

Connected Vehicle Pilot Deployment Program Phase 1

Participant Training and Stakeholder Education Plan – Tampa (THEA)

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1 Introduction

1.1 Background

The Tampa Hillsborough Expressway Authority (THEA) Connected Vehicle (CV) Pilot Deployment (the pilot) aims to make surface transportation in downtown Tampa safer, smarter and greener by equipping cars, buses, personal communications devices and elements of the infrastructure with technology that enables them to communicate with each other. THEA and its partners will deploy a variety of CV applications that have the potential to transform the experience of the pedestrians, motorists and transit users who traverse the city every day.

Tampa is among the first cities in the nation to deploy CV technology on real city streets. The planned four-year effort began in September 2015, when the U.S. Department of Transportation (USDOT) awarded THEA a \$17 million contract as part of its CV Pilot Deployment Program, which seeks to spur innovation among early adopters of connected-vehicle applications. As one of just three sites selected to participate in the first wave of deployments, Tampa will play an important role in the success of the CV Pilot Deployment Program and in the future adoption of connected-vehicle technology nationwide.

The pilot deployment is not merely a demonstration but an actual implementation of CV technology in the heart of a vibrant city. It will address specific local needs using data from multiple sources, including drivers, transit riders and pedestrians. Because the pilot depends on public participation and active stakeholder engagement, participant training and stakeholder education are vital to its success.

The THEA CV pilot deployment is proceeding in three phases:

- Concept development (up to 12 months)
- Design, implementation and testing (up to 20 months)
- Operation and maintenance, impact assessment, and performance measurement (at least 18 months)

Phase 1 (concept development) comprises 13 highly interdependent tasks: (1) program management; (2) concept of operations; (3) security management operating concept; (4) safety management plan; (5) performance measurement and evaluation support; (6) system requirements; (7) application deployment plan; (8) human use approval; (9) participant training and stakeholder education; (10) partnership coordination and finalization; (11) outreach plan; (12) comprehensive pilot deployment plan; and (13) deployment readiness summary.

The Participant Training and Stakeholder Education Plan is a high-level plan for the recruitment and training of all travelers, drivers and other personnel participating in the pilot. This plan fulfills the requirements of Task 9 and is consistent with the outcomes and plans associated with the other tasks.

1.2 Purpose

The purpose of the Participant Training and Stakeholder Education plan is to outline how THEA will:

- Recruit automobile drivers and pedestrians to participate in the pilot;

- Receive informed consent from those participants, in accordance with the institutional review board (IRB) application and approval as described in the Human Use Approval Summary;
- Train participants in the safe use and maintenance of relevant pilot-related technology;
- Train transit drivers in the new aspects of their jobs;
- Communicate with participants throughout the life of the pilot to ensure continued participation; and
- Train participating personnel to install, document, operate, maintain and replace all hardware and software necessary for the successful operation of the pilot.

The Participant Training and Stakeholder Education Plan does not apply to all stakeholder groups, but only to those that require training or education: drivers, pedestrians, fleet drivers, traffic management center (TMC) operators, installation and maintenance technicians, and trainers.

1.3 Organization

This plan contains eight chapters, including the Introduction. Chapter 2 elucidates the interrelationship between the outreach and recruitment efforts, and describes recruitment messaging. Chapters 3–8 are organized according to participant groups. Chapter 3 describes the recruitment and training of individual drivers. Chapter 4 outlines the strategy for recruiting and training pedestrians. Chapter 5 provides the plan for training transit drivers. Chapter 6 describes how TMC operators will be trained to participate in the pilot. Chapter 7 lays out the plan for training installation and maintenance technicians. Chapter 8 describes the preparation of the trainers themselves.

2 Recruitment and Outreach

Securing participant involvement in the pilot depends on effective outreach to potential participants. Even after participants have been recruited and trained, it is important to continue to engage them in order to support and encourage their ongoing participation. For this reason, Task 9 (Participant Training and Stakeholder Education) and Task 11 (Outreach) are interdependent (see THEA, Outreach Plan).

With this interdependence in mind, outreach efforts will support participant recruitment, training and retention. For example:

- Messages to local audiences will include a call to action for potential participants to join the pilot.
- The pilot website will support recruitment by drawing attention to the benefits of participation and by making it easy to sign up online.
- Digital outreach materials will include public service announcements (PSAs) that link users to recruitment information.
- Outreach and recruitment materials will share the same visual identity.
- Outreach will be sustained for the full duration of the pilot to support participant retention efforts.
- Leaders of tasks 9 and 11 will coordinate their activities to ensure that their messages are consistent.

Outreach to participants will include general information about the pilot, program updates, reminders and positive messages emphasizing the value of their involvement. Two-way communication with participants is likewise important so that they can ask questions, offer testimonials and provide feedback. Participants who are actively engaged in communication with the pilot are more likely to stay in the program and to help recruit others.

Prospective participants will be offered an attractive combination of incentives in the form of (1) toll discounts and (2) free in-vehicle equipment with a high retail value. The incentive package will be a central focus of the recruitment message. The recruitment effort will also emphasize the safety, mobility and environmental benefits of CV technology.

3 Automobile Drivers

3.1 Role and Responsibilities

THEA expects to recruit and train approximately 1,500 individual automobile drivers, who will participate in Use Cases 1 (Morning Peak Hour Queues), 2 (Wrong Way Entries), 3 (Pedestrian Safety), 5 (TECO Line Streetcar Trolley Conflicts), and 6 (Enhanced Signal Coordination and Traffic Progression). All drivers are considered research subjects, so approval of human use by an Institutional Review Board is required (see the Human Use Approval Summary). According to the IRB-approved protocol, only the driver who owns the car and registers to participate in the pilot requires informed consent and training.

All drivers will receive the same onboard unit (OBU), including the initial control group. The control group's OBUs will be disabled in order not to receive messages for a short period of time. Once the control has been established, those participants can then become part of the regular data set by enabling messages. Drivers in the initial control group will receive the same training as other participants but will be informed that they will receive no alerts during the initial control period.

The driver's responsibilities are as follows:

- Successfully and accurately complete an online evaluation
- Participate in an interactive orientation to the pilot deployment
- Sign the Informed Consent document
- Undergo training at the time of installation
- Keep the device installed and functioning in their automobile at all times
- Allow THEA periodic access to the device (initially, once every two months) for data retrieval, inspection and maintenance (THEA, Performance Measurement and Evaluation Support Plan, Chapter 7.1)
- Keep their driver's license, registration and automobile insurance policy current
- Drive safely and avoid unnecessary risks
- Respond safely and appropriately to all alerts and/or warnings from the device (if applicable)
- Remain in control of their vehicle at all times. The device will not enable a vehicle to drive itself and will not take control under any circumstances
- Inform other drivers of the car, if any, how to use the OBU
- Remain in contact with the pilot by reading and responding to communications from the pilot
- Report to THEA any significant event such as a crash, sale of vehicle, theft of vehicle, theft of device, damage to device, suspension of driver's license, or change in residence or place of employment that results in the driver no longer driving the equipped vehicle in the pilot deployment area

- Participate for the 18-month duration of the pilot deployment, though they can opt out at any time if they wish. Drivers who opt out are expected to return their devices to THEA

3.2 Qualifications

The automobile portion of the project is open to licensed drivers who meet the following criteria:

- The driver has a current, valid driver's license.
- The driver is an adult (age 18 or older).
- The driver has valid automobile insurance. (Florida state law requires a minimum of \$10,000 personal injury protection and \$10,000 property damage liability.)
- The driver owns his or her own vehicle, or is financing it for ownership (no leased vehicles).
- The vehicle is a 1997 model year or newer (an On-Board Diagnostics II, or OBD II, port must be available).
- The driver's daily commute intersects downtown Tampa, or the driver routinely uses Meridian Avenue, Twiggs Street or the Lee Roy Selmon Expressway Reversible Express Lanes (REL).
- The driver is willing to participate for the 18-month duration of the pilot deployment.
- The driver will allow THEA periodic access to the device for data retrieval, inspection and maintenance.
- The driver has no existing crash warning systems on the vehicle.

3.3 Recruitment

Participating automobile drivers are expected to come from the Tampa commuter shed in the outlying Brandon suburbs, where the Selmon REL originates, and from the commuter population in the greater Tampa area whose morning commutes terminate in or transgress downtown Tampa. Recruitment will target commuters headed to downtown Tampa, other destinations near downtown and MacDill Air Force Base (MAFB) who use the REL, Meridian Avenue, Twiggs Street, Channelside Drive and other roads in the deployment area.

The recruitment effort recognizes that, according to the U.S. Census Bureau, approximately 10 percent of Hillsborough County residents speak English "less than 'very well.'" The largest language group among those is Spanish speakers, who make up 8 percent of the county population. THEA's recruitment efforts will not specifically target residents who prefer to communicate in Spanish, nor does THEA plan to do any specific recruitment efforts in Spanish, though bilingual team members are available who can participate in interviews with Spanish-language news media. THEA recognizes that its recruitment efforts may net some Spanish speakers, and this plan includes provisions for Spanish-language informed consent and participant training.

THEA will take a staged approach to recruiting. The staged approach will allow THEA to grow its recruiting efforts based on success, making use of more cost-effective methods first, then expanding its efforts as needed until recruiting goals are met. THEA will be prepared to resume recruitment efforts at any time if the number of driver participants falls below 1,500.

3.3.1 Stage 1

The first stage of the recruitment effort will focus on the most cost-effective methods for reaching the recruitment goals. Those methods include:

- Email (to provide wording and template)
 - Existing THEA customers
 - SunPass users (from Florida’s Turnpike Enterprise)
 - Toll-by-plate customers (THEA)
 - Stakeholders (from the Stakeholder Registry)
 - THEA/MacDill probe study participants
- THEA newsletter articles
- Social media (Facebook and Twitter)
 - THEA accounts
 - Partner and stakeholder accounts
- News media
 - Recruitment kickoff media event
 - At THEA TMC and/or
 - At installation location to demonstrate technology
 - News coverage provides legitimacy for other recruitment efforts
- Partner fleets
 - Hillsborough Area Rapid Transit (HART)
 - TECO Trolley Line
 - Invite fleet drivers to participate in their personal vehicles too
- Out-of-home messaging
 - Traveling display, sandwich boards
 - Downtown buildings
 - Downtown events
 - Brandon Town Center Mall
 - Regency Park (in Brandon)
 - Movie theater (AMC at Regency Park)
 - Retail stores
 - Apartment complexes
 - WaWa, CVS, Publix locations (partnership possibilities)
 - Building banners on THEA building, other buildings in/around downtown
- Printed material distributed to stakeholders (downtown businesses and organizations)
 - Flyers
 - Posters
- Craigslist ads

Most recruiting efforts will point potential participants to the pilot website. (For a complete description of the pilot website, see the Outreach Plan.) The website will feature a recruiting page that includes:

- A brief video introducing potential participants to connected vehicles, THEA and the basics of participation
- An FAQ section, with the ability to ask additional questions (via online form and email) which will be answered by THEA pilot helpdesk personnel
- An online self-selection questionnaire to determine if the potential participant qualifies (see Chapter 3.4)

3.3.2 Stage 2

If additional recruitment activity is required beyond Stage 1, those ongoing efforts will continue and the following efforts will be added:

- News media
 - Additional stories, events
- Presentations at stakeholders
 - Employer outreach
 - Rotary and civic groups
- Paid messaging
 - Online (targeted to age, gender, location, interests)
 - Google
 - Facebook
 - Pandora (reaches in-car)

3.3.3 Stage 3

If additional recruitment activity is required beyond Stage 2, those ongoing efforts will continue and the following efforts will be added:

- Out-of-home messaging
 - Billboards along the Selmon Expressway/REL
 - HART bus exterior advertisements
- Paid messaging
 - Radio
 - TV
 - Movie theaters in Brandon and elsewhere

3.4 Selection

Upon responding to the call to action on the recruitment web page, the prospective participant will be directed to an online questionnaire that will prescreen applicants based on the criteria described in Chapter 3.2. In addition to these criteria, the prescreening questionnaire will collect basic demographic information including age, gender, and language preference (English/Spanish) on a voluntary basis. After completing the questionnaire, qualifying applicants will be invited to schedule an appointment for informed consent, registration, training and installation. The web page will include a scheduling function so that qualifying applicants can set up their appointments online. For persons without online access alternative measures (e.g., phone, email) will be used. THEA will communicate electronically with the prospective participant to remind him/her of the appointment.

The online self-selection questionnaire will include:

- Name
- Demographic information (voluntary). This information will not be used to determine eligibility, but to allow researchers to report on technology adoption statistics at the end of the pilot):
 - Age
 - Gender
 - Ethnicity
- Home address
- Work address
- Year, make and model of car
- Does your vehicle currently have a preinstalled or aftermarket crash-avoidance system?
- Do you have a valid Florida driver's license?
- Do you own or are you financing your vehicle toward ownership (not a lease)?
- Do you have Florida auto insurance?
- Is your vehicle registered in the state of Florida?
- Do you agree to the Terms and Conditions?
 - Will you allow THEA to install a device in your vehicle?
 - Do you commit to participating in the full 18-month pilot deployment, barring any unforeseen circumstances that may require you to withdraw, including but not limited to, sale, theft or other loss of your vehicle; changing your place of residence or employment; others. You have the right to end your participation in the pilot deployment at any time and for any reason. You may be required to provide THEA access to your vehicle to uninstall the device.
 - Will you accept periodic electronic communications from THEA in order to stay up-to-date on the pilot deployment, and learn about any issues connected to your participation, including problems with your device or a prolonged absence from the deployment area as indicated by no data received by THEA.
 - Will you provide THEA periodic access to the installed device (initially, once every two months) to download pilot-related data?

- Will you respond appropriately and safely to all warnings and alerts communicated to you via the OBU (if applicable)?
- Preferred language
 - English
 - Spanish
 - Other

An algorithm will use the answers to determine the applicant's eligibility and respond appropriately:

- You do not qualify for this pilot deployment (insert reason)
 - Ineligible vehicle (details)
 - No license or insurance
 - Daily commute does not intersect the deployment area
- You qualify. Proceed to set up an appointment for registration, training and installation.
- You qualify, but the pilot is not accepting new participants at this time. Your name will be placed on a waiting list.

3.5 Informed Consent and Registration

THEA will partner with a local facility to provide OBU installation locations and services. Participant informed consent, registration and training will take place at the same location(s) during the installation. If more than one installation bay is available, then multiple participants may be registered and trained at the same time.

At the initial appointment, the prospective participant will watch a brief video explaining the Informed Consent process. A THEA staff person will be present to answer any questions the applicant may have. The staff person will also present the person with an electronic Informed Consent document on a tablet and ask him/her to read it. The Informed Consent video and document will be available in English and Spanish. Some staff will be bilingual (English/Spanish) to accommodate Spanish-preference participants.

The participant will be required to enter Personally Identifiable Information (PII) into the Informed Consent document.

- Name
- Home address
- Phone number(s)
- Email address
- Vehicle make and model, and VIN
- Username and password for the secure participant portal on the website, where participants can view updates and communicate with the pilot

When the participant signs, the THEA staff person will direct a technician to install the device while the participant enters the participant training.

The Informed Consent video will cover the following topics derived from the IRB-approved Informed Consent document:

- Introduction
- Explanation of connected vehicles (not autonomous vehicles)
- Purpose of the pilot deployment
- What will happen during the pilot deployment
- Potential risks and benefits of the pilot deployment
- Compensation
 - Permanent installation of device, which participant can keep after the 18-month pilot
 - Subscription to Sirius/XM satellite radio during the 18-month pilot
 - Toll discount on REL during the 18-month Pilot
- Safety, security and confidentiality
- Voluntary participation (right to withdraw)

3.6 Training

While the device is being installed in a participant's vehicle, he or she will receive training (in English) on how to participate in the pilot. The training will be video-based to provide consistency of messages. Global-5 will produce different training videos for each participant group (automobile drivers, pedestrians, transit drivers, TMC operators, installation and maintenance technicians, and trainers).

Training will be conducted by temporary employees whom Global-5 will train to handle the Informed Consent and training process. The temporary employees will also receive training in the IRB process.

The trainer will show the video to each participant (ideally on the same tablet used to sign the Informed Consent document), then answer questions from the participant. Once the installation is complete, the trainer will show the participant the OBU and demonstrate its functionality. There will be a manually controlled roadside unit (RSU) at each install location so the trainer can use it to communicate with the OBU and show the participant an actual alert. A second OBU will also be available to demonstrate vehicle-to-vehicle alerts. This will provide an additional opportunity to reinforce the message that the driver is always responsible for responding to alerts — the vehicle is not autonomous or automated. The trainer can also show the participant basic system troubleshooting (if applicable), connections to check if the OBU stops functioning.

3.6.1 Objectives

After completing the training, the participants should:

- Understand their role and responsibilities
- Understand what the device will and will not do (connected vehicle, not autonomous vehicle)

- Understand how to use and maintain the device
- Understand what types of alerts to expect, and how to respond safely and appropriately
- Understand when and how to communicate with THEA regarding issues
- Understand when to bring their vehicle in for data extraction, where to bring it, and how long the procedure will take
- Understand what data THEA will and will not collect, and how THEA will use the data

3.6.2 Training Video

The video training is expected to cover the following topics:

- Introduction to connected vehicles
 - These are NOT autonomous vehicles
 - You get an alert, you make the vehicle respond
- THEA Pilot Deployment
 - Pilot deployment area
 - Use cases overview
 - Treated v. control groups
 - Data and privacy
- The OBU
 - Mass-market functions (if applicable)
 - Back-up camera
 - Forward collision warning
 - CV Pilot Driver-Vehicle Interface (DVI)
 - Warnings and alerts
 - Expected driver response
 - Driver responsibility to control the vehicle (CV, not AV)
 - Troubleshooting
 - Reporting issues to the pilot (via the website)
- How to opt out of the CV pilot
- Participant communication
 - Data extraction: how often, where to bring the vehicle, and how long it will take
 - Electronic newsletters from THEA
 - Reporting alerts, incidents and crashes
 - Feedback
- Safety review: It is the driver's responsibility to control the vehicle at all times
- Questions

3.6.3 Assessment

Each prospective participant will be required to complete a brief assessment at the end of their training. The assessment will be a digital quiz that requires them to match DVI icons with their meanings. It will also feature elements that will reinforce two key behavioral messages: the driver is responsible for responding to all alerts from the OBU, and the proper response to all alerts is to pay attention to the roadway, and slow down or stop. If an individual is unable to answer all questions correctly, the trainer will offer additional explanation and administer the assessment again. Failure to complete the assessment successfully on the second attempt will result in disqualification.

3.6.4 Materials

In addition to the video training, each participant will receive the following printed handouts:

- Tip card with all warnings/alerts, their meaning and the expected response from the driver
- Vehicle incident/crash checklist
- Frequently asked questions

3.7 Retention

The goal of this plan is to find participants who will remain with the pilot for the full 18 months, while allowing participants to withdraw from the pilot at any time for any reason. Two-way communication with the participants is key to retaining them through the pilot's life. The communication tools to be used by the THEA CV Pilot are detailed in the Outreach Plan. Specific initiatives that will be focused on participants, and keeping them engaged in the pilot, include:

- A secure, password-protected web portal for participants
- Regular e-newsletters for participants only with participant-focused content
- A community forum for participants to anonymously discuss topics with other participants
- Participant input form, which will allow participants to contact the THEA pilot helpdesk with questions, compliments, problems, issues, requests for technical support, or to leave the pilot
- Periodic polls and surveys to get participant feedback

The THEA team will also monitor participant activity in the deployment area, checking that data from participant OBUs are being received on a regular basis. If a participant's vehicle does not appear in the deployment area for a month or more (taking into account sickness, vacation or other temporary absence), THEA will reach out to the participant via email, phone call or letter to inquire about the participant's status in the pilot. THEA will confirm that the participant is aware of and is receiving all the associated incentives. If the participant is unable or no longer wishes to participate in the pilot, they will be asked to set up an appointment for de-installation of the OBU. Otherwise, the THEA team will attempt to troubleshoot the issue. If that is not successful, the THEA team will invite the participant to make an appointment to have the OBU inspected by an installer.

3.8 Feedback

The THEA team will use both active ("push") and passive ("pull") opportunities to obtain feedback from participants about their experience in the pilot.

Active opportunities are those in which THEA will push out requests for participants to provide feedback. For example, the THEA team can create an online survey (via SurveyMonkey or other online survey service), then send an invitation and link to the survey via email, e-blast or e-newsletter to participants.

The main passive opportunity for feedback is through the participant portal on the website. A feedback form allows participants to send their thoughts and ideas to THEA whenever they want. Information posted through the feedback form would be sent to the THEA pilot helpdesk for review and distribution to the appropriate people.

All participant feedback will be analyzed and shared with the appropriate THEA team members so it can be addressed with the participant, or used to improve the pilot as appropriate.

4 Pedestrians

4.1 Role and Responsibilities

Pedestrian participants will be involved in use cases 3 (Pedestrian Safety) and 5 (TECO Line Streetcar Trolley Conflicts).

THEA expects to recruit and train at least 500 pedestrians including downtown residents, courthouse employees, and employees who work in other downtown office buildings. No hardware will be provided to pedestrian participants, so there is no limit to their number. The number of pedestrian participants will be determined by response to recruiting efforts.

Pedestrians will participate using an app downloaded on their smartphones that will make them “connected” and enable them to receive alerts and respond to potential hazards. Pedestrian participants must be recruited and trained. Pedestrians are also considered research subjects, so approval of human use by an Institutional Review Board is required (see THEA, Human Use Approval Summary).

All pedestrian participants will download the same app, including the initial control group. The control group’s apps will be disabled in order not to receive messages for a short period of time. Once the control has been established, those participants can then become part of the regular data set by enabling messages. Pedestrians in the initial control group will receive the same training as other participants but will be informed that they will receive no alerts during the initial control period.

Pedestrian participants’ responsibilities are as follows:

- Undergo training upon installation of the app.
- Keep the app installed on their cellphones for the duration of their participation in the pilot.
- Walk safely and avoid unnecessary risks.
- Respond safely and appropriately to all alerts and/or warnings from the app.
- Report significant events to THEA including all instances of alerts and what actions were taken.

4.2 Qualifications

Participation in the Pilot is open to pedestrians who meet the following criteria:

- The pedestrian is an adult (age 18 or older).
- The pedestrian is willing to provide contact information.
- The pedestrian owns a mobile device running the Android mobile operating system.
- The pedestrian regularly walks in the pilot deployment area and uses one or more instrumented crosswalks.

4.3 Recruitment

Pedestrian recruitment will employ many of the same strategies as driver recruitment (see Chapter 3.3). In fact, drivers who qualify to participate in the pilot will also be invited to download the pedestrian app at their initial appointment. Because the pedestrian use cases are concentrated in a few downtown locations, however, pedestrian recruitment will focus on those areas where the use cases will be deployed.

Pedestrian participant recruitment will differ from driver recruitment in that THEA will recruit pedestrians in groups (for example, employees of local businesses, and residents of communities near use case locations). THEA will work cooperatively with businesses, homeowners associations and other stakeholders to arrange meetings at which a registrar will discuss the pilot, explain the pedestrian use cases and mobile application, and ask for volunteers. The registrar will show the Informed Consent Document (ICD) information and training video to the group, and individuals can download the mobile app and register for participation on their mobile devices.

4.4 Selection

During meetings with groups of prospective participants, the registrar will explain the qualifications for participation, including mapping out the use cases. This can be done either via video or a PowerPoint presentation. At the end of the introduction, the registrar will issue a call to action to the audience, inviting members to become participants. At this point, the audience members take the self-selection questionnaire.

4.5 Informed Consent and Registration

At meetings with groups of prospective participants, the registrar will show the Informed Consent video for pedestrians, which spells out participant rights and responsibilities, giving a summary of the ICD. The registrar will be available for questions, either publicly or in private following the presentation. The Informed Consent video will cover the following topics:

- Introduction
- Explanation of connected vehicles and pedestrians
- Purpose of the pilot deployment
- What will happen during the pilot deployment
- Definitions of the alerts
- Potential risks and benefits of the pilot deployment
- Safety, security and confidentiality
- Voluntary participation (right to withdraw)

Following that, the registrar will share a URL (or QR code) which the self-selected participants access via their smartphones. The website will be programmed to determine if the user's smartphone is compatible with the pedestrian mobile app, and provide a rejection notice to those whose devices do

not qualify. The secure website then displays a copy of the ICD, which participants digitally sign (or accept, as they would an end user license agreement for software or online services). The ICD will be available in English and Spanish. The participant will be required to enter PII into the Informed Consent document.

- Name
- Email address
- Username and password for the secure participant portal on the website

When the participant accepts the ICD and enters the PII, the site will download the application to the smartphone for installation. The participants then open and activate the mobile app. The registrar has a portable RSU available, which is activated to test the newly installed apps.

4.6 Training

4.6.1 Objectives

After completing the training, the participants should:

- Understand the purpose and benefits of the pilot
- Understand what data THEA will and will not collect, and how THEA will use the data
- Understand their role and responsibilities
- Understand how to use the app
- Understand what types of alerts to expect, and how to respond safely and appropriately
- Understand when and how to communicate with THEA regarding issues

4.6.2 Training Video

Once the apps are installed and tested, the registrar will show a training video to the audience. The video training is expected to cover the following topics:

- Introduction
- THEA pilot deployment
 - Pilot deployment area
 - Use cases overview
 - Treated v. control groups
 - Data and privacy
- The mobile app
 - Warnings and alerts
 - Expected response
 - Troubleshooting
 - Reporting issues to the pilot (via the website)
- How to opt out of the pilot

- Participant communication
 - Electronic newsletters from THEA
 - Reporting alerts, incidents and crashes
 - Feedback
- Safety review: Don't be a distracted pedestrian
- Questions

4.6.3 Assessment

Prospective participants will take a quiz to demonstrate that they have met the training objectives. If an individual is unable to answer all questions correctly, the trainer will offer additional explanation and administer the assessment again. Failure to complete the assessment successfully on the second attempt will result in disqualification.

4.6.4 Materials

In addition to the video training, each participant will receive the following handouts:

- Tip card with all warnings/alerts, their meaning and the expected response from the pedestrian
- Frequently asked questions

4.7 Retention

Two-way communication with the participants is key to retaining them through the pilot's life. The communication tools to be used by the THEA CV Pilot are detailed in the Outreach Plan. Specific initiatives that will be focused on participants, and keeping them engaged in the pilot, include:

- A secure, password-protected web portal for participants
- Regular e-newsletters for participants only with participant-focused content
- A community forum for participants to anonymously discuss topics with other participants
- Participant input form, which will allow participants to contact the pilot helpdesk with questions, compliments, problems, issues, requests for technical support, or to leave the pilot
- Periodic polls and surveys to get participant feedback

4.8 Feedback

The THEA team will use both active ("push") and passive ("pull") opportunities to obtain feedback from participants about their experience in the pilot.

Active opportunities are those in which THEA will push out requests for participants to provide feedback. For example, the THEA team can create an online survey (via SurveyMonkey or other

online survey service), then send an invitation and link to the survey via email, e-blast or e-newsletter to participants.

The main passive opportunity for feedback is through the participant portal on the website. A feedback form allows participants to send their thoughts and ideas to THEA whenever they want. Information posted through the feedback form would be sent to the THEA pilot helpdesk for review and distribution to the appropriate people.

All participant feedback will be analyzed and shared with the appropriate THEA team members so it can be addressed with the participant, or used to improve the pilot as appropriate.

5 Transit Drivers

5.1 Role and Responsibilities

In addition to individually owned automobiles, two fleets of transit vehicles will participate in the pilot: Hillsborough Area Regional Transit (HART) buses and the TECO Line Streetcar System. Recruiting and training fleet drivers requires different approaches than doing so with the general public.

OBUs will be installed in 10–14 HART buses as part of use case 4 (BRT Signal Priority Optimization, Trip Times and Safety), and in a comparable number of TECO Line trolleys for use case 5 (TECO Line Streetcar Trolley Conflicts). HART owns and operates its buses, while the TECO Line is owned by the City of Tampa and operated by HART.

All vehicles will receive the same OBU, including the initial control group. The control group's OBUs will be disabled in order not to receive messages for a short period of time. Once the control has been established, those vehicles can then become part of the regular data set by enabling messages. Drivers in the initial control group will receive the same training as other participants but will be informed that they will receive no alerts during the initial control period.

It will be the responsibility of HART and TECO, not the drivers, to take the buses and trolleys to the shop periodically for data uploading.

The following are the HART drivers' and TECO Line operators' responsibilities:

- Undergo training
- Drive/operate their vehicles safely
- Respond safely and appropriately to all alerts and/or warnings from the device
- Report all incidents to HART
- Control their vehicles at all times (this is CV, not AV)

5.2 Informed Consent

As fleet owners, the City of Tampa and HART will be the official participants in the pilot and will provide informed consent on behalf of their employees. HART and the City have the responsibility to inform and protect their drivers, who will use CV pilot devices as a part of their everyday responsibilities.

5.3 Training

5.3.1 Objectives

After completing the training, the participants should:

- Understand the purpose and benefits of the pilot
- Understand what data THEA will and will not collect, and how THEA will use the data
- Understand their role and responsibilities
- Understand how to use the app
- Understand what types of alerts to expect, and how to respond safely and appropriately
- Understand when and how to communicate with THEA regarding issues

5.3.2 Training Video

THEA will provide HART and the City of Tampa a connected vehicle training video similar to the one provided to participants, as described in Chapter 3.6. It will be customized to include transit use cases, DVI and warnings/alerts instead of those for personal vehicles. The City and HART will be responsible for showing the video to connected vehicle drivers. A THEA registrar will attend the division meetings and be available to answer questions the drivers may have.

The number of drivers and operators who need to be trained will be at the discretion of HART and the City.

The video training is expected to cover the following topics:

- Introduction to connected vehicles
 - These are NOT autonomous vehicles
 - You get an alert, you make the vehicle respond
- THEA Pilot Deployment
 - Pilot deployment area
 - Use cases overview
 - Data and privacy
- The OBU: Driver-Vehicle Interface (DVI)
 - HART functions
 - Requesting signal priority
 - Priority/revocation alerts
 - TECO functions
 - Vehicle turning alerts
 - Pedestrian alerts
 - Troubleshooting
 - Reporting issues to the pilot (via the website)
- Participant communication
 - Electronic newsletters from THEA
 - Reporting alerts, incidents and crashes
 - Feedback
- Safety review: It is the driver's responsibility to control the vehicle at all times

- Questions

5.3.3 Assessment

Post-training assessment will follow standard HART/TECO procedures for the training and assessment of transit drivers.

5.3.4 Materials

HART drivers and TECO streetcar operators will receive the same materials all driving participants receive:

- Tip card with all warnings/alerts, their meaning and the expected response from the driver
- Vehicle incident/crash checklist
- Frequently asked questions

5.4 Retention

As both HART and the City of Tampa are partners in the pilot, their fleets are expected to remain active in the pilot through its life and into the sustainability phase. THEA will work with them to make sure that as they turn over fleet vehicles during the pilot, that they remove and reinstall the OBUs into new vehicles.

HART drivers and TECO operators will be invited to communicate with the pilot like other participants. THEA will invite them to submit their basic contact information and set them up with a password-protected account on the participant portal. This will give them access to:

- Regular e-newsletters for participants only with participant-focused content
- A community forum for participants to anonymously discuss topics with other participants
- Participant input form, which will allow participants to contact the pilot helpdesk with questions, compliments, problems, issues, requests for technical support, or to leave the pilot
- Periodic polls and surveys to get participant feedback

5.5 Feedback

Feedback from transit drivers will be solicited in two ways:

- Via general participant feedback tools, like surveys and the feedback form on the web portal
- Via meetings with the fleet management and membership

6 TMC Operators

6.1 Role and Responsibilities

Traffic operations personnel at the THEA/City of Tampa Joint Traffic Management Center (TMC) manage opening, closing and directional reversing of the THEA Selmon REL, and monitor traffic signals in downtown Tampa and throughout the city. TMC staff implements special event timing plans for major events in downtown Tampa, Amalie Arena and the Tampa Convention Center. They also dispatch Road Ranger Service Patrol vehicles in response to stalled vehicles or crashes on the REL or local lanes. TMC operators are actively involved in all pilot use cases.

The following are the TMC operator's responsibilities:

- Undergo training on how to interact with the pilot applications.
- Respond safely and appropriately to all incoming alerts.
- Report and document all incidents related to the pilot.

6.2 Qualifications

All persons qualified to work in the City of Tampa/THEA TMC are qualified to participate in the pilot.

6.3 Training

THEA will provide training for all TMC operators on aspects of the pilot that are relevant to their work, especially focusing on their responsibilities, and new technology being deployed to the TMC. The THEA building houses the TMC, so all training can take place on site. TMC operator training will utilize a combination of video and hands-on instruction. Video will enable new operators to receive training prior to interacting with the pilot, and will allow for ongoing refresher training for operators. THEA staff or team members will be present at formal training sessions to answer questions.

6.3.1 Objectives

After completing the training, TMC operators should:

- Understand the purpose and benefits of the pilot
- Understand their role and responsibilities
- Understand what types of alerts to expect, and how to respond safely and appropriately
- Understand when and how to report alerts that involve incidents
- Understand when and how to communicate with THEA regarding issues

6.3.2 Training Video

The video training is expected to cover the following topics:

- THEA Pilot Deployment
 - Introduction to connected vehicles
 - Driver OBU
 - Pedestrian app
 - HART OBU
 - TECO Line OBU
 - Pilot deployment area
 - Use cases overview
- TMC operator responsibilities
 - How to interact with the pilot applications
 - Data received by the TMC
 - Actions to take when information is received
 - Reporting procedures for alerts
- Questions

6.3.3 Assessment

Post-training assessment will follow standard City of Tampa/THEA procedures for the training and assessment of TMC personnel.

6.3.4 Materials

In addition to the video training, each participant will receive the following:

- The Standard Operating Procedures (SOPs) for TMC operations will be updated to reflect the actions associated with CV data received into the TMC
- A one-page CV pilot procedures card with a summary of alerts and the expected action
- Frequently asked questions

6.4 Feedback

Because improving agency efficiency is a major goal of the pilot, TMC operators will be surveyed to solicit their feedback on the effectiveness of the new procedures.

7 Installation and Maintenance Technicians

THEA and the City of Tampa, and their contractors and partners will install and maintain a significant amount of new equipment along pilot deployment area roadways, including hardware (RSUs) and software (e.g., in the TMC). The pilot will require maintenance of existing communication infrastructure, and may require upgrades to existing systems. The City of Tampa, HART and other pilot partners will also install OBUs in automobiles and transit vehicles. The technicians who perform this work will require training.

7.1 Facility Management System

The Florida Department of Transportation's (FDOT) Intelligent Transportation Systems Facility Management (ITSFM) System is under consideration to help manage the pilot network; the system configuration; and its components. FDOT provides the system at a moderate cost to other transportation facility owners, and provides training on using the ITSFM at no cost to the transportation agency.

The ITSFM is a Geographical Information System (GIS)-based web application that provides for the modeling of the fiber network facilities and connected fiber devices, as well as CV devices and the electrical system powering the device sites. The application provides dynamic and interactive mapping of the facility network on a user's laptop or personal computer running the latest version of Internet Explorer and JAVA software with a wired or wireless broadband connection to the Internet.

The ITSFM compiles information about network assets into a single, accessible GIS based graphical and tabular database allowing THEA, the City of Tampa, and their partners and contractors to manage the entire system. It is designed so that installation and maintenance technicians can update the database as changes and modifications are performed in the field by using any laptop computer with a wireless Internet connection.

The ITSFM was designed to support asset and configuration management needs, including Intelligent Transportation Systems (ITS), signal and toll equipment. The ITSFM also supports the related fiber optic and wireless communication network. The ITSFM supports an extensive list of outside plant facilities and equipment used in modern ITS.

If adopted, the ITSFM will help THEA and the City of Tampa manage:

- Fiber optic and wireless communication networks
- The TMC
- ITS and CV equipment sites
- Signal equipment sites

- Electrical infrastructure and utility demarcation sites
- Accurate construction as-built plans
- Approved material submittal package
- Splice and termination schematics and diagrams
- Completed ITSFM data collection field inventory forms

7.2 Roles and Responsibilities

The following are the installation and maintenance technicians' responsibilities:

- Successfully install RSUs, TMC software, OBUs
- Monitor, maintain, troubleshoot, repair, replace and upgrade hardware and software as necessary
- Maintain a current inventory of RSUs and all associated hardware and software installed at each location using the ITSFM system

For more information on the equipment involved, see THEA, CV Pilot Deployment Program Phase 1, Comprehensive Pilot Deployment Plan, Chapter 3.4.

7.3 Qualifications

All persons qualified to work for the City of Tampa, THEA, HART and other partners and contractors as installation and maintenance technicians are qualified to participate in the pilot.

7.4 Training

7.4.1 Objectives

After completing the training, technicians should:

- Understand their role and responsibilities
- Have a working knowledge of the equipment being deployed and utilized for the pilot
- Be prepared to perform all required installation and maintenance tasks on pilot hardware and software

7.4.2 Methods

The training of installation and maintenance technicians will include a video component (for general information regarding the pilot) and a hands-on component (for technical training related to the particular equipment). Global-5 will produce the video component, while the hands-on component is primarily the responsibility of the equipment manufacturers and other pilot partners who have the necessary technical expertise.

The video training is expected to cover the following topics:

- Introduction to the THEA Pilot Deployment
- Pilot deployment area
- Use cases overview

The hands-on training is expected to cover the following topics:

- Installation
- Maintenance
- Troubleshooting
- Repair
- De-installation

This training will not be completed in one sitting, but provided in modules so that individuals can receive only the training they need for the tasks they will be performing. Training will be conducted by the agency or company responsible for the tasks, and will follow each organization's established processes. THEA will make all OEM-provided resources available to its partners.

7.4.3 Assessment

The training will be assessed according to procedures already in use by the OEMs and other partners conducting the training.

7.4.4 Materials

Aside from the video, training materials will be provided by the OEMs and other partners conducting the training. Plans and instructions may also be accessible via the ITSFM system.

7.5 Feedback

There are no plans to solicit feedback from the technicians beyond the processes THEA, the City of Tampa and others already have in place for their employees.

8 Trainers

Training for the pilot will be performed by a variety of individuals, depending upon the specific training to be performed (see Table 1). THEA and/or Global-5 staff will train automobile drivers and pedestrians, or will train temporary staff to conduct the training. Global-5 will provide instruction and materials to HART, THEA, the City of Tampa, and OEMs/partners to ensure that their trainers are skilled communicators who are knowledgeable about the pilot and able to answer participant questions.

Table 1. Trainers and Training Locations

Participants	Trainers	Training Location
Automobile drivers	THEA and/or Global-5 staff (or temporary staff)	Installation facility
Pedestrians	THEA and/or Global-5 staff (or temporary staff)	Meeting locations throughout downtown Tampa
Bus drivers	HART employee trainers	HART
Streetcar operators	HART employee trainers	HART
TMC operators	City of Tampa and/or THEA personnel	TMC
Installation and maintenance technicians	OEM/partner personnel, FDOT	To be determined

8.1 Roles and Responsibilities

The following are the trainers' responsibilities:

- All participant recruitment, registration and training staff will complete a course in Human Use from the NIH web-based training course "Protecting Human Research Participants" or equivalent certification.
- All trainers will stay current on the pilot, and all aspects and technology that directly relate to their task or training topic.

8.2 Qualifications

- Qualifications for trainers will be determined by the stakeholder agency (e.g., HART, THEA) conducting the training.
- Trainers are expected to be knowledgeable in best practices for training and engaging adult learners.
- Trainers of individual participants (automobile drivers and pedestrians) are expected to be certified in protecting human research participants.

8.3 Materials

Global-5 will provide the following materials for trainers:

- Fact sheets, FAQs and other information explaining the pilot
- A training packet describing best practices for training and engaging adult learners

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APPENDIX A. List of Acronyms

BRT	Bus Rapid Transit
CV	Connected Vehicle
DVI	Driver-Vehicle Interface
FDOT	Florida Department of Transportation
GIS	Geographical Information System
HART	Hillsborough Area Regional Transit
ICD	Informed Consent Document
IRB	Institutional Review Board
ITS	Intelligent Transportation Systems
ITSFM	Intelligent Transportation Systems Facility Management
MAFB	MacDill Air Force Base
OBD	Onboard Diagnostics
OBU	Onboard Unit
OEM	Original Equipment Manufacturer
PII	Personally Identifiable Information
PSA	Public Service Announcement
QR	Quick Response
REL	Reversible Express Lanes
RSU	Roadside Unit
SOP	Standard Operating Procedure
THEA	Tampa Hillsborough Expressway Authority
TMC	Traffic Management Center
URL	Uniform Resource Locator
USDOT	U.S. Department of Transportation
VIN	Vehicle Identification Number

U.S. Department of Transportation
ITS Joint Program Office-HOIT
1200 New Jersey Avenue, SE
Washington, DC 20590

Toll-Free "Help Line" 866-367-7487
www.its.dot.gov

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