly, you will not be allowed to proceed with the installation. Once the information has been entered, click the Next button to continue.

**Figure 1-5:**  
Destination  
Location  
Screen

The Choose Destination Location screen is used to select where the program will be installed. The default location is C:\Program Files\JAMAR\TRAXPro. Once the directory has been set, click Next.

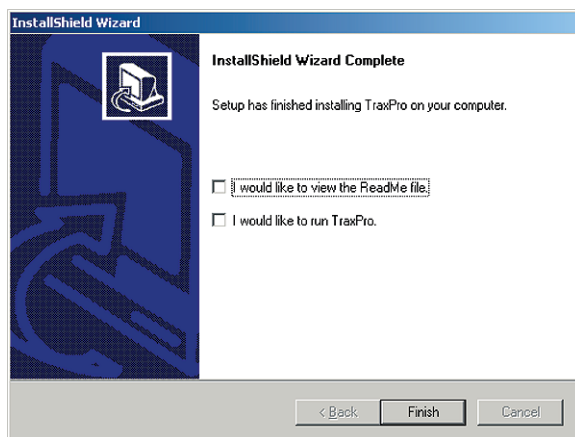
**Figure 1-6:**  
Program  
Folder Screen

The Select Program Folder screen is used to name the folder the program is stored in. Click Next.

**Figure 1-7:**  
Start Copying  
Files Screen

Once the Installation program has enough information to start copying files onto the computer, the Start Copying Files screen will appear. You can then review the previous choices you have made and if you would like to change anything before proceeding, use the Back button. Otherwise, click Next and the program will be installed.





**Figure 1-8:**  
Installation  
Complete  
Screen

After the program files have been copied onto the computer, the InstallShield Wizard Complete screen will appear.

You may be prompted to Restart your computer at this point. If you are, be sure to restart before attempting to use TRAXPro.

You are also given the option to start TRAXPro immediately, view the Read Me file again, or do both.

## Windows 7 & 8 Administrator Mode

If you have restricted access rights on your computer, for both Windows 7 and Windows 8 you will need to set the program to 'Run as Administrator' mode. To set Run as Administrator you simply need to right-click on the program icon, which can be found on your desktop or in the start menu, and select 'Properties' out of the menu that appears.

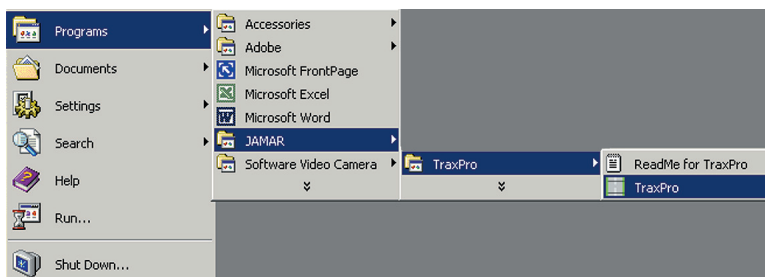
On the Properties screen you will want to click to the 'Compatibility' tab, check the 'Run this program as an administrator' box, then hit 'OK.' This should now let the program run properly in either Windows 7 or Windows 8.

## Running TRAXPro

Like most Windows programs, there are several ways you can run the software. Here are two:

1– Open an Explorer window (*right click on My Computer and select Explore*) and find the TRAXPro.exe file, which is probably in the *C:\Program Files\Jamar\TRAXPro* folder. Double click on the file **TRAXPro.exe** and the program will run.

2 – Select **Start, Programs**, and then **JAMAR** from the list of installed programs. Choose **TRAX-Pro** from the list, then choose **TRAXPro** again to run the program.



**Figure 1-9:**  
Start-up  
Selection



# Chapter 2



## Navigating in TRAXPro and Using the Help System



## Navigating in TRAXPro

TRAXPro has been designed to allow you to easily access the many features and options contained in the program. The tool bar located at the top of the program allows quick access to some of the program's most common features while the drop-down menus provide access to all functions of the program.

### Toolbar

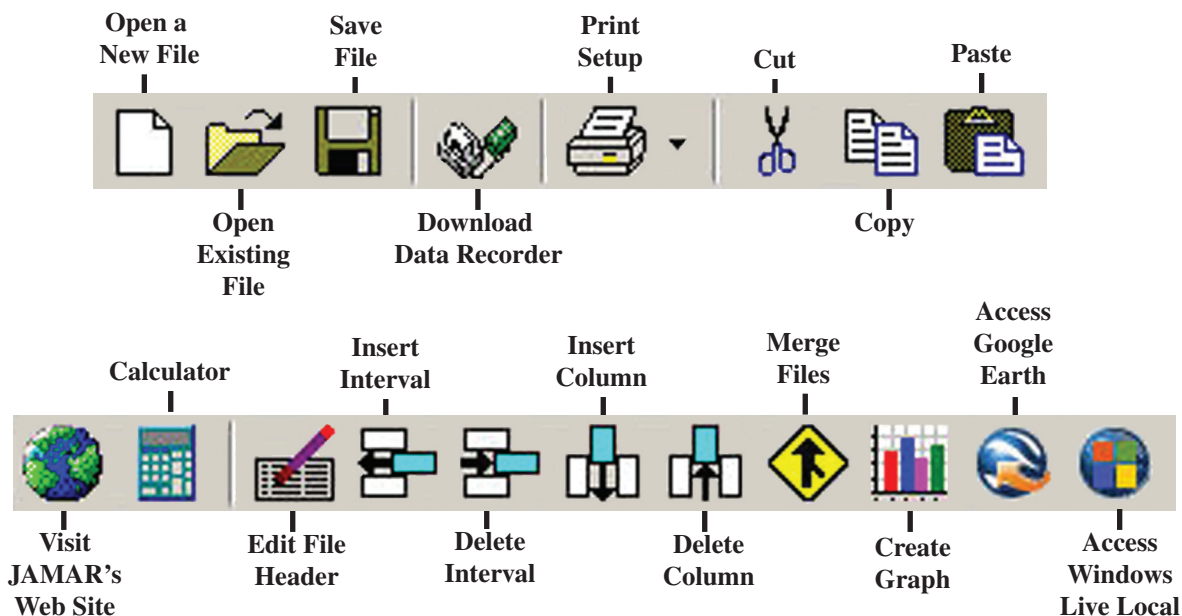


Figure 2-1: Toolbar

### Menus

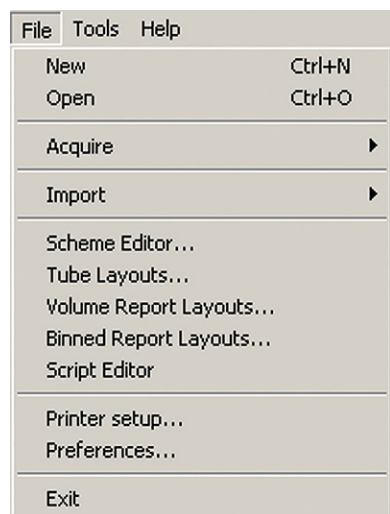


Figure 2-2: File Menu

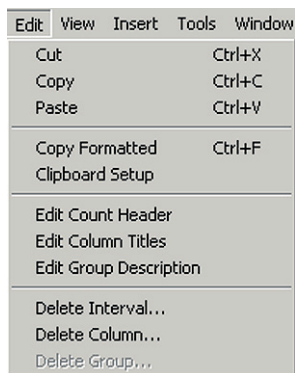


Figure 2-3:  
Edit Menu

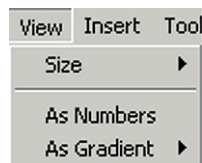


Figure 2-4:  
View Menu

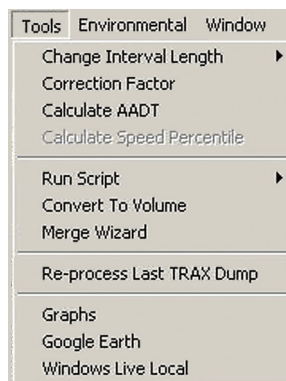


Figure 2-6:  
Tools Menu

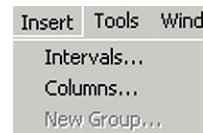


Figure 2-5:  
Insert Menu



Figure 2-7:  
Help Menu

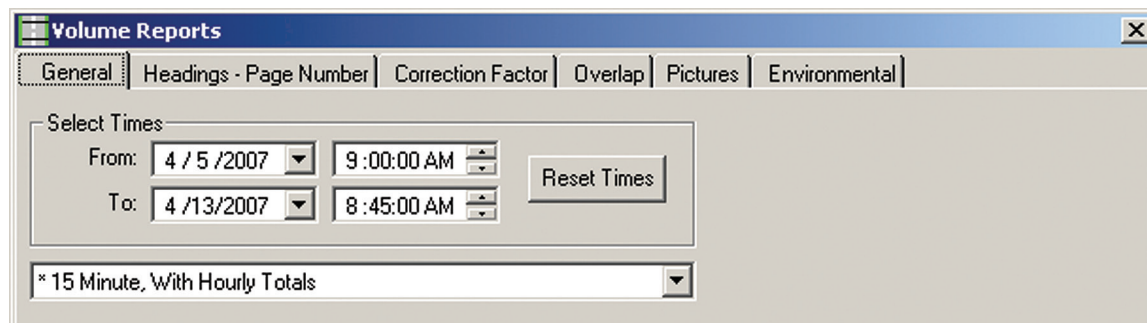


## Other Navigation and Selection Devices

### Tabs

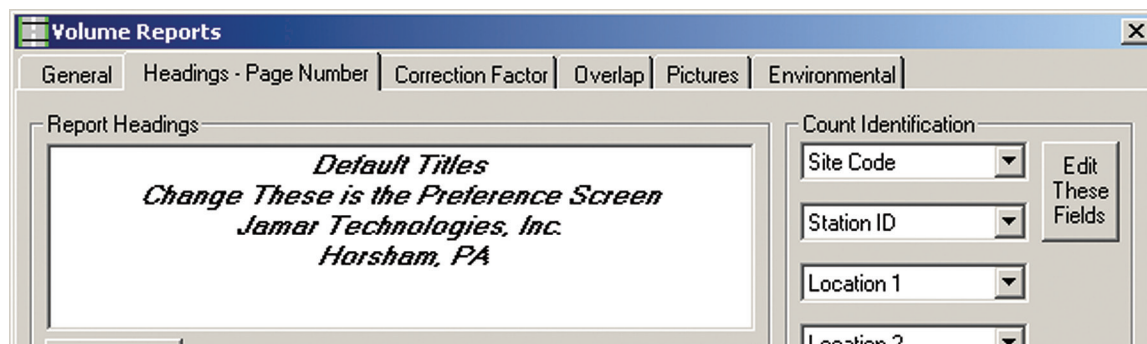
A number of screens in the program contain Tabs to allow access to additional information. To access this additional information, click on the tab you wish to go to.

**Figure 2-8:**  
Volume  
Reports –  
General tab



In this example, the General tab is currently active. To select any other the other tabs, such as the Headings - Page Number tab shown below, click on them with the mouse.

**Figure 2-9:**  
Volume  
Reports –  
Headings tab

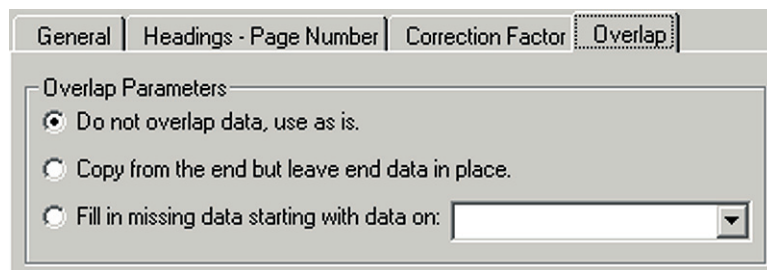


### Radio Buttons

Many areas of the program contain radio buttons for selecting options and features. In general, you click on the circle next to the item to select it. Radio buttons are used when only one option can be selected at a time.

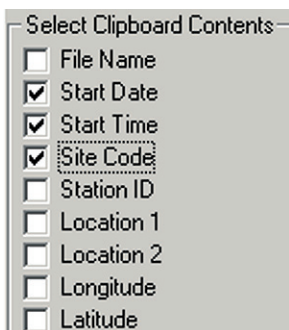
In the example shown in figure 2-10, taken from the Volume Report Setup, the *Do not overlap data, use as is.* option has been selected.

**Figure 2-10:**  
Radio  
Buttons





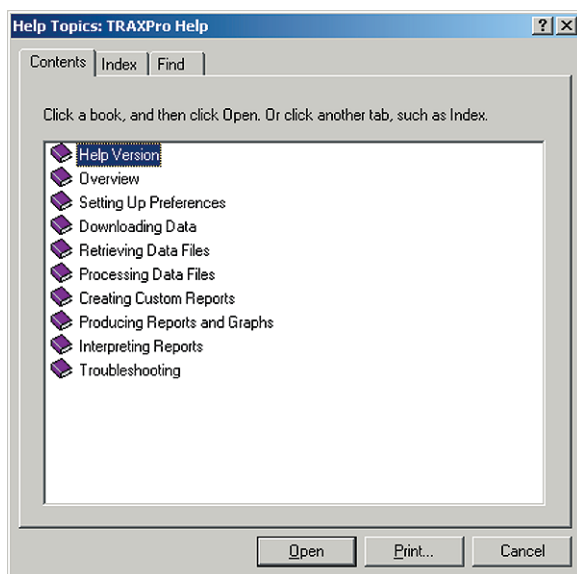
## Check Boxes



**Figure 2-11:**  
Check Boxes

Like radio buttons, many areas of the program contain check boxes for selecting options and features. In general, placing a check in the box tells the program to include the option or feature listed. No check means the option or feature is not to be included. Check boxes are used when more than one option can be selected at a time. In figure 2-11, taken from the Clipboard Setup, Start Date, Start Time and Site Code are selected. The remaining options are not selected.

## The Help System

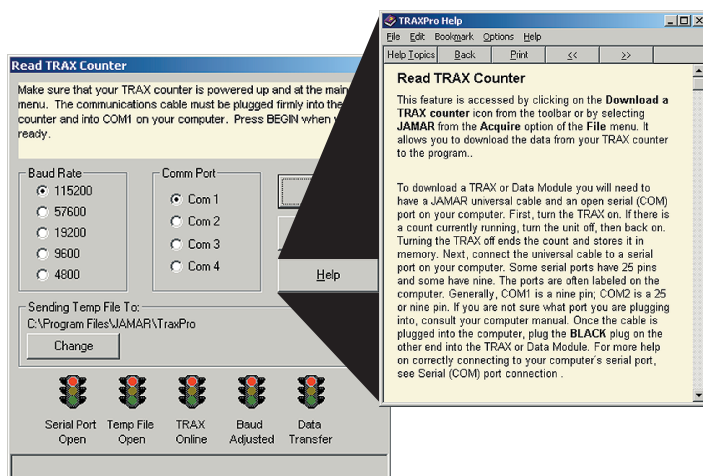


**Figure 2-12:**  
Help  
Contents

Like many other Windows programs, TRAXPro contains an extensive Help system to aid you in using the program. The Help system is essentially a built-in manual and most of the information that can be found in this printed manual can also be found electronically in the Help system.

There are several ways in which to access the information that is contained in the Help system. Select Help from the list of drop-down menus then choose TRAXPro Help Topics to be taken into the Contents for the system, shown in Figure 2-12. The contents can be used to locate the item you want information on or use the Index or Find tabs to do a search using specific keywords.

Many screens in the program also contain Help buttons that will automatically pop-up Help information related to the screen you are working on. If you are not sure what to do in a certain screen, or what some of the available options mean, click on the Help button and detailed instructions will appear.



**Figure 2-13:**  
Help  
Pop-up  
Window

From downloading data, to editing a file, to printing the data, to interpreting the report, all the information needed to properly use the program can be found in the Help system.



# Chapter 3



## Types of Data Collection & Data Flow



## Types of Data Collection

One of the features of JAMAR data collectors is the ability to collect data in several different formats. Depending on the model of unit you have purchased, data can be collected in Basic mode, Per Vehicle mode, Binned mode, or Volume Only mode. How these modes differ is described below.

### Basic

Basic data is also known as *raw data* or *time-stamped data*. In this format, the traffic recorder marks every sensor activation with a time stamp of when it occurs. For example, imagine you are using two road tubes spaced two feet apart to record traffic, and a passenger car comes along. When the car crosses over the tubes, the recorder marks the time the wheels of the first axle stuck each tube and the time the wheels of the second axle stuck each tube. The recorder does not know a passenger car just passed, it simply knows that four time stamps were recorded (first axle first tube, first axle second tube, second axle first tube, second axle second tube). It is left to TRAXPro to formulate these time stamps into the data that you will actually work with and produce reports from.

The **main advantage** of basic data is its flexibility. Since the data is stored on an individual axle basis, it can be processed into any form of data TRAXPro handles, including volume, class, speed, gap, length and following distance. Its flexibility also allows you to use any scheme for classification, speed, etc. that you choose.

You also have much greater diagnostic capability with basic data. If there was a problem with a tube during the data collection it is easy to see, and you can correct some problems that may have occurred with the layout in the field.

The **main disadvantage** of basic data is that since every axle in a study has to be recorded, basic data files can be very large. Also, since the recorder itself doesn't know any specific information on the vehicles being recorded, when the data is being collected the display of the recorder only shows asterisks (\*) when a strike occurs. It does not list class, speed, etc.

Basic data is the recommended format for data collection with TRAX data recorders.

### Per Vehicle

Per Vehicle data is also known as vehicle-by-vehicle data. In this format, the traffic recorder stores information for every vehicle in the study on an individual basis. This includes the vehicle's speed, class/length and gap from previous vehicle. For example, imagine you have set up a Radar Recorder to record Per Vehicle data. When a passenger car comes along and passes through the detection zone, the recorder notes its speed, its length and the gap from the previous vehicle. This is then stored in memory and the recorder looks for the next vehicle. Once the data has been downloaded, you can produce reports for speed, length, gap and volume in TRAXPro. You can also use different speed schemes when processing the data.

The **main advantage** of per vehicle data is that you can process the data into several forms of data, including volume, length, speed and gap. And, since the recorder itself determines this information, when the data is being collected the recorder shows it on the display.

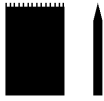
The **main disadvantage** of per vehicle data is that, like Basic data, its data files can be very large.

Per Vehicle data is the recommended format for data collection with the Radar Recorder and Black CAT.



## Binned

Binned data is also known as Class\Speed\Gap data. In this format, the traffic recorder sorts the data it records for each vehicle into predefined categories, or ‘bins’. This includes the vehicle’s speed, class\length and gap from previous vehicle. With binned data, when a passenger car comes along and crosses through the detection zone, the recorder notes the vehicle’s speed, its class\length and the gap from the previous vehicle. However, rather than storing this data, the recorder sorts it into a specific category and holds the data until a specific interval length has passed (usually 15 or 60 minutes). During this time, the recorder is sorting data from other vehicles as well.



### Note

When the data is downloaded from the data recorder, separate files are created for the speed data, the class\length data and the gap data.

The **main advantage** of binned data is that the recorder does most of the work so when you download the data it is essentially ready to print.

The **main disadvantage** of binned data is that the data is stored in a rigid format, so if there was a problem with the data collection, there is little that can be done to salvage the data.

## Volume Only

In the Volume Only format, when using a TRAX recorder vehicles are counted based on their number of axles. There are two settings that can be used – Vehicle Count and Axle Count. The Vehicle Count mode uses the divide-by-two technique, in which every two axles are counted as one vehicle. The axle count mode counts every axle individually. When using a Radar Recorder in Volume Only mode, each individual vehicle is counted separately, regardless of the number of axles.

The **main advantage** of volume only data is that, like binned data, the recorder does most of the work so when you download the data it is essentially ready to print.

The **main disadvantage** of volume only data is that, like binned data, the data is stored in a rigid format, so if there was a problem with the data collection, there is little that can be done to salvage the data.



### Important

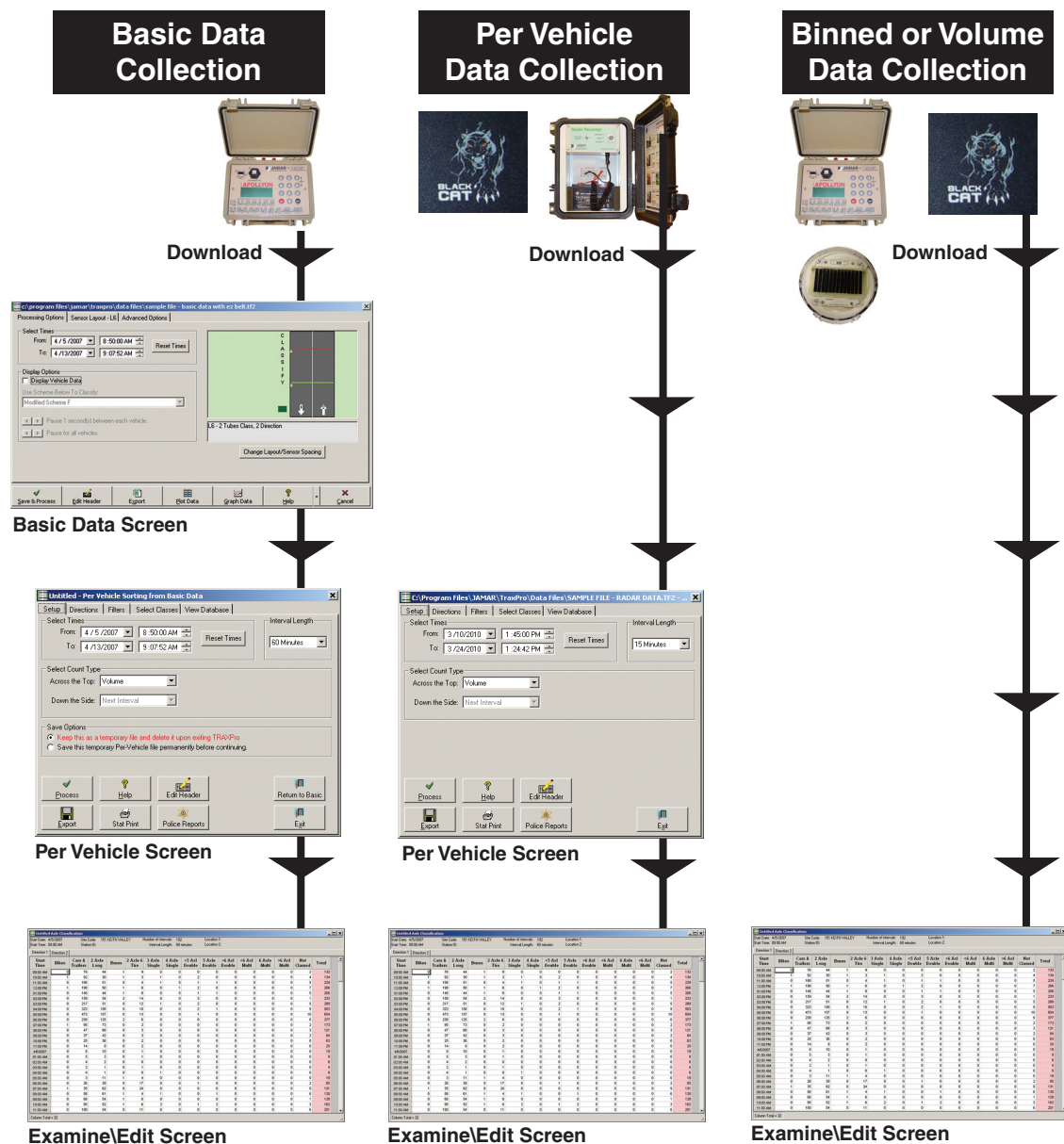
When using a **TRAX** recorder, we recommend collecting data in the **Basic** mode whenever possible. This basic format makes troubleshooting bad data much easier, and can often allow problems to be fixed after the data has been collected. When using a **Radar Recorder** or **Black CAT**, we recommend collecting data in the **Per Vehicle** mode as this provides the most data flexibility. Note that the TRAX Stealth Stud only collects data in the Volume Only format.



## Data Flow

JAMAR data recorders allow data to be collected in a number of different formats. Once downloaded into TRAXPro the data will generally end up at the same spot for processing into a variety of reports.

Data that has been collected in the **Basic** mode gets processed from the Basic screen to the Per Vehicle Screen, then to the Examine/Edit screen. Data that has been collected in the **Per Vehicle** mode gets processed from the Per Vehicle Screen to the Examine/Edit screen, while data that has been collected in the **Binned** or **Volume** mode goes straight to the Examine/Edit screen. Figure 3-1 shows the flow of data in TRAXPro. The tutorials in the following chapter will walk you through processing data in TRAXPro.



**Figure 3-1:**  
Data Flow in  
TRAXPro



# Chapter 4



## Learning the Basics of TRAXPro



## Getting Started

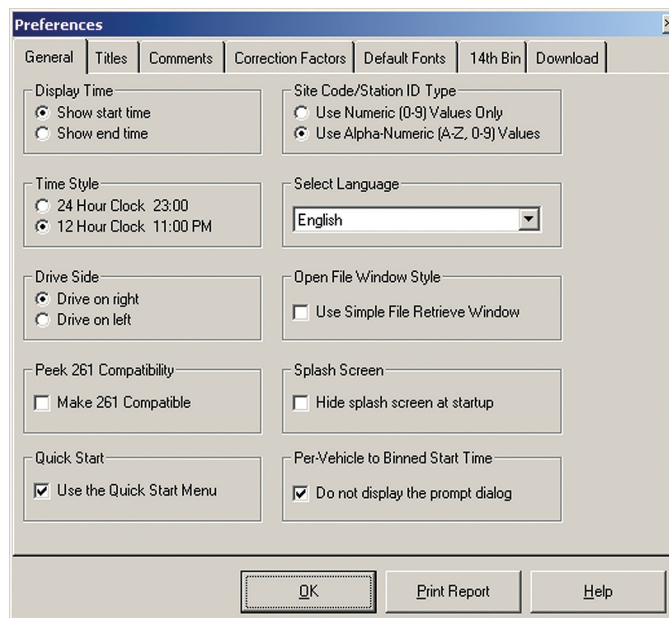
This chapter covers all of the essentials needed to begin downloading and producing reports from your data. This information is presented in a tutorial style so you can follow along on your computer as each aspect is covered. Once you have completed these lessons, you should have a good working knowledge of TRAXPro.

### Lesson 1 — Setting Your Preferences

Before you begin to use the program to process your data, you need to setup the program to suit your specific needs. This is done through the Preferences. The first time you run the program you will automatically be prompted to check your preferences. After this, these same settings can be accessed by clicking on the **File** menu, then selecting **Preferences**.

To start the program, click the Windows **Start** button, select **Programs**, then **JAMAR**, then **TRAXPro**. Once into the program, access the Preferences in the manner described in the previous paragraph.

There are seven tabs in the Preferences that can be used to customize the program. The tab that is visible when the screen first comes up is the **General** tab.



**Figure 4-1:**  
Preferences:  
General Tab

The first option listed is the **Display Time**. This setting allows you to use either the start time or the end time of an interval for display of the data. The most commonly used value is Show Start Time, but you may set this either way.

The second option is **Time Style**. This setting allows you to use either a 24-hour military clock or a 12-hour clock with AM and PM designations when displaying interval times. Select the option that you prefer.

The next option is **Drive Side**. This setting allows you to choose whether the vehicles in the study are drive on the

right (as in the United States) or drive on the left (as in Europe). Set this according to your location.

The next option is **Peek 261 Compatibility**. This setting allows data downloaded into TRAXPro to mimic the format used by Peek software. We'll leave this option unchecked for this tutorial.

The next option is **Quick Start**. This turns on or off the Quick Start screen that appears when the program is run. The Quick Start screen is designed to save time, so we'll leave it checked.

The next option is **Site Code/Station ID Type**. This setting allows you to determine whether just numbers (numeric), or number and letters (alpha-numeric) should be allowed in the site code and Station ID fields. Set this to Alpha-Numeric unless you know for sure you will only use Numeric Site Codes.



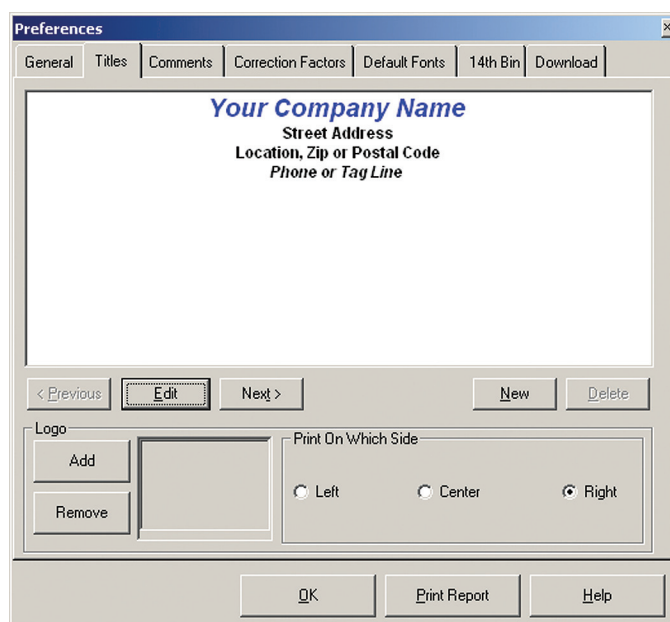
The next option is **Select Language**. This setting allows you to set the language used for the commands in the program from those that are currently available.

The next option is **Open File Window Style**. When opening existing files in TRAXPro, the default Open screen searches for all available drives and directories on the computer. The program then goes to the currently designated data directory, opens it and reads the headers of all the TRAXPro files. This information is then shown in the Open screen. For some users who are on restricted networks, or are working with hundreds of data files, this process can be time consuming. The *Use Simple File Retrieve Window* preference setting tells the program to only look for the designated data directory, and to only list the file names, rather than the full header information. This tutorial will cover some of the aspects of the standard Open screen so leave this preference unchecked.

The next option is **Splash Screen**. When you start TRAXPro, an introductory screen appears for several seconds before disappearing. If you would prefer not to see this screen, place a check in the *Hide Splash Screen at Startup* box.

The final option is **Per-Vehicle to Binned Start Time**. This is a time saving feature that allows the program to automatically format data for you, so we'll leave it checked.

Once you have finished setting your General preferences, click on the **Titles** tab at the top.



**Figure 4-2:**  
Preferences:  
Titles Tab

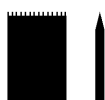
The **Titles** tab allows you to customize the four lines of text that are printed at the center top of each page of your reports, and choose whether to include a logo as part of the titles. For the purposes of this tutorial, we'll replace the default JAMAR titles that are stored with the program with your own. You may follow the steps below or substitute your own format as we go.

First, click on the *Edit* button. This will open the Text Editor window that can be used to format the titles.

Delete the first line and enter your organization's name. Next, delete the second line and third lines and enter

your address. Then, delete the fourth line and enter your phone number. Once that is done, highlight all four lines and center the titles by clicking on Center Text icon. Now that the information for the Titles has been entered, we'll customize each line to give the titles more impact.

Highlight the first line and set the Font to Arial, the Font style to Bold and the Font Size to 14. If you use a color printer, set the color to blue. You can follow the same procedure to customize the second, third and fourth lines of the titles. Click Save once you have made your changes and notice that the preview has been updated to show your changes.



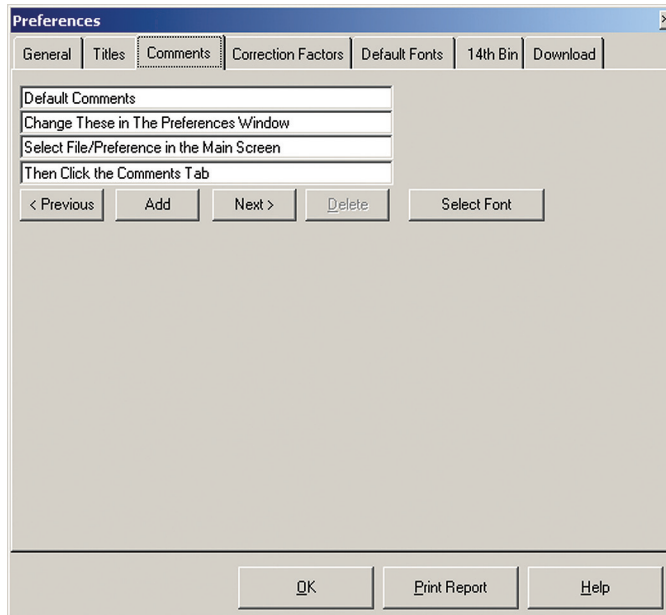
**Note**

Note that you can store more than one set of titles in your preferences. To create a new set of titles, click on the *New* button and a new field will appear. Enter the new title information, formatting as you like. The Delete button can be used to remove any titles that you no longer need. You can choose from any of the stored titles when you prepare to print your reports.



In addition to the standard text titles, the Titles tab also gives you the chance to use a graphic logo on your reports. Click the *Add* button in the Logo field and the *Select Image to Attach* window will appear. You can use this screen to navigate to wherever you have a logo stored on your computer. The logo can be in a variety of formats, including JPEG, bitmap and GIF.

Once a logo has been added, you are also given the option of where to show the logo on the report. It can be placed on the left, right, or center of the report.



**Figure 4-3:**  
Preferences:  
Comments Tab

Once your titles have been entered and formatted to your specific taste, click on the Comments tab.

The **Comments** tab works in a manner very similar to the Titles tab. The comments listed will print in the upper left corner of the report and are designed to provide miscellaneous additional information with the data that is presented in the report.

The comments are expected to change from file to file, with information being added before each file is printed. As a result, the information that you enter here should be general labels.

When you first click on the Comments tab you'll notice that 'Default Comments' is listed, along with a message telling you to change them. We'll replace these with ones that are more useful. First, delete the default text currently on the four comment lines. Next, type in *Weather:* on the first line, *Serial Number:* on the second line, *Installed By:* on the third line, and *Other Notes:* on the fourth line. When you are working with a specific file, you should fill out this information, or the information for the customized comments you've created, by using the Edit Count Header function.

Like the Titles, the font used for the comments can be customized. However, this can only be done for the comments as a whole, not on a line for line basis like the titles. Click on the Select Font button to make changes. As with the titles, you can store more than one set of comments in your preferences.

Note that the settings that you apply to the comments will also affect the File Comments which can be printed in the upper right corner of reports. These comments can include the file name, location information and site code for the file.

Once you have set the comments the way you want, click on the Correction Factors tab.



Preferences

General Titles Comments **Correction Factors** Default Fonts 14th Bin

Seasonal Factors (Year is ignored)

Default Seasonal Factor Table

From	To	Factor
01/01/00	12/31/2000	1.000

< Previous Add Delete Next >

Daily Factors

Default Factor Table

Day	Factor
Sunday	1.000
Monday	1.000
Tuesday	1.000
Wednesday	1.000
Thursday	1.000
Friday	1.000
Saturday	1.000

< Previous Add Delete Next >

OK Print Report Help

**Figure 4-4:**  
Preferences:  
Correction  
Factors

The **Correction Factors** tab allows you to program correction factor tables for use with the data. There are two separate tables — one for seasonal factors and one for daily factors. These factors allow you to adjust your data based on historical information. Multiple tables can be stored by using the Add button at the bottom of each field. These factors can be applied while editing your data or when producing your reports. Note that the year in the seasonal factors table is ignored and therefore is defaulted to 00. For the purposes of this tutorial, we'll leave the factors with their default values of 1.000.

Note that you are not required to use factors with your data. You should only use factors if they have been supplied to you, or if you have created them based on historical information. If you are not familiar with how to use factors, leave them at the default setting of 1.000.

Once your Correction Factors are set, click on the Default Fonts tab.

Preferences

General Titles Comments Correction Factors **Default Fonts** 14th Bin

Start Time	Lane 1	Lane 2	Lane 3	Lane 4
09:00 PM	63	20	18	58
10:00 PM	8	45	90	26
11:00 PM	78	37	28	91
08/23/2001	63	62	42	9
01:00 AM	56	69	91	83
02:00 AM	2	54	91	43
03:00 AM	67	50	51	46
04:00 AM	35	40	26	5

Column Titles

Count Data

OK Print Report Help

**Figure 4-5:**  
Preferences:  
Default Fonts

The **Default Fonts** tab allows you to customize the fonts that will be used for the Column Titles and Count Data in the program. These fonts are used in the Examine/Edit screen.

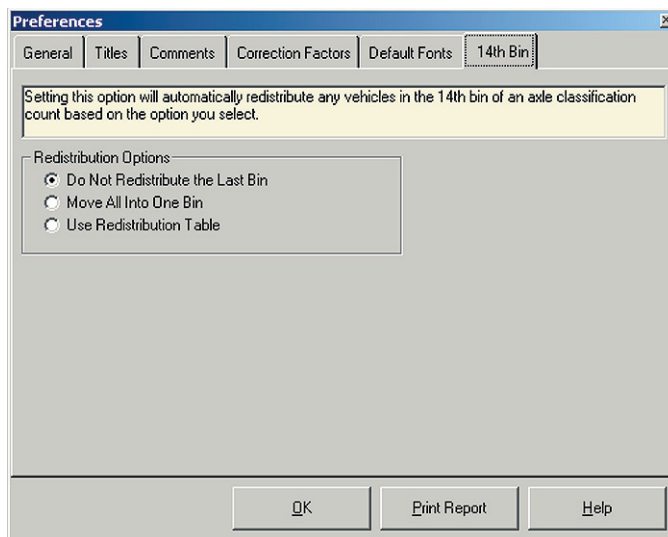
Click on the Column Titles button. This will open the standard Windows font screen. You can then set the font in any format desired. We suggest using the font Arial with the style Bold and 10 point size. Click OK once the font is set. Notice that the preview screen updates to reflect the changes you have made. Next, click on the Count data button. Format the count data in the same manner as the column titles. We suggest the font Arial with the style Regular and 8 point size. Click OK on the Font windows once this is done, and the preview screen will update itself again.



Note that making changes in this tab only affects how the data is displayed on your screen. It does not affect the fonts used for printed reports. Each report is TRAXPro is designed with its own font settings. The advanced tutorial on creating custom reports in chapter 5 details how to change fonts in reports.

Once you have set the fonts the way you want, click on the 14th bin tab.





**Figure 4-6:**  
Preferences:  
14th Bin

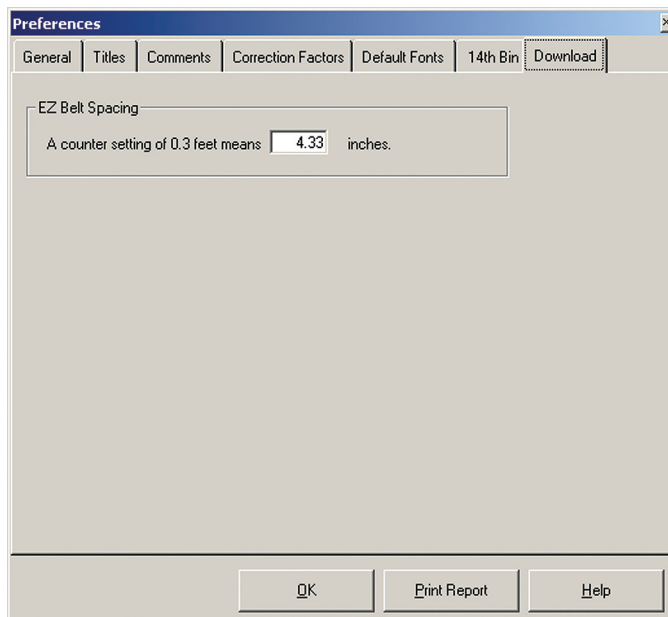
The **14th Bin** tab is designed specifically for those users who will be collecting classification data using the Federal Highway Administration's Scheme F. This scheme contains 13 class bins. If a recorded vehicle does not fit into one of these bins, it is placed in a 14th, unclassified, bin. This data generally represents the amount of error that occurred during the data collection. The 14th bin tab allows you to decide what you want to do with this unclassified information when the data is downloaded from a TRAX.

You are given three options, Do Not Redistribute the Last Bin, Move All Into One Bin, and Use Redistribution Table.

*Do Not Redistribute* — This selection allows you to keep class 14 data when you download.

*Move All Into One Bin* — This allows you to have all the class 14 data moved into one of the other bins. When this option is selected you are prompted to select the bin to move the data into.

*Use Redistribution Table* — This selection allows you to have all the class 14 data moved into the other bins on a percentage basis. When this option is selected you are prompted to select the percentages for each bin in the redistribution table. Note that the percentage can be any fraction of 100, or greater than 100 if you would like the unclassified data to be factored higher when it is redistributed.



**Figure 4-7:**  
Preferences:  
Download

Once you have selected the option you want, click on the Download tab.

The download tab contains a default setting for how the program should handle data that has been collected using an EZ Belt.

While the EZ belt is manufactured at a spacing of 4 inches, there is typically some slight movement of the tubes when they are hit by a vehicle. A default spacing of 4.33 has been shown to produce the most accurate results when processing the data. However, you have the option of setting the default value to whatever you choose.



Congratulations! You have completed the first lesson. In this lesson you learned how to set the preferences for the program. In the next lesson you'll learn the basics of downloading data from your recorder. You can take a break now, or jump right into the next lesson.



## Lesson 2 — Downloading Data and Opening Existing Files



**Note**

There are several methods for downloading data into the program, depending on the type of data recorder you are using. The following lesson deals with the most common of these methods:

- **Direct download of a TRAX using a USB cable**
- **Downloading of TRAX data from a USB flash drive**
- **Direct download of a Radar Recorder using a serial cable with USB adapter.**

Additional downloading methods, including using a radio module with a TRAX Stealth Stud, are discussed in the Appendix.

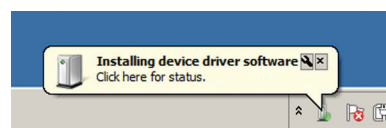
### Direct Download of a TRAX Using a USB Cable

*This tutorial requires a TRAX with data in it. You can wait to do it until you have collected data in your TRAX, or just follow along without actually performing the steps.*

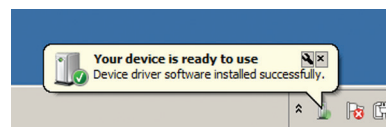


Once you have performed a study with your TRAX, you will need to download it to your computer so TRAXPro can analyze the data. Newer TRAX recorders use a standard USB cable and USB driver to perform the download.

When you plug in the USB adapter for the first time you should see a pop-up message along your Windows taskbar like the one shown to the right.

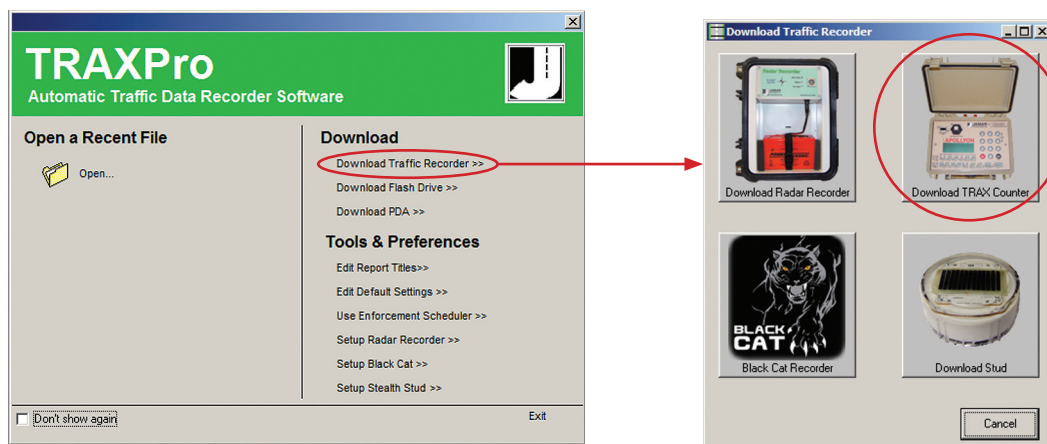


Windows will take a minute or two to find the proper driver and install it. This process is done when you see the message shown to the right.



If the driver does not install automatically, refer to the appendix for instructions on manually installing the driver.

Now that the drivers for the TRAX have been installed, we're ready to download data. To do this, select *Download Traffic Recorder* from the Quick Start screen, then select *Download TRAX Counter*.

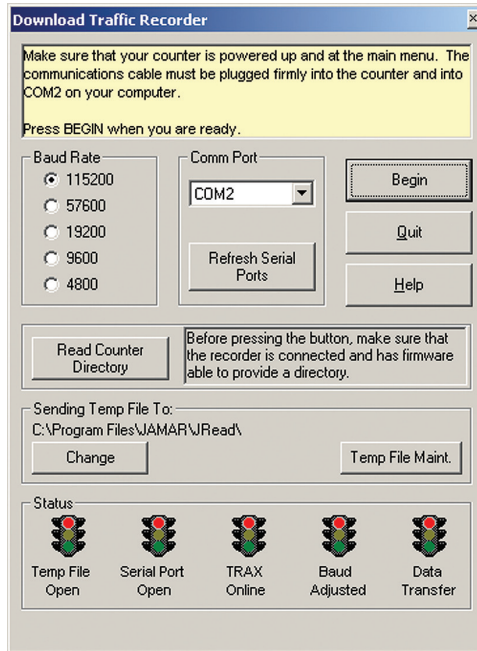


**Figure 4-8:**  
Direct TRAX  
Download  
Selection

The **Download Traffic Recorder** screen will appear. You can also access this screen by going to the File menu, selecting Acquire, and choosing JAMAR.

The baud rate setting determines how fast the data will be transferred into the program. Most computers can be set for the highest setting. Once this is set, select the com port that was assigned by the USB driver. (The program will only list the comm ports available on the computer, so if you're not sure of the port, try each one.)



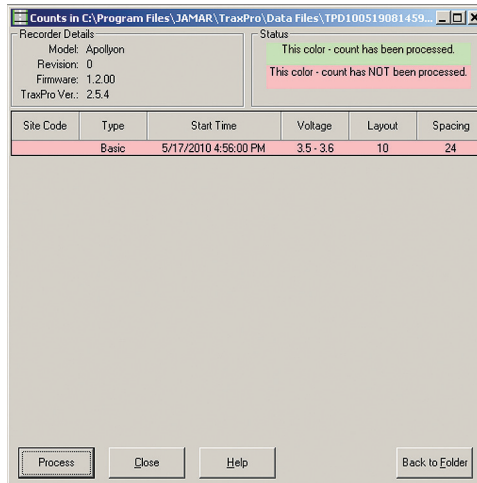


**Figure 4-9:**  
Download a  
Data Recorder

To be able to download your TRAX, it must be on the **Main Menu**. If there is a study currently running, turn the unit off, then back on. Don't worry about losing your data – turning the TRAX off ends the count and stores it in memory.

After making any needed adjustments, click on the **Begin** button and the program will attempt to connect to the recorder. The traffic signals at the bottom of the screen provide the status of the download. If the connection is made, you will see a blue progress bar moving across the screen as the data is transferred.

When all of the data in the TRAX has been downloaded, you will see a screen similar to Figure 4-10 that will show all of the studies downloaded from the TRAX. (Remember, the TRAX can store multiple studies in memory and will always download all the studies it has stored.)



**Figure 4-10:**  
Downloaded  
Studies List

The list contains detailed information on each study, including the start date and time of the study. The list is shown in chronological order of the studies, with the oldest studies at the top and the newest at the bottom.

To open the study you want to work with, click on it in the list, then click the **Process** button. You will be asked to supply a name to the study and once you have done so, the study will appear on your screen. The download process is then complete.

Note that TRAXPro stores the information from each download and keeps a record on file. This allows you to reprocess the downloads without actually having to re-download the counter. To do this, go to the *Tools* menu

and select *Reprocess Last TRAX Download*. This can be a useful tool if you accidentally delete data.



## Download of TRAX Data from a USB Flash Drive

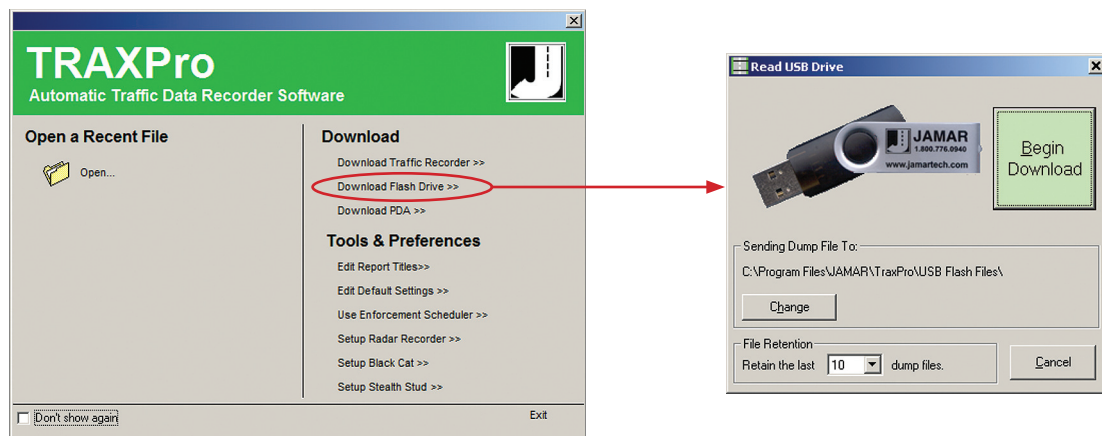
*This tutorial requires a USB drive with TRAX data in it. You can wait to do it until you have this, or just follow along without actually performing the steps.*



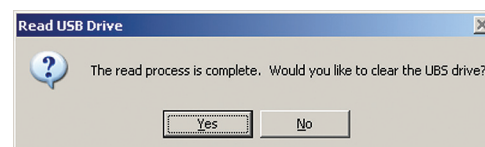
Newer TRAX recorders have the ability to download data to a USB flash drive (also known as a thumb or jump drive) for easy transfer of data from the field back to the office. Once you have data in the flash drive, TRAXPro makes it easy to transfer it to your computer.

First, insert the flash drive into a USB port on your computer. Next, select *Download Flash Drive* from the Quick Start screen and the Read USB Drive screen will appear.

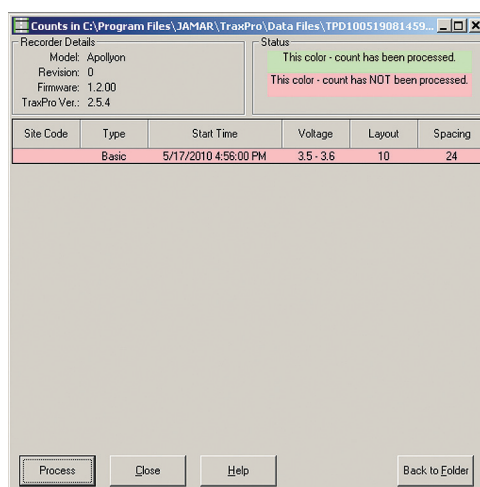
**Figure 4-11:**  
Flash Drive  
Download  
Selections



Click the *Begin Download* button and the data will be transferred from the flash drive into TRAXPro. You'll then see a message asking if you want to clear the memory of the flash drive. Select *Yes* if you want to clear the drive or *No* if you want to leave the data on the drive. (Keep in mind that any data left on the drive will be re-downloaded the next time you download the flash drive.)



**Figure 4-12:**  
Downloaded  
Studies List



Once you make your selection, you will see a screen similar to the one on the left that will show all of the studies downloaded from the flash drive.

The list contains detailed information on each study, including the start date and time of the study.

To open the study you want to work with, click on it in the list, then click the Process button. You will be asked to supply a name to the study and once you have done so, the study will appear on your screen. The download process is then complete.

Note that TRAXPro stores the information from each download and keeps a record on file. This allows you to reprocess the downloads without actually having to re-download the flash drive. To do this, go to the *Tools* menu and select *Reprocess Last USB Download*. This can be a useful tool if you accidentally delete data.



### Download of a Radar Recorder using a Serial Cable with USB Adapter

*This tutorial requires a Radar Recorder with data in it. You can wait to do it until you have this, or just follow along without actually performing the steps. Note that the Radar Recorder can either be downloaded in the field to a laptop, or brought back into the office to download to a desktop.*

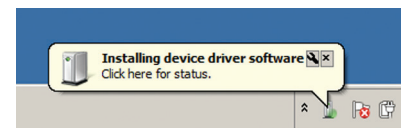
Once you have recorded all the data you want with a Radar Recorder, it can be downloaded into TRAXPro. To do this, open the case of the Radar Recorder and connect your computer to the serial port of the Radar Recorder Head unit.



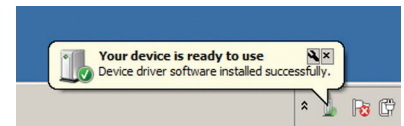
**Figure 4-13:**  
Radar  
Connection  
Process

The cable that connects the Radar Recorder to your laptop makes use of a USB serial adapter. This adapter requires that a USB driver be installed for it to work correctly. If you received your laptop directly from JAMAR, the driver has already been installed, so you do not need to worry about this.

If you are using your own computer, when you plug in the USB adapter for the first time you should see a pop-up message along your Windows taskbar like the one shown to the right.



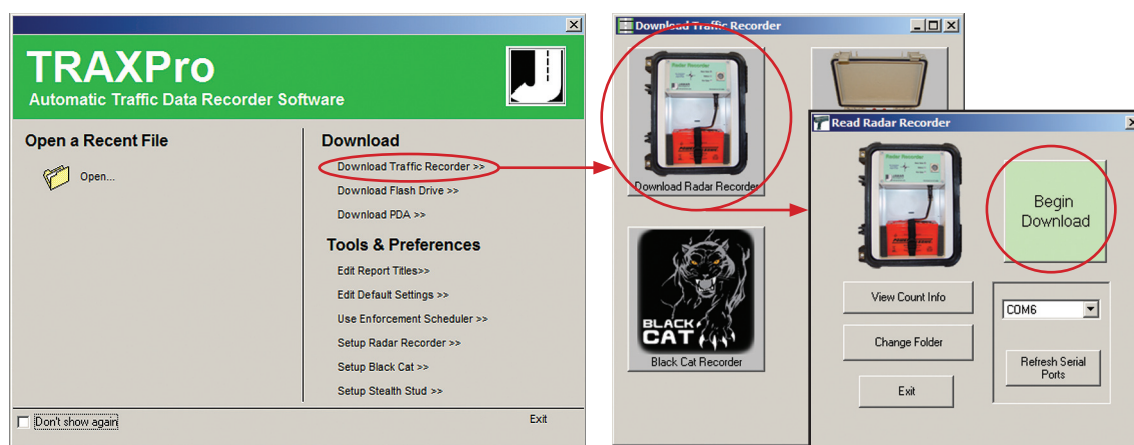
Windows will take a minute or two to find the proper driver and install it. This process is done when you see the message shown to the right.



If the driver does not install automatically, refer to the appendix for instructions on manually installing the driver.



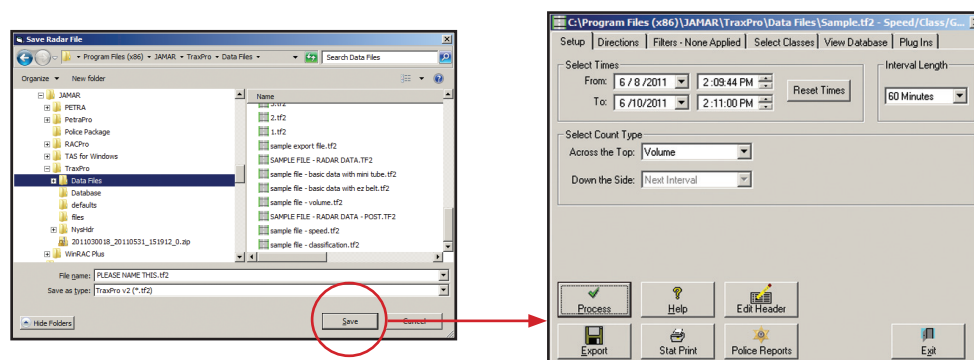
**Figure 4-14:**  
Radar Recorder  
Download  
Selections



Select 'Download Traffic Recorder' from the Download section of the Quick Start menu, then click on **Download Radar Recorder**. Once the Read Radar Recorder screen appears, click on **Begin Download**. Data will begin to transfer to the computer from the Radar Recorder.

Once the download is complete, you'll be asked to save the file. Select a folder, give the file a name and click **Save**. Once the file is saved, it will appear in TRAXPro.

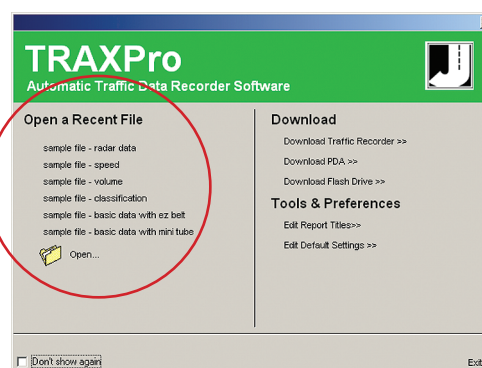
**Figure 4-15:**  
Radar Recorder  
Save Process



## Opening Existing Files

While you will usually download your data and produce reports all at one time, there may be times when you need to open a previously downloaded and saved file for further analysis. These files can easily be accessed through the program.

**Figure 4-16:**  
Recent  
Files List

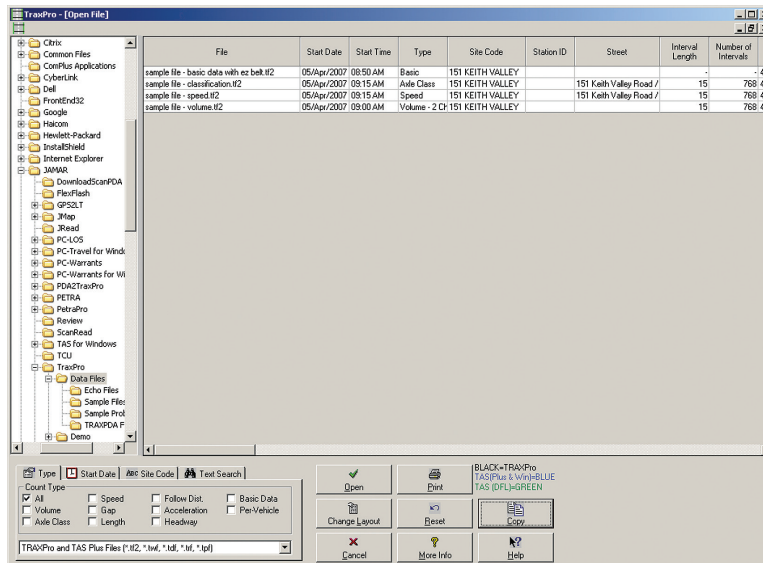


TRAXPro shows a list of the eight most recently accessed files on the Quick Start screen under the *Open a Recent File* heading, as shown to the left. You can open any of these files by simply clicking on them.

To open any older files that don't appear on the Recent Files list, click the Open Folder icon shown directly below the recent files list on the Quick Start menu. This will bring up the Open File screen. (Note that you can also access this screen by clicking on the Open icon in the toolbar or by going to the File menu and selecting Open.)

The Open File screen works in a manner very similar to Windows Explorer. The directory tree on





**Figure 4-17:**  
Open File  
Screen

the left side of the screen is used to select the folder where your data files are stored. We want to retrieve one of the sample files that were installed with the program, so we'll need to use the directory tree to set the location of these files. The default installation location of this folder is C:\Program Files\JAMAR\TRAXPro\Data Files. Navigate to this path (or the path you used for the installation) using the tree. Once the data folder is selected you will see a list of files on the right side of the screen.

Note that there are several types of files that can be opened by the program. Files created in TRAXPro version 2 use a .tf2 file extension while files created in TRAXPro version 1 use a .twf file extension. These files will appear in black type. Files from the TAS Plus DOS or TAS for Windows programs, which use the file extensions .trf, .tpf and .tdf, will appear in blue type. These are the file types that the program is defaulted to look for. However, the program can also open files from the original TAS program, which use .dfl extensions. To access these, select TAS (DOS) Files from the drop down list at the lower left of the screen. These types of files appear in green type.

The list of files on the right side of the screen contains a variety of information on each file, including the file name, type of data, site code, start date and start time, ADT, location, GPS coordinates, etc. Click on the column title 'File Name' and note that the list of files is rearranged in alphabetical order. This list can be sorted in a variety of ways simply by clicking on the column title of the information you want to sort by.

The list of files that appears, along with each file's information, can be printed using the *Print* button on this screen. If you would like to transfer the list into another program (like Excel), you can do so using the *Copy* button. This will copy the currently highlighted files, and their information, to the Windows clipboard. Files can be highlighted by clicking on them with your mouse. You can highlight multiple files by holding down the Shift key while you click.

Which information is listed for each file can be determined by clicking on the *Change Layout* button. Go ahead and click this button. Notice that the column titles change to selection fields. Each column can be customized to a specific data field. If you would like to leave a column blank, select the blank at the top of the list. For this lesson we'll leave the titles the way they are. Click *Complete Changes* and the column titles are returned to their normal state.

The file we want to retrieve is named *sample file - basic data with ez belt.tf2*. Locate this file in the list then click on it with your mouse. This will highlight the file. Once it has been highlighted, click on the Open button. The Open File screen will close and the sample file will be opened.

Congratulations! You have completed the second lesson. In this lesson you learned how to download data from TRAX equipment into the program, and how to open existing files. In the next lesson you'll learn how to work with Basic Data. You can take a break now, or jump right into the next lesson.





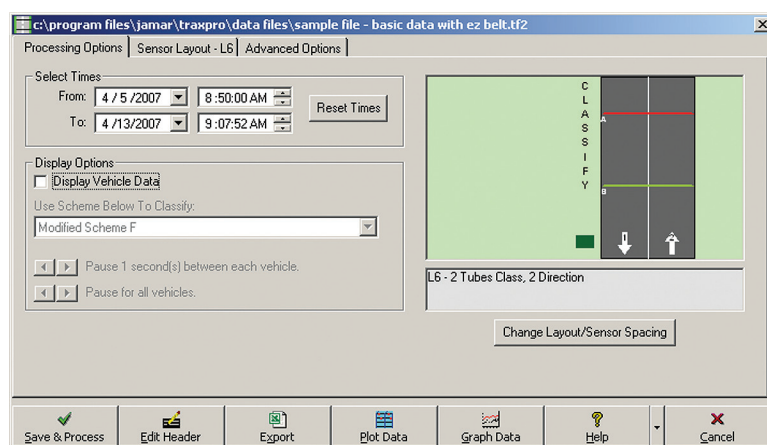
## Lesson 3 — Working with Basic Data

*This lesson deals with basic data collected with a TRAX recorder. If you have collected Per Vehicle data with a Radar Recorder, skip to Lesson 4.*

There are several different data formats that can be used with TRAXPro. These different formats are discussed in detail in Chapter 2. This lesson deals with basic data, also known as raw data or time-stamped data. If you do not use basic data, you may skip this lesson.

For this lesson we'll be working with the *sample file - basic data with ez belt* file that was installed with the program. If you already have this file open, great. Otherwise, follow the procedure described in Lesson 2 to open it.

Basic data is a collection of time-stamped axle hits that have been collected by the data recorder. These time-stamps have to be sorted into actual vehicles, and that's where TRAXPro comes in.

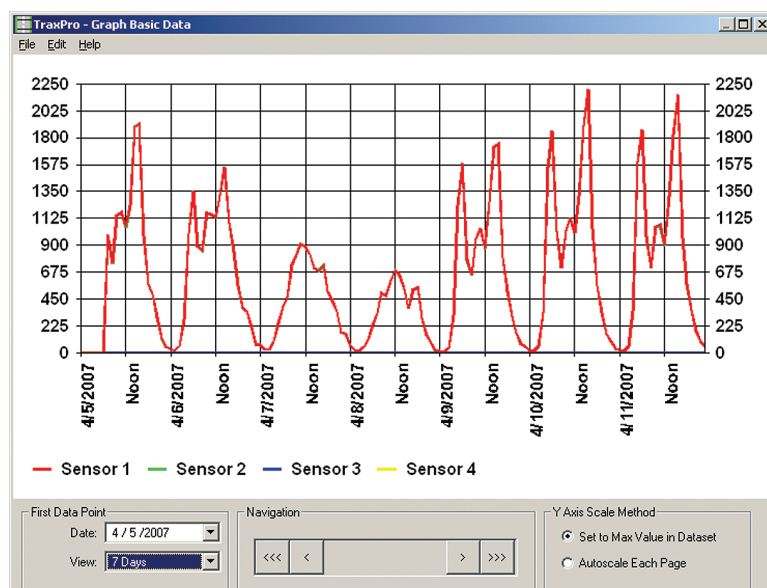


**Figure 4-18:**  
Basic Data  
Screen

When you first open a basic file, the Processing Options tab is visible. This tab shows you the currently selected times to be processed in the upper left corner.

The right side of the screen shows you the layout that was used for the data collection. In our sample file it's L6 – two tubes spaced at a known distance apart, collecting bidirectional data.

We'll discuss how you can change this in a minute, but first we want to check to be sure that there weren't any problems while the data was being collected in the field. To do this we'll graph the time stamped data.



**Figure 4-19:**  
Graph  
Basic Data

Click on the *Graph Data* button and the Graph Basic Data screen will appear. This screen allows you to check the data integrity of the study by producing a line graph of the data points that have been recorded. The graph of the data appears at the top of the screen. Each sensor (road tube, piezo, etc.) of the study is represented as a colored line, with red for sensor one, green for sensor two, blue for sensor three and yellow for sensor four.

When the graph first comes up it is only showing the partial

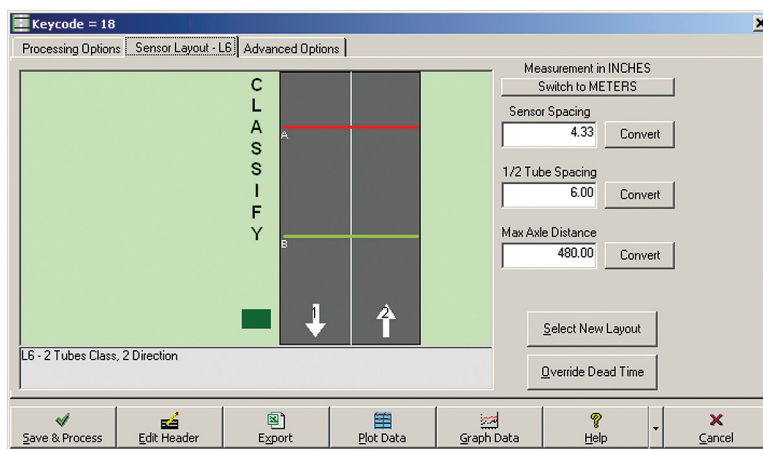
data for the first day, April 5. We want to see all the data, so change the *View* selection in the lower left corner to 7 days.



In two road tube studies where each tube is being struck by every vehicle (like the L6 of our sample file) the sensor hits should match up with the second line behind the first. Notice that this is the case with our sample file. If you look closely, you can see some of the green line from sensor 2 peeking out from behind the red line of sensor 1, but for the most part they match up almost perfectly. This indicates that sensor 1 received the same amount of hits, at the same time, as sensor 2. The graph can tell you instantly if there was a problem with a tube. If a tube had become cut or blocked during the study, the graph line would fall to zero and remain there.

The graph also gives you a good indication of the type of data you are dealing with. Looking at the same file, we can see that the study was started on the morning of the 5th and continued through the 11th. Along the way the traffic volumes reflected similar morning and evening peaks on week days (with slight peaks around mid-day), and greatly reduced volumes on the weekend.

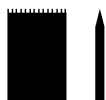
Now that we know the data collection was okay, we'll go back to processing the data. Click on the **File** menu, then select **Exit**.



**Figure 4-20:**  
Sensor  
Layout Tab

The next thing we want to check are the parameters that are going to be used when the data is processed. To do this, click on the Sensor Layout tab. The various sensor settings on the right side of the screen help the program to analyze the basic data with more accuracy. Note that these values are not used with data that has been collected using a Volume Only layout (L1, L2, L3, L4, L7, L8, L9).

The *Sensor Spacing* field tells the program how far apart the road tubes were in the field. This value is read in from the setting used in the data recorder for the study. Our sample file was done using a TRAX Flex HS recorder and an EZ Belt, so the spacing is 4.33 inches. Other typical spacings using traditional road tubes are 24 inches (2 feet) for newer data recorders like the TRAX Plus, or 96 inches (8 feet) for older recorders, like the TRAX I.



**Note**

Note that if the TRAX was set to the wrong tube spacing, you can correct this using this field. For example, if the TRAX was programmed with a spacing of 8 feet, but the tubes were actually set 2 feet apart, you can change the Sensor Spacing field to 2 feet and then process your data.

The *1/2 Tube Spacing* is similar to the Sensor Spacing field, but is only used when a half-tube, full-tube setup is used (L11 & L12). This value is ignored when using other layouts.

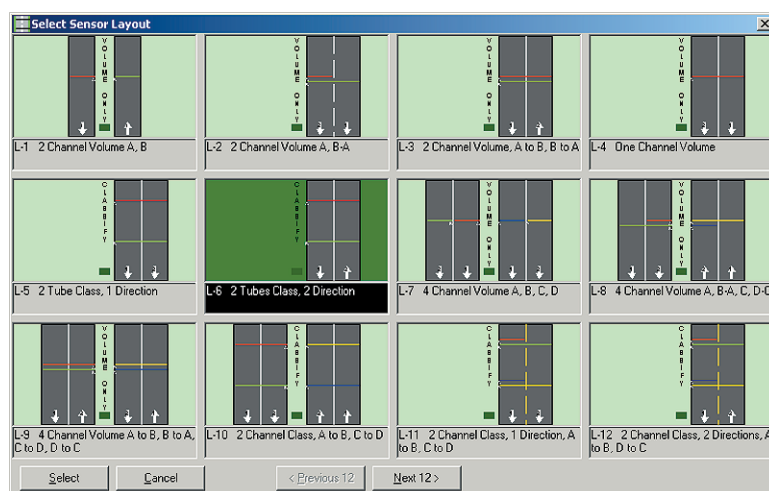
The *Max Axle Distance* field is used to tell the program the maximum distance apart two axles could be on the largest vehicle you would expect to encounter in the study. This is generally defaulted to 480 inches (40 ft).

The values shown in the sample file appear to be okay, so we'll leave them as they are.

The left side of this tab shows a picture of the currently selected layout. This layout is read in from the setting used in the TRAX for the study. Click on the *Select New Layout* button. This opens the Select Sensor Layout screen which can be used to select a different layout.



**Figure 4-21:**  
Select Sensor  
Layout



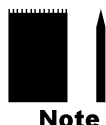
This screen shows the default layouts that come with the program, along with any customized ones that have been designed. To choose a new layout, click on the one you want, then hit the Select button.

We don't want to change the layout for this file, so click on the Cancel button.

Below the Select New Layout button is the Override Dead Time button. This selection lets

you make adjustments to how TRAXPro process the time stamps it recorded. We aren't going to go into this option in this tutorial, but if you are interested in more details on this, it is covered in the Advanced Lessons of Chapter 5 in this manual.

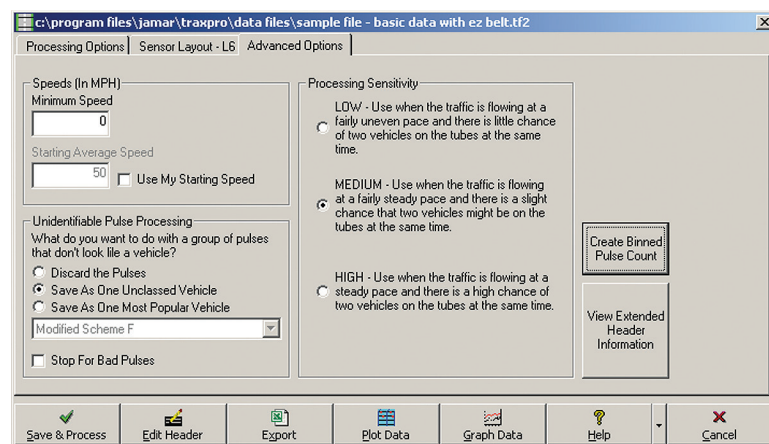
Now click on the final tab of the Basic Data screen, Advanced Options. This tab allows you to fine tune your data with several different settings.



**Note**

Note that in the vast majority of cases, the default settings will provide excellent results, so you may never need to use this tab. It is provide for those users who want more advanced control over how the data is processed.

**Figure 4-22:**  
Advanced  
Options Tab



The values entered in the *Speeds* field are used by the program for advanced error checking when the individual data pulses are processed into vehicles. By entering a value for the Minimum Speed, you can tell the program to reprocess any erroneous vehicles it finds that are going too slow to be reasonably expected at the site. Similarly, by entering a value for the Average Speed, you can tell the program to reprocess

any erroneous vehicles it finds with speeds that don't correspond to other vehicles during the same time period. The program continuously reevaluates the average speed as it process data, which allows it to maintain accuracy over long periods of data.

The default values used are 0 for the minimum speed and 50 for the starting average speed. These work well for most locations but can be adjusted to improve accuracy. The sample file we are working with has been adjusted to have a minimum speed of 10, since there should be no vehicles below this level in the study.

If you do not check the box for Use My Starting Speed the program will calculate the speed automatically based on the first few vehicles it classifies.



The *Unidentifiable Pulse Processing* field allows you to determine what the program should do when it encounters pulses that cannot be formed into actual vehicles. You are given three options:

*Discard the Pulses* tells the program to ignore any pulses that cannot be used.

*Save as One Unclassified Vehicle* tells the program to record the unidentifiable pulse as an unclassified vehicle.

*Save as One Most Popular Vehicle* tells the program to record the unidentifiable pulse as whatever the most common vehicle class is. If this option is selected you must also select the class scheme that will be used for the file.

For our sample file we'll leave the default setting of Discard the Pulses.

Below these options is the Stop for Bad Pulses box. If you place a check in this box the program will pause whenever it locates an unidentifiable pulse. We don't want to do this with our sample file, so leave it unchecked.

The *Processing Sensitivity* field allows you to determine how sensitive the program should be when processing individual time stamps into vehicles. These settings (Low, Medium and High) affect several values the program looks at while it makes the conversion. The default value is Medium, which will work well for most data sets. However, if you have light traffic with a wide variety of vehicle speeds, select Low. If you have heavy traffic with fairly uniform speeds, select High. We'll leave the default value of Medium for our file.

The *Extended Header Information* button allows you to check additional information on the settings used to collect the data.

Now that we are finished checking the settings for the file, and have made sure that the data collection was good, we're ready to process the data. To do this, click on the *Save & Process* button and the program will begin to turn the axle time stamps into actual vehicles. Once the data has been processed, you will be taken to the Per Vehicle menu.



Congratulations! You have completed lesson three. In this lesson you learned how to work with basic data files. In the next lesson you'll learn how to work with Per Vehicle data. You can take a break now, or jump right into the next lesson.



## Lesson 4 — Working with Per Vehicle Data

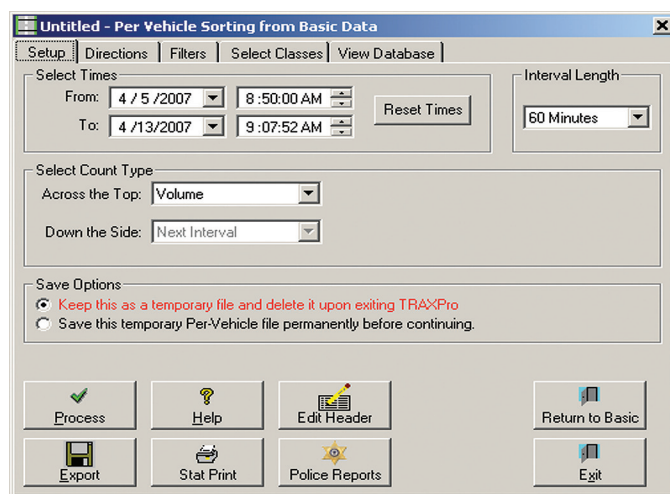
There are several different data formats that can be used with TRAXPro. These different formats are discussed in detail in Chapter 2. This lesson deals with Per Vehicle data, which is typically processed from a TRAX's Basic data file, but can also be directly downloaded from a Radar Recorder. (*If you are with a police department and are using a Radar Recorder, refer to the section on Police Reports found in the Appendix.*)

For this lesson we'll be working with the Per Vehicle data that was produced from the sample file at the conclusion of Lesson 3. If you already have this file open, great. Otherwise, open the *sample file - basic data with ez belt* file then click the Save and Process button.

Per Vehicle data is a table of every vehicle that was recorded during the study, including the vehicle's

speed, classification, gap from the previous vehicle and other characteristics. You can use TRAXPro to sort this data in a variety of ways for analysis, or produce a summary report from the data.

When the per vehicle file first appears, the Setup tab is visible. This tab shows you the currently selected times to be processed in the upper left corner. Notice that these times were carried over from the ones that we set in the basic data screen in lesson 3. You can use the times fields to select a specific period of data for analysis.



**Figure 4-23:**  
Per Vehicle  
Settings tab

The *Interval Length* field allows you to select the time intervals you want the data to be analyzed into. The options are 1, 5, 15, 30 and 60 minutes. Of these, 15 and 60 minutes are the most commonly used. We'll use 15 minute intervals, so click on this field and set it to 15 Minutes.

The *Select Count Type* field allows you to choose what type of information you want to analyze the data for. The *Across the Top* setting is used to make the selection. If you are processing data that was originally in Basic Data format (like we are), your options are Volume, Class, Speed, Gap, Length and Following Distance. If you are processing data that has been collected in the TRAX in Per Vehicle mode, your options are Volume, Class, Speed and Gap. If you are processing data that has been collected in the Radar Recorder in Per Vehicle mode, your options are Volume, Speed and Length.

Click on the Across The Top field and set it to Speed. Notice that when you do this a new field appears to the right. For any of the data types other than Volume, this field allows you to determine the scheme (a preset format of ranges, or bins) that will be used when the data is sorted. (Volume data automatically sorts on a lane by lane basis.)

Click on the field. All the available schemes for that type of data are listed. You can create customized schemes using the program's Scheme Editor. The most common scheme for Speed data is 15-70 by 5 mph, so select that.

The *Down the Side* setting should normally be left with the default setting of Next Interval. This provides a time-based report. However, the other options available can be used to create a Matrix report, such as analyzing speeds by vehicle classifications. We won't do this for this lesson, so leave it as Next Interval.



## The Axle Count Screen

When you process a basic data file that was collected using a volume/gap only layout (L1, L2, L3, L4, L7, L8, L9), you will not see the Per Vehicle screen discussed in Lesson 4, but rather the Axle Count screen shown in figure 4-16. This screen allows you to process your file into either volume or gap information.

The *Interval Length* field is used to select the interval time for the data. The options are 1, 5, 15, 30 and 60 minutes. The *Select Times* field is used to determine which portion of the data you want to process. The defaults are the start and end times of the file. If you have made a change to the times and would like to reset them to their defaults, the *Reset Times* button can be used to do this.

The *Select Study Type* field is used to choose the type of data (volume or gap) you want to process. Depending on which is selected, the *Axle Adjuster* or *Gap Scheme* field will then be editable.

The *Axle Adjuster* field is used to determine how the data should be counted, when you have selected Binned Volume in the *Select Study Type* field. When entering a value you can either list it as the number of hits per vehicle or as a multiplier. For example, a 1.00 hits per vehicle or 1.00 multiplier will do a straight axle count, where each axle is counted. A hits per vehicle of 2.00 will count every two axles as one, also known as the divide-by-two technique. This produces the same results as using a multiplier of 0.50.

The *Gap Scheme* field allows you to select a bin format for the gap data, when you have selected Gap in the *Select Study Type* field. Gap schemes can be created by using the Scheme Editor. The *Lane Assignment* field is used to enter direction descriptions for the data, and to determine where the data should be placed. The **Edit Direction Descriptions** field can be used to assign labels to the data.

Once the settings are to your liking, click the *Save and Process* button to create your data file.

The *Save Options* field allows you to choose whether to keep the per vehicle file after processing the data, or discard it. If you are working with data processed from the basic format (like we are), we recommend discarding the per vehicle file since you can always go back to the original basic file.

(Note that this option does not appear on Per Vehicle files directly downloaded from the Radar Recorder.)

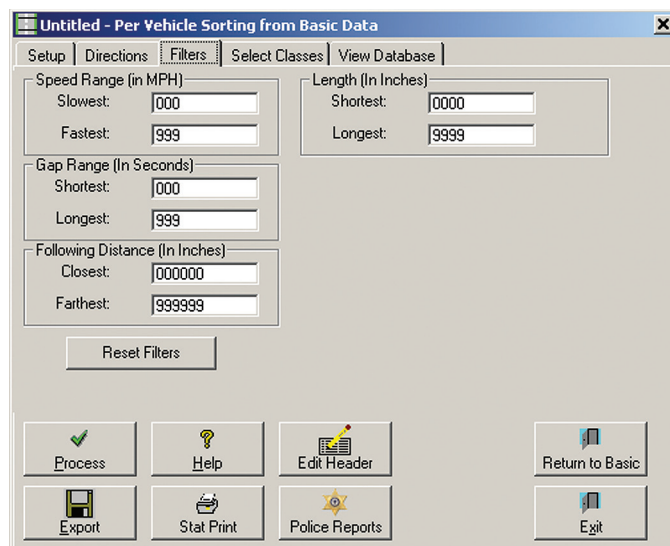
Now that we are finished with the Setup tab, let's move on to the next tab – Directions. Click on this. The Directions tab lets you decide the order that data should be laid out in the processed file. If you want to combine several directions of data into one, you can set them go into the same direction. We don't need to do this for our file, so we'll leave them the way they are.

You can also use this tab to assign descriptions for the directions, using the

**Figure 4-25:**  
Per Vehicle  
Directions  
Tab



*Edit Direction Descriptions* fields. This helps to provide a better sense of how the data was collected. For our file, we'll label the directions Northbound and Southbound. Click on the field for Direction 1 and type in Northbound. Then click on the field for Direction 2 and type in Southbound. Note that the description have a maximum length of 20 characters. Once that's done, click on the Filters tab.



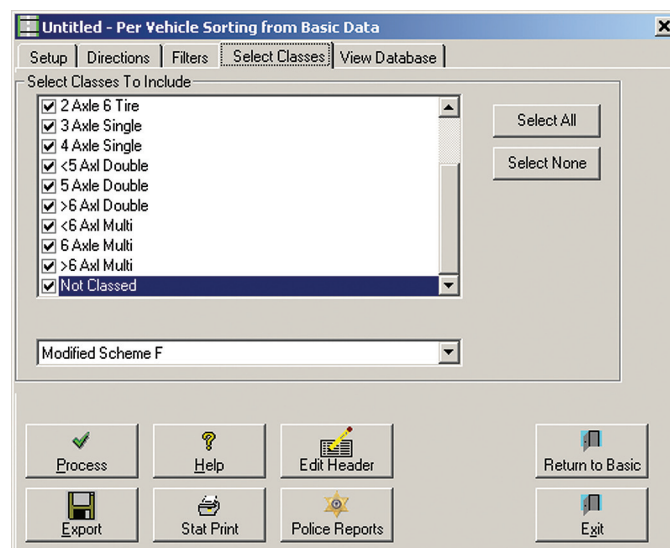
**Figure 4-26:**  
Per Vehicle  
Filters Tab

The Filters tab allows you to exclude some of the vehicles in a study based on their characteristics. This feature can be very useful if you are looking to analyze only data that meets certain characteristics.

For example, if we wanted to analyze our speed data for only the speeds of free-flowing vehicles, we can set the Gap Range to a minimum of 5 seconds. This would eliminate all trailing vehicles in platoons where the lead vehicle might be artificially lowering speeds.

Which of the filters are available for use depends on the type of data that has been

selected for Across the Top in the Setup tab. We won't bother to filter any of the data for this lesson, so go ahead and click on the last tab, Select Classes.



**Figure 4-27:**  
Per Vehicle  
Select  
Classes Tab

The Select Classes tab is similar to the Filters tab, but allows you to exclude specific classes of vehicles from the analysis. Which classes you are able to select depends upon the scheme that has been selected. To exclude a class, remove the check mark next to its name, then process the data. By using this tab, we could have our speed data analyzed only for passenger cars, or only for tractor trailers, or any other combination of classes. However, for the purposes of this lesson we'll leave all of the classes included.

Note that this tab is not available for use if you have selected Axle Class in the Across The Top field of the Setup tab. To exclude certain classes from a class report, you must create a new classification scheme using the Scheme Editor, which is detailed in the advanced lessons of chapter 5.

Now click on the final tab, View Database.



	Date	Time	Lane	Axles	Class	Length	Speed	Gap
1	4/5/2007	8:50:14 AM	1	2	3	132	40	14
2	4/5/2007	8:50:15 AM	1	2	3	141	38	1
3	4/5/2007	8:50:16 AM	1	2	2	118	38	1
4	4/5/2007	8:50:20 AM	1	2	3	126	50	4
5	4/5/2007	8:50:49 AM	2	2	2	105	42	49
6	4/5/2007	8:50:59 AM	1	0	14	0	0	29
7	4/5/2007	8:51:02 AM	2	2	2	102	37	12
8	4/5/2007	8:51:04 AM	2	2	2	103	39	2
9	4/5/2007	8:51:08 AM	2	2	2	112	34	4
10	4/5/2007	8:51:11 AM	2	2	2	95	38	2
11	4/5/2007	8:51:18 AM	2	2	2	103	38	7
12	4/5/2007	8:51:19 AM	2	2	2	102	38	2
13	4/5/2007	8:51:23 AM	2	2	3	134	40	3

Buttons: Process, Help, Edit Header, Return to Basic, Export, Stat Print, Police Reports, Exit.

**Figure 4-28:**  
Per Vehicle  
View  
Database Tab

**Select Export Contents**

- ☐ File Name
- ☐ Start Date
- ☐ Start Time
- ☐ Site Code
- ☐ Station ID
- ☐ Location 1
- ☐ Location 2
- ☐ Longitude
- ☐ Latitude
- ☐ Comments - Line 1
- ☐ Comments - Line 2
- ☐ Comments - Line 3
- ☐ Comments - Line 4
- ☐ Vehicle Number

**Select Export Type**

- ☒ Excel (65,536 vehicles max)
- ☐ Delimited ASCII

**Select Delimiter**

- ☒ Tab
- ☐ Comma
- ☐ Semicolon
- ☐ Space
- ☐ User Defined: ASCII 44 - ,

**Select Times**

From: 4/5/2007 8:50:00 AM To: 4/13/2007 9:07:52 AM

Buttons: Export, Cancel, Help.

**Figure 4-29:**  
Per Vehicle  
Export

The View Database tab allows you to see the Per Vehicle database of all the vehicles that were recorded in the study.

The listing for each vehicle includes the exact date and time that the vehicle was recorded, as well as the lane it was in, its speed, class and other assorted information.

If you want to analyze this data in more detail, you can export the entire Per Vehicle database by clicking on the Export button. Go ahead and do this now.

In the screen that appears, the *Select Export Type* field is used to determine what format you want for the file. The data can be exported into either an Excel format or delimited text format.

Delimited ASCII will create a text file, using either a tab, comma, semicolon or space delimiter. The most commonly used delimiter is comma. Excel format will create a standard Excel file.

The exported data will use any of the parameters you set on the main Per Vehicle screen, so if you have set any filters, these will be used with the ex-

ported data. To adjust any of these, exit out of the export and make the adjustments in the Per Vehicle menu. The *Select Export Contents* field can be used to select specific information to include with the exported data.

Most users will never need to use this option, as the analysis capabilities of TRAXPro are very robust. But, this feature is here for those of you looking to do your own analysis. Click Cancel and we'll return to the Per Vehicle screen.

We've now seen what each of the tabs can do in the Per Vehicle screen, but before we continue with processing our data let's look at another option we have - the ability to produce a summary report directly from the Per Vehicle data table using the **Stat Print** button.

Click on the Stat Print button. This will open a Quick Analysis window that allows you to set the parameters for the summary report. You can use this screen to determine how to set up your report.

The Select Times field at the top allows you to choose specific dates and times for the data. The data for this file was collected from a Thursday into the next week to the following Friday. For this report we're going to only look at the weekend data. Set the *From* date to 04/07/07. We want to see the full day's data so now we need to set the From time to midnight. Notice that there is a convenient button



**Figure 4-30:**  
Per Vehicle  
Quick  
Analysis

next to the From time labelled 12:00 AM. Click on it and the time automatically changes to 12 AM. Next, set the To date to 04/08/07. We want to set the time to the end of the day, so click the button labelled 11:59:59 PM.

Now that the time period of the report has been set, we can move on to some of the other parameters. We want to see each day's data separately, so place a check in the box next to *Daily Reports*. We also want an overall summary of the data, so also check the box next to *Summary Page*. Our file contains two directions of data, but for the purposes of this tutorial we'll add them together. Place a check in the *Combine Directions* box to do this. We aren't interested in the *Miscellaneous Statistics*, so leave that unchecked.

We can now decide what specific information we want to see in the report. Speed, Class or Gap data can be included, and you can choose a specific scheme for each. For our report we'll include all the data, so place checks next to *Include Speed Stats*, *Include Class Stats*, and *Include Gap Stats*. Select the 15 to 70+ scheme for the speed data, the Modified Scheme F for the Class Data, and 4 to 28+ for the Gap data.

We're almost ready to produce the report, but before we do let's check the print settings. Click on the Select Font button. This opens the Windows Font screen. You can use this to select the Font type, style and size for the report. Set the Font to Arial, the Style to Regular and the Size to 8. Once this is done, click OK. Next, click on the Page Setup button. This screen lets to choose the paper type, orientation and margins for the report. The paper should be set for Letter, the orientation for Landscape and the margins to .5 (or something close) all the way around. Click OK once these are set.

We're now ready to see our report. Click the Print button and the Print Preview will appear.

JAMAR Technologies, Inc.

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Horsham, PA 19044

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Page 1

COMBINED

Report for 4/7/2007 to Midnight

Vehicles	Peak Periods			
	AM		PM	
4,530	Time	11:30	Time	01:30
	Count	343	Count	381
	PHF	0.912	PHF	0.899

CLASS STATISTICS - Modified Scheme F

Class	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axl Multi	>6 Axl Multi	No Class
Count	8	3666	433	0	51	4	0	4	7	0	0	0	0	56
Percent	0.2	87.5	9.8	0.0	1.1	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0	1.2

COMBINED GAP STATISTICS - 4 to 28+ by 2 Seconds

Seconds	2	4	6	8	10	12	14	16	18	20	22	24	26	28
Count	1494	385	329	275	234	200	168	145	130	128	106	82	95	747
Percent	33.0	8.5	7.3	6.1	5.2	4.4	3.7	3.2	2.9	2.8	2.3	2.0	2.1	16.5

SPEED STATISTICS - 15 to 70+ by 5 MPH

Speed in MPH	0 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	51 - 55	56 - 60	61 - 65	66 - 70	71 - 75	76 - 999
Count	58	7	11	83	626	1580	1377	554	172	46	12	2	0	2
Percent	1.3	0.2	0.2	1.8	13.8	34.9	30.4	12.2	3.8	1.0	0.3	0.0	0.0	0.0
Over Speed	15	20	25	30	35	40	45	50	55	60	65	70	75	999
Count	4472	4466	4454	4371	3745	2165	788	234	82	16	4	2	2	0
Percent	98.7	98.8	98.3	96.5	82.7	47.8	17.4	5.2	1.4	0.4	0.1	0.0	0.0	0.0
Percentile	5%	10%	15%	45%	50%	55%	65%	80%	85%					
Speed	32	34	35	40	40	41	46	46	51					

Average (Mean) 40

Pace Speed 36-45

Number in Pace 2957

Percent in Pace 65.3

**Figure 4-31:**  
Sample  
Stat Print

Our preview of the report contains three pages, one page for the April 7 data, one page for the April 8 data and one summary page. The first page of the report is shown in figure 4-38. The report gives you volume totals, Peak Hour information, and statistical breakdowns of the class, gap and speed information. (For more details on this type of report refer to Chapter 6 – Interpreting Reports.)



To see the next page of the report, click on the right arrow at the upper left of the preview screen. This will bring up the data for April 8. If you click the arrow again you'll see the final summary page with both days combined. (Note that no peak information is provided since the data is for more than 24 hours.) Using the buttons along the top of the screen, you can choose to send the report to your printer, to a PDF file, a Rich Text File or an ASCII file. Otherwise click Close then click Exit on the Quick Analysis screen to return to the Per Vehicle menu.

---



Another option available on the Per Vehicle screen is the ***Police Reports*** button. This links to a package of reports specifically for law enforcement personnel. Refer to the Appendix for more information on these reports.

---

Now that we've seen all the features of the Per Vehicle screen, we're now ready to continue processing our data. To do this, click on the Process button.

Once the processing is finished, your data will appear in the Examine/Edit screen. Notice that it uses the speed scheme we selected, and the interval length we choose. Each of the directions is on its own tab, titled by the direction descriptions we assigned.



Congratulations! You have completed lesson four. In this lesson you learned how to work with Per Vehicle data. In the next lesson you'll learn how to use the Examine/Edit data screen. You can take a break now, or jump right into the next lesson.



## Lesson 5 — Working with the Examine/Edit Screen

Regardless of how you collect your data, in almost all cases you'll end up in the Examine/Edit screen. This screen is used to further format your data before you produce reports.

For this lesson we'll be working with the *sample file - volume* file that was installed with the program. Retrieve this file from the data files folder. If you're not sure how to do this, refer to lesson 2.

The screenshot shows the TraxPro application window with the 'Examine/Edit Data' screen open. The file being viewed is 'G:\Program Files\JAMAR\TraxPro\Data Files\SAMPLE FILE - VOLUME.TF2'. The screen displays a table with the following data:

Start Time	Direction 1	Direction 2	Total
09:00 AM	33	55	88
09:15 AM	40	72	112
09:30 AM	27	51	78
09:45 AM	33	54	87
10:00 AM	37	49	86
10:15 AM	31	44	75
10:30 AM	36	37	73
10:45 AM	30	36	66
11:00 AM	39	36	77
11:15 AM	43	53	96
11:30 AM	70	34	104
11:45 AM	76	45	121
12:00 PM	84	49	133
12:15 PM	71	58	129
12:30 PM	54	81	135
12:45 PM	54	67	121
01:00 PM	52	67	119
01:15 PM	42	54	106
01:30 PM	50	59	109
01:45 PM	62	53	115
02:00 PM	53	54	107
Column Total	26292		

**Figure 4-32:**  
Examine/Edit  
Data Screen

The Examine/Edit screen allows you to make changes to a file in a variety of ways. Most files will contain a column of the interval times, followed by the actual data then a totals column. Our sample file contains two columns of data, with each column representing a different lane of traffic.

The first thing we want to do is identify which column is which, by applying column titles. From the menu options, select **Edit**, then **Edit Column Titles**. The Edit Column Titles screen will then appear.

The screenshot shows the 'Edit Column Titles' dialog box. It has a table with two columns: 'Class' and 'Description'. The first row has '1' in the 'Class' column and 'Direction 1' in the 'Description' column. The second row has '2' in the 'Class' column and 'Direction 2' in the 'Description' column. At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

**Figure 4-33:**  
Edit Column  
Titles

The sample volume file contains bidirectional data from two lanes of traffic, one going eastbound, the other westbound. For the purposes of this tutorial, we'll abbreviate these directions to EB and WB.

Click your mouse on the description field next to the number 1 and type in EB. Next, click your mouse on the description field next to the number 2 and type in WB. Once this is done, click OK. Notice that the titles we entered are now listed in the file itself.



The next thing we want to edit is the Header information for the file. The Header contains information specific to the file, such as start date and time, site code, additional comments, etc. From the menu options, select **Edit**, then **Edit Count Header**. You can also access this screen by clicking on the Edit Header icon in the toolbar.



**Figure 4-34:**  
Edit Header  
Information  
Screen

Once the Edit Header Information screen appears, we'll start by filling in the comments for the file. Click the *Next* button and notice that the Comments field fills in the default comments we entered in Lesson 1 when we set up the program's preferences.

Set your cursor to the right of the colon next to Weather in the first line, and type in *Sunny*. Next, go to line two and enter *10000* for the serial number. On the third line, enter your name. We'll leave the fourth line blank. You would

normally use this line to note anything unusual about the study, such as if a tube was loose when you went to retrieve the data.

Now that the comments have been entered, we'll move on to the location information. These fields can be used to describe where the data was collected. In the Location 1 field, enter *Counted at 151 Keith Valley Road*. In the Location 2 field, enter *Closest Cross Street: Governor Rd*.

Below the location information is the GIS information. If you have a TRAX unit that supports GPS, you can load the GPS coordinates into the TRAX while you are in the field, then this information is included with the file you download. You can also manually enter the information. We'll see how we can use this information in just a few minutes.

Next, click on the *Photos/Graphics* tab at the top.

This feature allows you to include digital photographs of your data collection site with the data file. Notice that when we first access this screen it is blank since we haven't added a photo yet. That's what we'll do now.

To add a photo to your file, click the *Attach* button. This will open the *Select Image to Attach* window which can be used to select the file you want to attached. Images can be in any of the following formats: Windows bitmap (.bmp), JPEG (.jpg), Windows Metafile (.wmf), Enhanced Metafile (.emf) or GIF (.gif).

**Figure 4-35:**  
Edit Header -  
Graphic  
Attached

A sample photo was installed when you installed TRAXPro. We'll attach this picture to our file. The file is named *Keith Valley Road.jpg* and should be in your TRAXPro Data File folder. (The default path is C:\Program Files\JAMAR\TRAXPro\Data Files). Locate this file, select it and then click the Open button.

The program will then tell you how large the photo is and ask if you want to save it as part of the data file. Select *Yes* if you want to add the



photo to the data file (making the file size larger), or select *No* if you just want to link to the photo. The link option only adds a link to where the file is currently stored on your computer. In general, adding the photo to the file should be used if you will be sending data files to other people while the link option should be used if the files will always be on your computer (and the location of the digital photos won't change).

What photos you use with your files is up to you, but one of the ways you can get photos is by using the GPS coordinates we discussed earlier. Click on the OK button to return to the main data screen.

One of the unique features of TRAXPro is the ability to access the free web-based mapping applications Google Earth and Windows Live Local from your data file.

Google Earth and Windows Live Local are competing programs that in essence do the same thing - allow you to see aerial views of the Earth. To use these applications, you must have an Internet connection on your computer, and GPS coordinates stored in your TRAXPro file.

As we just learned, GPS coordinates can be stored in a TRAXPro file on the Edit Header Information screen. The sample file we are working with has these coordinates already stored. We'll now use these coordinates to access a map of the data collection site.

The first application we'll look at is Google Earth. This application requires that you download and install a portion of it from the Google web site. If you plan to use Google Earth with TRAXPro, or want to follow along on your computer with this tutorial, download the free version of Google Earth now at: <http://earth.google.com/>.



Once Google Earth has been installed on your computer, you can start it by going to the Tools menu and selecting Google Earth. Note that you can also access this feature by clicking on the Google Earth icon in TRAXPro's toolbar.

**Figure 4-36:**  
Google Earth  
Aerial View



Google Earth starts with an aerial view of the Earth and begins to zoom in to the coordinates of your TRAXPro file. It's a pretty cool process to watch. As the zoom brings you closer and closer to your location you'll begin to see more details. Finally the zoom will stop, around 1500 ft. above the coordinates of your TRAXPro data file.

Google Earth contains a number of different tools that you can use when viewing your map. The 'Layers' checklist lets you choose what information to include on the map you see. The 'Tilt' commands can be used to tilt your view for the map up or down while the 'Rotate' commands can be

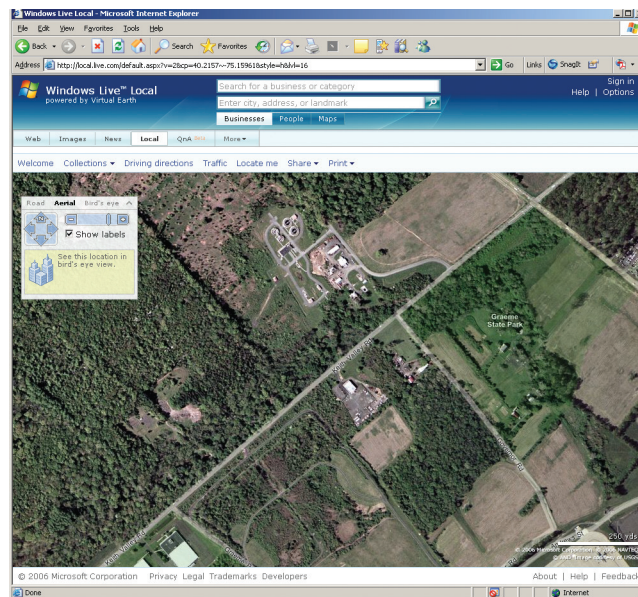
used to change your perspective. The 'Zoom' commands can be used to zoom farther out or closer in to your coordinates.

Once you have the map set to show what you want, you can save a copy of it for use in your TRAXPro file by selecting 'Save Image' from the File menu. The picture you saved can then be added to the Photos/Graphics tab, as we did earlier in this lesson. Exit out of Google Earth once you are done playing with it.





The Windows Live Local application is very similar to Google Earth in that it provides aerial views of the Earth. Unlike Google Earth, this application does not require any program to be downloaded and installed on your computer, so to start it, go to the Tools menu and select Windows Live Local. Note that you can also access this feature by clicking on the Windows Live Local icon in TRAXPro's toolbar.



**Figure 4-37:**  
Windows  
Live Local  
Aerial View

Once you start Windows Live Local, it takes you directly to an aerial view of your coordinates. Like Google Earth, Windows Live Local has a few tools that can be used when looking at the map. A slider bar can be moved to zoom out from your location or zoom in.

For some locations, Google Earth has better images and for some Windows Live Local has the edge.

At the time this tutorial was written, Google Earth appears to have an advantage over Windows Live Local in that the maps you create with Google Earth can be saved as a graphic which could then be used as

part of a finished report. However, these are both fairly new applications that are sure to evolve and improve as time goes by.

Now that the header information is set in the file, we want to calculate the Average Daily Total (ADT) and Annual Average Daily Total (AADT) for our volume data. From the menu options, select **Tools**, then **Calculate AADT**.

Use	Date	Volume	Axle Correction	User Factor	Daily Factor	ADT	Seasonal Factor	AADT
<input type="checkbox"/>	4/5/2007	7570	x 1.000	x 1.000	x 1.000	= 7570	x 1.000	= 7570
<input checked="" type="checkbox"/>	4/6/2007	7022	x 1.000	x 1.000	x 1.000	= 7022	x 1.000	= 7022
<input checked="" type="checkbox"/>	4/7/2007	4532	x 1.000	x 1.000	x 1.000	= 4532	x 1.000	= 4532
<input checked="" type="checkbox"/>	4/8/2007	3195	x 1.000	x 1.000	x 1.000	= 3195	x 1.000	= 3195
<input checked="" type="checkbox"/>	4/9/2007	6908	x 1.000	x 1.000	x 1.000	= 6908	x 1.000	= 6908
<input checked="" type="checkbox"/>	4/10/2007	7996	x 1.000	x 1.000	x 1.000	= 7996	x 1.000	= 7996
<input checked="" type="checkbox"/>	4/11/2007	7875	x 1.000	x 1.000	x 1.000	= 7875	x 1.000	= 7875
<input checked="" type="checkbox"/>	4/12/2007	7477	x 1.000	x 1.000	x 1.000	= 7477	x 1.000	= 7477
<input checked="" type="checkbox"/>	4/13/2007	7099	x 1.000	x 1.000	x 1.000	= 7099	x 1.000	= 7099

**Figure 4-38:**  
Calculate  
ADT-AADT

Annual Average Daily Total (AADT) is the average 24-hour traffic volume at a location over a full year. In theory, you would arrive at this number by counting traffic at a location for 365 days, adding it all up, then dividing by 365. However, it's usually not practical to count a location for a full year. With TRAXPro, this value can be calculated from as little as one interval of data. Of course, to be accurate the sample size should be a little bigger.

Average Daily Total (ADT) is similar to AADT, but for a period less than one year. An ADT is valid only for the period of time it is measured, whether that's a month, a week or a day. In

TRAXPro, the AADT is derived from the ADT, with factors applied.

The main section of the ADT-AADT screen shows a detailed calculation of the ADT and AADT for every day in the study. Notice that when the screen first opens, the first and last dates are unchecked and are not being used for the overall calculation. Because of the way the ADT and AADT are cal-



culated (refer to the Appendix for information on this), we recommend that these values be derived only from full days worth of data, so the program has automatically deselected the first and last day, which only contain partial days of data.

Note that you are free to select whichever days you want when doing and ADT/AADT calculation. Some users prefer to only use weekdays (Monday to Friday), while other prefer to only use mid-week weekdays (Tuesday to Thursday). This is what we'll do with our sample file, so deselect all the dates except for April 10, 11 and 12.

When doing the calculations, TRAXPro starts out with the total volume for a specific day then multiplies that by any Axle Correction factor and User factors that have been entered at the top of the screen. This value is then multiplied by the Daily Factor to produce an ADT. Once the ADT has been determined, it is multiplied by the Seasonal Factor to produce the AADT. An average for all the selected days is then calculated and is used in the final reports you produce.

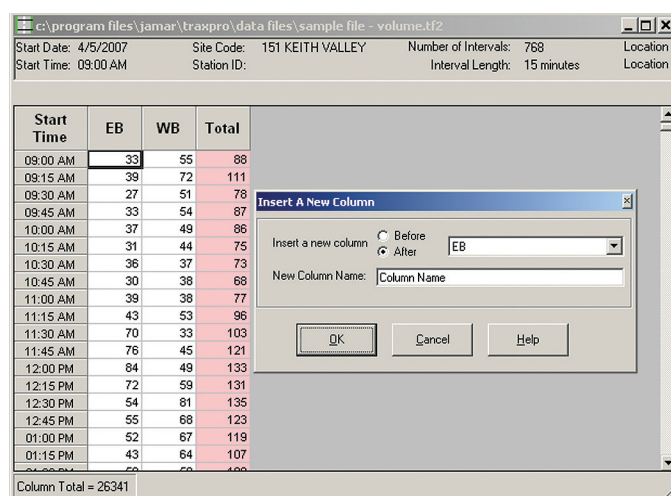
Now that the ADT and AADT have been determined, we'll want to save them with the file. Click on the Apply and Exit button and the new values will be saved in the file's header.

Another useful feature found in the Tools menu is the Convert to Volume option. When you are working with speed or class data, this tool allows you quickly convert the data into a volume format. When you are working with volume data, like we are, this tool will sum all the channels of the file into a single channel. Click this option to give it a try. Notice that a new file is opened, with a single channel of data. Now that we've seen how this works, you can close the new file without saving it.

The next area we'll work with is adding (and deleting) rows or columns of data to a file.

One of the most powerful features of TRAXPro is the flexibility it provides for editing data. By adding data fields to a file you can easily combine files for further analysis.

Our current file has columns for eastbound (EB) and westbound (WB) data. If we had a different file with north and south bound data approaching the same intersection, we could combine the two by adding new columns.



**Figure 4-39:**  
Insert A  
New Column

Select **Insert** from the main menu, then select **Columns**. The *Insert a New Column* window will then appear. For this lesson, we'll add a column after the WB data. Select the *After* radio button, then select WB from the drop down box. We can assign a name to the column in this screen as well, so type in SB for southbound. Click OK and you'll see the new column.

We could repeat the same process to add a column for northbound data, then use the copy and paste features to move the data from the second file into this one.

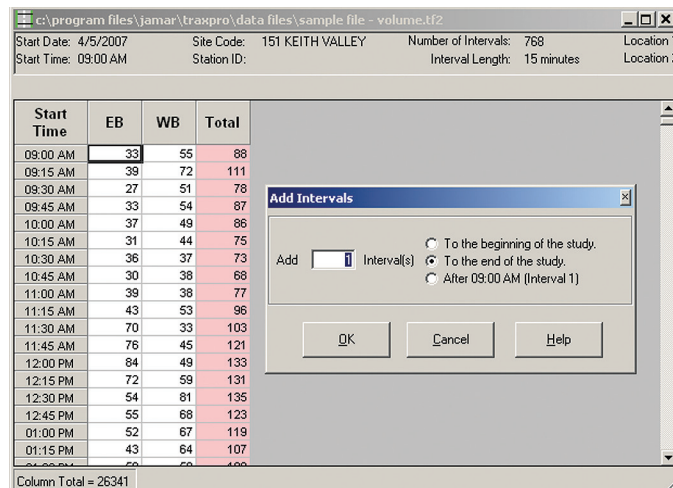
However, we aren't actually going to add any data, so now we'll remove the column we just added. Select **Edit** from the main menu, then select **Delete Column**. In the drop down box, select SB and



click OK. The column we had just added is then removed.

Intervals of data can be added or deleted with the same ease. Our current file's data starts at 9:00 AM on April 5. If we had data from a separate file that started at midnight and went to the 9:00 interval we could combine this data with our file.

Select **Insert** from the main menu, then select **Intervals**. The *Add Intervals* window will then appear.



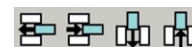
**Figure 4-40:**  
Add  
Intervals

For this lesson we'll add 36 intervals to the start of the file, which will take it back to 12:00 AM. Type 36 in the *Add* field, then select the *To the beginning of the study* option. Click OK and you'll see the new intervals added in, with zeros for their values. Note also that the start time of the file has been automatically adjusted to reflect the change. Scroll down through the data and you'll see our old data still begins at 9:00.

We're not actually going to add any data to the file, so now we'll remove the intervals we just added. Select **Edit**

from the main menu, then select **Delete Interval**. The Delete Intervals window looks and works the same as the Add Intervals window, only in reverse. Type 36 in the *Delete* field, then select the *From the beginning of the study* option. Click OK and you'll see the intervals we just added removed and the file returned to its original state.

Note that the functions for adding and deleting columns or intervals of data can also be accessed by clicking on the corresponding icons in the tool bar.



Congratulations! You have completed lesson five. In this lesson you learned some of the features that be used in the Examine/Edit screen. In the next lesson you'll learn the basics of producing a report from your data. You can take a break now, or jump right into the next lesson.



## Lesson 6 — Producing a Report

Once you have edited a data file to your liking, you are most likely going to want to produce a report containing the data. For this lesson, we'll produce a report from the data contained in the *sample file -volume* file. If you already have this file open on your screen, you're set to go. If not, retrieve it now. If you're not sure how to do this, refer to lesson 2 for instructions.

To begin the report creation process, click on the **File** menu and select **Print**. This will open the Volume Reports setup screen. You can also access this function by clicking on the Print icon.



**Figure 4-41:**  
Volume  
Reports –  
General tab

There are six separate tabs on this screen that can be used to set up a report for printing. The first of these is the **General** tab. This tab allows you to pick the times for the report and select the type of report you want to produce. We want to print all the data in the file, so we'll leave the times as the defaults. If you wanted to print just a specific day (or other block of data) in a file, you would change the times here to reflect the period you wanted.

Below the times is the field used to select the type of report you want to produce. Notice that it is currently set for *15 Minute, with Hourly Totals*. Click on the down arrow in this field and you will see the list of other available reports. Each report will present the data in a different manner. The type of report you decide to use is a matter of personal preference. For the purposes of this tutorial, select the *15 Minute, with Hourly Totals* report.



**Note**

Note that the asterisks listed before a report means that it is a default program report. You can create your own report formats using the Volume and Binned Report Generators. Refer to Chapter 5 – Advanced Lessons for more details.

**Figure 4-42:**  
Volume  
Reports –  
Headings -  
Page # tab

Click on the **Heading - Page Number** tab. This tab allows you to setup the parts of the report other than the data itself. The *Report Headings* field is used to pick the title that will be printed at the top of each page in the report. Notice that the default titles are the ones we entered in the Preferences in Lesson 1. If you create multiple sets of titles in the Preferences, you can choose the ones you want using the Previous and Next buttons. For this report, we'll use the default titles.

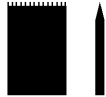
Below Report Headings field is the *Page Number* field. You can use this to select where on the report the page numbers should be printed. The options are Top Right, Top Left, Bottom Right and Bottom Left. Click on Bottom Right. You also are given the opportunity to start the page numbering at something other than the number 1. This feature would generally be used if you were planning to use the report as part of a larger document, or with other reports produced in TRAXPro. For this report, we'll leave it set for 1.

On the right side of the tab is the *Count Identification* field. You can use this to select some of the additional information that will be printed with the report. This information will appear on the upper right side of the report. The options are: Site Code, Station ID, Location 1, Location 2, Latitude,



Longitude, File Name, Date Printed, Start Date, End Date and blank.

Set the first field to *Start Date* and the second to *End Date*. Set the third and fourth fields to *Location 1* and *Location 2*, respectively. This will print the count location information that we entered while we were editing the header of the file in Lesson 5. Set the fifth and sixth fields to *Latitude* and *Longitude*.

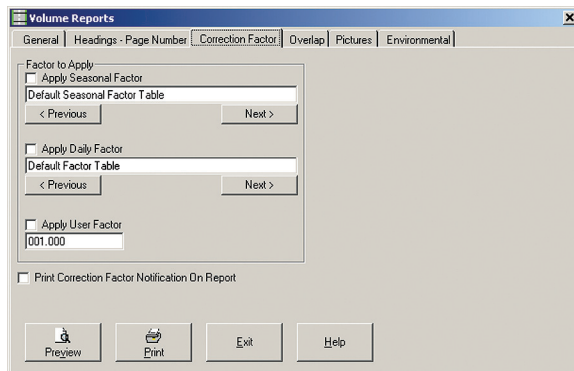


#### Note

Note that you can choose not to print any of the Count Identification information by setting all of the fields to *blank*.

Below the Count Identification field is the *Comments* field. This allows you to either print, or not print, the comments that have been entered for a file. Since we took the time to enter these comments while we were editing the header in lesson 5, we might as well print them. Place a check in this field.

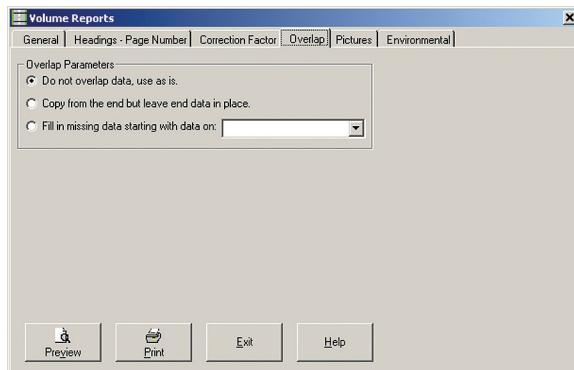
**Figure 4-43:**  
Volume  
Reports –  
Correction  
Factors tab



Click on the **Correction Factor** tab. This tab allows you to factor the data in the report only, it will not change the data in the count file itself.

You can choose to apply a seasonal factor, daily factor, or user factor. When selecting a seasonal or daily factor, you can choose from among any of the factor tables that you have setup in the Preferences. You can also choose to either print, or not print, the factor being used on the report. Since we did not create any factors while we were setting up the preferences in Lesson 1, we'll leave these options unchecked.

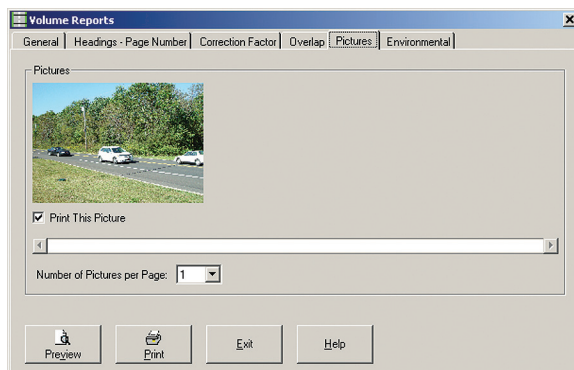
**Figure 4-44:**  
Volume  
Reports –  
Overlap tab



Click on the **Overlap** tab. This tab allows you to move data from one portion of the report to another to fill in any missing time periods.

The options in this tab are: *Do not overlap data, use as is*; *Copy from the end but leave end data in place*; and *Fill in missing data starting with data on:*. We're not going to move any of the data around for this report, so leave the default setting at *Do not overlap data, use as is*.

**Figure 4-45:**  
Volume  
Reports –  
Pictures tab



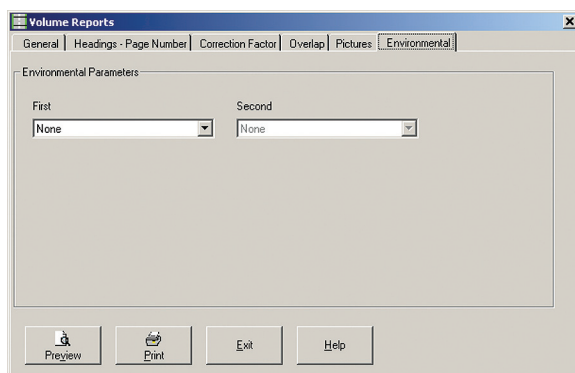
Click on the **Pictures** tab. This tab allows you to preview graphics that you have added to your file. Notice that for our file we see a preview of the picture we added earlier in this lesson.

Using this tab you can select which pictures you want to include in the report and also how many pictures should be printed on each page. Note that the more picture per page, the smaller each individual picture will be.

We'll leave our picture selected so we can see what it looks like on the final report.



**Figure 4-46:**  
Volume  
Reports –  
Environmental

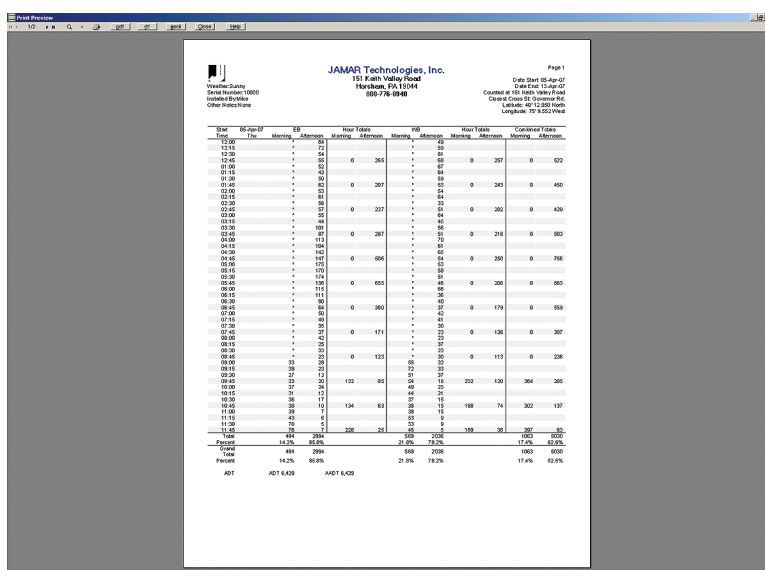


Click on the **Environmental** tab. Some models of TRAX data recorders have the ability to record environmental data, like the temperature during data collection. The Environmental tab allows you to select if you want to include this data on the report.

Our sample file was recorded with a TRAX that had this capability, so we'll turn these parameters on. Select *Battery Voltage* for the first field and *Internal Temp* for the second field. We'll see how these look in the report in just a minute.

Now that we're finished setting the report up, we want to see how it is going to look and decide how we are going to output it. Click on Preview.

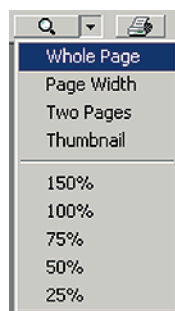
Once you click on Preview, the Print Preview screen will appear. This screen allows you to look at how the finished report will look.



**Figure 4-47:**  
Print  
Preview

When the preview screen first appears, you may not be able to see the report clearly. To zoom in for a closer look, double click your mouse anywhere on the preview screen. You can zoom in closer by continuing to double click your mouse. If you get too close, you can zoom out by double clicking your right mouse button.

The options listed with the Magnifying glass button can also be used to get a different look at the report.



The *Whole Page* selection shows a complete page in the preview. This is the default selection when the preview first appears. The *Page Width* selection will zoom in on the report until it fits the entire width of the preview screen. Click on this selection to see how it looks. The *Two Pages* selection will do just what it says, show two pages at a time in the preview. Click on this selection to see how it looks. The *Thumbnail* selection provides small pictures of each page of the report. Click on this selection to see how it looks. The percentile listings, from 150% to 25%, provide different levels of magnification of the report. Click on some of these to see how they work. They produce the same affect as double clicking with the mouse's left and right buttons. Once you are done, click back on the *Whole Page* selection.

To view additional pages of a report when you are in *Whole Page* view, use the page selection options found at the upper left of the screen. Click the right arrow of this feature until you are on page 9 of 11. Scroll down to the bottom of the page and zoom in. You'll see the final totals for the data, as well as the ADT and AADT values we saved in the header in lesson 5.



Click the right arrow again and you'll see the picture we added to our file. Click the right arrow one more time and you'll see the environmental data we included with the report. Notice that the battery voltage dips down at night, but comes back up during the day. That tells us that the solar panel of our TRAX is in good working condition as it is charging up the battery when the sun is out.

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One of the most useful features of the TRAXPro program is the ability to output your finished reports in several different formats. The options you have to do this are PDF, RTF, ASCII and Excel.



The PDF option will create a copy of the report in Adobe Acrobat format, a widely used standard for the exchange of electronic files. Files created in PDF format can be viewed with the Acrobat Reader program, which is available for free from Adobe.



The RTF option will create a copy of the report in Rich Text Format, a text file that allows different font styles and colors. Files created in RTF format can be viewed with most word processing programs, such as Word or WordPad.



The ASCII option will create a copy of the report in comma delimited text format that can be used for reading the data into other applications.



The Excel option will create a copy of the report in an Excel format. This can be useful if you want to send the data to someone for further editing and analysis.



Now that we are finished previewing the report, it's time to print it out. To do this, click on the Print button. This will bring up the standard Windows print setup screen where you can choose the printer you want to print to. Keep in mind that reports from TRAXPro can be printed in color if you have a color printer. Once you have selected your printer, send the report to it.



**Well Done!**

Congratulations! You have completed lesson six. In this lesson you learned how to produce a report from a data file. This lesson concludes the tutorial for learning the basics of TRAXPro. You should now have a good working knowledge of how to use the program.



# Chapter 5



## Advanced Lessons



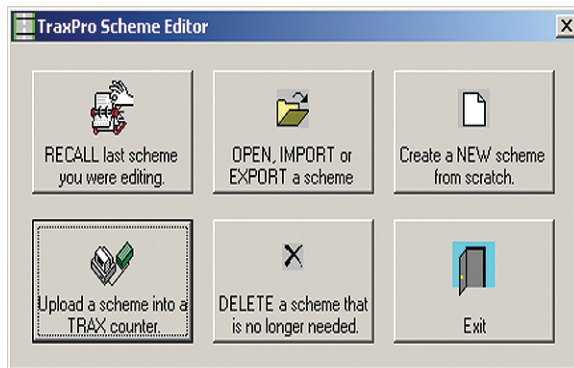
## Additional Features

This chapter covers some of the advanced features of TRAXPro that were not covered in the previous chapter. This information is presented in a tutorial style so you can follow along on your computer as each aspect is covered. You may skip any lessons that you know you will not be using.

### Lesson 1 — Using the Scheme Editor

When processing Basic or Per Vehicle data, TRAXPro needs to know what categories (or bins) to sort each individual vehicle's data into. You tell the program this by using a scheme, which is a pre-set range of values for the bins. Data being processed for speed, classification, gap, following distance and length all use schemes.

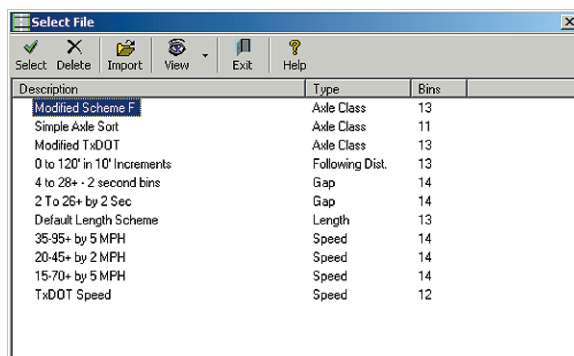
In the Per Vehicle menu, when you select any of these data types for the *Across the Top* field, you are prompted to select a scheme to use. The program comes with several pre-defined schemes that are among the most common used for data analysis. These include the Federal Highway Administration's Scheme F for vehicle classification and 15-70 mph in 5 mph increments for speed data. However, if you would like to use your own scheme, you can create it using the Scheme Editor.



**Figure 5-1:**  
Scheme Editor

The Scheme Editor can only be used when no files are currently open, so if you have any open in the program, close them now. Be sure to save any changes you need. Once that is done, click on the **File** menu and select **Scheme Editor**.

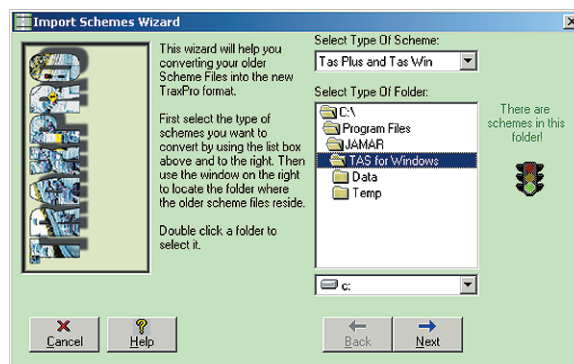
There are several options that can be selected in the Scheme Editor. For this lesson, we are going to create a new speed scheme, but before we do that, we'll take a look at how to open an existing scheme, whether it's a TRAXPro scheme or from another program.



**Figure 5-2:**  
Select Scheme

Click on the button labelled *Open, Import or Export a scheme*. This brings up the select File screen, which contains a list of all the schemes that are currently stored in the program. A description of the scheme is provided, along with that type of data it is used with and the number of bins in the scheme.

Any of the schemes in this window can be selected for editing. However, if you have schemes from other programs, like TAS Plus or TAS for Windows, you can also open these as well. To do so, click on the **Import** button.

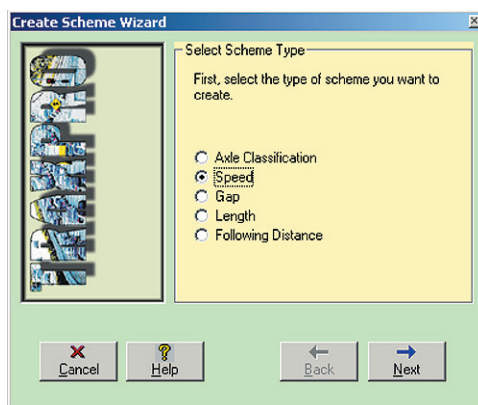


**Figure 5-3:**  
Import Wizard

The Import Schemes Wizard allows you convert schemes from other programs into the TRAXPro format. Click on the *Select Type of Scheme* box at the top of the Window to see what other programs you can import schemes from. Below this box is a navigation tree you can use



to locate the folder where your non-TRAXPro schemes are stored. The traffic signal on the left side of the screen is red if there are no schemes in the current folder. It changes to green once schemes are located. We aren't going to import any schemes for this lesson, so click on the Cancel button. Once back in the Select File screen, click on Exit to go back to the main menu of the Scheme Editor.

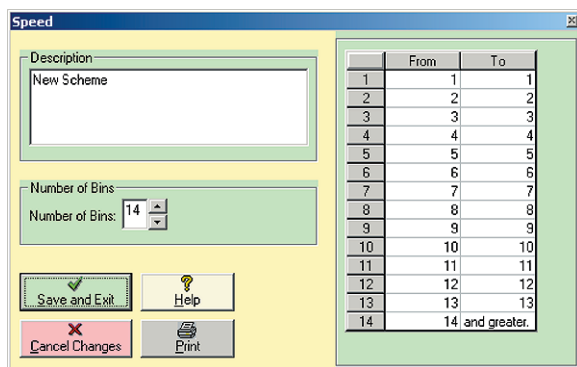


**Figure 5-4:**  
Examine/Edit  
Data File

We're now going to create a new scheme, so click on the *Create a new scheme from scratch* button. The first thing you are prompted to do is to select the type of data the scheme is going to be used with. The scheme editor is similar for all data types, but for this lesson we're going to create a speed scheme. Click on the radio button next to Speed then click the Next button.

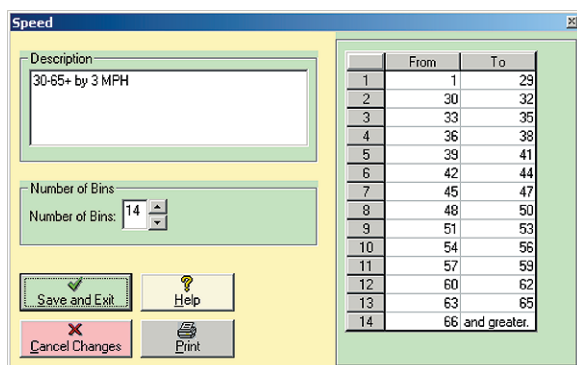
The second step asks you to select the number of bins you want in the scheme. This number can range from 1 to 32. Our new speed scheme will use 14 bins, so enter that and click on the Next button.

The third step is to select the Unit of Measure for the scheme. For Class, Length or Following Distance this is either Inches or Meters. For Gap this is seconds. For Speed schemes, like the one we're creating, this is Miles per Hour or Kilometers per Hour. For the purposes of this lesson, we'll choose Miles per Hour. Once you have selected this, click Finish and the Scheme Editor for the type of study you want to create will be opened.



**Figure 5-5:**  
Unedited  
Scheme

The Description field at the top left allows you to name the scheme. This is the name that will appear on the list of schemes when you retrieve an existing one. Our speed scheme is going to be from 30 to 65 MPH in 3 MPH increments, so enter *30-65+ by 3 MPH* as the description. Below this is a field for changing the number of bins. We entered the correct number when we were using the scheme wizard, so we don't need to change this. This would normally only be used if you were editing an existing scheme.



**Figure 5-6:**  
Edited  
Scheme

The right side of the editor contains the table for entering the actual values to be used in the scheme. Our first bin is going to be from 1 to 29, so click on the *To* box in row 1 and type in 29. Press enter and you'll see the remaining fields automatically adjust to the change. The *To* box in row 2 should now be highlighted. Our second bin will be from 30 to 32, so type in 32 for row 2 and press enter. Repeat this process for each row, incrementing by 3 each time. After 32 should be 35, then 38, 41, 44, 47, 50, 53, 56, 59, 62 and 65. After you enter 65, the last bin will be listed as 66 and greater. The scheme should then look like figure 5-6. Click on *Save and Exit* and the scheme will be saved in the program.



With the exception of classification schemes, the other scheme types used in the program are setup the same way as the speed scheme we did. TRAXPro is able to classify vehicles based on their axle spacings (the distance from one axle to another) so to create a class scheme you will need to know the axle spacings of the vehicles you want to classify.

Figure 5-7: Data with Scheme Applied

Now that we've created a scheme, we're going to apply it to a file. Open the *sample file - basic data with ez belt* file that was installed with the program and process it to the Per Vehicle menu. If you are unsure how to do this, refer to lessons 2 and 3 in the previous chapter.

On the Setup tab, set the Across the Top field to Speed. The scheme box will then appear on the right. Click in this field and notice that our scheme, 30-

65+ by 3 MPH, is now on the list. Select this option then process the data. Once the Examine/Edit screen appears you'll see that the data is now sorted into the bins we created.

Now that we've seen how to apply a scheme to data in the software, let's look at another option — loading a scheme directly into a TRAX.

Click on the *Upload a scheme into a TRAX counter* button on the main scheme editor screen and the **Scheme Uploader** screen will appear. This screen allows you to directly store a custom scheme or set of schemes in the TRAX. These schemes are then used when binned data is collected. In the Scheme Uploader you can select which class, speed and gap schemes to load, with the following restrictions (these restrictions do not apply when using schemes with basic data) :

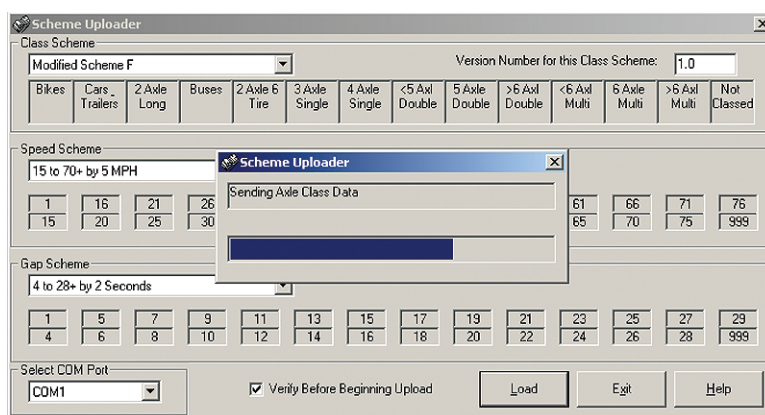
- Classification schemes can only use specifications for vehicles up to 8 axles. Any specifications for vehicles with more with 8 axles will be ignored.
- Speed and gap schemes must use 14 bins. Any schemes that have been created with more or less than 14 bins will not appear in the list of speed or gap schemes to use.

Figure 5-8: Scheme Uploader

The *Version Number* for this *Class Scheme* field allows you to keep track of what schemes you have loaded into a TRAX by assigning it a number in the X.X format. This number will appear on the first screen of the TRAX when it is turned on. Note that the default TRAX schemes loaded by the factory are assigned 0.0.

*We are not actually going to load any schemes into your TRAX, so just follow along with the rest of this lesson without completing the steps.*





**Figure 5-9:**  
Upload in  
Progress

the TRAX to interface with the computer.

Once you have selected the schemes you want, click on the Load button. If you have a check in the *Verify Before Beginning Upload* box a confirmation screen will appear, otherwise the upload to the TRAX will begin. Once the schemes have been loaded into the TRAX, you will be returned to the main Scheme Uploader screen.



**Note**

Note that if you need to use custom schemes we recommend you collect basic data and apply the schemes in the software, as we did in the beginning of this lesson. This provides greater flexibility than uploading a scheme directly to the TRAX. Uploading schemes is only recommended if you do not have basic data capability, such as with TRAX Mite units.

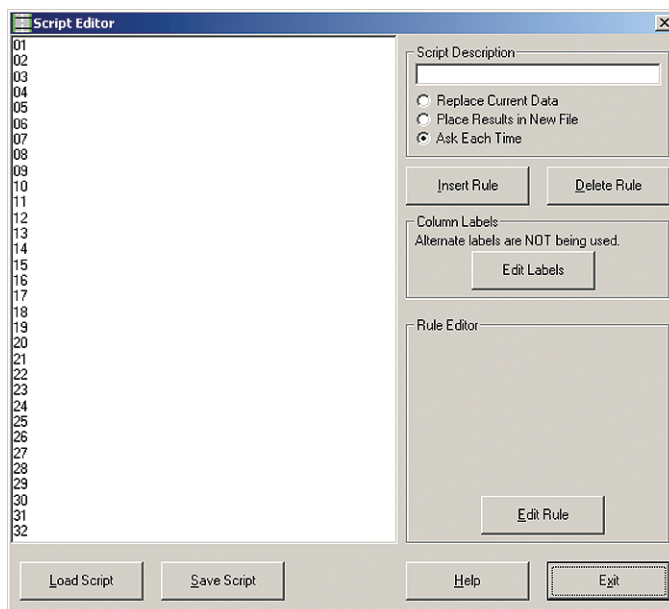


**Coffee  
Break**

Congratulations! You have completed lesson one. In this lesson you learned how to open and create data schemes, and how to apply them to files. In the next lesson you'll learn how to create and apply scripts for your data. You can take a break now, or jump right into the next lesson.

## Lesson 2 — Using the Script Editor

The Script Editor is a powerful feature of the program that allows you to create custom scripts that will modify your data in the Examine/Edit Data screen. This can be used to move data from one column to another, create new columns of data, and assign new column titles, all with a single operation. With it you can quickly and easily reorganize the data in a file.



**Figure 5-10:**  
Script  
Editor

To load the schemes, make sure the TRAX is on the main menu and connected to the computer in the same manner that you would for downloading data. Use the *Select Com Port* field at the lower left to select the Com port that you are connected to. Review Lesson 2 of Chapter 4, *Downloading Data and Opening Existing Files*, for more information on set-

Like the Scheme Editor, the Script Editor can only be used when no files are currently open, so if you have any open in the program, close them now. Be sure to save any changes you need. Once that is done, click on the **File** menu and select **Script Editor**.

Scripts are created by defining individual rules that instruct the program to perform a specific function. Scripts that have been saved can be applied by selecting Run Script from the Tools menu of the Examine/Edit Data screen.

Each script can have up to 32 different rules defined. We're going to create a simple script to convert a 2 channel



volume file into a one channel volume file, so we won't use all 32 (just two, actually), but you'll get an idea of how they work.

First, click on the number 1 in the list of rules on the left so it is highlighted, then click the Edit Rule button in the Rule Editor field at the lower right. The Rule Editor field will then change into edit mode and allow you to select a function. There are seven options.

*No Operation* will leave the rule blank.

*Copy the Data* allows you to take a copy of the data from one column and place it in another, while leaving the original data. When this option is selected you are prompted to select the percentage of the data to copy, the column to copy it from and the column to copy it into. Note that you can select a percentage of higher than 100 if you want to factor the data higher when copying it.

*Move the Data* is similar in operation to Copy the Data, but does not leave the original data in place. When this option is selected you are prompted to select the percentage of the data to move, the column to move it from and the column to move it into. If you are moving data into a column that already has data the data will be added together. Note that you can select a percentage of higher than 100 if you want to factor the data higher when moving it.

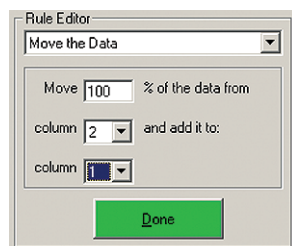
The *Decrease the Data* and *Increase the Data* selections allows you to either raise or lower the amount of data in a column by a specific percentage. When either of these options is selected you are prompted to select a column of data and the percentage to affect it by.

*Insert a Column* allows you to add a new column to the data. When this option is selected you are prompted to select where the new column should go by picking whether it should be placed before or after an existing column.

*Delete a Column* allows you to remove an existing column from the data.

*Subtract Data* allows you to subtract a percentage of data of one column from another column. When this option is selected you are prompted to select the percentage of the data to subtract, which column to use for the data, and which column the subtraction should be done in.

**Figure 5-11:**  
Create Rule



We are going to use rule one to move data, so select Move the Data from the list. We'll move all of the data, so set the percentage to 100%. The data we'll be moving is from column 2 into column 1, so set the first column field to 2 and the second column field to 1. Once you have made these selections, click the Done button and notice that the rule has been added to the list on the left.

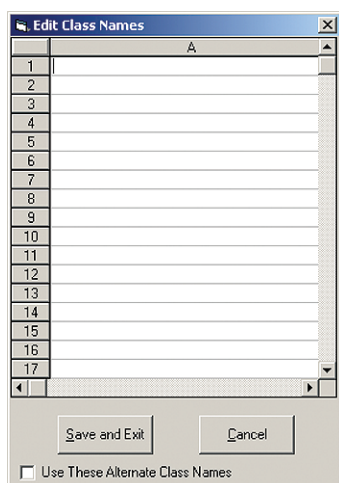
Next, click on the number 2 then click the Edit Rule button. We'll use this rule to delete column two, since we just moved all the data out of it. Select Delete Column from the list of options then select column two. Click Done and the rule is added.



**Note**

Note that the rules are executed in sequential order. In other words, rule one is applied to the data before rule two, which is applied before rule three, etc. We wouldn't have wanted to define the rules of our script in reverse order because we'd be deleting a column before we had the chance to move the data from it.





**Figure 5-12:**  
Assign New  
Labels

When you are using a script to change the number of columns in a file, as we are, you may want to also be able to change the labels for the columns. You can do this using the *Column Labels* field. This field allows you to apply new column labels to your data once the rules of the script have been applied.

Click on the Edit Labels button and the Edit Class Names window will appear. If you want new labels to be applied you enter the new labels here and place a check in the Use These Alternate Class Names box. We're going to label our new one channel file EB & WB, so enter this on the first line, then click the Save and Exit button. Notice that the Column Labels field is updated to show that alternate labels are going to be used.

You may not always want to assign new labels with a script, preferring instead to update the labels in the Examine/Edit data screen after the script has been applied. Be careful that you don't mislabel data when assigning new labels with a script.

Now that we've finished defining the rules for our script, we'll want to save it so we can see how it will actually work when applied to a file. The *Script Description* field is used to assign a name to the script. This is the name we'll see when we go to actually apply the script in the Examine/Edit data screen, so we want it to be descriptive enough that we'll know what it means. Click in this field and enter *2 Channel to 1 Channel E&W*. The E&W let's us know that this script is for combining Eastbound and Westbound data (since we've decided to automatically label the new data this way).

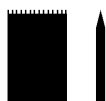
You are also given three options for how the program should execute the script.

*Replace Current Data* tells the program to directly apply the script you run to the data file you are working with.

*Place Results in a New File* tells the program to create a new file with the script results, while maintaining the original file.

*Ask Each Time* tells the program to prompt you each time you run the script to decide if you want to replace the current data or place the results in a new file.

Select *Ask Each Time* so we can choose when we actually apply the script, then click the Save Script button. You'll then be prompted to assign a file name to the script. Enter *2 to 1* and click Save.



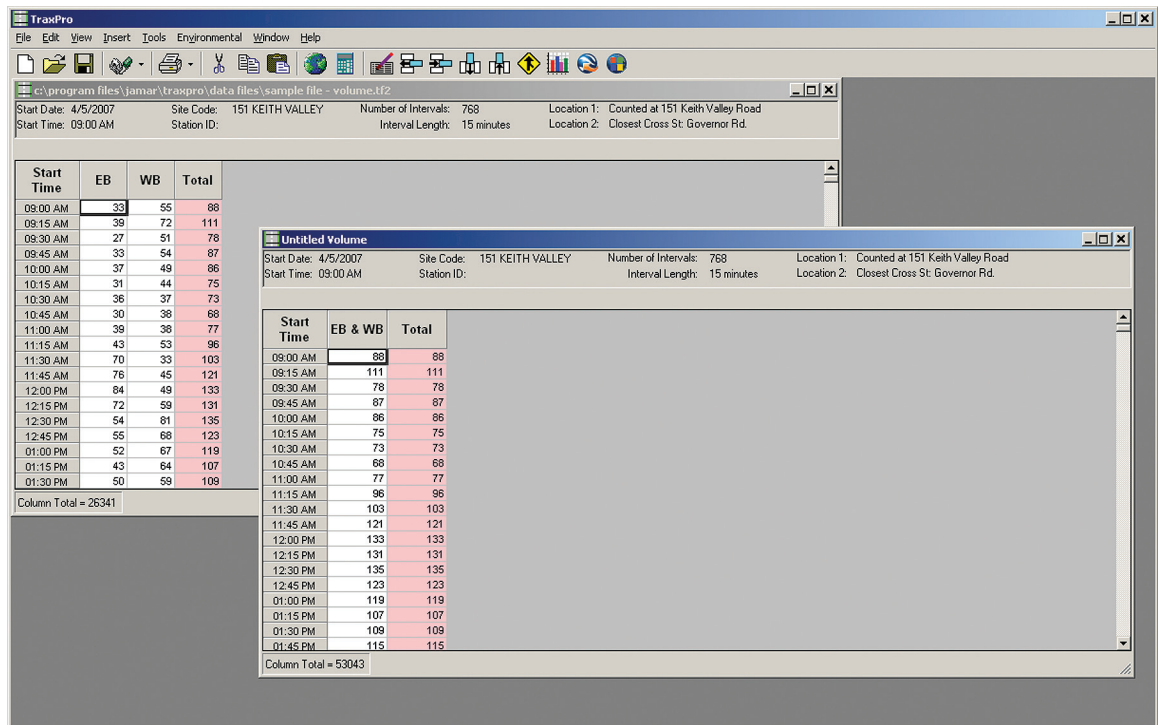
**Note**

Note that script files have to be saved in the root TRAXPro folder in order for the program to be able to recognize them.

We're now ready to see our script in action. Exit out of the Script Editor and open the *sample file - volume* file that was installed with the program. If you're not sure how to do this refer to Lesson 2 of Chapter 4.

To apply the script, go to the Tools menu then Run Script. All available scripts are listed. Click *2 Channel to 1 Channel E&W* and click OK. Since we defined our script to ask us how to execute the script, you're then prompted to decide if you want to put the data in a new file or not. Click Yes and you'll see the new file, with the original two columns combined and a new label assigned.





**Figure 5-13:**  
Applied  
Script

That's all there is to it. Obviously the script we created in this lesson is a simple one, but the options available in the Script Editor allow you to create much more complex ones.



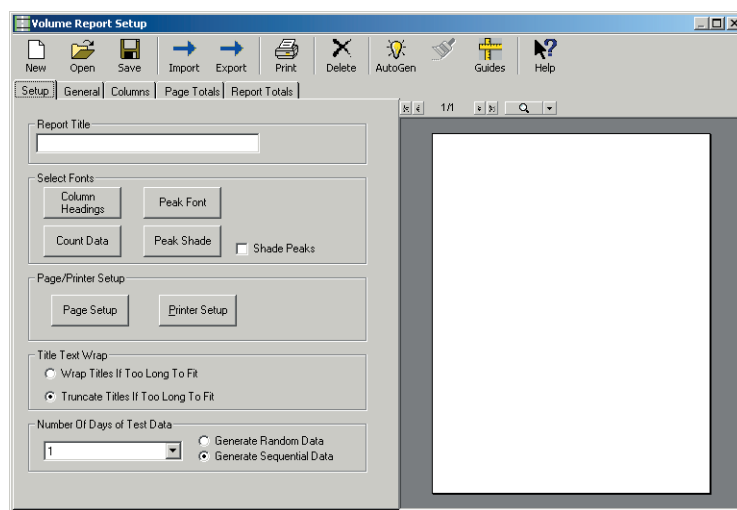
Congratulations! You have completed lesson two. In this lesson you learned how to create and apply scripts to your data. In the next lesson you'll learn the basics of producing custom reports for your data. You can take a break now, or jump right into the next lesson.



## Lesson 3 — Using the Report Generator

One of the most powerful features of TRAXPro is the ability to create your own report formats, or customize existing report formats. This is a feature you may never use – TRAXPro already comes with extensive report options and you may find that these met your needs. However, should you like to analyze your data in a specific way the program doesn't, or if you just want to make a few changes to an existing report, the Report Generator will let you.

There are two separate Report Generators, one for volume data and one for binned (class, speed, gap, etc.) data. For this tutorial we'll work with the volume report generator. To access the report generators all existing data files must be closed, so if you have any open close them now. Once you are ready, click on the File menu then select Volume Report Layouts.



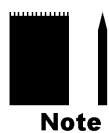
**Figure 5-14:**  
Volume  
Report  
Generator

The Volume Report Generator screen, shown in Figure 5-14, contains a number of editing tools to set up the report, and a large preview section that can be updated as the report is modified. The toolbar icons across the top of the screen can be used to perform some of the basic functions of the report generator.

There are five tabs that can be used to format the report itself. The first one you see is the Setup tab, which allows you to select

some of the overall settings for the report. This is where we are going to start.

Our first step is to define the report we want to create and assign a name to it. The report we are going to create is for two lanes (or channels) of hourly data and will show a full week on the page, along with analysis of the average daily volume for the week. This report will have a lot of data across the page so we'll be doing it in landscape format. Click in the **Report Title** field and type in *60 minute, 7 Days, Week Average - Landscape*.



**Note**

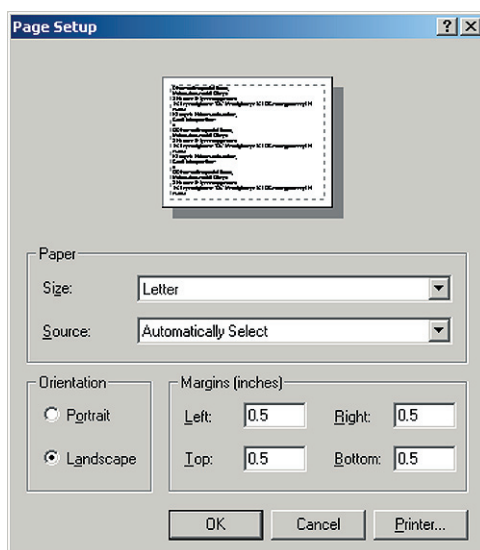
Note that we do not have to mention the number of lanes of data in the title of the report. When you go to print a report in TRAXPro the program will only list the reports that are compatible for the type of data you are working with. In other words, data comprising only one lane will only see one lane report formats, while data comprising two lanes will only see two lane report formats, etc.

Next we'll set the fonts for the report. In the **Select Fonts** field, click on the Column Headings button. This will open the standard Windows font selection screen, which allows you to select the font type, style and size. Since our report will have a lot of data in it we want to keep the font sizes small enough to fit everything in properly. Set the font to Arial, the style to Regular and the size to 8. Once this is done, click OK then repeat the same procedure for the Count Data.

After setting the Count Data font, click on the Peak Font button. We will use the same font and size as the Column Headings and Count data, but this time set the style to bold so the peak information stands out. Once this is done click OK. We can also make the peak data stand out even more in the report by shading it. To do this, click on the box next to Shade Peak so a checkmark appears, then click on the Peak Shade button. The Color screen lets you pick any color for the shading. However, keep in mind that you want to actually be able to see your data, so don't pick a color that's too dark. Once you have selected a color, click OK.



The **Page/Printer Setup** field allows you to select the printer that the reports will be printed to, as well as set the orientation (portrait or landscape) and margins for the report.



**Figure 5-15:**  
Report  
Generator -  
Page Setup

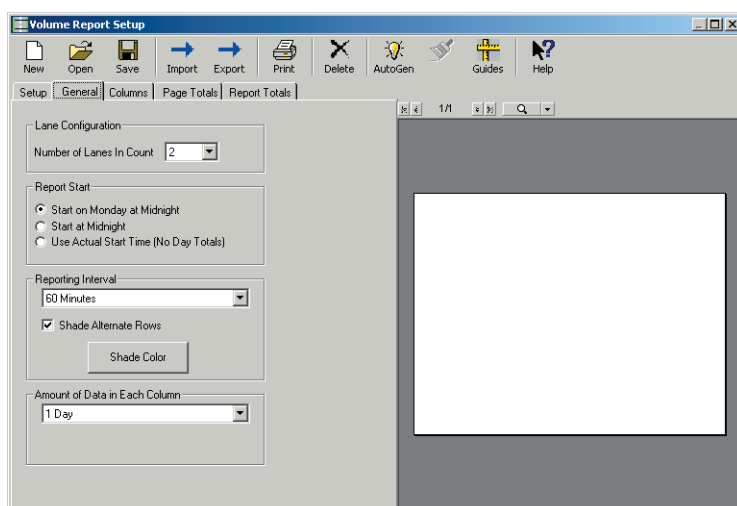
Click on the Page Setup button. Set the Orientation field to *Landscape* so we'll have enough room for all of our data. Notice that the preview page at the top changes to reflect your selection. Next, we'll set the margins for the report. We want the margins to be small enough so that we'll have plenty of room for our data, but not so small that the printer cuts off information. A setting of 0.5 is usually a pretty safe bet. Use this for the left, right, top and bottom margins, then click OK. You can then click on the Printer Setup button to check the default printer you have selected. Click OK once you have confirmed that the correct printer is selected.

The **Title Text Wrap** field allows you to determine what the program should do if it does not have enough space to print the column titles you are using. You can choose to either have the titles cutoff when they run out of space,

or wrap down to the next line. Set this to *Wrap Titles If Too Long To Fit*.

The **Number of Days of Test Data** field allows you to determine how much data to use for the report preview and whether this should be random or sequential data. The amount of data used can be important if you are creating reports that are designed to show several days or more of data on one page. Since our report will be for a week, set the number of days to 7, then select Generate Random Data.

Next, we'll move on to the General tab. Click the word General and this tab will appear. This tab allows you to select the overall format of the data for the report.



**Figure 5-16:**  
Report  
Generator -  
General tab

The **Lane Configuration** field allows you to select how many separate columns of count data will be used. In most cases, this number should correspond to the actual number of lanes of data you collected in the field. You can choose up to 16 lanes, but since our report will only be for two lanes, set this number to 2.

The **Report Start** field allows you to decide how the data in the report should start. You can choose to have it start at midnight on Monday, at midnight of what-

ever day the actual data starts or at the actual start time of the data. Our report is going to be for a full week of data so set the report to start on Monday at midnight.

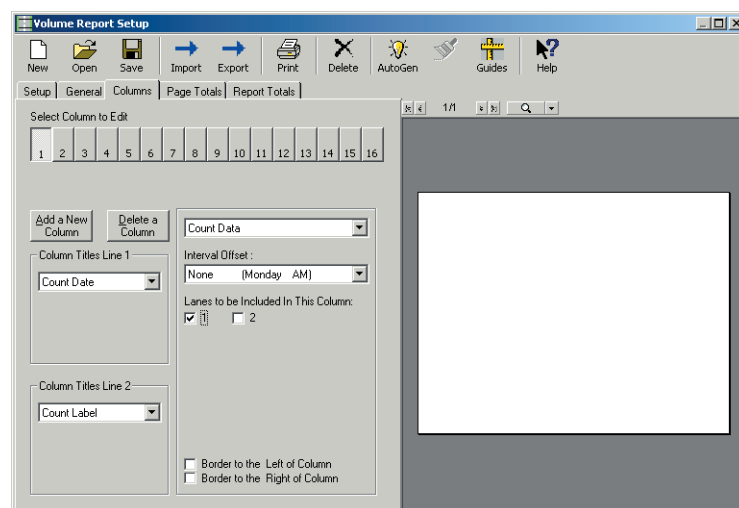


The **Reporting Interval** field allows you to select the length of the interval to be used in the report as well as to set the shade color. You can choose from 1, 5, 10, 15, 30, or 60 minute intervals. Since we labelled the report as a 60 minute one earlier, set the interval length to 60 minutes. Shading alternate intervals makes the reports easier to read, so we'll do this as well. Make sure there is a check mark in the *Shade Alternate Rows* box, then click on the Shade Color button. We recommend that the shade color not be too dark or too distracting. A good choice is the light gray box that is second from the left on the top row of the custom colors. Click this box then click OK.

The **Amount of Data in Each Column** field allows you to select how much data should be printed in each column. In general, reports done with intervals of 15 minutes or less should use a ½ day of data per column while reports with intervals of 30 or 60 minutes can use 1 day of data per column. The User Supplied selection allows you to pick a specific number of lines of data to use in the report. Our report is for 60 minute intervals, so set this field to 1 Day.

If you've set everything as described, your screen should look like the one shown in figure 5-16.

Now that everything is set on the General tab, click on Columns and this tab will appear. This tab allows you to setup the actual data columns that will be printed in the report.



**Figure 5-17:**  
Report  
Generator -  
Columns Tab

The **Select Column to Edit** field allows you to choose which column of the report you want to edit. To pick a column, click on the number you want. The *Add a New Column* and *Delete a Column* buttons can be used to add or subtract the number of columns available for editing. Notice that the report is currently defaulted to have eight columns. We need to add columns to be able to show all of our data. For this report we'll need two columns for each day of the week (one for each lane of

data) as well as two columns for the week average, so our total amount of columns should be 16.

Click on the Add a New Column button. A pop-up window appears to ask where you want the new column to go. Since we haven't edited any of the columns yet, this doesn't really matter so just click OK. Repeat this process until you have 16 columns. Now that we have the total number of columns that the report will need, we're ready to edit them.

Click on the button for column 1. The **Column Titles Line 1** and **Column Titles Line 2** fields can be used to assign headings to the selected column. There are several preset selections you can choose from for these headings. The blank selection will leave the heading blank. The User Supplied Text selection allows you to enter a word or choose from the preset word list. The Combine w/Previous selection tells the program to allocate the heading space to the title used in the previous column. With this setting you can have titles that cover more than one column. The Count Label selection allows the column to use the titles that have been entered for the data in the Examine/Edit Data screen. The Count Date and Count Day selections tell the program to use the actual dates and times of the data.



Our first column will represent the lane 1 data from Monday, so we'll assign the Line 1 title for this column as the start date of the week. Select Count Date from the list of options for Line 1. We'll use the Line 2 title to identify the data, so select Count Label from the list of options. This tells the report to use the label you assigned to the data when you were in the Examine/Edit screen. (Refer to page 4.17 for more information on how to assign labels for your data.)

Now that we've labelled the column it's time to define what data will actually be in the column. To do this we'll use the selection box to the right of the Delete a Column button that currently reads (*empty column*). Click on this box and you'll see six options listed.

- *Empty Column* will leave the column blank.
- *Count Data* tells the program to use the data from one of the lanes in the data file. If this is selected, a field titled 'Interval Offset' will pop up. This field allows you to have the data in the column start at a point other than the actual beginning of the data. This is useful if you are showing several days worth of data on one page, which is what we'll be doing with this report. We'll see how this comes into play shortly.
- When Count Data is selected the field 'Lanes to be Included in This Column' will also pop up, along with check boxes for each of the lanes.
- *Total/Subtotal* allows you to add up the data in other columns. If this is selected, a field titled 'Columns to be Totaled In This Column' will pop up, along with check boxes for each of the columns in the report.
- *Hour Splits* allows you to create hourly totals from data of interval lengths smaller than 60 minutes. If this is selected, check boxes for each of the columns in the report will pop up.
- *Average* allows you to create an average of several columns of data. If this is selected, check boxes for each of the columns in the report will pop up. We'll be doing this for our report.
- *Graph* allows you to create a bar graph of the data. If this is selected, you are given the option of picking the color for the graph. Also, a field titled 'Columns to be Graphed In This Column' will pop up, along with check boxes for each of the columns in the report. Check off the column or columns you want to graph. If you would like to extend the graph beyond one column, set subsequent columns to Graph and the graph will use these columns as well.

Now that you're familiar with the options available to you we can proceed. We want column 1 to be the Monday data for Lane 1, so select Count Data. In the *Lanes to be Included in this Column* field, place a check in the '1' box. Since the data in this column will be starting on Monday we don't need to change the Interval Offset selection.

Next, click on the button for column 2. This column will also contain data for Monday, but for lane 2. Since the data is from the same day, we'll extend the Count Date selection we applied to the Line 1 titles of column 1 to also cover this column. To do this, select *Combine w/Previous* for the Line 1 title. As before, we'll use the Line 2 title to identify the data, so select Count Label from the list of options.

Next, select Count Data as the type of data, but this time place a check in the '2' box, indicating that this data is for lane 2. Again, we don't need to change the Interval Offset since we're still working with Monday's data.



Now we're ready to move to the next day of data for the report. Click on the button for column 3. This time, rather than list the count date in the line 1 title we'll list the day of the week, so select Count Day from the list of options. As we did with the other two columns, set the line 2 title to Count Label.

Select Count Data for the type of data, but this time we'll need to use the Interval Offset since the data in this column will be for Tuesday. Select *1 Day (Tuesday AM)* from the list of options, then place a check in the box for lane 1 data.

Once this is done, click on the button for column 4 and format it. The settings to use are: Combine w/Previous for the line 1 titles, Count Label for the Line 2 title, Count Data for the type of data, 1 Day (Tuesday AM) for the offset and 2 for the Lane to include in the column.



Now that we've got a few columns edited, let's check to see if we're on the right track. Click on the icon labelled *Guides* in the toolbar and a preview of the report will appear on the right side of the screen. Double-click on any area of the preview to get a closer look. The scroll bars to the right and bottom of the preview can be used to move around. Notice also that if you hold down the left mouse button and move the mouse the cursor will turn into a hand and allow you to move the preview of the screen.

Zoom in and take a look at the columns you've setup so far. Notice that the line 1 title for columns 1 and 2 is the start date of the data, while the line 1 title for columns 3 and 4 is the day of the week, as shown here.

	1	2	3	4
60 minute, 7 Days, Week Average - Landsc				
Start	22-Oct-01	Tue		
Time	Lane 1	Lane 2	Lane 1	Lane 2
12:00 AM	*	*	*	*
01:00	*	*	*	*
02:00	*	*	*	*
03:00	*	*	*	*
04:00	*	*	*	*
05:00	*	*	*	*
06:00	*	*	*	*
07:00	*	*	*	*
08:00	*	*	*	*
09:00	*	*	*	*
10:00	*	*	*	*

After you've zoomed in you can right-click on any of the preview area to return to the original perspective.

Finish formatting the remaining days of data for columns 5 through 14. Use the Count Day and Combine w/Previous settings for your line 1 titles, and the Count Label setting for your Line 2 titles. Use the Count Data selection for the type of data and increment the Interval Offset by one day for every two columns – set columns 5 & 6 to *2 Days (Wednesday AM)*, columns 7 & 8 to *3 Days (Thursday AM)*, columns 9 & 10 to *4 Days (Friday AM)*, columns 11 & 12 to *5 Days (Saturday AM)*, and columns 13 & 14 to *6 Days (Sunday AM)*. Also be sure to check the correct box for the Lanes to Include In This Column – odd numbered columns (5, 7, 9, 11 & 13) should be set for lane 1, even numbered columns (6, 8, 10, 12 & 14) should be set for lane 2.



Once you've finished, save the report. It's always a good idea to save your work as you go, that way if something unexpected occurs you won't have to start all over again. Click on the Save icon in the toolbar. When the Save window appears, click Save and your work up to this point will be protected.

When you are ready, click on the button for column 15. We're going to use this column, along with column 16, to show the week average of the data. Set the Line 1 Titles to User Supplied Text, then type in 'Week Average' in the line directly below. Select Count Label for the Line 2 titles.

Next, for the data type select 'Average'. Notice that as soon as you select Average check boxes for all the columns appear. These are used to select the columns you want to average. Since this column will be the average of all the lane 1 data, check off all the columns that have data for lane 1 (1, 3, 5, 7, 9, 11 & 13).

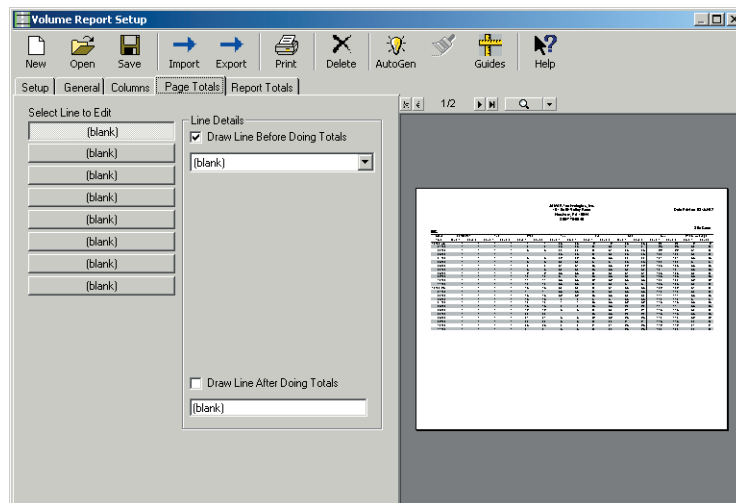


Click on the button for column 16. We'll extend the 'Week Average' label we set up in column 15 to cover this column as well, so set the Line 1 title to Combine w/Previous. Set the Line 2 title to Count Label, then select 'Average' for the data type as you did for column 15. This column is going to be the average of all the lane 2 data, so check off all the columns that have data for lane 2 (2, 4, 6, 8, 10, 12, 14).



To see these columns in the preview, click on the ReGen icon in the toolbar. The ReGen selection tells the preview to update itself with any new changes to the report. Notice that there is now data in the 15 and 16 columns. The ReGen option lets you check your work as you make changes, so you can be sure the changes were correct.

We're finished setting up the columns for the report, but before we move on, let's make the report a little easier to read by putting borders between each day of data. Click on the button for column 2, which contains the Lane 2 data for Monday. Notice the two check boxes that read *Border to the Left of Column* and *Border to the Right of Column* near the bottom center of the screen. These can be used with any column in the report to place divider lines. Place a check mark in Border to the Right of Column, then repeat the process for the remaining days of the week by placing borders to the right of all the even numbered columns, with the exception of the last (16) column. Click the ReGen button and you should see borders dividing each day of the report (you may have to zoom in to see them all).



Now we're ready to move on and create some totals for the report. Click on Page Totals and this tab will appear. This tab allows you to create totals of the data on a page by page basis. You can have up to eight lines of totals on a page.

The eight buttons in the **Select Line to Edit** field are used to choose the line of totals you want to edit. Once a line is selected, the **Line Details** field is used to determine the type of page totals you want to list. Click on this box and you'll see seven options.

**Figure 5-18:**  
Report  
Generator -  
Page Totals

- *Blank* will leave the row empty.
- *Column Totals* allows you to sum one or more columns of data. If this is selected, a field titled 'Columns to be Totaled' will pop up, along with check boxes for each of the columns in the report.
- *Sum Adjacent Columns* allows you to add together columns of data that are next to each other. If this is selected, a field titled 'Columns to be Totaled' will pop up, along with check boxes for each of the columns in the report.
- *Peak Hour* allows you to list the peak hour for any of the data columns in the report. If this is selected, a field titled 'Columns to Calculate Peak' will pop up, along with check boxes for each of the columns in the report.



- *A.M. Peak Hour* and *P.M. Peak Hour* are similar to the Peak Hour selection, but will only look for the peak hours before or after 12 PM. If either of these is selected, a field titled 'Columns to Calculate Peak' will pop up, along with check boxes for each of the columns in the report.
- *Percentage* allows you to list what percent a column is of another column. This is most often used to determine what percentage each lane's volume is of the overall volume. If this is selected, a selection box titled 'Select Column' will pop up, along with a field titled 'Columns to Total for Percentages' with check boxes for each of the columns in the report.

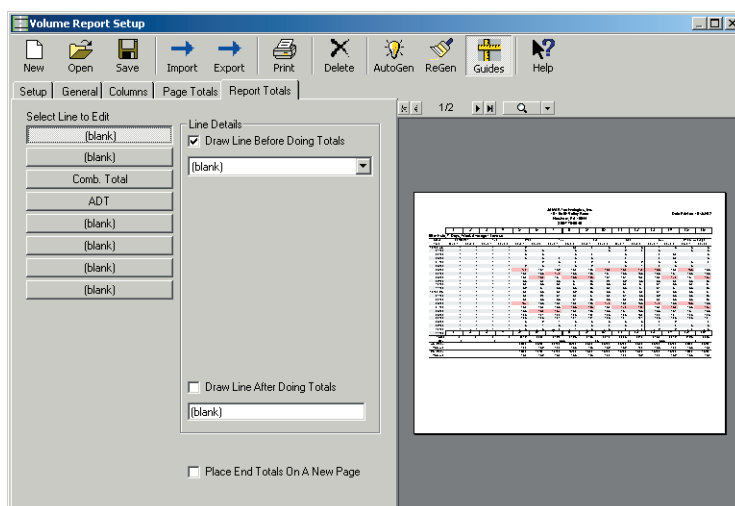
Now that you're familiar with options available to you we can proceed. We're going to set the first line of page totals to be totals of each column in the report. Click the first (blank) line under Select Lines to Edit. In the Line Details field, make sure there is a check in the Draw Line Before Doing Totals box, then select *Column Total* from the list of options. We're going to total all of the columns in the report, so place checkmarks in all 16 boxes. The text box at the bottom of this field can be used to enter a label for the totals you're designing. We'll leave this with the default label of 'Total'.

Next, click on the second line under Select Line to Edit. We'll use this line to show overall daily totals, with both lanes combined. Select *Sum Adjacent Columns* from the list of options. This option adds together columns of data that are next to each other. In the Columns to be Totaled area, place a check next to the number 1 column. This will give you a total for the number 1 column and its adjacent column, the number 2 column. Now place a check next to every odd numbered column. Once this is done, check off the box for Draw Line After Doing Totals, and change the default label from 'Combined Total' to simply 'Day', indicating that these are the overall daily totals.

Once this is done, click on the ReGen icon to update the preview. You can then zoom in to see the totals you've added.

Now that we have the totals set up, let's have the report find the peak hours for the data. We'll do this for both the AM data and for the PM data. Click on the third line under Select Line to Edit then select *A.M. Peak Hour* from the list of options. We want to calculate the peak for all the columns in the report, so check off all 16 boxes in the Columns to Calculate Peak field. Also place a check in the Draw Line After Doing Totals. Once that is done, click on the fourth line under Select Line to Edit, choose *P.M. Peak Hour* from the list of options, and repeat the same process described above. Click the ReGen icon to check the changes you've made.

Now we'll move on to the final part of the report. Click on Report Totals and this tab will appear.



**Figure 5-19:**  
Report  
Generator -  
Report Totals

These totals are used for all the data in a report, regardless of the page it appears on. Since we want these to be separated from the existing totals, set the first two selections under Select Line to Edit to *Blank*. Next, click on the third box under Select Line to Edit and choose *Sum Adjacent Columns* from the list of options. We are going to use this line to show the combined daily totals (lane 1 and lane 2) for the entire report. Like you did for the Combined Totals in the Page Totals tab, check off



all the odd numbered columns. Next we'll shorten the description of these totals so they fit better on the page. Abbreviate the name to Comb. Totals.

The last item we'll add to the report is a listing for the Annual Average Daily Total (AADT) and Average Daily Total (ADT). Click on the fourth box under Select Line to Edit and choose *ADT/AADT* from the list of options. This selection will print the ADT and AADT that you have calculated for the data. (Refer to page 4.18 for information on how this is done.) Shorten the description of this line to just ADT, then click the ReGen icon to update the preview.



Our report is now finished. If you want to print a sample copy of it, click on the Print icon to send the preview to your printer. Your finished report should look similar to the one in Figure 5-20. Don't worry if your report didn't come out exactly as you expected. A copy of the report we just created was included when you installed TRAXPro.

JAMAR Technologies, Inc.  
151 Keith Valley Road  
Horsham, PA 19044  
800-776-0940

Date Printed: 10-Jul-02

Site Code:

60 minute, 7 Days, Week Average - Landsc

Start Time	22-Oct-01		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
12:00 AM	*	*	*	*	47	41	45	45	43	48	48	47	42	50	45	46
01:00	*	*	*	*	45	45	43	44	40	42	44	40	50	42	44	43
02:00	*	*	*	*	46	42	46	45	43	50	43	44	41	44	44	45
03:00	*	*	*	*	43	50	46	42	44	41	49	44	44	44	45	44
04:00	*	*	*	*	43	41	43	46	43	41	46	43	44	43	44	43
05:00	*	*	*	*	48	40	43	45	49	48	46	50	45	45	46	46
06:00	*	*	*	*	160	163	168	167	170	164	164	168	162	161	165	165
07:00	*	*	*	*	168	165	168	169	164	165	161	167	165	165	165	166
08:00	*	*	*	*	168	169	166	164	163	161	166	164	163	170	165	166
09:00	*	*	*	*	87	85	90	83	82	81	87	87	86	86	86	84
10:00	*	*	*	*	80	84	89	83	82	82	89	83	85	89	85	84
11:00	*	*	*	*	84	88	82	82	86	80	88	84	82	87	84	84
12:00 PM	*	*	*	*	89	88	87	85	84	87	80	84	89	84	86	86
01:00	*	*	*	*	88	87	90	82	84	85	85	89	87	87	87	86
02:00	*	*	*	*	84	87	82	86	87	86	89	81	85	81	85	84
03:00	*	*	*	*	170	170	165	164	163	162	164	166	164	168	165	166
04:00	*	*	*	*	169	163	161	169	166	165	167	163	161	167	165	165
05:00	*	*	*	*	161	165	170	165	162	167	165	161	168	165	165	165
06:00	*	*	*	*	129	124	127	122	122	128	125	122	125	122	126	124
07:00	*	*	*	*	124	127	120	127	126	124	125	121	128	122	125	124
08:00	*	*	*	*	45	42	46	47	41	49	44	44	46	43	44	45
09:00	*	*	*	*	48	44	41	46	45	47	44	50	48	48	45	47
10:00	*	*	*	*	41	45	41	48	49	41	43	45	40	41	43	44
11:00	*	*	*	*	46	48	48	42	43	46	41	45	42	45	44	45
Total	0	0	0	0	2213	2203	2207	2196	2181	2190	2203	2192	2192	2199	2198	2197
Day	0	0	0	0	4416	4405	4405	4371	4371	4395	4395	4391	4391	4395	4395	4395
AM Peak	07:00	08:00	07:00	06:00	07:00	06:00	07:00	06:00	07:00	06:00	06:00	07:00	06:00	06:00	06:00	07:00
Volume	168	169	168	169	170	165	166	168	165	168	165	170	165	165	166	166
PM Peak	15:00	15:00	17:00	16:00	16:00	17:00	16:00	15:00	16:00	15:00	17:00	15:00	17:00	15:00	15:00	15:00
Volume	170	170	170	169	166	167	167	166	168	168	168	168	165	165	166	166

**Figure 5-20:**  
Report  
Generator -  
Finished  
Report



## Lesson 4 — Programming the Radar Recorder

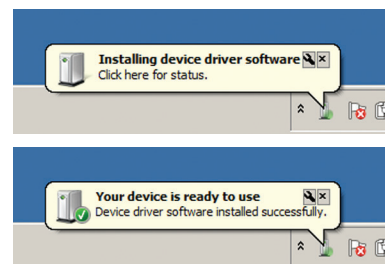
TRAXPro can be used to program the Radar Recorder. To do this, open the case of the Radar Recorder and connect your laptop to the serial port of the Radar Recorder Head unit.



**Figure 5-21:**  
Connecting  
Radar  
Recorder

**NOTE:** The cable that connects the Radar Recorder to your laptop makes use of a USB serial adapter. This adapter requires that a USB driver be installed for it to work correctly. If you received your laptop directly from JAMAR, the driver has already been installed, so you do not need to worry about this.

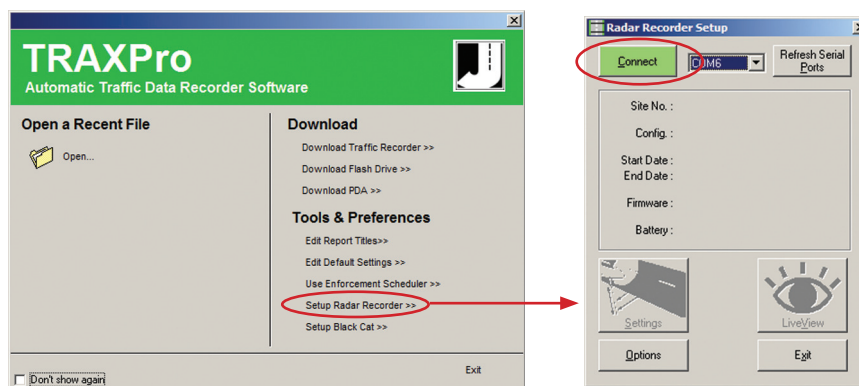
If you are using your own computer, when you plug in the USB adapter for the first time you should see a pop-up message along your Windows taskbar like the one shown to the right.



Windows will take a minute or two to find the proper driver and install it. This process is done when you see the message shown to the right.

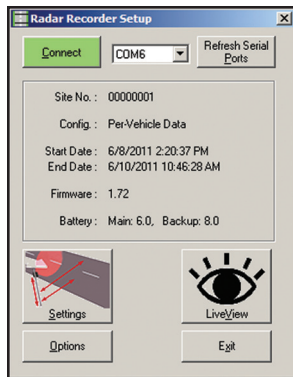
If the driver does not install automatically, refer to the appendix for instructions on manually installing the driver.

Start the TRAXPro software on your laptop and select **Setup Radar Recorder** from the Tools & Preferences section of the Quick Start screen. Once the Radar Recorder Setup screen appears, click the **Connect** button.



**Figure 5-22:**  
Radar  
Recorder  
Setup





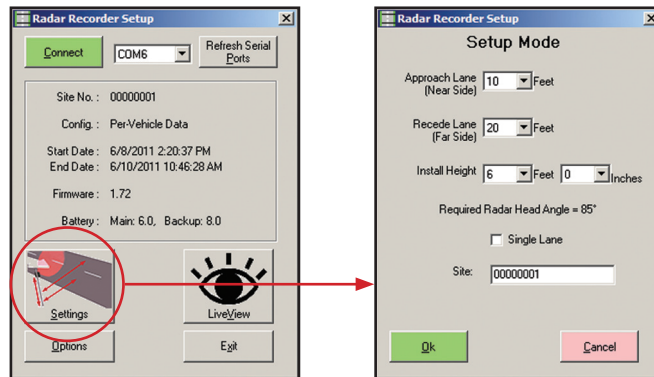
**Figure 5-22:**  
Radar  
Recorder  
Status

TRAXPro will attempt to connect to the Radar Recorder and, if successful, show the current status of the unit.

The status lists the currently entered Site Code, the configuration format (defaulted to Per Vehicle), the start and end date of any data currently in the recorder, the current firmware version of the Radar Recorder and the battery voltage level of both the main and backup batteries.

The buttons along the bottom of the screen are used to access other features of the setup which are discussed on the next few pages.

To setup a study, tap the *Settings* button at the lower left of the main setup screen. The Setup Mode screen will then appear, which allows you to enter the lane configuration for your site.

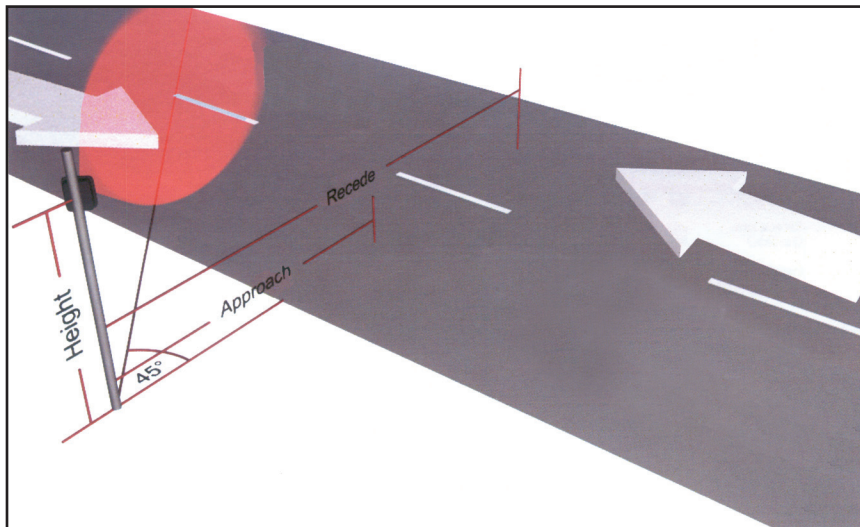


**Figure 5-23:**  
Radar  
Recorder  
Settings

There are three lane configurations that are available for data collection: Normal Bidirectional mode, Reverse Bidirectional mode and Single Lane mode.

### Normal Bidirectional Mode

Normal bidirectional mode is the most commonly used lane configuration. This refers to a two lane road where the Radar Recorder has been mounted with traffic approaching the unit in the near side lane, as shown below.



**Figure 5-24:**  
Radar  
Normal  
Mode



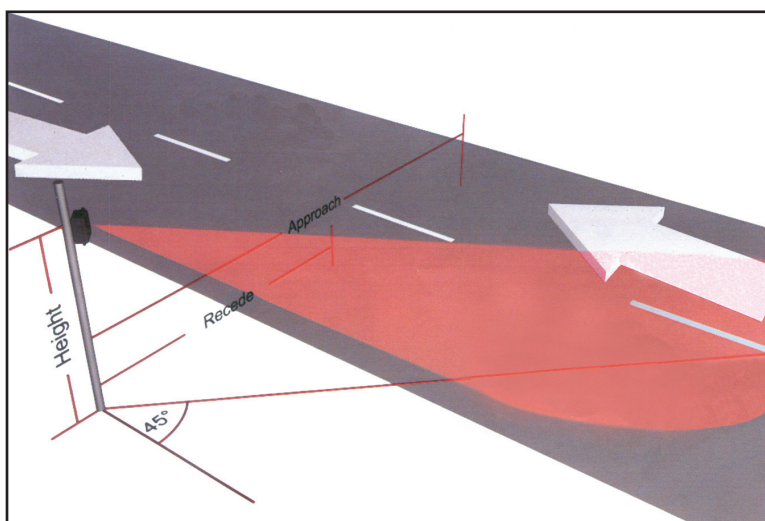
**Figure 5-25:**  
Radar  
Recorder  
Lane Settings

The distance from the Radar Recorder to the middle of the Approach Lane (near side) and the middle of the Recede Lane (far side), should be entered here, as well as the installed height of the Radar Recorder. Note that the lane distances should be measured directly from the pole to the road, as shown in the graphic.

The distances can be estimates, but should be reasonably accurate to ensure good results.

The Radar Head angle is set by rotating the Radar Head in the cabinet, which is discussed in the Radar Recorder manual.

### Reverse Bidirectional Mode



**Figure 5-26:**  
Radar  
Reverse  
Mode

Reverse bidirectional mode refers to a two lane road where the Radar Recorder has been mounted with traffic approaching the unit in the far side lane, as shown below. Note that while the Recorder does work well when mounted backwards, we recommend mounting it forwards whenever possible as it has been optimized to work this way.

Enter the Lane Distances and Install Height in the same fashion as Normal mode.

### Single Lane Mode

**Figure 5-27:**  
Radar  
Single Lane  
Mode

As the name implies, single lane mode is for use when you want to record just one lane of a road.

This can be achieved by setting the Approach and Recede lanes to equal distances.

If you check off the Single Lane box, the Approach and Recede distances are locked together, so increasing one automatically increases the other.

The Radar Head angle is set by rotating the Radar Head in the cabinet, which is discussed in the Radar Recorder Manual.

### Uploading Settings into the Recorder

**Figure 5-28:**  
Upload  
Warning

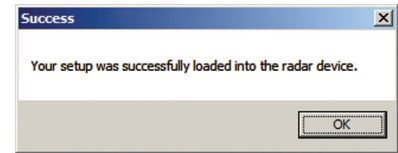
Once you have entered the lane distances, install height and site code that you want, click the OK button to have these settings uploaded into the Radar Recorder.

**IMPORTANT NOTE:** Uploading new settings into the Radar Recorder will delete any data currently in the Radar Recorder. TRAXPro prompts you with this warning before allowing you to



continue, as shown in Figure 5-26. Press 'YES' to delete data in memory and continue the upload. Press 'NO' to cancel the settings upload and download the data in memory instead. The download process is described in Chapter 4.

If the upload is successful, you'll see the confirmation message shown to the right. Click OK to return to the main status screen.



### Checking the Installation with LiveView

Once you have installed the Radar Recorder and set it up to record the data you want, you can check your installation to be sure data is being accurately recorded.

To do this, click the LiveView button on the main setup screen.

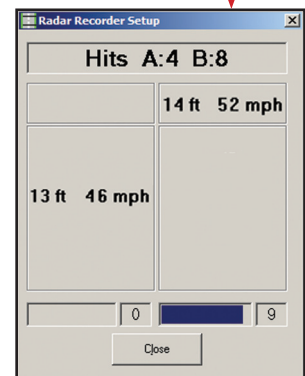
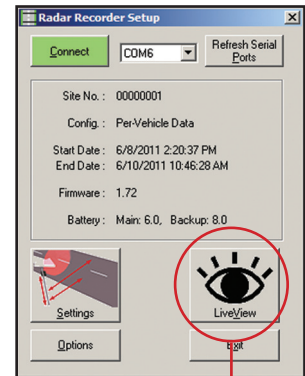
The LiveView screen will display the data in real time, as it is recorded, including vehicle length and speed.

The signal strength is displayed as two sets of bars below each lane's details. The maximum signal strength is 9. If the signal strength for a lane is low, try slightly rotating the Radar Head toward that lane.

Note that if you have just installed the Radar Recorder, it can take up to 5 vehicles in each lane to fully configure the Radar head.

On the Radar Recorder itself, the Status light should flash every few seconds, to let you know the unit is operating correctly. The Near Side light should flash any time a vehicle passes in the near lane. Similarly, the Far Side light should flash any time a vehicle passes in the far side lane.

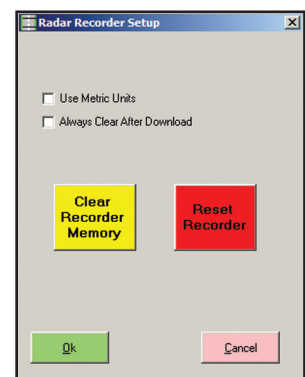
**IMPORTANT:** We highly recommend that you use the LiveView to verify that the Radar Recorder is correctly recording vehicles before you leave the site. If the LiveView is not showing vehicles as they pass, the recorder is not getting good data. Double check all setup settings and refer to the Troubleshooting chapter for more items to check.



### Using the Options Screen

There are several default settings that you can configure with TRAXPro for use with the Radar Recorder. To access these, click the Options button.

The first option, *Use Metric Units*, sets the LiveView to use KPH for speed and meters for length when showing vehicles. The second option, *Always Clear After Download*, tells TRAXPro to always clear the memory of the Radar Recorder after data has been downloaded. The *Clear Recorder Memory* button will delete all data from the memory of the Radar Recorder. The *Reset Recorder* button will clear the memory AND reset all the settings of the Recorder to their factory defaults.





# Chapter 6



## Interpreting Reports

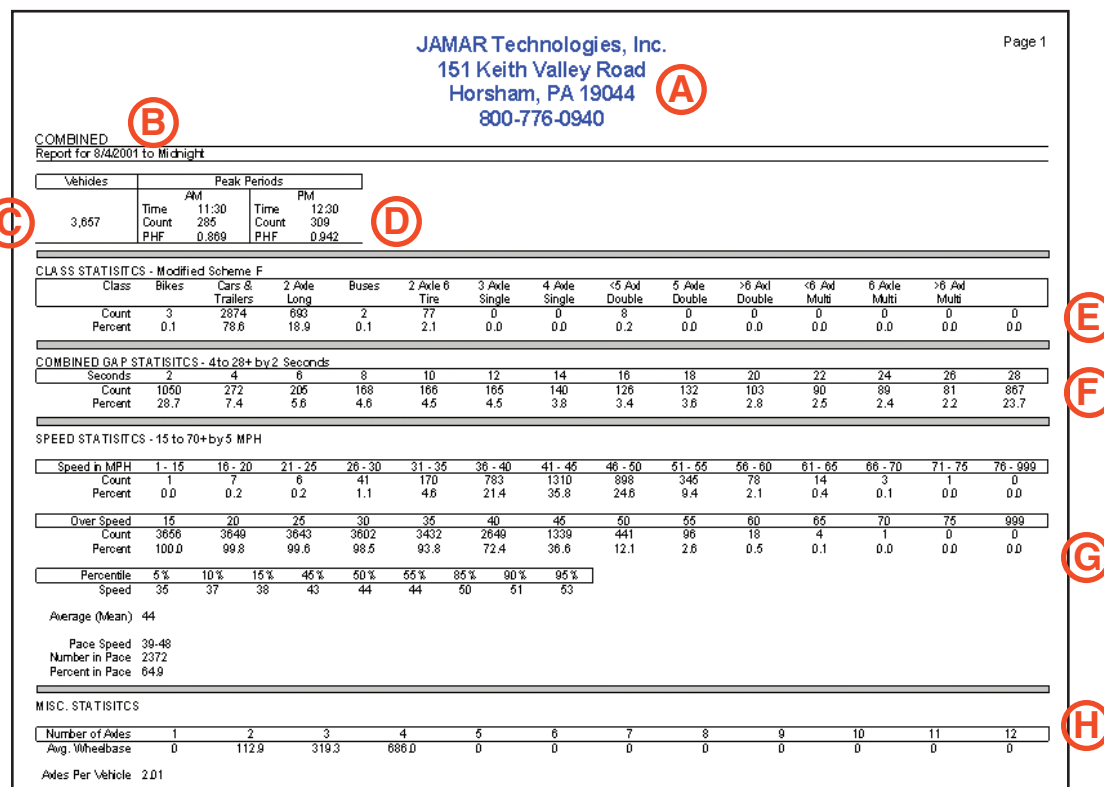


# Interpreting Reports

TRAXPro comes with a wide range of reporting options for all of the data types used by the program. The following are examples of the reports that the program provides, and the type of data they contain.

## Per Vehicle Stat Print

These summary reports are generated by clicking on the Stat Print button in the Per Vehicle Menu. They can contain totals for Volume, Speed, Class and Gap data along with additional analysis.



**Figure 6-1:**  
Per Vehicle  
Stat Print

### Report Titles

These are automatically applied to the report using the information entered on the Titles tab of the Preferences screen.

### Directions and Time Period

These lines show the direction of data used for the report and the time period. For the direction, either the Direction Description for an individual direction will be listed or 'Combined' will be listed if the option to combine directions was selected.

### Volume Totals

This field lists the overall volume total for the report's time period.

### Peak Information

This field provides peak information for both the AM and PM time periods of the data. The start of each peak hour is listed, along with the total volume and Peak Hour Factor. Note that Peak information is not listed if the time period for the report is greater than 24 hours.



**Class Statistics**

This area provides a summary of the class data. The total volume of each class is listed, along with what percentage that volume is of the overall total.

**Gap Statistics**

This area provides a summary of the gap data. The total number of gaps for each time interval (in seconds) is listed, along with what percentage this number is of the overall total. Note that when you combine directions of data you get true combined gap information for both directions of data.

**Speed Statistics**

This area provides a summary of the speed data. Total volumes are provided for each speed category along with what percentage that volume is of the overall total. Analysis is provided for the number and percentage of vehicles over fixed speed limits, and percentile speeds ranging from 5 to 95. The Average (mean) speed is also given, along with Pace information.

*Percentiles* – A percentile speed is the speed below which the stated percent of vehicles traveled. This is the same as saying ‘85 percent of the traffic was traveling at this speed or slower.’ The 85th percentile usually represents the maximum reasonable speed for the traffic and is often used in determining speed limits. The 15th percentile is often used for the minimum reasonable speed.

*Pace Speed* – The Pace Speed represents the 10-mph speed range in which the highest percentage of vehicles was recorded. For example, if the pace speed is 26 to 35, then you could say ‘More vehicles were traveling 26 to 35 mph than any other 10 mph speed range’. The Number in Pace gives the total number of vehicles that were in the pace speed range while the Percent in Pace gives what percentage this was of the overall data. The lower the percentage of vehicles in the pace speed range, the more widely dispersed the speeds in the study are.

**Misc. Statistics**

This area provides information on the average wheelbases of vehicles in the study, based on the vehicle’s number of axles. It also lists the average number of axles for a vehicle in the study.



## Volume Reports

Volume reports contain data on the amount of vehicles to pass during the studies time period, usually on a lane by lane basis. These reports can use a variety of interval lengths (15 min., 60 min., etc).

Generally, each report will provide interval totals per lane as well as overall totals. Multi-lane files also provide combined totals. Depending on the report, you may also see different percentage breakdowns. These list what percentage each lane (or any given value) is of the overall total volume (or any overall value).

Below is a sample page from a 2 lane, 60 minute week average volume report. Other volume reports may be laid out differently, but will provide the same basic information.

**JAMAR Technologies, Inc.**  
 151 Keith Valley Road  
 Horsham, PA 19044  
 www.jamartech.com

**Page 1**  
 Date Printed: 06-Nov-01  
 Site Code: 0000000000009799023

Start Time	12-Feb-01		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	57	74	74	110	125	174	104	139	*	*	90	124
01:00	*	*	*	*	19	21	126	62	86	106	60	84	*	*	73	68
02:00	*	*	*	*	20	27	40	31	52	71	59	66	*	*	43	49
03:00	*	*	*	*	11	13	21	12	20	30	32	27	*	*	21	20
04:00	*	*	*	*	41	32	38	30	32	27	30	27	*	*	35	29
05:00	*	*	*	*	130	121	131	139	65	73	60	50	*	*	96	96
06:00	*	*	*	*	261	314	263	281	121	114	100	116	*	*	186	206
07:00	*	*	*	*	<b>602</b>	<b>520</b>	<b>607</b>	<b>500</b>	191	172	137	153	*	*	<b>384</b>	<b>336</b>
08:00	*	*	*	*	538	408	511	392	263	285	196	232	*	*	377	329
09:00	*	*	*	*	424	414	413	467	366	391	304	371	*	*	377	411
10:00	*	*	*	*	421	437	4	190	<b>438</b>	519	331	462	*	*	308	477
11:00	*	*	*	*	403	506	113	450	434	<b>552</b>	<b>380</b>	<b>492</b>	*	*	332	<b>500</b>
12:00 PM	*	*	*	*	438	563	458	628	387	570	<b>465</b>	<b>504</b>	*	*	43	566
01:00	*	*	*	*	440	554	456	625	399	<b>575</b>	382	424	*	*	41	<b>544</b>
02:00	*	*	*	*	476	692	528	726	389	525	459	439	*	*	463	596
03:00	*	*	*	*	546	752	<b>550</b>	<b>783</b>	<b>424</b>	554	248	331	*	*	442	605
04:00	*	*	<b>552</b>	<b>776</b>	<b>584</b>	<b>783</b>	526	<b>802</b>	383	534	*	*	*	*	<b>511</b>	<b>724</b>
05:00	*	*	483	728	534	762	532	692	347	512	*	*	*	*	474	674
06:00	*	*	428	528	446	593	486	713	396	511	*	*	*	*	439	586
07:00	*	*	285	476	325	540	422	601	344	429	*	*	*	*	344	512
08:00	*	*	258	324	271	401	370	431	272	373	*	*	*	*	293	382
09:00	*	*	205	265	229	359	451	359	258	292	*	*	*	*	286	319
10:00	*	*	132	190	158	272	210	323	159	347	*	*	*	*	165	283
11:00	*	*	85	147	114	191	185	279	146	252	*	*	*	*	132	217
Lane Day	0	0	2428	3434	7488	9349	7552	9926	6097	7988	3347	3917	0	0	6727	8653
AM	0	0	5862		16837		17478		14085		7264		0	0	15380	
Peak Volume					602	520	607	500	438	552	380	492			384	500
PM																
Peak Volume			16:00	16:00	16:00	16:00	15:00	16:00	15:00	13:00	12:00	12:00			16:00	16:00
			552	776	584	783	550	802	424	575	465	504			511	724
Comb. Total	0		5862		16837		17478		14085		7264		0		15380	
ADT	ADT 15,528		AADT 15,528													

**Figure 6-2:**  
Sample  
Volume  
Report

### Report Titles

These are selected in the Heading-Page Number tab of the Volume Reports setup screen. They can be changed or modified in the program's Preferences screen

### Default Comments

These are selected in the Heading-Page Number tab of the Volume Reports setup screen. They can include Site Code, Station ID, Location information and GPS information, among other.

### Column Titles

These are generally read in from the data file that the report is produced from. In the sample file, the titles used are EB (eastbound) and WB (westbound). The titles also reflect when the data was collected.



**Interval Times**

- D** These are based on the interval time that has been set in the report that was selected. The most common interval lengths are 15 and 60 minutes. In the sample file, 60 minute intervals are used.

**Data**

- E** This area shows the actual data that was collected during the study and is used for the statistical analysis. In some reports, peak time periods are shaded and/or shown in bold.

**Interval Totals/Averages**

- F** This area provides totals (or averages) for the data on an interval by interval basis. In the sample file, these are interval averages of the data.

**Page Totals**

- G** These provide data totals for the columns in the report on a page-by-page basis. What totals they represent depends on the data used in the report and the layout of the report. In the sample file, totals are provided for each lane, and for the two lanes combined.

**Peak Information**

- H** Many volume reports will list the Peak Hour (also referred to as Peak) for either a full day, or a portion of the day (such as AM or PM). This is the 60-minute period in which the most traffic was recorded during the time selected. The volume for that hour is also listed, along with the Peak Hour Factor (also known as PHF). The Peak Hour Factor is used to indicate how evenly the rate of flow of traffic is during the peak hour. Refer to the Appendix for information on how this is calculated.

**Overall Totals**

- I** The final page of many volume reports provide totals of all the data in the report. The sample file is a one-page report, so the Overall Totals match those of the Page Totals.

**Average Daily Total (ADT) and Annual Average Daily Total (AADT)**

- J** Most volume reports will provide the Average Daily Total (ADT) and Annual Average Daily Total (AADT). These are calculated and saved in the file's header using the Calculate AADT selection of the Tools menu. Refer to the Appendix for more information on how these are calculated.



## Classification & Length Reports

Classification reports contain vehicle volume data broken down into various vehicle types, or classifications. Vehicle classifications are largely determined based on the number of axles a vehicle has, and the spacing of those axles. These reports can use a variety of interval lengths (15 min., 60 min., etc) and can be for one or more directions (or lanes) of data.

The volume information contained in class data can be reported using the same methods described in Interpreting Volume Reports, usually listing each classes' total and what percentage the class is of the overall total. *Length Reports work the same as class reports.*

Below is a sample page from a 2 direction, 60 minute class report. Other class reports may be laid out differently, but will provide the same basic information.

Page 7  
Date Printed: 06-Nov-01  
Site Code: 00000000413

JAMAR Technologies, Inc.  
151 Keith Valley Road  
Horsham, PA 19044  
www.jamartech.com

Jenkintown Rd.  
Near Central Ave.

Northbound, Southbound

Start Time	Bikes	Cars & Trs	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
09/14/00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
02:00	0	4	4	0	0	0	0	0	0	0	0	0	0	8
03:00	0	20	3	0	1	0	1	2	2	0	0	0	0	29
04:00	1	27	25	1	3	2	0	1	6	0	0	0	0	66
05:00	2	103	25	2	3	0	0	1	4	0	0	0	0	140
06:00	2	151	21	4	8	2	0	2	4	0	0	0	1	195
07:00	0	81	13	3	3	0	0	4	2	0	0	0	1	107
08:00	0	55	14	4	8	2	0	0	4	0	0	0	1	88
09:00	1	57	14	1	6	1	0	7	7	0	0	0	2	96
10:00	0	98	19	1	4	0	0	4	4	0	0	0	1	131
11:00	3	93	16	3	14	5	0	4	6	0	0	0	2	146
12 PM	1	88	24	1	6	2	0	4	5	2	0	0	0	133
13:00	3	84	20	4	5	1	1	3	4	0	0	0	0	125
14:00	1	119	42	2	5	1	0	1	10	0	0	0	0	181
15:00	4	162	29	0	3	1	0	2	2	1	0	0	0	204
16:00	1	178	27	1	3	0	0	2	4	0	0	0	0	216
17:00	1	70	16	1	4	0	0	0	3	0	0	0	0	95
18:00	2	63	5	0	0	3	0	0	4	0	0	0	0	77
19:00	1	51	5	1	3	0	0	1	3	0	1	0	0	66
20:00	0	26	3	0	1	0	0	0	3	0	0	0	0	33
21:00	1	30	2	0	0	1	0	0	2	0	0	0	1	37
22:00	2	16	1	1	1	2	0	0	1	0	0	0	1	25
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day Total	26	1583	329	30	81	23	2	38	80	3	1	0	10	2206
Percent	1.2%	71.8%	14.9%	1.4%	3.7%	1.0%	0.1%	1.7%	3.6%	0.1%	0.0%	0.0%	0.5%	
AM Peak Volume	3	151	25	4	14	5	1	7	7				2	195
PM Peak Volume	4	178	42	4	6	3	1	4	10	2	1		1	216
Grand Total	133	8306	1706	147	301	100	9	190	421	25	4	3	54	11399
Percent	1.2%	72.9%	15.0%	1.3%	2.6%	0.9%	0.1%	1.7%	3.7%	0.2%	0.0%	0.0%	0.5%	

**Figure 6-3:**  
Sample  
Classification  
Report

**(A)**

### Report Titles

These are selected in the Heading-Page Number tab of the Axle Classification Reports setup screen. They can be changed or modified in the program's Preferences screen

**(B)**

### Default Comments

These are selected in the Heading-Page Number tab of the Axle Classification Reports setup screen. They can include Site Code, Station ID, Location information and GPS information, among other.

**(C)**

### Direction Descriptions

This area provides information on which directions of data are shown on the page. The directions that are used can be selected in the General tab of the Axle Classification Reports setup screen. The names used for the directions can be changed or modified using the Edit Group Description selection of the Edit menu.



- D Column Titles**  
These are generally read in from the class scheme that was used in the data file that the report is produced from. In the sample file, the titles used are based on the FHWA scheme F.
- E Interval Times**  
These are based on the interval time that has been set in the report that was selected. The most common interval lengths are 15 and 60 minutes. In the sample file, 60 minute intervals are used.
- F Data**  
This area shows the actual data that was collected during the study and is used for the statistical analysis. In some reports, peak time periods are shaded and/or shown in bold.
- G Interval Totals**  
This area provides totals for the data on an interval by interval basis. These totals also represent the volume totals for the study.
- H Page Totals**  
These provide data totals for the columns in the report on a page-by-page basis. What totals they represent depends on the data used in the report and the layout of the report. In the sample file, totals are provided for each class. Also listed with the totals is what percentage each class total is of the overall volume total.
- I Peak Information**  
Some class reports will list the Peak Hour (also referred to as Peak) for either a full day, or a portion of the day (such as AM or PM). This is the 60-minute period in which the most traffic was recorded during the time selected.
- J Overall Totals**  
The final page of many class reports provide totals of all the data in the report. Also listed with the totals is what percentage each class total is of the overall volume total.



## Gap & Following Distance Reports

Gap reports do not show the number of vehicles that occurred during a study, but rather the number, and duration, of the time periods when there were no vehicles. The reports are broken down into gap bins, which are listed in seconds. As an example, using the sample in figure 6-4, the '18' listed in the 27-9999 bin at 10 AM can be read by saying that from 10 AM to 11 AM there were 18 gaps in the traffic stream (no vehicles present) that lasted for longer than 27 seconds.

These reports can use a variety of interval lengths (15 min., 60 min., etc) and can be for one or more directions (or lanes) of data. *Following Distance reports work the same as gap reports.*

Below is a sample page from a 1 direction, 60 minute gap report. Other gap reports may be laid out differently, but will provide the same basic information.

</

**Figure 6-4:**  
Sample  
Gap Report

**(A)**

### Report Titles

These are selected in the Heading-Page Number tab of the Gap Reports setup screen. They can be changed or modified in the program's Preferences screen

**(B)**

### Default Comments

These are selected in the Heading-Page Number tab of the Gap Reports setup screen. They can include Site Code, Station ID, Location information and GPS information, among others.

**(C)**

### Direction Descriptions

This area provides information on which directions of data are shown on the page. The directions that are used can be selected in the General tab of the Gap Reports setup screen. The names used for the directions can be changed or modified using the Edit Group Description selection of the Edit menu.

**(D)**

### Column Titles

These are generally read in from the bins used in the gap scheme that was selected for the data file.

**(E)**

### Interval Times

These are based on the interval time that has been set in the report that was selected. The most common interval lengths are 15 and 60 minutes. In the sample file, 60 minute intervals are used.



**Data**

This area shows the actual data that was collected during the study and is used for the statistical analysis.

**Page Totals**

These provide data totals for the columns in the report on a page-by-page basis. What totals they represent depends on the data used in the report and the layout of the report. In the sample file, totals are provided for each gap bin.

**Overall Totals**

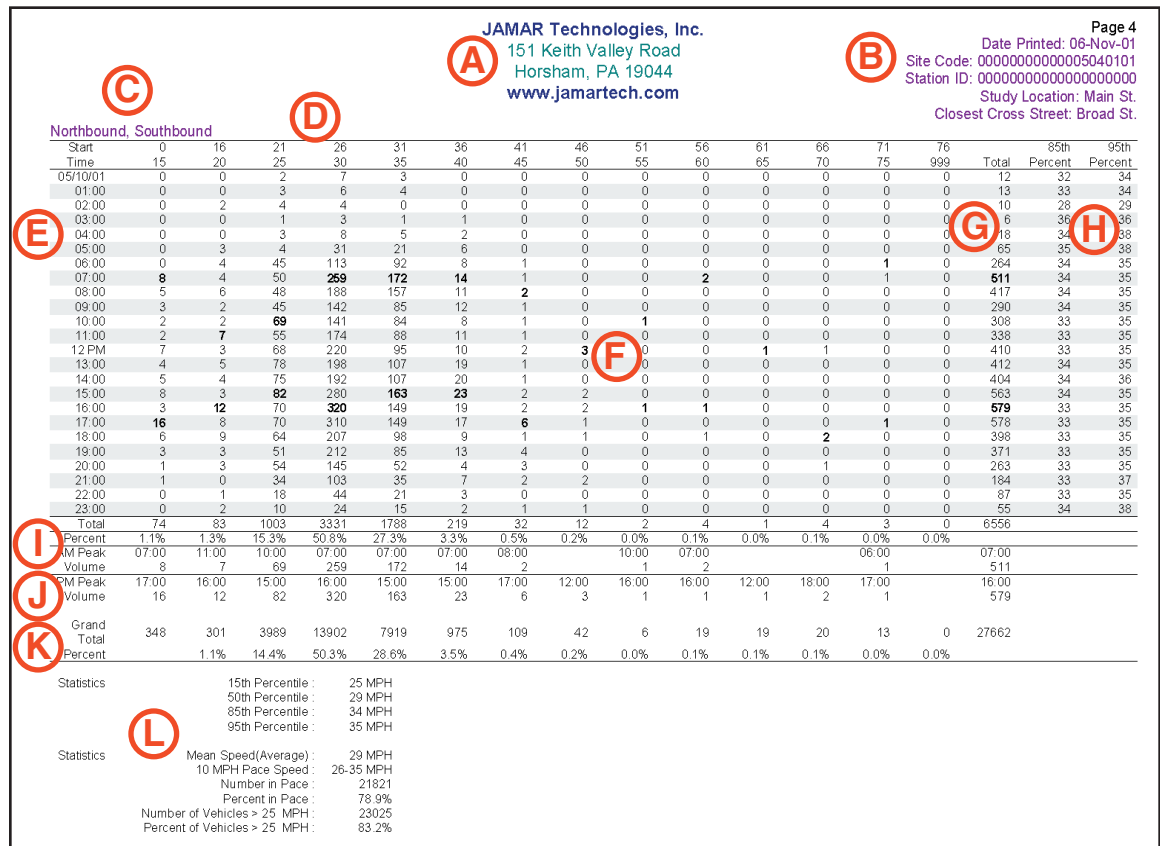
The final page of many gap reports provide totals of all the data in the report.



## Standard Speed Reports

Speed reports contain vehicle volume data broken down into speed categories, or bins. These reports can use a variety of interval lengths (15 min., 60 min., etc) and can be for one or more directions (or lanes) of data. The volume information contained in speed data can be reported using the same methods described in Interpreting Volume Reports. Along with volume data, the speed data can be reported in a variety of statistical ways.

Below is a sample page from a 2 direction, 60 minute speed report. Other speed reports may be laid out differently, but will provide the same basic information.



**Figure 6-5:**  
Sample  
Speed  
Report

- (A) Report Titles**  
These are selected in the Heading-Page Number tab of the Speed Reports setup screen. They can be changed or modified in the program's Preferences screen
- (B) Default Comments**  
These are selected in the Heading-Page Number tab of the Speed Reports setup screen. They can include Site Code, Station ID, Location information and GPS information, among others.
- (C) Direction Descriptions**  
This area provides information on which directions of data are shown on the page. The directions that are used can be selected in the General tab of the Speed Reports setup screen. The names used for the directions can be changed or modified using the Edit Group Description selection of the Edit menu.
- (D) Column Titles**  
These are generally read in from the bins used in the speed scheme that was selected for the data file.



**Interval Times**

These are based on the interval time that has been set in the report that was selected. The most common interval lengths are 15 and 60 minutes. In the sample file, 60 minute intervals are used.

**Data**

This area shows the actual data that was collected during the study and is used for the statistical analysis. In some reports, peak time periods are shaded and/or shown in bold.

**Interval Totals**

This area provides totals for the data on an interval by interval basis. These totals also represent the volume totals for the study.

**Interval Statistics**

Some Speed reports provide statistical breakdowns of the data on an interval-by-interval basis. The statistics that can be used are described in the speed statistics section below. In the sample file, each interval is analyzed for the 85th and 95th percentile.

**Page Totals**

These provide data totals for the columns in the report on a page-by-page basis. What totals they represent depends on the data used in the report and the layout of the report. In the sample file, totals are provided for each speed bin. Also listed with the totals is what percentage each speed bin total is of the overall volume total.

**Peak Information**

Some speed reports will list the Peak Hour (also referred to as Peak) for either a full day, or a portion of the day (such as AM or PM). This is the 60-minute period in which the most traffic was recorded during the time selected.

**Overall Totals**

The final page of many speed reports provide totals of all the data in the report. Also listed with the totals is what percentage each speed bin total is of the overall volume total.

**Speed Statistics**

The final page of many speed reports (and each page of some) provide statistical analysis of the data. There are several types of statistics that can be provided

*Percentiles* – A percentile speed is the speed below which the stated percent of vehicles traveled. This is the same as saying ‘85 percent of the traffic was traveling at this speed or slower.’ The 85th percentile usually represents the maximum reasonable speed for the traffic and is often used in determining speed limits. The 15th percentile is often used for the minimum reasonable speed. Most reports will show the 15th, 50th (Median speed), 85th and 95th percentiles. However, reports can be created to show any percentile speed from 5 to 95 in 5 percent increments.

*Pace Speed* – The Pace Speed represents the 10-mph speed range in which the highest percentage of vehicles was recorded. For example, if the pace speed is 26 to 35, then you could say ‘More vehicles were traveling 26 to 35 mph than any other 10 mph speed range’. The Number in Pace gives the total number of vehicles that were in the pace speed range while the Percent in Pace gives what percentage this was of the overall data. The lower the percentage of vehicles in the pace speed range, the more widely dispersed the speeds in the study are.



*Number and Percent Greater than XX mph* – These values list the number of vehicle going over a certain speed along with the percentage of the overall data that number is. The value used for this analysis is entered on the General tab of the Speed Report setup screen. In most cases the speed limit for the road is used, however, any value can be used.

## Police Reports - Speed Enforcement Evaluator

The Police Reports are a special set of reports designed specifically for law enforcement organizations. These reports are accessed by clicking on the Police Reports button found on the Per Vehicle screen, and are described in more detail in the Appendix.

**A**

### Report Titles

These are selected in the *Customize Headings* option of the main Police Reports screen.

**B**

### Study Information

This section contains information related to where when and why the study was done.

**C**

### Percentage of Enforceable Violations Gauge

The gauge provides a visual representation of whether or not a speeding problem exists at the study location. It can be adjusted by changing either the Enforcement Tolerance value or by moving the gauge scale slider bar.

**D**

### Gauge Statistics

This section shows the details of how the enforcement rating was determined. The posted speed limit is added to the enforcement tolerance value, which yields the enforcement limit. TRAXPro then shows what percentage of all the vehicles in the study were over this limit. The rating is either Low, Medium, or High based on where the indicator falls on the gauge.

**E**

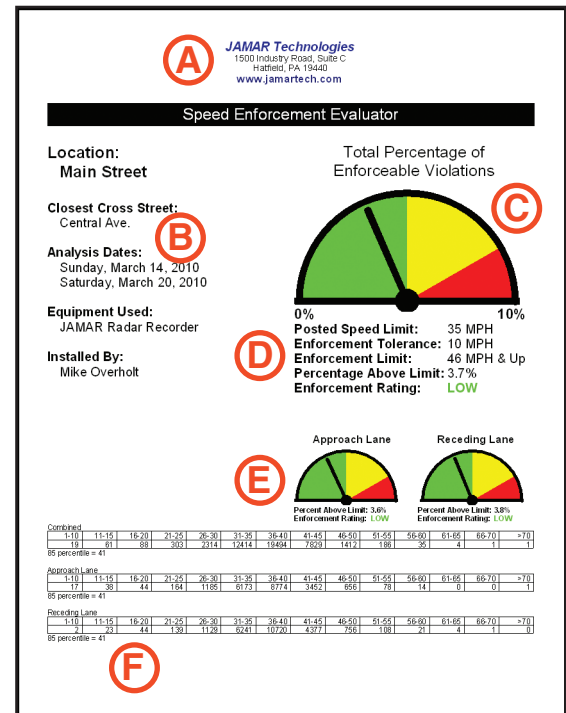
### Directional Gauges

These gauges provide a directional breakdown of the overall data.

**F**

### Numeric Totals

This section shows the overall data collected during the study.





# Chapter 7



# Troubleshooting



## Software Updates

If you are having any trouble using your copy of TRAXPro, the first thing we recommend you check is your version number. Updates to the program, which contain new features and bug fixes, are issued periodically and posted on our web site at [www.jamartech.com](http://www.jamartech.com). To check the version of your program, select About from the Help menu.

## Video Tutorials

If you are new to TRAXPro and are having trouble understanding the various ins and outs of the program, an excellent place to start is the video tutorial demos that can be found on the JAMAR web site. Go to [www.jamartech.com/tutorialdemos.html](http://www.jamartech.com/tutorialdemos.html) to view these.

## Error Messages & Frequently Asked Questions

TRAXPro is written in Visual Basic and makes use of the Windows Run Time library. Any unexpected problems that occur in the program will usually generate a Run Time Error. These errors are listed by a number, followed by a text message. Should you encounter one of these, make a note of the full error message then check the TRAXPro support web page at [www.jamartech.com/traxprosupport.html](http://www.jamartech.com/traxprosupport.html) to see if the error is a known issue.

The TRAXPro support page also has an extensive list of FAQs that deal with a number of common issues that users encounter. Some of these are listed below.

**Q: Is TRAXPro compatible with Windows 7 and 8?**

A: Yes. However, for both Windows 7 and Windows 8 you will need to set the program to 'Run as Administrator' mode. To set Run as Administrator you simply need to right-click on the program icon, which can be found on your desktop or in the start menu, and select 'Properties' out of the menu that appears.

On the Properties screen you will want to click to the 'Compatibility' tab, check the 'Run this program as an administrator' box, then hit 'OK.' This should now let the program run properly in either Windows 7 or Windows 8.

**Q: The *Found New Hardware Wizard* popped up when I connected my recorder to the computer. What does that mean?**

A: The first time you connect a TRAX Apollyon to the computer (or a USB adapter for use with serial communication equipment), the USB drivers for it must be installed. In most cases this will happen automatically, but if it does not, refer to the appendix of this manual for step-by-step directions.



# Appendix

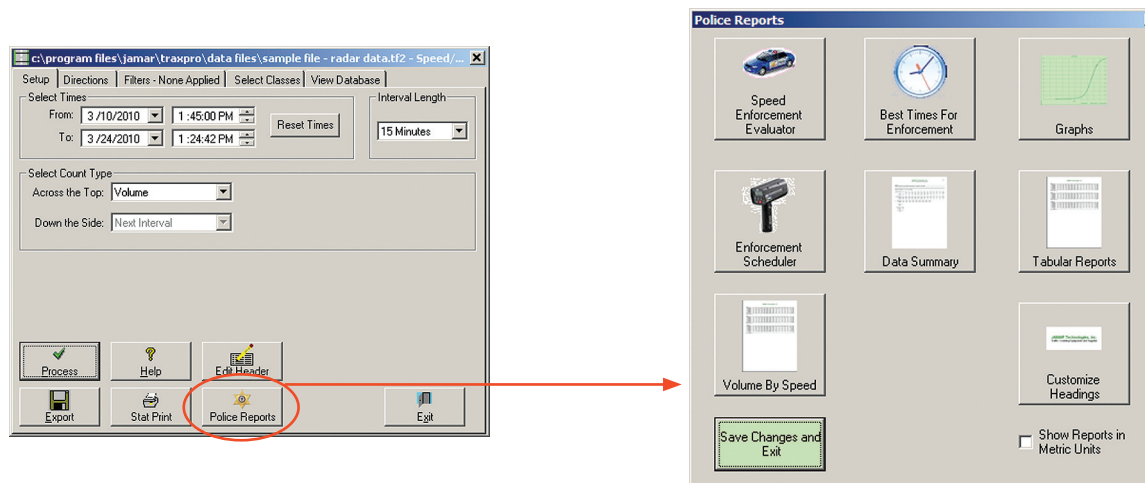




## Appendix #1 – Police Reports

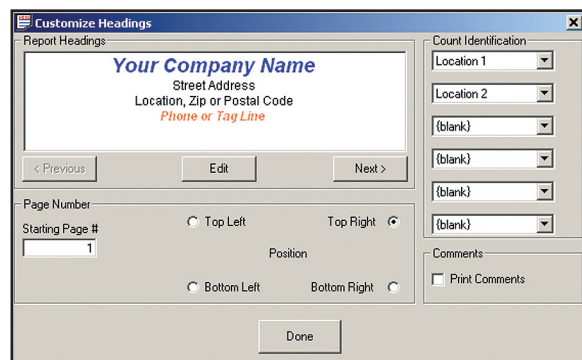
The Police Reports are a set of reports designed specifically for law enforcement personnel. To show how these reports work, we'll take the file *sample file – radar data.tf2* and walk through the process step by step. Open this file, then click on the *Police Reports* button as shown below. The following reports are included: Speed Enforcement Evaluator, Best Times for Enforcement, Graphs, Tabular Reports, Data Summary, Enforcement Scheduler, and Volume by Speed.

**Figure A-1:**  
Police Reports



The first thing we want to do is enter a proper heading to be printed at the top of each report. To do this, click the *Customize Headings* button.

**Figure A-2:**  
Customize Headings



### Customize Headings

The **Customize Headings** screen allows you to customize the four lines of text that are printed at the center top of each page of your reports. For the purposes of this tutorial, we'll replace the default titles that are stored with the program with your own. You may follow the steps below or substitute your own format as we go.

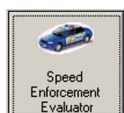
First, click on the *Edit* button. This will open the Text Editor window that can be used to format the titles.

Delete the first line and enter your organization's name. Next, delete the second line and third lines and enter your address. Then, delete the fourth line and enter your phone number. Once that is done, highlight all four lines and center the titles by clicking on Center Text icon. Now that the information for the Titles has been entered, we'll customize each line to give the titles more impact.

Highlight the first line and set the Font to Arial, the Font style to Bold and the Font Size to 14. If you use a color printer, set the color to blue. You can follow the same procedure to customize the second, third and fourth lines of the titles. Click *Save* once you have made your changes and notice that the preview has been updated to show your changes.

The Count Identification fields on the right side of the screen are used to select information that you want to automatically print on some of the reports. Set the first box to 'Location 1' and the second box to 'Location 2', then set the remaining boxes to 'Blank'. Once these are set, click *Done*.





## The Speed Enforcement Evaluator

One of the common reasons speed data is collected is in response to citizen's complaints. So, once that data has been collected you'll want to be able to show, in a clear and concise manner, what was found. That is the job of the Speed Enforcement Evaluator report.

To show how this report is created, we'll take the file *sample file – radar data.tf2* and walk through the process step by step. To start the process, click on the Speed Enforcement Evaluator button.

**Speed Enforcement Evaluator**

Location: \_\_\_\_\_

Closest Cross Street: \_\_\_\_\_

☒ Include GPS Data  
0° 0.000 South  
0° 0.000 East

☒ Include Analysis Dates

☒ Include Equipment Used

☒ Include Installed By

☒ Include Requested By

Use the slider below to set the gauge scale

☒ Show Maximum Percentage on Graph

Posted Speed Limit: 0 ☒ Show Speed Limit

Enforcement Tolerance: 0 ☒ Show Enforcement Tolerance

☐ Include Numeric Data

Send To Printer Create PDF Create and eMail PDF Exit

Schedule This Location For Enforcement

**JAMAR Technologies**  
1500 Industry Road, Suite C  
Hatfield, PA 19440  
www.jamartech.com

**Speed Enforcement Evaluator**

**Location:**

**GPS:**  
0° 0.000 South  
0° 0.000 East

**Closest Cross Street:**

**Analysis Dates:**  
Wednesday, March 10, 2010  
Wednesday, March 24, 2010

**Equipment Used:**

**Installed By:**

**Requested By:**

**Total Percentage of Enforceable Violations**

0% 10%

Posted Speed Limit: 0 MPH  
Enforcement Tolerance: 0 MPH  
Enforcement Limit: 1 MPH & Up  
Percentage Above Limit: 100.0%  
Enforcement Rating: **HIGH**

**Approach Lane**

Percent Above Limit: 100.0%  
Enforcement Rating: **HIGH**

**Receding Lane**

Percent Above Limit: 100.0%  
Enforcement Rating: **HIGH**

**Figure A-3:**  
Speed  
Enforcement  
Evaluator

The screen is comprised of a section on the left for filling in information and a section on the right that shows a preview of the report. The report is a single page document that provides information on where the data was collected and a gauge showing the percentage of enforceable violations that occurred during the study.

First, we'll fill in some of the location information, then we'll take a look at how the gauge works.

Notice at the top left of the report is a field that says *Location:*. Scroll your mouse over this field and notice that the Location fields on the left of the screen highlight. If you see something on the report you want to edit, simply mouse over it and the highlight will direct you to where you need to make the change.

In the case of the location information, click on the Location box and type in *Main Street* then press enter. Notice that the report preview updates to show the change. Next, click in the Closest Cross Street field and enter *Central Ave*.

Below this field is the GPS data. We don't have GPS coordinates for this file, so we want to turn that off in the report. To do this, remove the check mark from the box next to *Include GPS Data* and notice that the report has updated to take out the GPS info. You can use this procedure to include or exclude most of the information shown on the report.



**Figure A-4:**  
Set Analysis  
Dates

The next field is the Analysis Dates, which shows when our data began and ended. It's currently set for March 10 to 24, but we want to change that to have it only be for one week of data. To do this, click on the calendar button and a screen will pop up for setting the start and end dates.

Set the start date to Sunday, March 14 then click the *Set to Midnight* button. We've now set the report to start at midnight on Sunday. Next, set the End Date to Saturday, March 20 then click the *Set to 11:59 PM* button. The report is now set to show one full week of data. Click Done and notice that the preview has updated to reflect the new dates.

Next is the Equipment Used field. This can be used to show how the data was collected, so click on the field and type in *JAMAR Radar Recorder*. Below this is a field for putting in who installed the equipment, so click in this field and enter your name.

The next field is the Requested By field. You can fill in up to two lines for this field with either the name of the citizen who requested the study, or the supervisor who did. We won't include this with our report, so just uncheck the box to remove it from the report.

At this point we've filled in all the informational aspects of the report. Now we'll take a look at the graphical portion to see both how the gauge is calculated and how you can customize it.

The gauge is a graphical representation of the percentage of *enforceable* violations that occurred during the course of the study. Enforceable violations are defined by taking the posted speed limit and adding to it the amount of enforcement tolerance (see box below) for the study location.

For our file, the posted speed limit is 35 mph, so enter that value. The tolerance we'll give for this location is 10 mph, so enter that as well.

Now let's take a look at the gauge. As you can see, since our posted speed limit is listed as 35 mph and our enforcement tolerance is listed as 10 mph, the enforcement limit is shown as 46 mph and above.

### What is Enforcement Tolerance?

It's unusual for a motorist to be given a citation for speeding if they are only one or two mph above the posted speed limit. The buffer that is given to motorists is generally known as the Enforcement Tolerance. The Enforcement Tolerance value is basically the amount above the posted speed limit that you'll allow a motorist to go before you would pull them over for a violation.

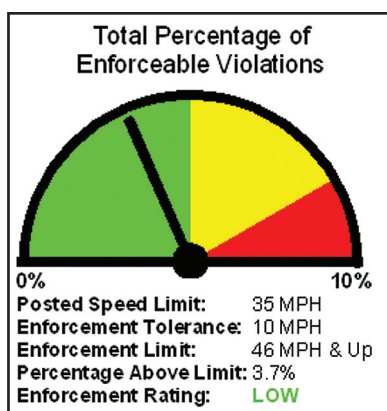
Where things can get a little murky is in coming up with the enforcement tolerance value.

A few states have laws specific to enforcement tolerance. For example, in Pennsylvania you can't be cited for travelling up to 10 miles over the speed limit if the limit is less than 55 mph. However, in most situations there are no standards to guide you in making this determination. It is generally described as 'officer's discretion'.

Two common enforcement tolerances are 10 and 15 mph, but some locations and situations may need higher, or lower, values.



**Figure A-5:**  
Enforceable  
Violations  
Gauge



What the software has then done is look at the data in our file and determine how many vehicles are listed as 46 mph and above, and then determine what percentage these vehicles are of all the data. This value (3.7 percent in our example) is then listed as the percentage above limit.

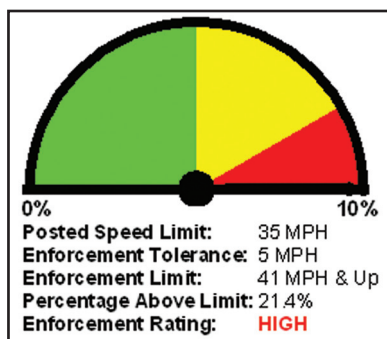
Now, notice that the final listing below the gauge is the Enforcement Rating, and that in our example it is listed as 'Low'. The Enforcement Rating is designed to express, in an easy to understand format, how much of a speeding problem there is at this location. The ratings are Low, Medium and High and they correspond to the colors of the gauge. If the indicator is in the

green, the rating is low – in the yellow the rating is medium and in the red, high.

Currently our indicator is in the green at 3.7 percent, but now let's take a look at how we can edit the gauge.

There are two ways to move the indicator on the gauge. One, by adjusting the enforcement tolerance and two, by adjusting the percentage range that is shown on the gauge.

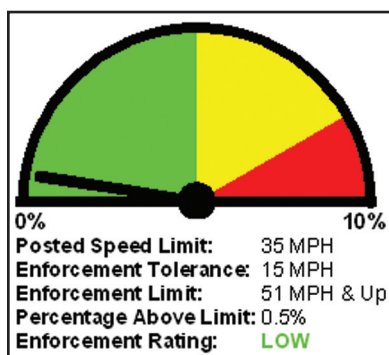
**Figure A-6:**  
Gauge  
with Small  
Enforcement  
Tolerance



Let's first look at the enforcement tolerance. In our example, the tolerance is set to 10 mph. Click on this value, change it to 5 mph and press Enter. Notice now that the rating is listed as 'High' and the indicator is basically off the chart.

By lowering the enforcement tolerance, we've reduced the enforcement limit from 46 & up to 41 & up. TRAXPro now sees that there are 21.4 percent of vehicles above the limit, which is why the indicator is off the scale and the rating is 'High'.

**Figure A-7:**  
Gauge  
with Large  
Enforcement  
Tolerance



Now, let's go the other way. Click on the enforcement tolerance value, change it to 15 mph and press Enter. Notice now that the rating is again listed as 'Low' and the indicator is much closer to zero.

By raising the enforcement tolerance, we've raised the enforcement limit to 51 & up. TRAXPro now sees that there are only 0.5 percent of vehicles above the limit, which is why the indicator is so close to zero.

Note that the actual data of our file hasn't changed – we've just changed how it's interpreted by the gauge and, in most cases, that interpretation is up to your discretion.

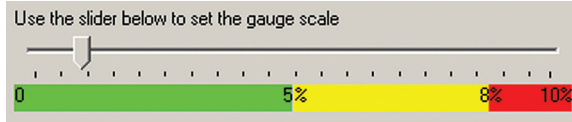
Now let's take a look at the other way we can move the indicator on the gauge – by adjusting the percentage range used on the gauge.

Change the enforcement tolerance back to 5 mph and the indicator will jump back up to 'High'.

With the tolerance set to 5 mph, 21.4 percent of the vehicles were above our enforcement limit and since the gauge is currently set to consider any percentage above 8.5 percent as a 'High' rating, our rating is, in fact, 'High'.



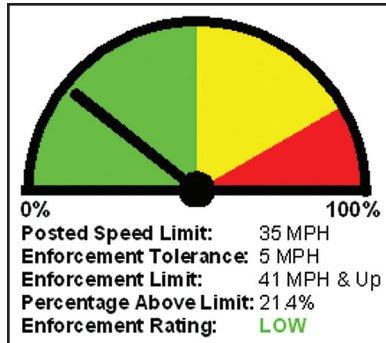
**Figure A-8:**  
Percentage  
Slider Bar



But, we have the ability to change the percentage range shown on the gauge by using the percentage slider bar.

The percentage slider bar tells the report the range of percentages to use on the gauge. With the bar currently set to '10' this means that any percentage from 0 to 5 is green (low), 5 to 8.5 is yellow (medium) and 8.5 to 10 is red (high).

Now, let's move the slider bar and see what happens. Click on the bar and move it to the right until it is at 40. Notice that the indicator on our gauge has now dropped into the Yellow zone. By setting the slider bar at 40, the gauge now shows 0 to 20 as green, 20 to 34 as yellow and 34 to 40 as red.



**Figure A-9:**  
Gauge with  
Percentage  
Adjusted

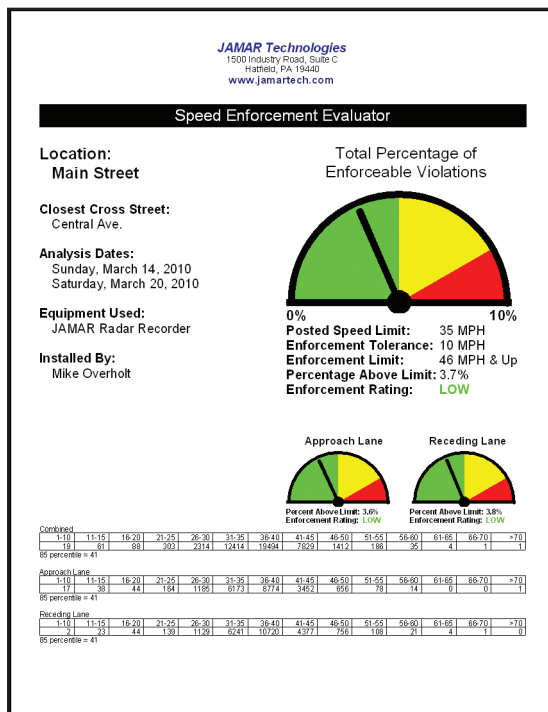
Now, let's move the bar all the way to the right until it's at 100. Since the gauge now shows 0 to 50 as green, and our percentage is 21.4, the gauge indicator is now in the green and our Enforcement Rating is 'Low'.

It's important to note that there are no real restrictions on how you choose to edit the gauge. The two ways of making the gauge indicator move up or down, the enforcement tolerance value and the percentage range, are generally up to your discretion. For uniformity, you may want to always use the same values for

the enforcement tolerance and percentage range, but you certainly don't have to.

Also note that how much detail you choose to show (or not show) on the report is up to you. Values like the percentage range for the gauge, the posted speed limit and the enforcement tolerance can all be shown, or not shown, on the final report by toggling the check boxes next to each.

To see how this works, notice the 'Include Numeric Data' entry. Its box is currently unchecked. Click on the box and you'll see overall numeric totals added to the report.



**Figure A-10:**  
Enforcement  
Evaluator  
Report

It's basically up to you to decide how much detail you want to show, or not show, on the final report.

Now that we've seen how the gauge works, we're just about finished with the report. Reset the Enforcement Tolerance to 10, and move the slider bar back to 10.

Our report is now done and we have several options on where to output it, using the buttons along the bottom left of the screen. The *Send to Printer* button will produce a hard copy of the report, while the *Create PDF* button allows you to save the report in an electronic format. The *Create and eMail PDF* button allows you to both create an electronic copy of the report and automatically attach to an email.

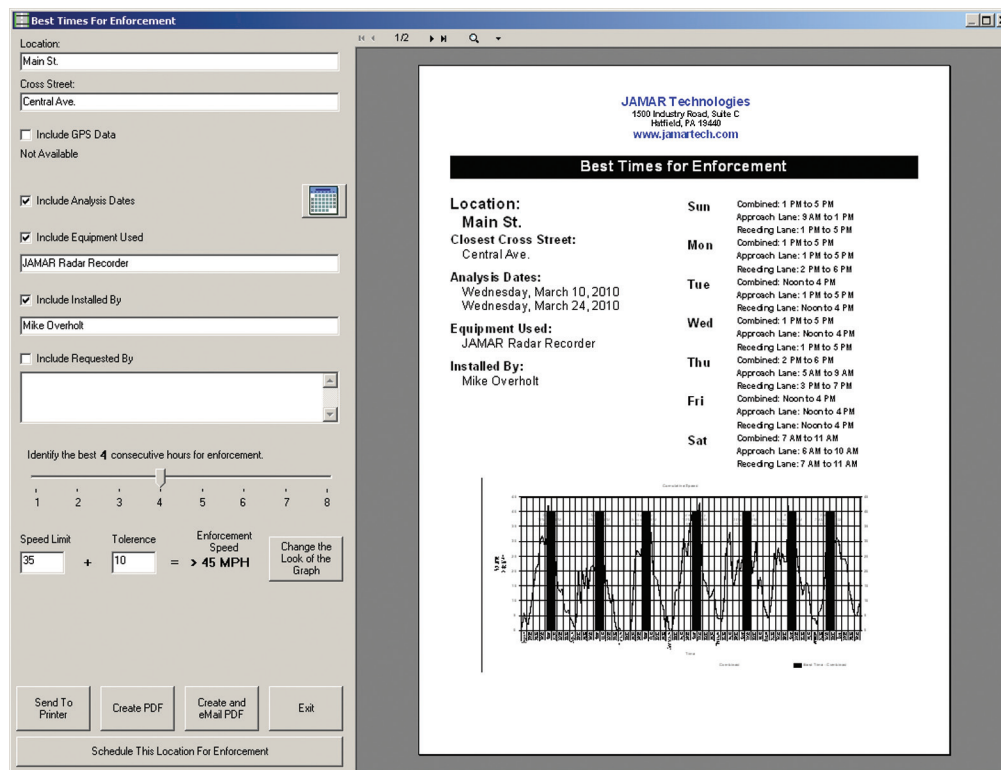
We'll cover the *Schedule This Location for Enforcement* button shortly.





## The Best Times for Enforcement

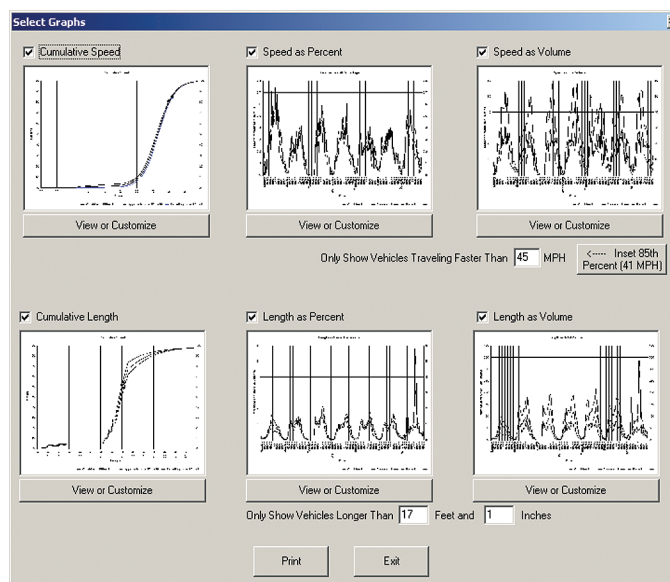
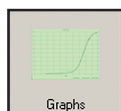
For those locations where the data shows that increased enforcement is justified, the Best Times for Enforcement report lets you determine the time of day that would be best to catch the most violators. To access the report, click the Best Times for Enforcement button.



**Figure A-11:**  
Best Times  
for  
Enforcement

The informational details of the report were automatically copied over from what we entered on the Enforcement Evaluator report of the previous section. The report then tells us when the best times for enforcement are for each day of the week, broken down by each lane and combined.

The report is defaulted to look for a four hour window of time, but you can adjust this for a smaller or larger window as needed. To do this, move the slider bar to the left or right.



**Figure A-12:**  
Graphs

## Graphs

The Graphs are designed to give you a visual representation of the data you have collected. There are three speed graphs and three length graphs that can be accessed by clicking on the Graphs button.

The default setting has all six graphs selected for printing. However, if you only want to print certain ones (like just speed graphs) you can turn off any of the graphs by unchecking the check box next to the graph name. You can also get a closer look at each graph, or edit the graph itself, by clicking on the View or Customize button.





**Figure A-13:**  
Tabular  
Reports

## Tabular Reports

The Tabular Reports are designed to allow you to show the speed data you collected in several different concise formats. To access these reports, click the Tabular Reports button.

There are three different reports that you can choose from: One Line Summary, One Day Per Line, and Hourly Data.

The One Line Summary report will give overall data totals on a single line for each of the selected directions. The One Day Per Line report expands the data to show each day's data on a line, while the Hourly Data report expands the data further to show each hour's data on a line.



## Data Summary

The Data Summary report allows you to show several types of data – volume, speed and gap – in a single concise report. To access the setup for this report, click the Data Summary button. You can use this screen to determine how to set up your report.

**Figure A-14:**  
Data  
Summary  
Report

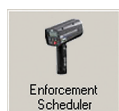
The Select Times field at the top allows you to choose specific dates and times for the data. Notice that there are convenient buttons next to the From and To times labelled 12:00 AM and 11:59:59 PM that let you easily select only full days of data.

To see each day's data separately, place a check in the box next to *Daily Reports*. To see an overall summary of the data, check the box next to *Summary Page*. You can also combine you directions together by placing a check in the *Combine Directions* box.

For both the Speed and Gap information you can choose a specific scheme for the data. The 15 to 70+ scheme for the speed data and 4 to 28+ for the Gap data are the most commonly used.

Click the Print button and the Print Preview will appear.



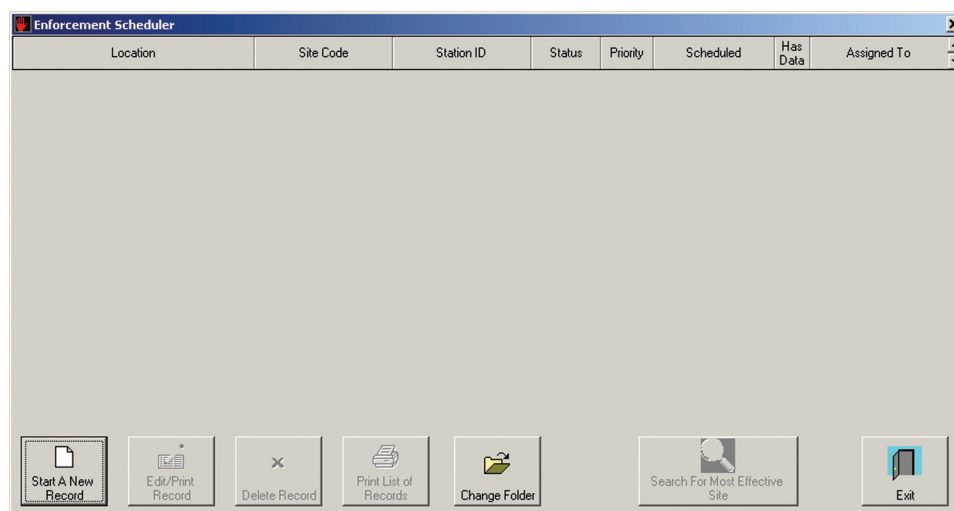


## Enforcement Scheduler

In those cases where the data collection has shown that a speeding problem exists, typically the next step is to perform enforcement at the location. Determining when to do that enforcement, and how to prioritize the various locations that need it, is the job of the Enforcement Scheduler.

The Enforcement Scheduler allows you to create a searchable database of all the locations in need of enforcement so you can quickly and easily determine the best deployment of personnel. You can also attach data files to these records which allows you to compare speed data both before and after enforcement is done to see how effective it has been.

To see how this tool works, we'll go through the process from the start to finish. Click on the *Enforcement Scheduler* button and the blank Enforcement Scheduler will appear.



**Figure A-15:**  
Enforcement  
Scheduler

We want to start a new entry, so click the button for *Start a New Record* and the Add/Edit/Print Enforcement Record screen will appear.

In most cases, a record is created after you have done your initial data collection at a location, also known as a Pre-Enforcement Study. Notice the top of the screen has a field for attaching this data file. Click on the *Attach a Study* button and attach the *sample file - radar data* file that we've previously worked with. Then, click on the blue *Fill in these boxes with info from the pre-enforcement study* button to have the details we previously entered in the sample file copied over to the appropriate boxes.

**Figure A-16:**  
Add/Edit/Print  
Enforcement  
Record

Note that you can also automatically start a new record with a file attached by using the *Schedule This Location for Enforcement* button found on both the Speed Enforcement Evaluator and Best Times for Enforcement screens.

The fields for Location, Site Code, Station ID are all fine. We'll add more description to our lane info, so change the 'Approaching' field to Southbound and the 'Receding' field to Northbound. Delete the text in the Location Comments and enter in 'Near Park'.



**Figure A-17:**  
Enforcement  
Information  
Tab

Next, click on the Enforcement Information tab. The Posted Speed and Speed Tolerance values have been read in from the file, so we don't need to enter these. If we had any comments specific for this enforcement details we would enter them in the Enforcement Comments field. The Which Direction? setting allows you to set how the enforcement should be done based on the equipment to be used and the amount of personnel involved.

**Figure A-18:**  
Scheduling  
Priority Tab

Next, click on the Scheduling/Priority tab. This tab is used to set the details of when the enforcement should be done, and by who. The *Scheduled Date* can be set for either the next available, a specific week or a specific day. To the left of this, the slider bar can be used to set the priority for the location, from 1 for highest priority to 10 for lowest priority. (We'll see how these values come into play a little later.)

For our file, set the priority to 1, and the date for Next Available. The *Scheduled Time* can either be set for a specific time, or based of attaching a Best Times for Enforcement report. We'll leave it set to start at 7 AM and run for 4 hours. The *Assigned to:* field can be used to enter the name of the person doing enforcement.

At this point, we've entered all the information we need for scheduling this location for enforcement. (We'll see how the last tab, Post Enforcement Info, comes into play shortly.) Click the Save and Close button to save your changes and exit back to the main scheduler screen. Notice that there is now a new entry with the info we provided.

Now imagine that we have dozens of locations that all need enforcement, with varying levels of priority. Your screen would likely look like figure A-19 below.

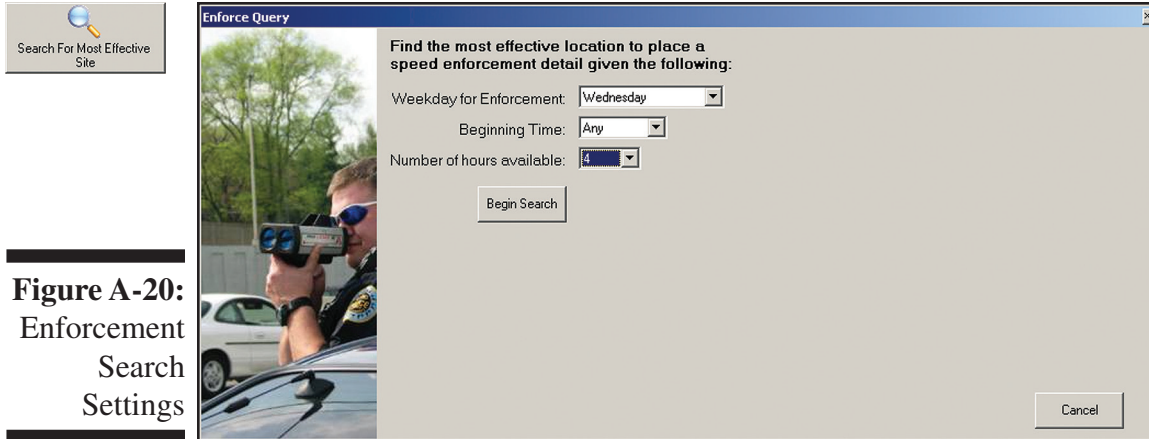
**Figure A-19:**  
Edited  
Enforcement  
Scheduler

Enforcement Scheduler							
Location	Site Code	Station ID	Status	Priority	Scheduled	Has Data	Assigned To
Jenkintown Rd. - Central Ave.			Assigned	5	7/27/2010 OVERDUE	Yes	PO Jones
Main Street - Central Ave.	11111111		Assigned	1	Next Available	Yes	Sgt. Brown
Maple Ave. - Lincoln Ave.			Assigned	2	Next Available	No	PO Jones
Limekiln Pike - North Hills Ave.			Scheduled	2	Next Available	Yes	
Susquehanna Rd. - Hall Ave.			Scheduled	2	Next Available	No	
Tenth Ave. - Elm Rd.			Assigned	3	Next Available	Yes	Sgt. Brown
Harrison Ave. - Spear Ave.			Assigned	6	Next Available	Yes	Sgt. Brown
Easton Rd. - Springhouse Lane			Scheduled	8	Next Available	No	
Garfield Ave. - Woodrow Ave.			Scheduled	8	Next Available	Yes	
Washington Lane - Maple Ave.			Scheduled	10	Next Available	No	
Main St. - Broad St.			Assigned	5	Week of 8/8/2010	No	PO Jones
Penn St. - Jenkintown Rd.			Assigned	5	Week of 8/15/2010	No	Sgt. Brown



The scheduler will automatically sort the 'Next Available' entries in priority order, followed by any locations that have specific dates set for enforcement.

Now, imagine that you suddenly find that you have some time available in your schedule to do an enforcement detail, but you want to choose the best site. You can easily do this by clicking on the *Search For Most Effective Site* button.



**Figure A-20:**  
Enforcement  
Search  
Settings

With this screen you can select the day of the enforcement detail, when it should start and how many hours are available. Click the *Begin Search* button and the results will appear.

Location	Site Code	Direction	Time	Volume
Tenth Ave. - Elm Rd.		Combined	Monday, 12:00:00 PM	134
Harrison Ave. - Spear Ave.		Combined	Monday, 2:00:00 PM	99
Limekiln Pike - North Hills Ave.		Combined	Monday, 2:00:00 PM	99
Garfield Ave. - Woodrow Ave.		Combined	Monday, 2:00:00 PM	99
Tenth Ave. - Elm Rd.		Southbound	Monday, 12:00:00 PM	78
Harrison Ave. - Spear Ave.		Westbound	Monday, 2:00:00 PM	60
Limekiln Pike - North Hills Ave.		Westbound	Monday, 2:00:00 PM	60
Garfield Ave. - Woodrow Ave.		Southbound	Monday, 2:00:00 PM	60
Tenth Ave. - Elm Rd.		Northbound	Monday, 6:00:00 AM	58
Main Street	11111111	Combined	Monday, 1:00:00 PM	55

**Figure A-21:**  
Enforcement  
Search  
Results

The search results are ranked by the total volume of vehicles over the enforcement limit, with separate entries for each direction and combined totals. Note that if you only want to see individual lane results, you can hide the Combined results by clicking on the *Hide Combined* button.

Now that we've seen how the search feature works, let's go back to our sample record. We'll take a look at what the steps are when you want to do an enforcement detail and what to do once that detail is over.

Highlight the entry we created in the Enforcement Scheduler and click the *Edit/Print Record* button. Once the Add/Edit/Print Enforcement Record screen appears, notice that along the bottom of the screen are several buttons, including one labelled *Print for Enforcement*. Click this button and the Enforcement Report will appear.



**Enforcement Print**

Options:

- ☒ Scheduled Date/Time
- ☒ Duration
- ☒ Actual Date/Time
- ☒ Priority
- ☒ Assigned To
- ☒ Location
- ☒ Site Code
- ☒ Station ID
- ☒ Direction
- ☒ Location Comments
- ☒ Enforcement Comments
- ☒ Weather
- ☒ Posted Speed
- ☒ Speed Tolerance
- ☒ Enforcement Speed
- ☒ Vehicles Stopped
- ☒ Citations - Speed
- ☒ Citations - Other
- ☒ Warnings Issued
- ☒ Observations Made
- ☒ Suggestions for Future
- ☒ Officer's Comments

**JAMAR Technologies**  
1500 Industry Road, Suite C  
Hatfield, PA 19440  
www.jamartech.com

Scheduled Date/Time: 3/29/2010 - 7:00:00 AM  
Duration: 4 Hours  
Actual Date/Times: Start: Date: / / Time: / / Stop: Date: / / Time: / /  
Priority: 1  
Assigned To: Sgt. Brown  
Site Code: 11111111  
Station ID:  
Location: Main Street Central Ave.  
Direction: Either Southbound, Northbound, or both - Officer's discretion.  
Location Comments: Near Park  
Enforcement Comments:  
Weather:  
Posted Speed: 35 MPH  
Tolerance: 10 MPH  
Enforcement Speed: > 45 MPH  
Vehicles Stopped: \_\_\_\_\_  
Citations Written-Speed: \_\_\_\_\_  
Citations Written-Other: \_\_\_\_\_  
Warnings Issued: \_\_\_\_\_  
Observations Made: \_\_\_\_\_  
Suggestions for Future: \_\_\_\_\_  
Officer's Comments: \_\_\_\_\_

Send To Printer Create PDF Create and eMail PDF Exit

**Figure A-22:**  
Enforcement  
Report  
Screen

**JAMAR Technologies**  
1500 Industry Road, Suite C  
Hatfield, PA 19440  
www.jamartech.com

Scheduled Date/Time: 3/29/2010 - 7:00:00 AM  
Duration: 4 Hours  
Actual Date/Times: Start: Date: 3/29/10 Time: 7:30 AM Stop: Date: 3/29/10 Time: 10:30 AM  
Priority: 1  
Assigned To: Sgt. Brown  
Site Code: 11111111  
Station ID:  
Location: Main Street Central Ave.  
Direction: Either Southbound, Northbound, or both - Officer's discretion.  
Location Comments: Near Park  
Enforcement Comments:  
Weather: Sunny - Cool  
Posted Speed: 35 MPH  
Tolerance: 10 MPH  
Enforcement Speed: > 45 MPH  
Vehicles Stopped: 10  
Citations Written-Speed: 8  
Citations Written-Other: 2  
Warnings Issued: 2  
Observations Made: None  
Suggestions for Future: Majority of traffic in AM is in NB direction. PM enforcement would be best for SB direction.  
Officer's Comments: Late start due to accident investigation. Location is good for enforcement. A steady stream of traffic with violators.

**Figure A-23:**  
Edited  
Enforcement  
Report

The various entries that appear on the report can be turned on or off by using the checkboxes on the left side of the screen.

The Enforcement Report is designed to be taken into the field and filled out by the person doing the detail.

Once the enforcement detail is completed, the filled out report is used to complete the fields that are found on the Post Enforcement Info tab of the Add/Edit/Print Enforcement Record screen.

To see how this is done, click Exit on the Enforcement Report screen, then click on the Post Enforcement Info tab.

The first sub-tab that appears is the Time/Totals/Weather tab. We can fill these fields in based on the info in the edited enforcement report, as shown in figure A-23.



**Figure A-24:**  
Time\Totals\  
Weather Tab

The screenshot shows the 'Enforcement Details' window with the 'Time/Totals/Weather' tab selected. The 'Actual Times' section has 'Start Date' set to 3/29/2010, 'Start Time' to 7:30:00 AM, and 'Duration' to 3 Hours. The 'Enforcement Totals' section shows 'Vehicles Stopped' as 10, 'Citations - Speed' as 8, 'Citations - Other' as 2, and 'Warnings' as 2. The 'Weather' dropdown is set to 'Sunny - Cool'. There are buttons for 'Change Comment' and 'Title Wording'.

Under Actual Times, enter 3/29/10 at 7:30 AM with a duration of 3 hours. For the Enforcement Totals, enter 10 stopped, 8 citations for speed, 2 for other, and 2 warnings. For Weather, enter Sunny – Cool.

Next, click on the Observations Made tab. Our field record shows that there were none for this detail, so type 'None'.

Next, click on the Suggestions for Future tab. The field report shows that there are some suggestions for future enforcement at this site, so enter 'Majority of traffic in AM is in NB direction. PM enforcement would be best for SB direction.'

Finally, click on the Officer's Comments tab and enter the comments from the field report.

Once this is done, we're finished with our report. Click on the *Print Final Report* at the bottom and you'll see a copy of the finished report.

The final enforcement report contains the details of the enforcement detail, but there's one additional report you can produce from the Enforcement Scheduler that's particularly useful – a before and after summary known as the Enforcement Effectiveness Evaluator.

To produce an Enforcement Effectiveness Evaluator report you need to collect data at the same location *after* enforcement has taken place. This gives you a way to measure how effective the enforcement was in reducing speeding.

To see how this works, we need to attach a Post-Enforcement file to our existing record. To do this, click on the *Attach a Study* button in the Post Enforcement Study field and select the sample file named *sample file - radar data - post*. Once this is done, click on the *Print a Before and After Summary* button.

**Figure A-25:**  
Enforcement  
Effectiveness  
Evaluator

The screenshot shows the 'Enforcement Evaluator' window. On the left is a configuration panel with options for 'Select Lane(s)' (Combined, Southbound, Northbound), 'Comments' (Location, Enforcement, Observations, Suggestions, Officer's), 'Speed Limits' (Show Speed Limit, Show Targeted Enforcement Speed), and 'Colors for Percent Over Limit' (a slider and color key). The main area displays a report for 'Main Street Central Ave.' with a bar graph comparing 'Before' and 'After' enforcement data. The report includes the JAMAR Technologies logo and contact information.

Percent of Vehicles Over Enforceable Limit		85th Percentile MPH	
Direction - Combined			
Before 4%	[Green Bar]	Before 41	[Black Bar]
After 2%	[Green Bar]	After 40	[Black Bar]

Green = Less than 5.0% of Vehicles Were Over the Enforceable Limit  
 YELLOW = More than 5.0% of Vehicles Were Over the Enforceable Limit  
 RED = More than 8.5% of Vehicles Were Over the Enforceable Limit

Buttons at the bottom: Send To Printer, Create PDF, Create and eMail PDF, Exit.



The checkboxes on the left on the screen allow you to turn on or off various information in the report. The right side of the screen shows a preview of the report with the current selections.

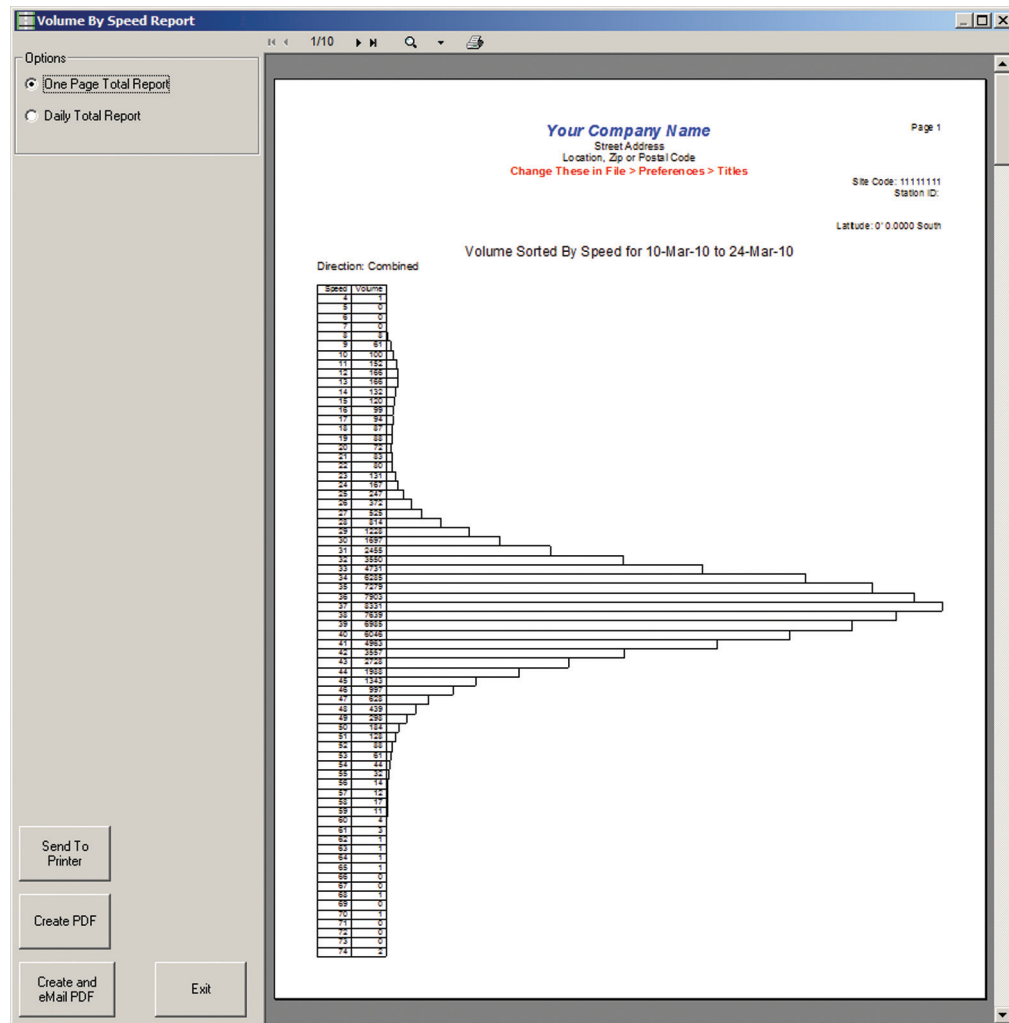
The slider bar allows you to adjust the color used for the two bars that represent the percent over limit. For example, in our sample file the 'Before' percentage of 4 percent and 'After' percentage of 2 percent are both green based on the default value of the slider bar. However, if you slide the bar to the left until it is at 3, the 'Before' bar will change to yellow. Slide the bar over one more to 2, and now the 'Before' bar is red.

Basically, the slider bar lets you emphasize any change for the better that resulted from your enforcement efforts and makes the report an excellent follow up for those who requested the enforcement detail.



### Volume by Speed

The Volume by Speed report shows the amount of vehicles traveling at every speed in the data set, from the slowest to the fastest. This report provides a good visual graph of how the speeds break down throughout the study and allows you to quickly and easily see the slowest and fastest vehicles within a study.





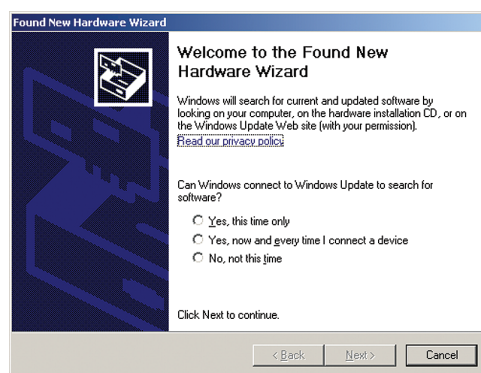
## Appendix #2 – Installing Apollyon USB Drivers

The first time you are downloading the TRAX Apollyon to a computer using the USB port, you will need to install the drivers for it. There are two drivers that will be installed, one right after the other. These drivers are available on the Downloads section of the JAMAR web site ([www.jamartech.com](http://www.jamartech.com)), on the installation CD for the TRAXPro software, and as part of the Windows Update feature available from Microsoft using an Internet connection.

To install the drivers, first connect a USB cable to your computer and then to the USB port of the TRAX. Next, turn the TRAX on.

The Windows 'Found New Hardware' message will pop up, referencing VNC1-A As Slave (or USB Serial Converter) , then the *Found New Hardware Wizard* will appear.

**Figure A-26:**  
Found New  
Hardware  
Wizard



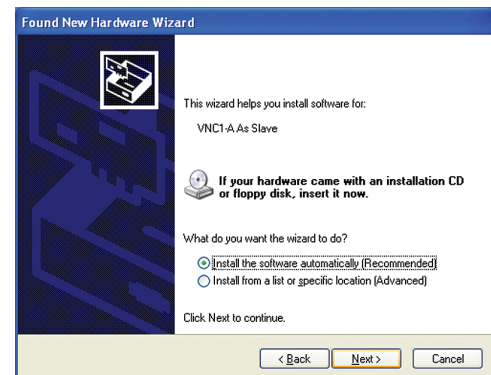
One of the features of Windows is to use your Internet connection to search the Windows Update web site for any available drivers for USB devices you connect to your computer, like the TRAX. If you have not used this feature before, you'll first see a screen like the one shown to the left when you first connect the TRAX.

The drivers for the TRAX are available through this feature, so if you'd like to allow the wizard to connect to the Internet, select one for the first two options and click Next.

After you click Next (or if you have previously instructed Windows to always check the Windows Update web site for drivers), you'll see the screen shown to the right.

This screen is used to tell Windows where to look for the drivers it needs. We recommend using the first selection, *Install the Software Automatically*.

Note that whenever possible we recommend you use the drivers available through the Windows Update web site as this is the easiest method for loading the drivers. However, if you are not able to use the Windows Update web site, the drivers are also available on the Downloads section of the JAMAR



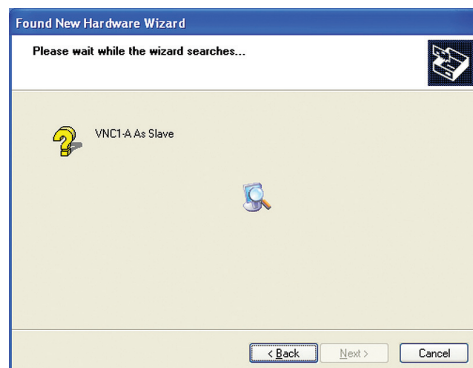
**Figure A-27:** Select Installation Method

web site and TRAXPro installation CDs for versions later than 1.7.1. If you are downloading the drivers from the JAMAR web site, be sure to follow the directions listed there. If you would like to use the drivers on the TRAXPro CD, insert the CD into your drive.

Once you are ready to proceed, click Next. The Wizard will then start searching for the best available drivers and you'll see a screen like the one shown to the left.

Note that if the Wizard finds more than one driver (like if

**Figure A-28:**  
Installing  
Driver





**Figure A-29:**  
First  
Driver  
Installed



you are using Windows Update and also have a TRAXPro CD in you drive), the Wizard will list all the available drivers. You can then select the one you'd like and then proceed.

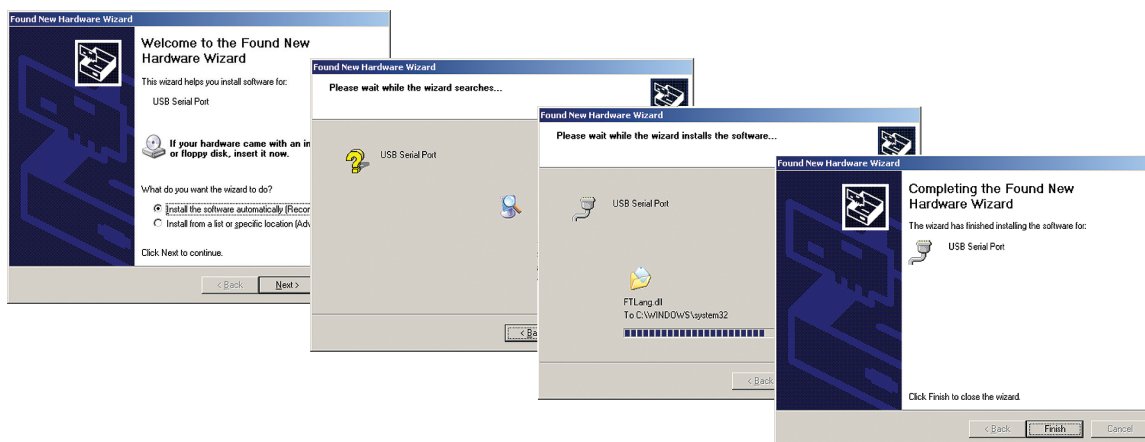
When the driver is finished installing you'll see a screen like the one shown to the left.

Click Finish and you'll complete installing this driver, but there's still one more to go.

Once you click Finish, the Windows 'Found New Hardware' message will pop up again, referencing a USB Serial Port, and the *Found New Hardware Wizard* will reappear. Don't be alarmed, this is what's supposed to happen. There is a second driver that needs to be installed to create a virtual comm port.

To install this second driver, follow the same steps as the first.

**Figure A-30:**  
Second  
Driver  
Installation

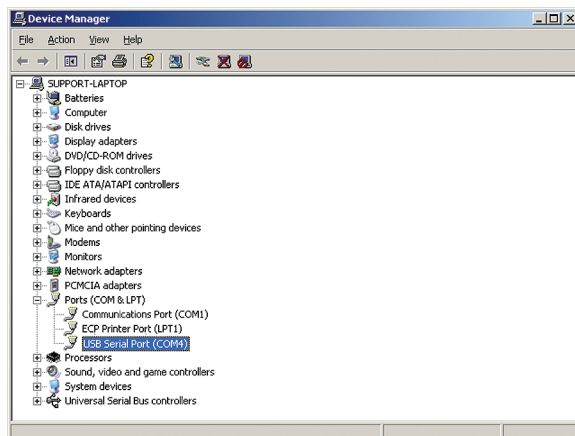


Once the second driver is installed, you may see a message like the one below, prompting you to restart your computer.

Restart your computer to complete the process of installing the drivers.

The process of installing the USB drivers has created a virtual comm port on your computer and assigned this port a number from 1 to 16. You will need to select this comm port number in TRAXPro when you go to download your TRAX. TRAXPro makes this easier to do by only listing the comm ports that are available in the download screen. However, if you want to check to see what port number the virtual comm port has been assigned, you can do so through the computer's Device Manager list.

**Figure A-31:**  
Port  
Listings



To access this information, right-click on the My Computer icon then select Properties. In the System Properties window, click on the Hardware Tab, then click the Device Manager button. Click the plus sign (+) next to Ports and you should see a list similar to the one shown below, showing the port number that your computer has assigned.



## Appendix #3 – Installing USB Adapter Drivers for Radar

The first time you connect the Radar Recorder to a computer using the USB adapter, you will need to install the drivers for the USB adapter. There are two drivers that will be installed, one right after the other.

**Figure A-32:**  
Found New  
Hardware  
Wizard

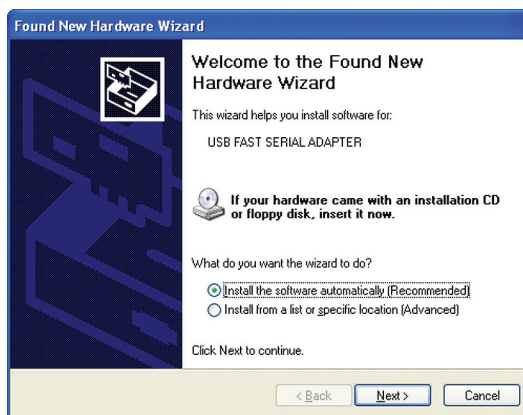


The Windows 'Found New Hardware' message will pop up, then the *Found New Hardware Wizard* will appear.

One of the features of Windows is to use your Internet connection to search the Windows Update web site for any available drivers for USB devices you connect to your computer, like the USB adapter. If you have not used this feature before, you'll first see a screen like the one shown to the right when you first connect the adapter.

The drivers for the adapter are available through this feature, so if you'd like to allow the wizard to connect to the Internet, select one for the first two options and click Next.

**Figure A-33:**  
Select  
Installation  
Method



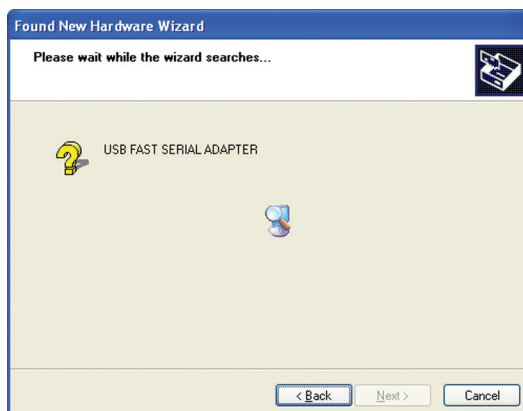
After you click Next (or if you have previously instructed Windows to always check the Windows Update web site for drivers), you'll see the screen shown to the right.

This screen is used to tell Windows where to look for the drivers it needs. We recommend using the first selection, *Install the Software Automatically*.

Note that whenever possible we recommend you use the drivers available through the Windows Update web site as this is the easiest method for loading the drivers. However, if you are not able to use the

Windows Update web site, the drivers are also available on the Downloads section of the JAMAR web site.

**Figure A-34:**  
Installing  
Driver



Once you are ready to proceed, click Next. The Wizard will then start searching for the best available drivers and you'll see a screen like the one shown to the right.

Once the wizard is finished searching, it will begin to load the driver it has found.



**Figure A-35:**  
First  
Driver  
Installed

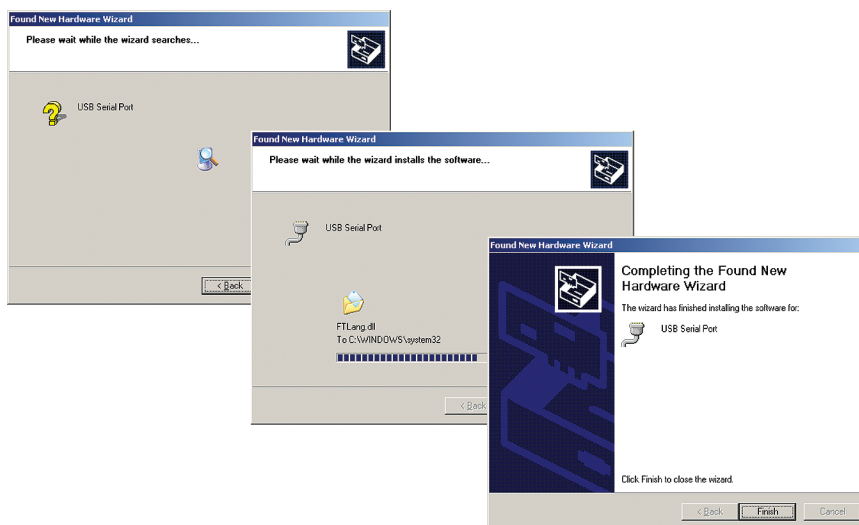


When the driver is finished installing you'll see a screen like the one shown to the left.

Click Finish and you'll complete installing this driver, but there's still one more to go.



Once you click Finish, the Windows 'Found New Hardware' message will pop up again, referencing a USB Serial Port, and the *Found New Hardware Wizard* will reappear. Don't be alarmed, this is what's supposed to happen. There is a second driver that needs to be installed to create a virtual comm port.



**Figure A-36:**  
Second  
Driver  
Installation

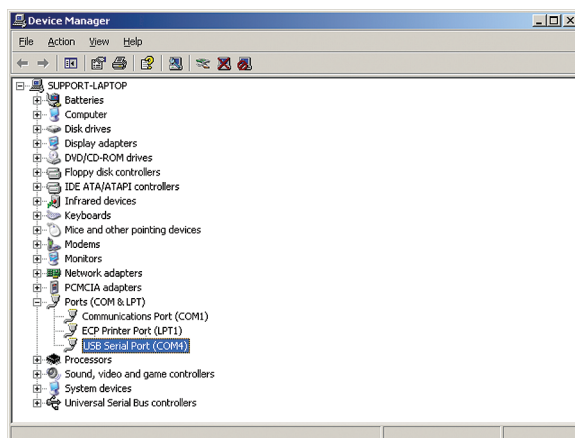
To install this second driver, follow the same steps as the first.

Once the second driver is installed, you may see a message prompting you to restart your computer. Restart your computer to complete the process of installing the drivers.

The process of installing the USB drivers has created a virtual comm

port on your computer and assigned this port a number from 1 to 16. You will need to select this comm port number in TRAXPro when you go to connect to your Radar Recorder. TRAXPro makes this easier to do by only listing the comm ports that are available in the connection screen. However, if you want to check to see what port number the virtual comm port has been assigned, you can do so through the computer's Device Manager list.

**Figure A-37:**  
Port  
Listings



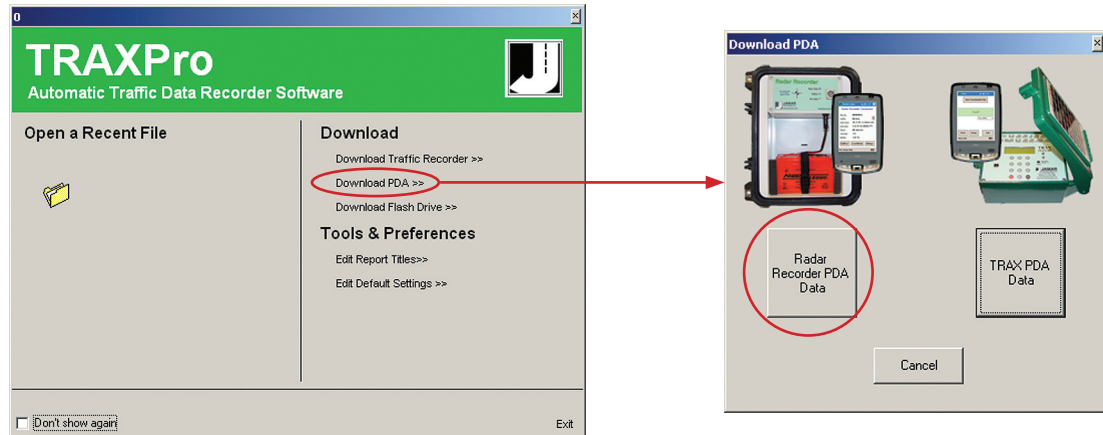
To access this information, right-click on the My Computer icon then select Properties. In the System Properties window, click on the Hardware Tab, then click the Device Manager button. Click the plus sign (+) next to Ports and you should see a list similar to the one shown below, showing the port number that your computer has assigned.



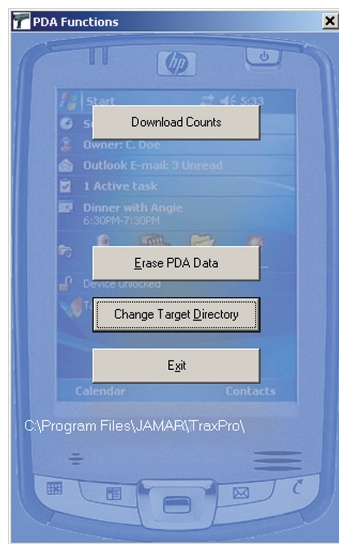
## Appendix #4 – Downloading Radar Data from a PDA

Data that has been recorded with the Radar Recorder can be retrieved using a PDA with the Pocket Collect software. Once you have data stored in the PDA, it can be brought back to your office where it can then be processed with TRAXPro.

Once back at your office, connect your PDA to your desktop computer. Select *Download PDA* from the Quick Start screen, then *Radar Recorder PDA Data*.



**Figure A-38:**  
PDA  
Download  
Selections



**Figure A-39:**  
PDA  
Functions

The **PDA Functions** screen will then appear, as shown to the left.

There are several things that can be done with this screen, the most important of which is retrieving data from the PDA. To do this, click the *Download Counts* button. TRAXPro will connect to the PDA using the Active Sync connection and copy all the data in Pocket Collect to your computer.

Note that the transfer does not automatically remove the data from your PDA. Once you are sure the data has been successfully moved to TRAXPro, you can delete the files from the PDA by using the *Erase PDA Data* button.

If you do not erase the processed files from the PDA, these older files will get transferred to TRAXPro again the next time you retrieve new files from the PDA.

	Time	Date	Site Code	Type	Vehicles or Intervals
1	09:39 AM	8/7/2009	00000001	Per-Vehicle	6082
2	08:49 AM	4/16/2009	00000001	Per-Vehicle	66378

**Figure A-40:**  
Radar  
Study List

When the transfer is complete, you'll see a screen similar to the one on the left that will show all of the studies downloaded from the flash drive.

The list contains detailed information on each study, including the start date and time of the study.

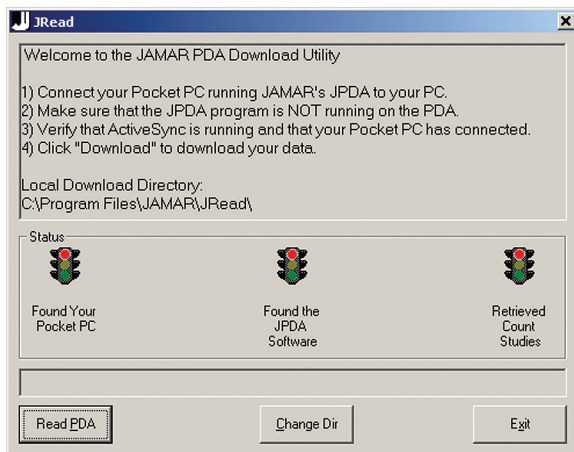
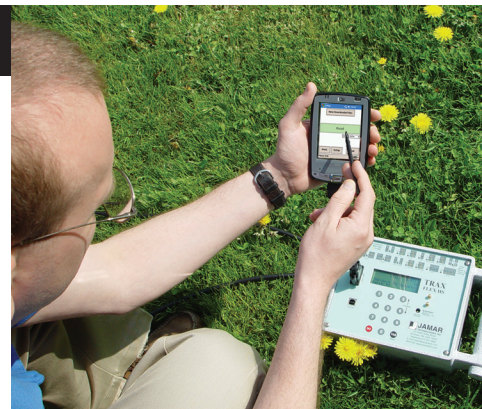


To open the study you want to work with, click on it in the list, then click the Open button. You will be asked to supply a name to the study and once you have done so, the study will appear on your screen. The download process is then complete.

Note that TRAXPro stores the information from each download and keeps a record on file. This allows you to reprocess the downloads without actually having to re-download the PDA. To do this, go to the *Tools* menu and select *Reprocess Last Radar Download*. This can be a useful tool if you accidentally delete data.

## Appendix #5 – Retrieving Data from JPDA

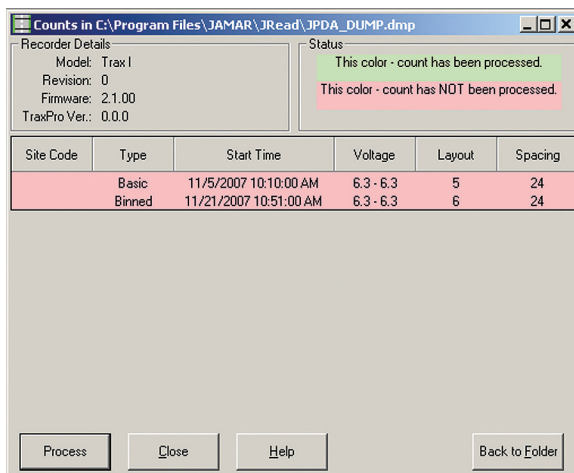
JPDA is a free program (available for download from the JAMAR web site) designed to run on a Personal Digital Assistant (PDA). It works with several of JAMAR's TRAX automatic traffic data recorders, including the TRAX Flex. The primary job of JPDA is to retrieve the data in your data recorders and get that data back to your office, where it can then be processed with TRAXPro. (For more details on how to use JPDA, refer to its manual.)



**Figure A-41:**  
JRead  
Utility

Once you have data stored in JPDA, connect your PDA to your desktop computer, then run TRAXPro. To retrieve the data, go to the *File* menu then select *Acquire, TRAX/JPDA, JPDA with JRead*. The JRead utility screen will then appear.

Click the *Read PDA* button when you are ready. TRAXPro connects to the PDA using the Active Sync connection and copies a temporary file, containing all the data in JPDA, from the PDA into a folder on your computer. You will then see the screen shown in Figure A-42.



**Figure A-42:**  
Retrieved  
File List

This screen lists all the studies that have been transferred from JPDA. All the studies will be colored light red, indicating that they have not yet been processed. Note that once a study has been processed from the list, it will be colored green.

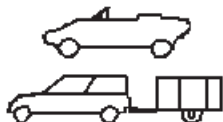
To process a file, click on it on the list, then click the Process button. The file you selected will then be opened.



## Appendix #6 – Federal Highway Administration Scheme F



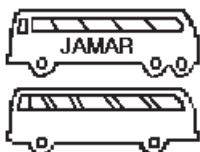
**Class 1 - Motorcycles.** This class includes all two- or three-wheeled motorized vehicles. These vehicles typically have a saddle-type of seat and are steered by handlebars rather than a steering wheel. This includes motorcycles, motor scooters, mopeds, motor-powered bicycles and three-wheel motorcycles.



**Class 2 - Passenger cars.** This class includes all sedans, coupes and station wagons manufactured primarily for the purpose of carrying passengers, including those pulling recreational or other light trailers.



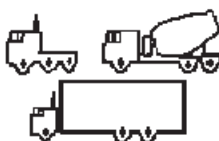
**Class 3 - Pickups, Vans and other 2-axle, 4-tire Single Unit Vehicles.** This class includes all two-axle, four tire vehicles other than passenger cars, which includes pickups, vans, campers, small motor homes, ambulances, minibuses and carryalls. These types of vehicles which are pulling recreational or other light trailers are included.



**Class 4 - Buses.** This class includes all vehicles manufactured as traditional passenger-carrying buses with two axles and six tires or three or more axles. This includes only traditional buses, including school and transit buses, functioning as passenger-carrying vehicles. All two-axle, four tire minibuses should be classified as Class 3. Modified buses should be considered to be trucks and classified appropriately.



**Class 5 - Two-Axle, Six-Tire Single Unit Trucks.** This class includes all vehicles on a *single frame* which have *two axles and dual rear tires*. This includes trucks, camping and recreation vehicles, motor homes, etc.



**Class 6 - Three-Axle Single Unit Trucks.** This class includes all vehicles on a *single frame* which have *three axles*. This includes trucks, camping and recreation vehicles, motor homes, etc.



**Class 7 - Four or More Axle Single Unit Trucks.** This class includes all vehicles on a *single frame* with *four or more axles*.



**Class 8 - Four or Less Axle Single Trailer Trucks.** This class includes all vehicles with *four or less axles* consisting of *two units*, in which the pulling unit is a tractor or single unit truck.



**Class 9 - Five-Axle Single Trailer Trucks.** This class includes all *five-axle* vehicles consisting of *two units* in which the pulling unit is a tractor or single unit truck.





**Class 10 - Six or More Axle Single Trailer Trucks.** This class includes all vehicles with *six or more axles* consisting of *two units* in which the pulling unit is a tractor or single unit truck.



**Class 11 - Five or Less Axle Multi-Trailer Trucks.** This class includes all vehicles with *five or less axles* consisting of *three or more units* in which the pulling unit is a tractor or single unit truck.

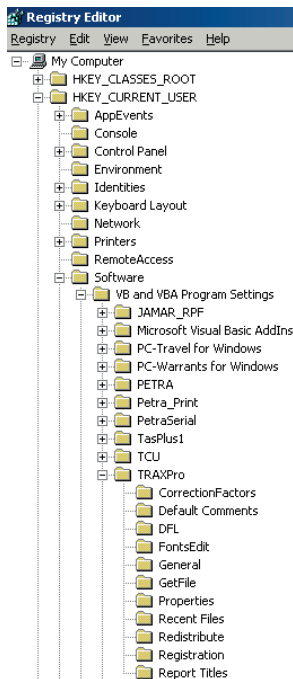


**Class 12 - Six-Axle Multi-Trailer Trucks.** This class includes all *six-axle* vehicles consisting of *three or more units* in which the pulling unit is a tractor or single unit truck.



**Class 13 - Seven or More Axle Multi-Trailer Trucks.** This class includes all vehicles with *seven or more axles* consisting of *three or more units* in which the pulling unit is a tractor or single unit truck.

## Appendix #7 – Registry Entry



TRAXPro creates an entry in the Windows Registry when it is installed. This entry contains the default settings that are configured for the program, and can be reviewed or edited if an error is encountered in using the program.

**WARNING: Incorrect changes to the Windows Registry may cause your computer to stop operating correctly. Only use this function if you are sure of what you are doing.**

The registry entry for TRAXPro can be located at:

**HKEY\_CURRENT\_USER, Software, VB and VBA Program Settings, TRAXPro**



## Appendix #8 – Statistical Calculations

### Peak Hour Factor (PHF)

The Peak Hour Factor (PHF) is used to indicate how evenly the rate of flow of traffic is during the peak hour. For 15 minute intervals the equation for determining the PHF is:

$$PHF = \frac{V}{4 \times V_{15}}$$

Where V equals hourly volume (vehicles per hour) and  $V_{15}$  equals the maximum 15 minute volume within the hour.

The maximum value a PHF could be is 1.000, which would occur if the volumes in each 15 minute interval of the peak hour were equal. This is shown in the example to the left. The minimum value a PHF could be is 0.250, which would occur if the total volume for the peak hour occurred in only one interval. This is shown in the example to the right.

Time	Volume
8:00	25
8:15	25
8:30	25
8:45	25

$$\frac{100}{4 \times 25} = 1.000$$

**Maximum Possible PHF**

Time	Volume
8:00	0
8:15	0
8:30	100
8:45	0

$$\frac{100}{4 \times 100} = 0.250$$

**Minimum Possible PHF**

Typically the PHF will fall into a range of 0.700 to 0.980. The lower the value, the higher the degree of variation in volumes during the peak hour.

### Average Daily Total (ADT) and Annual Average Daily Total (AADT)

For the ADT, the program notes how many intervals of actual data there are. For example, if you had 2 complete days with 15-minute intervals, this would be 192. The program then notes how many intervals there are in a day. In this example, since the data is in 15-minute intervals, there are 96 in one day. The program then divides the number of intervals in a day (96) into the total number of data intervals (192) for a figure of 2.00. The inverse of this number (1/2.00) is then used to create a factor of 0.5.

The program then adds all of the data in the study (for example, 20,000) and multiplies it by the factor created (0.5). This yields the ADT. (20,000 multiplied by 0.5 equals 10,000)

This formula can be used with anywhere from several weeks worth of data to an hour's worth or less. Of course, the more data you have, the more accurate the ADT will be. It is also recommended that the ADT be calculated from full days of data (midnight to midnight). If you include days where only a portion of the data has been recorded, the ADT may be less accurate.

The AADT (Annual Average Daily Total) is calculated from the ADT by applying a seasonal correction factor.



## Appendix #9 – Using the TRAX Stealth Stud

This section covers using TRAXPro with the TRAX Stealth Studs. This information is presented in a tutorial style so you can follow along on your computer as each aspect is covered.

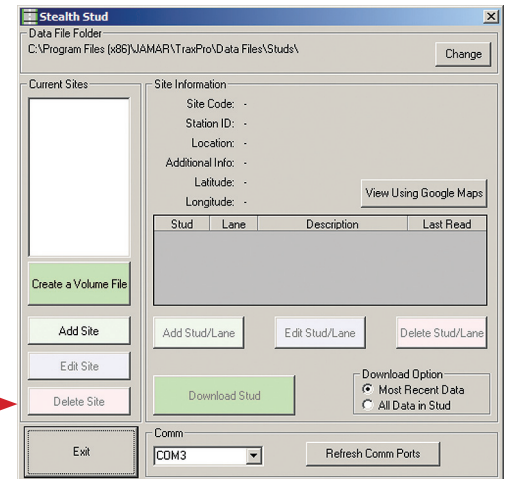
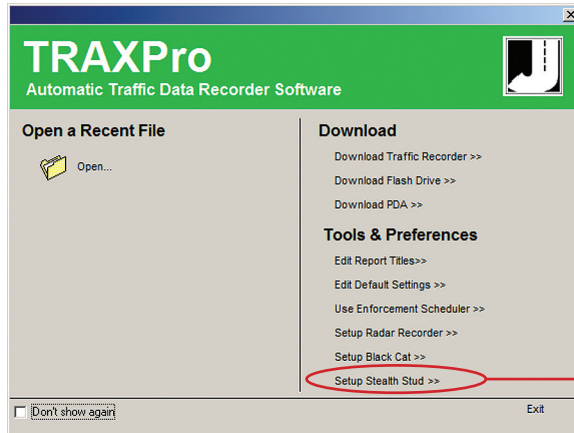
**Figure A-43:**  
USB Radio  
Module



All communication with the TRAX Stealth Stud is done via the USB Radio Module that came with your stud. The first time you plug the Radio Module into your computer's USB port the USB drivers for it should install automatically. This process can take a minute or two to complete.

Once the Radio Module is installed on your computer, start TRAXPro and from the Quick Start screen select *Setup Stealth Stud*.

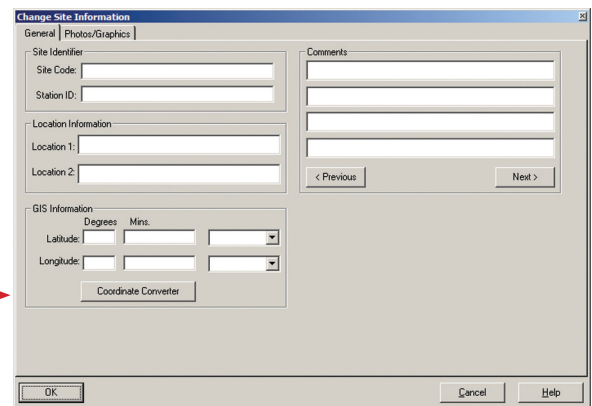
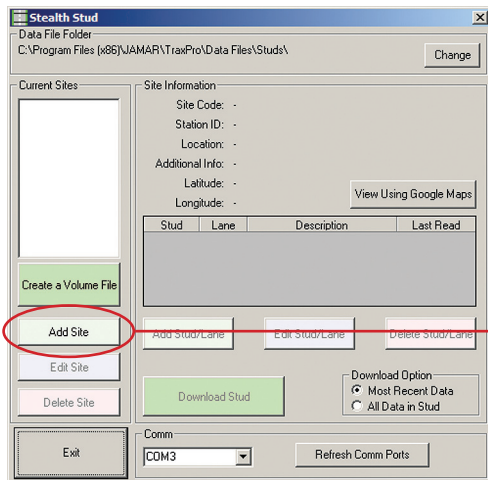
**Figure A-44:**  
Accessing  
Stud Setup  
Screen



### Creating a Site

Stud data is organized by sites (a site can be the location of a single stud or could have multiple studs installed), so the first time you enter the Stud Setup screen you'll need to add a site by clicking the *Add Site* button. This will open the *Change Site Information* screen.

**Figure A-45:**  
Creating  
Stud Site





**Figure A-46:**  
Site  
Details

We aren't using a Station ID for this tutorial, so leave that field blank. However, we do want to add location information, so enter *Moyer Road* for Location 1 and *Near Wimbledon Lane* for Location 2. This is the street location information for a test site near the JAMAR building.

The GIS Information fields can be used to enter GPS coordinates for the location, if they are available. For our location, enter the Latitude as 40 degrees, 15.5722 minutes North, and the Longitude as 75 degrees, 16.7580 minutes West. We'll soon see how having the GPS info as part of the Site Information will be useful. The Comments field can be used to enter any additional information for you Site. We'll leave these blank for now.

Next, click on the tab labelled Photo/Graphics. This screen can be used to add photos and/or graphics of the site location. These can be photos you took while in the field, or they can be images gathered online, which is what we'll do now.

**Figure A-47:**  
Google Maps  
Option

Click the OK button, and you'll be returned to the main Stealth Stud screen. Notice that the Site Information you entered is now reflected on this screen, including the GPS info. Also notice that next to the GPS info is a button labelled *View Using Google Maps*. If you click this button, a map of the location will be brought up in your Internet browser using Google Maps. For some areas, you can also see a Street View of the location.

**Figure A-48:**  
Adding  
Photos

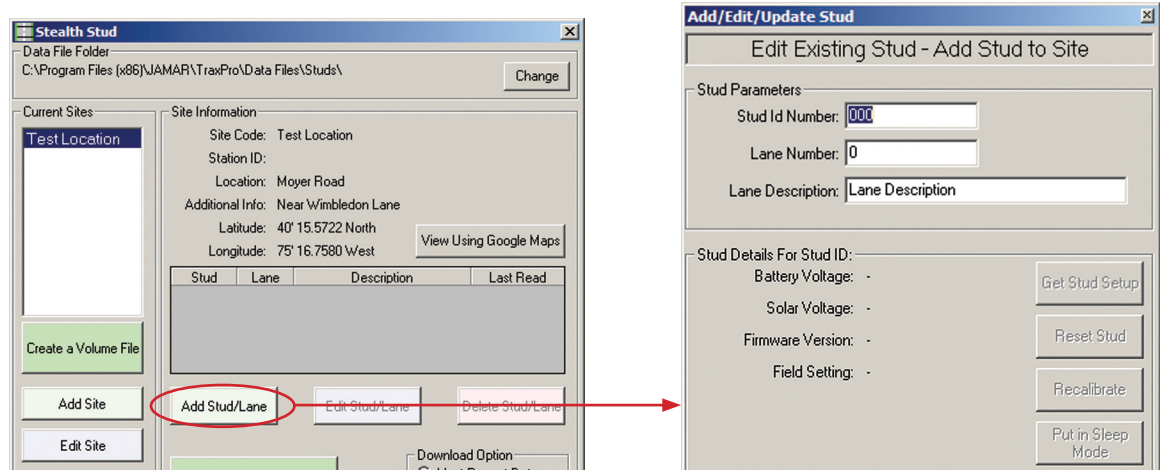
If you have the ability to capture and save screen images, these graphics can be saved to your computer. Once saved, click the *Edit Site* button to return to the Change Site Information screen, then click on the Photos/Graphics tab. Click the *Attach* button to save the images as part of the Site information. Click OK when done.



## Adding a Stud to a Site

Now that the Site has been created, the next thing we want to do is add a stud to the site. To do this, click the *Add Stud/Lane* button and the 'Add/Edit/Update Stud' screen will appear.

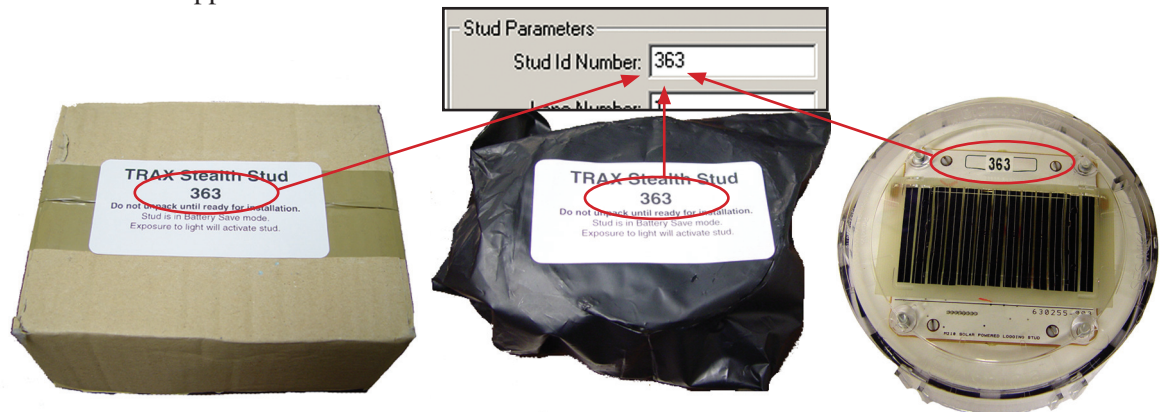
**Figure A-49:**  
Adding a  
Stud



**!**  
**Important**

The most important item on this screen is the first one. **The Stud ID Number must be entered as the serial number found printed on the label that is clearly visible when looking at the front of the stud.** This serial number is also printed on the box the stud came in, and on the black bag the stud was wrapped in.

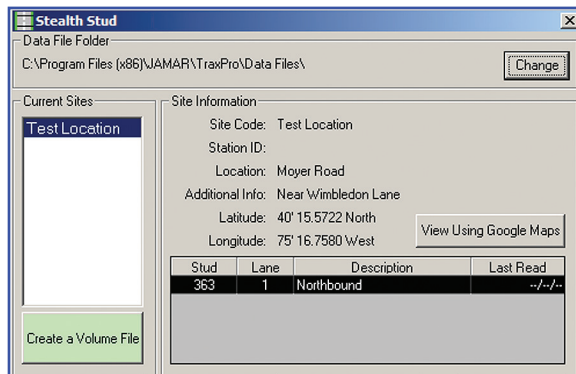
**Figure A-50:**  
Stud Serial  
Number



The values for Lane Number and Lane Description can be anything that will help you identify which stud you are trying to communicate with. For this stud, enter *1* for the Lane Number and *Northbound* for the Lane Description.

Once you enter a Stud ID Number and Lane Number, the *Add Stud and Exit* button becomes active. Click it to add the stud to the site.

**Figure A-51:**  
Stud Added  
to Site



You'll now see the stud you just added listed in the middle of the screen. The list includes the Stud ID (serial) number, the lane you assigned, the description you provided and the date when the stud was last downloaded, or read.

Additional studs can be added to the site in the same manner. Note that a site can have just one stud associated with it, or many, depending on how you want to organize your data.



## Checking Communications

Once you have assigned a stud for a site, it's a good idea to test your communication with the stud.



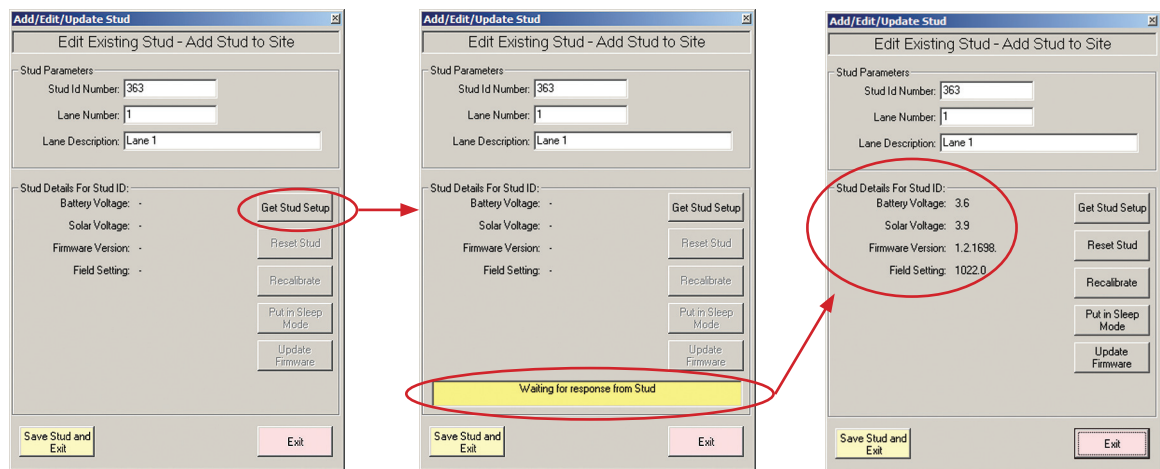
### Important

**IMPORTANT** - We highly recommend that you test your communication with a stud **BEFORE** you install it in the ground. Most installations of the stud are of a permanent nature, so you will want to discover and troubleshoot any communication problems before the stud is permanently installed.

Note that to communicate with a stud, the stud must be in 'Active' mode. When you first receive a stud it is in 'Sleep' mode and packed in a black bag that prevents light exposure. As soon as the stud is exposed to light it begins to 'wake up'. The wake up process can take 5 to 10 minutes, during which it will not respond to the radio module. Once the stud has woken up and is in active mode, communications can begin.

To test your communication with a stud, select the stud from your list and click the *Edit Stud/Lane* button. This will return you to the Add/Edit/Update Stud screen. Click the *Get Stud Setup* button and TRAXPro will then try to use the Radio Module to communicate with the stud and retrieve its diagnostic info.

**Figure A-52:**  
Get Stud  
Setup



Once you have confirmed that you can communicate with the stud, it is ready to be installed in the field.

## Sleep Mode

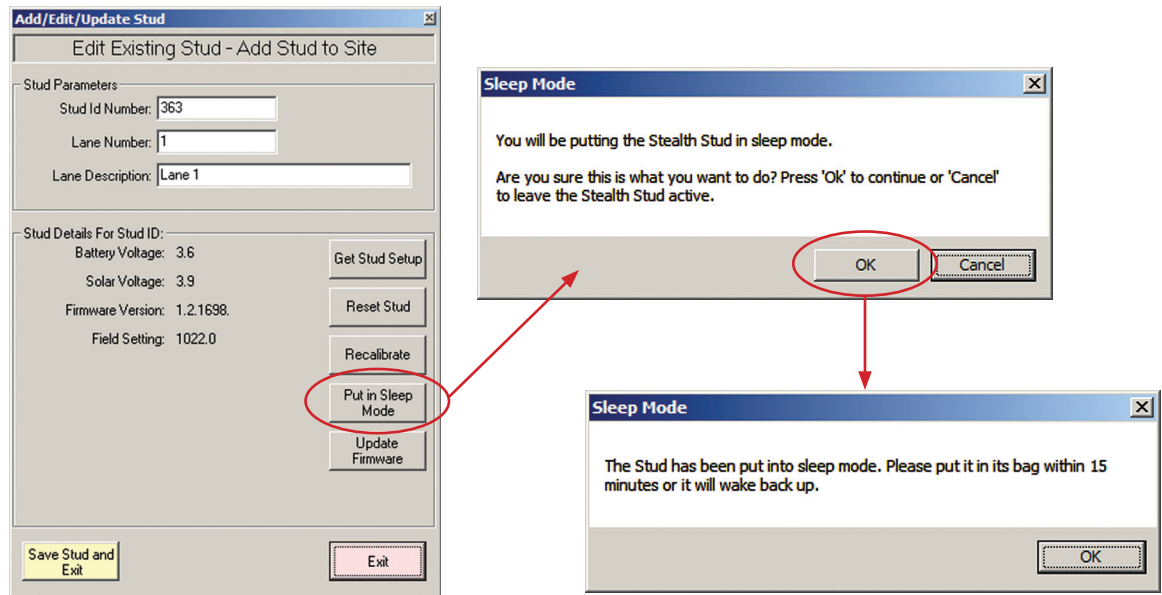
If there will be an extended period of time (more than a few days) before you install an active stud in the field, we recommend that you put the stud back into 'Sleep Mode' to preserve the battery.

To do this, click the *Put in Sleep Mode* button. You'll then see a message asking you to confirm that you want to put the stud into sleep mode. Click *OK* to continue and put the stud into sleep mode.

Once the stud is in sleep mode, you'll see a confirmation message, telling you to put the stud back into its light-blocking bag within 15 minutes or it will wake back up. The stud will remain in sleep mode as long as it is not exposed to light.



**Figure A-53:**  
Stud Sleep  
Mode



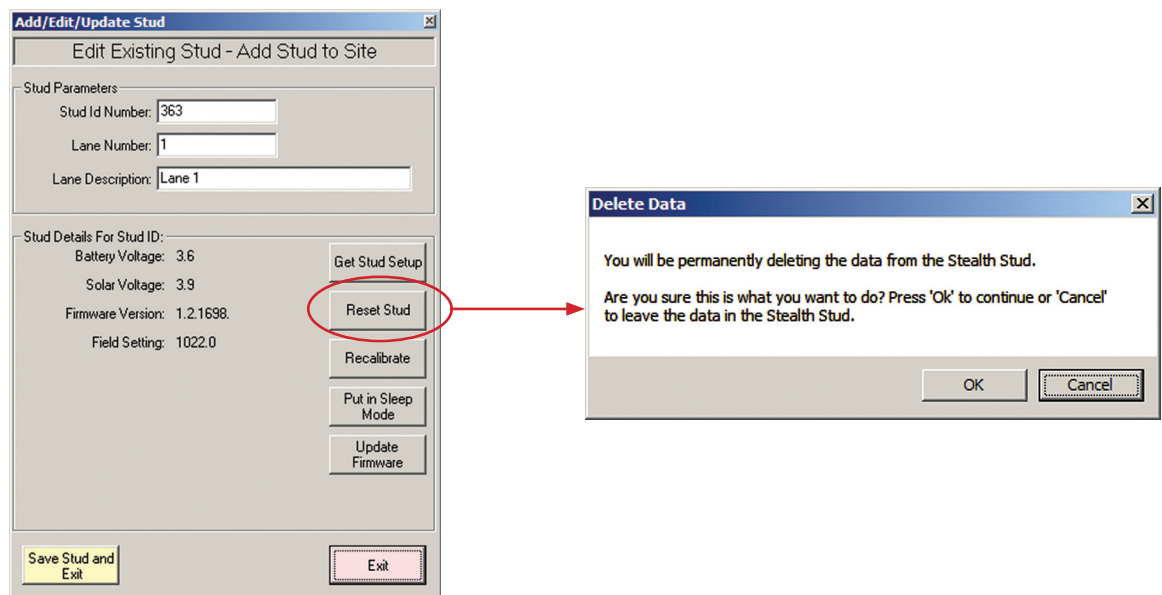
### Resetting and Calibrating a Stud

Once a stud has been installed in the road, it is important that it be calibrated to ensure that the vehicle detection is optimised for the location.

To do this, first reset the stud to clear out all data currently in memory. You do this by clicking the *Reset Stud* button. You'll then see a message asking you to confirm that this is what you want to do. **The Reset Stud command will delete all data currently in the stud, so be sure this is what you want.** If so, click OK to reset the stud.

The stud will then reset, which will take approximately 60 seconds. During this time, a small led light will be on and visible on the stud itself.

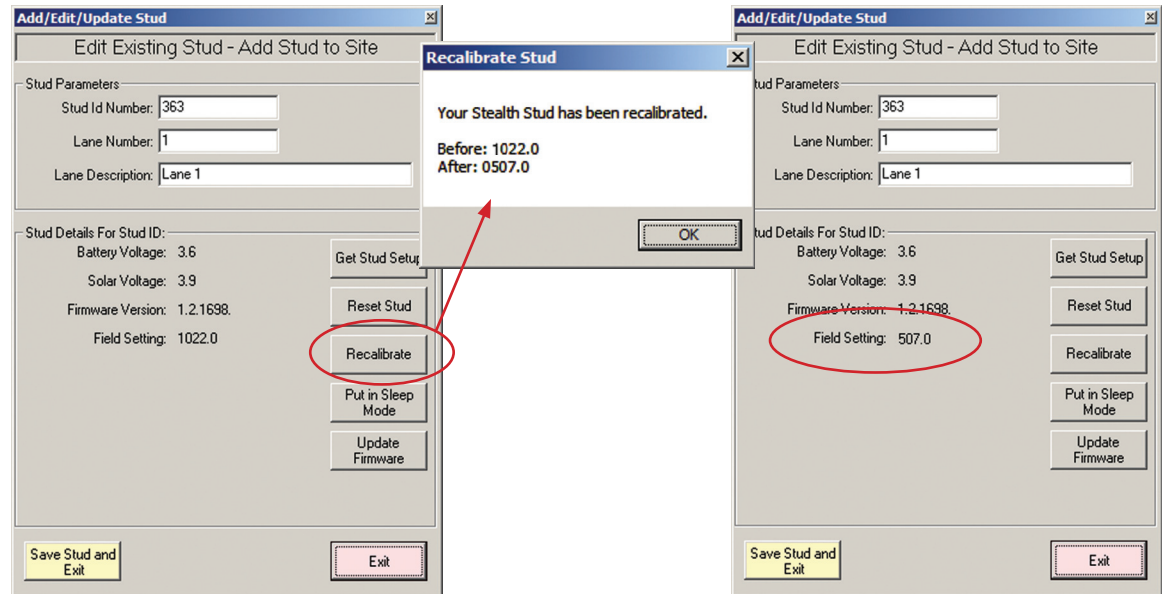
**Figure A-54:**  
Reset  
Stud





Once the reset is complete, you will want the stud to be correctly calibrated to its new physical environment. It is important that this is done when no vehicles are present as during the calibration the stud is learning the background magnetic field.

To start this process, click the Recalibrate button. The calibration will take a few seconds and then a new Field Setting will be displayed. Once this process is complete the stud is ready to collect data.

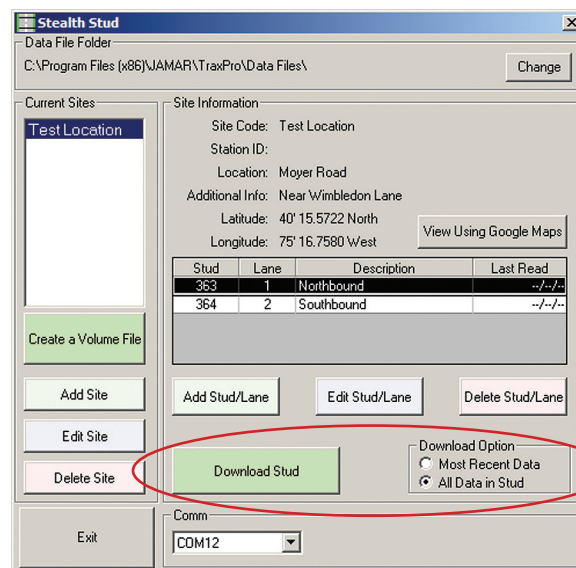


**Figure A-55:**  
Recalibrate  
Stud

### Downloading Data

Once your studs have collected some data, you can download this data for analysis and reporting. You will need to be located within approximately 50 feet of a stud to be able to reliably download data from it.

First, select the stud you want to download from the list of studs at a site. Note that you have two options when downloading data from a stud - either to download all the data in the stud's memory, or just the most recent data, which is any data that has not been previously downloaded. (The list of studs shows when each stud was last read, or downloaded.)



Once you have selected the option you want, click the *Download Stud* button and the radio module will attempt to connect to the stud and begin downloading data.

*Select Stud you want to download data from*

*Select to download 'all data' or just 'recent data', then click Download Stud.*

**Figure A-56:**  
Download  
Stud



**Figure A-57:**  
Download in  
Progress

As the download is happening, the screen shows you how much data has been transferred from the stud to the computer.

Once the download is complete, a new window will pop up, showing a preview of the data that has been retrieved from the stud.

There are several options on this screen, available through the buttons along the bottom:

**Return to Download** – this selection will take you back to the main Stud screen. Note that the data you just downloaded is now stored in the site's database.

**Preview Downloaded Count Data**

	4/1/2013	4/2/2013	4/3/2013	4/4/2013	4/5/2013	4/6/2013	4/7/2013
00:00	5	13	17	12	25	18	22
01:00	4	5	2	10	8	10	8
02:00	5	4	4	4	0	6	15
03:00	1	2	1	3	3	4	5
04:00	3	7	7	5	5	6	5
05:00	28	21	23	21	32	19	8
06:00	97	104	117	109	123	85	25
07:00	112	164	160	145	150	130	58
08:00	140	161	143	125	128	131	82
09:00	91	140	137	121	132	128	95
10:00	125	119	113	105	134	162	160
11:00	186	185	212	181	228	251	156
12:00	245	275	259	198	265	266	175
13:00	164	177	154	157	207	236	196
14:00	193	202	193	184	227	247	187
15:00	313	304	316	311	287	350	167
16:00	449	481	481	464	506	406	163
17:00	593	737	748	708	655	315	146
18:00	332	431	379	386	380	249	147
19:00	166	217	201	185	171	154	164
20:00	85	101	121	90	123	105	97
21:00	68	80	80	99	85	75	87
22:00	39	45	38	39	63	68	59
23:00	25	24	30	32	25	48	33

Buttons: Return to Download Screen, Create a Volume File, Erase Data From Stud

**Figure A-58:**  
Downloaded  
Data Preview

**Erase Data From Stud** – this selection will delete all data from the stud. Note that the data you have just downloaded is stored in the site's database in TRAXPro.

**Create a Volume File** – will allow you to create a TRAXPro volume data file from any or all data currently available in the site's database.

Once you click *Create a Volume File*, a screen will appear showing the data that is available in the database for the site. You are given the options of selecting the interval length for the file, the start and end dates for the data, and which lanes to use. Once these are set, click the *Create TRAXPro Count* button and the data file will appear on the screen

**Create Binned Volume File**

Available Data for Test Location

Lane	Description	Start Date	End Date	Include
1	Northbound	4 / 1 / 2013	4 / 7 / 2013	<input checked="" type="checkbox"/>

Select Interval Length: 60 Minutes

Select Start and End Dates: Start Date: 4 / 1 / 2013, End Date: 4 / 7 / 2013

Buttons: Create TraxPro Count, Cancel

**Figure A-59:**  
Create  
TRAXPro  
Count

TraxPro Version 2.9.1

File Edit View Insert Tools Window Help

c:\program files (x86)\jamar\traxpro\data files\sample file - stud data.tf2

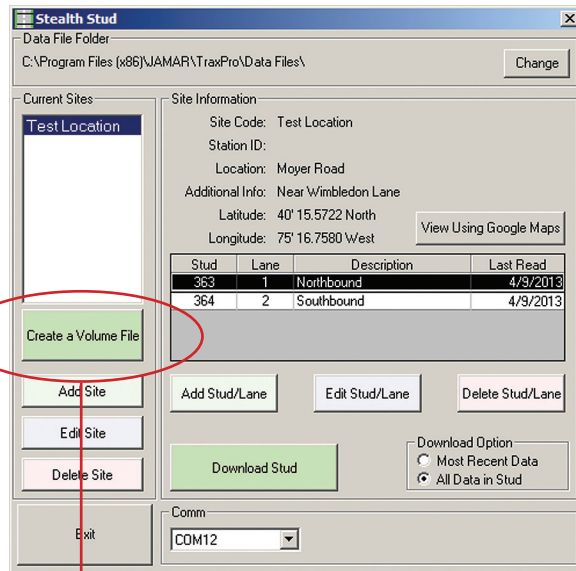
Start Date: 4/1/2013 Site Code: Test Location Number of Intervals: 168 Location 1: Mc  
Start Time: 12:00 AM Station ID: Interval Length: 60 minutes Location 2: Ne

Start Time	Northbound	Total
12:00 AM	5	5
01:00 AM	4	4
02:00 AM	5	5
03:00 AM	1	1
04:00 AM	3	3
05:00 AM	28	28
06:00 AM	97	97
07:00 AM	112	112
08:00 AM	140	140
09:00 AM	91	91
10:00 AM	125	125
11:00 AM	186	186
12:00 PM	245	245
01:00 PM	164	164
02:00 PM	193	193
03:00 PM	313	313
04:00 PM	449	449
05:00 PM	593	593
06:00 PM	332	332
07:00 PM	166	166
08:00 PM	85	85
09:00 PM	68	68
10:00 PM	39	39
11:00 PM	25	25
4/2/2013	13	13
01:00 AM	5	5
02:00 AM	4	4
03:00 AM	2	2
04:00 AM	7	7



## Creating a Data File from Previously Downloaded Data

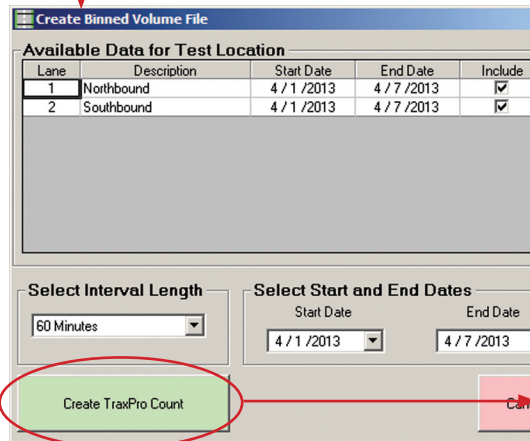
While you can create a TRAXPro volume file as part of the stud download process (as we just covered), you can also create a TRAXPro volume file from previously downloaded data at any point.



**Figure A-60:**  
Create  
Volume File

You do this by clicking the button *Create a Volume File* on the main stud screen.

Once you click *Create a Volume File*, a screen will appear showing the data that is available in the database for the site. You are given the options of selecting the interval length for the file, the start and end dates for the data, and which lanes to use. Once these are set, click the *Create TRAXPro Count* button and the data file will appear on the screen.



**Figure A-61:**  
Create  
TRAXPro  
Count

The screenshot shows the 'TraxPro Version 2.9.1' application window. The 'Start Date' is '4/1/2013', 'Start Time' is '12:00 AM', 'Site Code' is 'Test Location', 'Station ID' is 'Test Location', 'Number of Intervals' is '168', 'Interval Length' is '60 minutes', 'Location 1' is 'Mo', and 'Location 2' is 'Ne'. The data table is shown:

Start Time	Northbound	Southbound	Total
12:00 AM	3	3	8
01:00 AM	4	5	9
02:00 AM	5	3	8
03:00 AM	1	2	3
04:00 AM	3	9	12
05:00 AM	28	45	73
06:00 AM	97	221	318
07:00 AM	112	512	624
08:00 AM	140	462	602
09:00 AM	91	202	293
10:00 AM	125	128	253
11:00 AM	186	141	327
12:00 PM	245	218	463
01:00 PM	164	222	386
02:00 PM	193	172	365
03:00 PM	313	205	518
04:00 PM	449	224	673
05:00 PM	593	201	794
06:00 PM	332	155	487
07:00 PM	166	109	275
08:00 PM	85	90	175
09:00 PM	68	57	125
10:00 PM	39	29	68
11:00 PM	25	24	49
4/2/2013	13	11	24
01:00 AM	5	7	12
02:00 AM	4	7	11
03:00 AM	2	3	5
04:00 AM	7	16	23



