**1000words: A Fredericton flood event showcase**

**Submission for the 2019 ESRI ECCE App Challenge**

**Team:** Mingke Li; Odysseas Vlachopoulos; Toni McRae

**Benefit to the User**

Presently, flood mitigation is taken on in part by the province and the municipality. However, more ‘boots on the ground’ is essential during the onset of these events, as the effects of seasonal flooding is wide reaching and not always predictable. Further, a centralized, geospatially based, and easily accessible repository to disseminate real time information would be tremendously useful in that all stakeholders have a central reference to work from and work with. Moreover, this data can be used in the future to evaluate the collective response and make improvements for the following season, in addition to future urban planning initiatives.

The end user benefit is twofold, in that the benefit is experienced by the authorities mitigating the flood event, which in turn benefits the wider public. Not only could the use of the app be seen in the optimization of disaster management efforts at the time of the flood event, but also in the improvement of disaster management in the future. Additionally, it could also create an element of culture within the community, creating a standard of public participation in the support of regional efforts.

Speaking to the characteristics of the app, overall centralization of empirical input from the user is a notable benefit. Specifically, in the front-end user portion, (future functionality, but displayed in the project) the user fills out a short survey on their smart device. The survey is tailored to collect information such as the perceived water level where the person is standing, their geographic location, time and interface to provide photos. The formatting of the survey is simple, therein removing the possibility the user will abandon completing it. The back-end of the app is the aggregation and dissemination as a desktop/cloud feature. This would allow authorities and community groups to view and monitor the information in real time, from anywhere, as well as compare to historical geospatial data as a separate layer. For instance, this app would provide a centralized platform to evaluate conditions and make informed decisions to enact emergency measures, such as closing roads, or city blocks. Optimization of available emergency staff is also a key consideration – the efficient evaluation of conditions in real time, disseminated geospatially would allow for efficient planning and use of emergency staff. It would also serve as a way for those staff to report on progressing conditions when they are present and responding to specific areas.

The overreaching theme of this app is to connect what an individual sees in real time, with the bigger picture authorities and community groups seek to plan and manage, using the two ends of the same application. Moreover, because this app is accessed by the front end user on their mobile device, it is feasible that its continued use could become a part of wider community culture, therein creating an accepted standard of community and public involvement in disaster management support.

**Future functionalities and implementations**

* Build a dedicated widget to substitute the one used today and link the Citizen Observations by a custom URL scheme. The inputs within the survey will be immediately linked to the map in the same manner and functionality as the “Citizen Observation” currently has. As Date and Time in Survey123 are automatically populated, this makes the UI experience much easier, especially in comparison to the Edit widget.
* The Fredericton Water Level infographics widget will be altered in the following manner:

1. Keep the historical feature by having access to the historical water level sensors data
2. Instead of the time slider above the bar, two Date/Time range dropdown menus
3. Live upkeep of one week old data graph up to now.

* The Time Slider widget will be modified to show as default one week user inputs up to now.
* Latest reading popup at refresh for the hydrometric data station colored in accordance to its thresholds.