

Advisor Guide Pedestrian Signal (AGPS) User Guide

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Advisor Guide Accessible Pedestrian Signal Owner's Manual

906-0001

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Document Revision History		
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1 Introduction

1.1 Purpose

The purpose of this document is to define the functionality, operations, and maintenance of the Advisor Guide Accessible Pedestrian Signal. This document serves as the sole reference for the scope of the system functionality to be delivered by Campbell Company. Any change to the scope of the project or the Functional Specifications will require agreement via the change control process defined in the agreement between Campbell Company and the end user.

1.2 Scope

This document will explain the software, functionality, installation, maintenance, and safety requirements associated with the Advisor Guide Pedestrian Signal.

1.3 System Organization

The Advisor Guide Accessible Pedestrian Signal is an independent Accessible Pedestrian Signal device that interfaces over a USB configuration utility that runs on any Windows XP (or higher) with .net 4.0+ or UNIX like systems operations software device.

AGPS - Advisor Guide Pedestrian Signal

SPI - Signal Power Interface

Base Stations

Utility – Rev 1.3.X

Firmware # - 1.3.X



2 Features

2.1 Product Overview

The Advisor Guide Pedestrian Signal (AGPS) is a fully integrated accessible pedestrian station (FIPS) that provides the pedestrian with visual, tactile and audible information about the intersection crossing at the pedestrian station. The AGPS is designed to monitor the output signal to the walk display while utilizing the existing wires from the traffic control cabinet.

A locator tone, tells a pedestrian that the crossing is equipped with APS and where it can be found. An extended press provides specific intersection information and access to additional functions. The audible walk tone or message is accompanied by a vibro-tactile indication during the visual walk display. Optional clearance phase indications may provide additional information to the pedestrian where appropriate

Each Advisor Guide Pedestrian Signal is configured at the factory, but customization and set-up are simply obtained through its USB port and a laptop. A computer utility allows the user to change settings for customization.

Please carefully read the contents of this manual in its entirety so you fully understand the many functions and options the system provides.

Standard Features

- Independent time of day/night settings
- Independent non-locator and locator AGC settings
- Volume range 0 – 100dB
- Audio output options – Default plus four options
- Beaconing or synchronized operations
- Button rated at 100 x 10⁶ actuations
- Utility for data and audio file transfer
- Report download capability in .csv format

Custom Message and Sound Options

The Advisor Guide APS comes fully programmed with audio files from the factory but we give you the option to create your own custom messages in a simple .wav format that can be easily uploaded via USB port from any computer. Second languages, gender narrative, and special percussive tones can be easily created and uploaded.

- Locator Tone
- Acknowledgement
- Location Message
- Walk Phase Message
- Destination Beacon
- Audio Countdown

Specifications

Advisor Guide Base Station

See product drawing/specifications and electrical requirements for Base Station

Signal Power Interface (SPI)

See product drawing/specifications and electrical requirements for SPI

2.2 Components

Each Advisor Guide Accessible Pedestrian Signal includes the following:

- Base Station – Pedestrian Push Button Station
- Signal Power Interface (SPI) – Power supply for Base Station
- AGPS Utility – Configuration
- Adaptor plate – Mounts Pedestrian signs of various dimensions
- USB Cable –Type B (One per installation)
- Sign
- Mounting hardware
- Installation instructions

USB Configuration Utility

The computer based configuration utility is designed for Windows (XP or higher w/net 4.0) or UNIX like operating system. A USB cable (type B) connection is required for the base stations connection.

Mounting Requirements

The AGPS requires two mounting holes tapped to secure the Base Station to the utility pole run. A 4-conductor cable run is required from the Signal Power Interface (SPI) which resides in the Pedestrian Signal Head to the base station.

2.3 System Operation

The AGPS utility is a user friendly application that communicates to the CPU internal to the Base Station. Secure configuration prevents unauthorized tampering with settings and operational modes. The utility is easily launched from the computer giving the user full access to all features and configurations. Hover tool tips appear with each setting in the utility providing information about the desired functionality.

Utility Version

The Utility Version Number can be found in the Utility under **Other => About**.

Utility Updates

Contact Campbell Company for the latest AGPS Utility version updates and installation instructions

3 Installation

3.1 Installing the system

Installation of the AGPS requires placement of the SPI in the Pedestrian Signal Head and the Base Station on a utility pole. A four conductor cable must be routed between each Base Station and its associated SPI. The Base Station replaces any existing pedestrian push button mounted on to the poles, and connects to the push button wires. The four conductor cable from the Base Station connects to the SPI's 12 VDC terminals. From the pedestrian signal head's display power terminal, #16 AWG stranded wires are supplied for connection to the 120 VAC Walk/Don't Walk and Common to the 120 VAC terminals on the SPI.

If the sync function is desired between two stations, both stations must be on same pedestrian call circuit.

Installation of an AGPS station utilizing a two man crew takes approximately 45 minutes to 1 hour (assuming no complications)

SEE INSTALLATION MANUAL FOR DETAILED FOR DETAILED INSTALLATION INSTRUCTIONS.

***Warning SPI leads will become live wires (120 VAC) when one lead is hooked up.**

3.2 System Operational Check Following Installation

1. The AGPS comes fully configured at the factory. When first powered up, an audible locator tone will be present. By removing the USB port cover at the side of the Base Station, a red LED (System On) just below the port should be flashing continuously in the Base Station cavity.
2. Depress the push button and verify the red LED turns on with an audible message "Wait". If field wires from the traffic controller are connected to the station, verify that a call is transmitted to the traffic controller.
3. When the Walk Signal is On, verify the Walk Phase message or percussive tone is present and the vibro-tactile button vibrates concurrently.
4. Repeat again with an extended press and verify the red LED turns on with an audible location message.
5. After the Walk Phase message, verify an audible locator tone is present at the clearance phase (Flashing Don't Walk) unless in beaconing or countdown mode.
6. Recheck all units for a full cycle to ensure all options and features operate as desired.

7. Depending on intersection location, factory default settings for volume, AGC, and vibotactile settings may require modifications. Proceed to the System Configuration section for details.
8. When you are satisfied that all units are working properly, install signs on each Base Station.

4 System Configuration

The AGPS comes with a user friendly utility that configures each station. While the APGS comes configured from the factory, some installations require modifications to audible messages or functionality to best fit the needs of the cross walk location.

The configuration utility can be downloaded and launched on any number of computers that will be used in the field. A directory of sound files will need to be placed on each of the respective laptops for access.

Before establishing communications with the Base Station, open the folder named FTDI and install drivers. (This will start automatically if the laptop is connected to the internet when plugged into the AGPS.) Next open up and launch the utility. (See Figure 1) If a NET framework error occurs double click and run dotNetFx40_Full_setup.exe. NOTE: If drivers are not installed prior to plugging in the AGPS to the computer driver problems will ensue. Install drivers and restart the computer.

Remove the USB port cover on the side of the Base Station, plug in the USB cable into the port.

To download the factory settings from *AGPS*, click on the large **Read from Station** button at the bottom left hand corner. The values from the Base Station are now available in the utility for viewing, modification, or to be saved in a directory to be used in other stations.



To submit changes in the settings from the utility to the AGPS controller, click on the large **Write to Station** button on the bottom right hand corner. The values from the utility are now uploaded into the Base Station. Failure to upload will result in unchanged settings in the base station. Once the utility is closed all modified values are lost unless they are saved.

To save the configuration to the PC, click on **File => Save Configuration**. This will save the values in a directory for future use. This is beneficial for modifying multiple stations at different locations without having to reconfigure the utility for each station manually.

Numerous configurations can be saved on the computer for future use. To access a configuration, click on **File => Open Configuration**

Advisor Guide Utility Configuration

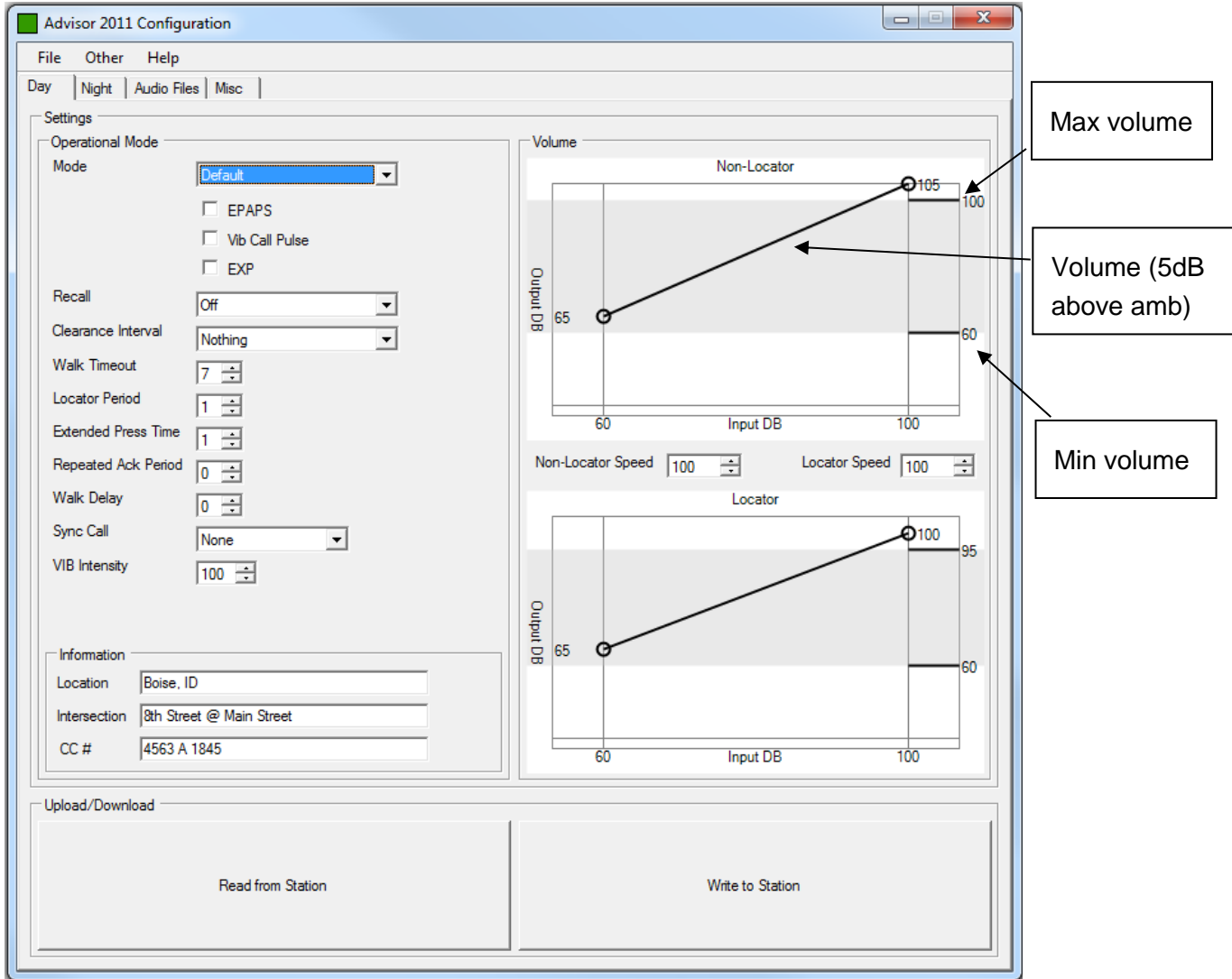


Figure 1

Setting and Operational Mode Features

On the main (Day) configuration page is where the settings reside.

Mode: APS Operational function.

- Off – No audible, visual, or tactile output
- Default – Full APS functionality
- EPAPS—Extended Press APS (activates audible features on extended press)
- RRFB—For use with a Rectangular Rapid Flashing Beacon or other flashers

Vib Call Pulse: Vibro-tactile feedback at push button when depressed

Recall: Places a call every cycle.

Clearance Interval:

- *Nothing*: Default – independent operation
- *Destination Beaconsing* – Destination station provides target beaconsing for pedestrian to locate. **NOTE**: AGPS must be connected to another station (same phase) and an extended press must be made to have the destination beaconsing tone play in the clearance phase.
- *Countdown* – Audible countdown of the clearance phase. Note: Will need two cycles to calibrate Flashing Don't Walk time.

Walk Timeout: Maximum time in seconds for walk message to play

Locator Period: Time in seconds between locator repetitions

Extended Press Time: Time to hold the button to get an extended press

Repeated Ack Period: Sets time in seconds between repeated acknowledgement message. Set to zero to disable

Walk Delay: Sets time in seconds to delay the walk message

Sync Call: Synchronize outputs of two pedestrian stations

- *None* – Acts like and independent station
- *Regular Press* - Target station acts as if a regular Press were made
- *Extended Press* – Both stations activate as if an extended press were made
- *Button Bypass* – Operation only when button must place call without power

VIB Intensity: Adjust the vibration intensity of the Walk indication

Volume: Two settings adjust volume for non-locator indications and locator tone independently

- *Non-Locator Volume* – Adjusts the volume of the audible messages or percussive tones or indications
- *Locator* – Adjusts the locator volume

Night Mode - Independent settings by time

- *Start* - Begin night mode volume settings
- *End* – Terminates night mode volume settings

Volume GUI: Volume increase (Refer to Figure 1)

- *Non Locator AGC* – Adjusts the response for audible messaging independently (Volume over ambient adjustment made by moving Volume slope)
- *Locator AGC* – Adjusts the response of the locator tone independently (Volume over ambient adjustment made by moving Volume slope)
- *Decrease Limit* – Maximum AGC allowed to decrease (Lower right hand vertical bar)
- *Increase Limit* – Maximum AGC allowed to increase (Top right hand vertical bar)

Location: City, State

Intersection: Cross Street for reference

CC#: Used to identify Campbell Company SO# for customer for information regarding intersection

How to Create and Update Audio Files in the AGPS

The Advisor Guide APS comes fully programmed with audio files from the factory. Campbell Company generates custom messages for the intersection from information on the intersection worksheet submitted to at the time of order placement. An electronic copy of the audible files is available to the customer at time of delivery and should be kept for future use. In addition, a full audio library is available at Campbell Company should your requirements change or by request of pedestrians. Campbell Company provides English and Spanish messages, male or female voices, and an array of tones for your required specification.

Campbell Company uses a .wav file format for its audio messaging and recommends this format if you decide to create your own. The utility will accept any recording sample of bit rate, however for optimal recording performance contact Campbell Company's technical support for tips and on best known methods for optimal recording.

Note: The summation of all audio files used cannot exceed 27sec. This will result in an error while downloading audio files into the utility (except when in countdown mode)

Free audio and recording programs (Audacity is an example) are available on the web. A studio quality microphone and an area that is isolated from external noise is beneficial to record quality messages. Audio files are easily transferred from the utility with a click of a button.

To change an audio file, go to the Audio File tab in the utility (See Figure 2) – here you have the ability to change the following files:

1. Locator
2. Acknowledgement
3. Location
4. Walk
5. Destination Beacon

The audio files must be available on the computer. To select an audio file, simply click the open button next to the desired audio file and select. When changing single or multiple audio files, a complete template must be selected (locator, acknowledgement, location, and walk) and saved as a file. This will allow for use on multiple stations without having to create a new template for each station (Once you have completed this for the remaining files, save it to your computer then upload it to the Base Station.)

A Tone Generator function is available for building customized tones. At the top of the utility select =>Other, Make Tone File. Here you have the option to choose the frequency and duration.

You can easily upload the original files if you need to restore the factory default audio messages,. Campbell Company also keeps a copy of the original audio files for record.

Advisor Guide Utility: Audio Files

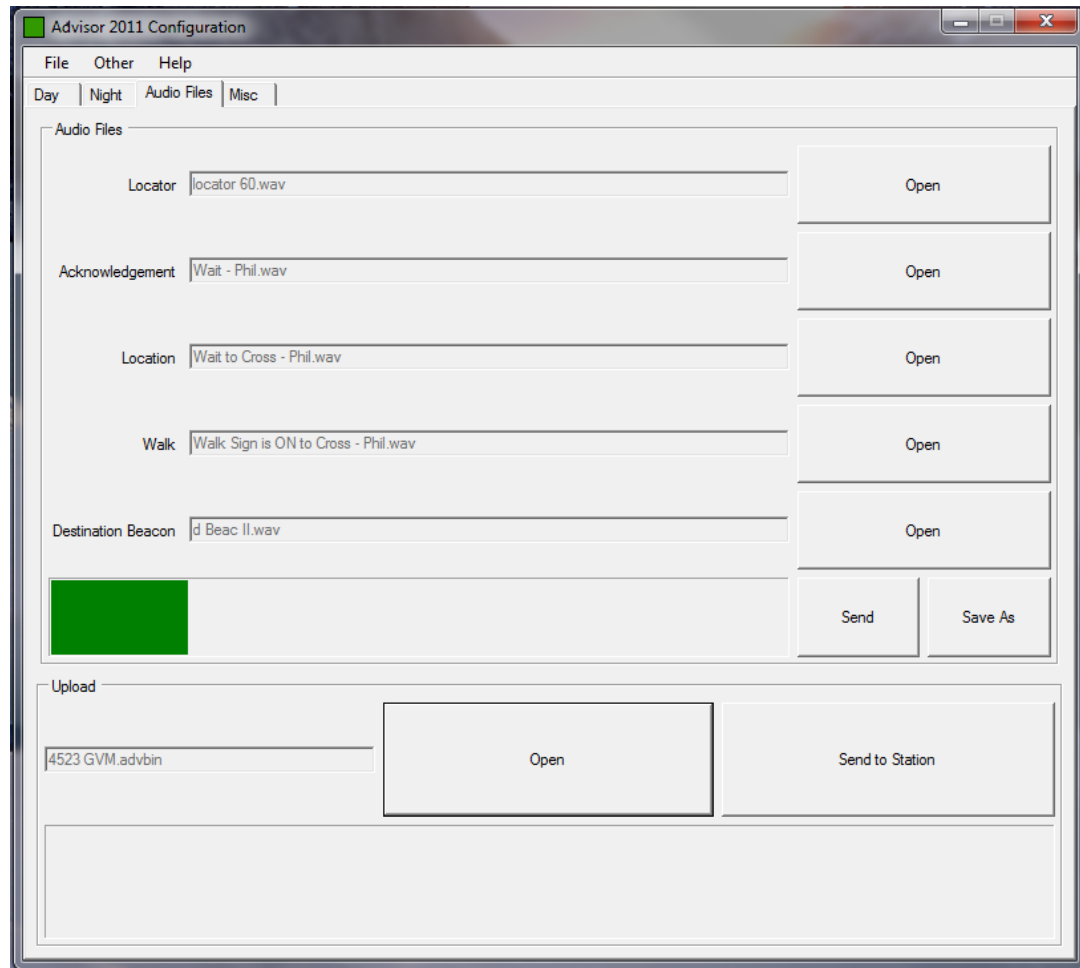


Fig. 2

How to Set Time on the Utility

To change or set time, go to the Misc tab in the utility (See Figure 3)

Read Time – Reads time from the Base Station

Set PC Time – Sets time from PC

Set Time – Sets time manually

Firmware Upgrades

To download the latest utility versions and firmware contact Campbell Company for an electronic copy.

Open Hex – Select Firmware File, flash firmware rev

Advisor Guide Utility: Misc.

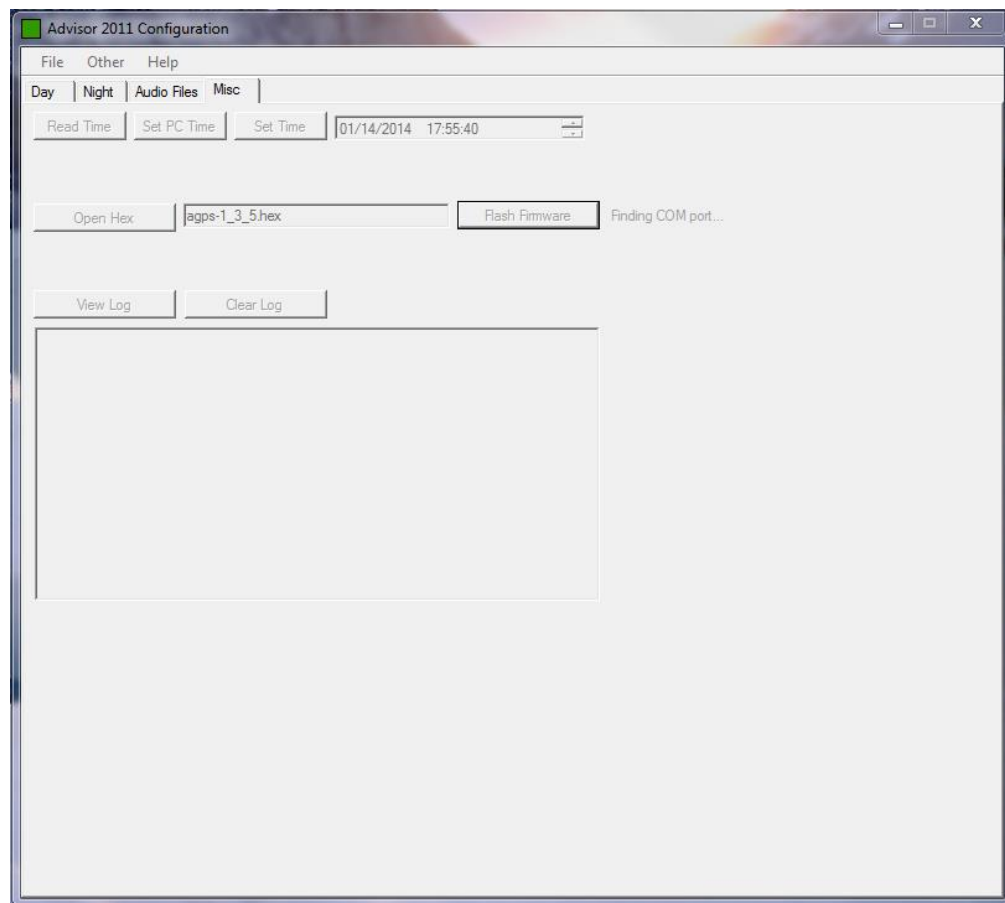


Fig. 3

4.1 Errors, Malfunctions, and Safety Features

Within each Base Station is a microcontroller which continuously checks for the state of the Walk and Don't Walk status from the Pedestrian Signal Head. In an event the Advisor Guide sees a conflict, it will turn off all pedestrian crossing indications (vibro-tactile motor, turn off speaker, and stop any audio output) and remain silent.

5 Appendix A: Acronyms, Abbreviations & Definitions

Term	Meaning
Accessible Pedestrian Signal	A device that communicates information about pedestrian signal in a non-visual format such as audible tones, verbal messages, and/or vibrating surfaces (MUTCD)
Adapter Plate	An aluminum plate that mounts to the base station to display crosswalk signs.
Audible Beaconsing	Use of sound to provide directional orientation and alignment information in the clearance phase.
Audio File	A file format for storing digital audio data on a computer system.
Automatic Gain Control (AGC)	An APS volume control that is automatically responsive to ambient (background) sound.
Base Station	Fully integrated APS station that contains the Mico-controller, push button, speaker, adapter plate
Clearance Interval Indicator	Tones sounding during the pedestrian clearance interval that are differentiated from the WALK interval indicator (tones)
COM Port	Serial communication port
Conflict Monitor Unit	The CMU monitors the outputs of the traffic controller, and if a fault is detected, the CMU puts the intersection to FLASH, with all red lights flashing, rather than displaying a potentially hazardous combination of signals.
Extended Press	On APS, holding the pedestrian push button down from 1-3 seconds may activate special features, including audible beaconsing and extended pedestrian clearance interval.

Night Mode	Ability to set volume by time of day
Quiet Signal Technology	Campbell Company's audio output consist of three major component's: Forward facing speaker, Rapid Decline AGC, Night mode sound reduction
Signal Power Interface (SPI)	Power source that interfaces with Pedestrian Signal Head power for Base Station interface.
Template	A set of .wav files that include all files in a station: locator tone, acknowledgement, location information, Walk, and clearance indications.
USB Port	USB docking hub on Base Station
Utility	Application to interface with Base Station
.wav file	Waveform Audio File Format (WAV) is a Microsoft and IBM audio file format standard for storing audio

6 Appendix B: Related Documentation

#	Document Title	Version	Location
1	MUTCD	2009	MUTCD 2009 Edition
2	Americans with Disabilities Act	1996	ADAAG
3	Transportation of Canada	2008	TAC

6.1 Obtaining Documentation

The following sections provide sources for obtaining documentation from Campbell Company.

6.1.1 World Wide Web

You can access the most current AGPS technical documentation on the World Wide Web at the following site: <http://www.pedsafety.com> => Support tab.

6.1.2 Product Documentation

Technical documentation will be sent electronically on the date your product ships. On-line technical documentation is also available at <http://www.pedsafety.com>

6.1.3 Documentation Feedback

If you are reading Campbell Company product documentation on the Internet, you can submit technical comments on the support website.

You can e-mail your comments to tony@pedsafety.com

To submit your comments by mail, use the response card behind the front cover of your document, or write to the following address:

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We appreciate your comments.