Blue Sky Municipal GIS Partnership

Basic Traffic Counter Set-up

JAMAR Technologies, Inc.

TRAX Apollyon
Automatic Traffic Data Recorder

BLUE SKY NET
ONTARIO • CANADA
BLUE SKY ECONOMIC GROWTH CORPORATION

Blue Sky Municipal GIS Partnership
Traffic Counter Procedures

The following document describes how to book traffic counters. Throughout these chapters you will obtain the procedures for setup and the knowledge to load and use the software once traffic counts have been obtained. Please note that road counters are loaned out on a first-come-first-served basis.

Traffic Counter Booking Procedure

The eight traffic counters are stored at the Blue Sky Net office, 101 Worthington East, Suit 337, North Bay, Ontario.

To check on the availability of road traffic counters and to book, contact Jerry Poliszczuk:

- Phone: 705-476-0874 ext: 213
- Email: jerry.poliszczuk@blueskynet.ca

Some general Rules:

It is your responsibility to pick up and return the counters before the end of your booking period.

Please return the counters in an excellent, clean condition, with all parts and manuals in the supplied containers.

Review the bin's inventory checklist and ensure that all items are accounted for.

It is as well your responsibility to ensure that the laptop that is loaned out for road traffic reporting is not used for any activities outside of the use of the STARnext road counter reporting software and that no damages are incurred either through use or physical handling.

Please notify Blue Sky Net if units are damaged or supplies are needed.

Help and Resources on Road Counter Set-Up

Please contact Blue Sky Net for additional help and resources on traffic road counter set-up. We are able to provide additional videos and online documentation that thoroughly reviews how to set up road traffic counters, configure the Trax Apolloyon units, transfer the data to the STARnext software and how to generate reports.

- Contact: Jerry Poliszczuk
- Phone: 705-476-0874 ext:213
- Email: jerry.poliszczuk@blueskynet.ca

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Quick Setup Guide for the TRAX Apollyon

1. Turn the TRAX Apollyon ON by pressing the POWER button. (Make sure the Main Power toggle is set to ON.)

2. TAB to *Utils* and press the DO key once.

3. Check the tube spacing currently set for the study (Sp:). If you are using normal road tubes, the spacing should be set to 2.0 ft. If you are using the EZ Belt, the spacing should be set to 0.3 ft. To change the Spacing, press DO with *Sp:* flashing. Otherwise, press TAB until *Exit* is flashing, then press DO. The default tube spacing will remain stored in the TRAX for all future studies. You will not need to set it again unless you are going to use a different spacing.

4. From the Main Menu, press the DO key when *Count* is flashing.

5. Select the type of study you wish to do by using the TAB key and hitting DO when your selection is flashing. The options are Basic and Volume Only.

> *Basic*: time-stamped raw data. This study gives you the greatest flexibility and, depending on the layout selected, can be used to get volume, class, speed and gap information. This is the selection that is most commonly used with the TRAX Apollyon and the one we recommend.
> *Volume Only*: axle or divide-by-two vehicle counting. This study type can be used if you are only interested in vehicle volumes. For Volume-Axle, each axle is counted. For Volume-Vehicle, every two axles is counted as one (divide-by-two technique).

6. After selecting your type of study, you will be prompted to select a tube layout. Refer to the descriptions on the TRAX Apollyon or to Chapter 5 for the appropriate selection. Layouts L5, L6, L10, L11 and L12 can be used to collect data for speed, class, gap and volume. The remaining layouts can provide only gap and volume data. TAB to your selection and press the DO key to select it.

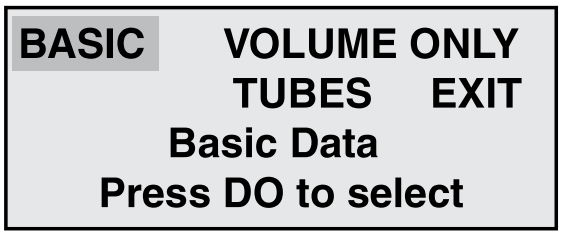
7. You will then be prompted to select a site code. Press DO with *Yes* flashing to enter one or press DO with *No* flashing to not use a site code.

8. Press DO with *Start* flashing to begin your study!

Starting a New Count

With *Count* highlighted on the Main Menu, press the DO key.

You have two options for the type of data you want to collect – **Basic** or **Volume Only**.



Count Menu with *Basic* highlighted

So what do we mean when we say 'Basic' data and 'Volume Only' data?

Basic data means that the data you are collecting in the field with the Apollyon is in its most basic format – a time-stamp recording for every single axle that goes over the road tubes you have put down. (Some people refer to this type of data as Raw data or Time-stamped data – we call it Basic data. They all essentially mean the same thing.) Depending on the tube layout you select (we'll cover this shortly) Basic data can be processed to provide data for volume, speed, classification & gap, all from the same original file.

With Volume Only data, as the name implies, you can only get volume information. This format also does not time-stamp every axle, but rather sorts and stores the volume data into specific interval times.

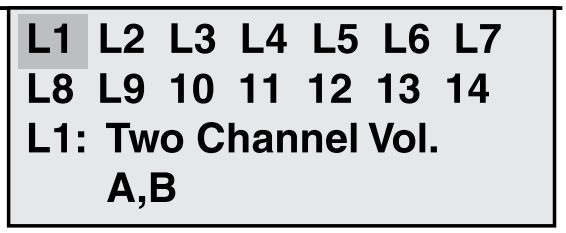
In general, we recommend that you use the Basic format whenever you can. There are several reasons for this, the most important of which is that if something goes wrong with one of your counts, **it is much easier to determine why (and potentially fix the problem without having to re-do the count) if the data is collected in the Basic format.**

There is a third option listed on this menu, *Tubes*, that can be used to view the strength of the pulses that are coming in on the road tubes. We'll learn more about this feature a little later on in the tutorial.

With *Basic* highlighted on the screen, press the DO key.

Selecting a Layout

The next screen you see is used to select the type of layout you will be using to collect your data.



Layout Menu with L1 highlighted

The Apollyon contains 14 pre-programmed layouts, labelled L1 through L14. These all represent different ways of placing road tubes on the road to collect data.

Press the TAB key and the highlight will move from L1 to L2. Also notice that the bottom two lines of the display changes to provide a description of whichever layout you have highlighted.

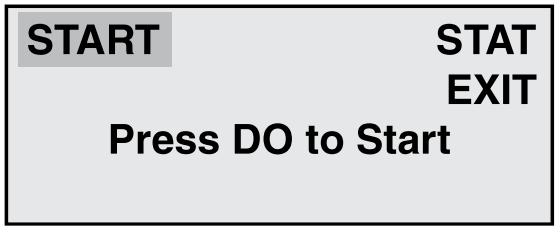
Which layout you select largely depends on the type of data you need. Some layouts can only provide volume and gap data (L1, L2, L3, L4, L7, L8, L9, L13, L14) while others will provide speed and class in addition to volume and gap (L5, L6, L10, L11, L12). For full descriptions of the different tube layouts, refer to chapter 5.

If you need to produce reports for speed or classification data, the most commonly used layout is L6. This is designed for standard two-lane roads with traffic traveling in opposite directions. Another commonly used layout is L5, which is designed for one-lane of traffic (or possibly two if each lane is going in the same direction). The data for either of these layouts can be collected with one EZ Belt, or two road tubes if you are not using the EZ Belt. (Note that any layouts that provide speed & class data also automatically provide volume data.)

For this tutorial, we'll select the L6 layout, so press the TAB key until L6 is flashing, then press DO.

The next screen gives you the option to enter a Site Code for your count. This feature allows you to enter information specific to where the study was done, such as street names, location codes, etc. If you do a lot of counts at different locations, using Site Codes can help you keep track of them all. We won't use one for this tutorial, so press TAB to highlight *NO*, the press DO.

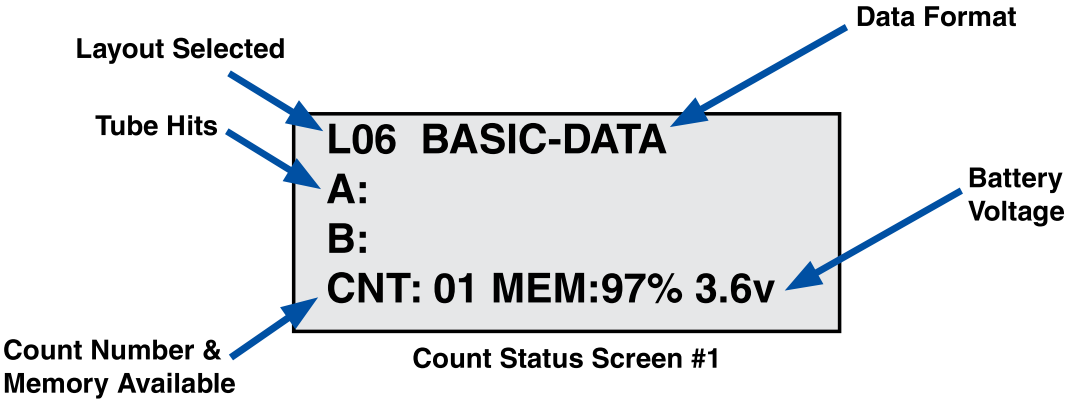
We're now ready to start our count. Before we do so, notice the STAT option on this screen. The STAT option lets you review how you have set up the count.



Count Start Menu with *Start* highlighted

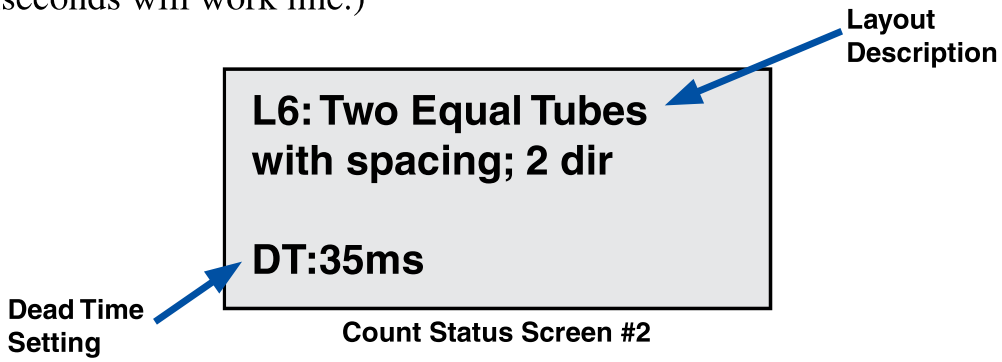
Now, to start our count, press DO with *Start* flashing. The Apollyon immediately goes into data recording mode and the count has begun.

Once the count has begun, the first of four status screens is displayed. The top line of this screen tells us what layout we have selected and the data format we are using. The middle two lines will show the hits that are being received on the road tubes. Whenever a vehicle's axle hits one of the road tubes, you should see an asterisk appear on that tube's row. The bottom line shows what number count this is in the Apollyon's memory, the percentage of memory available, and the battery voltage.



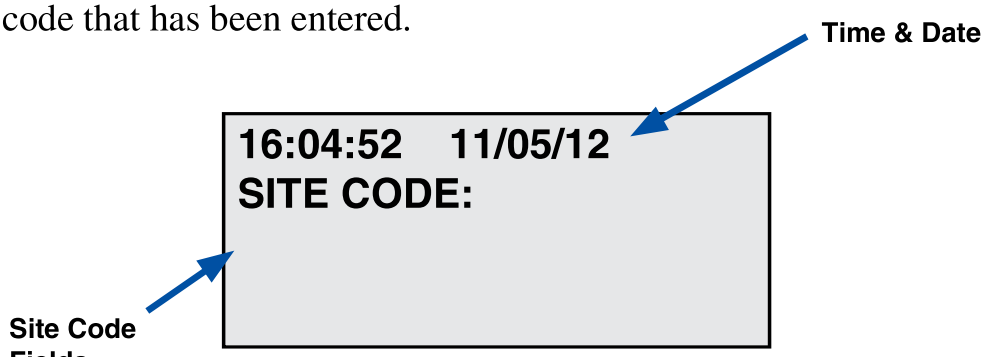
Count Status Screen #1

Press the TAB key and the second status screen will appear. This screen provides a more detailed description of the layout we are using, along with the default dead time value (DT) set in the Apollyon. (Dead Time is explained in detail in chapter 2 – in most cases a value from 25 - 40 milliseconds will work fine.)



Count Status Screen #2

Press the TAB key again and the third status screen will appear. This screen shows the time and date that are set in the Apollyon, along with any site code that has been entered.

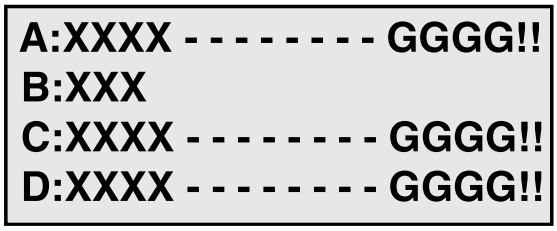


Count Status Screen #3

Press the TAB key again and the final status screen is shown. This screen shows the strength of the hits that are being received on the tubes that you are using.

When a hit is received on a tube, the strength of that hit is shown for about a second on the display of the Apollyon. Pulse levels are broken down into 4 categories: 'X' for Poor, '-' for Fair, 'G' for Good and '!' for Excellent.

In the example shown below, the pulse strength is excellent for the A, C and D tubes. However, the pulse strength for the B tube is poor, indicating that the tube should be checked, and possibly replaced.



Count Status Screen #4

By checking this screen, you can determine if a tube should be reinstalled, or replaced, before leaving the site.

Note that the Main Menu of the Apollyon also contains a version of this tube test feature, which assigns numeric values to the strength of the pulses, ranging from 0 for no pulse to 9 for strongest pulse. These are shown by the numbers on the far right side of the screen on the Main Menu.

Now press TAB again, and the display will go back to showing the first of the status screens.

If we were doing a real count, at this point we'd close the lid of the Apollyon and lock it up. The Apollyon will then continue to do its job of collecting data until we tell it to stop.

It's a good idea to periodically check the status of your count, if possible, when you are doing one for an extended period of time. If you are doing a count for a week or more, you may want to stop by and check the status screens once or twice during the count, just to make sure everything is still recording correctly.

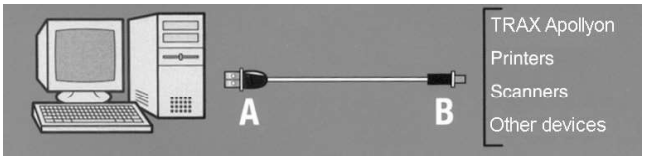
Ending the Count

When you want to end a count, simply turn the Apollyon off by pressing the POWER key and holding it down for 5-6 seconds. This shuts the Apollyon down and stores the count file in memory. Go ahead and do that now to end the count we started. Once the unit is turned off, press the POWER key to start it back up again.

Downloading Your Data

Once you have collected data and stored it in memory, the next step is to download it. The data can be downloaded either directly to a computer using the USB Download Port or to a USB Flash Drive through the USB Memory Port. We'll cover both options in this tutorial.

To download your data directly to a computer, first plug a USB cable into the USB Download Port of the Apollyon, then plug the other end into your computer.



Note that the first time you are connecting the Apollyon to a computer using the USB port, you will need to install the drivers for it. (This is typically an easy process – refer to the Appendix for information on how to do this before proceeding.) The USB drivers create a virtual comm port that you will select in the STARnext software.

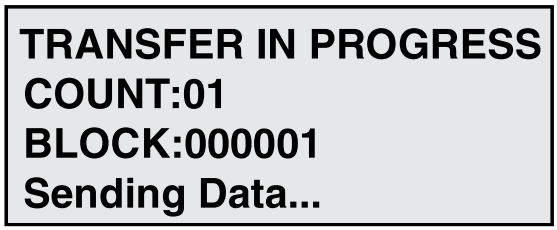
On the Apollyon itself, check to see if the Main Menu is visible. Your data can be downloaded if this screen is visible.

Once your Apollyon is properly connected (and the drivers have been installed), start the STARnext software and click on the *Download a TRAX counter* icon. The *Download Traffic Recorder* screen will then appear.

The baud rate setting determines how fast the data will be transferred into the program. Note that the TRAX Apollyon will automatically sense whatever baud rate you select in the software. The higher the baud rate, the faster your data will be downloaded. Most computers can be set for the highest setting, 115200, so select this. Once this is set, select the comm port which was created by the USB driver. (Refer to the Appendix for more information on this.) STARnext will only list the comm ports that are available on your computer, making the selection easier.

After making any needed adjustments, click on the *Begin* button in STARnext and the program will attempt to connect to the Apollyon. The traffic signal icons at the bottom of the STARnext screen provide the status of the download.

If the connection is made, you will see a blue progress bar moving across the STARnext screen as the data is transferred. While the data is being downloaded, the display on the Apollyon will show:



Download in Progress

When all of the data in the Apollyon has been downloaded, you will either see a screen for assigning a name to your file or, if there is more than one count, a list of counts to choose from.

Once the data has been transferred to the computer, the Apollyon display will return to the screen it was on before the download began.

Downloaded counts will remain in the memory of the TRAX until they are cleared, using the method we covered earlier in this tutorial.

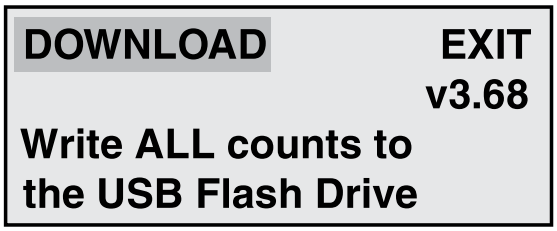
The other option you have for retrieving your data is by using a USB flash drive. This is a convenient way of retrieving your data without having to either bring the Apollyon back to your office or take a laptop into the field.

USB flash drives (also known as jump drives) come in various shapes and sizes and are made by many different manufacturers. Shown here is a model distributed by JAMAR for use with the Apollyon, but note that just about any recently made flash drive (2006 or later) should work.

USB Flash Drive

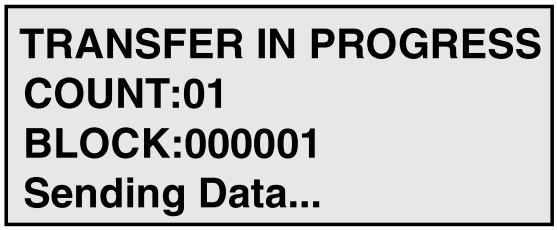
To retrieve data using a flash drive, plug it into the USB Memory Port of the Apollyon, then highlight the *USB* selection on the Main Menu of the Apollyon and press the DO key.

You will then see the USB Download screen, which gives you the option to download the data in memory to the flash drive. To do this, with the *Download* option flashing, press the DO key to start the data download.



USB Download Screen

While the data is being retrieved, the display on the Apollyon will show:



Download in Progress

When all of the data in the Apollyon has been downloaded, you will see the message 'Transfer Complete!' on the Apollyon. It will then return to the screen it was on before the download began.

The USB Flash drive can then be used to retrieve data from additional counters, or taken back to the office for download into STARnext.

To retrieve the data from the flash drive to your computer using STARnext, plug the flash drive into your computer then go to the *File* menu in STARnext and select *Acquire > USB Flash Drive*.

Congratulations

Now that you have completed this tutorial, you should have a good working knowledge of how the Apollyon operates. The next chapter covers all the options and features of the Apollyon in detail, both those we touched on in this tutorial and additional ones.

We commend you on your choice of the TRAX Apollyon for your data collection needs. A lot of thought and care has gone into the design of this unit, and it should provide you with years of reliable service.

Layouts for the TRAX Apollyon

The TRAX Apollyon is equipped with fourteen pre-programmed layouts for recording traffic data. These are designated as L1 through L14 and represent the most common types of layouts used to record traffic data.

The following are descriptions of each of the layouts, the type of data that can be collected, and the type of sensor (traditional road tube or EZ Belt) that can be used with each. Each layout is different, but there are some common principles that should be used with any layout that is chosen.

- The condition of the EZ Belt or road tubes, and the manner in which they are installed, are critical to achieving good results. Refer to Chapters 3 & 4 for more installation information.
- When using road tube, a tube length of 50 to 60 feet is recommended for round tube, and a tube length of 40 to 60 feet is recommended for mini tube, depending on conditions.
- In all tube setups of more than one tube, the tube length from the end of the road to the TRAX must be the same for all tubes.
- In all short tube, long tube layouts, the vehicle must strike the short tube first.
- To collect class or speed data, a minimum of two feet of tube spacing is required to achieve accurate results when using traditional road tubes. If using the EZ Belt, the spacing should be set at 4 inches (0.3 ft).
- For counts done in the Volume Only mode, the TRAX Apollyon will either do a straight axle count or use the divide-by-two technique (in which every two axle hits will increment the TRAX Apollyon by one).
- Data can be collected in the Basic mode with any of the tube layouts, since basic data is essentially a collection of all the sensor activations on an individual basis. However, the minimum tube spacing requirements still apply to Basic data. If a layout says volume only, that is the only information you will be able to accurately get from it. You can collect data in the Basic mode with an L1 layout, but you will only be able to get volume data, not class or speed.

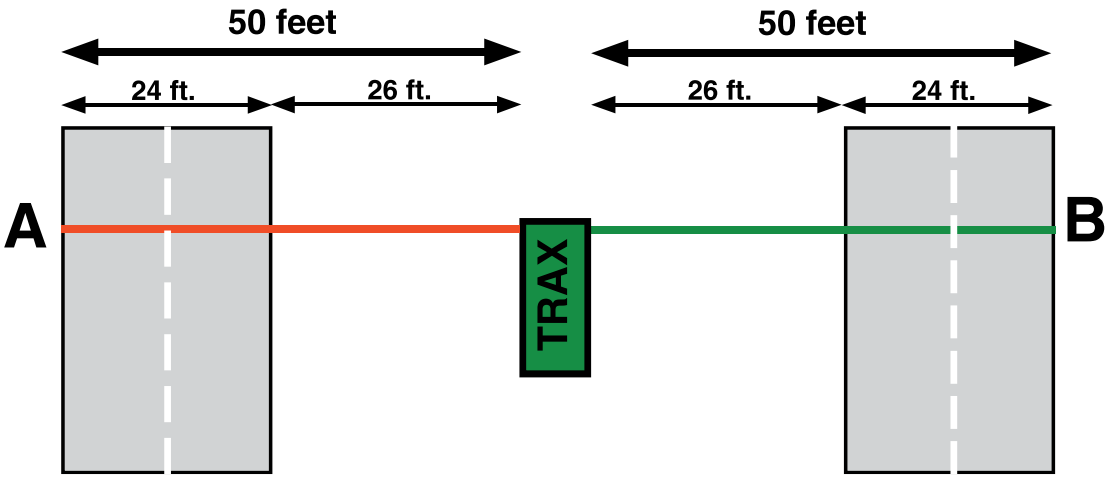
The diagrams for the following layouts assume a length of twelve feet per lane of traffic and are shown for round tube and mini tube.

Layout: L1

Layout Type: Traditional Road Tubes
Sensors Used: 2 Road Tubes
Spacing: None
Count Formats: Basic, Volume Only
Data: Volume, Gap
Channels: 2 Channels, A, B

In this layout, channel “A” and channel “B” record independently. When in Volume mode the TRAX can do either a straight axle count or use the divide-by-two technique.

EXAMPLE: The TRAX has been programmed to use the divide-by-two technique. As a passenger car passes over the “A”, the unit records one count. As a four axle truck passes over the “A” tube the unit records two counts.

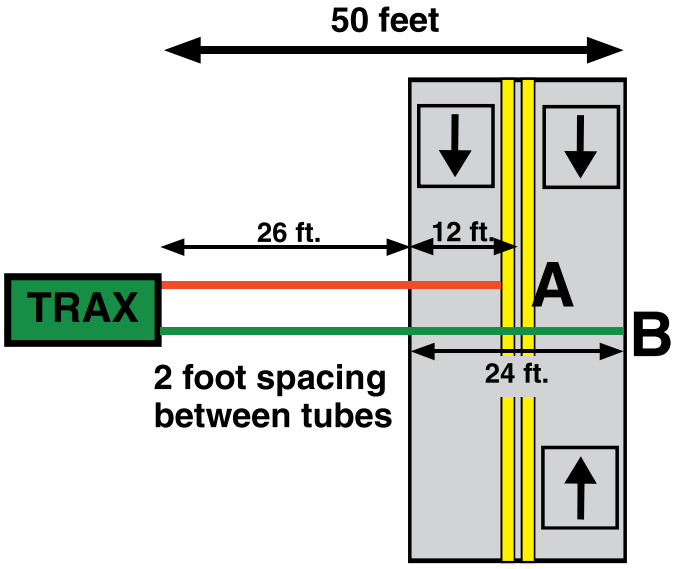


Layout: L2

Layout Type: Traditional Road Tubes
Sensors Used: 2 Road Tubes
Spacing: 2 Feet
Count Formats: Basic, Volume Only
Data: Volume, Gap
Channels: 2 Channels, A, B-A

In this layout, channel "A" and channel "B" record independently. The A tube is extended over one lane while the B tube is extended over two lanes. Hits on the A tube are recorded in channel 1. Hits on the B tube are recorded in channel 2, unless they were immediately preceded by a hit on the A tube, in which case the B hit is ignored. When in Volume mode the TRAX can do either a straight axle count or use the divide-by-two technique. Traffic in the outer lane can be going in either direction.

EXAMPLE: The TRAX has been programmed to use the divide-by-two technique. As a car approaches the tubes in the inner lane and both front and rear axles pass over the "A" and the "B" tube, the unit records a one in the A channel, but ignores the hit on the B channel since it occurred immediately after the A hit. As a second car approaches the tubes in the outer lane and both front and rear axles pass over the "B" tube, the unit records a one in the B channel. One vehicle has been recorded in each lane of the study.

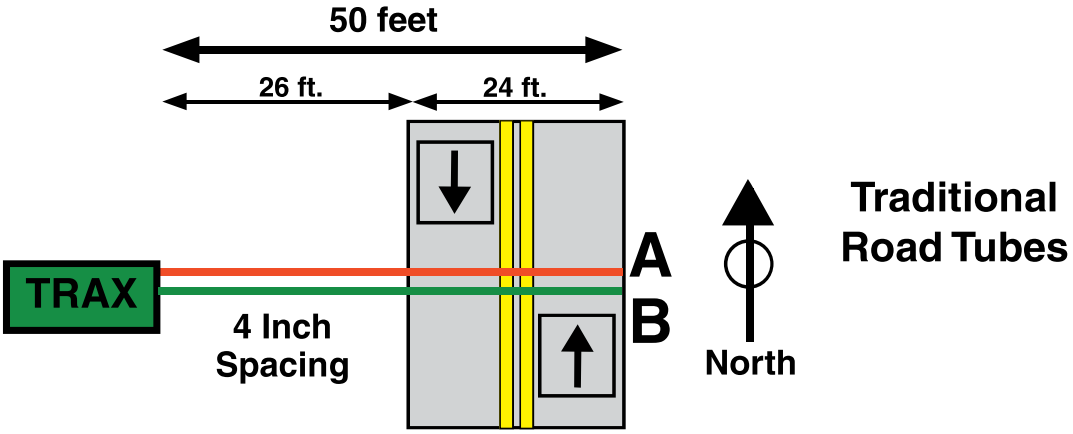


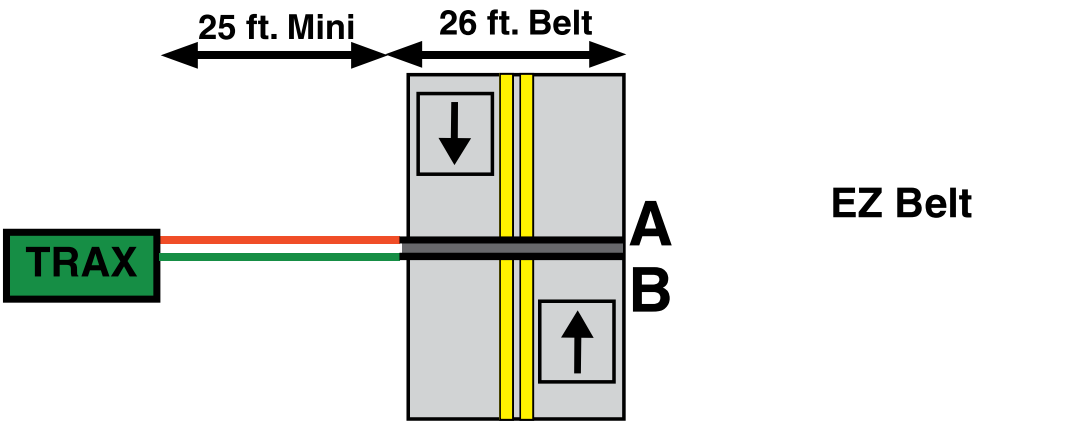
Layout: L3

Layout Type: EZ Belt or Traditional Road Tubes
Sensors Used: 2 Road Tubes
Spacing: 4 Inches
Count Formats: Basic, Volume Only
Data: Volume, Gap
Channels: 2 Channels, A to B, B to A

In this layout, both tubes (A and B) are extended across the lanes to be counted. Channel A and channel B record independent of each other. When one tube is hit, the next hit is ignored. When in Volume mode the TRAX can do either a straight axle count or use the divide-by-two technique.

EXAMPLE: The TRAX has been programmed to use the divide-by-two technique. A car is traveling southbound, approaching the tubes. As the front and rear axles strike the A tube, a one is registered in the A channel. The front and rear axles then strike the B tube but these hits are ignored since the A tube has just been hit. Conversely, a car traveling northbound will strike the B tube first (recording it in the B channel) and then have its hits on the A tube ignored.

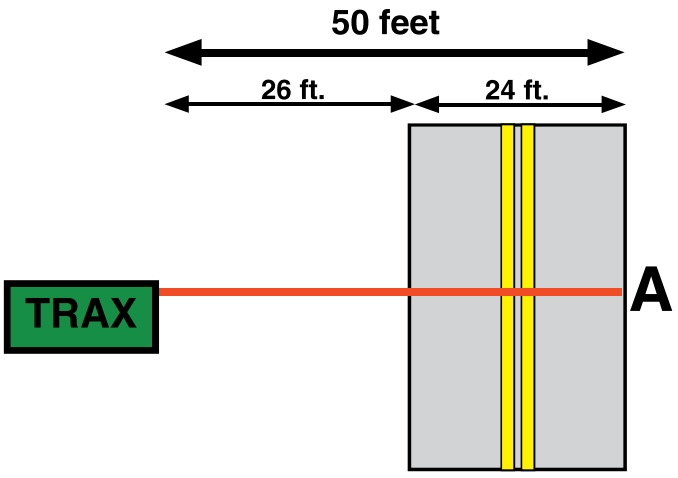




Layout: L4

Layout Type: Traditional Road Tubes
Sensors Used: 1 Road Tube
Spacing: None
Count Formats: Basic, Volume Only
Data: Volume, Gap
Channels: 1 Channel, A

In this layout, one tube is extended across the lanes to be counted. When in Volume mode the TRAX can do either a straight axle count or use the divide-by-two technique. This layout can be used with single direction or bidirectional traffic; however, there is no lane separation.



Layout: L5

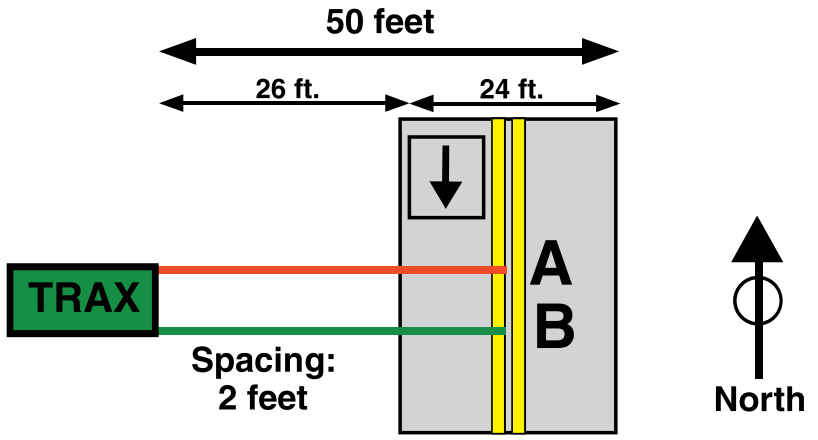
Layout Type: EZ Belt or Traditional Road Tubes
Sensors Used: 2 Road Tubes
Spacing: 4 Inches for EZ Belt, Two Feet for Road Tubes
Count Formats: Basic
Data: Class, Speed, Gap, Volume
Directions: 1 Direction, A to B

In this layout, both tubes (A and B) are extended across the lane to be studied. Channel A and channel B record dependent on each other. The tubes should be spaced two feet apart and be of equal length.

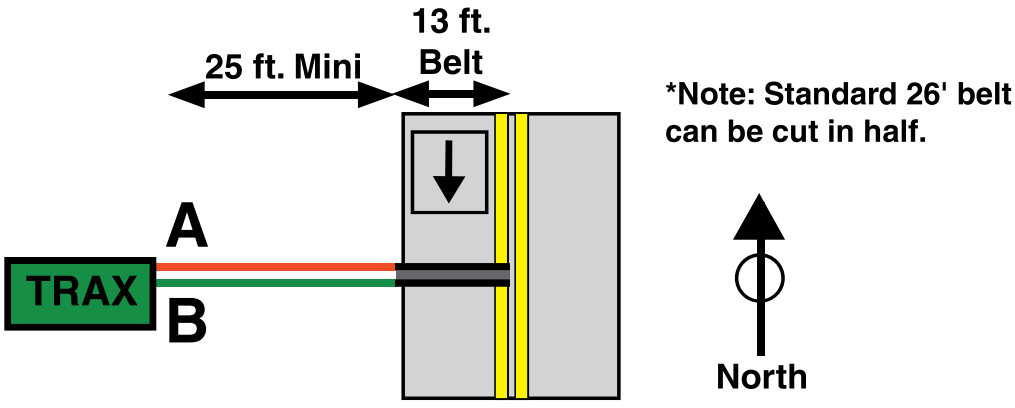
EXAMPLE: A car is traveling southbound, approaching the tubes. As the vehicle passes over both the A and B tubes, the TRAX records the class, and speed (or time-stamps) of the vehicle.

**Note that, in some cases, you can extend the tubes across two lanes of traffic if you have two lanes both going the same direction. However, the data will not provide lane separation.*

Traditional Road Tubes



EZ Belt



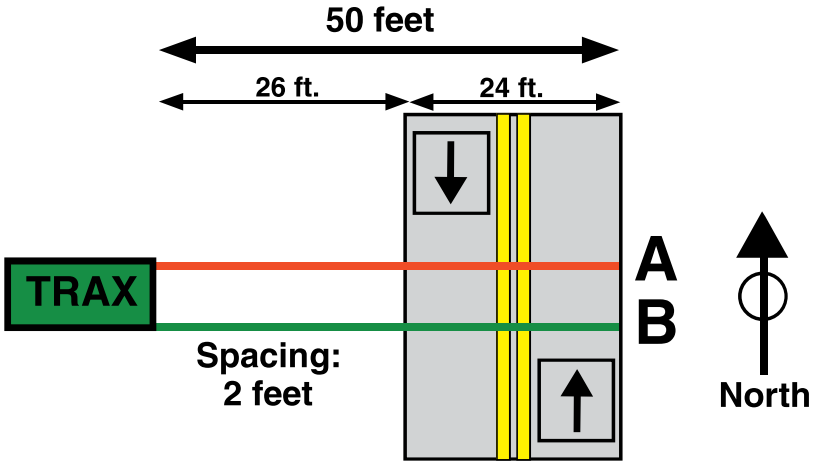
Layout: L6

Layout Type: EZ Belt or Traditional Road Tubes
Sensors Used: 2 Road Tubes
Spacing: 4 Inches for EZ Belt, or Two Feet for Road Tubes
Count Formats: Basic
Data: Class, Speed, Gap, Volume
Directions: 2 Directions, A to B, B to A

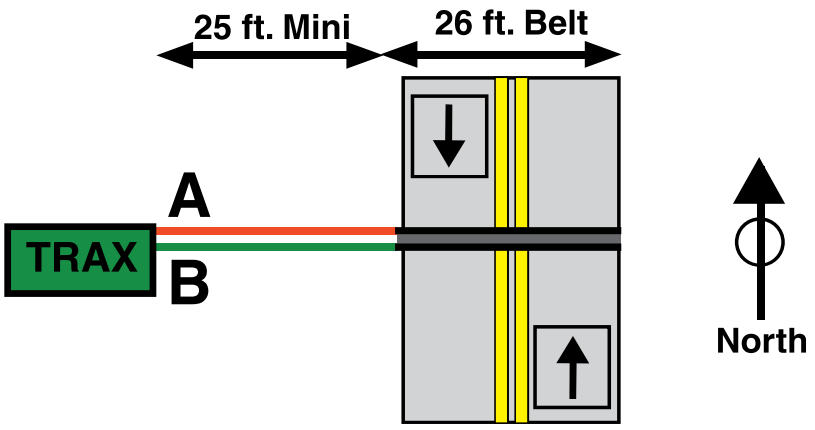
In this layout, both tubes (A and B) are extended across the lanes to be studied. Channel A and channel B record dependent on each other. The tubes should be spaced two feet apart and be of equal length.

EXAMPLE: A car is traveling southbound, approaching the tubes. As the vehicle passes over both the A tube, then the B tube, the TRAX records the class, and speed (or time-stamps) of the vehicle in the first direction. A car traveling northbound, passing of the B tube then the A tube, gets recorded in the second direction.

Traditional Road Tubes



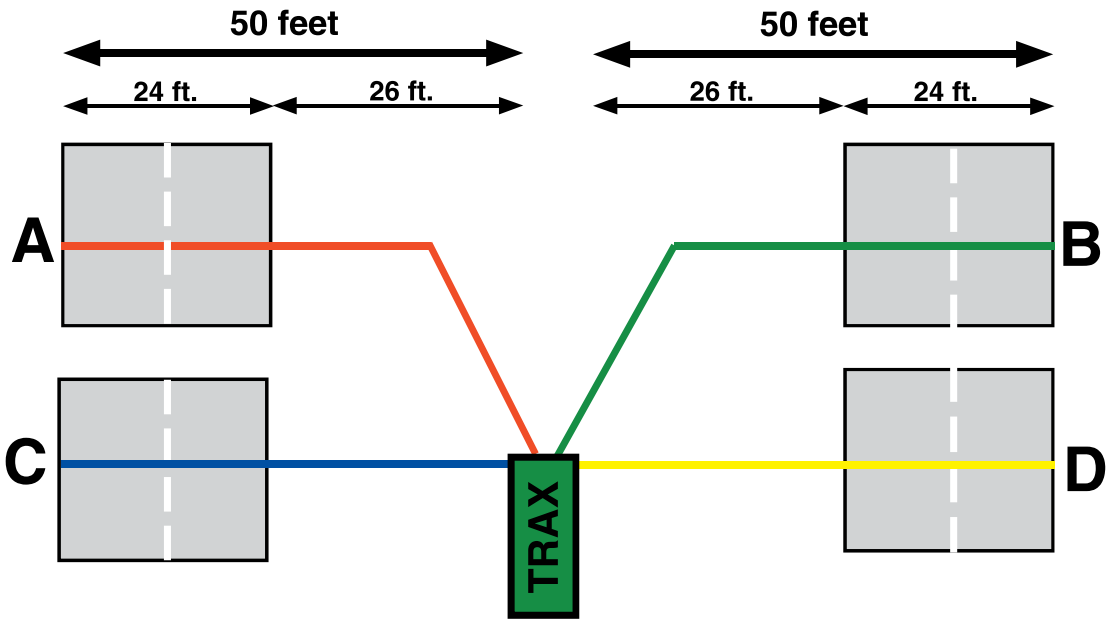
EZ Belt



Layout: L7

Layout Type: Traditional Road Tubes
Sensors Used: 4 Road Tubes
Spacing: None
Count Formats: Basic, Volume Only
Data: Volume, Gap
Channels: 4 Channels, A, B, C, D

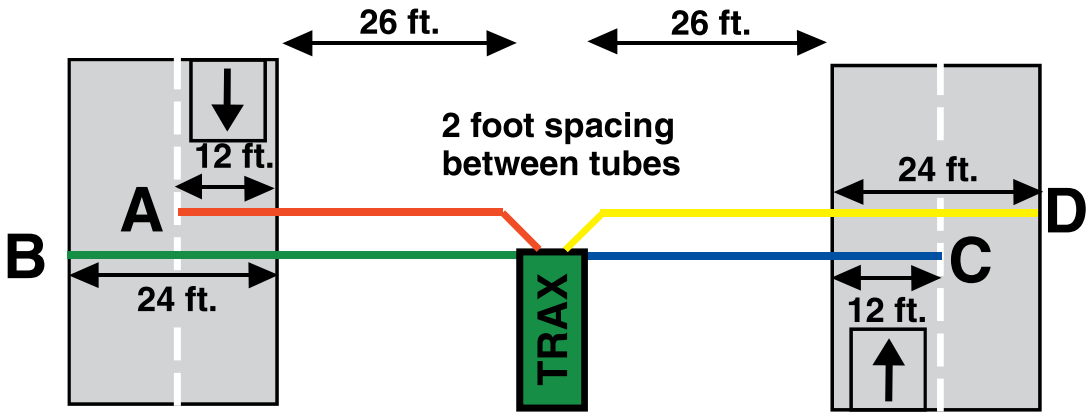
This layout is the same as the L1 layout, but with four tubes over four separate lanes rather than two tubes over two lanes. Refer to the L1 description for more information.



Layout: L8

Layout Type: Traditional Road Tubes
Sensors Used: 4 Road Tubes
Spacing: Two Feet
Count Formats: Basic, Volume Only
Data: Volume, Gap
Channels: 4 Channels, A, B-A, C, D-C

This layout is the same as the L2 layout, but with four tubes over four lanes rather than two tubes over two lanes. Refer to the L2 description for more information. The tubes should be spaced two feet apart.

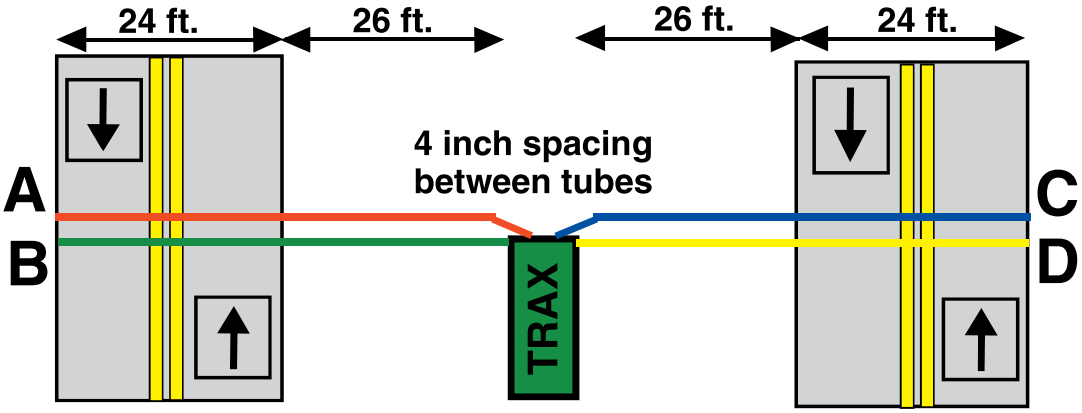


Layout: L9

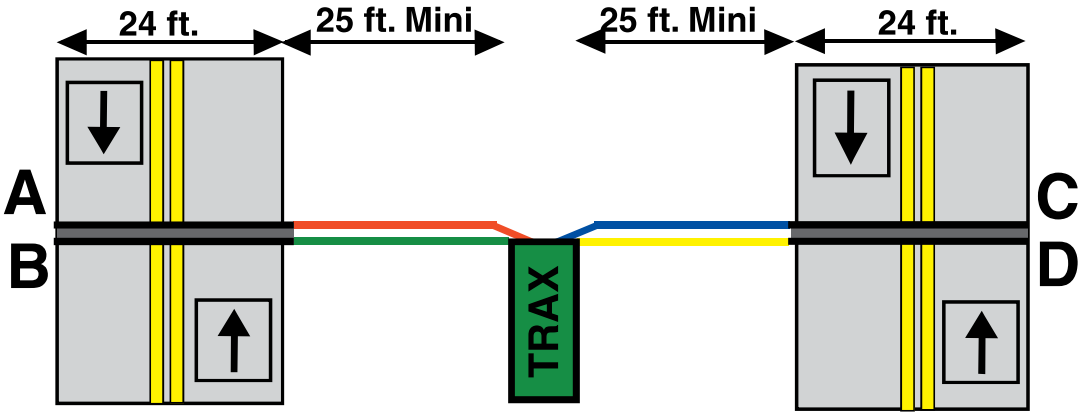
Layout Type: EZ Belt or Traditional Road Tubes
Sensors Used: 4 Road Tubes
Spacing: 4 Inches
Count Formats: Basic, Volume Only
Data: Volume, Gap
Channels: 4 Channels, A to B, B to A, C to D, D to C

This layout is the same as the L3 layout, but with four tubes over four lanes rather than two tubes over two lanes. Refer to the L3 description for more information. The tubes should be spaced four and a half inches apart.

Traditional Road Tubes



EZ Belt

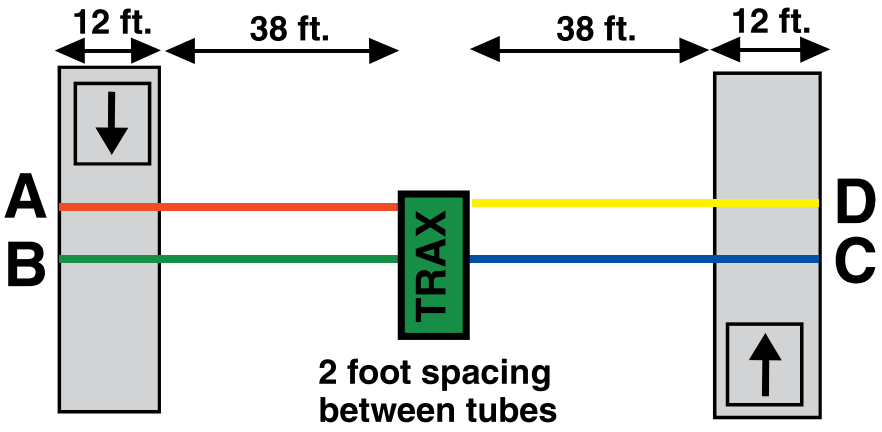


Layout: L10

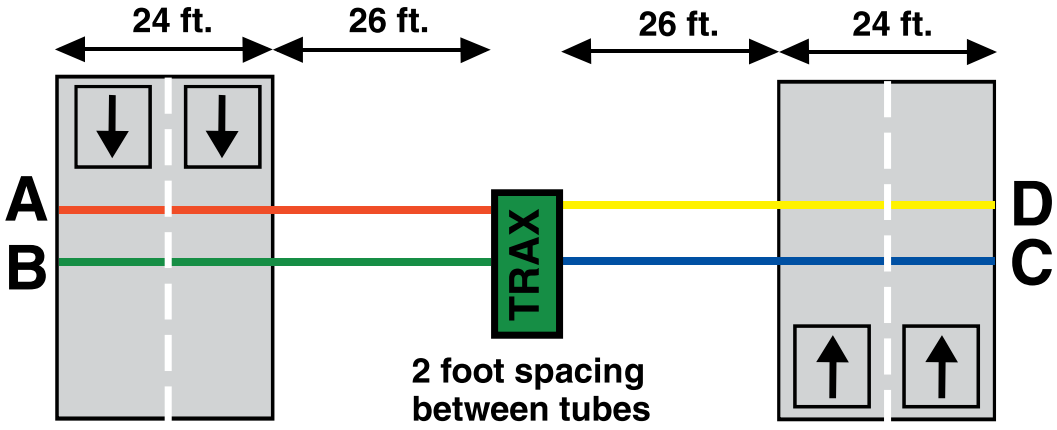
Layout Type: EZ Belt or Traditional Road Tubes
Sensors Used: 4 Road Tubes
Spacing: Two Feet
Count Formats: Basic
Data: Class, Speed, Gap, Volume
Directions: 2 Directions, A to B, C to D

This layout is the same as the L5 layout, but with four tubes over two lanes rather than two tubes over one lane. Refer to the L5 description for more information. The tubes should be spaced two feet apart and be of equal length.

Traditional Road Tubes

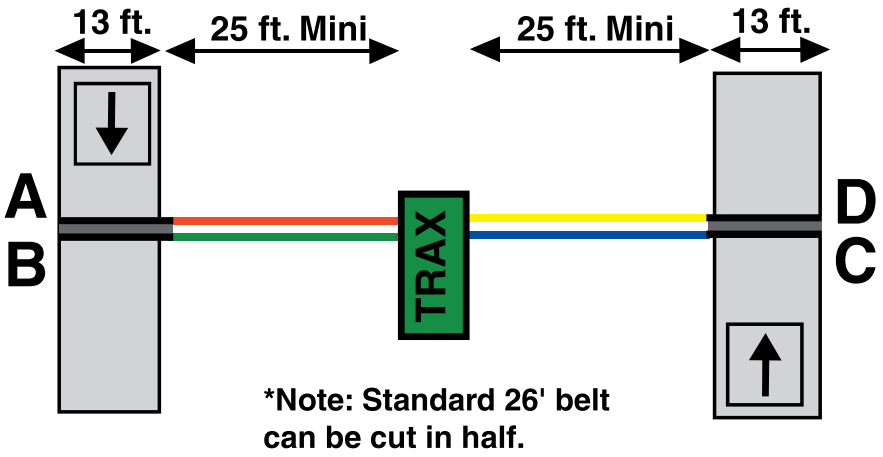


OR

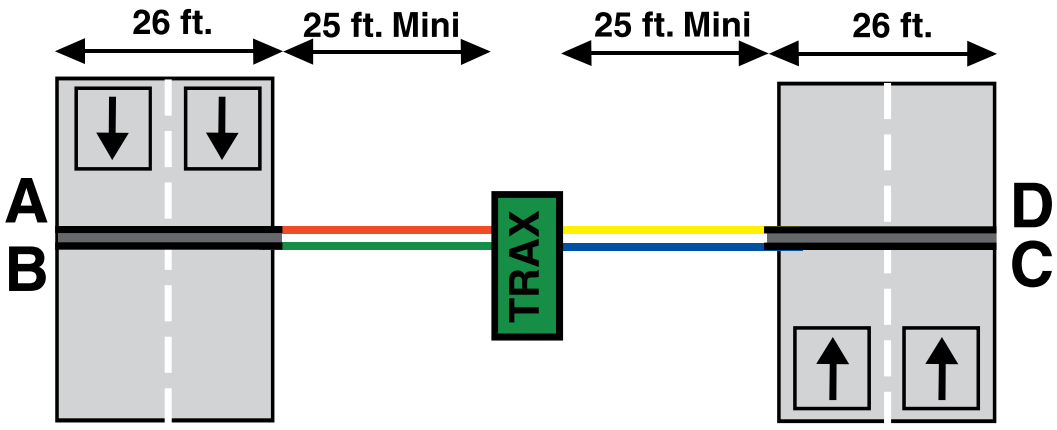


*Note that counting two lanes with one set of tubes (A and B or C and D) will result in a decrease in accuracy as volumes increase.

EZ Belt



OR



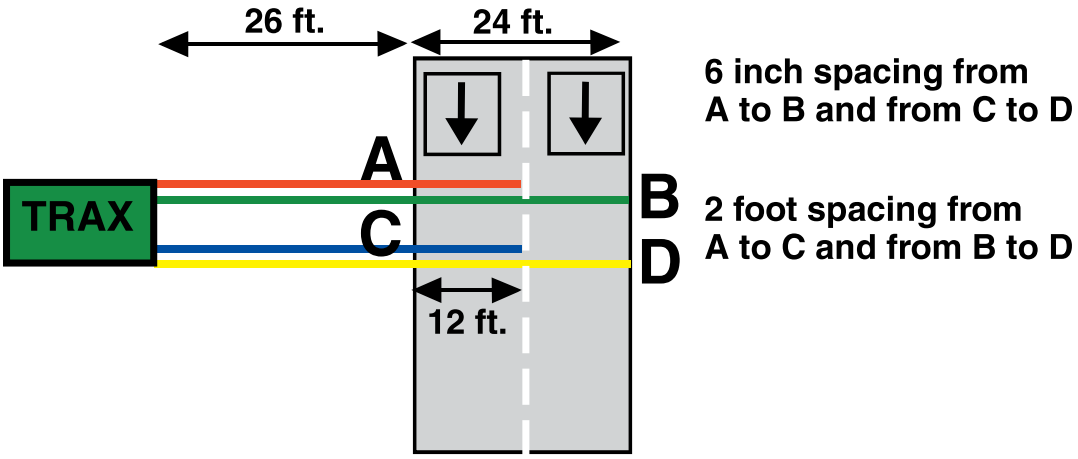
*Note that counting two lanes with one set of tubes (A and B or C and D) will result in a decrease in accuracy as volumes increase.

Layout: L11

Layout Type: Traditional Road Tubes
Sensors Used: 4 Road Tubes
Spacing: Two Feet, A to C and B to D. Six Inches, A to B, C to D
Count Formats: Basic
Data: Class, Speed, Gap, Volume
Directions: 1 Direction, A to C, B to D, With Lane Separation

This layout is the same as the L5 layout, but with the addition of two half tubes (A and C) to provide lane separation. Refer to the L5 layout for further information. This layout is for single direction traffic.

The A and C tubes should be spaced two feet apart, as should the B and D tubes. The A tube should be spaced six inches from the B tube and the C tube should be spaced six inches from the D tube. Remember, vehicles must always strike the short tube first.

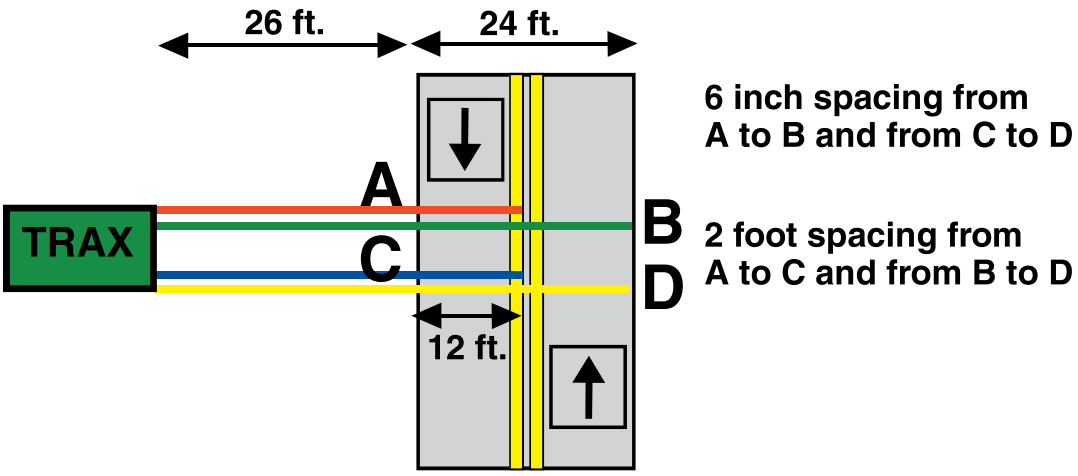


Layout: L12

Layout Type: Traditional Road Tubes
Sensors Used: 4 Road Tubes
Spacing: Two Feet, A to C and B to D
Count Formats: Basic
Data: Class, Speed, Gap, Volume
Directions: 2 Directions, A to C, D to B

This layout is the same as the L11 layout, but for bidirectional traffic. Refer to the L11 layout for further information.

The A and C tubes should be spaced two feet apart, as should the B and D tubes. The A tube should be spaced six inches from the B tube and the C tube should be spaced six inches from the D tube. Remember, vehicles must always strike the half tube first.

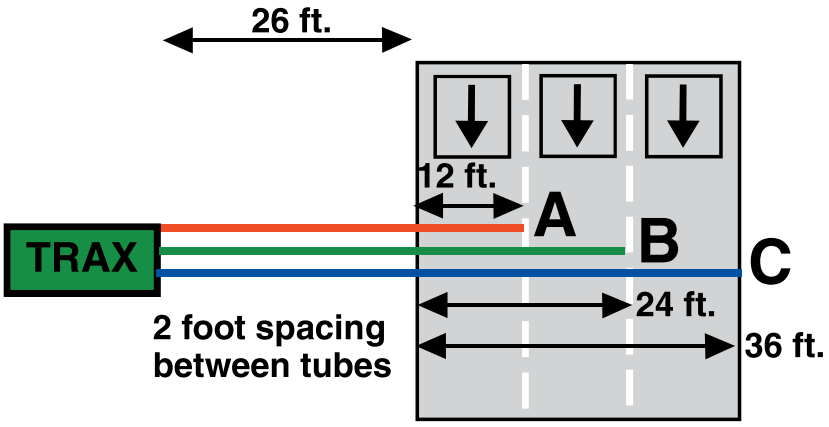


Layout: L13

Layout Type: Traditional Road Tubes
Sensors Used: 3 Road Tubes
Spacing: Two Feet
Count Formats: Basic, Volume
Data: Volume, Gap
Channels: 3 Channels, A, B-A, C-B

This layout is the same as the L2 layout, but with the addition of a tube for a third channel. Refer to the L2 layout for further information.

The tubes should be spaced two feet apart. For improved accuracy with this type of data collection, we recommend that the L7 layout be used with the Road Ramp system to isolate each lane. Visit our web site at www.jamartech.com for more information.

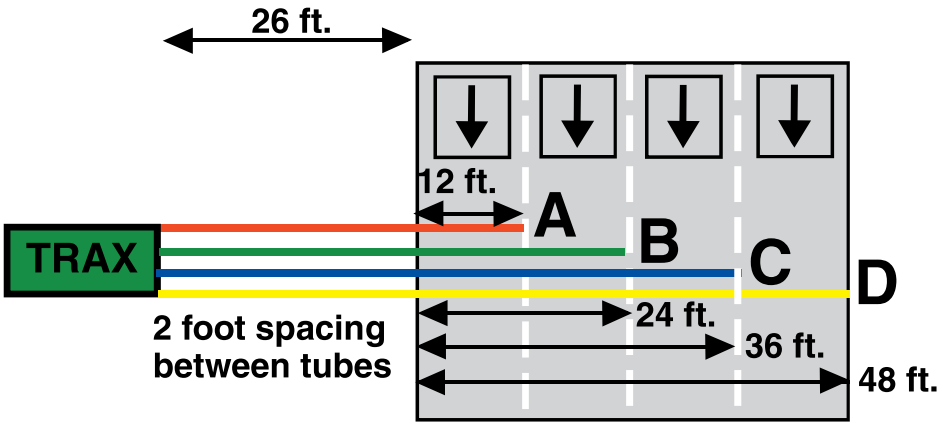


Layout: L14

Layout Type: Road Tubes
Sensors Used: 4 Road Tubes
Spacing: Two Feet
Count Formats: Basic, Volume
Data: Volume, Gap
Channels: 4 Channels, A, B-A, C-B, D-C

This layout is the same as the L2 layout, but with the addition of two tubes for two additional channels. Refer to the L2 layout for further information.

The tubes should be spaced two feet apart. For improved accuracy with this type of data collection, we recommend that the L7 layout be used with the Road Ramp system to isolate each lane. Visit our web site at www.jamartech.com for more information.



Downloading Data

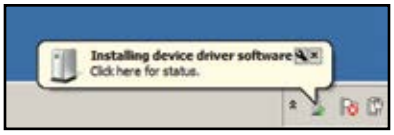
There are several methods for downloading data into the program, depending on the type of data recorder you are using:

- ***TRAX using a USB cable***
- ***TRAX using a USB flash drive***
- ***Gen1/2 Radar Recorder using a serial cable with USB adapter.***
- ***Gen1/2 Radar Recorder using Bluetooth***
- ***Law Enforcement Radar using a serial cable with USB adapter.***
- ***Law Enforcement Radar using Bluetooth***
- ***Black Cat I/II Radar using USB cable***
- ***Black Cat I/II Radar using Bluetooth***
- ***Black Cat I/II Radar using a modem***

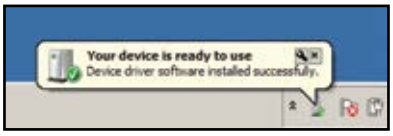
For reference sake, one of these methods is described below. For your specific hardware and method, refer to the User's Manual that came with your hardware.

TRAX Using a USB Cable

Once you have performed a study with your TRAX, you will need to download it to your computer so STARnext 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.

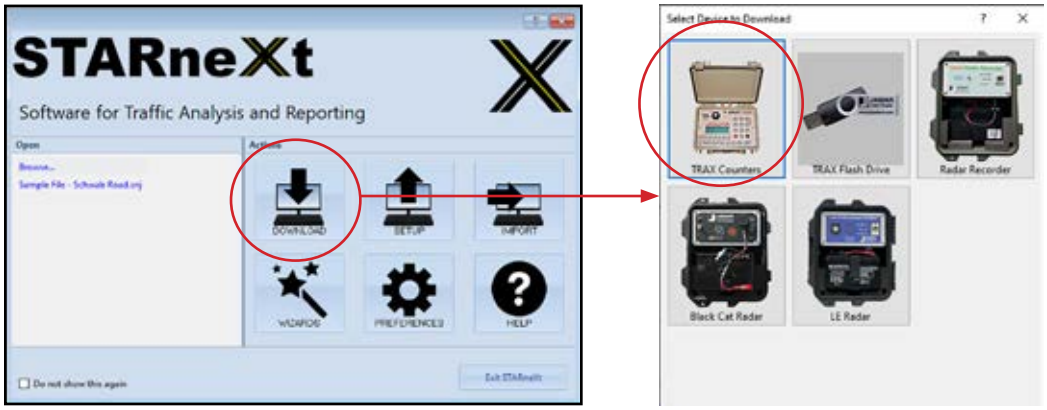


Windows will take a minute or two to find the proper driver and install it. This process is done when you see the message shown to the right.

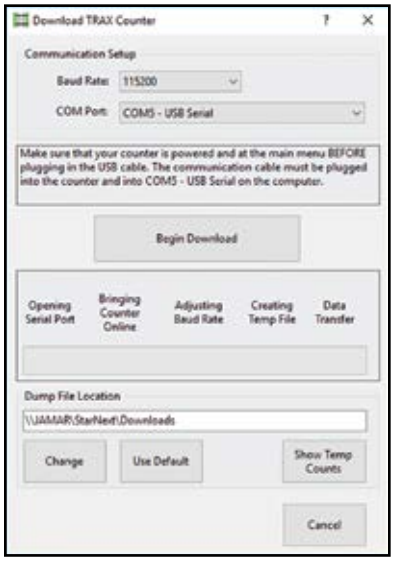
If the driver does not install automatically, refer to the appendix for instructions on manually installing the driver.

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

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.)



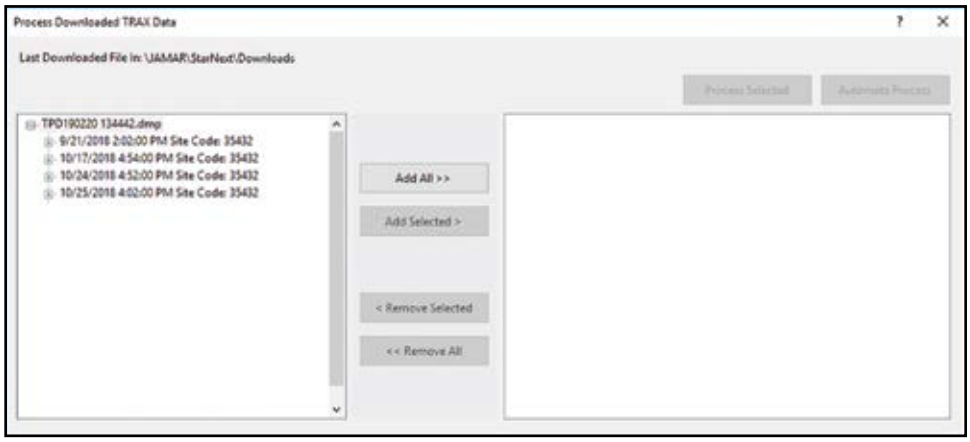
To be able to download your TRAX, it must be on the Main Menu. If there is a study currently running, turn the unit off, then back on. Don't worry about losing your data – turning the TRAX off ends the count and stores it in memory.

After making any needed adjustments, click on the *Begin Download* 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.

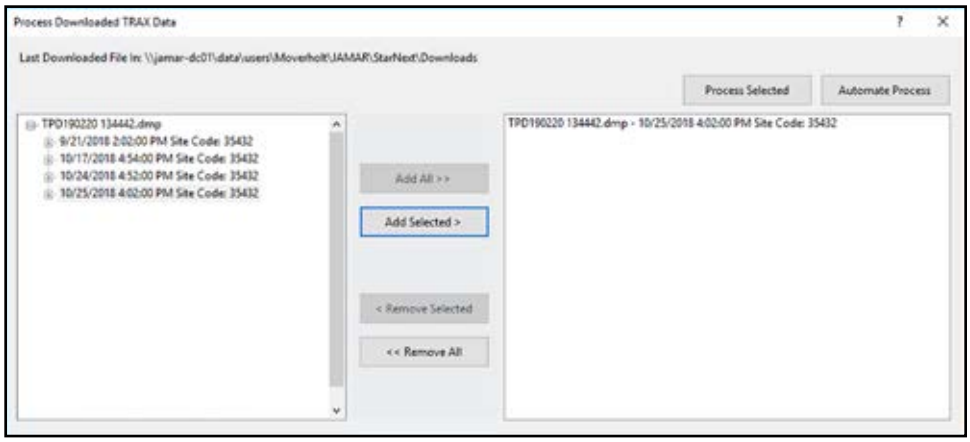
When all of the data in the TRAX has been downloaded, you will see a screen similar to the one below that will show all of the studies downloaded from the TRAX in the large window to the left. (Remember, the TRAX can store multiple studies in memory and will always download all the studies it has stored.)

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.

The Add All and Add Selected buttons between the two large windows can be used to select the data you want to move to the processing window. Click *Add All* if you want to move all the files to the Processing window. If you want to select just individual files, highlight the file you want in the left window and then click the *Add Selected* button. This will add the file to the Processing window on the right, as shown in the figure to the left.



To open the study you want to work with, click the Process Selected button and the study will appear on your screen. The download process is then complete.



Note that STARnext 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 *File* menu and select *Reprocess TRAX*. This can be a useful tool if you accidentally delete data.

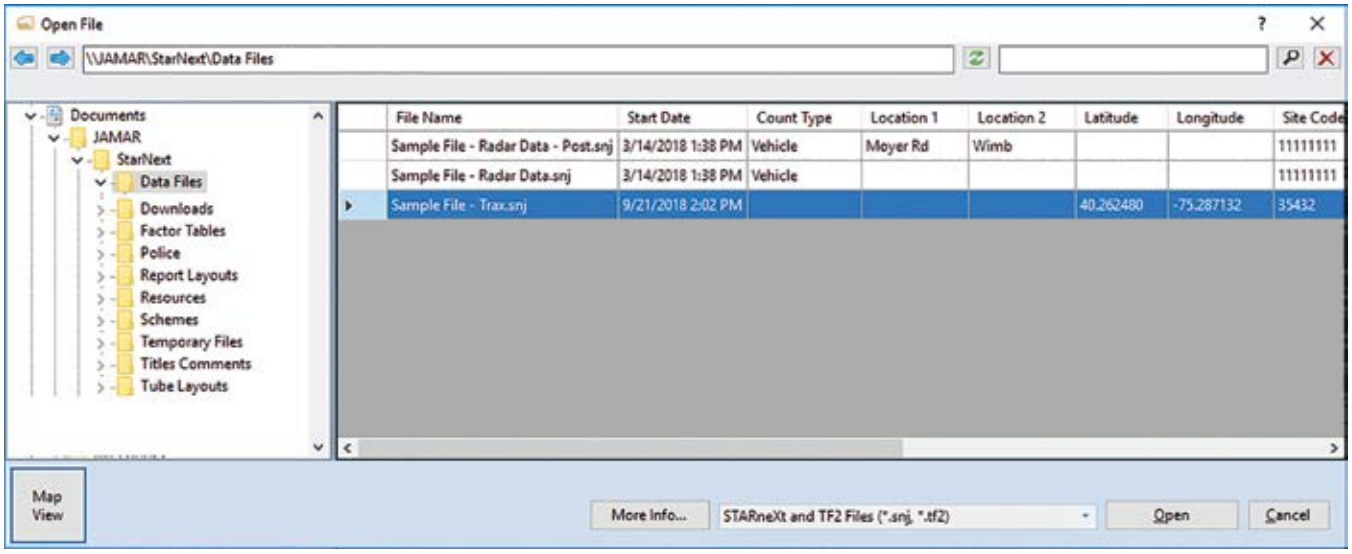
Opening Existing Files

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.

STARnext shows a list of the eight most recently accessed files on the Quick Start screen under the *Open* 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 *Browse...* link directly above the list of recent files. This will bring up the Open File screen. (Note that you can also access this screen 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 the left side of the screen is used to select the folder where your data files are stored. Several sample files are installed with the program and the default installation location of this folder is My Documents\JAMAR\STARnext\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 STARnext use a .snj file extension while files created in STARnext's predecessor, TRAXPro, use a .tf2 file extension. These are the files the program is defaulted to look for, but you can also see other files types by clicking the dropdown list at the bottom middle of the screen.

Other file types that can be opened from this screen are .dmp (temporary download files from TRAX counters), .prn (a common format used by many software programs in the traffic data industry), and .dat (temporary download files from Black Cat Radar Recorders).

The list of files on the right side of the screen contains a variety of information on each file, including File Name, Start Date, Count Type, Location 1, Location 2, Latitude, Longitude, Site Code, Station ID, Model, Serial Number, Layout, Starting Voltage, Ending Voltage, Last Modified.

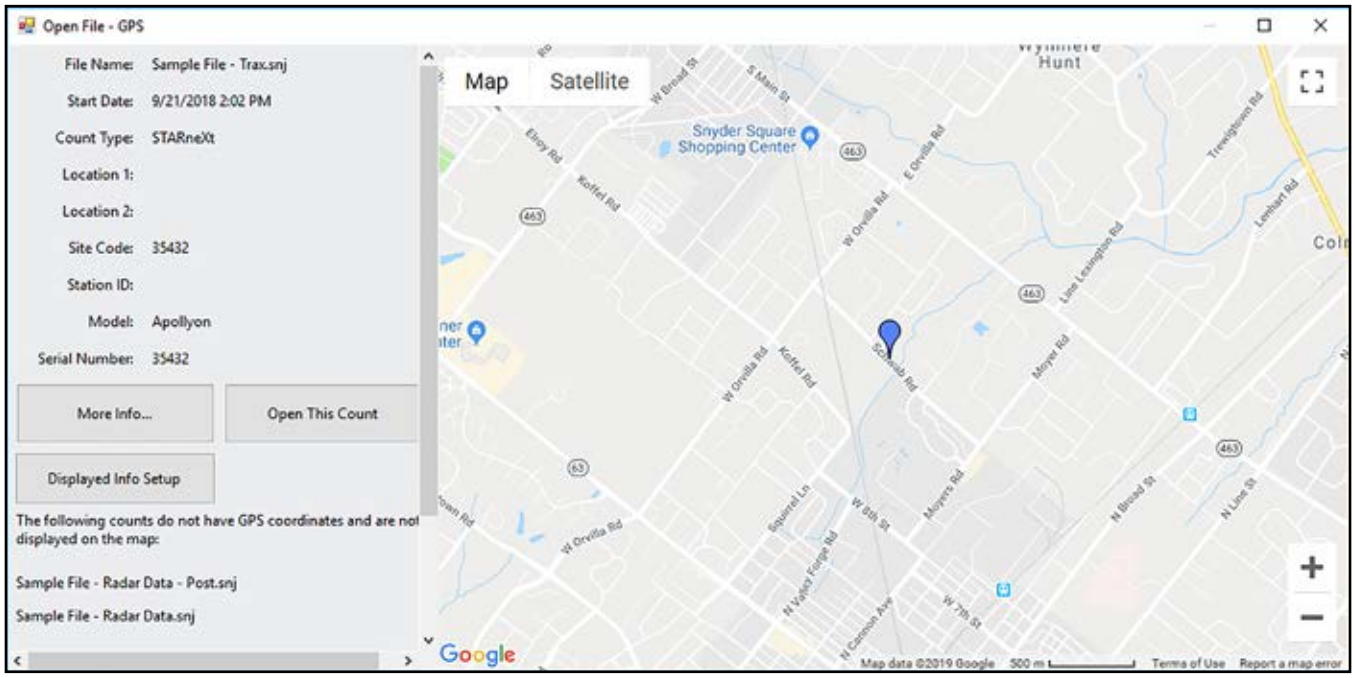
Note that you can rearrange the order of the columns by simply dragging and dropping a column header into it's new location.

The *More Info* button near the bottom center of the screen provides additional information about the highlighted data file, including Location Verified Flag, Speed Limit, Dead Time, Metric Flag, Date Downloaded, Tube Spacing, 1/2 Tube Spacing, Max Axle Distance, Class Scheme and Binned Data Sets

To open a data file, either double click its listing or click it once then click the Open button.

Opening Existing Files - Map View

In addition to the standard process for viewing and opening data files, you can also view via a Map format by clicking the Map View button at the lower left. This allows you to see saved counts mapped to the location where they were done.



Note that for files to be shown on the map they must have GPS coordinates saved as part of the file. These are automatically stored by traffic recorders like the TRAX Apollyon Plus II. In the example above, you can see that the file 'sample file - trax' has been placed on the map.

Any files that don't have GPS info are listed on the lower left of the screen. In the example above we can see that neither of the sample radar files have GPS coordinates. For files like these, where the coordinates are not automatically created, the coordinates can be manually entered in the GPS Information field of the Home tab.

The right side of the screen shows a map with pins inserted at locations where there are existing files. To highlight a file, click on its pin. The left side of the screen shows the details of the currently highlighted file. Additional information can be viewed by clicking on the *More Info...* button which will open the View Count Info screen.

To open a data file from this screen, click the *Open This Count* button and the currently highlighted file will be opened.