AASHTO Innovation Initiative

[Proposed] Nomination of Innovation Ready for Implementation

Sponsor

Nominations must be submitted by an AASHTO member DOT willing to help promote the innovation. If selected, the sponsoring DOT will be asked to promote the innovation to other states by participating on a Lead States Team supported by the AASHTO Innovation Initiative.

1. Sponsoring DOT (State): Georgia

2. Name and Title: Andrew Heath, State Traffic Engineer

   Organization: Georgia Department of Transportation

   Street Address: 935 United Ave. Bldg 24

   City: Atlanta

   State: Georgia

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   Phone: 404.635.2828

   Fax: Click or tap here to enter text.

Innovation Description (10 points)

The term "innovation" may include processes, products, techniques, procedures, and practices.

3. Name of the innovation:

Carbyne C-Lite

4. Please describe the innovation.

Here at the GDOT Traffic Management Center, we've recently incorporated the use of Carbyne C-Lite within our incident management process after its use had proven to significantly decrease our incident

response times on average of 17 minutes during our pilot project testing phase of this software. Carbyne C-Lite is a software mostly used by 911 centers where Operators can send out text messages to motorist cell phones requesting to access their phone's GPS coordinates to quickly and accurately locate distressed callers experiencing an emergency. Similarly, for roadway incidents response purposes, we at the GDOT TMC saw this as an opportunity to more quickly and accurately locate motorist who call into our 511 system requesting assistance and struggle to describe to a 511 Operator their exact location.

5. What is the existing baseline practice that the innovation intends to replace/improve?

When a motorist calls 511 requesting assistance, a 511 Operator will verbally attempt to retrieve that motorist location, and with the information gained they would utilize our ATMS platform NaviGAtor and scan the speed detection maps to see if a noticeable slow down in traffic is occurring near the location the motorist described and/or scan the nearby CCTV cameras to see if there is a visual of the motorist's location so that a HERO or CHAMP unit can be dispatch out to the scene.

6. What problems associated with the baseline practice does the innovation propose to solve?

If the location information is in accurate or not easily communicated to the 511 Operator, verifying the motorist location and dispatching help to them can be a timely ordeal. Often times a 511 Operator will have to coach a motorist through hour to observe their surroundings to give the Operator clues to their whereabouts, such as looking for roadway signs and noticeable landmarks, adding time to the incident response and incident clearance process. Also increasing the likelihood of more severe secondary crash taking place with other motorist driving by.

7. Briefly describe the history of its development.

In 2019 at a TIME Traffic Incident Management (TIM) quarterly meeting, GDOT staff was introduced to Carbyne C-Lite. We soon after acquired the product for pilot testing where we used the software over a 3 month time period in three different scenarios to compare the resulting 511 Operator dispatch times. In Scenario 1 : An Operator attempts to locate 511 callers using the NaviGAtor ATMS and also sends a C-Lite link to verify location to judges the accuracy. In Scenario 2 : An Operator immediately sends a C-Lite link to a 511 caller without using NaviGAtor. In Scenario 3 : C-Lite is not utilized to identify motorist location. After analysis of the resulting dispatch times, the beneficial use of Carbyne C-Lite was validated and we moved forward with statewide deployment.

8. What resources—such as technical specifications, training materials, and user guides—have you developed to assist with the deployment effort? If appropriate, please attach or provide weblinks to reports, videos, photographs, diagrams, or other images illustrating the appearance or functionality of the innovation (if electronic, please provide a separate file). Please list your attachments or weblinks here.

Files provided electronically

Attach photographs, diagrams, or other images here. If images are of larger resolution size, please provide as separate files.
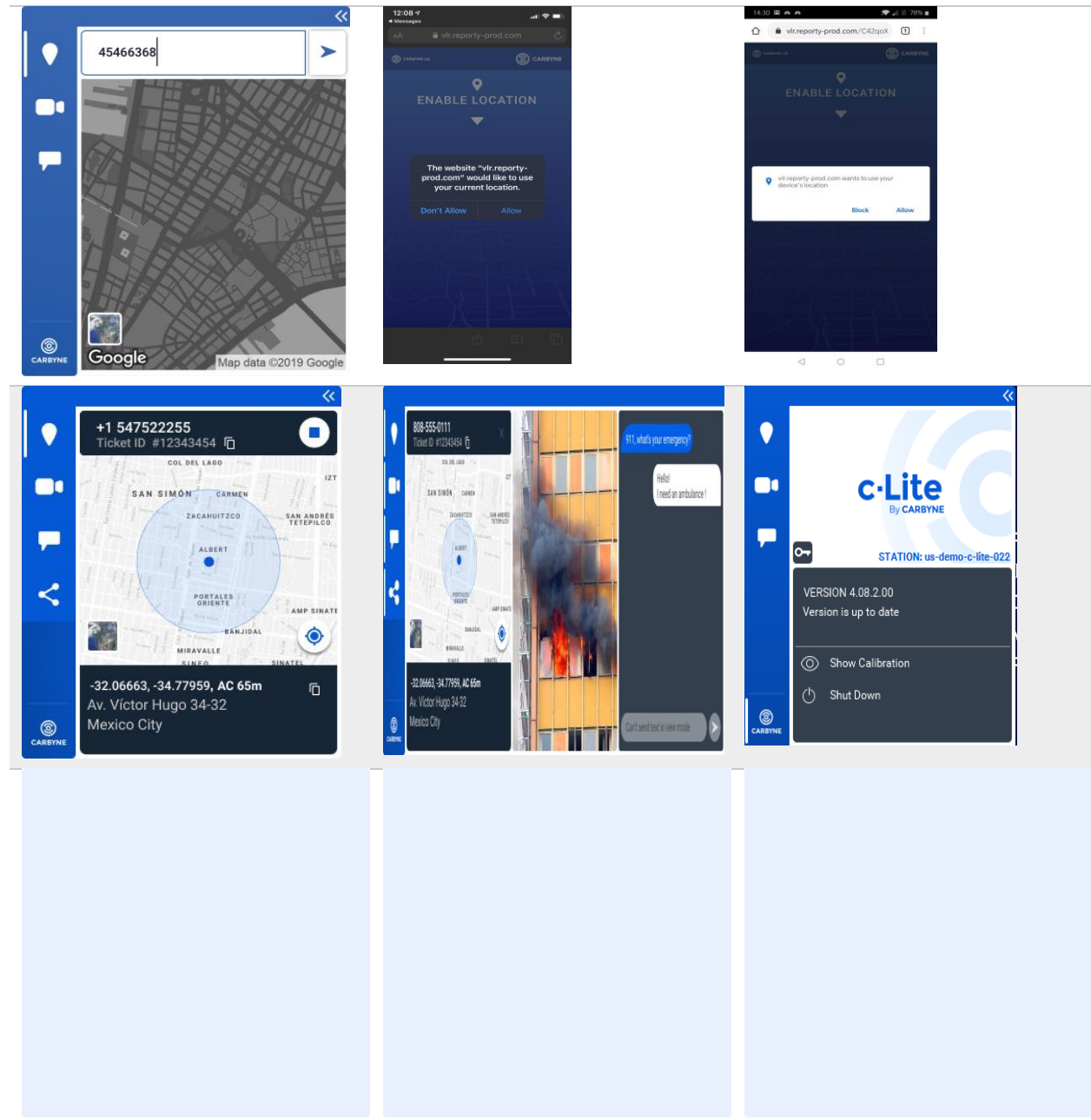
State of Development (40 points)

Innovations must be successfully deployed in at least one State DOT. The AII selection process will favor innovations that have advanced beyond the research stage, at least to the pilot deployment stage, and preferably into routine use.

9. How ready is this innovation for implementation in an operational environment? Please select from the following options. Please describe.

☐ Prototype is fully functional and yet to be piloted

☐ Prototype has been piloted successfully in an operational environment

☐ Technology has been deployed multiple times in an operational environment

☒ Technology is ready for full-scale implementation

The Carbyne C-Lite product has been successfully piloted and used multiple times in an operational environment at the GDOT TMC in Atlanta. Additional software licenses have been procured, and we are now in the process of expanding the use of the product statewide with our Operators working out of the GDOT District offices.

10. What additional development is necessary to enable implementation of the innovation for routine use?

Statewide training and software installation for all our Operators working out of GDOT District locations.

11. Are other organizations using, currently developing, or have they shown interest in this innovation or of similar technology?? ☒ Yes ☐ No

If so, please list organization names and contacts. Please identify the source of this information.

Organization	Name	Phone	Email
City Of Sandy Springs	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Coweta County	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.

Potential Payoff (30 points)

Payoff is defined as the combination of broad applicability and significant benefit or advantage over baseline practice .

12. How does the innovation meet customer or stakeholder needs in your State DOT or other organizations that have used it?

Motorists call 511 for roadside assistance in Georgia. Often times they do not know exactly where they are, resulting in TMC operators inability to locate and dispatch HERO/CHAMP in a timely fashion. With this product, we have sped up the identification process, significantly increased confidence in location, are able to direct first responders accurately, and allow TMC operators to move on to another customer.

13. Identify the top three benefit types your DOT has realized from using this innovation. Describe the type and scale of benefits of using this innovation over baseline practice. Provide additional information, if available, using quantitative metrics, to describe the benefits.

Benefit Types	Please describe:
Improved Operation Performance	On average 17 minute reduction in dispatch times
Improved Safety	Reduction in incident clearance time, decreasing the likelihood of a severe secondary crash taking place
Improved Customer Service	Getting help to motorist quicker due to the use of a more efficient locating tool.

Provide any additional description, if necessary:

Click or tap here to enter text.

14 How broadly might this innovation be deployed for other applications. in the transportation industry (including other disciplines of a DOT, other transportation modes, and private industry)?

We may potentially expand the use of this tool to better pinpoint contractor locations on state roadways when they are ready to enter lanes to complete construction or maintenance activities.

Market Readiness (20 points)

The AII selection process will favor innovations that can be adopted with a reasonable amount of effort and cost, commensurate with the payoff potential.

15. What specific actions would another organization need to take along each of the following dimensions to adopt this innovation?

Check boxes that apply	Dimensions	Please describe:
☐	Gaining executive leadership support	Click or tap here to enter text.
☒	Communicating benefits	It is good to communicate potential benefits with both your group and your IT department to make sure you have their by in early from a IT security standpoint.
☐	Overcoming funding constraints	Click or tap here to enter text.
☐	Acquiring in-house capabilities	Click or tap here to enter text.
☒	Addressing legal issues (if applicable) (e.g., liability and intellectual property)	There is a live cell phone video sharing component to this product that would need to be discussed before taking advantage of that feature.
☐	Resolving conflicts with existing national/state regulations and standards	Click or tap here to enter text.
☐	Other challenges	Click or tap here to enter text.

16. Please provide details of cost, effort, and length of time expended to deploy the innovation in your organization.

Cost: 361,550.80

Level of Effort: COTS platform allowed for a quick deployment in pilot phase – approximately 1 month.

Time: The pilot started in September of 2019 through December 2019. Expanded use amongst 511 Operators at the GDOT TMC in Atlanta started in January 2020 soon after the pilot. Use of the Carbyne C-Lite tool slowed as staff had to work remotely from home while GDOT buildings were closed. Work to expand the use of Carbyne C-Lite statewide started back up in June of 2021 as staff was allowed to

return back to GDOT offices, and this work is still ongoing as additional software licenses were recently acquired and are in the process of being in installed on various desktop and laptop computers to give Operator the flexibility to be able to use this tool in office or remotely.

17. To what extent might implementation of this innovation require the involvement of third parties, including vendors, contractors, and consultants? If so, please describe. List the type of expertise required for implementation.

Once the software is purchased and training material is provided by the vendor, very minimal interaction is necessary from the vendor do to the ease of use and simple installation process.

CARBYNE

C-Lite User Training

+ (252) 555-0126
LAT: - 3 2 . 0 6 6 6 3 2 3 ;
LON: - 3 4 . 7 7 9 5 9 2 2

c-Lite Caller interaction
Enable Enhanced Data

If c-Lite is not already launched and sitting on your screen, you will need to launch it from the desktop or from the bottom tool bar.

- Click on the Carbyne icon

CARBYNE
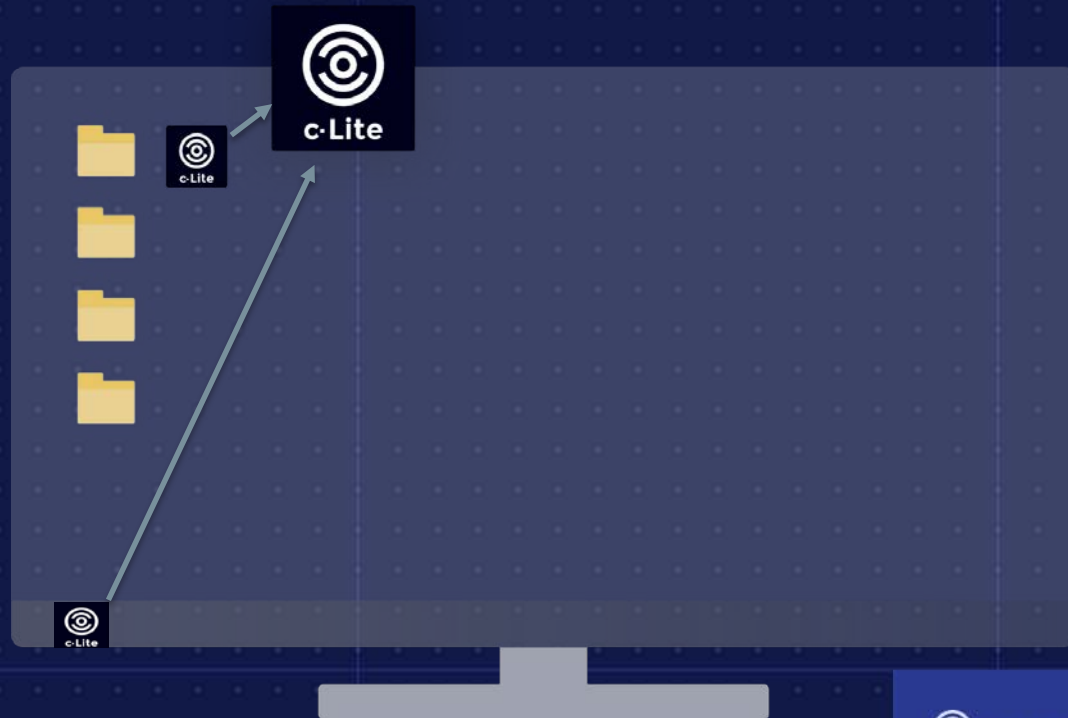
c-Lite Caller interaction

c-Lite floats over the top of your CAD or Call-handling solution

CARBYNE

c-Lite Caller interaction

Enable Enhanced Data

- Location
- Video
- Chat

- About/ Settings

CARBYNE
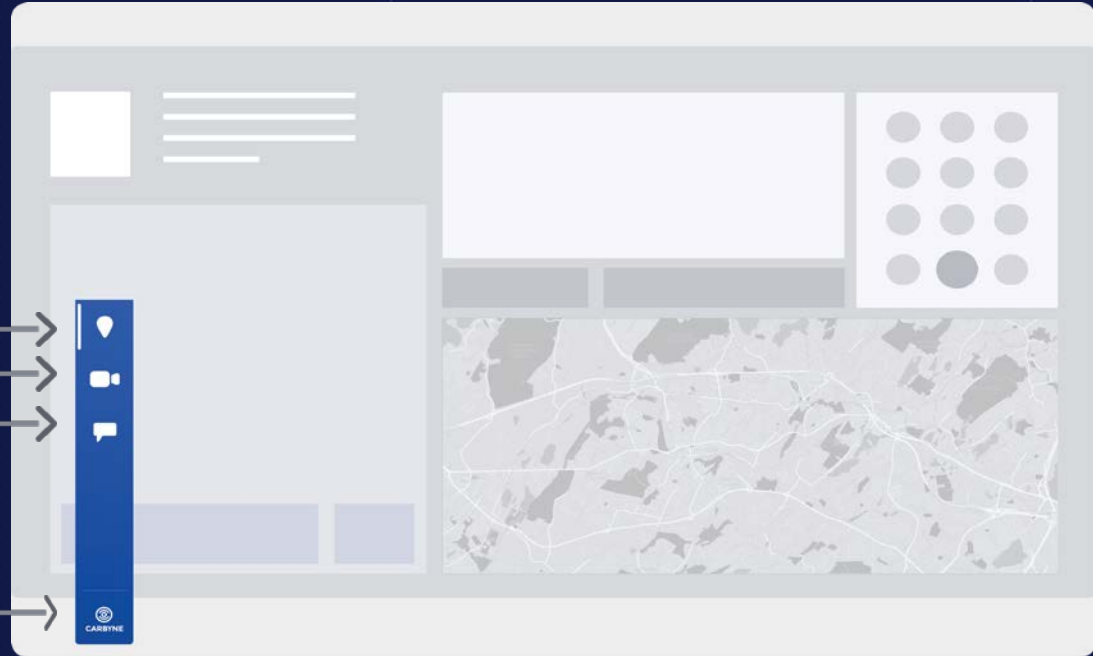
Idle c-Lite Session

While not active, the call-taker will see the local Emergency Communications Center/PSAP on a grey map.

Whenever the gray map is displayed, this indicates that the system is in an idle state.

Type a phone #

Google

Map data ©2019 Google

CARBYNE

CARBYNE
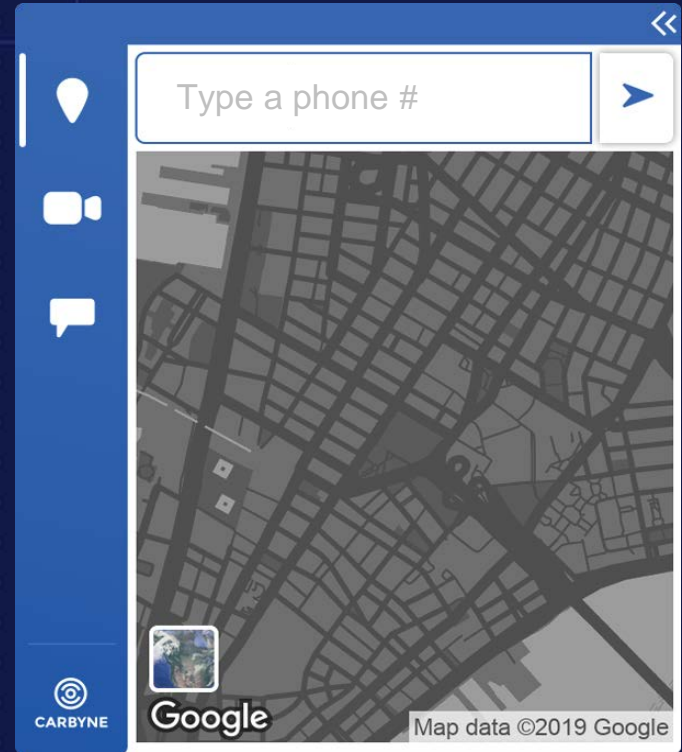
Idle c-Lite Session

Above the map the call-taker will find the phone number field as well as the send button.

As the call-taker enters the number the send button will turn active once enough numbers are entered into the field.
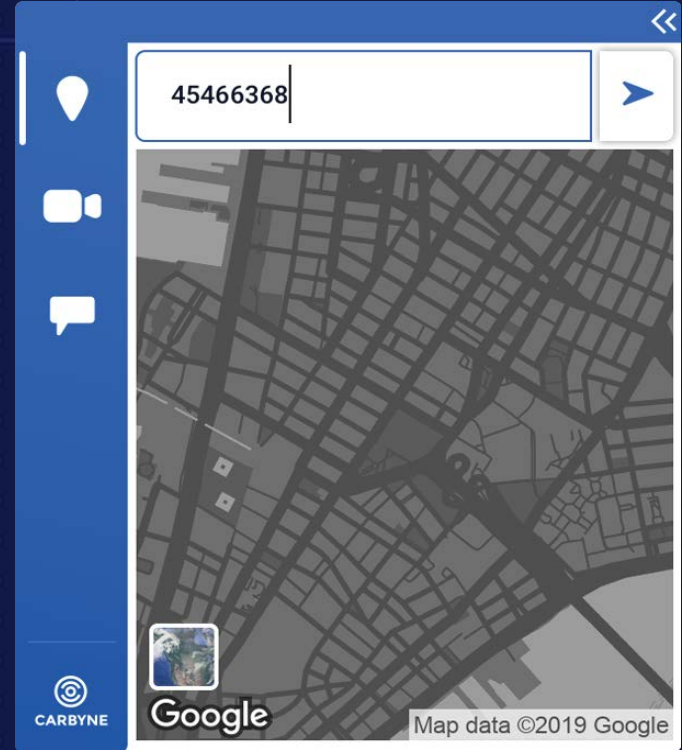
Caller's Experience

Apple User
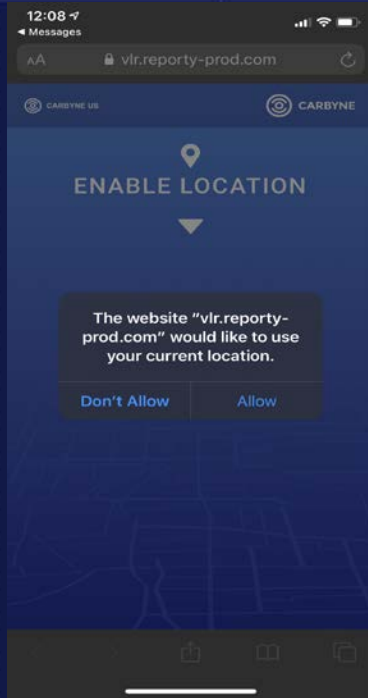
Android User

The caller will receive a text message containing a browser link.

When the caller presses the link it will take them to the browser and request permission to access their location.
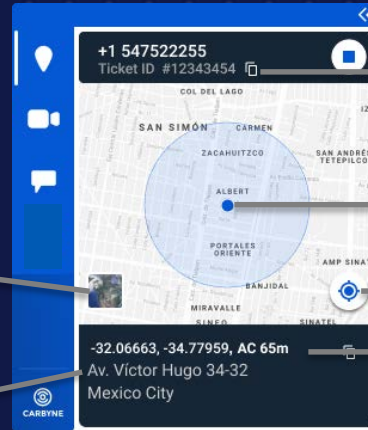

CARBYNE

c-Lite Caller interaction
Enable Enhanced Data

Copy Ticket ID Number

Live updates of the caller's location with accuracy radius

Satellite view is available by pressing on the satellite image

Caller's current location focus butt

LAT/LON & level of accuracy
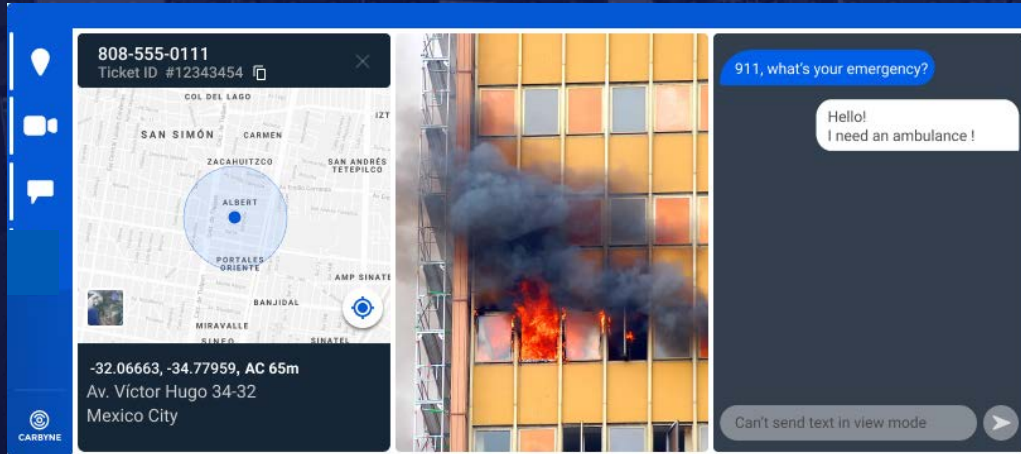
Closest estimated civic address as received from Google Maps API

CARBYNE

c-Lite Realtime Video

Enable Enhanced Data
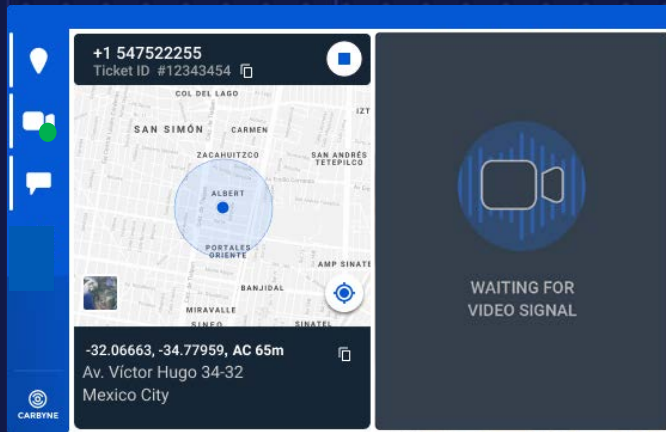
c-Lite Silent Chat Functionality

To communicate with callers who are unable to speak, shouldn't speak or who disconnected from the voice call unexpectedly, call-takers can use the Chat Function. NOTE: A chat window will automatically open when a caller sends a message.
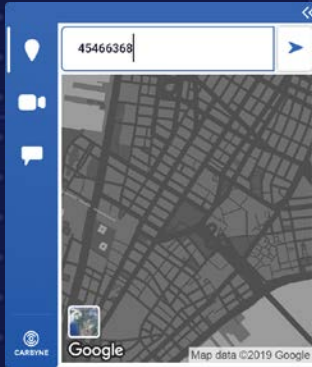
CARBYNE

c-Lite Realtime Video
Enable Enhanced Data

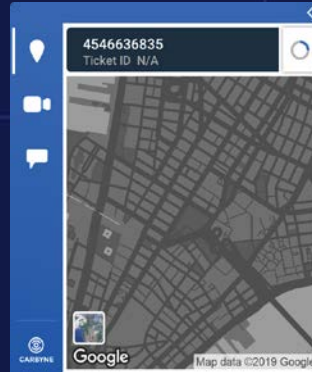New information coming into the system will be identified with a green dot.

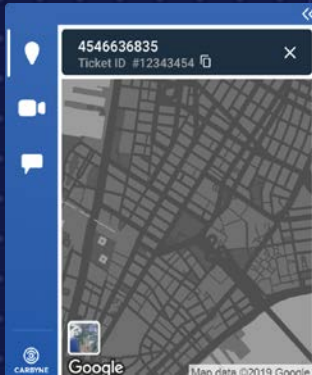The green dot will only appear if the corresponding window close.

CARBYNE
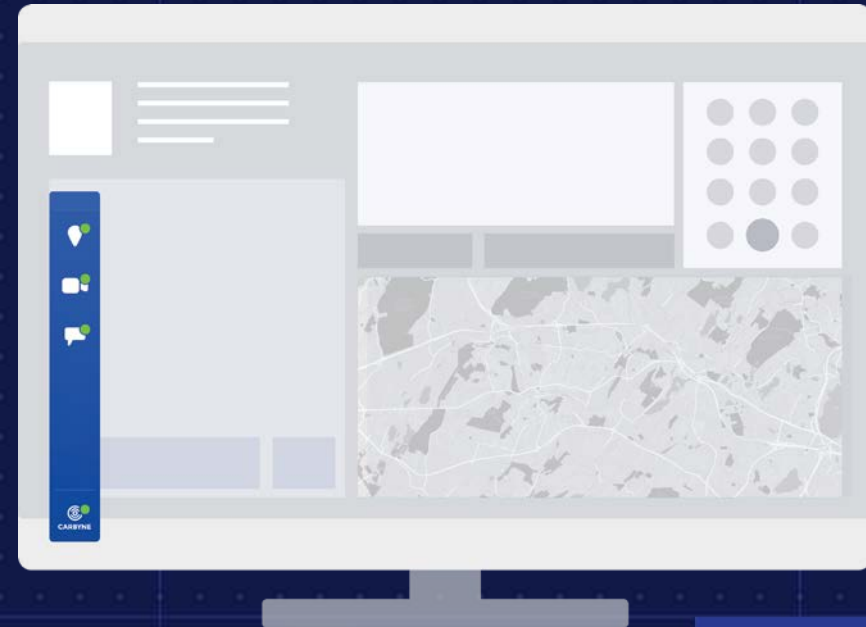
c-Lite Manual Enhancement w/o AML

The call-taker will type the phone number into the box. The moment it crossed the minimal digits required the send button will activate.

While the system initiates the session a loader will be presented for about 5 seconds.

At this point, the call-taker should engage the caller to tap the link and approve permission in order to establish rich data.
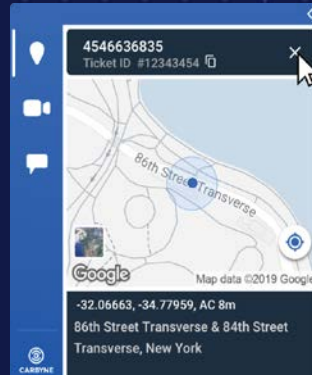

After location information is received, it will be presented over the map with details below.

System Upgrades / Updates

If there is an update available you will receive a message letting you know that there is a system update available.

You do have the option to restart the application or click to do the update later.
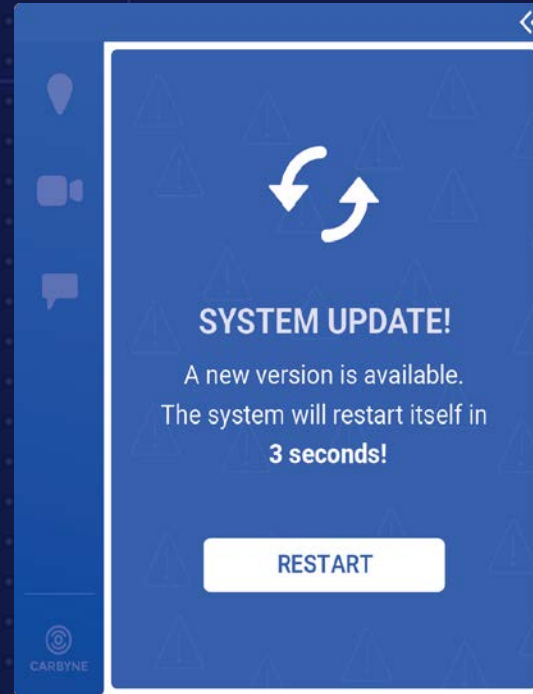
These updates are automatic and do not require a system administrator to proceed.
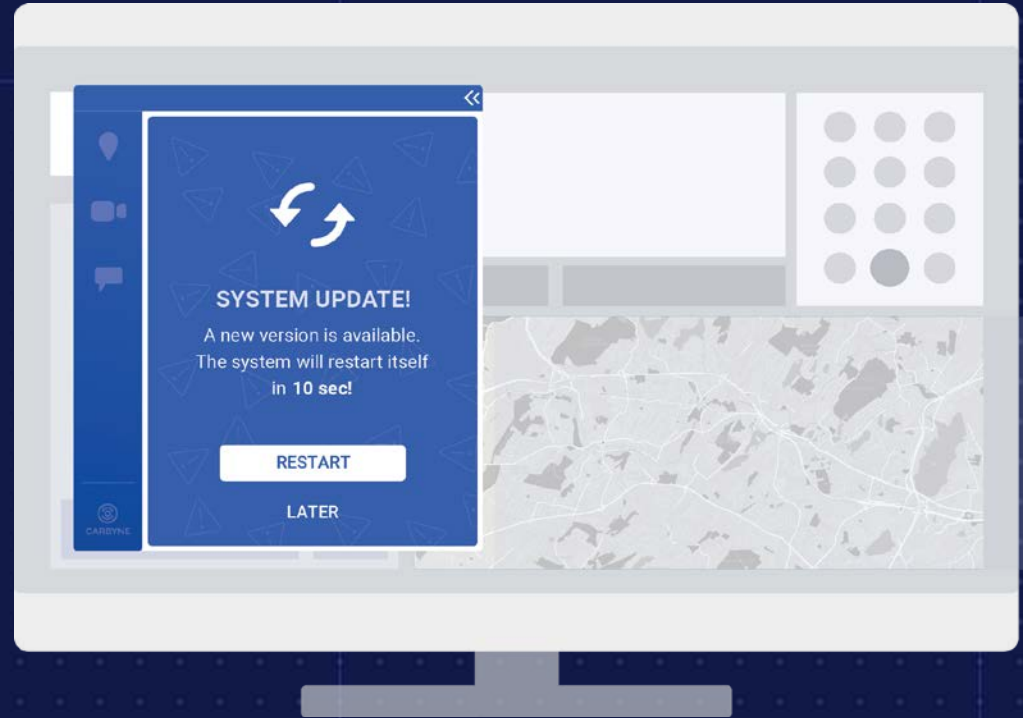
System Upgrades / Updates

You will only have the option to update later 3 times and then it will do it on its own. There will no longer be an option to perform the update later.

Also the collapse button will be disabled and the user will not be a le to close the pane or open other panes.

c-Lite Settings

Admin mode — allow Carbyne's professional services team to access advanced core settings.

Current version number

The update button appears when there is a new version available. Pressing it will update to the newest release.

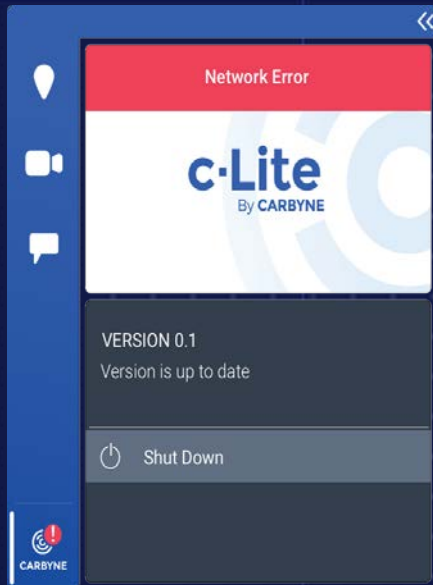The green notification appears once a new version update is available and will disappear once updated.

Click the shutdown button will close the program.

STATION: us-demo-c-lite-022

VERSION 4.08.2.00   UPDATE NOW
Version is up to date

Show Calibration
Shut Down

c-Lite
By CARBYNE

CARBYNE

In Case of an Outage or Error

Contact Support!

24/7 NOC
1-888-483-3385

or

support@carbyne911.com

PROCEDURE 8.8	CELL PHONE LOCATION TOOL

Revision 1   Date Effective 06.07.21

X	Atlanta TMC	X	D3 DOC

A.   PURPOSE

Describes the application used by the operators at the Transportation Management Center (TMC) and District Operations Center (DOC) to locate a motorist using their cell phone.

B.   BACKGROUND

Carbyne c-Lite is a tool used to acquire the motorist's location using their phone's location settings when they are requesting Highway Emergency Response Operator (HERO) or Coordinated Highway Assistance and Maintenance Program (CHAMP) assistance and cannot confirm their location. Users can also communicate with motorists using a chat feature if the motorist is unable to speak over the phone for any reason.

C.   PROCEDURE

The c-Lite plug-in is installed on limited stations in the control room. If the c-Lite station does not have an assigned operator, the operator may log into the computer to use the application. The c-Lite tool is launched by clicking the icon and the c-Lite tool bar (see **Figure 8.8-1**) floats to the top of any open windows on the screen.

Figure 8.8-1: c-Lite Tool Bar
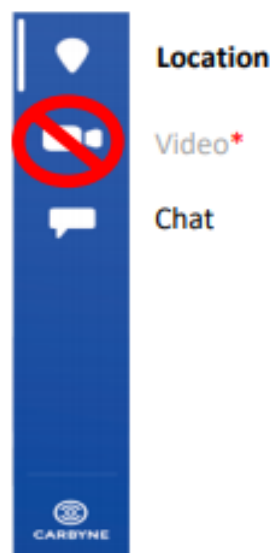
Note that operators will **NOT** enable the video feature. The purpose of the request does not require the use of video and if any TMC/DOC staff is observed using the video feature, disciplinary actions could follow.

While c-Lite is not active, the operator will see the operator's location on a gray map, as shown in **Figure 8.8-2**.

**Figure 8.8-2: c-Lite Inactive Window**

The operator will ask the motorist for their permission to send a link to their cell phone to determine their exact location. For example, the operator would say:

"I would like to send you a link via text message that will help me determine your location. Is that okay?"

- If the motorist agrees, request their cell number and enter the phone number into the c-Lite platform.
- Then send button will turn active as the operator enters the phone number, as shown in the example in **Figure 8.8-3**.

Figure 8.8-3: c-Lite Example Phone Number
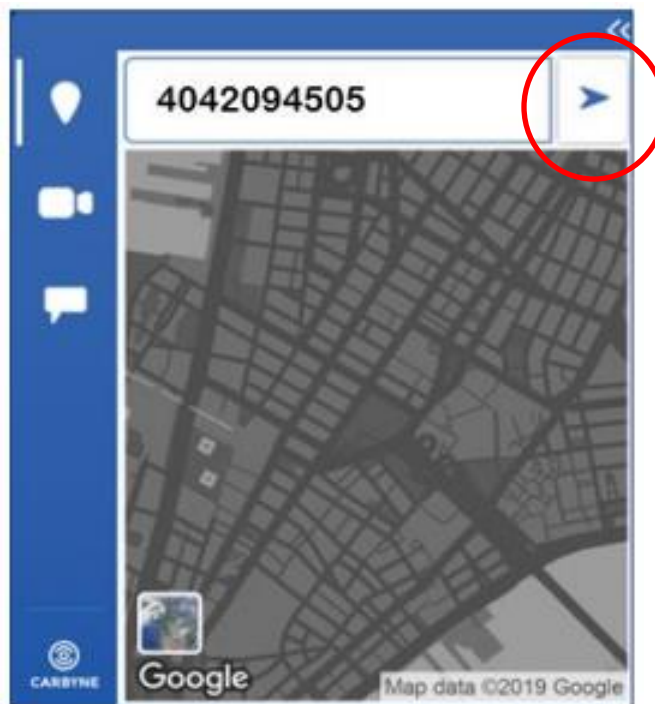
- o If the motorist declines the request, proceed with normal operations by asking the location again, enter the information into the advanced transportation management system (ATMS), properly end the call, and notify dispatch.
- The operator will then advise the caller that a text message has been sent to their phone to with a link to enable their location. The motorist will also receive a pop-up on their screen to allow video. **Advise the motorist they do not need to allow video**. For example, the operator would say:

"I have sent you a text message to enable your location. If it is safe, please click on the link in the text."

- If successful, within 10-20 seconds the motorist's location should appear on the operator's c-Lite screen (see **Figure 8.8-4**).

Figure 8.8-4: c-Lite Active Window
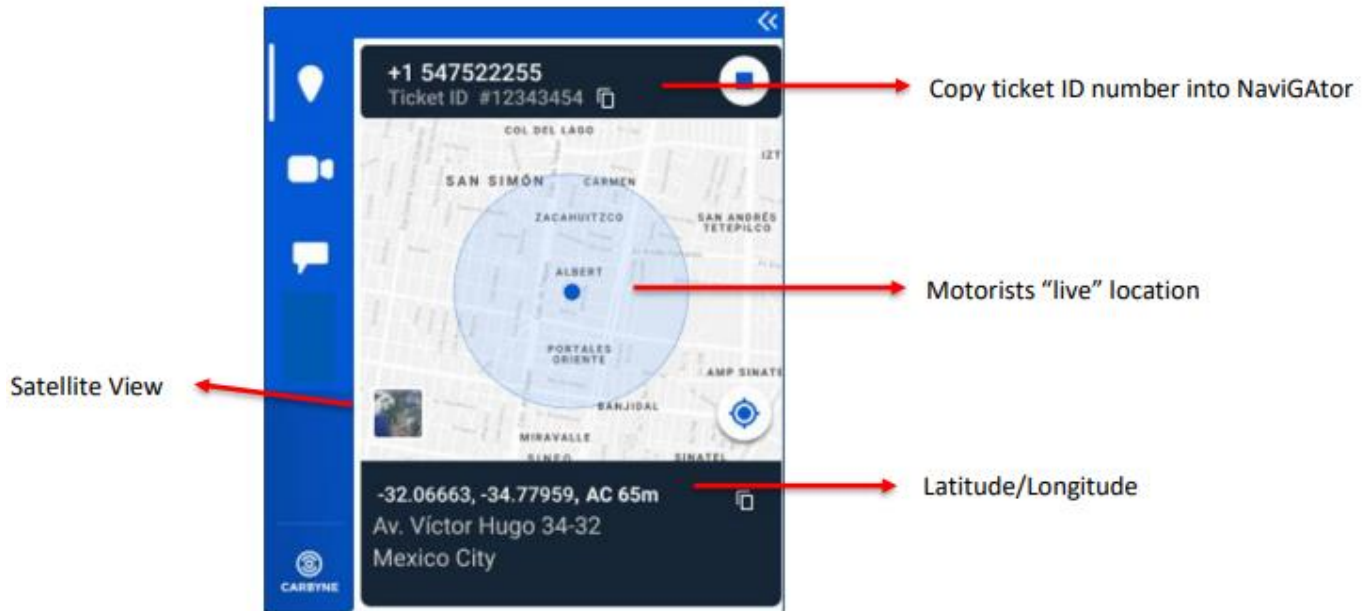
- The motorist's location is "live" and accurate. If the motorist begins to move or leaves, it will be shown on the screen.
- To determine the location based on the ATMS, enter the latitude/longitude at the bottom of the window into the latitude/longitude field on the Georgia Department of Transportation (GDOT) location page in the ATMS.
- Copy the ticket ID number to the ATMS notes pages (i.e., c-Lite ticket number 12343454").
- Once the location is confirmed in the ATMS (e.g., closed-circuit television (CCTV) camera and/or event created), the operator should close the c-Lite session by clicking the "X" in the top right corner of the application. This will end the session for both the motorist and the operator.

C.1 Troubleshooting

There are two (2) categories of errors that will appear in c-Lite; network error or connection error. The error will appear at the top of the c-Lite window (see **Figure 8.8-5**). In case of an error, contact Carbyne c-Lite support either by phone at 1-888-483-3385 (24 hours a day, seven (7) days a week) or by email at support@carbne911.com.

Figure 8.8-5: c-Lite Error Window

C.2 System Upgrades and Updates

If there is a system update available, a message will appear on the screen alerting to a system update, as shown in **Figure 8.8-6**. The operator has the option to restart the application or click the "later" option. The updates are automatic and do not require a system administrator to proceed.

Figure 8.8-6: c-Lite System Update Window

The "later" option can only be selected three (3) times and then the system will update on its own. Also, the collapse button will be disabled and the operator will not be able to close the window.

D.   RELATED PROCEDURES/APPENDICES

N/A