

USER GUIDE

UF Transportation Institute UNIVERSITY of FLORIDA

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Introduction

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Getting Started

System Requirements

HCS is designed for standard Windows installations. For optimal performance, the system should be Windows 10 or newer. While HCS may be compatible with older versions of Windows, any installation and operational issues arising from using these older versions will be the sole responsibility of the end user.

Getting Started

To begin, click on File then New (or "New File" from the Start screen). Normal Windows keyboard and mouse functions are available. In Full View, the PgUp and PgDn keys will scroll the entry screen up and down respectively. Tabbing or clicking to a new field, or pressing the Enter key, will trigger a recalculation and update the Report pane in Full View.

General Controls

Menu Items

New - Creates a new Warrants file (*.xsw) and starts a new analysis project; shortcut is Ctrl+N

Open – Opens an existing Warrants file (*.xhy, *.xsw); shortcut is Ctrl+O

Example Folder - Opens folder with all HCS examples in File Explorer

Save - Saves an open Warrants file (*.xsw) using the current file name; shortcut is Ctrl+S

Save As... – Saves an open Warrants file (*.xsw) using a specified file name; shortcut is F12

Close - Closes an existing Warrants file (*.xsw); shortcut is Ctrl+W

Units

USC Units - Changes the units of the current file to U.S. Customary

Metric Units - Changes the units of the current file to Metric

Print – Brings up printer selection and prints a Warrants report to the printer or specified file type; shortcut is Ctrl+P

Print Preview – Displays preview of current report before printing; shortcut is Ctrl+F2

View

Page View - Changes the view to display inputs and reports by pages; shortcut is F9

Full View

Report -> Right – Changes the view to display both the input screen and report simultaneously; the report is displayed on the right portion of the screen; shortcut is F10

Report -> Bottom – Changes the view to display both the input screen and report simultaneously; the report is displayed on the bottom portion of the screen; shortcut is F11

Report

Formatted Report – Displays formatted report including the most important values; shortcut is F4

Text Report – Displays text report with all input, intermediary, and final results; shortcut is F6

Default Settings – Opens dialog box for the user to input defaults for Analyst, Agency, and Jurisdiction which will be applied to all new files; also allows selection of USC or SI units, which will be applied to all new files; shortcut is Alt+F

Help

Contents – Provides access to glossary, acknowledgements, copyrights, and information on the MUTCD Chapter 4C procedure; shortcut is Ctrl+F1

Index – Allows user to search for keywords within the glossary

Search – Allows user to search for any word within the glossary

User Guide – Opens a comprehensive user guide in PDF format; shortcut is Ctrl+G

HCM Reference Guide – Opens a reference guide for the HCM in PDF format

HCS Updates – Sends the HCS version number anonymously without any personally identifiable information to McTrans to check for a newer version

HCM/HCS Training – Opens the McTrans Training Page in the default web browser to view the latest training opportunities

HCQS Web Page – Opens the TRB Highway Capacity and Quality of Service Committee pages in the default web browser

Support

Frequently Asked Questions – Opens the McTrans support page for HCS in the default web browser

HCS Overview – Opens the McTrans HCS Overview page in the default web browser

McTrans Website - Opens the McTrans home page in the default web browser

E-mail McTrans – Composes a new e-mail addressed to McTrans in the default e-mail client with registration number, serial key, module, and version number already populated in the Subject field

About HCS – Opens an about window with software version information, EULA, general acknowledgements, contact information, and other relevant links

Exit – Exits the *HCS* Warrants module; shortcut is Alt+F4

Signal Warrants

MUTCD Chapter 4C

According to the Manual on Uniform Traffic Control Devices (MUTCD), the investigation of the need for a traffic control signal shall include an analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions, and the applicable factors contained in the following traffic signal warrants:

Warrant 1, Eight-Hour Vehicular Volume

- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour
- Warrant 4, Pedestrian Volume
- Warrant 5, School Crossing
- Warrant 6, Coordinated Signal System
- Warrant 7, Crash Experience
- Warrant 8, Roadway Network
- Warrant 9, Intersection Near a Grade Crossing

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

The entire text of the warrant descriptions can be found at: MUTCD

Operational Data

GENERAL

First, the user enters the General Information into the respective fields: Analyst, Agency, Date and Time Period Analyzed, as well as site information for Jurisdiction, Analysis Year and Project Description.

If a School Crossing exists, the user enters the number of schoolchildren crossing an established school crossing during the highest crossing hour, the number of adequate gaps in the traffic stream during the period when the schoolchildren are using the crossing, and the number of minutes in the same period.

For a roadway network, the user can indicate if there are two major routes, if the analysis involves a weekend count, and if there are 5-year project traffic volumes.

If a Grade Crossing exists, the user selects the Grade Crossing Approach direction and the Highest Volume Hour with Trains. Then the user enters the Distance to the Stop Line, Rail Traffic (trains per day), Percent of High Occupancy Buses, and Percent of Tractor-Trailer Trucks.

INTERSECTION

In this section, the user enters the geometric configurations that are to be simulated. The user selects the Major Street Direction and Median Type, enters the Starting Time Interval, Major Street Speed (miles per hour, or kilometers per hour in metric), Nearest Signal (ft, or m in metric), and number of crashes per year. There are also checkboxes for the user to indicate if the population is less than 10,000, if there is a coordinated signal system, and if there were adequate trials of crash experience alternatives. The user can set the lane configuration by adding or deleting lanes in the Lanes graphic.

TRAFFIC

Traffic Volumes (vehicles per hour) are entered for up to twelve hours, beginning at the Start Time, for the Minor and Major Street directions.

PEDESTRIANS

Pedestrians (per hour) and Gaps (acceptable per hour) are entered for the Minor and Major Street directions.

DELAY

Delay (seconds per vehicle and vehicles-hours) data are entered for the Minor Street approaches.

Results

The results are interpreted through a two-page formatted report. The first provides general information, along with information on Geometry and Traffic, School Crossing, Roadway Network, and Railroad Crossing. The second details Warrants 1 through 4, hour-by-hour as met or not, and a summary of each warrant and sub-warrant as either met or not with appropriate boxes checked or not, respectively.

Warrants Report

The report can be displayed in either Page or Full View. If displayed in Page View, the results will automatically update when the user switched to the Report page. From the Report page, the user can then switch between the formatted report and the text report using the button found at the bottom of the page. The formatted report shows the most important results in a presentable format, while the text report shows a detailed analysis in plain text.

If displayed in Full View, the report can be displayed along with the input screen. The user has the choice of displaying the report to the right of the input screen or below the input screen. The report is dynamic and reacts to changes in the input screen. Like the Report page in Page View, the user can switch between the formatted report and the text report using the button found at the bottom of the report.

All or a portion of the reports can be copied to the Windows clipboard for insertion into other files by rightclicking into the Report page and selecting Copy. The user can also change the display of the report through File Menu or with the use of shortcuts. See *General Controls*.

How To

Create a New File

1. From the Start screen, there are three options for creating a new file:



Note: A new file can be created if an existing file is already open; you do not need to start from the Start screen.

a. Selecting *File > New* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen and then selecting "New"

New	Ctrl+N		
Open Example Folder	Ctrl+O		
Save Save As	Ctrl+S F12		
Close	Ctrl+W		Help
Inits	Þ		Topics
Print	Ctrl+P		HCS Updates
Print Preview View	Ctrl+F2	1.5	HCS Overview
Report		MUTCD WARRANTS	McTrans Website
Default Settings	Alt+F		HCM/HCS Training
Help			E-mail McTrans
Exit	Alt+F4		About HCS
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Start	Help
New File	Topics
Open File MUTCD WARRANTS	HCS Updates
Example Folder	HCS Overview
Recent	McTrans Website
	HCM/HCS Training
	E-mail McTrans
HCS 2024	About HCS
UF Transportation Institute MCTRANS	
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- c. Using the keyboard shortcut "Ctrl+N"
- 2. Once a new file is created, you will be brought to the General page if in Page View or the input screen split with the report either on the right or the bottom of the screen if in Full View

a. Page View

b.

Distance to Stop Line (ft)

Major Street Direction

Median Type

Nearest Signal (ft)

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High Occupancy Buses (%)

0

0

East-West ~

Undivided ~

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Benefation Units U.S. Customary School Crossing Major Street Direction East-West No. of Students in Highest Hour 0 Adequate Gaps in Period 0 Minutes in Period 0 Individed Individed Roadway Network 0 Reexet Signal (11) 0 2 Major Routes Weekend Count Individed Individed	nts1.asw ^a - HCS MUTCD Warrants Analyst		Agency		Analyst Agency		- 0	J rai
School Crossing Major Street Direction East-West No. of Students in Highest Hour 0 Adequate Gaps in Period 0 Minutes in Period 0 Undvided Major Street Direction East-West Roadway Network 0 0 0 0 Roadway Network 0 0 0 2 Major Routes Weekend Count 0 0	ints1.asw* - HCS MUTCD Warrants Analyst Date		Agency Time Period Analyzed	2023	Analyst Agency Jurisdiction		- 0	J rai
No. of Students in Highest Hour 0 Adequate Gaps in Period 0 Starting Time Interval 7 Media Type Undivided Minutes in Period 0 No. of Students in Highest Hour 0 No. of Students Period 0 No. of Stud	ints1xsw ² - HCS MUTCD Warrants Analyst Date Jurisdiction		Agency Time Period Analyzed Analysis Year		Analyst Agency Jurisdiction Project Description		- 0	J rai
Minutes in Period Minutes in Period Major Routes Meekend Count Meekend Meeke	ints1xsw ² - HCS MUTCD Warrants Analyst Date Jurisdiction	10/15/2023	Agency Time Period Analyzed Analysis Year Units		Analyst Apency Jurisdiction Project Description General	HC	- 0	
Roadway Network Newest Signal (th) 0 2 Major Routes Weekend Count Geometry and Traffic	ints1xxw ² - HCS MUTCD Warrants Analyst Date Project Description	10/15/2023	Agency Time Period Analyzed Analysis Year Units 1001 Crossing	U.S. Customary	Analyst Agency Jurisdiction Project Description General Major Street Direction	HC	- 0	
Roadway Network Geometry and Traffic 2 Major Routes Weekend Count	nts1xxw ² - HCS MUTCD Warrants Analyst Date Jurisdiction Project Description No. of Students in Highest Hour	0	Agency Time Period Analyzed Analysis Year Units 1001 Crossing	U.S. Customary	Analyst Agency Jurisdiction Project Description General Major Street Direction Starting Time Interval Median Type	Ho	- 0	
2 Major Routes Weekend Count	nts1xxw ² - HCS MUTCD Warrants Analyst Date Jurisdiction Project Description No. of Students in Highest Hour	0	Agency Time Period Analyzed Analysis Year Units 1001 Crossing	U.S. Customary	Analyst Apency Jurisdiction Project Description General Major Street Direction Starting Time Interval Major Street Speed (mi/h)	HC Est-Wet 7 Undivided 0	- 0	
	nts1xxw ² - HCS MUTCD Warrants Analyst Date Jurisdiction Project Description No. of Students in Highest Hour	0 0	Agency Time Period Analyzed Analysis Year Units hool Crossing Adequate Gaps in Period	U.S. Customary	Analyst Agency Jurisdiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Spend (m/m) Nearest Signal (ft)	HC Est-Wet 7 Undivided 0	- 0	
5-Year Growth Factor (%) 0	Analyst Analyst Date Jurisdiction Project Description No. of Students in Highest Hour Minutes in Period	0 0 0 0 0 0 0 0 0	Agency Time Period Analyzed Analysis Year Units hool Crossing Adequate Gaps in Period dway Network	U.S. Customary	Analyst Agency Jurisdiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Spend (m/m) Nearest Signal (ft)	HC Est-Wet 7 Undivided 0	– Ø	
	ants1.ssw ² - HCS MUTCD Warrants Analyst Date Jurisdiction Project Description No. of Students in Highest Hour Minutes in Period 2 Major Routes	0 0 0 0	Agency Time Period Analyzed Analysis Year Units hool Crossing Adequate Gaps in Period dway Network	U.S. Customary	Analyst Agency Jurisdiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Spend (m/m) Nearest Signal (ft)	HC Est-Wet 7 Undivided 0	– Ø	
	Ints1.xxw ² - HCS MUTCD Warrants Analyst Date Jurisdiction Project Description No. of Students in Highest Hour Minutes in Period		Agency Time Period Analyzed Analysis Year Units hool Crossing Adequate Gaps in Period dway Network	U.S. Customary	Analyst Agency Jurisdiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Spend (m/m) Nearest Signal (ft)	HC Est-Wet 7 Undivided 0 0	– Ø	

4

10

7

0

Rail Traffic (trains/day)

Tractor-Trailer Trucks (%)

Starting Time Interval

Population < 10,000

Major Street Speed (mi/h)

Intersection

11471

Eastbo

Open an Existing File

1. From the Start screen, there are six options for opening an existing file:



Note: A file can be opened even if another file is currently open; you do not need to start from the Start screen.

a. Selecting *File > Open* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen and then selecting "Open"



HCS MUTCD Warrants		– 🗆 X
	19	
Start	V =	Help
New File		Topics
Open File	MUTCD WARRANTS	HCS Updates
Example Folder		HCS Overview
Recent		McTrans Website
		HCM/HCS Training
		E-mail McTrans
	A HCS2024	About HCS
	UT Transportation Institute UNIVERSITY of FLORIDA	
Copyright © 2023 University of Florida. All Rights Reserved	L	HCS [™] Warrants Version 2024

b. Selecting "Open File..." from the Start screen; this can be found below in the red box

- c. Using the keyboard shortcut "Ctrl+O"
- d. Selecting a file under the Recent files list from the Start screen; this can be found below in the red box

S MUTCD Warrants		- 0
	112	
Start New File Open File Example Folder Warrants1.xsw Warrants2.xsw Warrants3.xsw Warrants4.xsw	MUTCD WARRANTS	Help Topics HCS Updates HCS Overview McTrans Website HCM/HCS Training E-mail McTrans About HCS
	HCS 2024	
	UF Transportation Institute MCTrans	S. A.
aht © 2023 University of Florida. All Rights Reserved.		HCS™ Warrants Versie

e. Selecting File > Example Folder from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen and then selecting "Example Folder". Opening the example folder will open the path of the HCS example files in File Explorer. The desired example file can be double-clicked or right-clicked and selecting 'Open', which will open the example file in the Warrants program.



f. Selecting "Example Folder..." from the Start screen; this can be found below in the red box. Opening the example folder will open the path of the HCS example files in File Explorer. The desired example file can be double-clicked or right-clicked and selecting 'Open', which will open the example file in the Warrants program.

HCS MUTCD Warrants	- 🗆 X
. ■	
Start Start	Help
New File	Topics
Open File MUTCD WARRANTS	HCS Updates
Example Folder	HCS Overview
Recent	McTrans Website
	HCM/HCS Training
	E-mail McTrans
A HCS2024	About HCS
UF Transportation Institute Incrans	
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- 2. Once an existing file is opened, you will be brought to the General page if in Page View or the input screen split with the report either on the right or the bottom of the screen if in Full View
 - Page View a. ø HCS MUTCD START GENERAL INTERSECTION TRAFFIC PEDESTRIANS DELAY REPORT Project Properties Analyst Agency Date 8/15/2022 Time Period Analyzed Jurisdiction 2022 Analysis Year Project Description Units U.S. Customary School Crossing No. of Students in Highest Hour 0 Adequate Gaps in Period 0 Minutes in Period 0 Roadway Network 2 Major Routes ~ Weekend Count 4 \rightarrow 5-Year Growth Factor (%) 0 Railroad Crossing Grade Crossing Approach None Highest Volume Hour with Trains Unknown Distance to Stop Line (ft) Rail Traffic (trains/day) 4 High Occupancy Buses (%) 0 Tractor-Trailer Trucks (%) 10 pyright © 2023 University of Florida. All Rights Reserved **Full View** b. Warrants1.xsw - HCS MUTCD Wa σ = **Project Properties** Project Information Analyst Agency alyst Date 8/15/2022 Time Period Analyzed gency Jurisdiction Analysis Year 2022 oject Descripti Project Description Units U.S. Customary General School Crossing lajor Street Direct tarting Time Inter East-West No. of Students in Highest Hour Adequate Gaps in Period 0 0 edian Type Crashe Minutes in Period 0 lajor Street Speed (mi/f Roadway Network Geometry and Traffic 2 Major Routes Weekend Count \checkmark TATTA 5-Year Growth Factor (%) 0 Railroad Crossing Grade Crossing Approach Highest Volume Hour with Trains None Unknown ~ Rail Traffic (trains/day) Distance to Stop Line (ft) 4 High Occupancy Buses (%) 0 Tractor-Trailer Trucks (%) 10

7

30

Intersection

Starting Time Interval

Population < 10,000

Major Street Speed (mi/h)

East-West ~

Undivided ~

5280

Major Street Direction

Median Type

ht © 2023 University of I

Nearest Signal (ft)

Save a File

- 1. There are five options for saving an open file:
 - a. Selecting *File > Save* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen and then selecting "Save"

ew	Ctrl+N		Project Properties		
pen ample Folder	Ctrl+O		Agency]
ive	Ctrl+S	10/15/2023	Time Period Analyzed		
ave As	F12		Analysis Year	2023	
ose	Ctrl+W		Units	U.S. Customary	
nits	•		School Crossing		
int int Preview ew	Ctrl+P Ctrl+F2	0	Adequate Gaps in Period	0]
ew eport	•	U	Roadway Network		
efault Settings	Alt+F		Weekend Count		
elp	•	0			
át	Alt+F4		Railroad Crossing		
Grade Crossir	ng Approach	None	Highest Volume Hour with Trains	Unknown]
Distance to S	top Line (ft)	-	Rail Traffic (trains/day)	4	1
High Occupa	ncy Buses (%)	0	Tractor-Trailer Trucks (%)	10	1

b. Selecting *File > Save As...* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen and then selecting "Save As..."

lew	Ctrl+N		Project Properties		
Open Example Folder	Ctrl+O		Agency		
ave	Ctrl+S	10/15/2023	Time Period Analyzed		
ave As	F12		Analysis Year	2023	
lose	Ctrl+W		Units	U.S. Customary	
Jnits	+		School Crossing		
Print Print Preview	Ctrl+P Ctrl+F2 Hour	0	Adequate Gaps in Period	0	_
rint Preview /iew	Ctri+F2	0			
Report	•		Roadway Network		
Default Settings	Alt+F		Weekend Count		
felp	•	0		_	(
ixit	Alt+F4		Railroad Crossing		
Grade Crossing	Approach	None	Highest Volume Hour with Trains	Unknown	
Distance to Sto	p Line (ft)	-	Rail Traffic (trains/day)	4	
High Occupant	cy Buses (%)	0	Tractor-Trailer Trucks (%)	10	

- c. Using the keyboard shortcut "Ctrl+S" for Save
- d. Using the keyboard shortcut "F12" for Save As...

e. Exiting the program or closing the file without saving changes beforehand; this will prompt you to save changes to the file before anything is closed



- i. Selecting "Yes" will save the file if it is an existing file. If the file has not been previously saved, the Save As dialog box will popup allowing you to change the file name and save it.
- ii. Selecting "No" will exit the program or close the file without saving the file
- iii. Selecting "Cancel" will prevent the file from closing

Note: Using Save with an existing file will save a file without prompting you to specify a file name. Using Save with a new file will bring up the Save As dialog box for you to specify a file name for saving. Using Save As will always bring up the Save As dialog box for you to specify a file name for saving.

Close a File

- 1. There are three options for closing an open file:
 - a. Selecting *File > Close* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen and then selecting "Close"

Open Ch1+O Example Folder Infinite Period Analyzed Save Ch1+S Save As F12 Close Ch1+W Vinits Analysis Year Close Ch1+Q Print Preview Ch1+E2 View O Print Preview Ch1+E2 View O Print Preview Ch1+E2 Case Ch1+E2 View O Octament Alt+F4 Veekend Count Or Print Preview Ch1+F2 Veekend Count O Ch1+E2 Crade Crossing Approach None Print Preview None O Tractor-Trailer Trucks (%) Distance to Stop Line (ft) O High Occupancy Buses (%) O	New	Ctrl+N			Project	t Properties		
Save Ac. F12 Close Ctrl+W Units F12 Close Ctrl+W Units Ctrl+P Print Ctrl+P Print Preview Ctrl+22 Report 0 Close Adequate Gaps in Period 0 Ctrl+22 Report 0 Ctrl+22 Common Ctrl+22 Common Ctrl+22		Ctrl+O						
Close Cuti+W Units U.S. Customary Units School Crossing Print Cuti+P2 Vew 0 Vew 0 Default Settings Alt+F2 Exit Alt+F4 Cirade Crossing Approach None Orace Crossing Approach None Vistance to Stop Line (ft) -	Save			10/15/2023				
Units Chill	Save As					Analysis Year	2023	
Print Ctrl+P Print Ctrl+P Print Ctrl+P four 0 O Adequate Gaps in Period 0 0 Report • Report • Report • Method • Vew • O • Report • Report • Negeort • Call • Vew • O • Railroad Crossing Grade Crossing Approach • None • Highest Volume Hour with Trains Unknown Intraffic (trains/day) 4	Close	Ctrl+W				Units	U.S. Customary	
Print Preview Ctrl+F2 Tour 0 Adequate Gaps in Period 0 View 0 0 0 0 Report 0 0 0 0 Default Settings Alt+F4 Neekend Count 0 Exit Alt+F4 0 0 Grade Crossing Approach None Mighest Volume Hour with Trains Unknown Distance to Stop Line (ft) - Rail Traffic (trains/day) 4		•			Schoo	ol Crossing		
Report Roadway Network Default Settings Alt+F Leip D Exit Alt+F4 Weekend Count Distance to Stop Line (ft) None Highest Volume Hour with Trains Unknown Rail Traffic (trains/day) 4			Hour	0		Adequate Gaps in Period	0	
Default Settings All+F Heip 0 Exit All+F4 Grade Crossing Approach None Distance to Stop Line (ft) - Heip Rail Traffic (trains/day)	View	•		0				
Help Neme Railroad Crossing Grade Crossing Approach None Highest Volume Hour with Trains Distance to Stop Line (ft) - Rail Traffic (trains/day)	Report	•			Roadw	ay Network		
Exit Alt+F4 Grade Crossing Approach None Highest Volume Hour with Trains Unknown Distance to Stop Line (ft) - Rail Traffic (trains/day) 4		Alt+F				Weekend Count		
Railroad Crossing Grade Crossing Approach None Highest Volume Hour with Trains Unknown Distance to Stop Line (ft) - Rail Traffic (trains/day) 4		•		0				
Distance to Stop Line (ft) - Rail Traffic (trains/day) 4	Exit	Alt+F4			Railroa	ad Crossing		
	Grade Cross	ing Approach		None	~	Highest Volume Hour with Trains	Unknown v	
High Occupancy Buses (%) 0 Tractor-Trailer Trucks (%) 10	Distance to S	Stop Line (ft)		-		Rail Traffic (trains/day)	4	
	High Occupa	ancy Buses (%)		0		Tractor-Trailer Trucks (%)	10	

- b. Using the keyboard shortcut "Ctrl+W"
- c. Exiting the program itself; please see *How To: Exit the Program*

Exit the Program

1. From the Start screen, there are three options for exiting the program:



Note: The program can be exited even if a file is still open; you do not need to start from the Start screen.

a. Selecting *File > Exit* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen and then selecting "Exit"



b. Using the keyboard shortcut "Alt+F4"

c. Selecting "X" in the top right-hand corner of the screen; this can be found below in the red box

HCS MUTCD Warrants		- 🗆 ×
	(i)	
Start	* <u>-</u>	Help
New File	×	Topics
Open File	MUTCD WARRANTS	HCS Updates
Example Folder		HCS Overview
Recent		McTrans Website
		HCM/HCS Training
		E-mail McTrans
	MCS2024	About HCS
U	F Transportation Institute McTrans	
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Edit the Default Settings

1. From the Start screen, there are two options for editing the Default Settings:



Note: The Default Settings can be changed even if an existing file is already open; you do not need to start from the Start screen.

a. Selecting *File > Default Settings* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen and then selecting "Default Settings"

Vew	Ctrl+N	
Open Example Folder	Ctrl+O	
ave ave As	Ctrl+S F12	
lose	Ctrl+W	Help
Inits	×	Topics
rint rint Preview 'iew	Ctrl+P Ctrl+F2	HCS Updates HCS Overview
leport	+	MUTCD WARRANTS McTrans Website
Default Settings	Alt+F	HCM/HCS Training
lelp	•	E-mail McTrans
xit	Alt+F4	About HCS
		HCS 2024
		UT Transportation Institute MCTrans

- b. Using the keyboard shortcut "Alt+F"
- 2. Opening the Default Settings will cause a Default Settings window to pop up:

E Default Settings	×
Analyst Agency Jurisdiction Units	
● USC ○ Metric	
OK Can	cel

- 3. You can specify the Analyst, Agency, and Jurisdiction by clicking in the corresponding text boxes and typing the desired text.
- 4. Under 'Units', you are given the option of running the analysis in either U.S. Customary (USC) or *SI (Metric)* units.
- 5. Clicking "OK" will save the changes made and close the Default Settings window; clicking "Cancel" will close the Default Settings window without saving any changes.
- 6. When a new file is created, the Analyst, Agency, and Jurisdiction fields will automatically be populated with the text is specified in the Default Settings.
- 7. When starting a new file, the input and results will display according to the units specified in the Default Settings.

Change the View

- 1. When a file is open, there are three main options for the view of the program:
 - a. Page View: the inputs and results reports are separated into pages as seen below. You can navigate between pages using the "Back" and "Next" buttons or by clicking the page names found at the top of the screen.

Warra	nts1.xsw - HCS MUTCD Warrants				- 0	×
=	START GENERAL INTERSECT	ION TRAFFIC PEDESTRIANS DELAY REPORT				
		Pro	oject Properties			
	Analyst		Agency			
	Date	8/15/2022	Time Period Analyzed			
	Jurisdiction		Analysis Year	2022		
	Project Description		Units	U.S. Customary		
		Sc	hool Crossing			
	No. of Students in Highest Hour	0	Adequate Gaps in Period	0		
	Minutes in Period	0				
		Roa	adway Network			
$\left(\leftarrow\right)$	2 Major Routes		Weekend Count			(\rightarrow)
Back	5-Year Growth Factor (%)	0				Next
		Rai	ilroad Crossing			
	Grade Crossing Approach	None ~	Highest Volume Hour with Trains	Unknown		
	Distance to Stop Line (ft)	-	Rail Traffic (trains/day)	4		
	High Occupancy Buses (%)	0	Tractor-Trailer Trucks (%)	10		
Copyrig	ht © 2023 University of Florida. All Rights F	Reserved.		HCS [™] Warrants	Version 20	24 (USC)

b. Full View with the report on the right of the screen: the screen is split with all inputs on the left side and the results reports on the right side. You can access all inputs and view all of the current report by using the corresponding scroll bars. There is also a screen splitter that can be moved to adjust the views of the input screen and results report.

	Proj	ect Properties				HCS	Warrants
ilyst		Agency		P	roject Information		
	0.445 (2022)			A	nalyst		Da
e	8/15/2022	Time Period Analyzed			gency		An
diction		Analysis Year	2022		irisdiction roject Description		Tin
ect Description		Units	U.S. Customary		ieneral		
	Sch	ool Crossing			lajor Street Direction	East-West	Po
100 1 1 1 1 1 1 1 1 1 1 1		-		St	tarting Time Interval	7	Co
of Students in Highest Hour	0	Adequate Gaps in Period	0	M	ledian Type	Undivided	Cra
nutes in Period	0			M	lajor Street Speed (mi/h)	30	Ade
	Roar	dway Network			earest Signal (ft)	5280	
fajor Routes		Weekend Count		G	eometry and Traffic		
			-				-
Contract Contract (0()	0						14 + 74
(ear Growth Factor (%)	0						14 4 A 4 4
Year Growth Factor (%)		road Crossing				E	CONTRACTOR OF THE OWNER
		road Crossing Highest Volume Hour with Trains	Unknown *			E	STATE OF TAXABLE PARTY.
de Crossing Approach	Rail		Unknown ~			1 4 4 4 4	CONTRACTOR OF THE OWNER
ade Crossing Approach stance to Stop Line (ft)	Rail	Highest Volume Hour with Trains				E	/ 4 + <u>/</u> .4 *
Year Growth Factor (%) ade Crossing Approach stance to Stop Line (ft) gh Occupancy Buses (%)	Rail	Highest Volume Hour with Trains Rail Traffic (trains/day)	4			J 4 ↓ ∆ & 5 ↓	*
ide Crossing Approach tance to Stop Line (ft) jh Occupancy Buses (%)	Rail	Highest Volume Hour with Trains Rail Traffic (trains/day) Tractor-Trailer Trucks (%)	4			×**	*
ade Crossing Approach tance to Stop Line (ft)	Rail None ~ - 0	Highest Volume Hour with Trains Rail Traffic (trains/day) Tractor-Trailer Trucks (%) ntersection	4	<u>A</u>	pproach	J 4 ↓ ∆ & 5 ↓	*

c. Full View with the report on the bottom of the screen: the screen is split with all inputs on the top of the screen and the results reports on the bottom of the screen. You can access all inputs and view all of the current report by using the corresponding scroll bars. There is also a screen splitter that can be moved to adjust the views of the input screen and results report.

			Project Properties		
Analyst			Agency		
	0.45.0000				
Date	8/15/2022		Time Period Analyzed		
Jurisdiction			Analysis Year	2022	
Project Description			Units	U.S. Customary	
			School Crossing		
No. of Students in Highest Hour	ır 0		Adequate Gaps in Period	0	
	0				
Minutes in Period	0	ants Report			
	0	ants Report			
Minutes in Period	0	ants Report	&r15/2022		
Minutes in Period	0		8/15/2022 2022		
Minutes in Period roject Information solvet rogency isdiction	0	Date			
Minutes in Period	0	Date Analysis Year			
Minutes in Period roject Information solvet rogency isdiction	0	Date Analysis Year			
Minutes in Period oject Information sept sept sector sector sector ency ency ency ency ency ency ency ency	0	Date Analysis Year			
Minutes in Period oject Information sept sept sector sector sector ency ency ency ency ency ency ency ency	0 HCS Warr	Date Analysis Year Time Period Analyzed	2022		
Minutes in Period reject Information alyst ency solution get Description eneral ger Street Direction presenter Street Direction presenter Street S	0 HCS Warr	Date Analysis Year Time Period Analyzed Population < 10,000	2022 No		
Minutes in Period siget Information alpst ency statican get Description encritical encr	0 HCS Warr	Date Analysis Year Time Period Analyzed Population < 10,000 Coordinated Signal System	2022 No No		
Minutes in Period oject Information alpst ency solution get Description ency or Street Direction fitting Time Interval fitting Time	HCS Warr Esst-West 7 7 Undivided	Date Analysis Year Time Period Analyzed Population < 10,000 Coordinated Signal System Crashes (crashes/year)	2022 No No 8		

- 2. Views can be changed by using the main menu items or the keyboard shorcuts.
 - a. Main Menu Items
 - i. To switch to Page View, select *File > View > Page View* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen, hovering over "View", and then selecting "Page View".

New	Ctrl+N		Project Properties		
Open Example Folder	Ctrl+O r		Agency		
Save Save As	Ctrl+S F12	8/15/2022	Time Period Analyzed Analysis Year	2022	
Close	Ctrl+W		Units	U.S. Customary	
Units	•		School Crossing		
Print Print Preview	Ctrl+P Ctrl+F2	our 0	Adequate Gaps in Period	0	
View	•	Page View F9			
Report	•	Full View	Roadway Network		
Default Setting	s Alt+F	V	Weekend Count		(.
Help	•	0			-
Exit	Alt+F4		Railroad Crossing		
Grade Cros	ssing Approach	None	 Highest Volume Hour with Trains 	Unknown ~	
Distance to	Stop Line (ft)		Rail Traffic (trains/day)	4	
High Occu	pancy Buses (%)	0	Tractor-Trailer Trucks (%)	10	

ii. To switch to Full View with the report on the right of the screen, select *File > View* > *Full View > Report -> Right* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen, hovering over "View", hovering over "Full View", and then selecting "Report -> Right".

New	Ctrl+N					^			
)pen xample Folder	Ctrl+O		Projec	t Properties				HCS	Warran
				Agency			Project Information		
ave ave As	Ctrl+S F12						Analyst		D
		8/15/2022		Time Period Analyzed			Agency		A
lose	Ctrl+W			Analysis Year	2022		Jurisdiction		T
Inits				Units	U.S. Customary		Project Description		
rint	Ctrl+P				0.5. Customary		General		
Print Preview	Ctrl+F2		Scho	ol Crossing			Major Street Direction	East-West	Pc
liew	•	Page View F	-9	Adequate Gaps in Period	0		Starting Time Interval	7	Co
leport		Full View	•	Report -> Right F10	•		Median Type	Undivided	Cr
		0		Report -> Bottom F11			Major Street Speed (mi/h)	30	A
Default Settings	Alt+F		Roady	vay Network			Nearest Signal (ft)	5280	
lelp	•	V		Weekend Count			Geometry and Traffic		
Exit	Alt+F4	_		Weekend Count					444.
5-Year Growth	Factor (%)	0						Ĩ	*
			Railro	ad Crossing				-	
Grade Crossing	Approach	None	~	Highest Volume Hour with Trains	Unknown ~			*	
Distance to Sto	p Line (ft)			Rail Traffic (trains/day)	4			-	
High Occupance	y Buses (%)	0		Tractor-Trailer Trucks (%)	10				
			Int	ersection					* 7 4 P
Major Street Di	rection	East-West	~	Starting Time Interval	7			Eastbound	v
Median Type		Undivided	~	Major Street Speed (mi/h)	30	<	Approach	castbound	1.1
	(ft)	5280		Population < 10,000		. D		ch to Text Report 📃 🗕	

iii. To switch to Full View with the report on the bottom of the screen, select File > View > Full View > Report -> Bottom from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen, hovering over "View", hovering over "Full View", and then selecting "Report -> Bottom".

	MUTCD Warrants				-	ð	\times
New	Ctrl+N						
Open Example Folder	Ctrl+O			Project Properties			
Save Save As Close Units	Ctrl+S F12 Ctrl+W	8/15/2022		Agency Time Period Analyzed Analysis Year	2022		
Print	Ctrl+P			Units	U.S. Customary		
Print Preview	Ctrl+F2			School Crossing			
View Report Default Settings	Alt+F	Page View F9 Full View	Report -> Right F10 Report -> Bottom F11	Adequate Gaps in Period	0		
Help							
Exit	Alt+F4	HCS Warr	ants Report				
		HCS Warr	ants Report				
Exit Project Informat Analyst		HCS Warr	Date	8/15/2022			
Exit Project Informat Analyst Agency		HCS Warr	Date Analysis Year	8/15/2022 2022			
Exit Project Informat Analyst Agency Jurisdiction		HCS Warr	Date				
Exit Project Informat Analyst Agency Jurisdiction Project Description		HCS Warr	Date Analysis Year				,
Exit Project Informat Analyst Agency Jurisdiction Project Description General	tion		Date Analysis Year Time Period Analyzed	2022			
Exit Project Informat Analyst Agency Jurisdiction Project Description General Major Street Direction	tion	HCS Warr	Date Analysis Year Time Period Analyzed Population < 10,000	2022 No			
Exit Project Informat Analyst Agency Jurisdiction Project Description General Major Street Direction Starting Time Interval	tion	East-West 7	Date Analysis Yeer Time Period Analyzed Population < 10,000 Coordinated Signal System	2022 No No			
Exit Project Informat Analyst Apency Jurisdiction Project Description General Major Street Direction Starting Time Interval Median Type	tion	East-West 7 Undivided	Date Analysis Year Time Period Analyzed Population < 10,000 Coordinated Signal System Crashes (crashes/year)	2022 No No 8			
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- b. Keyboard Shortcuts
 - i. Page View: keyboard shortcut is "F9"
 - ii. Full View with report on the right of the screen: keyboard shortcut is "F10"
 - iii. Full View with report on the bottom of the screen: keyboard shortcut is "F11"

Change the Lane Configuration

1. When a new file is created or an existing file is opened, the lane configuration can be changed under the Lanes section. This can be found on the Intersection page if using Page View or the input portion of the split screen if using Full View.

a. Page View

	SECTION TRAFFIC PE	DESTRIANS DELAY REPORT					
			Intersection				
Major Street Direction	East-West	v	Starting Time Interval	7			
Median Type	Undivided	v	Major Street Speed (mi/h)	30)		
Nearest Signal (ft)	5280		Population < 10,000		1		
Coordinated Signal System			Crashes/year	8			
Adeq. Trials of Crash Experie							
			Lanes				
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Copyright © 2023 University of Florida. All F	Rights Reserved.					HCS™ Warrant	ts Versi
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Ull View Warrants1.xsw - HCS MUTCD Warrants		tersection		~		HCS™ Warrant	ts Versio
Warrants 1.xsw - HCS MUTCD Warrants	In	tersection Starting Time Interval	7	^	_		_
Warrants1.usw - HCS MUTCD Warrants	In East-West ~	Starting Time Interval	7	^	Project Information		_
Warrants1.xsw - HCS MUTCD Warrants	In East-West v Undivided v	Starting Time Interval Major Street Speed (mi/h)	30		Analyst		_
Warrants1.xsw - HCS MUTCD Warrants Major Street Direction Median Type Nearest Signal (ft)	East-West ~ Undivided ~ 5280	Starting Time Interval Major Street Speed (mi/h) Population < 10,000	30		Analyst Agency		_
Warrants1.ssw - HCS MUTCD Warrants	In East-West × Undivided × 5280	Starting Time Interval Major Street Speed (mi/h)	30		Analyst Agency Jurisdiction		_
Warrants1.xsw - HCS MUTCD Warrants Major Street Direction Median Type Nearest Signal (ft)	In East-West × Undivided × 5280	Starting Time Interval Major Street Speed (mi/h) Population < 10,000	30		Analyst Agency		-
Warrants1.ssw - HCS MUTCD Warrants	In East-West × Undivided × 5280	Starting Time Interval Major Street Speed (mi/h) Population < 10,000	30		Analyst Agency Jurisdiction Project Description General Major Street Direction		-
Warrants1.ssw - HCS MUTCD Warrants	In East-West ~ Undivided ~ 5280	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year Lanes	30		Analyst Agency Jurisdiction Project Description General Major Street Direction Starting Time Interval	HC East-West 7	-
Warrants1.ssw - HCS MUTCD Warrants	In East-West ~ Undivided ~ 5280	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year Lanes	30		Analyst Agency Jurisdiction Project Description General Major Street Direction Starting Time Interval Median Type	HC	_
Warrants1.ssw - HCS MUTCD Warrants	In East-West ~ Undivided ~ 5280	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year Lanes	30		Analyst Agency Jurisdiction Project Description General Major Street Direction Starting Time Interval	HC East-West 7	_
Warrants1.ssw - HCS MUTCD Warrants	In East-West ~ Undivided ~ 5280	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year Lanes	30		Analyst Agency Jurisdiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Speed (m/m)	HC East-West 7 Undivided 30	_
Warrants1.ssw - HCS MUTCD Warrants	In East-West ~ Undivided ~ 5280 e Alt. Ø	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year Lanes	30		Analyst Apency Juridiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Speed (m/m) Nearest Signal (ft)	HC East-West 7 Undivided 30	CS W
Warrants1.ssw - HCS MUTCD Warrants	In East-West ~ Undivided ~ 5280 e Alt. Ø	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year Lanes	30		Analyst Apency Juridiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Speed (m/m) Nearest Signal (ft)	HC East-West 7 Undivided 30	CS W
Warrants1.ssw - HCS MUTCD Warrants	In East-West ~ Undivided ~ 5280	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year Lanes	30		Analyst Apency Juridiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Speed (m/m) Nearest Signal (ft)	HC East-Wett 7 UndWoded 30 5280	CS W
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Warrants1.ssw - HCS MUTCD Warrants	In East-West ~ Undivided ~ 5280 e Alt. Ø	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year Lanes	30		Analyst Apency Juridiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Speed (m/m) Nearest Signal (ft)	HC East-Wett 7 UndWoded 30 5280	CS W
Warrants1.ssw - HCS MUTCD Warrants	In East-West ~ Undwided ~ 5280 e Alt. V	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year Lanes	30		Analyst Apency Juridiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Speed (m/m) Nearest Signal (ft)	HC East-West 7 Undivided 30	CS Wa
Warrants1.ssw - HCS MUTCD Warrants	In East-West ~ S280 e Alt. 2	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year	30		Analyst Apency Juridiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Speed (m/m) Nearest Signal (ft)	HC East-Wett 7 UndWoded 30 5280	CS W
Warrants1.ssw - HCS MUTCD Warrants	In East-West ~ S280 e Alt. 2	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year Lanes	30		Analyst Apency Juridiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Speed (m/m) Nearest Signal (ft)	HC East-Wett 7 UndWoded 30 5280	UIR
Warrants1.ssw - HCS MUTCD Warrants	In East-West V Undivided V 5280 e Alt. V	Starting Time Interval Major Street Speed (mi/h) Population < 10.000 Crashes/year	30		Analyst Apency Juridiction Project Description General Major Street Direction Starting Time Interval Median Type Major Street Speed (m/m) Nearest Signal (ft)	HC East-Wett 7 UndWoded 30 5280	CS Wa

2. To add lanes, click on the lane buttons (black arrows) on the edges of the lanes graphic. If the background of a lane button is white, the lane is available to add to the corresponding approach. If the background of a lane button is gray, it is disabled and cannot be added to the corresponding approach based on the current lane configuration.

a. Each approach allows up to seven lanes to be added



b. Adding a shared left-right (LR) lane will disable all other lanes except left (L) and right (R)



c. Adding a shared left-thru-right (LTR) lane will disable all other lanes except left (L) and right (R)



d. Adding a shared left-thru (LT) lane will disable the shared left-thru-right (LTR) and shared left-right (LR) lanes



e. Adding a shared thru-right (TR) lane will disable the shared left-thru-right (LTR) and shared left-right (LR) lanes



- 3. To remove lanes, click on the lanes within the center of the lanes graphic (white arrows). Clicking on an arrow will immediately remove the lane and change which lane buttons are enabled/disabled for the corresponding approach.
- 4. Changes to the lane configuration on the lanes graphic in the input screen will be reflected on the lanes graphic in the formatted report and the lane information in both the formatted and text reports.

View Results of the Analysis

 After editing all the necessary inputs, results of the analysis can be found in the form of reports. Reports can be found on the Report page if using Page View or on the results portion of the split screen if using Full View. a. Page View with Report page displayed

TART GENERAL INTERS	ECTION TRAFFIC RED	ESTRIANS DELAY REPORT		- 0
TART GENERAL INTERS		ESTRIANS DELAT		
	HCS	Warrants Report		
Project Information				
Analyst		Date	8/15/2022	
Agency		Analysis Year	2022	
Jurisdiction		Time Period Analyzed		
Project Description				
General				
Major Street Direction	East-West	Population < 10,000	No	
Starting Time Interval	7	Coordinated Signal System	No	
Median Type	Undivided	Crashes (crashes/year)	8	
Major Street Speed (mi/h)	30	Adequate Trials of Crash Exp. Alt.	Yes	
Nearest Signal (ft)	5280			
Geometry and Traffic				
	14 1144 11			
Approach	Eastbound	+ + +		
Approach Movement	14111441		nd Southbound	
	Eastbound	+ + + + + + + + + + + + + + + + + + +		e =

b. Full View with the report on the right of the screen Warrants1xsw-HCS MUTCD Warrants ■

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	Proj	iect Properties			HCS W	Varra
nalyst		Agency		Project Information		
ate	8/15/2022	Time Period Analyzed		Analyst		
ate	0/15/2022	Time Period Analyzed		Agency		
risdiction		Analysis Year	2022	Jurisdiction Project Description		
oject Description		Units	U.S. Customary	General		
	Sch	nool Crossing		Major Street Direction	East-West	- 1
100 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		-	0	Starting Time Interval	7	
o. of Students in Highest Hour	0	Adequate Gaps in Period	U	Median Type	Undivided	
inutes in Period	0			Major Street Speed (mi/h)	30	
	Roa	dway Network		Nearest Signal (ft)	5280	
Major Routes	V	Weekend Count	Π	Geometry and Traffic		
					م لہ	4 † 7
Year Growth Factor (%)	0					↓
	Rail	road Crossing			<u></u>	
rade Crossing Approach	None ~	Highest Volume Hour with Trains	Unknown ~		∻ -1÷	
stance to Stop Line (ft)	-	Rail Traffic (trains/day)	4			
gh Occupancy Buses (%)	0	Tractor-Trailer Trucks (%)	10		L K	
	h	ntersection			515	ት የቀኑ
ajor Street Direction	East-West ~	Starting Time Interval	7		Eastbound	
edian Type	Undivided ~	Major Street Speed (mi/h)	30	Approach	castoound	
earest Signal (ft)	5280	Population < 10.000			witch to Text Report 📃 🗕	

c. Full View with the report on the bottom of the sc
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Analyst						
Date 8/15/2022 Time Period Analyzed Jurisdiction Analysis Year 2022 Project Description Units U.S. Customary School Crossing No. of Students in Highest Hour 0 Adequate Gaps in Period 0 Minutes in Period 0 0 0 0 Mone Service				Project Properties		
Jurisdiction	Analyst			Agency		
Project Description Units U.S. Customary School Crossing No. of Students in Highest Hour 0 0 Minutes in Period 0 0	Date	8/15/2022	2	Time Period Analyzed		
Project Description Units U.S. Customary School Crossing No. of Students in Highest Hour 0 0 Minutes in Period 0 0	lurisdiction			Analysis Year	2022	
School Crossing No. of Students in Highest Hour 0 0 Minutes in Period 0 0						
No. of Students in Highest Hour 0 0 Minutes in Period 0 HCS Warrants Report Information Information algest and syste algest and syste algest and syste colspan="2">algest and syste algest and syste alge	Project Description			Units	U.S. Customary	
Minutes in Period D HCS Warrants Report roject Information roject Information valyst Date & 15/2022 gercy Analysis Year 2022 roject Description remeral roject Description remeral roject Description roject Origin Karl Net roje Street Origin Karl Net				School Crossing		
Minutes in Period Image: Comparison of the period of the	No. of Students in High	est Hour 0		Adequate Gaps in Period	0	
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sercy Analysis Year 2022 radiction Time Period Analyzed Image: Comparison of Comparis	reject Information		S Warrants Report			
risdiction Time Period Analyzed risdict Sectifytion				8/15/2022		
Internal East-West Population < 10,000 No apirs Street Direction East-West Population < 10,000	nalyst		Date			
Isjor Street Direction Ear.West Population < 10,000 No Larting Time Interval 7 Coordinated Spinis System No Iedian Type Undivided Crashes (rashes/year) S Iedian Type Undivided Crashes (rashes/year) S Ieo/Street Spinis (m/h) 30 Adequate Trials of Crash Exp. Alt. Yes earent Spinia (rt) 5280	nalyst gency		Date Analysis Year			
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Ideal Undivided Crashes (crashes/year) 8 ajor Street Speed (m/h) 30 Adequate Trials of Crash Exp. Alt. Yes exerct Signal (t) 5280 Street Speed (m/h) Street Speed (m/h)	nalyst gency irlsdiction roject Description		Date Analysis Year			
ajor Street Speed (m/h) 30 Adequate Trials of Crash Exp. Alt. Yes exerct Spnal (h) 5260	nalyst gency risdiction oject Description eneral ajor Street Direction	HC	Date Analysis Year Time Period Analysed Population < 10,000	2022		
exert Signa' (ft) 5280	nalyst gency irisdiction roject Description ieneral lajor Street Direction arting Time Interval	HC East-West 7	Date Analysis Year Time Perrod Analyzed Population + 10,000 Coordinated Signal System	2022 No No		
	nalyst gency irisdiction regiect Description Seneral lajor Street Direction lating Time Interval ledian Type	East-West 7 Undivided	Date Analysis Year Time Period Analyzed Population + 10,000 Coordinated Signal System Crashel (crashel/year)	2022 		
	nalyst gency ursdiction orget Description seneral lajor Street Direction farting Time Interval lecian Type tajor Street Speed (mi/h)	HC East-West 7 Undivided 30	Date Analysis Year Time Period Analyzed Population + 10,000 Coordinated Signal System Crashel (crashel/year)	2022 		

- 2. There are two options for reports: Formatted and Text
 - a. Formatted reports show the most important results in a presentable format

AndyAmp	HCS Warrants Report										Volume S	ummary	·																
Apper <td>Project Information</td> <td></td> <td>Hour</td> <td></td> <td></td> <td></td> <td>Peds/h</td> <td>Gaps/h</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Project Information													Hour				Peds/h	Gaps/h										
mandem of manine mean of mea	Analyst				6	Date				8/15	/2022			07 - 08	620	150	895	110	70	Yes	Yes	No	Yes	No	No	No	No	No	
highed pointImage: The probation of the point of the poin	Agency				1	Analysis '	Year			2022				08 - 09	1090	160	1340	105	50	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	
GeneralImage: Series in the strate in the stra	Jurisdiction				1	ime Peri	iod Analyz	ed						09 - 10	620	160	870	120	30	Yes	Yes	No	Yes	No	No	No	No	No	
Amore anoma amore anoma amore anomaImage: Image: Ima	Project Description													10 - 11	640	125	890	90	50	No	Yes	No	Yes	No	No	No	No	No	
main matrixmatrixmatrix <t< td=""><td>General</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>11 - 12</td><td>320</td><td>30</td><td>380</td><td>120</td><td>50</td><td>No</td><td>No</td><td>No</td><td>No</td><td>No</td><td>No</td><td>No</td><td>No</td><td>No</td></t<>	General													11 - 12	320	30	380	120	50	No	No	No	No	No	No	No	No	No	
made	Major Street Direction	East-We	est		F	opulatio	on < 10,000)		No				12 - 13	280	55	390	90	45	No	No	No	No	No	No	No	No	No	
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ano analysis and the second of the	Median Type	Undivid	led		(irashes (crashes/ye	ər)		8				14 - 15	660	115	880	105	65	No	No	No	Yes	No	No	No	No	No	
Convert with the convert of	Major Street Speed (mi/h)	30			4	Idequati	e Trials of O	Irash Exp.	Alt.	Yes					640					No	Yes	No	Yes	No	No	No	No	No	
Advince of and final train Image: Second construction Image: Second	Nearest Signal (ft)	5280																				No					No		
	Geometry and Traffic																_												
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Name Number of Lance, N O I	Approach		Eastbound	d	1	Nestbou	nd		Northbour	d	5	outhbour	nd .																
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Nexterior Anorgan (pech/n) 60 51 0 Operation (Sep Memory (Lane Usage		LTR			LTR			LTR			LTR		B. One-Hour Volumes															
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$ \begin{array}{ c c c c } \hline \mbox{lem} & $	Pedestrian Averages (peds/h)		60			51			0			0		Gaps Sam	e Period	and													
Datily Assign to the Datily 0.0 0.0 1.0 Variant Coordinated Sign System School Crossing and Rady = Verse Ve	Gap Averages (gaps/h)																												
School Crossing and Roadwij viework viework Degree of Roadwing (Redominant direction or both direction) Degree of Roadwing (Redominant direction or both direction) Descree Degree of Roadwing (Redominant direction or both direction) Descree Degree of Roadwing (Redominant direction or both direction) Descree Degree of Roadwing (Redominant direction or both direction) Descree Degree of Roadwing (Redominant direction or both direction) Descree Descre </td <td></td> <td colspan="9">Nearest Traffic Control Signal (optional)</td> <td></td> <td></td> <td></td>															Nearest Traffic Control Signal (optional)														
Name Open Name No	Delay Averages (veh-hrs)		0.0			0.0			1.8			1.7																	
Name Note wide wide wide wide wide wide wide wid	School Crossing and Roadway	Netwo	rk											-			iinant direa	ction or bo	oth direction	ons)						_			
Name Name <th< td=""><td>Number of Students in Highest Hour</td><td>0</td><td></td><td></td><td>1</td><td>wo or N</td><td>lore Major</td><td>Routes</td><td></td><td>Yes</td><td></td><td></td><td></td><td colspan="9"></td><td>_</td><td></td><td></td></th<>	Number of Students in Highest Hour	0			1	wo or N	lore Major	Routes		Yes													_						
National minutes in minore No Operating the minore Operatin the minore Operating the minore </td <td>Number of Adequate Gaps in Period</td> <td></td> <td></td> <td></td> <td>N</td> <td>Veekend</td> <td>Counts</td> <td></td> <td></td> <td>_</td> <td></td> <td>-</td> <td></td> <td>_</td>	Number of Adequate Gaps in Period				N	Veekend	Counts			_																-		_	
Baltion Costing Seal Costing (Seal Costing Costing) Seal Table (Information Costing)	Number of Minutes in Period	0			5	-year G	rowth Fact	or (%)		0										ionth perio	od)and	-				_			
Grade Cosing Approach None Rall Taffic (rainoludgi) 4 A Weekdy Wolme (Peak hour total -and-, projected warnath 1,2 or 3) -on A Highest Volume Hour with Trains Unkoon High Occupancy Bases (%) 0 B Meedend Volume (Peak hour total -and-, projected warnath 1,2 or 3) -on 6 6 Distance To Stop Line (%) - To and the Gradeed Volume (File hour total) 7 6	Railroad Crossing																	4 are si	usied							-			
Highest Value Unknown High Occupancy Bases (%) 0 0 8 Distance to Stop Line (%) - Todor Finaler Funds (%) 0 <t< td=""><td>Grade Crossing Approach</td><td>None</td><td></td><td></td><td>F</td><td>tail Traffi</td><td>c (trains/d</td><td>ay)</td><td></td><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>vl., proje</td><td>ted warra</td><td>nts 1 2 or</td><td>3)</td><td></td><td></td><td></td><td></td><td>-</td><td></td><td>_</td></t<>	Grade Crossing Approach	None			F	tail Traffi	c (trains/d	ay)		4								vl., proje	ted warra	nts 1 2 or	3)					-		_	
Distance to Sop Line (h) - Tractor-Inaler Trucks (h) 10 Warrant 9: Grade Crossing A Grade Crossing A A. Grade Crossing within 140 ftind A. Grade Crossing within 140 ftind A A A	Highest Volume Hour with Trains	Unknow	m		F	ligh Occ	upancy Bu	ises (%)		0								a proje		10 1, 2, 0	5) 61					-		_	
A. Grade Crossing within 140 ftand	Distance to Stop Line (ft)	-			1	ractor-T	railer Truck	3 (%)		10																-		_	
																-	tand	_	_	_	-	_	_	-	-		-	_	
B. Peak-Hour Vehicular Volumes																										-			

b. Text reports show a more detailed analysis in plain text



- 3. The type of report displayed can be changed by using the main menu items, keyboard shortcuts, or toggle buttons under the report.
 - a. Main Menu Items
 - i. To switch to the Formatted Report, select *File > Report > Formatted Report* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen, hovering over "Report", and then selecting "Formatted Report".

	xsw - HCS MUTCD War		SECTI	ON TRAFFIC	DEDES	TDI			0.07				
New	Ctrl+1		SECTI	ON TRAFFIC	PEDES	IRD	ANS DELAT	REP	ORI				
Open	Ctrl+0			ŀ	ICS W	arra	ants Repor	rt					
Save Save A Close	S F12 Ctrl+1	w					Date Analysis Year Time Period An	alyzed		8/15	/2022		
Units Print Print P View	Ctrl+I review Ctrl+I			East-West 7			Population < 10 Coordinated Sig	gnal Syste	em	No No 8			
Report Defaul [®] Help	t Settings Alt+F			ormatted Report ext Report	F4 F6		Adequate Trials		Exp. Alt.	Yes			
Exit	Alt+F	4		14 4 T 4 T	*		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	14 *Y1 * r					
	Approach Movement			Eastbound L T	R	L	Westbound T F	R	Northbo L T	R	ĩ	Southbo T	und R
yright © :	2023 University of Flori	ida, All	Rights R	Reserved.						Switch t	to Text F	eport	

ii. To switch to the Text Report, select *File > Report > Text Report* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen, hovering over "Report", and then selecting "Text Report".

	JTCD Warrant	·									-	
START GENI	RAL INT		N TRAF	FIC PEDE	STRIANS	DELA	Y REPOR	Т				
ew	Ctrl+N				HCS Warra	ate						
pen	Ctrl+O				nus warra	nts						
ample Folder					irrants Ana	lysis_						_
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ave As	F12											
			8/	15/2022								
lose	Ctrl+W			22								
nits			20	522								
int	Ctrl+P		υ.	S. Customan	'Y							
int Preview	Ctrl+F2				General							
int Freview iew		on: East-	West		Populati	on <10,						
iew		a1: /			Coordina Tashes		nal System	No				
eport		For	natted Re	eport Fe			of Crash I	xperier	ce Alte	rnatives:	Yes	
efault Settings	Alt+F	Text	Report	FI	5							
elp			18	School Cros	sing and R	oadway	Network					
		n Highest			Two or M Weekend		or Routes:	Yes				
kit	Alt+F4	Period:					actor (%):	0				
Grade C	cossing And	roach: None	,	Ri	ilroad Cro	ssing ffic (†	rains/day)	4				-
Highest	Volume Hou	r with Trai	ins: Unkn	IOWN	High Occ	upancy	Buses (%):	8				
Distanc	e to Stop L	ine (ft): -			Tractor-	Trailer	Trucks (%)	: 10				
				Geor	etry and T	raffic_						
	1.1	Eastbound T	R	Westb		1 .	Northbound	R	1 . 1	Southbound	R	
			ĸ	L	ĸ			ĸ			ĸ	
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and a second						1. I.				C.I.N		
Traffic	Volumes (v	eh/h) Eastbound	1	Westbu	hand		Northbound		n (*	Southbound		1
	L	T	R	L		L	T	R	L	T	R	
Hour			1					Su	itch to Ea	ormatted Rep	ort	B = -5
								- 34	num to ru	annatteu Nep	and a	

- b. Keyboard Shortcuts
 - i. Formatted Report: keyboard shortcut is "F4"
 - ii. Text Report: keyboard shortcut is "F6"
- c. Report Toggle Buttons
 - i. Whether viewing the report in Page View or Full View, a toggle button will be available at the bottom of the screen underneath the report.
 - ii. If the formatted report is currently being displayed, the toggle button will say "Switch to Text Report" which will allow you to display the text report if clicked.



iii. If the text report is currently being displayed, the toggle button will say "Switch to Formatted Report" which will allow you to display the formatted report if clicked.

					HCS Warra	nts						
					Warrants Ana	lysis						
	File Name: Analyst:			Warrants1.x	SW							
	Analyst: Agency:											
	Date Perform			8/15/2022								
	Time Analyz											
	Jurisdiction Analysis Yes			2022								
	Project Des	crintion:		2022								
	Units:			U.S. Custom	ary							
					General							_
		t Direction: me Interval:			Populati		000: No nal System:					
	Median Type		'		Crashes			NO				
	Major Street	t Speed (mi/M	h): 30				of Crash E	xperiend	ce Alter	natives:)	res	
	Nearest Sig	nal (ft): 521	80									
.)												
	Hardware of C	tudents in H		School Cri	ossing and R	oadway I	Vetwork or Routes:					
c .		tudents in H: dequate Gaps			Weekend			Yes				
		inutes in Per		0			actor (%):	0				
		ing Approach			Railroad Cro	ssing						_
		ing Approach ume Hour with		lokoown	Rail Ira	ttic (tr	rains/day): Buses (%):	4				
	Distance to	Stop Line (ft): -				Trucks (%)					
					ometry and T	raffic_						-
		Eastb	ound T R	West	T R	1.1	Northbound	R	l s	outhbound T	R	
	No. Lanes		1 0		1 0	0	1	0	0	1	0	
	Lane Usage	, L	TR	1	LTR	L.	LTR		1	LTR		
		and (unb (b))			1.1.1							7
	Traffic Vol					1	Northbound		S	outhbound		
	Traffic Vol	Eastb	ound	West								
	Traffic Vol		ound		T R	L	т	R	L	т	R	

4. The magnification of the report currently being displayed can be changed using the zoom slider found at the bottom right-hand corner of the screen.

	HCS	Warrants Report		
Project Information				
Analyst		Date	8/15/2022	
Agency		Analysis Year	2022	
Jurisdiction		Time Period Analyzed		
Project Description				
General				
Major Street Direction	East-West	Population < 10,000	No	
Starting Time Interval	7	Coordinated Signal System	No	
Median Type	Undivided	Crashes (crashes/year)	8	
Major Street Speed (mi/h)				
Major Street Speed (m/n)	30	Adequate Trials of Crash Exp. Alt.	Yes	
Nearest Signal (ft)	30 5280	Adequate Trials of Crash Exp. Alt.	Yes	
	5280		Yes	
Nearest Signal (ft)	5280	Adequate Trais of Cristic Sign. Alt.	Yes	
Nearest Signal (ft)	5280	4 + A + H + H + H		

- a. To zoom in, drag the slider to the right; to zoom out, drag the slider to the left
- b. Clicking the plus (+) button will zoom in; clicking the minus (-) button will zoom out
- c. Holding down "ctrl" on the keyboard and scrolling up on the mouse wheel will zoom in; holding down "ctrl" on the keyboard and scrolling down on the mouse wheel will zoom out

Print a Report

- 1. There are four options for printing a report:
 - a. Selecting *File > Print* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen and then selecting "Print"



b. Selecting *File > Print Preview* from the main menu; this can be found by selecting the three lines in the top left-hand corner of the screen and then selecting "Print Preview"

STADT CEN			EDESTRIANS DELAY REPORT			
New	Ctrl+N	CHON TRAFFIC F	EDESTRIANS DELAT REPORT			
Open Example Folder	Ctrl+O	H	CS Warrants Report			
Save Save As	Ctrl+S F12		Date Analysis Year	8/15/2022 2022		
Close	Ctrl+W		Time Period Analyzed	2022		
Units	•					
Print	Ctrl+P					
Print Preview	Ctrl+F2	East-West	Population < 10,000 Coordinated Signal System	No		
View	•	Undivided	Crashes (crashes/year)	8		
Report	•	30	Adequate Trials of Crash Exp. Alt.	Yes		
Default Settings	Alt+F	5280				
Help	•					
Exit	Alt+F4	14471	+			
		È.	1117 THE			
Approach		Eastbound		sound Southbound		
Approach Movement			ጎጓትዮትዮ	Sound Southbound	B = -5-	

- c. Using the keyboard shortcut "Ctrl+P" for Print
- d. Using the keyboard shortcut "Ctrl+F2" for Print Preview

2. Print

a. Using Print will bring up a Print dialog box where you can select which printer to print to

Select Printer		
i Microso	ft Print to PDF	
	ft XPS Document Writer e for Windows 10	
<		>
Status:	Ready	Preferences
Location: Comment:		Find Printer
Page Range -		1
All		Number of copies: 1
C Selection	C Current Page	
C Pages:		Collate

3. Print Preview

	HCS	Warrants Report	
		warrants Report	
Project Information			
Analyst		Date	8/15/2022
Agency		Analysis Year	2022
Jurisdiction		Time Period Analyzed	
Project Description			
General			
Major Street Direction	East-West	Population < 10,000	No
Starting Time Interval	7	Coordinated Signal System	No
Median Type	Undivided	Crashes (crashes/year)	8
Major Street Speed (mi/h)	30	Adequate Trials of Crash Exp. Alt.	Yes
Nearest Signal (ft)	5280		
Geometry and Traffic		41.4450	
Geometry and Traffic	VALUE AND		
Geometry and Traffic	VALUE AND	*	und Southbourd
	*	*	und Southbourn

b. The print icon in the toolbar found in the top left-hand corner can then be selected

c. <u>A Print dialog box will pop up where you can select which printer to print to</u>

Select Printer	
Microsoft Print to PDF	
Microsoft XPS Document Writer	
ConeNote for Windows 10	
<	>
1997	
Status: Ready	Preferences
Location: Comment:	Find Printer
Page Range	
All	Number of copies: 1
C Selection C Current Page	
C Pages:	
	11 22 33

Glossary of Terms

Adequate Trials of Alternatives

Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.

Agency

This field is provided to document the name of the Agency or the Company conducting the analysis.

Analysis Time Period

Enter the time period over which the analysis was conducted.

Analysis Year

This field is provided to document the year the analysis is modeling. For example, a current or past operational year or a future design or planning year might be coded here.

Analyst

This field is provided to document the individual performing the analysis.

Coordinated Signal System

This is from engineering judgment from the description of Warrant 6, Coordinated Signal System.

Crashes/Year

This number is compared to the five required in the Crash Experience warrant, but only those crashed susceptible to correction by signal installation should be included, as described in Warrant 7.

Date

The date will default to the computer's date, but may be edited. The format of the date is determined by the user's 'Short date style' preferences (regional settings icon on the Control Panel).

Delay

The average stopped delay for each approach is coded in seconds per vehicle. The appropriate volumes will be used to calculate the total stopped delay in vehicle hours. Alternatively, the total stopped delay in vehicle hours may be coded directly, and the appropriate volumes will be used to calculate the delay in seconds per vehicle.

The option of which units to input is provided by selecting one of the radio buttons for Delay Units. The textbox inputs of the selected units will be enabled. The textbox inputs for the other units will be disabled, but the corresponding values will automatically be converted and used for determining Warrant 3.

Distance to Stop Line

The distance from the center of the track nearest the intersection and the stop line on the approach. This is measured in feet (or meters in metric).

Gaps

Gaps per hour in the traffic stream of adequate length to allow pedestrians to cross during the same period when the pedestrian volume criterion is satisfied. Where there is a divided street having a median of sufficient width for pedestrians to wait, the requirement applies separately to each direction of vehicular traffic.

Grade Crossing Approach

The user selects the approach direction where the grade railway crossing exists. If no grade crossing exists, the user selects 'None'.

High Occupancy Buses

The percentage of vehicles crossing the track that are high-occupancy buses. A high-occupancy bus is defined as a bus occupied by a least 20 people.

Highest Volume Hour with Trains

The user selects the highest traffic volume hour during which rail traffic uses the crossing.

Intersection

Description or name of the intersection can be coded here.

Jurisdiction

Generally the agency for which the analysis is being performed or has jurisdiction over the freeway being analyzed.

Major Street Direction

This must be defined in order to use the appropriate data for the stop-controlled approaches.

Major Street Speed

This speed is used to determine which MUTCD tables and figures are to be used. Lower thresholds are required when the major street speed is above 40 mi/h (or 64.4 km/h in metric) in Warrant 1, Warrant 2, Warrant 3, and Warrant 7.

Median

Whether a median of sufficient width for pedestrians to wait exists is coded here.

Nearest Signal

This information is used to determine the applicability of the Pedestrian Volume, School Crossing, and Coordinated Signal System in Warrant 4, Warrant 5 and Warrant 6.

Pedestrians

The number of pedestrians per hour crossing the approach.

Population

If the population is less than 10,000 people, the user checks this field.

Project Description

This field is provided for the user to document the analysis with any information for identification purposes.

Rail Traffic

The number of trains per day that use the rail crossing.

Roadway Network

The need for a traffic control signal shall be considered if an engineering study finds that the common intersection of **two or more major routes** (A major route as used in this signal warrant shall have one or more of the following characteristics: A) It is part of the street or highway system that serves as the principal roadway network for through traffic flow; or B) It includes rural or suburban highways outside, entering, or traversing a City; or C) It appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study).meets one or both of the following criteria:

A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has **5-year projected traffic volumes**, based on an engineering study, that meet one or more of Warrants 1, 2, and 3 during an average weekday; or

B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a **weekend**, nonnormal business day (Saturday or Sunday).

School Crossing

The need for a traffic control signal shall be considered when an engineering study of the frequency and adequacy of gaps in the vehicular traffic stream as related to the **number and size of groups of school children** at an established school crossing across the major street shows that the number of **adequate gaps** in the traffic stream during the period when the children are using the crossing is less than the **number of minutes** in the same period (see Section 7A.03) and there are a minimum of 20 students during the **highest crossing hour**.

Start Time

The Start Time is coded to allow for subsequent periods to be automatically labeled.

Tractor-Trailer Trucks

The percentage of vehicle crossing the track that are tractor-trailer trucks.

Traffic Volumes

The hourly volumes (V) for each movement are coded in vehicles per hour (veh/h).

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