

Exhibit 1

Smart Communities / Vision Zero
Massachusetts Ave/Beacon Street
Pilot Statement of Work

1. Description of Project.

Verizon will provide as a proof of concept its IoT-based Smart Communities solutions (the “Services”) for the City’s Vision Zero Boston Program, an initiative for the City of Boston to prevent traffic crashes and resulting injuries and fatalities. The Services will be deployed at the intersection of Massachusetts Avenue and Beacon Street (the “Pilot Site”).

2. Scope of Project

The Services will include the following Smart Communities solutions, to be installed at the Pilot Site in accordance with the design document attached hereto as “Attachment 1.”

A. Intelligent Video

Hardware: Verizon will install the following equipment on 4 light poles and 2 traffic arms at the Pilot Site:

- 4 Thermal cameras
- 6 Dome axis 4 imager cameras (2 of which will be on traffic arms)
- 6 Remote Surveillance Units

Verizon will provide power to the RSU units via new wiring that will be routed underground. Video hardware is expected to require a maximum of 557 watts.

Features and Functionality: Cameras on lighting poles will capture “events” related to vehicle, pedestrian and bicyclists specified actions 24x7 at the Pilot Site. Details regarding these events will be provided to the City through the ThingSpace portal, as further described in subsection D below.

Video Data Usage: “Video Data” shall mean the data and other information collected by or as part of the Intelligent Video Service during the Pilot. Unless expressly set forth herein, Verizon agrees that it will only use Video Data to generate counts of events and for limited troubleshooting purposes in order to meet the goals of the Vision Zero program as outlined in this SOW. The Video Data will not be combined with license plate readers or biometric software (i.e., facial recognition) and will not be used for the tracking of individuals, traffic enforcement targeting individuals or law enforcement investigations, unless such use is required by law or court order. The Video Data and analytics gathered by the technology specific to the Pilot will not be provided or sold to any entity, except as may be required under applicable law or court order.

Video Data Collection: The cameras will record video 24x7 at the Pilot Site.

Video Data Storage and Security by Verizon: Video will be streamed locally to a Remote Surveillance Unit (RSU) mounted on the light pole, and stored locally by an intelligent Network Video Recorder (NVR). Analytics are run on the NVR, and only the anonymized “count/event” data is sent to the cloud (see Section D, “ThingSpace”). The City will have no access to video obtained in the course of the Pilot.

For the durations of the pilot, video will be stored on the NVR for 30 days. For troubleshooting purposes only, it may be reviewed by Verizon in order to improve the algorithm that identifies events. Up to 1% of the

video may be run through other systems for diagnostic purposes only, in order to ensure that the data provided is of the best possible quality.

Verizon Remote Surveillance Unit (RSU) is an outdoor rated NEMA enclosure that contains processing and network equipment for Verizon Intelligent Video service. The enclosure is physically locked and typically mounted out of reach on a pole or building. The RSU contains a LTE Router, Power over Ethernet switch, industrial server with storage (Intelligent Network Video Recorder-iNVR), and a restart relay module. Video camera will connect via Ethernet to the RSU's PoE switch for connectivity and power.

The RSU contains a LTE modem that connects to the network via Verizon's LTE network and provisioned on the Verizon's Mobile Private Network (MPN). The MPN is an isolated network from the Public Internet. The devices of the RSU will use and communicate with RFC 1918 or private IP addresses which are not routable on the internet.

Each of the devices and communication are secured in the following method:

- Cradlepoint IBR 1000 router Administration and RSU Security Demarcation
 - Username and password protected for remote management
 - Password: 8 character minimum length with requirements for letter, number, and symbols
 - Statefull firewall to allow specific traffic (IP and Port) to only known destination services. All others traffic is denied/dropped
 - Only accessible via Vz Mobile Private Network
- 5 Port PoE switch
 - Unmanaged Switch – No Administrative Access
- Industrial x86 platform with external SATA drive (iNVR)
 - Centos 7.2 OS with SSH administrative access only
 - Password: 8 character minimum length with requirements for letter, number, and symbols
 - Access via Cradlepoint router firewall rules
 - Activated with authentication to Vz Intelligent Video Platform
 - Proprietary TCP Session initiated by iNVR to Vz Intelligent Video Platform
- Restart Relay
 - Unique Username and Password for system and administrative access.
 - Password: 8 character minimum length with requirements for letter, number, and symbols
 - Only accessible via Vz Mobile Private Network
- Cameras
 - Unique Username and Password for system and administrative access.
 - 8 character minimum length with requirements for letter, number, and symbols
 - Only accessible via Vz Mobile Private Network

Data Sharing: Video will be used/viewed by Verizon authorized Verizon employees. Details of the events will be shared as described in subsection D regarding "ThingSpace."

B. Intelligent Traffic

Hardware: The Intelligent Traffic solution will include the following hardware components installed on Mass Ave ~150' north of the intersection, ~210' on Beacon St east of the intersection, and on Mass Ave ~220' south of the intersection or in the adjoined traffic cabinet:

- 34 flush-mount wireless sensors
- 6 flush-mount micro radar sensors
- 2 long life repeaters
- 1 Flex long life repeater
- 2 APCC-SPP digital radios
- 1 Flexisolator module
- 1 Flex Control enhanced module
- 1 Flex Control power supply
- 1 Flex Connect
- 1 Y cable
- 1 long range external antenna
- 7 universal mounting brackets
-
- 1 four port switch/modem with two whip antennas

All traffic sensors will be battery operated. An additional traffic management device will be placed in the traffic control cabinet. Their power supply will be isolated from the existing traffic functions.

Features and Functionality: The sensors will provide information regarding traffic volume and vehicle behavior, which will be made available to Customer via the ThingSpace portal, as further described in subsection D below.

Data Collection: The sensors will collect the events of vehicles passing through the Pilot Site.

Reporting:

The following application reports shall be available on the Demo System. Unless otherwise stated herein, the reports are run on demand and the results displayed on the Intelligent Traffic Graphical User Interface (GUI). The reports can also be scheduled for future times, emailed to the user, and saved as pdf files.

1. Traffic Reports

The Traffic Reports provide traffic statistics for user-defined reporting intervals (5 min to 1 hour) and durations. *Speed* is available for each monitored sensor zone. Reports can be rendered in graphical plots or saved as Excel or CSV files.

2. Turn Count Reports

The Turn Count Reports provide vehicle turn counts (left turn, through, right turn) for each approach of an intersection that is instrumented with sensors over the 00:00-24:00 hour period. The counts can be aggregated for user-selected reporting intervals (from 5 min to 1 hour) over user-selected months and days of the week. The user can select the approaches and turns to be included in the report.

3. Intersection Performance Reports

The Intersection Performance Reports provide Measures of Effectiveness (MOEs) for operations of traffic intersections over the 00:00-24:00 hour period. Reports can be aggregated for user-selected reporting intervals (from 5 min to 1 hour) over user-selected months and days of the week. Depending on the

locations and number of sensors deployed the following performance measures can be reported as graphical plots:

- a) *Red Light Violations* per approach or lane

Comparison reports can also be generated to compare individual performance measures over different reporting intervals.

Data Storage and Security: The vehicles and bikes are detected by the in-ground sensors. Events will be sent to the Intelligent Traffic server hosted on AWS. Intelligent Traffic will collect, analyze, and consolidate the vehicles and bikes raw data, and send the processed event information to Verizon ThingSpace. The vehicles and bikes raw data and processed event data are stored on the Intelligent Traffic server on AWS.

Sensor firmware is cryptographically signed and the RF connection is authenticated. The RF network will not transmit IP traffic. Sensor security keys are set at configuration time. Configuration Utility uses OpenSSL connection to Access Point. Access Point supports SSH connections & VPN, there is a VPN connection between Access Point and Intelligent Traffic server. Access Point has Intrusion detection and system may be optionally placed in error mode in the event of a break in. Access and Error logs are maintained for all HTTP/HTTPS connection. Equipment is physically secure in a locked cabinet with no removable components (e.g. smart card) . Any loss of connectivity will be recorded at the Intelligent Traffic server and intrusion alerts will be sent to the Intelligent Traffic server.

Traffic Data Usage: Only the events will be stored, and will be used as described in subsection D regarding t “ThingSpace.”

Traffic Data Sharing: Details of the events will be shared as described in subsection D regarding the “ThingSpace.” These events can be exported directly from the database in ThingSpace, and/or downloaded from the UI dashboard.

C. Intelligent Lighting

Hardware: Intelligent Lighting will include;

- 4 LED lights
- 1 replacement pole (to be installed at Pilot Site in order to increase height for better lighting and video support)

The lights are historic style and include one new cobra, which is often used on main roads. All new lights will match the others on the street. Three luminaires will be placed on three existing poles. Lighting placement is noted in the design document attached as Attachment 1.

Power and Connectivity Requirements: Three poles will need connectivity to ensure a control mechanism is in place to support power for the solution while regulating daytime lighting at the pole. One cellular gateway will be pole mounted on a light pole. With guidance from Department of Public Works, Verizon will ensure that a circuit breaker will control all of the power that is provided to the solution without disturbing City power.

Features and Functionality: The lighting solution allows the installed LED lights to be enabled as required to allow the Intelligent Video hardware to capture video without requiring the lights to be turned on continuously on a 24x7 basis.

Data: The Intelligent Lighting collects data only on light device lighting conditions; no data is collected regarding the environment. However, this data may be correlated with other data sources, as described in subsection D.

D. ThingSpace

Hardware: No incremental hardware.

Features and Functionality: ThingSpace includes a web-based platform that ingests and analyzes raw data from the Intelligent Video, Lighting and Traffic solutions and makes available certain processed data detailed below (which is part of “ThingSpace Data” as defined in the Pilot Agreement) to Customer via an end user web portal (the “ThingSpace UI”). The ThingSpace UI will include a visual dashboard and end user generated reports.

Data: The behavior data detailed below.

Data Collection:

The ThingSpace platform ingests and analyzes raw data from the Intelligent Video, Lighting, and Traffic solutions. As part of this Pilot, Verizon will endeavor to provide the following behavioral measurements (all of which is ThingSpace Data) to Customer via the ThingSpace UI.

- Vehicular and cyclist movements (left, right, through, u-turn) during different phases of the traffic signal (green, yellow, red)
- Vehicles remaining in the intersection for longer than a pre-defined period
- Pedestrians crossing the intersection during “Walk” (include “Flashing Don’t Walk”) and “Don’t Walk” phases
- Pedestrians crossing the road outside of crosswalks near the intersection
- Vehicles and bicycles entering crosswalks and not yielding to pedestrians
- Bicyclists outside of bike lanes

ThingSpace Data Usage: “ThingSpace Data” shall mean the data and other information stored in the ThingSpace platform, and the analytics, data and other processed information retrieved from the ThingSpace platform, during the Pilot. All ThingSpace Data will remain completely anonymous and will not be used for tracking of individuals, traffic enforcement targeting individuals or law enforcement investigations, unless such use is required by law or court order. Other than in support of the Pilot or for Verizon’s internal maintenance, assessment, and evaluation purposes, Verizon shall not use ThingSpace Data for commercial purposes, without written consent from the City of Boston.

Additional Features:

- User Accounts: Verizon will provide up to 50 user credentials to access the ThingSpace UI.
- Each user will have access rights to
 - behavior data;
 - an interactive dashboard which visualizes the behavior data; and
 - a map displaying devices locations.
- User Types: There will be two user types for the ThingSpace UI, which will determine access rights.
 - Admin (Verizon Employees)
 - City User -- permission to view dashboard and download ThingSpace Data
- Export Methods:

- o End users can download processed behavior data from the dashboard into Excel/csv format. The City may host and may partially or completely share this behavior data with the public.
- o Verizon will also provide a daily export of preprocessed/intermediate ThingSpace Data (which contains additional information not available as part of the downloadable behavior data set) to the City's secure FTP site. The daily export will be delivered at approximately 9 am.
- o Data Sharing: The City will have the right to share publicly or with other partners all or any part of the ThingSpace Data made available to the City under this SOW.
- Availability: ThingSpace Data and the interactive dashboard will be updated daily between 6 and 9 am to capture the raw data collected during the previous day.

3. Deliverables and Documentation to be produced by Verizon (if any).

Verizon shall provide the following deliverables during the Pilot:

- a) The Services and training materials.
- b) Initial testing of ThingSpace platform for services integration
- c) End user training for ThingSpace platform
- d) Customer will provide and manage content of any Customer data files; select, and implement controls on the access and use of such files; and maintain the security of the stored data.

4. Term of SOW.

This SOW will commence on the Pilot Agreement Effective Date and expire six (6) months following the completion of end user training for ThingSpace (the "SOW Term"), provided, however that it may be extended for a period of up to an additional six (6) months by mutual agreement of the Parties.

Attachment 1

Functional
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