Interface control document

I/Cad Version 9.3

# Prepared for: SAN JOSE, CA

# Product: emergency vehicle pre-emption (evp)

**REVISION 1.5**

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# Scope

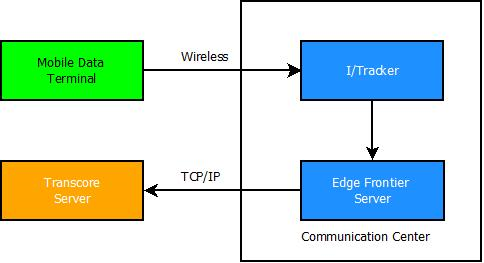
The purpose of this design document is to define the solution and provide support for:

* *CAD System to support the ability to automatically send Apparatus Location (Lat/Long) data along with other miscellaneous information to TransCore’s TransSuite Traffic Control System, when a fire department apparatus and* /*or a Police Department patrol car is ENROUTE to an incident that meet set criteria. This is to assist in managing traffic signals.*

Upon formal approval by Hexagon Public Safety and San Jose, this ICD shall be incorporated into the requirements baseline for each system.

# design and workflow

Basic Message Flow of the interface will be as:



Emergency Vehicle Pre-emption Dataflow

The interface will be developed and configured as such:

1. I/Tracker AVL Poll Group table will be configured with the settings to meet the Data Refresh requirements.
2. Data will be formatted as following:
   1. Status Timestamp
   2. Agency
   3. Event Number
   4. Vehicle ID
   5. Vehicle Type
   6. Event Type & Description
   7. Event Subtype
   8. Event Type Category
   9. Longitude
   10. Latitude
   11. Speed
   12. Bearing
   13. Filler

|  |
| --- |
| ***[STX]****20161026112102PD|SJPOL|P163000009|4832|SDU|245(ASSAULT WITH DEADLY WEAPON)|1|CODE2|-121.90339|37.37823|69.16|147.7|XXX****[ETX]***  ***[STX]****20161026112106PD|SJPOL|P163000009|4832|SDU|245(ASSAULT WITH DEADLY WEAPON)|1|CODE2|-121.90382|37.38002|70.1|147.9|XXX****[ETX]***  ***[STX]****20161026112111PD|SJPOL|P163000009|4832|SDU|245(ASSAULT WITH DEADLY WEAPON)|1|CODE2|-121.9042|37.38166|71.35|147.7|XXX****[ETX]***  ***[STX]****20161026112115PD|SJPOL|P163000009|4832|SDU|245(ASSAULT WITH DEADLY WEAPON)|1|CODE2|-121.90441|37.38256|71.46|147.5|XXX****[ETX]*** |

Data elements will be delimited by pipe “|” character. Each packet with begin with [STX] and end with [ETX] character.

1. Hexagon EVP interface will initiate a heartbeat with the following format:

Message Format: *[STX]H[ETX]*

It is expected that TransCore system will respond back with the same message within few seconds. This will provide the interface a way to notify CAD users if the interface is up or down.

1. Whenever the connection status changes, an ESMD and CAD Message will be broadcasted to an admin group.
2. CADDBM Event Type dialog will be modified to show 3 additional textbox:
   1. Incident Category
   2. Incident Type Category
   3. Fire Department Reporting Category

*Both fields will be editable via dialog and DataControlMatrix.*

1. Following fields will be written to common\_event and the data will come from the Polygon attribute files:
   1. Fire Jurisdiction (Save Only)
   2. Population Density (Save Only)
   3. City Council District (Save and Display on the I/Dispatcher Event Dialog)

# Interface requirements

Emergency Vehicle Pre-emption Requirements:

* For every fire department apparatus andor police patrol car en-route on an active incident that meets the set criteria, CAD will provide AVL information to TransCore based on the Incident Type Category (ITC) and or incident subtype(s). ITC will be a new custom field defined in the Event Type table.
* AVL refresh/updates at a minimum 35 meters resolution and/or maximum 2 seconds.
* Each AVL updates to TransCore contains apparatus location (Lat/Long), direction of travel (heading), apparatus identifier, and if available speed.
* AVL data shall be continuous and pushed to TransCore until apparatus status changed to “On Scene”
* Message transport method – TCP/IP
* Data Fields in the Message Package
* Data Refresh Rates
* GPS data will trigger based on agency ID, apparatus status, event type category(ITC) and or event subtype

## Data Fields in the Message Packet:

|  |  |
| --- | --- |
| GPS Timestamp | To identify latency and if needed calculate the current location based on the speed |
| Agency ID |  |
| Incident Number | for debugging purpose |
| Apparatus ID | E1, T2, 61M1, 5033 etc. |
| Apparatus Type | Engine, Truck, Squad, BC, Police Patrol Ca, PA etc |
| Incident Type | Event Incident Type |
| Incident Subtype | Event Incident Subtype |
| Incident Type Category(ITC) | Custom field that will contain Category Code for Incident Type/Subtype code. For example: Code 3, Code 2, Code 4  *Custom field that will be defined and configured as part of this interface.* |
| Longitude | Longitude (Decimal Degrees Format) |
| latitude | Latitude (Decimal Degrees Format) |
| Apparatus speed | Speed (MPH) |
| Apparatus Direction of travel | Direction of Travel |
| Apparatus routing | For future use. Not used in this interface |
|  |  |

## Data Refresh Rate:

|  |  |
| --- | --- |
| Refresh/updates at a minimum 35 meters and/or 2 seconds | This distance and time should be configuration in CAD for possible future increase or decrease based on performance |
| There will be two conditions- (distance and time) to cover slow moving apparatus. | |

Additional Configuration:

Hexagon will create six custom columns for the EVP interface. Hexagon will be responsible for uploading the initial custom column data. After the initial data upload, the Customer will be able to make additions or updates via the Event Type dialog or DataControlMatrix.

The six custom columns are:

* *Fire Jurisdiction* – This will be a polygon file which operates similar to Agency ESZ.  The value must be written into the *common\_event* table when the event is created so that a user will always be able to see what the value was at the time of the event.
* *Population Density* -This will be a polygon file which operates similar to Agency ESZ.  The value must be written into the *common\_event* table when the event is created so that a user will always be able to see what the value was at the time of the event.
* *City Council District* – This will be a polygon file which operates similar to Agency ESZ.  The value must be written into the *common\_event* table when the event is created so that a user will always be able to see what the value was at the time of the event.  This field will be visible on the I/Dispatcher Event Information window for the sjfir configuration.
* *Fire Department Reporting Priority* – This will be a numeric value such as 1 or 2.  The value will be defined in the Event Type table.  The value must be written into *agency\_event* when the event is created so that a user will always be able to see what the value was at the time of the event. This new custom field will be created in DEV first. Then after data is input and verified, it will need to be ported to TRAIN and LIVE. This field can be edited within CADDBM.  This field can be edited for a single record in the Event Type section of CADDBM, or for multiple records by using the DataControlMatrix for Event Type.  The GUI change will be rolled into DEV, TRAIN, and LIVE..
* *Incident Category* – This will be a text value such as: Medical, Fire, or Other. The value will be defined in the Event Type table.   The value must be written into agency\_event when the event is created so that a user will always be able to see what the value was at the time of the event. This new custom field will be created in DEV first. Then after data is input and verified, it will need to be ported to TRAIN and LIVE. This field can be edited within CADDBM.  This field can be edited for a single record in the Event Type section of CADDBM, or for multiple records by using the DataControlMatrix for Event Type.  The GUI change will be rolled into DEV, TRAIN, and LIVE.
* *Incident Type Category (ITC)* – Custom field that will contain Category Code for Incident Type/Subtype code. For example: Code 3, Code 2, Code 1, and Code 4. The value will be defined in the Event Type table.   The value must be written into (HEXAGON DEFINE AGENCY\_EVENT)\_ when the event is created so that a user will always be able to see what the value was at the time of the event. This new custom field will be created in DEV first. Then after data is input and verified, it will need to be ported to TRAIN and LIVE. This field can be edited within CADDBM.  This field can be edited for a single record in the Event Type section of CADDBM, or for multiple records by using the DataControlMatrix for Event Type.  The GUI change will be rolled into DEV, TRAIN, and LIVE.

# Qualification Methods

This section defines a set of qualification methods that will be used to verify that the requirements for the *EFEVP* interface as defined in Section 3 of the *Statement of Work* have been met. Qualification methods include:

* Testing of *EFEVP* Interface functionality.

# Acceptance Test plan

The purpose of this section is to establish the Hexagon I/CAD Interface Testing Methodology and standards to be followed during Acceptance Testing. The test approach offered in this plan provides the basis for an agreement on the progression of testing functionality leading to the final acceptance of the Hexagon I/CAD System.

Hexagon applies extensive testing to all software that’s developed before it is certified; however, acceptance testing on-site is the responsibility of the customer to ensure that all site-specific data has been entered and is functioning properly.

The guidance provided in this Acceptance Test Plan are provided to assist the customer in organizing the testing efforts associated with final acceptance of the system and its components. Determination of the appropriate level of testing is the responsibility of the customer and it is envisioned that the provided Hexagon Safety & Infrastructure Acceptance Test Plan will be utilized in addition to any ad-hoc testing determined to be appropriate by the customer. The customer may choose not to follow any of the guidance provided herein, but Hexagon Safety & Infrastructure will respond to all documented discrepancies regardless of the testing methodology. *However, should the customer choose not to use the system acceptance methodology provided within this document, Hexagon Safety & Infrastructure will consider the system or individual components of the system accepted if placed in a production or commercial usage*.

## Interface Acceptance

As the interface is tested, the customer is required to document discrepancies with sufficient detail to allow reproduction of the discrepancy. When all discrepancies are resolved, the customer will “sign-off” or accept the interface. Should no discrepancies to published operational standards be submitted, it will be assumed that the sub-system or command is functioning correctly and acceptable.

## EFEVP Acceptance Test Plan

| **TEST** | **NOTES** | **PASS** | **FAIL** | **DATE** |
| --- | --- | --- | --- | --- |
| Load the *EFEVP* interface in EdgeFrontier | ESMD and CAD Message will be sent to the admin group. Message = EFEVP Interface Started |  |  |  |
| Create an event with Event Type that matches EVP criteria. | Confirm that all custom fields are showing data appropriately. |  |  |  |
| Dispatch a unit. Change status to Enroute | When the apparatus changes status to ER. Data should start flowing to TransCore Server. |  |  |  |
|  | Confirm that the data is flowing at the data refresh rate.  Confirm data is in the correct format, and correctly reflects real world conditions. |  |  |  |
| Change Unit status to Arrive | Data should stop flowing to TransCore server |  |  |  |
| Unload the *EFEVP* interface in EdgeFrontier | ESMD and CAD Message will be sent to the admin group. Message = EFEVP Interface Stopped |  |  |  |
| Request TransCore to stop their server | ESMD and CAD Message will be sent to the admin group. Message = EFEVP Interface Disconnected from TransCore |  |  |  |
| Request TransCore to start their server | ESMD and CAD Message will be sent to the admin group. Message = EFEVP Interface Connected to TransCore |  |  |  |

## Final Acceptance

After all testing activities have been successfully accomplished, as stipulated in the *Statement of Work*, the customer will award system acceptance. Even with the most thorough testing of the system, it is understood that discrepancies may be discovered after sub-systems or interfaces have been accepted. Those discrepancies must be documented by the customer and addressed to the appropriate Hexagon Safety & Infrastructure representative.

## The EFEVP interface has been tested and is accepted

|  |  |
| --- | --- |
| **Authorized Customer Signature** | |
| **Name:** | |
| **Signature:** | **Date:** |

# approvals

|  |  |
| --- | --- |
| **Hexagon Safety & Infrastructure Representative** | |
| **Name:** | |
| **Signature:** | **Date:** |

|  |  |
| --- | --- |
| **Authorized Customer Signature** | |
| **Name:** | |
| **Signature:** | **Date:** |

# Record of changes

This record is maintained throughout the life of the document and summarizes the changes between approved versions of this document. Each new version of the document submitted for approval receives a sequential version number. For instance, the first version of the document will be revision number 1.0, the next revision would be 1.1, and etc. The old paragraph will designate the paragraph number and title where the information existed in the previous document if applicable. The revision comments will contain an explanation of the changes made and any new paragraph number and title if needed.

|  |  |  |  |
| --- | --- | --- | --- |
| **Revision** | **Date** | **Author** | **Section Changed and Comments** |
| 1.0 | 7/19/2017 | Mohinder Singh | Original |
| 1.1 | 7/20/2017 | Beau Elliott | Minor wording change |
| 1.4 | 8/28/2017 | Mohinder Singh | Final edits |
| 1.5 | 9/6/2017 | Mohinder Singh | Section 3 (Message format/Heartbeat). |