Management Of Networked IoT Wearables – Very Large Scale Demonstration of Cultural Societal Applications
(Grant Agreement No 732350)

D6.5 Library of MONICA Apps for Smartphones and Smartwatches 1

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1 Executive Summary

MONICA provides a number of smart phone apps for professional users (e.g. security staff) and for public use by event visitors. They are part of the infrastructure to build and maintain a Common Operational Picture (COP). This deliverable reports the following MONICA apps:

- The Guard App: intended for use by guard event staff for reporting and management of incidents interacting with staff at the Command central COP.
- The StaffTracker App: used to track the locations of the event management staff.
- The Public Event & Feedback App: public app intended for event visitors providing details on the event and the available facilities as well as guidance such as the locations of Exits and First Aid points.

2 Introduction

This document accompanies the Demonstrator (software) deliverable D6.5 and refers to the Apps implementing the mobile support for building the Common Operation Picture (COP) in MONICA, and for use by event staff and public visitors. The following MONICA apps are currently (June 2018) deployable,

- The Guard App: intended for use by guard event staff for reporting and management of incidents interacting with staff at the Command central COP.
- The StaffTracker App: app used to track the locations of the event management staff.
- The Public Event & Feedback App: public app intended for event visitors providing details on the event and the available facilities as well as guidance such as the locations of Exits and First Aid points.

We refer to the accompanying software deliverable D6.3 *Decision Support Platform with Common Operational Picture* for an overview of the COP components, tools and interfaces.

3 SmartPhone and Smart Glasses Apps

3.1 Guard App

The screen shots below show the reporting and management of an incident involving an app intended for use by guard event staff, interacting with the COP application used by the Command central staff.

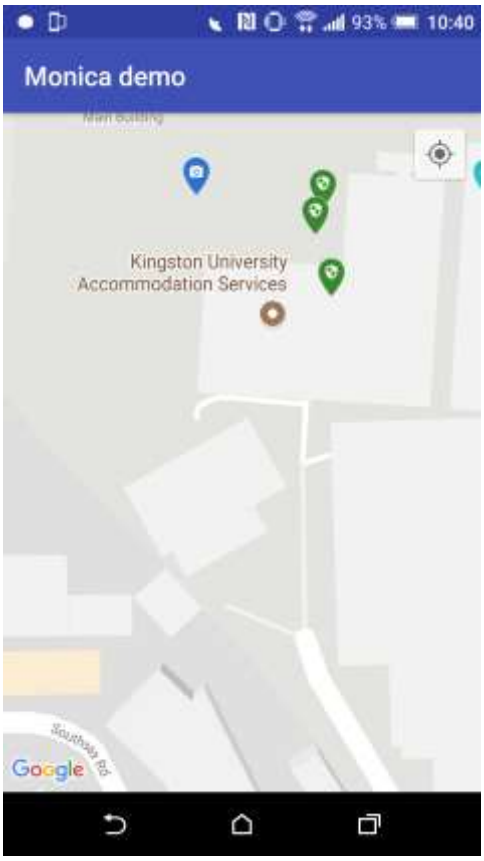

Figure 1: Guard App map of event area.

The guard and command central users (see deliverable D6.3) are presented with similar map views for an event (Figure 1). The map shows various icons for the positions of guards and the locations of suspected or ongoing incidents.

The Guard App is primarily designed for use with face mounted glasses (Optinvent ORA-glasses1, Figure 2) freeing the users both hands while still being able to receive information from the commander. The App can also run on iOS and Android smartphones.

Figure 2: ORA-glasses

[1] http://www.optinvent.com/our_products/ora-2/

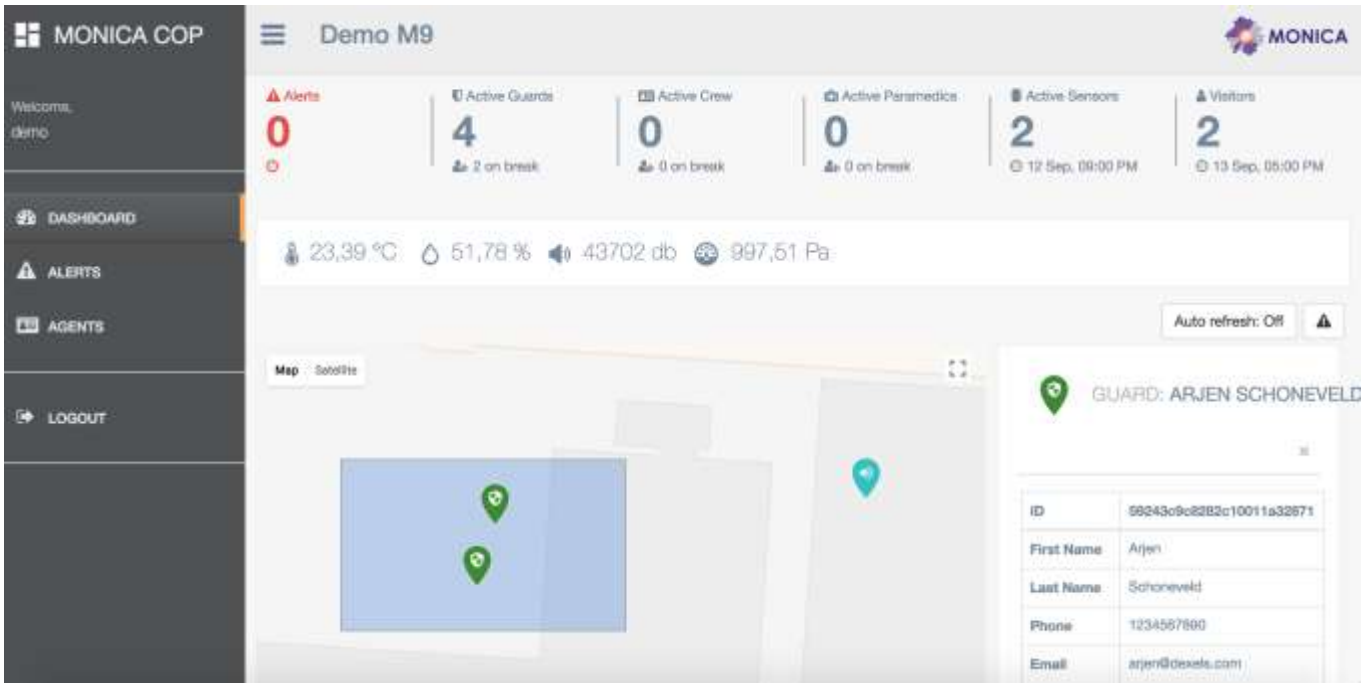

Figure 2: Commanders view, locating a Guard in the COP interface.

The Commander navigates in the COP screen (see also D6.3) and notices incident alerts on the map. The Commander searches for a Guard and the system displays a suggestion (“Arjen”) in the lower left in Figure 2. The location of guards and other security staff is reported by a separate app, the StaffTracker (see below) installed on the security staff smartphones or by the UWB wristbands, depending on the type of pilot area.

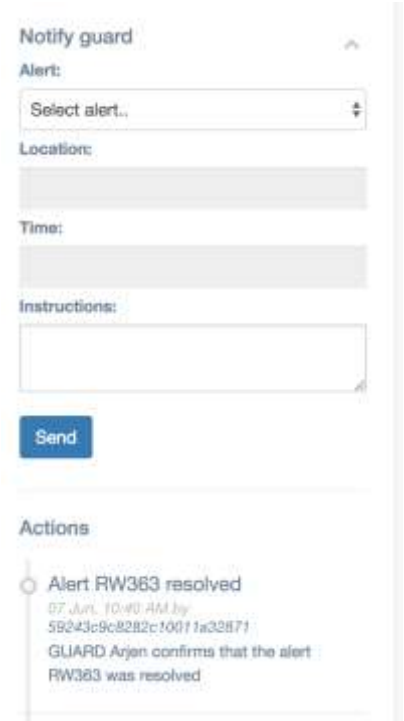

Figure 3: Guard selected

Once the Commander selects a Guard, the incident can be assigned to be resolved.

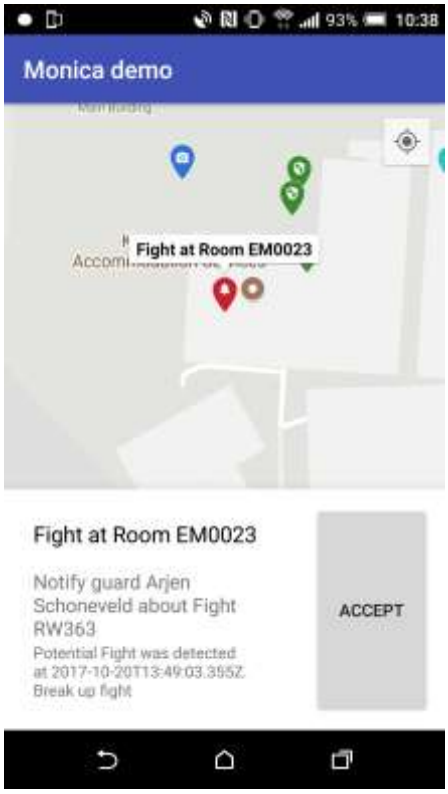

Figure 4: Selected Guard is notified and can ACCEPT assignment

Once the Guard accepts the assignment, a notification is sent to the COP application. The Commander can see that Guard has accepted, and a brief description of the status and measures to be taken.

Figure 5: Guards interface to resolve incident

Once the incident is marked as “resolved” by the Guard (Figure 5), all related data is removed from the COP and all the connected Apps

3.2 StaffTracker App

StaffTracker is an Android app used to track the locations of the event management staff. This application is installed to the staff’s mobile phones. The application depends on the Android phone’s location services and Internet connectivity.

Figure 6: First screen when launched

The location tracking can be enabled or disabled whenever needed. Once installed, the applications get a randomly generated tag ID (Figure 7). As soon as the location tracking is enabled (Figure 8), the applications register themselves to the SCRAL. The mobile application sends a frequent HTTP request to the SCRAL layer updating the latest locations recorded by the mobile phone. This runs as a background service in the Android phone.

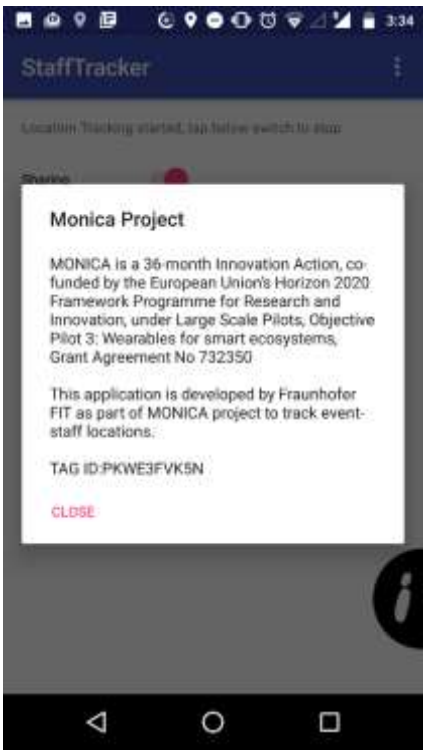

Figure 7: Info Dialog showing ID tag

The user will be provided with constant notifications whenever the location tracking is on (Figure 9). This avoids the user running the location tracking. The rate minimum gap between two consequent location updates are configurable by the user (Figure 10). When the location tracking is turned off, the application updates the status to SCRAL and stops sharing the location. Constant notification is removed from the notification bar.

During *Rhein in Flammen* event in Bonn, the StaffTracker app was installed in the mobile phones of the security personnel and the locations of the on-duty security guards were tracked live in the venue. This location is displayed on the COP dashboard in the security Command central.

Figure 8: Tracking is on

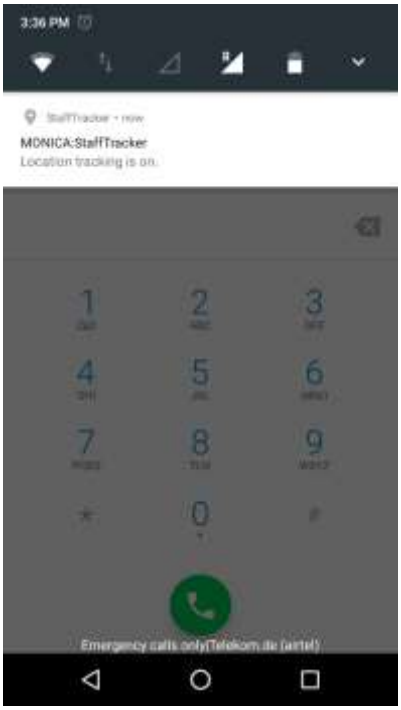

Figure 9: Constant notification when the tracking is running in the background

Figure 10: Setting window: to set the maximum rate at which locations are updated and the SCRAL URI

3.3 Public Event and Feedback App

This is a MONICA public (iOS) app is intended for event visitors. It provides visitors with details on the event and the available facilities as well as guidance such as the locations of Exits and First Aid points. A first version has been deployed at both the Rhein in Flammen event and at the KappaFutur Festival. It is available in the Apple AppStore.

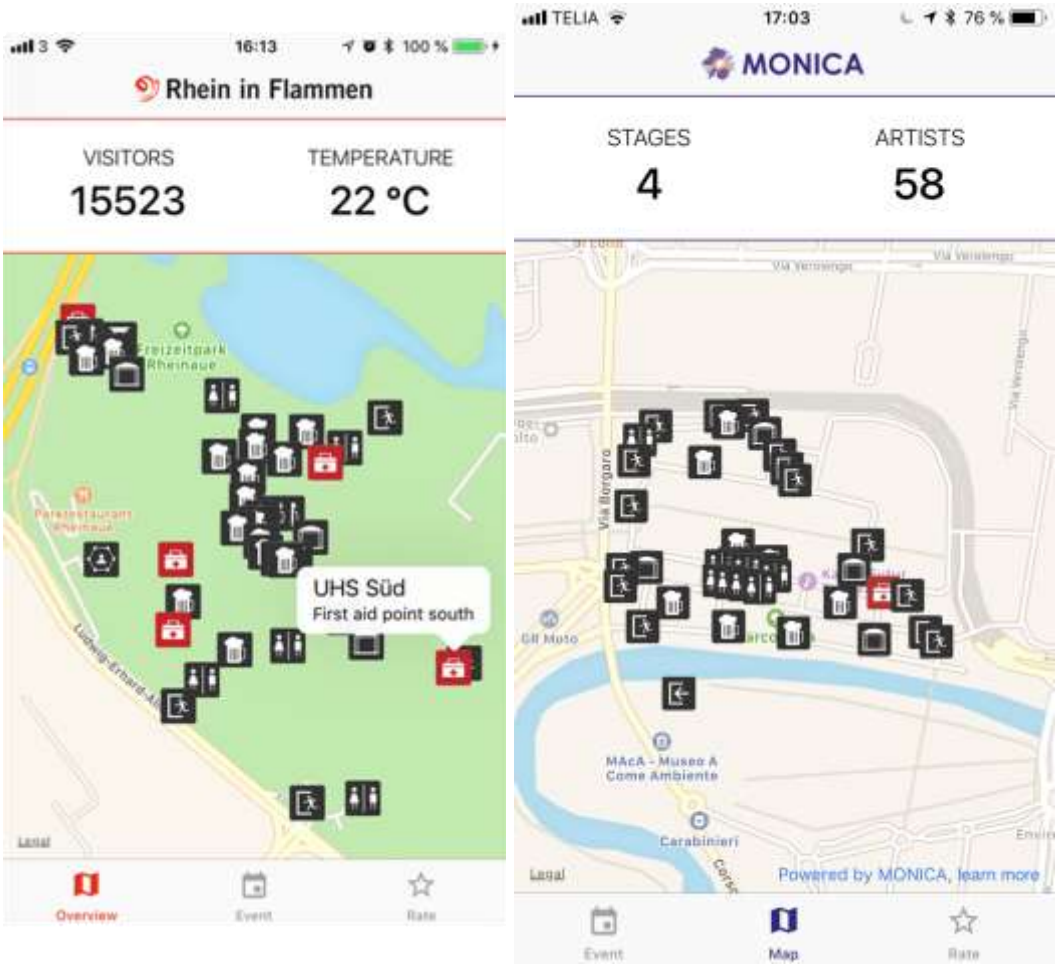

Figure 11: Visitors map view of event sites (Rhein in Flammen and Kappa Futur Festival)

The images in this section show the app as it was configured for a MONICA demo and test at the Rhein in Flammen fest in Bonn, Germany spring 2018 as well as the KappaFutur Festival in Turin. The app is thus customizable with respect to map layout, displayed properties with their icons and event schedules and timings. This makes it possible to reuse the core of the app for upcoming events in the project.

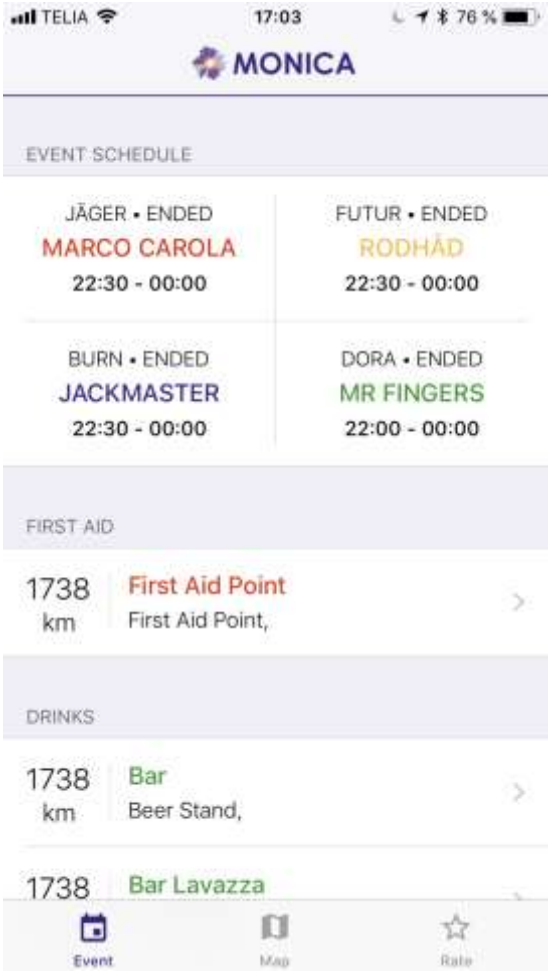

Figure 12: Event schedule

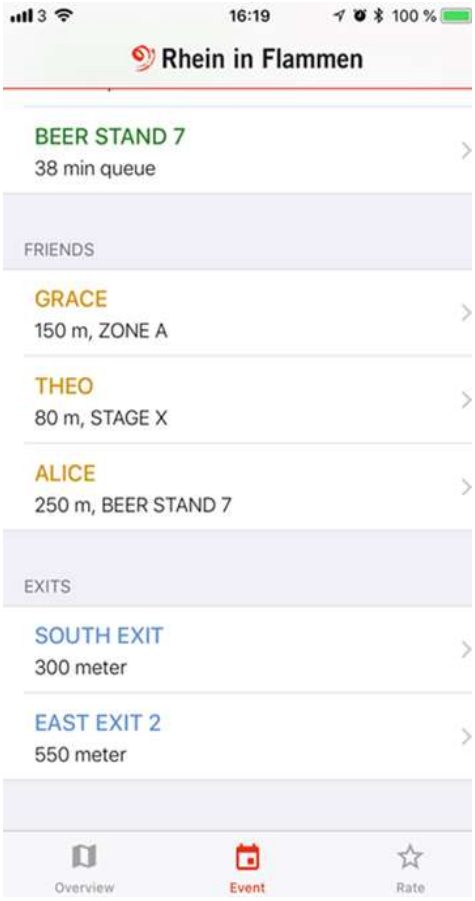

Figure 13: Distances and queue lengths

Figure 12 shows an example of an event schedule including information on facilities (exits, bars). The schedule is shown in real-time and is managed locally on the smartphone and does not require an Internet connection, as connectivity may be less reliable at large events.

The app also shows distance to other visitors (Figure 13), based on the use of the Dexels[2] smart wristband. The distances to closest Exits are also shown. Using deployed cameras, the app can also estimate queue lengths (in this case the beer queue…).

A Feedback App has been developed to allow for visitors to provide direct feedback about various aspects of the event. The feedback questions can be defined dynamically and adapted for the actual event. In this case (Figure 14), visitors were asked to rate the event, the app and the (music) sound levels. To give feedback, no login or similar is required, the Id of the smartphone is used to uniquely record the ratings avoiding visitors submitting multiple responses.

[2] http://www.dexels.com

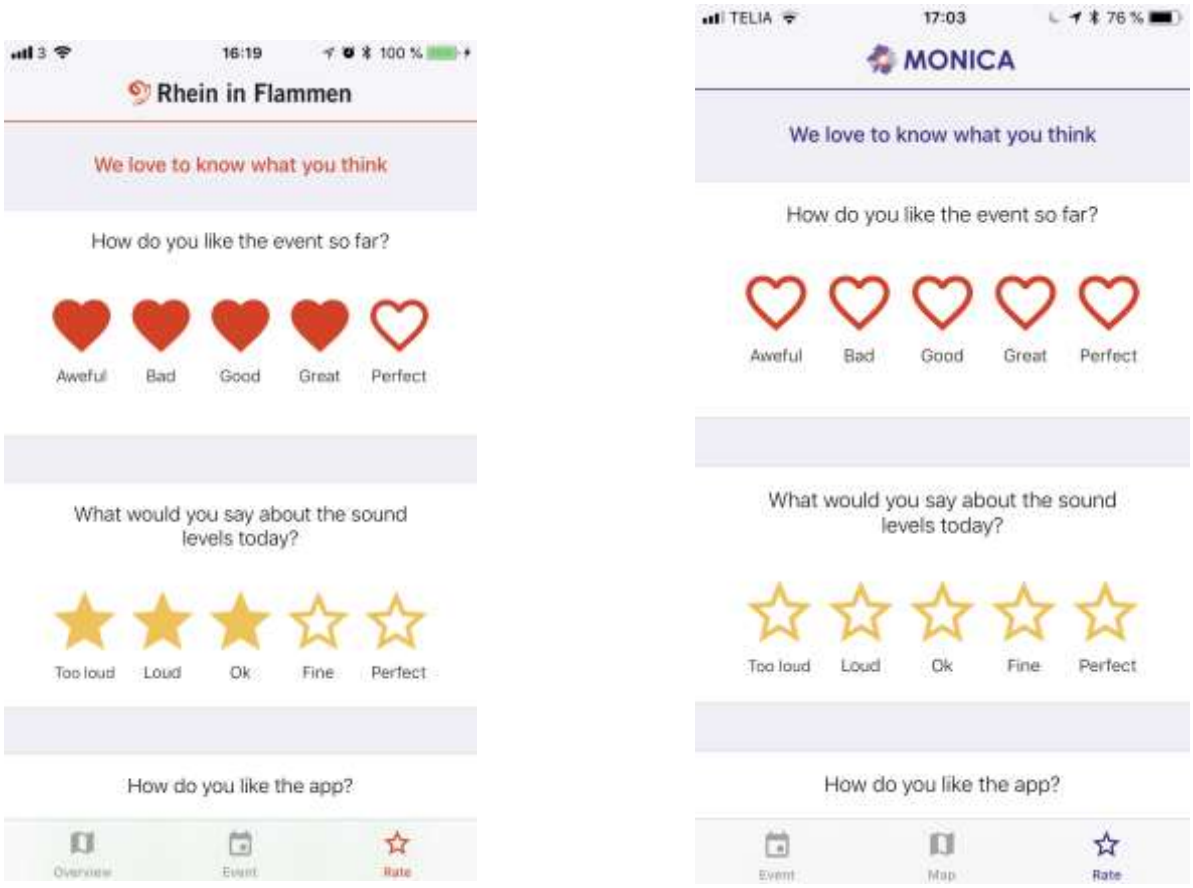

Figure 14: Screens used for visitor feedback

3.4 Development API

All the apps have been built upon the COP API as defined in deliverable D6.3 “MONICA Decision Support Platform with Common Operational Picture 1”, see this deliverable for more details regarding the API:

- ObservationAPI
- PersonAPI
- PersonWithWearablesAPI
- PublicFeedbackAPI
- SoundHeatMapAPI
- ThingAPI
- WearableAPI
- ZoneAPI

The API has been factorised so that the efforts to adaptat the different apps to other upcoming events should be minimised, thus increasing the reusability of the Monica apps.

4 Status and future work

The App Library is currently being extended with public and professional apps for the forthcoming pilot demonstrations. The feedback from the two deployments will be analysed for future improvements.

With reference to the sound feedback rating shown in the Public App above, a more detailed sound monitoring will be provided by a dedicated app intended for professional sound engineers of the event staff. Thus, the feedback from the public will be combined with the professional input for display in the COP at the Command Central.

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