Change Management Board Meeting

July 7th, 2009

Video Conference: CO- Burns Video Bridge 1

Audio: 850 - 414 - 4977 or 866 - 374 - 3368 ext 4977

Welcome and Call for Quorum

Peter Vega, CMB Chairman

Agenda

Time	Item	Lead
1:00 - 1:05	Welcome and Call for Quorum	Vega
1:05 - 1:15	Previous Meeting Recap and Action Item Review	Vega
1:15 - 1:25	D5 ITS Architecture Update	Smith
1:25 - 1:35	SunGuide – FL-ATIS: Pre-recorded messages	Heller
1:35 - 1:50	SunGuide R 4.2, R 4.2.1 and R 4.2.2 (Enhancement/Mod between FAT and IV&V)	Krishnamurthy
1:50 – 2:00	95 EL Data Integrity	Chang
2:00 – 2:10	95 EL Enhancement Proposal	Laird
2:10 – 2:30	SunGuide – RPG ConOps	Fontan
2:30 – 2:50	SunGuide Map Alternatives	Heller
2:50 – 3:10	Performance Measures Report: Incident Duration	Krishnamurthy

Agenda (cont')

Time	Item	Lead
3:10 – 3:15	**Break**	
3:15 – 3:30	SunGuide – Polling Failed (D6)	Heller
3:30- 3:40	SunGuide – Excessive TSS Alerts (D5)	Heller
3:40 – 3:50	FTE migration	Easterling
3:50 – 4:00	SunGuide "Right click menu" – Changes proposal	Laird
4:00 - 4:15	Inrix data for 511	Sanyal
4:15 – 4:20	Other Districts' issues	Vega
4:20 - 4:30	Closing and Action Item Review	Vega

Change Management Board

Previous Meetings Recap and Action Items Review

Peter Vega

Apr. 08 09' CMB Action Items

1. District 5 (Mike Smith) to provide detail of the update regarding Ocala/Marion County ITS Architecture to Trey (previous meeting's action item) – In CMB Agenda today.
2. Robert Heller to forward emails to Arun that SwRI asked Central Office questions about level of detail for Generic Installation Guideline document. - Done.
3. Jennifer Heller to follow up with Eddy Grant on previous CMB Action Item #10 about SunGuide FHP requirement IDs: CA005A3 and CA005A4.
4. SwRI to investigate the "crash" terminology used in SunGuide. Mark Laird has submitted FP #1065 on this.
5. Central Office (Arun Krishnamurthy) to discuss with District 6 and SwRI to make decision on the "crash" versus "incident" issue. – Done, will use Crash.

Apr. 08 09' CMB Action Items

6. TERL (Trey Tillander) to provide recommendation on the SwRI's proposed solution to eliminate the conflict on DMS sequences (Footprint # 1123) – Recommendation provided to D2, and updated the FP status.
7. Central Office to send out a procedure for Districts to confirm their Footprints issues have been resolved. - Done.
8. Central Office to investigate Microsoft SQL server license with FDOT. - On-going.
9. SwRI to provide a whitepaper on the use of Microsoft SQL server with SunGuide on the stored procedures.
10. Central Office to find out what map FHP is using. - MapQuest
11. SwRI (Robert Heller) to find out if Microsoft map has county's line distinction.

Change Management Board

District 5 ITS Architecture Update

Mike Smith

Change Management Board

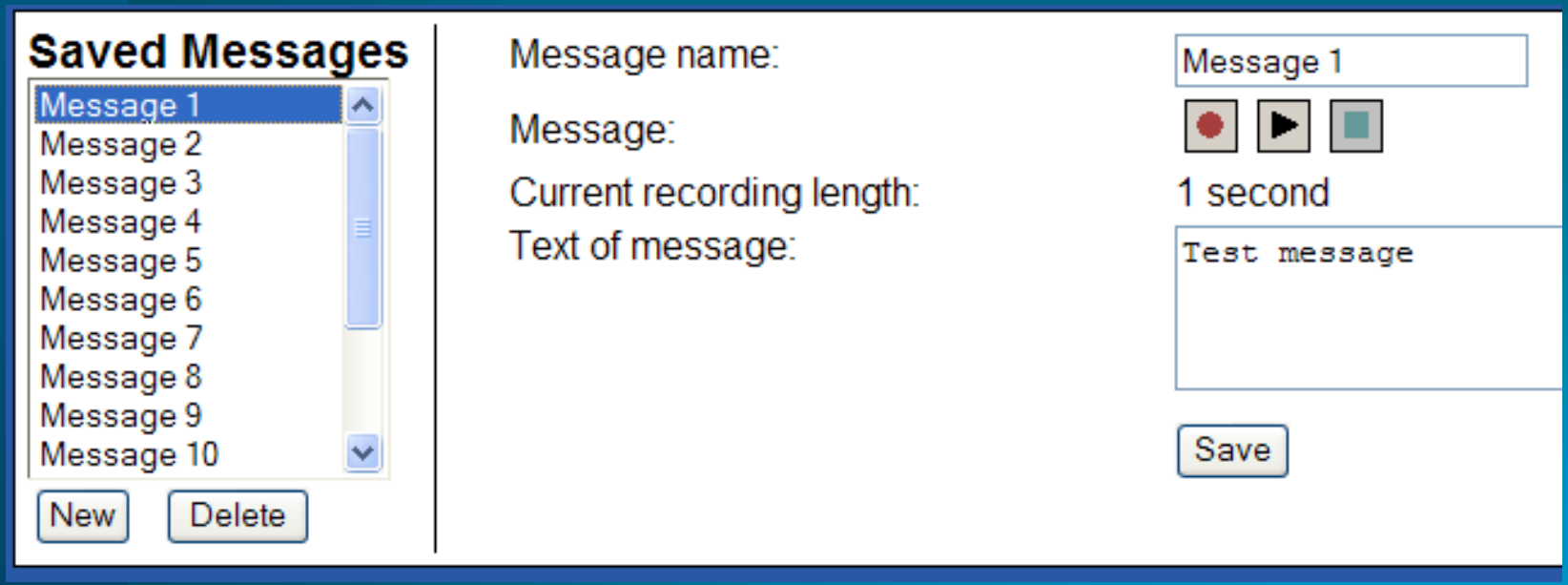
SunGuide – FL-ATIS:
Pre-recorded messages

Robert Heller

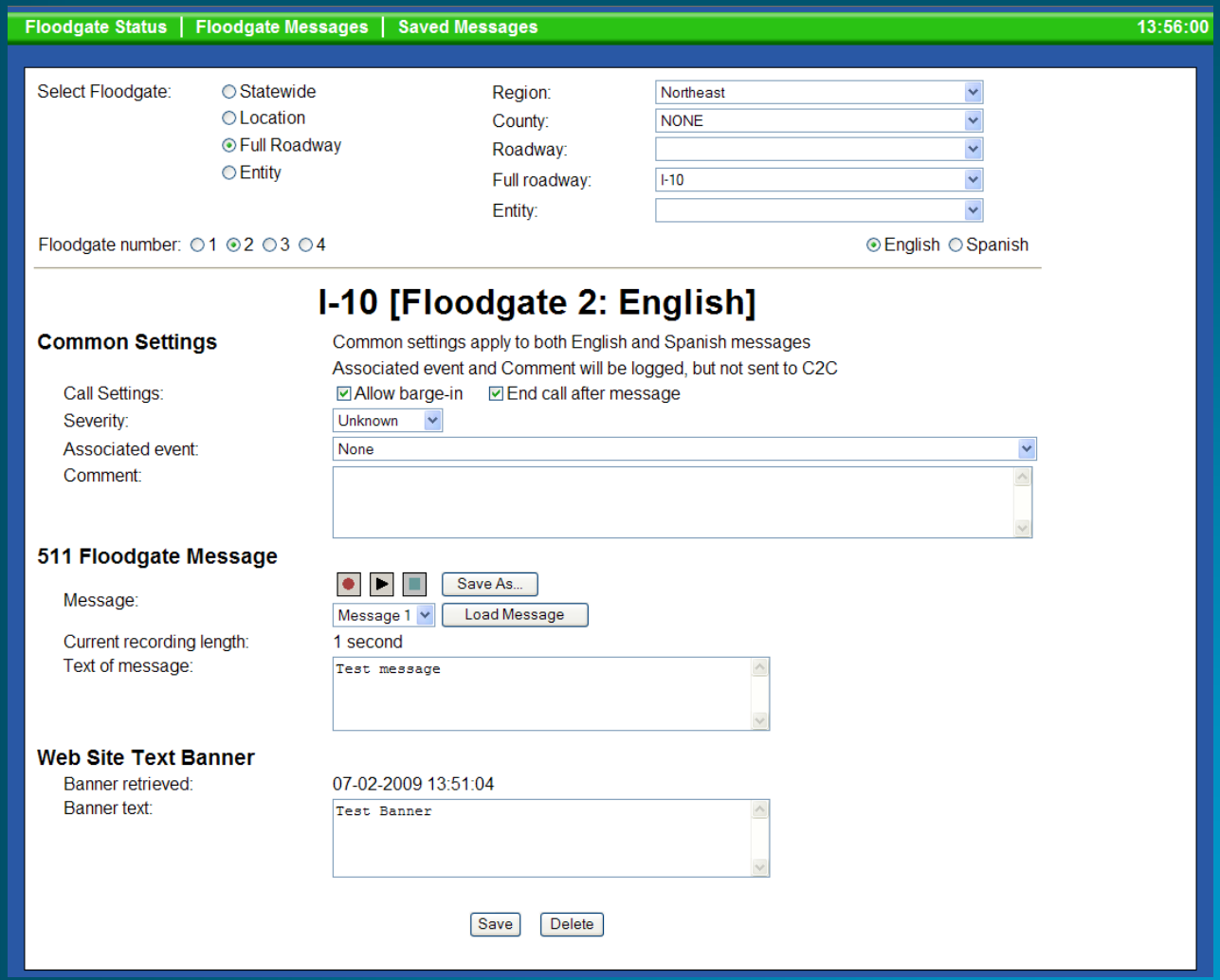
Pre-Recording Floodgate Messages

- **Problem: Will there be any functionality for storing of pre-recorded messages to be reused?**
  - **Additional work load**
  - **Increased chance of errors**
  - **Availability of 'voices' at all hours of the day and night.**
- **Solution: SunGuide store messages for later retrieval**
  - **Unique identifier**
  - **Add / "Delete"**

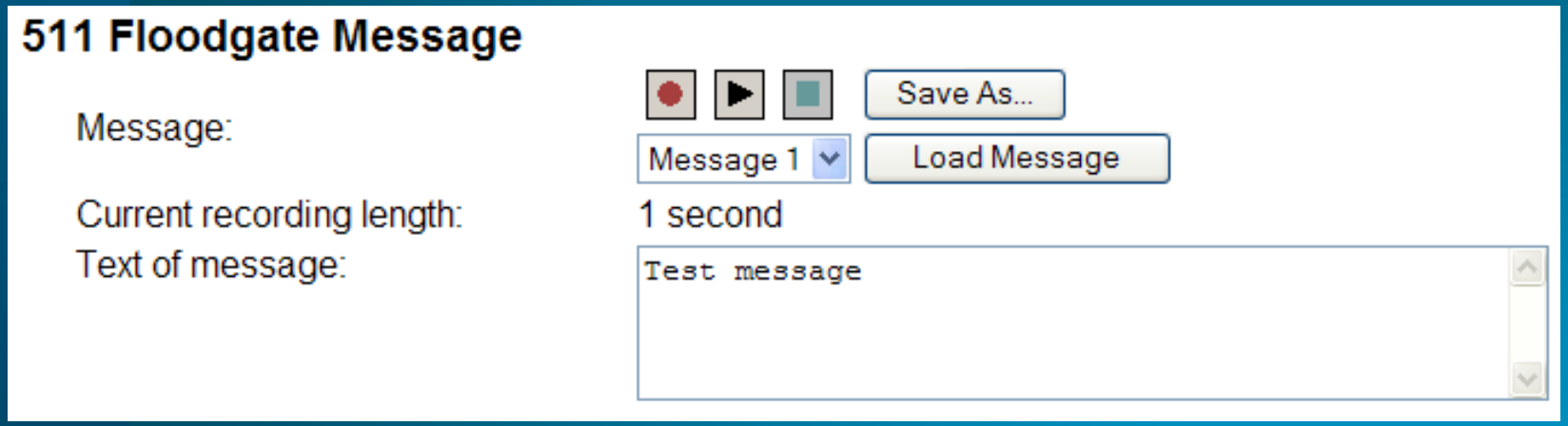
Possible GUI



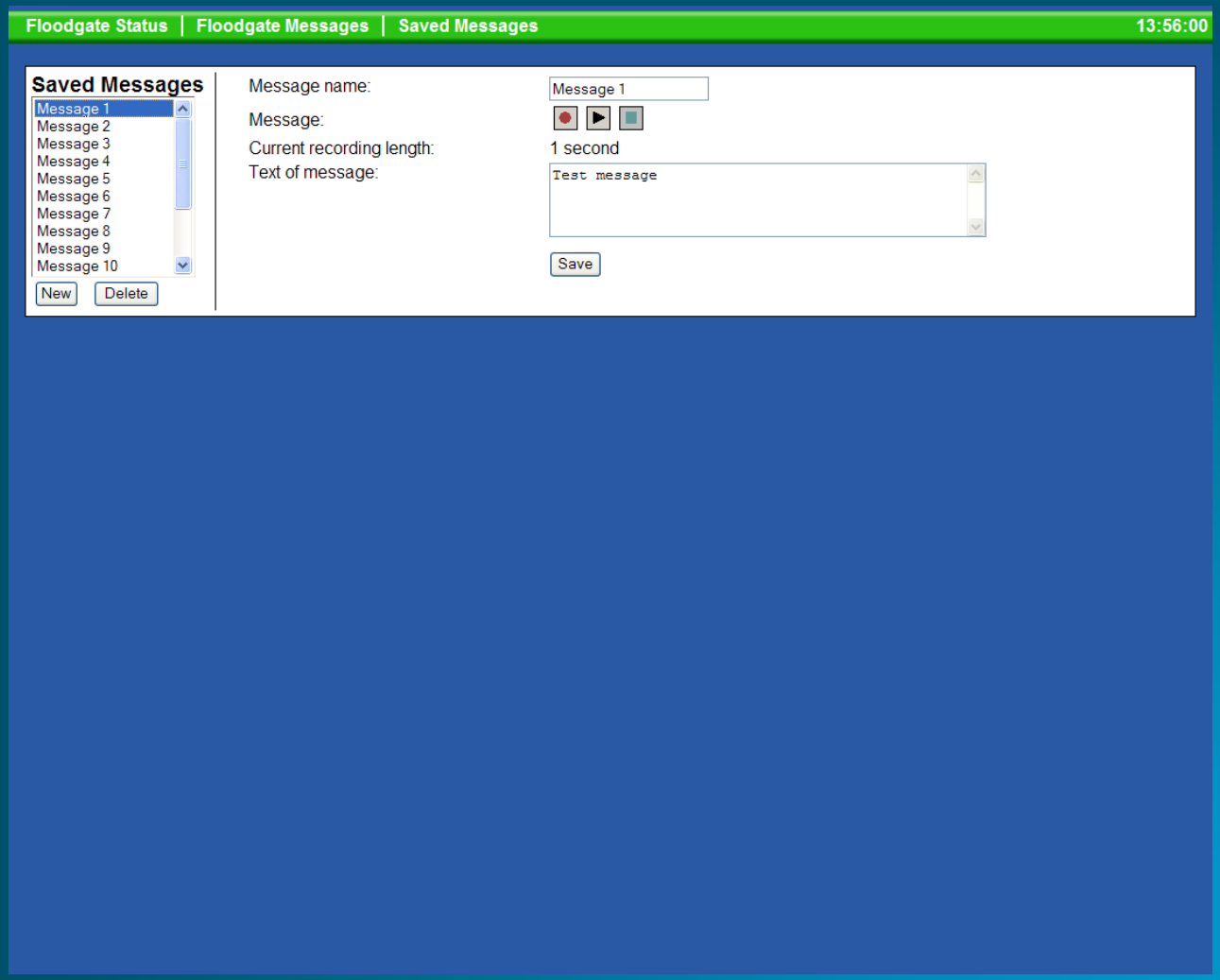
Possible GUI



Possible GUI



Possible GUI



Pre-Record Floodgates Req'

- **DF031A** SunGuide shall provide the ability for an operator to create a floodgate message and store the floodgate message for later use.
- **DF031A1** SunGuide shall provide the ability for an operator to create a unique name for the message.
- **DF031B** SunGuide shall provide the ability for an operator to select a previously created and stored floodgate message and "activate" that message.
- **DF031B1** SunGuide shall display a list of previously stored floodgate messages to the operator for selection.
- **DF031B2** SunGuide shall display the list of previously stored floodgate messages sorted either by date of creation, date of last use or name assigned by the operator that created the message.
- **DF031C** SunGuide shall provide the ability for an operator to delete previously stored floodgate messages

CMB Vote

- ***Vote***

Change Management Board

SunGuide R 4.2, 4.2.1 and 4.2.2
Enhancement/Modification between FAT and IV&V

Arun Krishnamurthy

Release 4.2 New Features

- FHP CAD Interface
- VisioPaD Enhancement
- D1/D7 Road Ranger Enhancement
- Travel Time Performance Enhancement (uncapped data)
- 44 FootPrints issues

R 4.2 FAT Enhancements

- 100% passing rate
- Enhancements to FHP CAD Interface were requested.

R 4.2.1

- Enhancements from FAT were included
- R 4.1.3 Patch 1,2, 3 Hotfix
- R 4.2.1 IV&V
  - 87% passing rate
  - 42 issues were identified

R 4.2.2

- All issues identified in R 4.2.1 during IV&V
- New feature for I-95 Express Lanes Data Integrity
  - Persist toll requests through PS subsystem restarts
  - Quality control system for tolls
  - Toll Viewer usability updates
  - Logging of previous day's activity
- Database Enhancement: ODS Modularization
- New driver
  - Teleste MPC-E1 and MPC-D1 encoders/Decoders
- EM subsystem
  - Send user notification message when event commands to FL-ATIS fails
- FootPrints issues
- CO is to conduct verification at TERL

R 4.2.2 Deployment and Training

- Installation CD provided to Districts/Agencies
- Training materials ready
- CO will work with Districts/Agencies individually to provide on-site training after the deployment

Change Management Board

95 EL Data Integrity

David Chang

95 EL Data Integrity

- **Problem:**
  - **Inconsistencies posted to toll rate and gantry DMS and SunPass Patron system due to communications or processing of toll rate messages sent from SunGuide to SunPass Patron.**

- **Solution:**
  - **Persist toll requests through PS subsystem restarts**
  - **Quality control system for tolls**
  - **Toll Viewer usability updates**
  - **Logging of previous day's activity**
  - **Database Enhancement: ODS Modularization**

95 EL Data Integrity Req'

- **ML016I The Express Lanes module shall use unique sequentially assigned SunGuide IDs with each toll rate message.**
- **ML017I If the Express Lanes module goes down or is restarted, it shall resume trying to send to the Middleware all rate requests pending prior to the restart.**
- **ML017I1 Pending rate requests shall be stored in non-volatile memory, i.e. table(s) in the current SunGuide database.**
- **ML017I2 Upon restart, Express Lanes module shall start up in the Open/Normal mode according to the referenced requirements ML012P, ML017P, ML018P, ML019P and ML020P.**

95 EL Data Integrity Req'

- **ML018I When SunGuide encounters an error communicating a rate message to the middleware, SunGuide shall record in the database with the rate request details regarding the error.**
- **ML018I1 When SunGuide encounters an error communicating a rate message to the middleware, SunGuide shall record in the database the rate message.**
- **ML018I2 When SunGuide encounters an error communicating a rate message to the middleware, SunGuide shall record in the database an indication of the cause of the failure (e.g. sending of message or Middleware processing of the message).**
- **ML018I3 When SunGuide encounters an error communicating a rate message to the middleware due to middleware processing failure, SunGuide shall record in the database with the rate request the error string returned by the Middleware.**

95 EL Data Integrity Req'

- **ML018I4 When SunGuide encounters an error communicating a rate message to the middleware due to communications failure, SunGuide shall record in the database with the rate request information available regarding possible cause of the communications error.**
- **ML016R SunGuide shall record the returned SunPass Rate ID with SunGuide rate requests when a rate request succeeds.**
- **ML016R1 SunGuide Toll Viewer shall display the SunPass Rate ID with the SunGuide Rate ID in the Toll Viewer when in detail mode.**
- **ML026A The Express Lanes module shall automatically verify at defined configurable frequency for a configurable period that toll rates used by the Middleware match those recorded by Express Lanes module.**

95 EL Data Integrity Req'

- ML026A1 This module shall format a summary of the comparison to be sent by email.
- ML026A2 The comparison shall run at a configurable frequency.
- ML026A3 The comparison shall process data from a configurable period.
- ML026A4 The email shall be sent to a configurable email list.
- ML026A5 The email shall contain a list of discrepancies found.
- ML026A6 If no discrepancies found the summary shall so state.
- ML026A7 The email shall state when the comparison occurred and what period the comparison processed.

95 EL Data Integrity Req'

- ML026A8 The summary shall be divided into sections, each section shall provide the summary for an individual toll segment.
- ML017R An additional view of the Toll Viewer shall provide the rates in effect with starting and ending date and time.
- ML017R1 The ending time shall be subsequent starting time minus one second.
- ML017R2 This view shall be an additional choice added to the Toll Viewer labeled appropriately.
- ML017R3 Consecutive time periods during which the rate and reason do not change shall appear as a single entry with the beginning time from the first period for that rate and the ending time from the last period with that rate.
- ML017R4 The view shall include a "reason" for the toll.

95 EL Data Integrity Req'

- ML010S SunGuide shall output all logged DMS messages, toll rate messages, override, and applicable event data to a formatted text file.
- ML010S1 This process shall run daily (The use of the word process is not meant to imply this is a separate Windows process.)
- ML010S2 Each file produced shall contain 24 hours of data, beginning at 00:00:00 and ending with 23:59:59.
- ML010S3 At the time the process runs it shall output data for all previously missed data runs.
- ML010S4 The file format shall be XML of the same format generated by the Toll Viewer Web Service for inclusion in its SOAP messages.
- ML010S5 The process shall generate one file per segment per data period.

95 EL Data Integrity Req'

- ML010S6 There shall be an option to cause SunGuide to execute this process on demand and specify the starting date, segment identifier, file name and "destination of the file."
- ML010S7 File contents shall be chronologically ordered by the time sent for toll rates and sign messages, time the override was entered by the operator, and event creation time.

CMB Vote

- ***Vote:***

Change Management Board

I-95 Express Lanes
- Enhancements Proposal

Mark Laird

Process

- Initial proposal
- District 6 reviews: March-April
- Expanded reviews with CO, D4, Turnpike: May-June
- Review with SwRI in June
- Presentation to the CMB

Overview

- Availability
- Ease of Use
- Additional Enhancements

Availability

- Express Lanes Management requires a high availability solution
  - Goal was standalone Express Lanes
    - PS, DMS, Database Critical
    - After meeting with SwRI and assessing complexity, deferred to consider alternatives
  - Alternative proposals
    - Hot standby secondary system and data transfer
      - Question of dealing with database design changes
    - Parallel SunGuide installation for Express Lanes
      - Requires connection to primary – may not be simpler

Ease of Use Issues

- Express Lanes require management of
  - Rate changes
  - Lane closures
  - Equipment failures
  - Communications failures
  - Software failures or restarts
- Procedures for a single segment are about 30 pages

Ease of Use Enhancements

- **Integrate Express Lanes Watcher**
  - Directly transfer Dynamic Rates and Gantry Delays
  - Support Management Scenarios
  - Support online procedures
  - Operator performance monitoring
- **Management Scenarios**
  - Automate portions of common procedures
  - Guide operators through handling of EL issues
  - Provide operator reminders

Additional Enhancements

- Startup behavior
- Lane Status Signs
- Terminology Improvements
- Change to Middleware Rate Adjustment
- Offline Rate Updates
- Toll Viewer Changes
- User Identification
  - Windows logon ID

Change Management Board

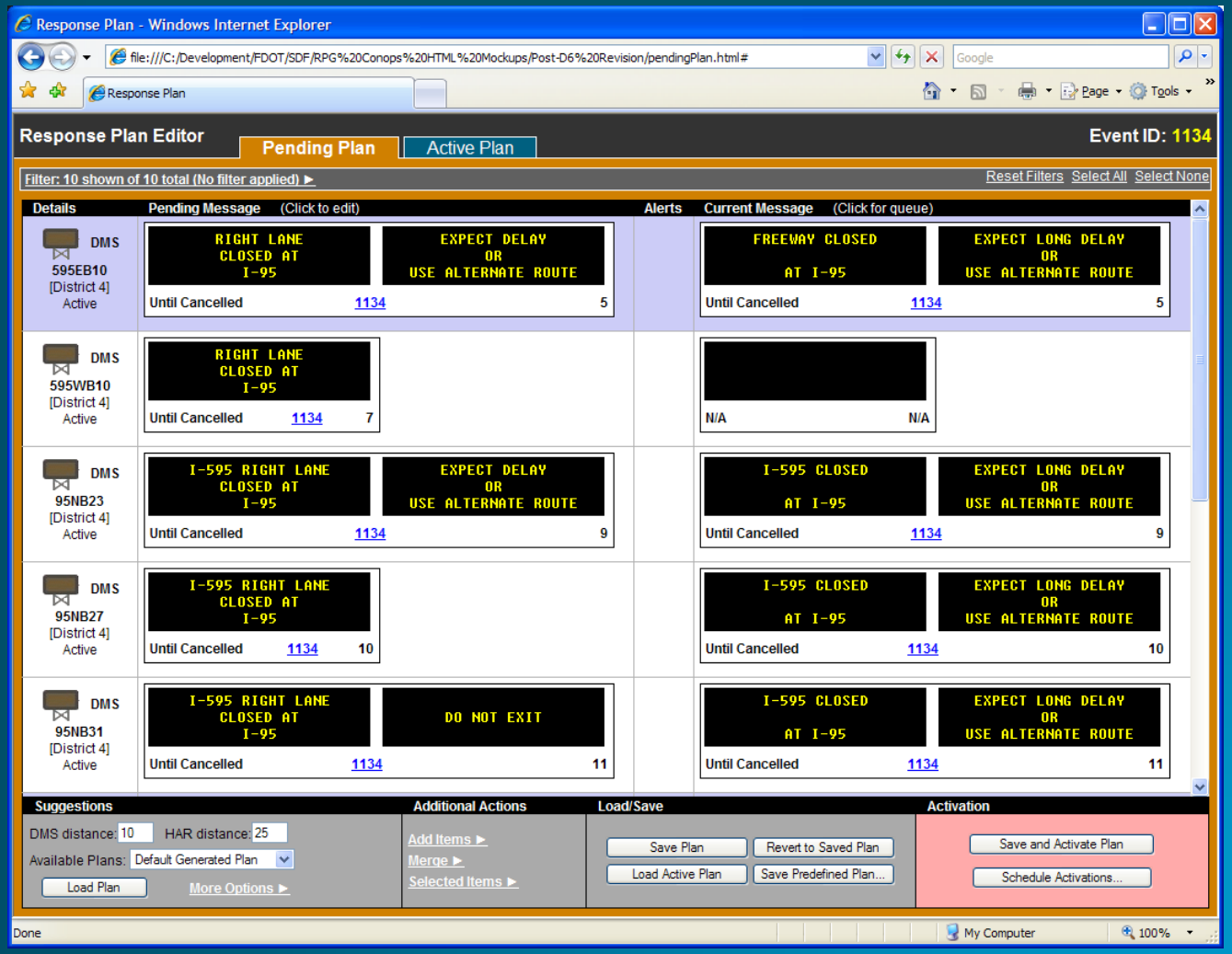
SunGuide – RPG ConOps

Manuel Fontan

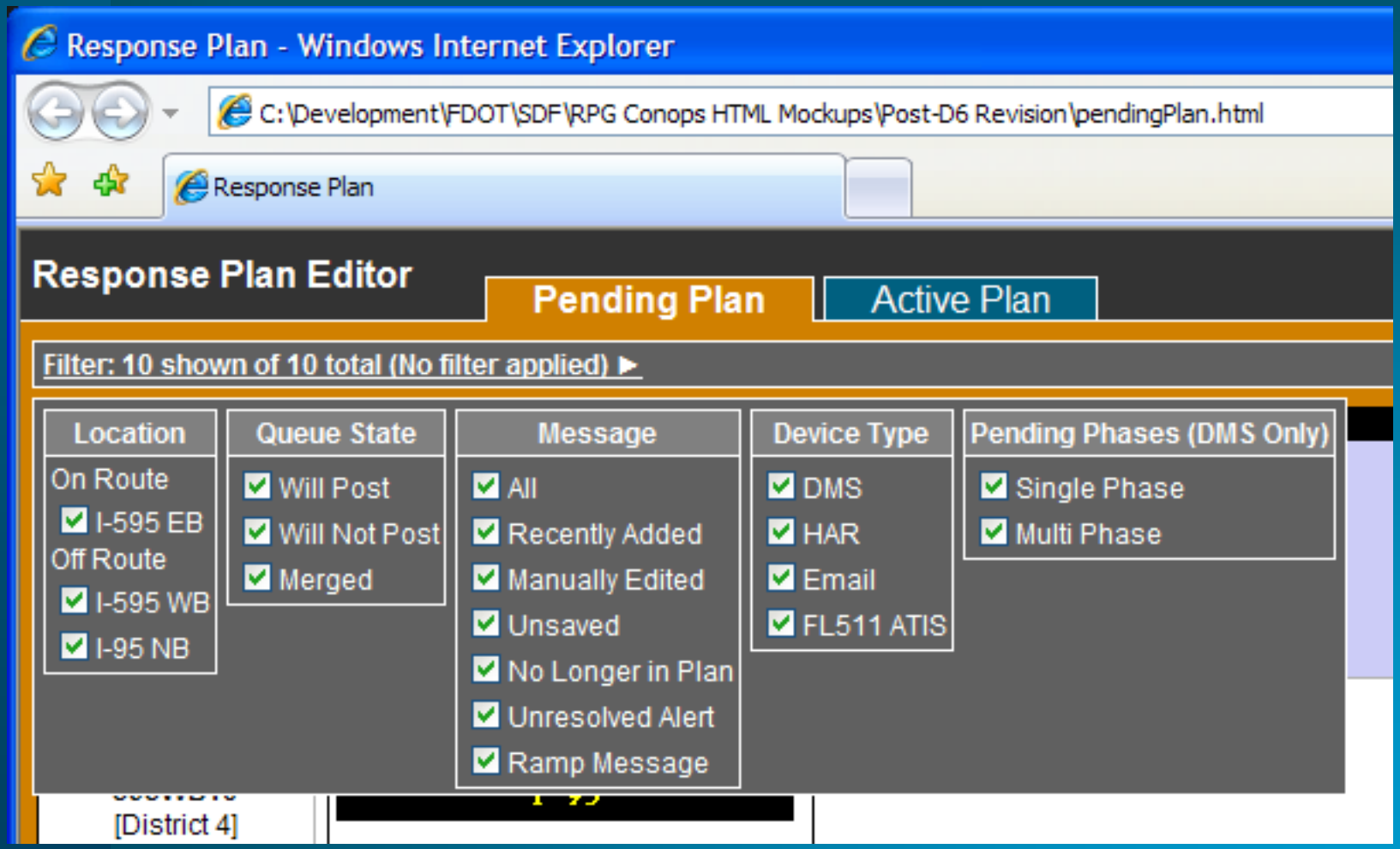
Timeline

- Original RPG ConOps Draft submitted 01/05/09
  - Received comments from SSUG, CO, D2, D4, D5 & SwRI
  - Held several meetings afterward with SwRI, CO, D4, and D5 to clarify comments
- CO provided SwRI support to finalize document (Roger Strain)
- All comments were incorporated in RPG ConOps Release 1.0 and provided to the CMB for review

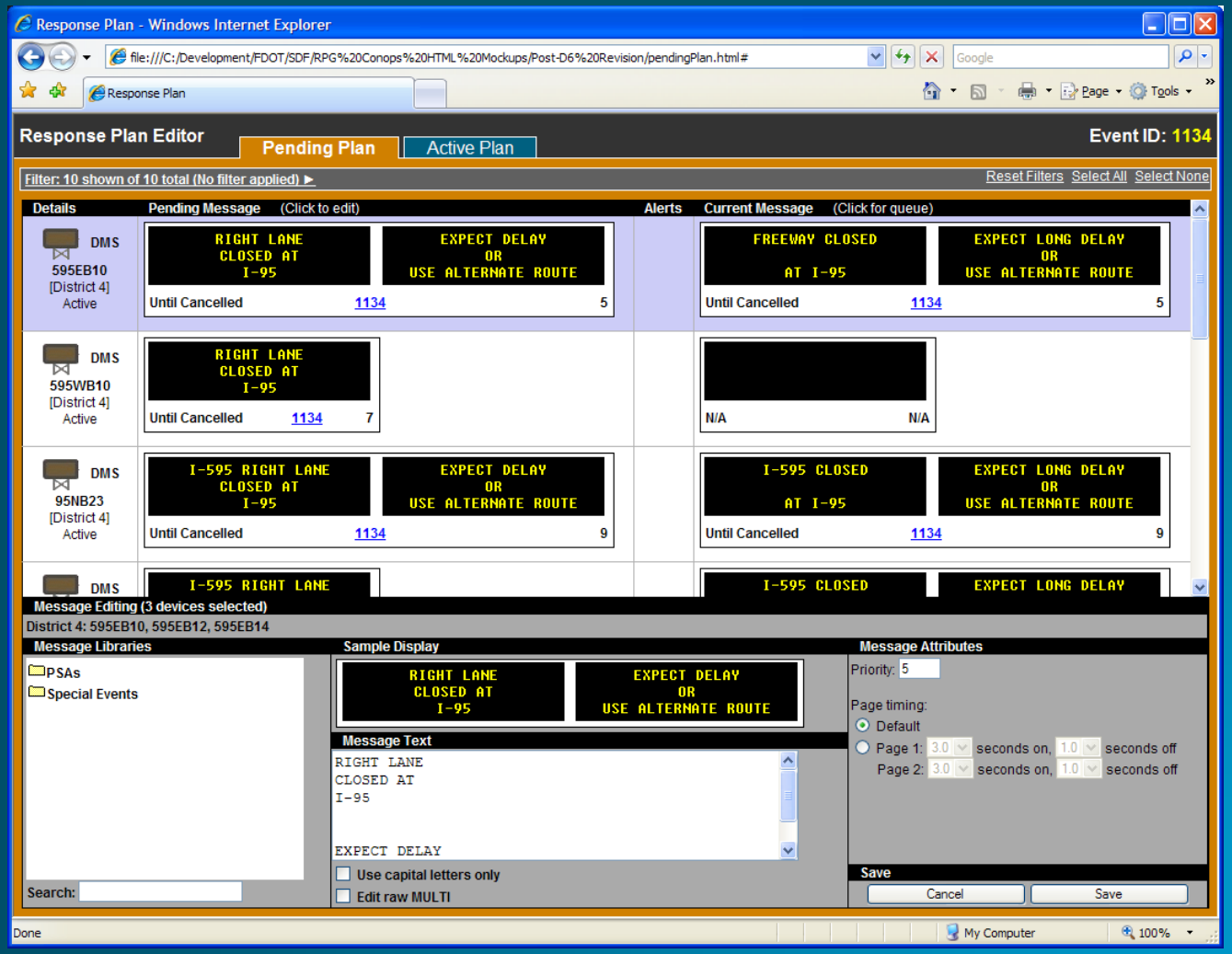
Response Plan Editor GUI



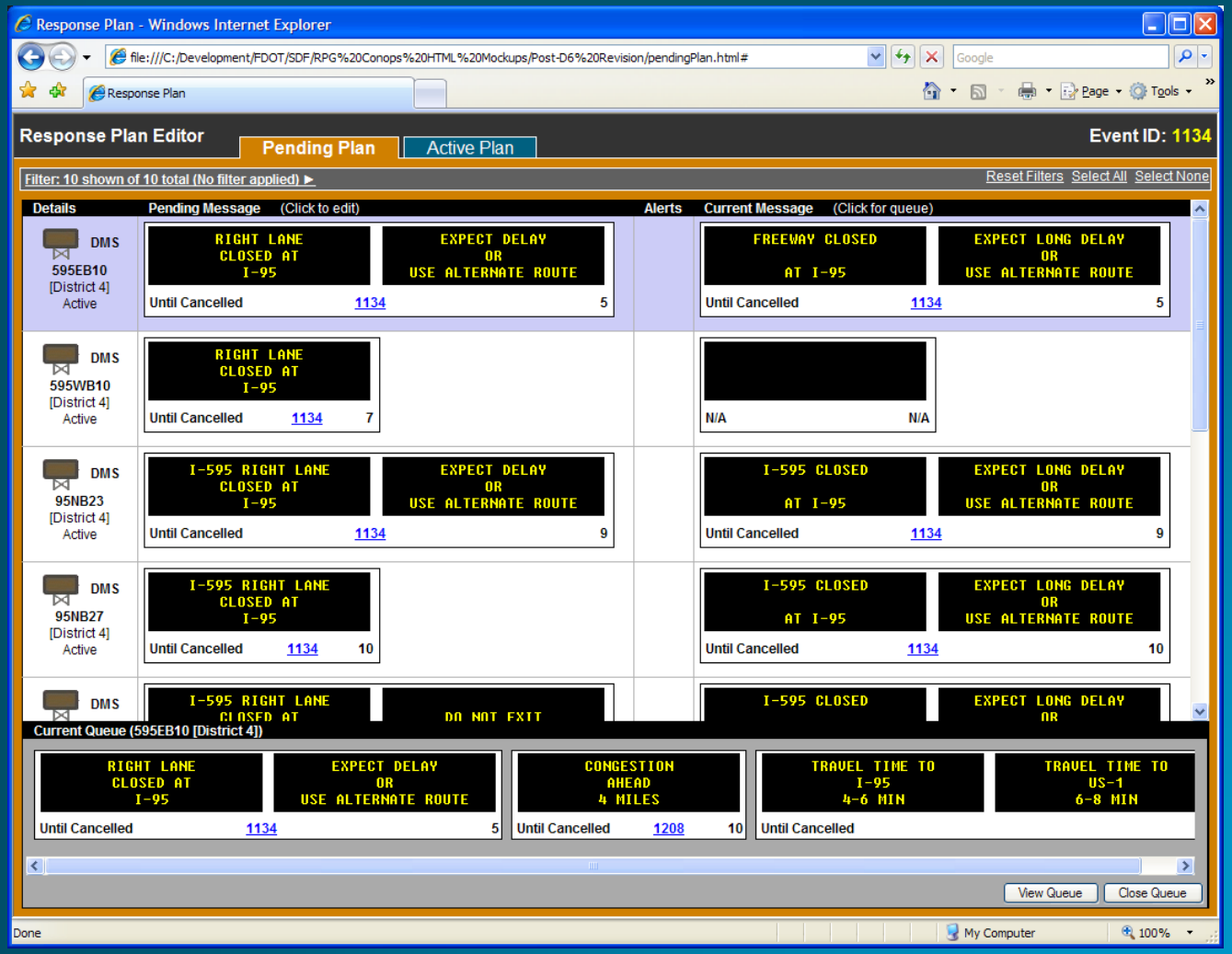
Filters


Response Plan - Windows Internet Explorer
C:\Development\FDOT\SDF\RPG Conops HTML Mockups\Post-D6 Revision\pendingPlan.html
Response Plan
Response Plan Editor
Pending Plan
Active Plan
Filter: 10 shown of 10 total (No filter applied) ▶
Location
On Route
I-595 EB
Off Route
I-595 WB
I-95 NB
Queue State
Will Post
Will Not Post
Merged
Message
All
Recently Added
Manually Edited
Unsaved
No Longer in Plan
Unresolved Alert
Ramp Message
Device Type
DMS
HAR
Email
FL511 ATIS
Pending Phases (DMS Only)
Single Phase
Multi Phase
[District 4]

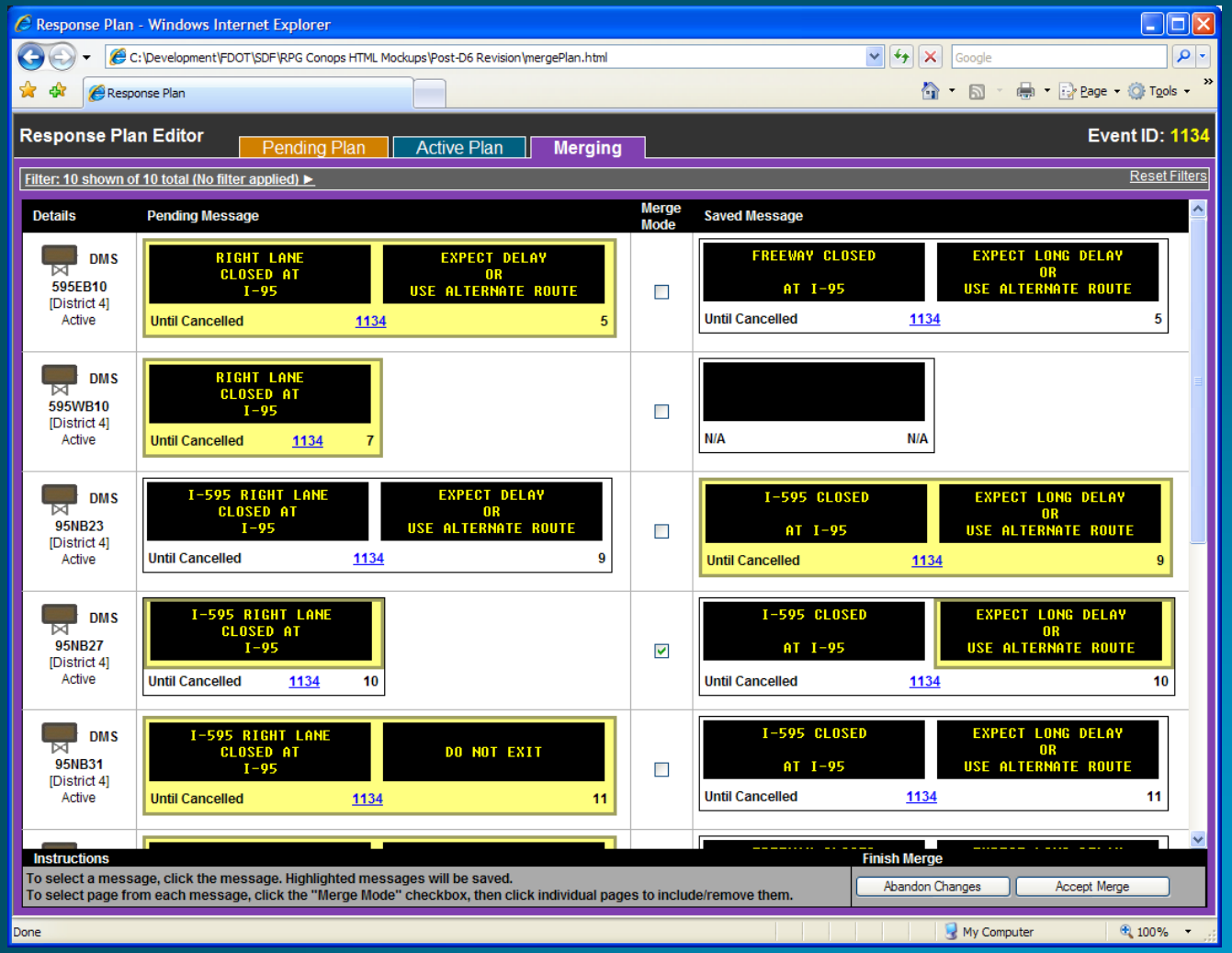
Manual Messaging



Message Queue



Merging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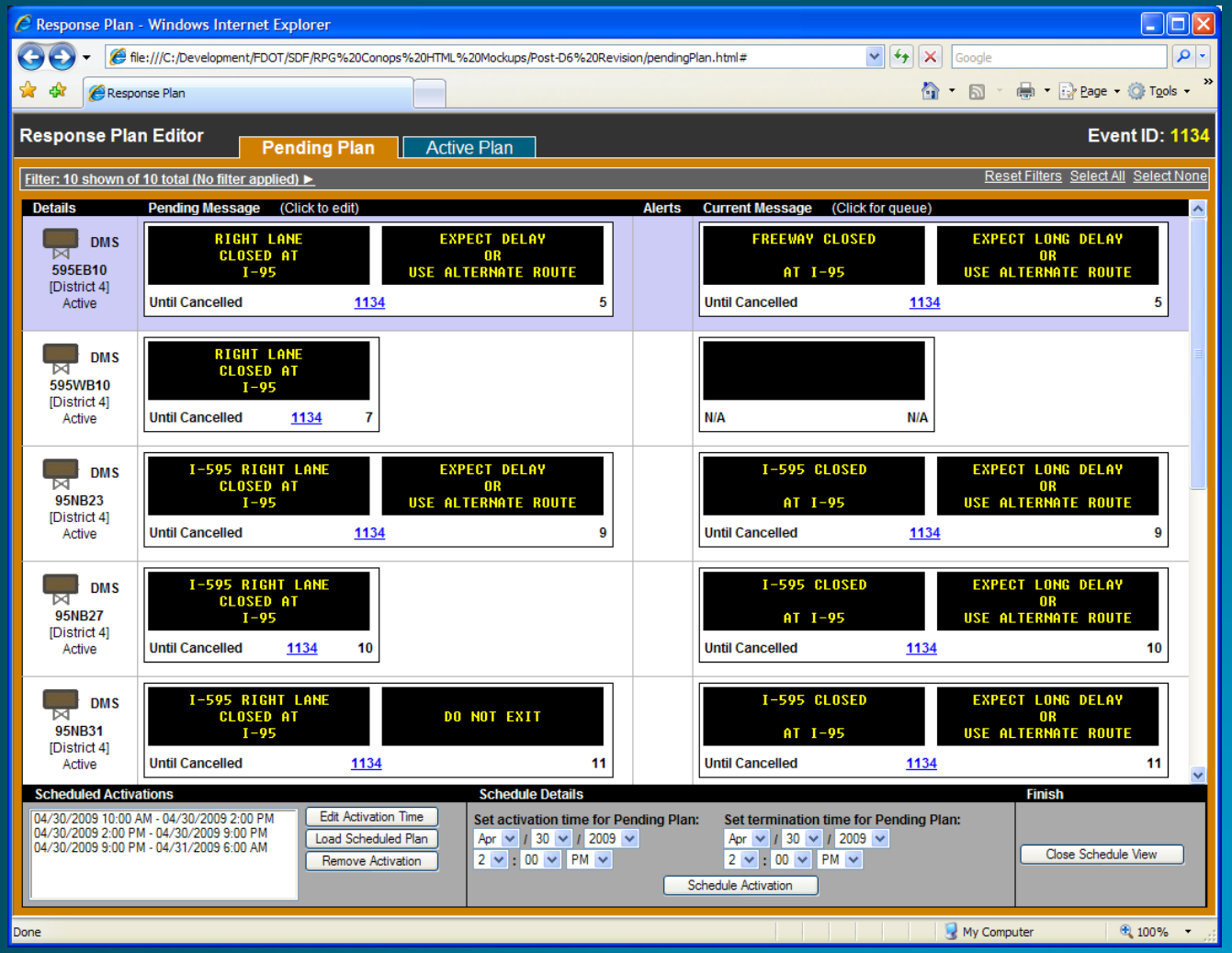
Response Plan
Response Plan Editor
Pending Plan
Active Plan
Merging
Event ID: 1134
Filter: 10 shown of 10 total (No filter applied) ►
Reset Filters
Details
Pending Message
Merge Mode
Saved Message
DMS 595EB10 [District 4] Active
RIGHT LANE CLOSED AT I-95
EXPECT DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 5
FREEWAY CLOSED AT I-95
EXPECT LONG DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 5
DMS 595WB10 [District 4] Active
RIGHT LANE CLOSED AT I-95
Until Cancelled 1134 7
N/A N/A
DMS 95NB23 [District 4] Active
I-595 RIGHT LANE CLOSED AT I-95
EXPECT DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 9
I-595 CLOSED AT I-95
EXPECT LONG DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 9
DMS 95NB27 [District 4] Active
I-595 RIGHT LANE CLOSED AT I-95
Until Cancelled 1134 10
I-595 CLOSED AT I-95
EXPECT LONG DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 10
DMS 95NB31 [District 4] Active
I-595 RIGHT LANE CLOSED AT I-95
DO NOT EXIT
Until Cancelled 1134 11
I-595 CLOSED AT I-95
EXPECT LONG DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 11
Instructions
To select a message, click the message. Highlighted messages will be saved.
To select page from each message, click the "Merge Mode" checkbox, then click individual pages to include/remove them.
Finish Merge
Abandon Changes
Accept Merge
Done
My Computer
100%

Scheduling


Response Plan - Windows Internet Explorer
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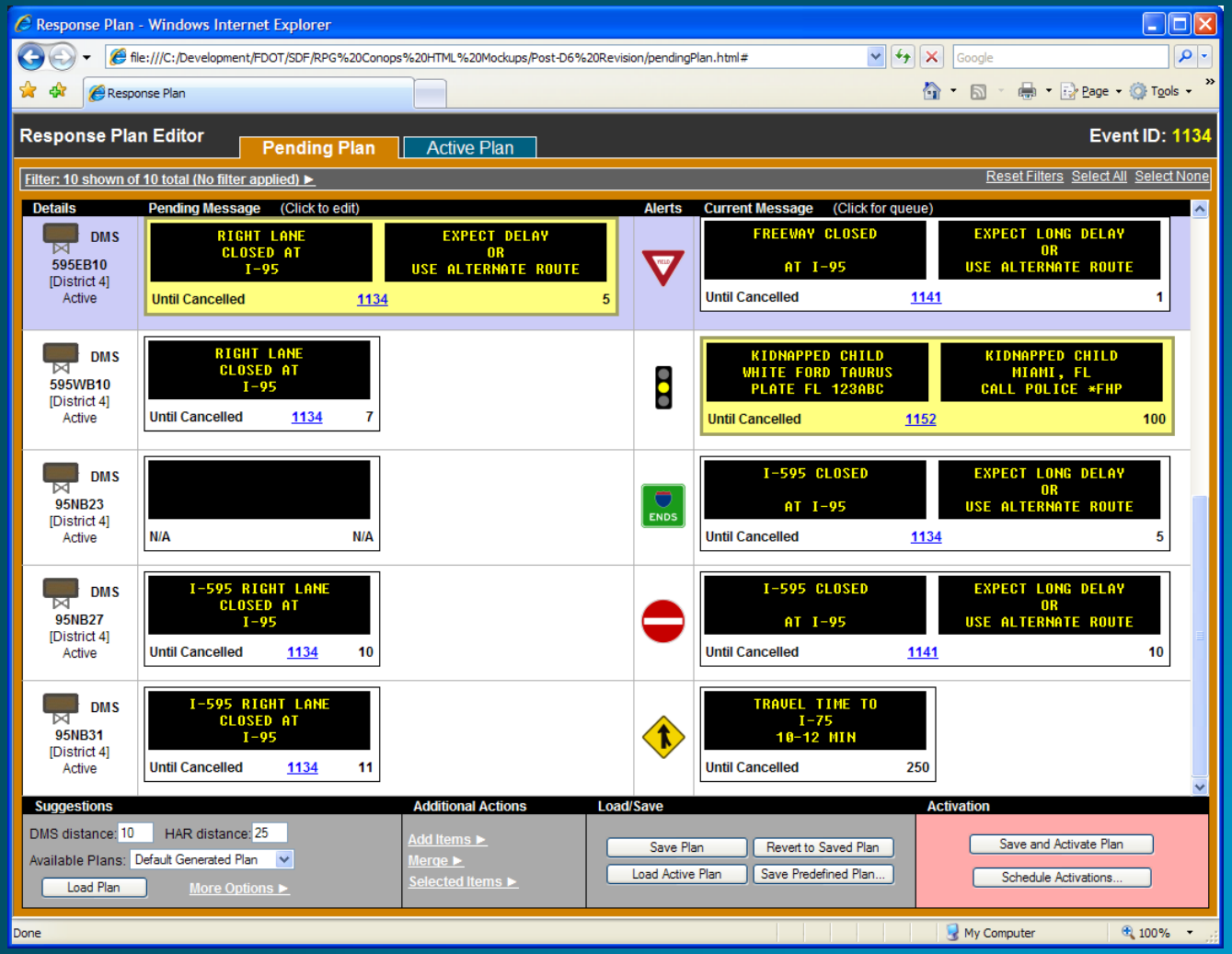
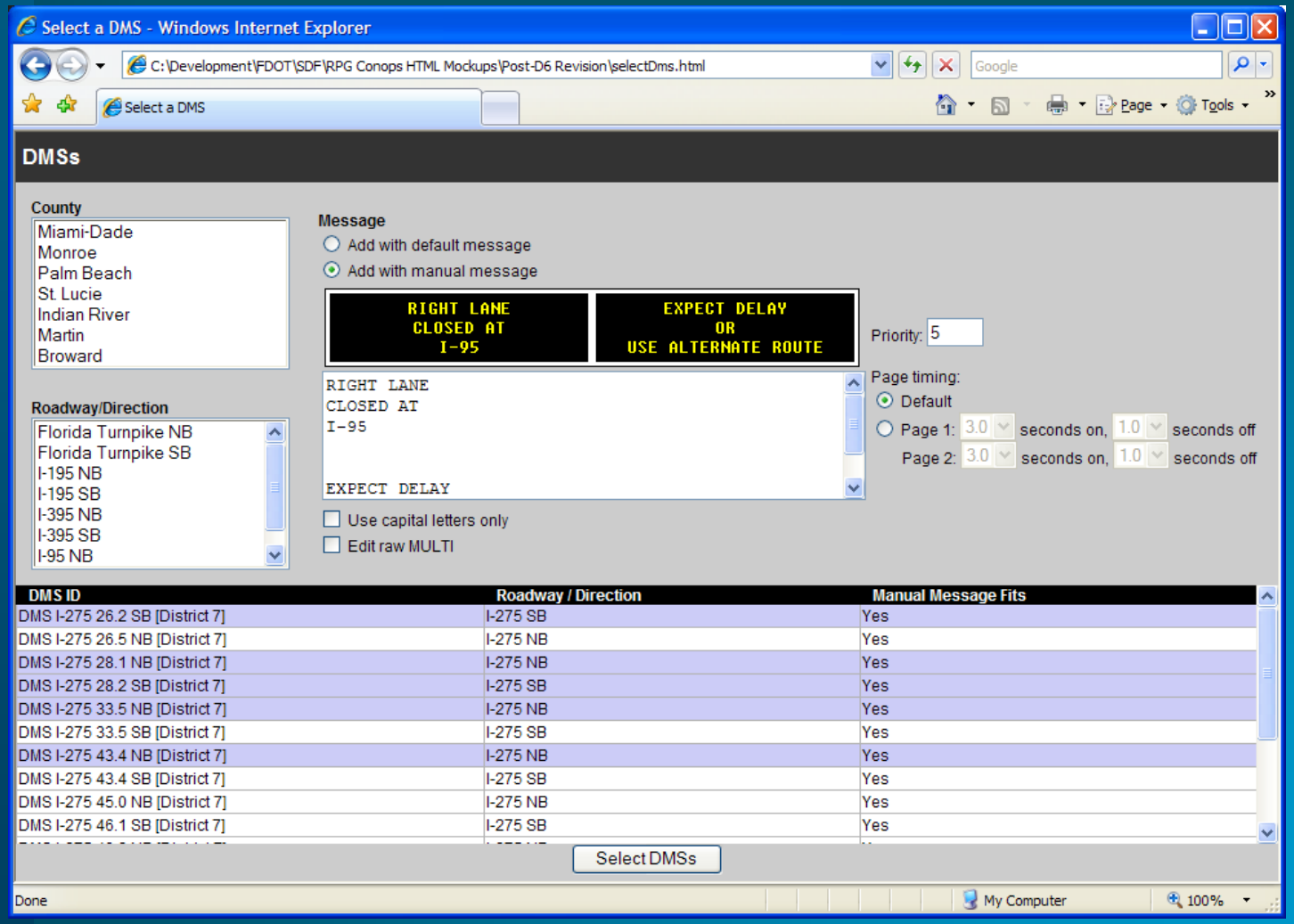
Response Plan
Response Plan Editor
Pending Plan
Active Plan
Event ID: 1134
Filter: 10 shown of 10 total (No filter applied) ►
Reset Filters Select All Select None
Details
Pending Message (Click to edit)
Alerts
Current Message (Click for queue)
DMS 595EB10 [District 4] Active
RIGHT LANE CLOSED AT I-95
EXPECT DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 5
FREEWAY CLOSED AT I-95
EXPECT LONG DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 5
DMS 595WB10 [District 4] Active
RIGHT LANE CLOSED AT I-95
Until Cancelled 1134 7
N/A N/A
DMS 95NB23 [District 4] Active
I-595 RIGHT LANE CLOSED AT I-95
EXPECT DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 9
I-595 CLOSED AT I-95
EXPECT LONG DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 9
DMS 95NB27 [District 4] Active
I-595 RIGHT LANE CLOSED AT I-95
Until Cancelled 1134 10
I-595 CLOSED AT I-95
EXPECT LONG DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 10
DMS 95NB31 [District 4] Active
I-595 RIGHT LANE CLOSED AT I-95
DO NOT EXIT
Until Cancelled 1134 11
I-595 CLOSED AT I-95
EXPECT LONG DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 11
Scheduled Activations
04/30/2009 10:00 AM - 04/30/2009 2:00 PM
04/30/2009 2:00 PM - 04/30/2009 9:00 PM
04/30/2009 9:00 PM - 04/31/2009 6:00 AM
Edit Activation Time
Load Scheduled Plan
Remove Activation
Schedule Details
Set activation time for Pending Plan:
Apr / 30 / 2009
2 : 00 PM
Set termination time for Pending Plan:
Apr / 30 / 2009
2 : 00 PM
Schedule Activation
Finish
Close Schedule View
Done
My Computer
100%

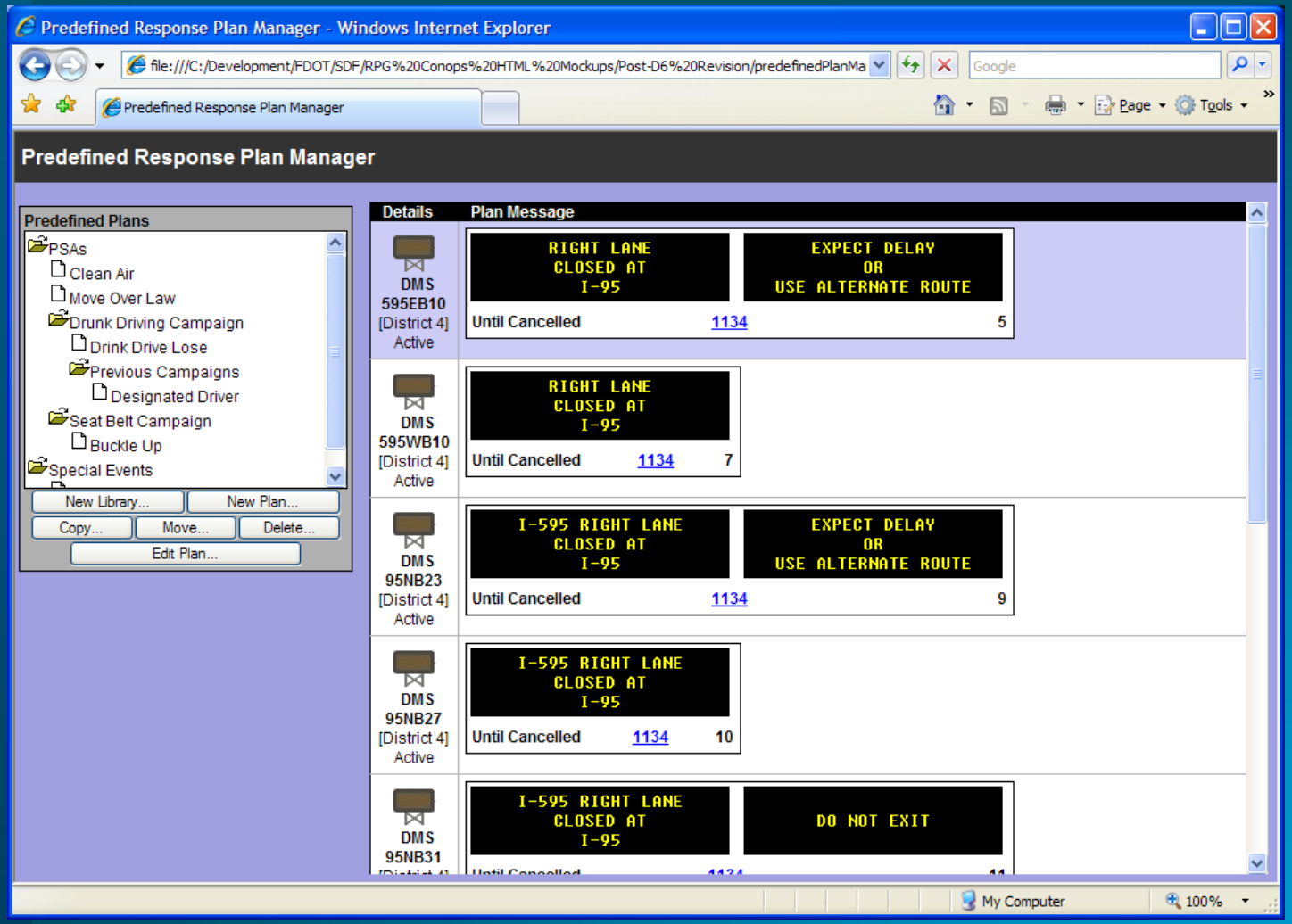
Alerts


Response Plan - Windows Internet Explorer
file:///C:/Development/FDOT/SDF/RPG%20Conops%20HTML%20Mockups/Post-D6%20Revision/pendingPlan.html#
Response Plan
Response Plan Editor
Pending Plan
Active Plan
Event ID: 1134
Filter: 10 shown of 10 total (No filter applied) ▶
Reset Filters Select All Select None
Details
Pending Message (Click to edit)
Alerts
Current Message (Click for queue)
DMS 595EB10 [District 4] Active
RIGHT LANE CLOSED AT I-95
EXPECT DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 5
FREEWAY CLOSED AT I-95
EXPECT LONG DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1141 1
DMS 595WB10 [District 4] Active
RIGHT LANE CLOSED AT I-95
Until Cancelled 1134 7
KIDNAPPED CHILD WHITE FORD TAURUS PLATE FL 123ABC
KIDNAPPED CHILD MIAMI, FL CALL POLICE *FHP
Until Cancelled 1152 100
DMS 95NB23 [District 4] Active
N/A N/A
ENDS
I-595 CLOSED AT I-95
EXPECT LONG DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1134 5
DMS 95NB27 [District 4] Active
I-595 RIGHT LANE CLOSED AT I-95
Until Cancelled 1134 10
I-595 CLOSED AT I-95
EXPECT LONG DELAY OR USE ALTERNATE ROUTE
Until Cancelled 1141 10
DMS 95NB31 [District 4] Active
I-595 RIGHT LANE CLOSED AT I-95
Until Cancelled 1134 11
TRAVEL TIME TO I-75 10-12 MIN
Until Cancelled 250
Suggestions
DMS distance: 10 HAR distance: 25
Available Plans: Default Generated Plan
Load Plan
More Options ▶
Additional Actions
Add Items ▶
Merge ▶
Selected Items ▶
Load/Save
Save Plan
Revert to Saved Plan
Load Active Plan
Save Predefined Plan...
Activation
Save and Activate Plan
Schedule Activations...
Done
My Computer
100%

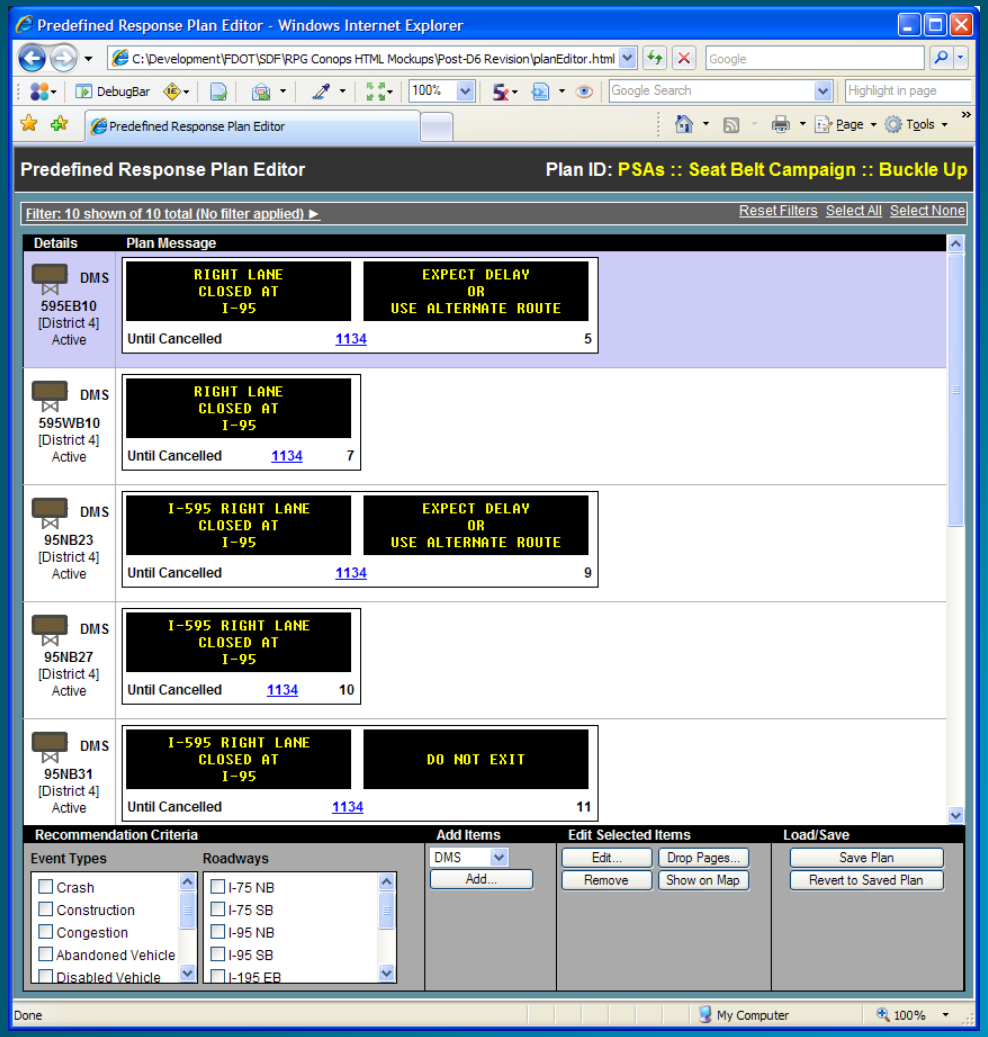
Add DMS Manually to Plan



Predefined Plan Editor GUI



Edit Predefined Plan



Other Changes

- Many admin editor changes are described and detailed in the ConOps to assist in making the new RPG more flexible to District Operational Procedures
- Enhancements for congestion, distance to event, e-mail, DMS messaging templates, Express Lanes, and Ramps are also included.

Thank you

- D6 would like to take the time to thank CO and the District's for the opportunity and support provided on the RPG ConOps

Change Management Board

SunGuide Map Update

Robert Heller

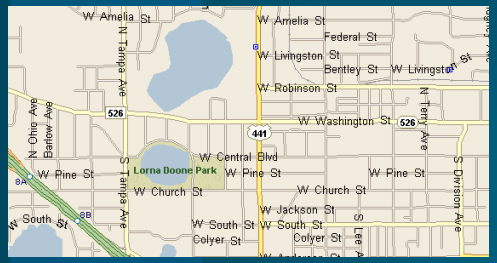
SunGuide Map Alternatives

- **Why is this being looked at:**
  - **Replace SVG used in current map and GUI (SVG will likely stop working in future browser updates)**
  - **TeleAtlas updates no longer available (Navteq has replaced it – data provided in a very different format)**
- **Multiple options discussed and discarded**
  - **Internet-based solution requires always-on connectivity to work**
  - **MapPoint-based solution has various performance issues**
  - **Solutions based on raw shapefile maps not as attractive as desired**

Next Generation SunGuide Map

- **Proposed solution: Locally hosted, custom generated tile map**
  - **Similar technology to Google Maps**
  - **Map tiles at different zoom levels pre-rendered**
  - **Stored on local web server at each installation**
  - **Tiles requested by client applications as needed**
- **Tiles can be produced ONE TIME ("off-line" process) and then used many times**

Tile Approach:



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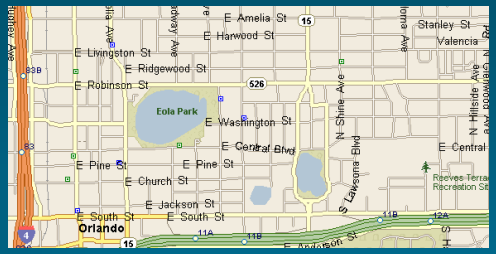

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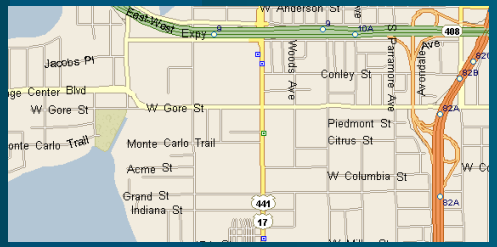

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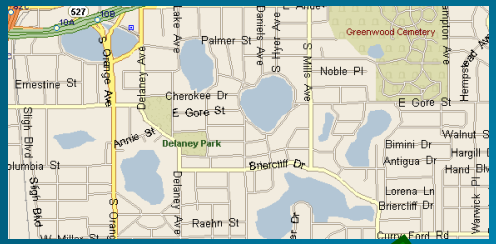
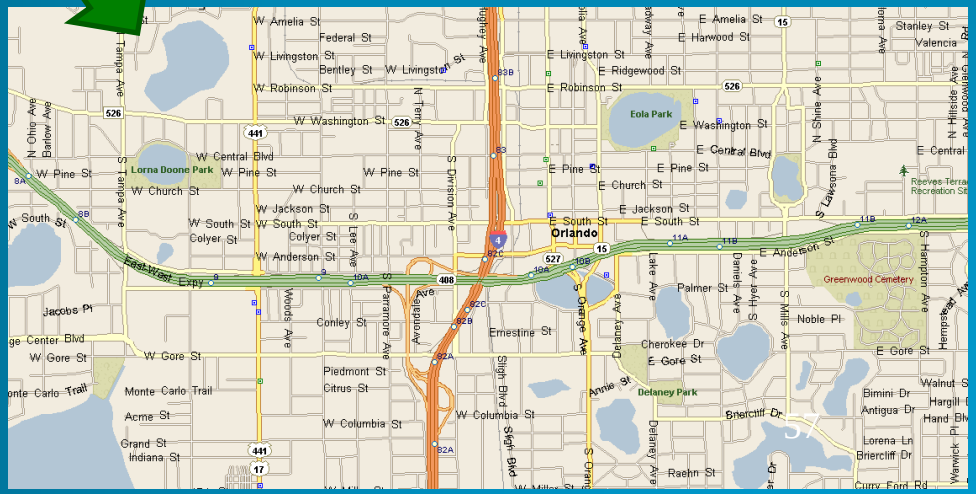




- **Tiles are combined to make a larger map – detail changes as the operator zooms in**

Map Tile Generation

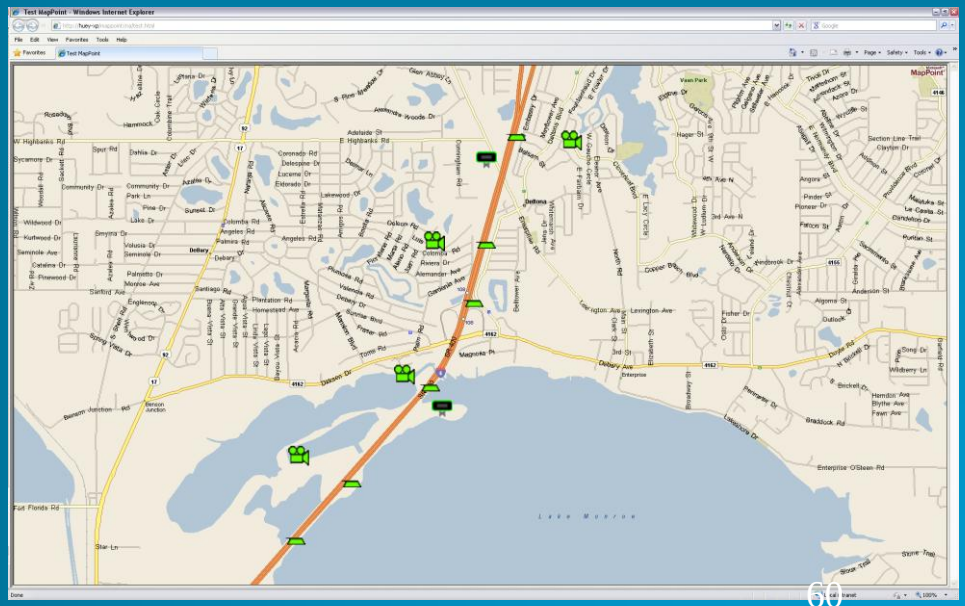
- Performed before map is actually used
- Runs once per update from Navteq
  - Could be run once per deployment if different appearance is desired

Tile Generation Options

- Custom tile generation provides flexibility in appearance
  - Roadways, water, other features can be colored however FDOT would like
  - Color changes could be made at a deployment level if desired
- Device icons and other ITS features are NOT part of static tiles
  - Icons will be rendered independently of tiles

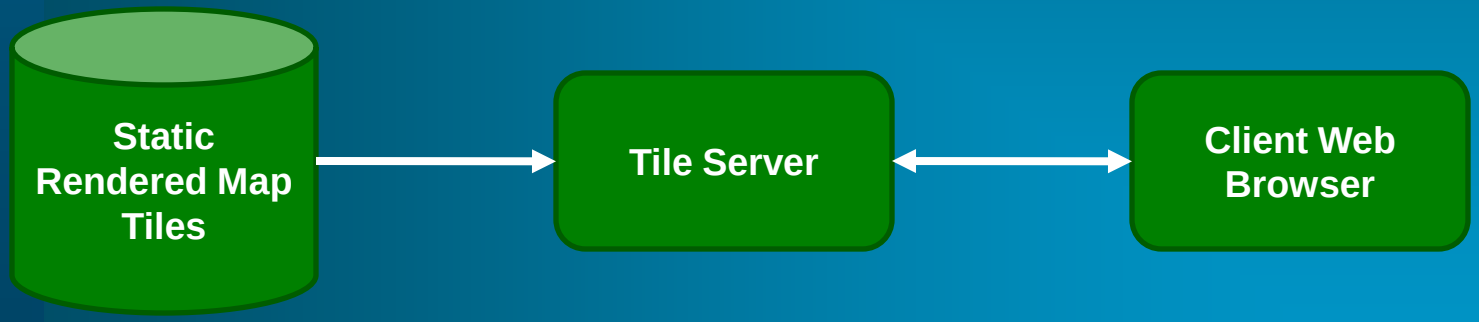
Map Drawing Technology

- Current map uses SVG for all drawing
  - Known performance issues
  - Limited detail due to data overload
- New drawing would use Microsoft XNA toolkit
  - Makes significant use of built-in graphics card
- Map web application would consist of one large ActiveX control:
  - Draws both map tiles from server and icons from SunGuide
  - Map “menus” would all be re-done



Tile Usage

- Map application runs in browser on client
- ActiveX drawing component requests tiles as needed
- Tiles are pieced together to form map
  - Icons are added on top of map



Tile Benefits

- Using tiles allows client to only request images as needed, rather than preloading all roads
- More detail is available as all rendering is performed beforehand
- All drawing is performed by ActiveX engine
  - SVG rendering no longer impacts performance
  - SVG would be removed from SunGuide (requires the SunGuide menus and map interaction to be rewritten)

Proposed Tasks

- The following tasks are proposed:
  - Refine/Define requirements:
    Review all current requirements with Districts
    - Modify requirements based on technologies being used
  - Create tile creation process:
    - Off-line map tile creation program (create tiles)
    - Tile server (this is equivalent to the GoogleMaps API called to render maps)
    - Client interface (controls on the GUI for an operator to manipulate the map)
    - Testing an integration

Proposed Tasks (cont')

- Build the map (this is required independent of the "map source"):
  - Re-implement all SunGuide menus (including context menus)
  - Re-implement the operator action with the map
  - Re-implement all the "operator preferences"
  - Testing and integration
- **Factors that can effect cost (to go "lower"):**
  - Commercial tool to simply the map tile process can be identified
  - Dropping of some map requirements that "sound good" but are rarely (if ever) used operationally

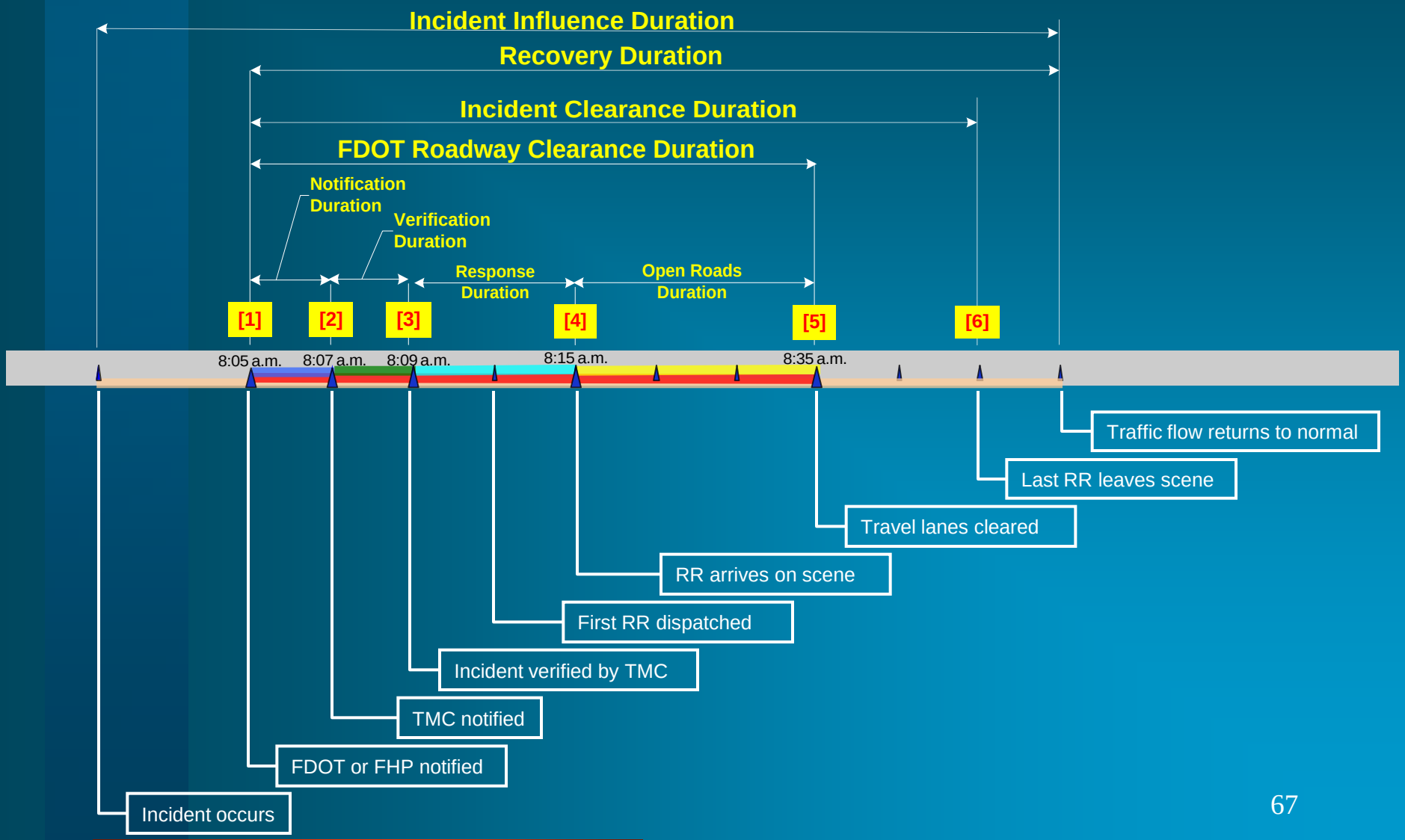
Performance Measures Report - Incident Duration

Arun Krishnamurthy

Current status

- SunGuide Quarterly Incident Duration PM report follows FDOT approved “Incident Duration Timeline”
- Most of issues relate to special cases
- Investigated on District 2, District 4 and District 5 databases

Incident Duration Timeline

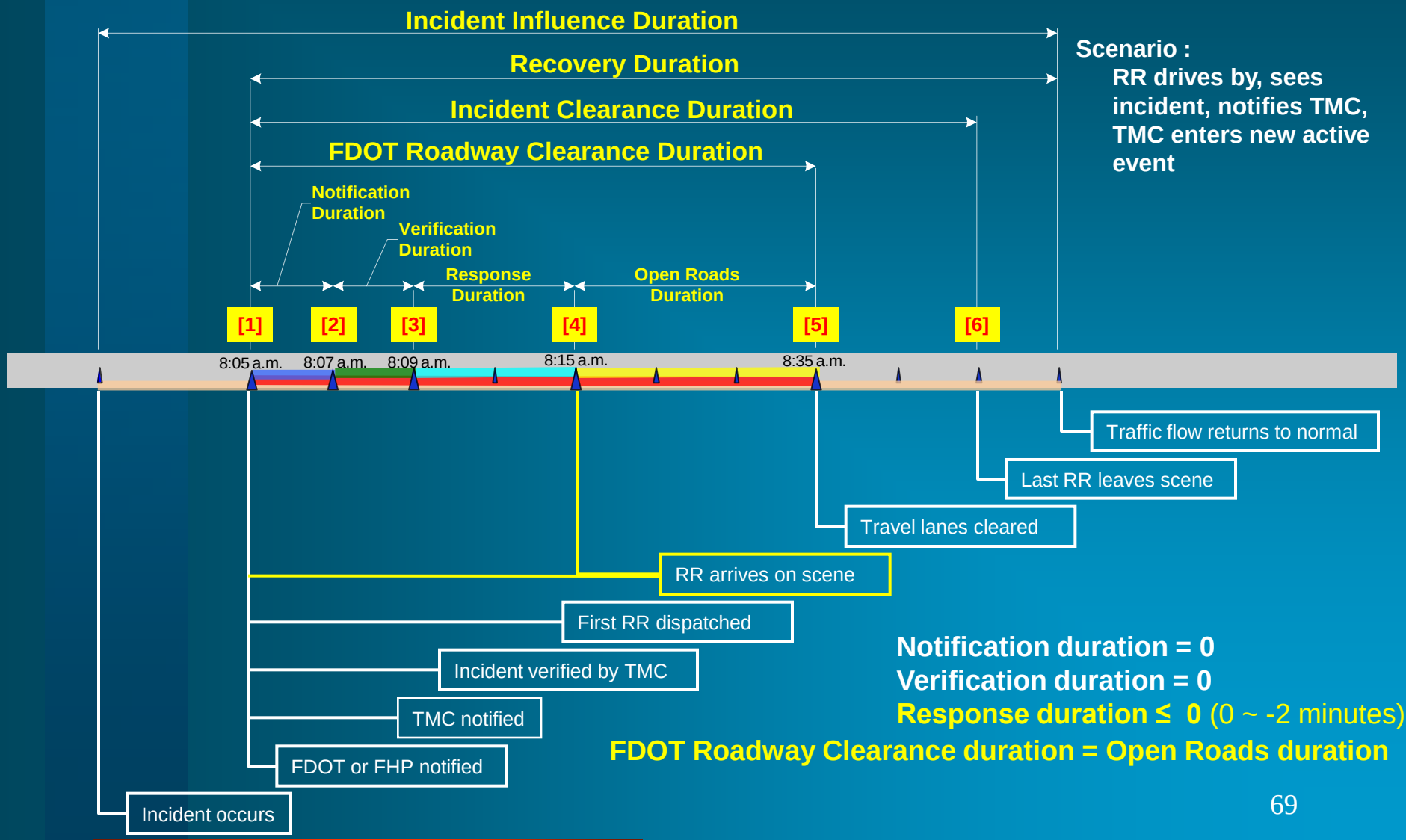


Issues

Several issues that have been observed and investigated:

- Small negative number for Notification, Verification, and Response Durations (0~2 minutes)
- Negative Open Roads Duration.
- Large Duration for Open Roads Duration
- Timestamps with null value (such as no timestamps for Verification, Travel Lanes Cleared, RR Dispatch…)

Scenario 1

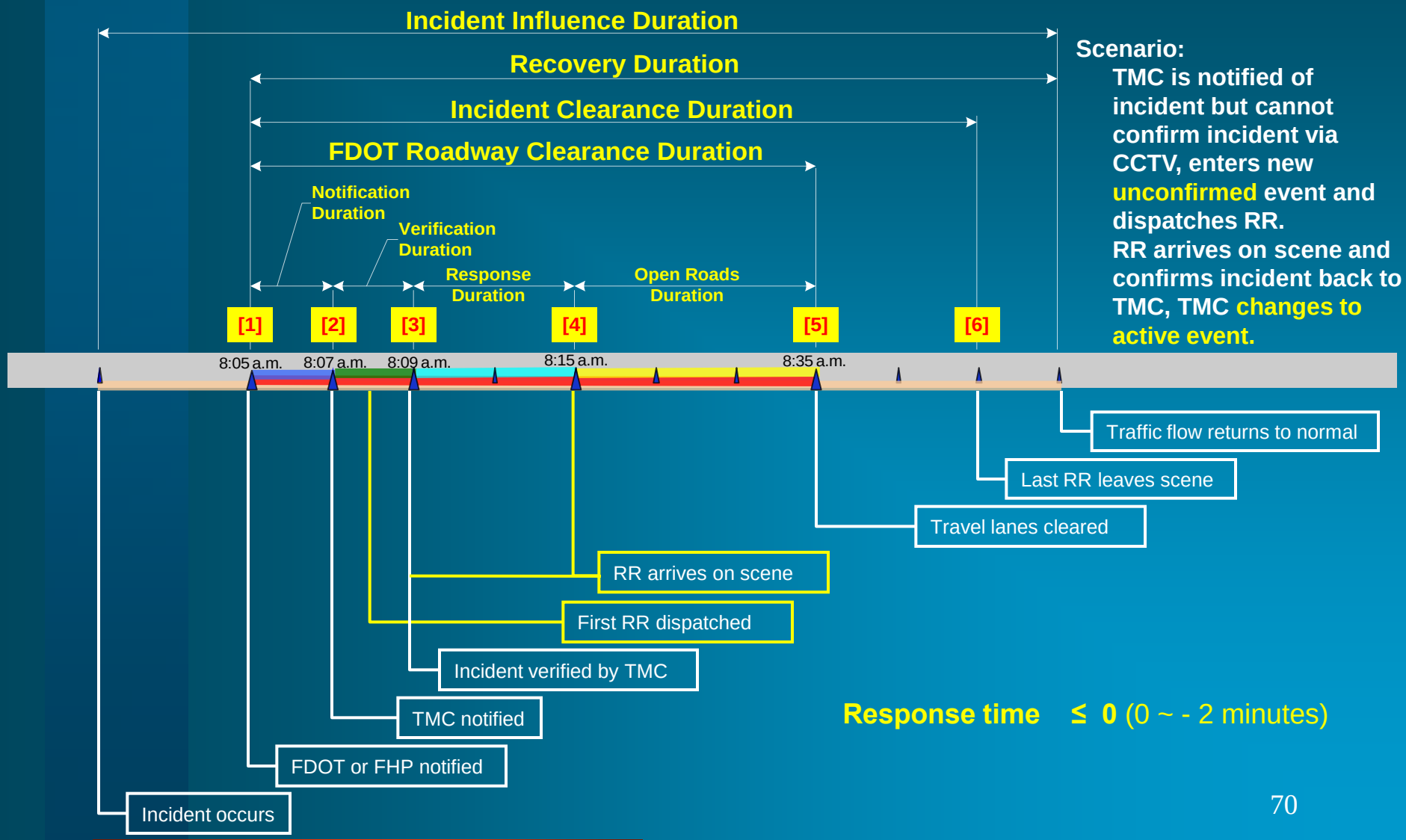


Scenario :

RR drives by, sees incident, notifies TMC, TMC enters new active event

Notification duration = 0
Verification duration = 0
Response duration ≤ 0 (0 ~ -2 minutes)
FDOT Roadway Clearance duration = Open Roads duration

Scenario 2

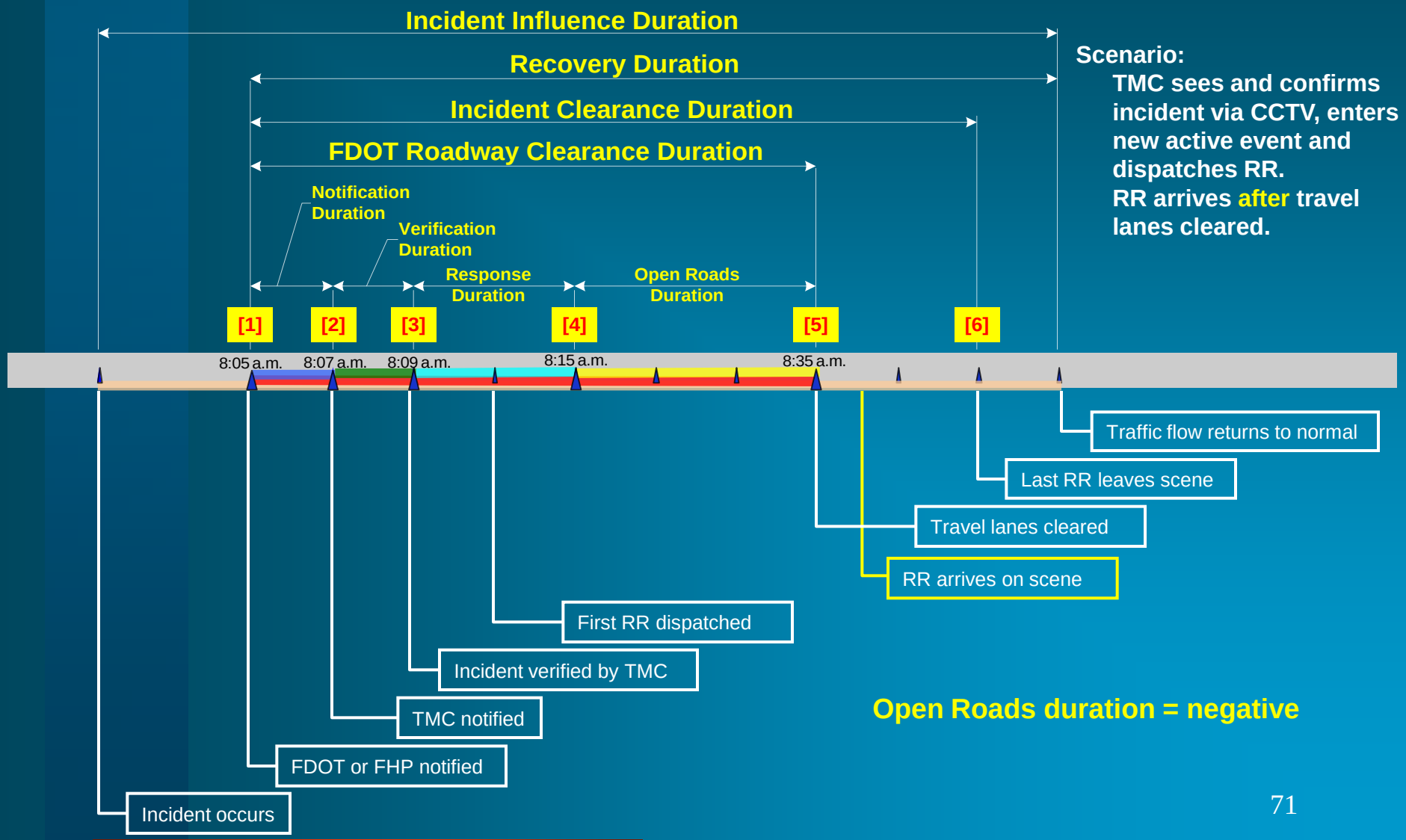


Scenario:

TMC is notified of incident but cannot confirm incident via CCTV, enters new unconfirmed event and dispatches RR.
RR arrives on scene and confirms incident back to TMC, TMC changes to active event.

Response time ≤ 0 (0 ~ - 2 minutes)

Scenario 3



Scenario:

TMC sees and confirms incident via CCTV, enters new active event and dispatches RR.
RR arrives **after** travel lanes cleared.

Open Roads duration = negative

Three Part Solution

1. Flag and audit suspect event data
2. Discard invalid events from PM
3. Adjust timestamps in PM calculations

1. Flag and audit suspect event data

- Some event data likely to be in error
- Errors must be corrected with audit function
- Suspect timestamps may identify errors
- Incident Duration Timeline Report can capture suspects

Conditions for Suspect Events

- Missing Notification or Verification timestamps
- Road Ranger arrives late (after lanes re-opened)
- Road Ranger departs early (before lanes re-opened)
- Negative Durations (of over 2 minutes)
- High Durations (over a set of thresholds)

2. Discard invalid events from PM

- Some events are invalid for Performance Measures
- Invalid events contribute to current problems
- Timeline timestamps values can determine validity

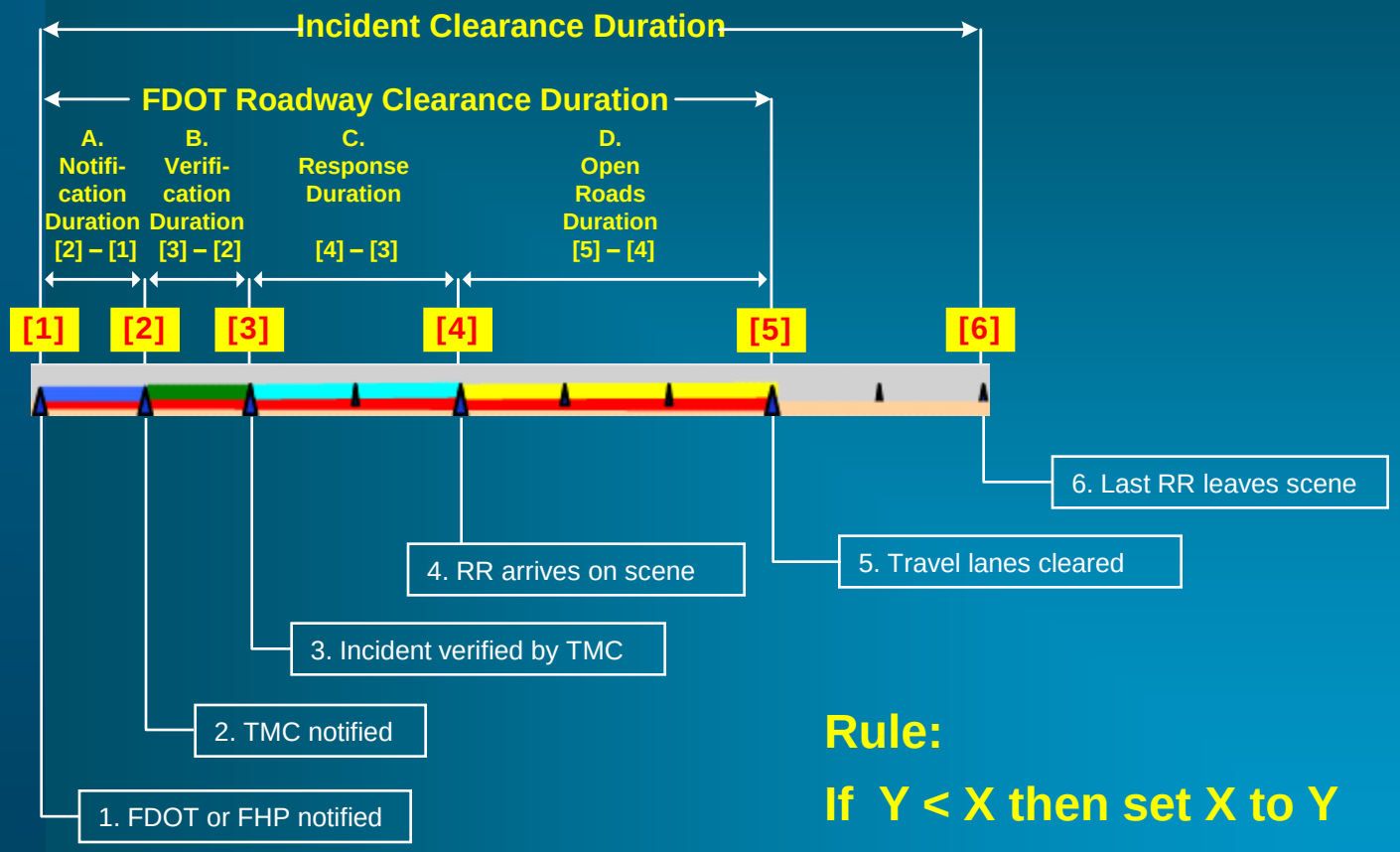
Conditions for Invalid Events

- Events without TMC Verification timestamp
- Events without Lane Blockage
- Events without Road Ranger Response
- Road Ranger arrives late (after lanes re-opened)
- Road Ranger departs early (before lanes re-opened)

3. Adjust Timeline Timestamps

- Valid events can have timestamps out of order
- Out-of-order timestamps contribute to current problems
- Timestamps can be carefully adjusted to be in order
- This better matches Incident Duration Timeline definitions
- This meets the “spirit” (or intent) of Incident Duration calculations

Timestamps Adjustment Procedure



Rule:

If Y < X then set X to Y

Next steps

- CO will provide modified report template to Districts
  - CO strongly recommends the use of this report for FTC
- CO will also provide report contains flagged or suspect events

Change Management Board

BREAK

Agenda (cont')

Time	Item	Lead
3:10 – 3:15	**Break**	
3:15 – 3:30	SunGuide – Polling Failed (D6)	Heller
3:30- 3:40	SunGuide – Excessive TSS Alerts (D5)	Heller
3:40 – 3:50	FTE migration	Easterling
3:50 – 4:00	SunGuide "Right click menu" – Changes proposal	Laird
4:00 - 4:15	Inrix data for 511	Sanyal
4:15 – 4:20	Other Districts' issues	Vega
4:20 - 4:30	Closing and Action Item Review	Vega

SunGuide – Polling Failed (District 6)

Robert Heller

SunGuide Polling Failed Devices

- **Problem:**
  - FP #102 submitted by D6
  - 'Failed' devices must be set back into operation manually by an operator
  - Devices end up being in the 'Failed' state for long periods of time even after communication has been restored
- **Solution:**
  - Modify TSS and RM drivers to poll failed devices at a configurable period
  - Automatically restore devices when communication is restored

Slow Poll Requirements

- **TD014E** When SunGuide polls a TSS detector and the poll is unsuccessful, SunGuide shall report the device in "ERROR" status.
- **TD014A** If a device is in "ERROR" and SunGuide successfully polls the device then the device status is reported as "ACTIVE" state.
- **TD014F** If a device is in "ERROR" and SunGuide unsuccessfully polls the device a configurable number of times the device is placed in "FAILURE" state.
- **TD014O** SunGuide shall allow an operator to place a device in "OUT OF SERVICE."
- **TD014O1** SunGuide shall not poll a device with status "OUT OF SERVICE."

Slow Poll Requirements (cont')

- **TD015F** When a traffic detection device is in "FAILURE" mode, SunGuide shall poll the device at a "slow poll" rate.
- **TD015F1** Slow poll rates shall be configurable at the driver level within the system configuration file.
- **TD015F2** When a device is successfully polled at the slow poll rate, the device will be placed in "ACTIVE" status.

Slow Poll Requirements (cont')

- **TD015S** SunGuide shall store traffic detection device state transitions in the SunGuide database.
- **TD015S1** Traffic detection device state transitions shall have date and time of the transition.
- **TD015S2** Traffic detection device state transitions shall have indication of transition reason, (poll failure, operator forced, operator who performed the operation, etc.)
- **TD015S3** SunGuide shall write messages to the System Messages dialog when traffic detector device operational state transitions.
- **TD015S4** SunGuide shall write messages to the Status Logger when traffic detector device operational state transitions.

CMB Vote

- ***Vote***

Change Management Board

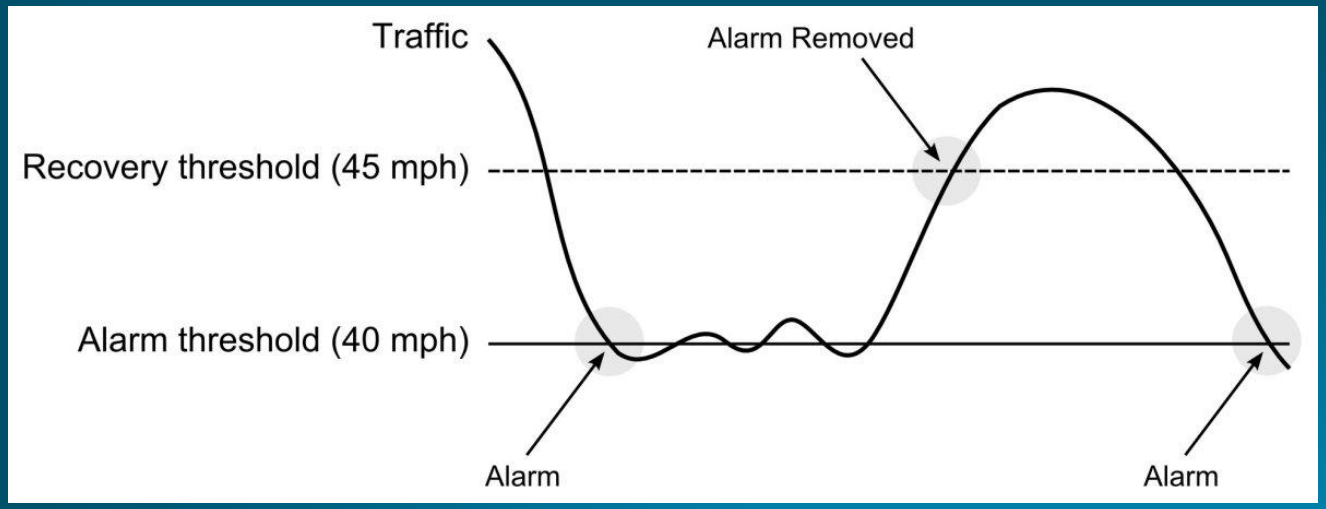
SunGuide – Excessive TSS Alerts (District 5)

Robert Heller

SunGuide Excessive TSS Alerts

- **Problem:**
  - **FP #1096 submitted by D5**
  - **TSS generates an alarm every time the speed or occupancy of a link crosses a specified threshold.**
  - **An excessive number of alarms can be generated if the traffic data oscillates around the thresholds**
- **Solution:**
  - **Add a configurable recovery threshold to prevent multiple alerts for the same congestion incident**

SunGuide Excessive TSS Alerts



- Once an alarm is generated for a given threshold, a subsequent alarm will only be generated if the traffic data has since improved past the recovery threshold.
- Alarms which have not been addressed by an operator will only be removed from the alert box when the traffic data has improved past the recovery threshold.

TSS Alarm Threshold Req'

- **TD009T** SunGuide shall generate TSS alarms
- **TD009T1** A TSS alarm shall be triggered when the speed or occupancy values cross the Alarm Thresholds configured for that link.
- **TD009T2** A TSS alarm shall not be triggered when TSS reports no traffic. (i.e. speed, volume and occupancy = 0.)
- **TD009T3** Once a TSS alarm has been triggered it shall not be retriggered until the traffic data for that link subsequently crosses the Recovery Threshold.
- **TD009T4** TSS alarms that have not been addressed by an operator shall be removed when the traffic data that triggered the alarm subsequently crosses the Recovery Threshold.

TSS Alarm Threshold Req'

- **TD009T5** The Recovery Threshold shall be configurable per link in the Admin Editor.
- **TD009T6** The Operator Map shall represent the data region between the threshold and recovery threshold with yellow in the 'TSS Link Data' screen.
- **TD009T7** A link where the traffic data currently falls between the Recovery Threshold and the Alarm Threshold shall be displayed in yellow on the Operator Map.

TSS Alarm Threshold Req'

- **TD009S** When a TSS detector status transitions to "ACTIVE" from either "FAILURE" or "OUT OF SERVICE", SunGuide shall not generate alarms the detector has stabilized.
- **TD009S1** A detector is stable if it reports data for a configurable period of time.
- **TD009S2** The stabilization period is configurable at the driver level within the system configuration file.

CMB Vote

- ***Vote***

SunGuide – FTE Migration

John Easterling

Change Management Board

SunGuide "Right click menu" - Change proposal

Mark Laird

Process

- Informal discussion of concept at SG 4.0 IV&V
- Discussion of concept with Trey at SG 4.1 FAT
  - Trey requested a proposal and review by SSUG
- Development of proposal and distribution to SunGuide Software Users' Group
- Brief discussion at March SSUG Meeting
- Follow-up at June SSUG Meeting
  - Comments solicited
  - Clay Packard submitted additional improvements (see comments in document) that should be considered to be changes to the document
- July, 2009 CMB Meeting

Overview

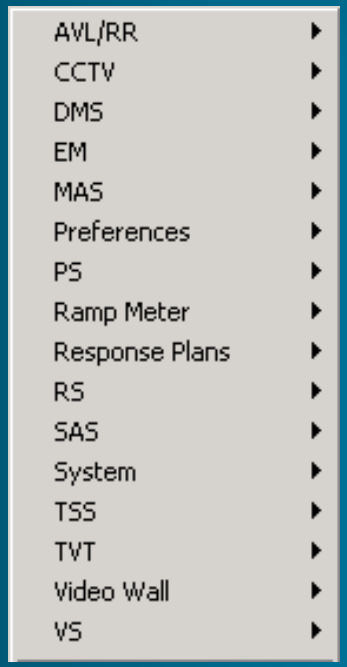
- The menu displayed after right-clicking on the SunGuide map is:
  - organized around software subsystems
  - uses subsystem names and abbreviations
- Restructure to:
  - organize around operations processes
  - use common terminology

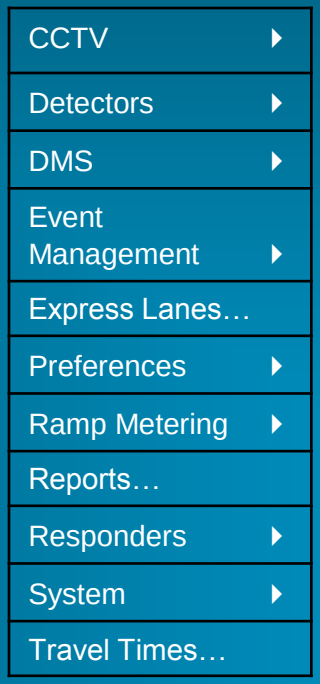
Overview of Changes

- Regroup around operational functions
  - e.g. all DMS together, all video together, all event management together
- Rename some items
  - e.g. RS to Reports
- Put list in alphabetical order

Sample Before/After

- Top level menu





Change Management Board

Inrix data for FL-511

Ashis Sanyal

Project Overview

- INRIX provides Data derived from fleet cars equipped with GPS devices
- They provided data for I-10 (from Tallahassee area all the way up to Pensacola) and three other arterials in the Tallahassee area
- The purpose of the project was to determine how good the INRIX data is and if it can be used for travel time determination and Incident management purposes

Accuracy

- Overall System Accuracy was 83.391% with an RMS speed deviation of 10.46 mph
- Accuracy on Limited Access Roads (I-10) was 90.43% with an RMS speed deviation of 6.5 mph
- Accuracy on Arterials:
  - US-27 = 51.48% with an RMS speed deviation of 17.37 mph
  - US - 319 (W. Orange Ave to I-10) = 50.19% with an RMS speed deviation of 21.65 mph
  - US - 319 (I-10 to GA border) = 50.28% with an RMS speed deviation of 20.84 mph
  - Analysis of data accuracy by speed of traffic indicates data was most accurate at speeds over 40 mph

Data Reliability

- Percentage of time data was available from INRIX servers between 5 AM to 10 PM were
  - November 2008 – 100%
  - December 2008 – 100%
  - January 2009 – 99.84%
  - February 2009 – 99.96%
- Data Latency – Average latency of INRIX data stream is less than 2.5 minutes across all data sources

Data Analysis

- CO did analysis of INRIX data, LPR data, and GPS data from floating vehicle runs
- There is close association between the floating car data and INRIX data
- There is close association between LPR data and INRIX data

Conclusions

- INRIX data for limited access roads were found to be accurate at speeds over 40 mph but became less accurate at speeds around 20 mph
- INRIX data defaults to reference speed (free flow and historical average) during periods of low traffic volume – particularly late night/early morning

Change Management Board

Other Districts' issues

Peter Vega

Change Management Board

Closing and Action Item Review

Peter Vega