



# Assessing the Impact of a Web-Based GIS Application to Promote Earthquake Preparedness on the University of Southern California University Park Campus

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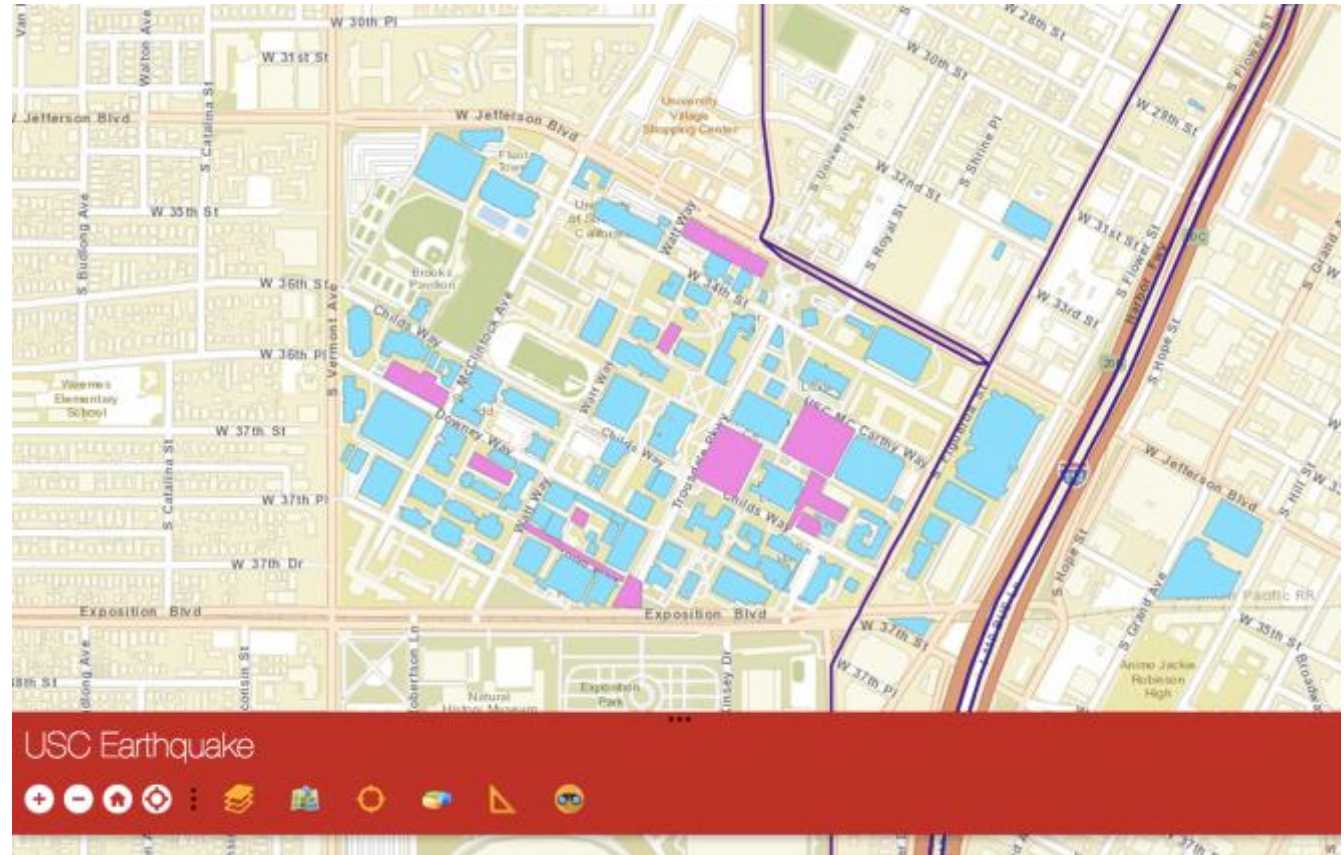
*Spatial Sciences Institute*



# Research Objectives

## Project Goal

Determine the impact of an interactive Web GIS tool on earthquake preparation awareness at the University of Southern California main campus



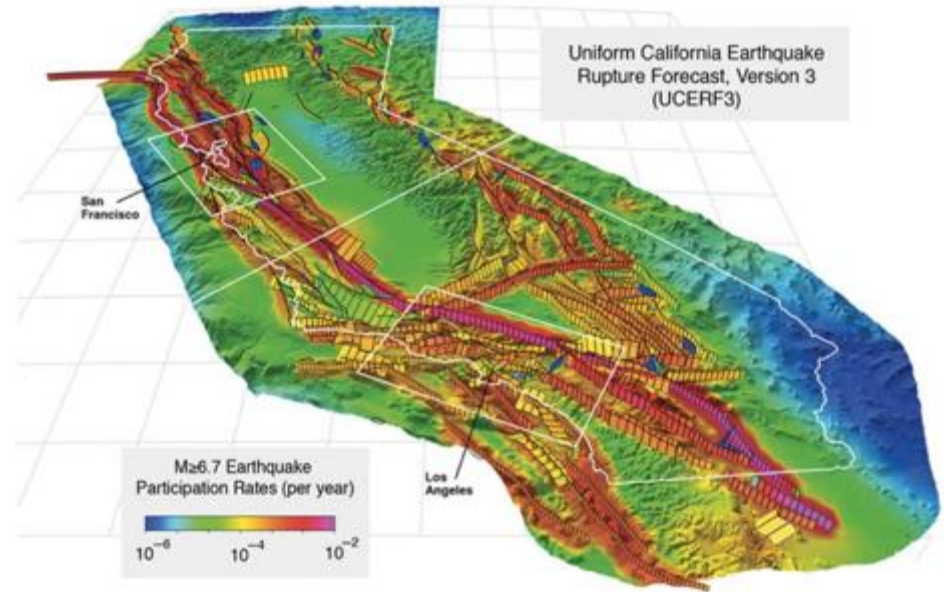


# Motivation

The greatest natural hazard in the Los Angeles area is earthquakes

The geologic setting of Los Angeles makes it particularly vulnerable to seismic waves

The University of Southern California houses a constantly changing population of over 40,000 students

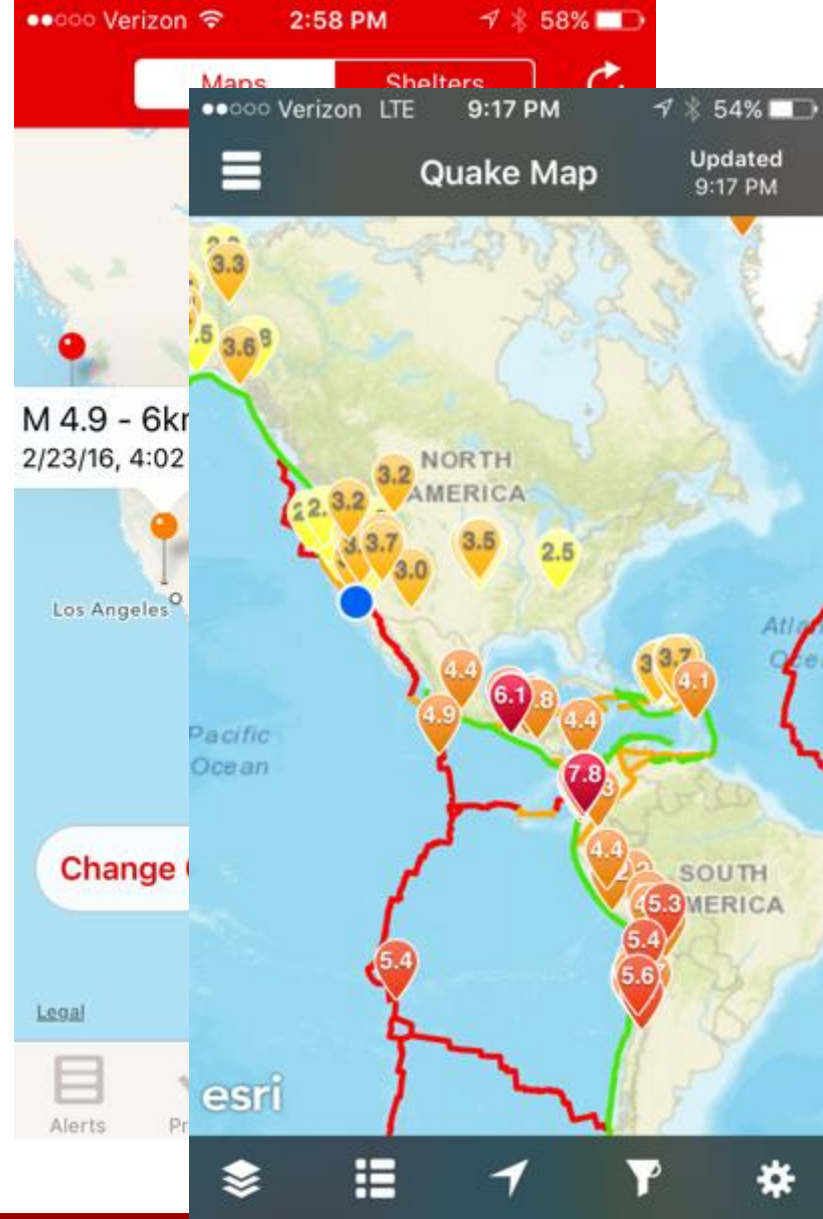


Fault map from the Uniform California Earthquake Rupture Forecast Model, Version 3 (UCERF3), Field et. al 2014

# Background

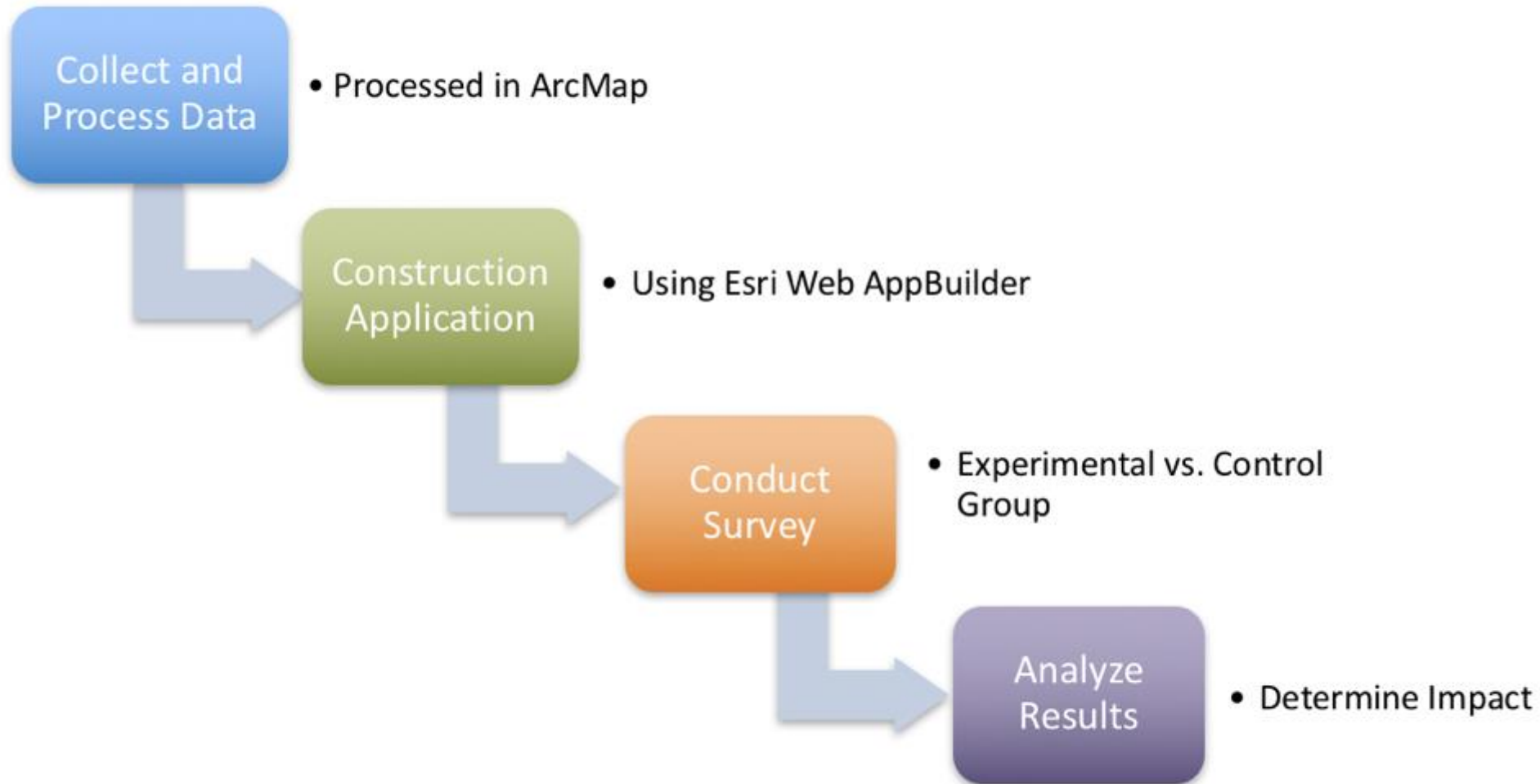
Many popular earthquake-related mapping applications have a global scale

USC Earthquake will focus on preparedness as it pertains to the USC community





# Methodology





# Data Collection

## Los Angeles County Data Portal

- Los Angeles County Building Outlines
- Emergency Disaster Routes Shapefile

## USC Department of Fire Safety and Emergency Services

- Location of emergency supplies
- Location of emergency assembly areas



# Data Processing

## Building Outlines

- From Los Angeles County Region Imagery Acquisition Consortium (LARIAC)
- Clipped to include on the USC area

## Disaster Routes

- From Los Angeles County Data Portal
- Clipped to include only the USC Area

## Emergency Supplies

- Building outlines constructed in ArcMap based on LARIAC dataset
- Attributes collected from USC Department of Fire Safety and Emergency Management

## Assembly Areas

- Area outlines constructed in ArcMap
- Attributes collected from USC Department of Fire Safety and Emergency Management

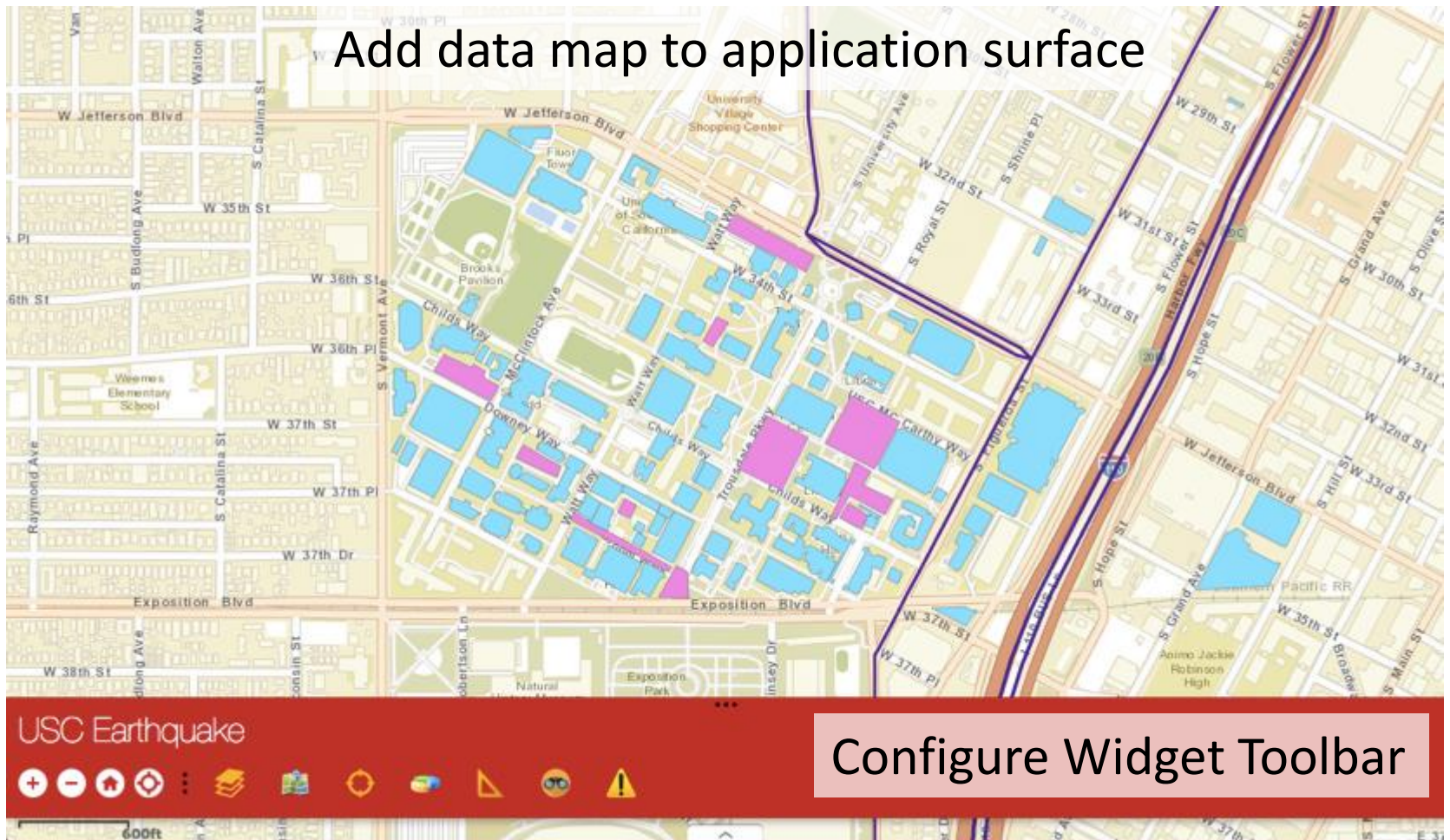
## Management





# Application Construction

Add data map to application surface







# Application Demonstration

The USC Earthquake application is meant to promote earthquake awareness and preparation on the University of Southern California campus.

Use the Locate Nearest widget to specify any location on campus and discover the locations of emergency supplies, assembly areas, and disaster routes within a distance of your choosing.

Click on the Help widget for assistance with using the application.

Continue to application

OK

USC Earthquake

600ft



# Survey Design

## Control Group

1. Demographic Questions
2. Earthquake Risk Perceptions
3. Earthquake Preparedness Perceptions

### Map Image

4. Earthquake Risk Perceptions
5. Earthquake Preparedness Perceptions

## Experimental Group

1. Demographic Questions
2. Earthquake Risk Perceptions
3. Earthquake Preparedness Perceptions

### Link to Application

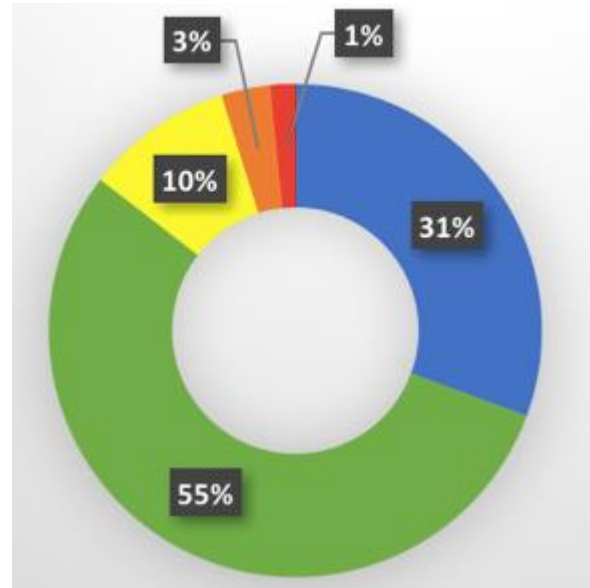
4. Earthquake Risk Perceptions
5. Earthquake Preparedness Perceptions



# Results

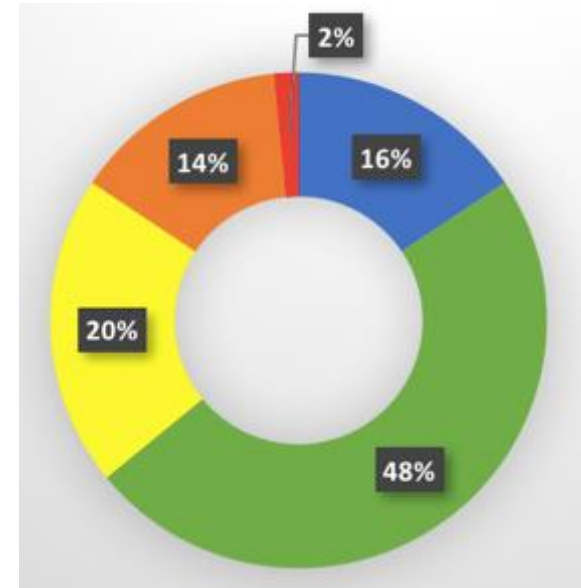
## “I found this visualization helpful”

Control



86% Agree or Strongly Agree

Experimental



64% Agree or Strongly Agree



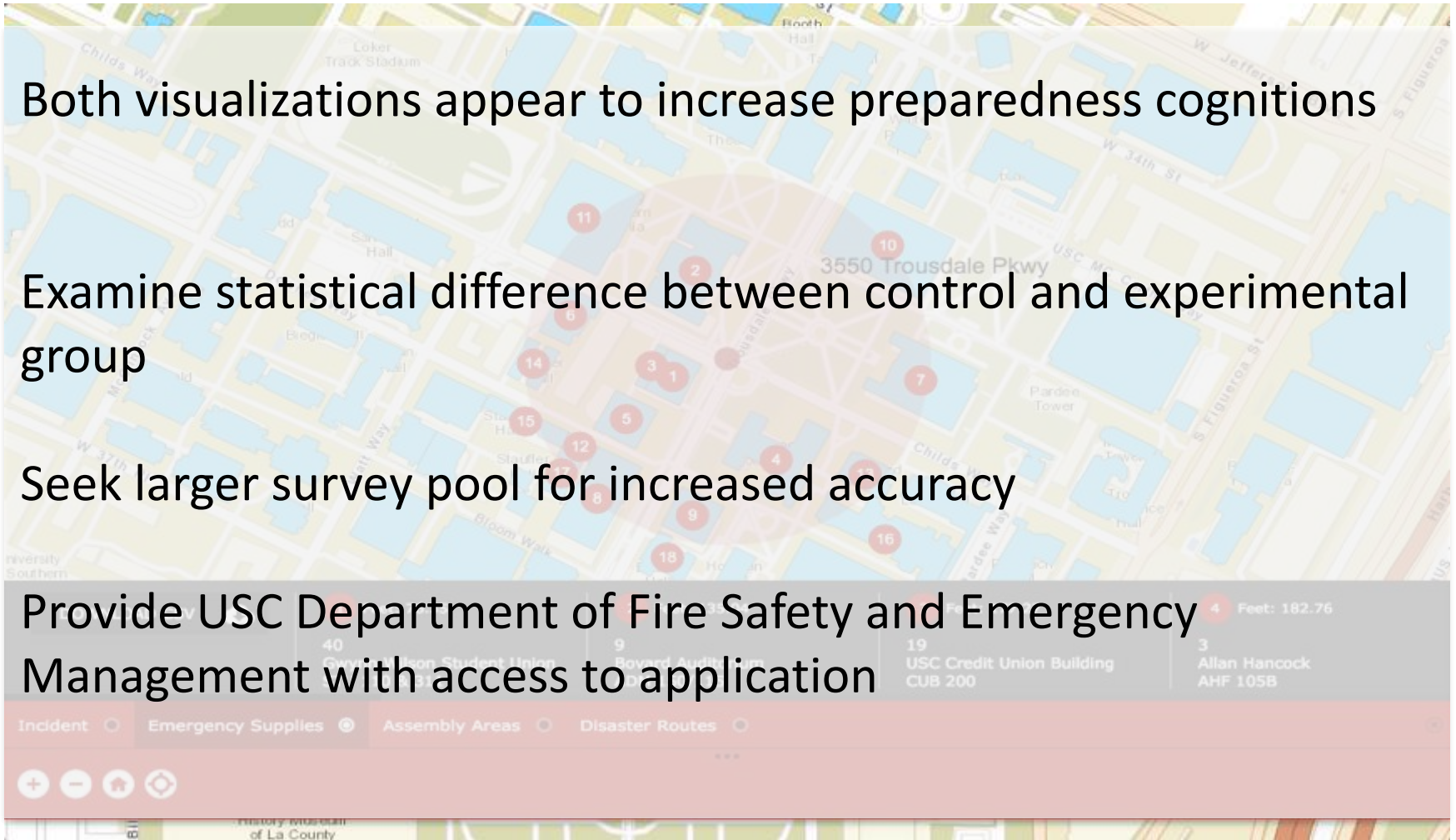
# Conclusions and Future Work

Both visualizations appear to increase preparedness cognitions

Examine statistical difference between control and experimental group

Seek larger survey pool for increased accuracy

Provide USC Department of Fire Safety and Emergency Management with access to application





# References

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