



# Change Management Board Meeting

Wednesday, November 29, 2017

Audio: 1 (872) 240-3412,

Access Code: 728-245-613

**Do NOT Put On Hold Call is Being Recorded**

GoToMeeting:

<https://global.gotomeeting.com/join/728245613>



# Welcome and Call for Quorum

Bryan Homayouni, P.E., CMB Chairman



# Agenda



Time	Item	Lead
1:30 – 1:40	Welcome and Call for Quorum	Bryan Homayouni
1:40 – 1:50	Previous Meeting Recap & Action Item Review	Bryan Homayouni
1:50 – 2:00	SunGuide Software Update	Derek Vollmer
2:00 – 2:10	DMS Configuration Improvements <i>(vote)</i>	Derek Vollmer
2:10 – 2:30	Bluetooth Reader Enhancements <i>(vote)</i>	Jeremy Dilmore
2:30 – 2:40	Accurate Device Locations <i>(vote)</i>	Derek Vollmer



# Agenda



Time	Item	Lead
2:40 – 2:50	VOD Multiple Streams <i>(vote)</i>	Derek Vollmer
2:50 – 3:00	Connected Vehicle Protocol Update <i>(vote)</i>	Derek Vollmer
3:00 – 3:10	CMB Process Discussion	Bryan Homayouni
3:10 – 3:20	Open Discussion	Bryan Homayouni
3:20 – 3:30	Review Action Items	Bryan Homayouni

CMB Agenda, slides, and attachments posted here:

[http://www.dot.state.fl.us/trafficoperations/ITS/Projects\\_Deploy/CMB.shtm](http://www.dot.state.fl.us/trafficoperations/ITS/Projects_Deploy/CMB.shtm)



# Previous Meetings Recap and Action Items Review

Bryan Homayouni, P.E., CMB Chairman

## Previous Meeting Action Items

Owner	Action Item
Tucker Brown, SwRI	Look into any potential permissions need to be added to account for the removal of the Administrative Editor
Russell Allen, FDOT CO	Add the Color DMS guidance to the October ITS Working Group meeting
David Heupel, FDOT CO	Let District 5 know if they are not in the IP range so they can fix it
Derek Vollmer, FDOT CO	Keep the District informed on the architecture update process
Derek Vollmer, FDOT CO	Remove ITS Communications Update from the future agenda items and remove from CMB meeting invite
Derek Vollmer, FDOT CO	Talk to Jennifer Fortunas and Tucker about the naming of the managed lanes subsystem
Derek Vollmer, FDOT CO	Get with Ryan Crist specific intersections in SunGuide's EM Location configuration

# Previous Meeting Action Items

Owner	Action Item
Derek Vollmer, FDOT CO	Send Tucker an email to delete the inventory management
Derek Vollmer, FDOT CO	Will provide districts with dollar amount for voting items that don't specify dollar amounts
Derek Vollmer, FDOT CO	Identify Routes of Significance to flag which ones will require more than one roadway type
Derek Vollmer, FDOT CO	Add Footprint 1685 (add speed limit to C2C) to future SSUG agenda item
Derek Vollmer, FDOT CO	Add item to SSUG meeting to work out design details of module to control lane availability
Derek Vollmer, FDOT CO	Add Saving Accurate Device Location to SSUG and next CMB
Derek Vollmer, FDOT CO	Add RWIS enhancements (accuracy, wind icon) to SSUG meetings



# Previous Meeting Action Items

Owner	Action Item
Derek Vollmer, FDOT CO	Follow up with Alan El-Urfali on the RWIS developmental specification
Derek Vollmer, FDOT CO	Chester Chandler wants lightening detection language added to the developmental specification





# SunGuide Software Update

Derek Vollmer, P.E., FDOT



# SunGuide Software Update



- Release 7.1 IV&V is underway
- Finishes up the GUI transitions
- Removes Admin Editor
- Includes ramp meter NTCIP protocol, TAPCO protocol, and device/group permissions



# SunGuide Software Update

- Contract intent to award posted
  - SwRI
- Contract is going through signature process



## SunGuide Software update

- FP 3808 lane by lane detector data: 7.1.1
- FP 2736 Links on map first part: 7.1.1
- FP 2736 Links on map part fourth part: 7.2.0
- FP 1422 Audit Chronology: 7.2.0
- FP 3860 Planned Events: 7.2.0
- FP3855 Include travel time destination...: 7.1.2



# SunGuide Software Update

- FP 3873 Traffic Signal Malfunction: 7.1.1
- FP 3849 Roadway type flags: 7.1.1
- FP 3848 Change how roadways are handled: 7.2.0



# QUESTIONS?

Derek Vollmer, P.E., FDOT

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# DMS Configuration Improvements

Derek Vollmer, FDOT



# FP 3568 Monitor and Regulate DMS Fonts



- Issue with defaults being reset on the sign and then fonts become inconsistent.
- Asking for ability to push designated font to a DMS if it is determined to be different.
- Asking to periodically poll DMS for configured fonts.





**CORRECT  
FONT  
SIZE**

**14x10  
FONT  
SIZE**

**7x5  
FONT  
SIZE**

## Current System: Fonts in SunGuide

- Fonts are configured so the SunGuide software knows how many characters can fit on a line and how many lines will fit on a page
- SunGuide software DOES NOT communicate with a sign about fonts
- Admin needs to know all of the font details and then can add font information into the SunGuide software
  - This is a tedious process and leads to errors

# Current System: Font Configuration

DMS Font Configuration Dialog

Add Font Delete Font Add Character Delete Character  
 Fonts Characters

Name	Default Width	Line Height	Character Spacing	Line Spacing
AMS Toll Sign Font	4	8	1	0
Daktronics23SeriesE	15	23	5	5
FDOTColorDMS	5	7	2	3
FullColor34	10	14	4	4
MarkIVFteFont	6	7	0	0
Standard	5	7	2	3

# Current System: Font Configuration

## Characters in SunGuide

Character	ASCII code	Width (pixels)
B		16
C		16
D		16
G		16
I		4
K		16
L		14
M		19
N		16
O		16

## Font Characters in SunGuide

- Characters are added to show a difference in character width from the default
- Need to know how wide the characters for the font defined on the sign
- An example, the letter “I” might only be 3 pixels wide instead of 5 pixels wide.

## ITS WG Meeting

- Presented Standardized fonts on 10/17/2017
- No one commented about being interested
- Proceed with solutions that don't involve standardized fonts
- Can be added later if needed

# Font Management Proposal

- For DMS that support NTCIP only
  - Maintain old font configuration for other signs.
- Retrieve first 4 font slots on DMS and default font object
- Store only unique fonts with a mapping to each sign's font table
  - Includes character bitmaps
- Will not have ability to view character bitmap
- Character "exception" size configuration remains for non-NTCIP signs
- Includes ability to retrieve and set the default font (NTCIP object)

# Font Management Proposal

- Retrieve configuration from sign
  - Report or show difference between SunGuide config and what was retrieved
    - Help show planned or unplanned font changes
    - If character bitmap changed, can report this change rather than show it.
  - Ability to update config in SunGuide
    - Retrieve from sign and determine to store that configuration in SunGuide
- Store configuration to sign
  - Ability to send current SunGuide DMS configuration to the sign
  - After sent, retrieve for verification
    - Verify what was sent is what was stored on the sign



# Font Management Proposal

- SunGuide DMS polls will get font information including version ID
- Check if different than SunGuide configuration
  - Produce an alert (e-mail to administrator) that a configuration difference was detected
  - An approved user can either retrieve and store the new configuration or change it to what is currently in the SunGuide software
  - We will not automatically restore or download fonts to a sign

# Font Management Proposal

- TVT Templates are device specific
  - Default to using the default font for the sign
  - Allow selection of a font
- EM templates can be device specific, but there is also a default template
  - If default template is used, then Default font must be used.
  - Allow font selection for device specific templates.
- Templates that are device specific can allow font selection otherwise the default font defined on the sign will be used.
- This allows us to always send the font number and ID with each message.

# Font Management Proposal

- Why send the font version ID in the message?
  - If the font version ID does not match, the message will not post
    - Part of the message verification on the DMS
  - Sign will report a version ID error
  - Allows us to detect font changes in between poll cycles

# Font Management Proposal





- If a font configuration difference is detected, then the sign is placed in an error state
- D5 mentioned this is how their maintenance personnel will know there is an issue that needs addressing

# Font Management Proposal

- Create external tool to retrieve all NTCIP DMS font configuration values prior to performing the SunGuide software upgrade
- The tool allows someone to verify the font configuration values.
- The output of this tool is used during the upgrade process to store the new font configurations into the SunGuide database
- When SunGuide comes online after the upgrade, the font configuration is ready for use

# Other DMS Configuration

DMS Configuration Dialog

Name	Community	Manufacturer	Type	Direction	Sign Type	Font	Width	Height	Color?	Graphics?	Force Blank On Failure	Auto Mer...	P
Adaptive-Test	ator	IDI	LED	Eastbound	Full Matrix	Standard	126 px	27 px	<input type="checkbox"/>	<input type="checkbox"/>	Use system-wide setting	<input checked="" type="checkbox"/>	
ADDCO		ADDCO	Full Matrix	Northbound	Character	(Char-Based Font)	14 ch	10 li	<input type="checkbox"/>	<input type="checkbox"/>	Use system-wide setting	<input checked="" type="checkbox"/>	
Color DMS Simulator		Ledstar	Full Matrix	Northbound	Full Matrix	FDOTColorDMS	150 px	75 px	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Disabled	<input checked="" type="checkbox"/>	
Color DMS Simulator 2		Ledstar	Full Matrix	Northbound	Full Matrix	FDOTColorDMS	100 px	50 px	<input type="checkbox"/>	<input type="checkbox"/>	Disabled	<input checked="" type="checkbox"/>	
Color DMS Simulator 3		ADDCO	Full Matrix	Northbound	Full Matrix	FDOTColorDMS	250 px	96 px	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Disabled	<input checked="" type="checkbox"/>	
Dak VFC		Daktronics	Full Matrix	Southbound	Full Matrix	FDOTColorDMS	432 px	96 px	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Use system-wide setting	<input checked="" type="checkbox"/>	
Daktronics		Daktronics	Full Matrix	Northbound	Full Matrix	FDOTColorDMS	64 px	16 px	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Use system-wide setting	<input checked="" type="checkbox"/>	

# Other DMS Configuration

## NTCIP Object

- dmsGraphicMaxEntries
- dmsColorScheme
- dmsSignType
- dmsSignTechnology
- vmsSignHeightPixels
- vmsSignWidthPixels

## SunGuide Config

- Graphics? Checkbox
- Color? Checkbox
- Sign Type
- Type
- Height
- Width

## Other DMS Configuration

- If `dmsGraphicMaxEntries` is greater than 0, the sign supports graphics
- `dmsColorScheme = color24` means the sign is full color
- `dmsSignType` – `vms` and `portable` options can both map to Char, Line, or Full matrix



## Other DMS Configuration

- dmsSignTechnology has options like LED, Flip Disk
  - Options can map to type column in SunGuide
- For full matrix signs, vmsSignHeightPixels and vmsSignWidthPixels will give us the sign dimensions
- Could keep width and height manual for character and line matrix signs.
  - Possibly use vmsSignHeightPixels, vmsSignWidthPixels in combination with vmsCharacterHeightPixels and vmsCharacterWidthPixels to calculate height and width in SunGuide

## Other DMS Configuration

- These are all read only objects
- Allow users to manually change the SunGuide configuration values if needed
  - Sign configuration could be wrong on the sign.
  - We did check these on signs at the TERL
  - Doesn't guarantee they will be right in the field

# DMS Configuration

- Will add this to the external tool as well
- Values can be verified before the SunGuide software upgrade
- If the sign reports incorrect values, these can hopefully be resolved before the upgrade
  - There should be a way to configure sign dimensions using vendor software or manually inputting information via the DMS controller



# DMS Configuration Improvements

- Effort: 14 Weeks
- Cost: \$85k
- Version 7.2.0



# QUESTIONS? *(VOTE)*

Derek Vollmer, P.E., FDOT

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# Bluetooth Reader Enhancements

## Cross-Vendor Matching and Offline Analysis Support

Jeremy Dilmore, P.E., FDOT

# Bluetooth Tag Matching Existing Operation

- Bluetooth readers (BR) collect MAC addresses from Bluetooth devices in vehicles
- Bluetooth readers truncate part of the MAC address for privacy
- Different vendors truncate different parts of the MAC address
- SunGuide (SG) probe fusion algorithm generates travel times by matching Bluetooth MAC addresses
- MAC addresses can be matched by SG if captured from the same vendor
- Bluetooth readers from different vendors cannot be matched by SG currently due to different truncation among vendors

# Bluetooth Tag Matching Enhancement

- Justification:
  - Travel times between Bluetooth readers of different vendors has value
  - Modification needed is cost effective and does not required changes to field deployment
- Proposed Change
  - SunGuide to match between Bluetooth readers from different vendors
- Challenges
  - Each vendor truncates the MAC address differently
  - Should use a standard hashing method rather than truncating MAC address



# Support for Offline Analysis

- Origin/Destination (O/D) analysis provide tremendous value to planning activities
- SunGuide could support O/D information analysis cost effectively
  - without deploying additional devices, and using data already collected
- Research Contracts are available for analysis, including:
  - Develop O/D analysis algorithm given the specific dataset and user needs
  - Explore additional ways raw data can be mined for additional value
- SunGuide would need to enable the storing of the hashed MAC addresses
- Hashing the MAC addresses ensure privacy and anonymity, while allowing matching
  - The original MAC address is unable to be determined from the stored hash
- Purge function should be available to limit database size growth
  - This will be configurable and consistent with ODS\_TRAVEL\_TIME\_DATA purging

# Cost & Schedule

- Assumptions:
  - TERL support needed to evaluate and characterize how each vendor truncates Bluetooth MAC addresses
- Level of Effort - \$4K
- Timeline – 1<sup>st</sup> short release after 7.1 – end of April or May, 2018 (tentative)



# QUESTIONS? *(VOTE)*

Jeremy Dilmore, P.E., FDOT

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# Accurate Device Locations *(VOTE)*

Derek Vollmer, P.E., FDOT

# Device Location – History

- Long-running discussion beginning in 2013
  - Footprint issue 2507
- Initial request: Allow two sets of coordinates for devices
  - One set: Physical device location
  - Alternate set: Display coordinates to avoid icon crowding on map

# Device Location – Options

- All options assume that current latitude/longitude fields will be used for actual device location
- Two types of display locations discussed at SSUG
  - Display latitude / longitude (fixed position at all zoom levels)
    - Selected at SSUG
  - Offset pixels vertical and horizontal (shifts icon set distance regardless of zoom level)
    - Considered, but could produce strange behavior. **Will not be implemented**

# Device Locations - Options

- Two methods for editing display location Discussed
  - Built in with device configuration dialogs (requires editing multiple interfaces)
    - Considered, but **will not be implemented**
  - Single “Display location editor”
    - Preferred method
    - Also include a map edit mode that allows the devices to be moved and saved
      - Only show devices that are selected from the edit dialog
- Impact on external systems? (511, C2C, etc)
  - Decided display locations do not need to be sent via C2C. Will only send actual lat/lon

# Device Location – Type

- Option 1: Independent Display Latitude / Display Longitude
  - Behavior would remain consistent with current map
  - If specified, icon displays using the display latitude / longitude
  - If display values not specified, icon displays using the actual latitude / longitude
- Option 2: Pixel Offset (**considered, but will not be implemented**)
  - Default offset would be 0 pixels vertical and horizontal
  - If offset is specified, icon will appear offset at every zoom level by the same amount
    - At full state view, icon could be shifted five pixels down and to the right
    - At maximum zoom, same icon would be shifted five pixels down and to the right
- Both approaches are system-wide
  - Operator-specific display locations not anticipated



## Device Location - Editing

- Option 1: Integrated with device configuration dialogs
  - Considered, but **will not be implemented**
  - Two additional columns for display position / offset
  - Requires editing of all device configuration dialogs
  - Requires adding fields to all device subsystems and database tables
- Option 2: Standalone Display Location dialog
  - Includes all device types
  - Data stored in central location, such as SAA
- Will include map editing mode using only devices selected from the device location editor

Device Location Editor

Find on Map Place on Map  
Device

Device Name	Device Type	Actual Latitude	Actual Longitude	Display Latitude	Display Longitude
CCTV-01	CCTV	25.222222	-98.222222		
CCTV-02	CCTV	25.333333	-98.333333		
CCTV-03	CCTV	25.444444	-98.444444	25.444400	-98.444400
DMS-01	DMS	25.555555	-98.555555	25.555500	-98.555599
DMS-01	DMS	25.666666	-98.666666	25.666660	-98.666700
DMS-01	DMS	25.777777	-98.777777		

Unmodified Modified New Deleted

Save Revert

Command response information

# Accurate Device Locations

- Effort: 2.5 weeks
- Cost: \$12k
- Version: 7.1.2



# QUESTIONS? *(VOTE)*

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# Video on Desktop Multiple Streams

***(VOTE)***

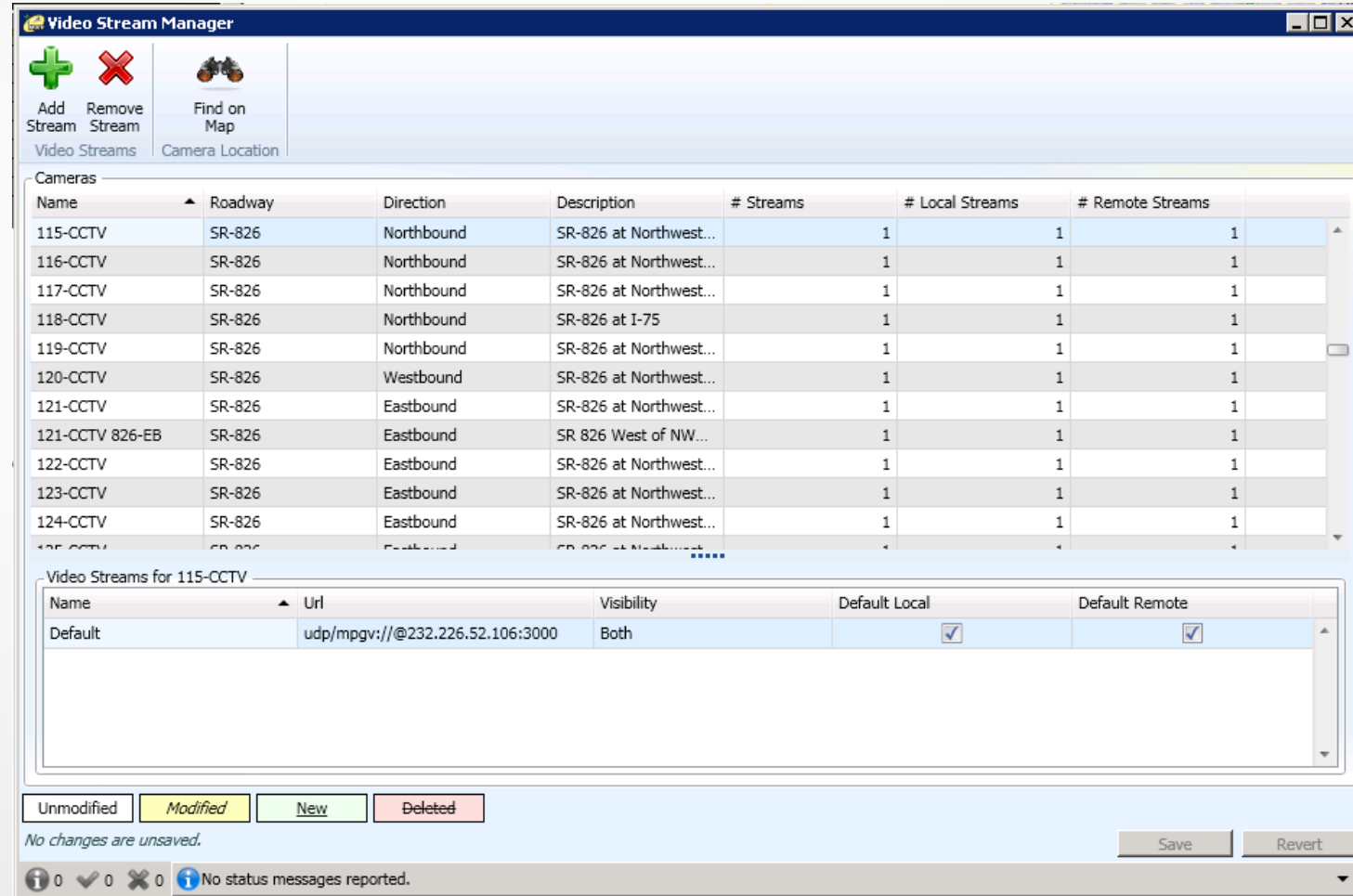
Derek Vollmer

# VOD Multiple Streams

- FP 3881 from District 2
- Use cases involve the ability to check multiple streams configured on a camera are working
- Ability to see both the visual and IR streams from a thermal camera, i.e. FLIR

# VOD Multiple Streams (Config)

- Configuration is already in place
  - Backend work was done for release 6.1
  - Multiple Stream supported for both local and remote
  - Must select a default local stream and a default remote stream
  - “Name” of stream would become more important (not currently shown when using VOD)



**Video Stream Manager**

+ Add Stream    - Remove Stream    Find on Map

Cameras							
Name	Roadway	Direction	Description	# Streams	# Local Streams	# Remote Streams	
115-CCTV	SR-826	Northbound	SR-826 at Northwest...	1	1	1	
116-CCTV	SR-826	Northbound	SR-826 at Northwest...	1	1	1	
117-CCTV	SR-826	Northbound	SR-826 at Northwest...	1	1	1	
118-CCTV	SR-826	Northbound	SR-826 at I-75	1	1	1	
119-CCTV	SR-826	Northbound	SR-826 at Northwest...	1	1	1	
120-CCTV	SR-826	Westbound	SR-826 at Northwest...	1	1	1	
121-CCTV	SR-826	Eastbound	SR-826 at Northwest...	1	1	1	
121-CCTV 826-EB	SR-826	Eastbound	SR 826 West of NW...	1	1	1	
122-CCTV	SR-826	Eastbound	SR-826 at Northwest...	1	1	1	
123-CCTV	SR-826	Eastbound	SR-826 at Northwest...	1	1	1	
124-CCTV	SR-826	Eastbound	SR-826 at Northwest...	1	1	1	

Video Streams for 115-CCTV

Name	Url	Visibility	Default Local	Default Remote
Default	udp/mpgv://@232.226.52.106:3000	Both	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Unmodified    Modified    New    Deleted

No changes are unsaved.

Save    Revert

0 0 0    No status messages reported.

# VOD Multiple Streams

- When dragging and dropping video, the default stream would be shown
- Right click on the camera would allow you to select a different stream to add to a viewer



# VOD Multiple Streams

- Streams would be switchable from the camera with an additional overlay icon (similar to lock button)
- Streams would also be switchable from the context menu





# VOD Multiple Streams

- Discussed at the SSUG on 8/31/2017
- “Voted” on this item
  - Not going to vote moving forward
  - Consultants were not comfortable voting
- 4 yes, 3 yes but not sure they could vote, 1 abstain



# VOD Multiple Streams

- Effort: 7 days
- Cost: \$8.5k
- Version 7.1.2



# QUESTIONS? *(VOTE)*

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# Connected Vehicle Protocol Update

***(VOTE)***

Derek Vollmer

# CV Protocol Update

- Currently support an older version SAE J2735-2009-11
- Update this to the new standard SAE J2735-2016-03
- Will not cause changes at the GUI level and will keep existing functionality
- May need assistance testing, but will have new equipment at TERL from the Tallahassee SPAT project.



# CV Protocol Update

- Effort: TBD
- Cost: TBD
- Version 7.1.2



# QUESTIONS? *(VOTE)*

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# CMB Process Discussion

Bryan Homayouni, P.E., CMB Chairman



# CMB Process Discussion

- CMB Process Document
  - Last updated Jan 2016
  - Updates include:
    - Focus on current processes
    - Better-defined the SSUG's role
    - Better-defined CMB approval process
    - Clarified voting processes, especially with current CMB membership
    - Defined SunGuide development process and release schedule



# QUESTIONS?

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# Open Discussion

Bryan Homayouni, P.E., CMB Chairman



# Review Action Items

Bryan Homayouni, P.E., CMB Chairman