

Connected Vehicle Pilot Deployment Program Phase 3

Operational Capability Showcase Plan – New York City (NYCDOT)

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Produced by New York City Department of Transportation (NYCDOT) CV Pilot Team
U.S. Department of Transportation
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2. Operational Capability Showcase

2.1 Objective of the OCS

The purpose of the Operational Capability Showcase (OCS) is to provide a media event that shows the capabilities, intent, and value of CV technology deployment. For NYC, the intent is to showcase the CV technology being deployed and operating in an urban environment and avoid being a structured demonstration such as the Operational Readiness Demonstration (ORD) in Phase 2.

However, the COVID-19 pandemic has been ongoing since early part of 2020 through 2021. Nonetheless, the project requirement is to hold the OCS no later than the first 12 months of Phase 3 which began on January 1, 2021. Hence, USDOT agreed to allow NYCDOT to hold a virtual OCS through the web in place of a face-to-face media gathering.

2.2 Core Operational Capability Elements

The NYC Operational Capability Showcase (OCS) will present the accomplishments of the NYC CV pilot deployment project and show how the NYC CV pilot system performs. The attendees will be able to see how the deployed V2V and V2I applications operate in NYC's urban environment. They will also learn more about how the ASDs communicate with each other and communicate with other RSUs deployed in the field. The USDOT CV interoperability video and the NYC CV safety application video will show how the applications will be triggered and how drivers will be alerted by the ASDs in the vehicles.

2.3 Anticipated Outcomes of the OCS

At the end of the virtual Operational Capability Showcase (OCS), the audience will be provided time for questions and answers to learn more about the NYC CV pilot deployment. They will be able to see the impact of NYC CV pilot deployment's emphasis and focus on safety goals and benefits. Also, they will be able to understand how the NYC CV pilot deployment could evolve into a sustainable infrastructure to support USDOT's goals for CV interoperability and standardization. The lessons learned presented during the virtual NYC OCS could be shared with the general public to help and encourage current and future CV deployers in other parts of the country and the world.

The audience will learn where to find additional resources describing the project, its performance, and continued operations.

3. Structure of the Operational Capability Showcase

3.1 OCS Location Details

The NYC Operational Capability Showcase (OCS) will be held virtually on July 20, 2021 from 1:30 to 2:30pm Eastern Time (ET). NYCDOT will coordinate with Intelligent Transportation Society of America (ITS America) and Institute of Transportation Engineers (ITE) to host the virtual NYC OCS and provide an external link (i.e. Adobe Connect) for attendees to join. Ahead of the virtual OCS, the NYCDOT team had planned on pre-recording most of the presentation for all speakers except for those speaking in the welcome and introduction section and questions and answers. However, the decision was made to conduct the entire webinar live.

3.2 Demonstration Elements

Because the NYC Operational Capability Showcase (OCS) will not be an in-person event, no demonstration will occur during the OCS. Instead, videos of the operation of the various safety applications in selected City vehicles will be used to provide the viewer with an understanding of the driver experience.

3.3 Roles and Responsibilities

NYCDOT will be responsible for organizing and executing the Operational Capability Showcase (OCS). Multiple speakers will be invited to participate in the virtual NYC OCS event. The NYCDOT team will prepare OCS presentation slides and prepare scripts for the USDOT speakers. This section describes the speakers' roles and responsibilities as well as the themes each speaker will address.

3.3.1 USDOT Speakers

The following USDOT members will be speaking during the OCS:

- Ken Leonard, Director of ITS Joint Program Office (JPO)
 - Opening remarks for the virtual NYC CVP OCS
- Jonathan Walker, Chief of Policy, Architecture, and Knowledge Transfer
 - Transition remarks from welcome and introduction to project overview and accomplishments
 - NYC CV Pilot's focus on interoperability

- Arthur O'Connor, Sr. ITS/Operations Engineer, Office of Program Management
 - Final remarks on program success, deployment experience in an urban environment, and next steps on NYC CV pilot.

3.3.2 NYCDOT CV Pilot Team Speakers

3.3.2.1 NYCDOT Speakers

The following NYCDOT members will be speaking during the OCS:

- Margaret Forgione, NYCDOT First Deputy Commissioner
 - Connected vehicle technology contributing to Vision Zero
 - Lessons learned applying CV technology in the urban environment
- Mohamad Talas, Director of ITS Management and System Engineering
 - Vision zero goals

3.3.2.2 DCAS Speakers

The following NYC Department of Citywide Administrative Services (DCAS) member will be speaking during the OCS:

- Keith Kerman, Chief Fleet Officer and Deputy Commissioner
 - Partnership between USDOT and NYCDOT
 - DCAS' Safe Fleet Transition Plan
- Eric Richardson, Deputy Chief Fleet Management Officer
 - Stakeholder contributions
 - Connected vehicle safety, augmenting the operational data provided by Geotab (i.e. driver driving without a seatbelt, speeding, idling too long)

3.3.2.3 Additional Speakers

The following additional speakers from the NYC CV Pilot consulting team will be speaking during the OCS:

- David Benevelli, JHK
 - Discussion of the traffic operational needs from the ConOps
 - Reduce vehicle crashes
 - Manage vehicle speed
 - Evaluate CV technology for other uses (i.e. EVACINFO, PEDINXWALK, PED-SIG for visually-impaired pedestrians)
- Kaan Ozbay, NYU
 - Pedestrian information device (PID) and PED application for the visually-impaired pedestrians

- Keir Opie, Cambridge Systematics
 - Safety as the primary benefit (reduce crashes) and performance metric for evaluation, with mobility being a side benefit
 - Additional NYC CV Pilot resources: NYC CV Pilot web site, publicly available data via ITS Public Data Hub (PDH) and data dashboard

- Bob Rausch, JHK
 - Goal of trying to deploy CV technology in the challenging urban environment
 - Data collection
 - Transition from DSRC to C-V2X
 - Lessons learned: three (3) most important ones from NYC CVP
 - Direct them to RSU and ASD lessons learned
 - Tools for deploying (i.e. SET-IT/ARC-IT, standards)
 - Operational contributions
 - Dealing with first and last radio frequency (RF) sighting for verifying equipment
 - Integrating capabilities of the SCMS to NYC CVP operations
 - Safety application and CV system performance, trying to measure performance in a diverse, urban ecosystem/landscape with various means of location determination application and configuration

3.4 Final Agenda

The final agenda for the virtual OCS is shown in Table 1 below. The total duration will be 1 hour that includes 45 min for the presentation and 15 minutes for questions and answers.

Table 1. NYC Operational Capability Showcase Agenda (Final)

#	Subject	Duration	Description	Speaker
1	Welcome and Introduction	7 min	Master of Ceremonies: Mohamad Talas introduces the speakers	<ul style="list-style-type: none"> • Ken Leonard – USDOT Director of ITS Joint Program Office (JPO) • Margaret Forgione – NYCDOT First Deputy Commissioner • Keith Kerman – NYC DCAS Chief Fleet Officer and Deputy Commissioner
2	Interoperability	7 min	<ul style="list-style-type: none"> • USDOT CV interoperability video • CVP Project Coordination Goals (Documentation) 	Jonathan Walker – Chief of Policy, Architecture, and Knowledge Transfer, USDOT ITS JPO

3. Structure of the Operational Capability Showcase

			consistency, common system engineering approaches, etc.)	
3	Project Overview and Accomplishments	14 min	<ul style="list-style-type: none"> • Goals • Safety applications <ul style="list-style-type: none"> ○ V2V, V2I, PED App • NYC CV safety application / driver training video • PED-SIG application challenges 	<ul style="list-style-type: none"> • Mohamad Talas – Director of ITS Management and System Engineering, NYCDOT Traffic Operation • David Benevelli – Associate Vice President, JHK • Kaan Ozbay – Professor at the Department of Civil and Urban Engineering (CUE) and Director of the C2SMART Center, NYU Tandon School of Engineering
4	Stakeholder Outreach	3 min	Stakeholder outreach coordination	Eric Richardson – Deputy Chief Fleet Management Officer, NYC DCAS
5	Performance Measurement to Date	4 min	<ul style="list-style-type: none"> • Safety • Mobility 	Keir Opie – Director of Simulation and Traffic Analysis Principal, Cambridge Systematics
6	Additional Resources	3 min	<ul style="list-style-type: none"> • NYC CV Pilot web site • Publicly available data: <ul style="list-style-type: none"> ○ ITS Public Data Hub ○ Data Dashboard 	Keir Opie – Director of Simulation and Traffic Analysis Principal, Cambridge Systematics
7	Conclusion and Next Steps	5 min	<ul style="list-style-type: none"> • Lessons Learned • Urban Environment • Scale • Operations/Maintenance • Fleet Management • Security Scaling • Safety Application Performance 	Bob Rausch – Vice President, JHK
8	Next Steps	2 min	<ul style="list-style-type: none"> • Program Success • Urban Environment Model experience • Next Steps 	Arthur O'Connor – Sr. ITS/Operations Engineer, USDOT/FHWA Office of Program Management
	Q&A	15 min		

3.5 Invited Non-Media Attendees

In addition to the speakers described in the previous sections, additional non-media attendees will be invited to attend the NYC CVP Operational Capability Showcase (OCS). They are as follows:

- Joshua Benson – Deputy Commissioner for Traffic Operations, NYCDOT
- John Tipaldo – Associate Deputy Commissioner, NYCDOT
- Cordel Schachter – Chief Technology Officer, NYCDOT
- Sunil Nair – Chief Officer of Bus Technology, MTA

As the OCS will be held virtually, additional attendees may be invited per instructions by USDOT and NYCDOT.

4. Resources Developed for the Operational Capability Showcase

4.1 Presentation

The final slides for the virtual NYC Operational Capability Showcase (OCS) presentation will be provided in the OCS Summary (OCSS) deliverable. This is described further in Section 6 of this OCSP document.

4.2 Videos

The following videos will be shown during the virtual NYC Operational Capability Showcase (OCS) event:

- NYC CV safety application / driver training video
- USDOT CV interoperability video

4.3 Press Release and Project Fact Sheet

NYCDOT will develop and provide a press release and an updated project fact sheet for advertising the virtual OCS event. This will summarize the project goals, applications, infrastructure, and some of the observations and data collected to date. The NYCDOT team will consider making these available for download during the virtual OCS event. This is described further in Sections 5 and 6.

5. Engagement with Media

5.1 Invitations

As the organizer of the NYC Operational Capability Showcase (OCS), NYCDOT will coordinate with ITS America and ITE to send the official invitation electronically. Should this be available, a copy will be provided in the OCS Summary (OCSS). This is described further in Section 6.

5.2 Engagement Activities

As the organizer of the NYC Operational Capability Showcase (OCS), NYCDOT will send out a press release and project fact sheet for this event, if requested. If available, a copy of the press release will be provided in the OCS Summary (OCSS). This is described further in Section 6.

5.3 Invited Media

The list of invited media has not been determined at this time. Should this information become available, the OCSP will be updated accordingly.

6. Post-Operational Capability Showcase Activities

6.1 OCS Summary

Following the NYC Operational Capability Showcase (OCS), the results and observations of the OCS will be recorded and documented in the OCS Summary (OCSS). The OCSS will include the following elements:

- Final documents and material from the OCS
- Copy of press release and project fact sheet (if requested)
- List of OCS attendees
- Questions and answers, comments, and action items raised during the OCS
- List of any media articles produced after the OCS
- Copy of media invitations (if available)

The OCSS will provide lessons learned about interfacing with the general audience during the virtual OCS and the stakeholder engagement process. In addition, a separate webinar on highlights of the virtual OCS event may be held in the later part of 2021 per USDOT instruction.

6.2 Continued Engagement

The NYC Operational Capability Showcase (OCS) presentation will be transmitted to USDOT. After the virtual OCS event, the presentation will be shared with the public, in particular those who have demonstrated keen interest in the NYC CV Pilot. NYCDOT will submit the CV application video shown during the virtual OCS event and post it on its CVP website (<https://www.cvp.nyc>). In addition, the final 508-compliant version of this Operational Capability Showcase Plan (OCSP) will be posted on the USDOT's CV Pilots website (<https://www.its.dot.gov/pilots/index.htm>).

7. References

Table 2 below lists the references used for this Operational Capability Showcase Plan (OCSP) document.

Table 2. References

#	Document (Title, source, version, date, location)
1	Galgano, S., Talas, M., Benevelli, D., Rausch, R., Sim, S., Opie, K., Jensen, M., Stanley, C., Connected Vehicle Pilot Deployment Program Phase 1, Concept of Operations (ConOps) - New York City, April 8, 2016 FHWA-JPO-16-299.
2	Connected Vehicle technology is coming to the streets of New York City! This technology holds the potential to make our streets safer and smarter. https://www.cvp.nyc

8. Acronyms

Table 3 below provides a list of the acronyms used in this Operational Capability Showcase Plan (OCSP) document.

Table 3. Acronym List

Acronym / Abbreviation	Definition
AO	AOR
AOR	Agreement Officer Representative
ASD	Aftermarket Safety Devices
ASTC	Advanced Solid-state Traffic Controller
ATC	Advanced Traffic Controller
BSM	Basic Safety Message
ConOps	Concept of Operations
C-V2X	Cellular vehicle to everything
CV	Connected Vehicle
CVPD	Connected Vehicle Pilot Deployment
DSRC	Dedicated Short Range Communications
FHWA	Federal Highway Administration
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
I2V	Infrastructure-to-Vehicle
IE	Independent Evaluator
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation System
ITS PDH	ITS Public Data Hub
ITSA	Intelligent Transportation Society of America
MAP	Map Data Message
MTA	Metropolitan Transportation Authority
NYC	New York City
NYCDOT	New York City Department of Transportation

8. Acronyms

OBU	Onboard Unit
OCS	Operational Capability Showcase
OCSP	Operational Capability Showcase Plan
OCSS	Operational Capability Showcase Summary
ORD	Operational Readiness Demonstration
OTA	Over-the-Air
PASS	Pedestrians for Accessible and Safe Streets
PED	Pedestrian
PID	Pedestrian Information Device
RF	Radio Frequency
RSU	Roadside Unit
SCMS	Security Credential Management System
SDC	Secure Data Commons
SPaT	Signal Phase and Timing
TCS	Traffic Control System
TIM	Traveler Information Message
TIS	Traveler Information System
TSN	Traffic Safety Network
V2I	Vehicle-to-Infrastructure
V2V	Vehicle-to-Vehicle
VRU	Vulnerable Road User
USDOT	United States Department of Transportation

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