Sandia National Laboratories Visit to California Exercise Simulation Center (CESC)

April 28, 2015

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Sandia National Laboratories

Exceptional service in the national interest

U.S. DEPARTMENT OF ENERGY

National Nuclear Security Administration

Meeting Objectives

- Show Sandia management the CESC and SUMMIT deployment

- Discuss and formalize Sandia-CESC partnership

> *Take-away messages:*
> - ✓ SUMMIT brings value to the CESC
> - ✓ We have a sustainment plan
> - ✓ CESC and SNL partnership is valuable
> - ✓ Our partnership should be expanded

Agenda

10:00-10:15   Introductions and agenda

10:15-10:30   CESC Tour, Edge Virtual Trainer demo

10:30-11:15   Overview of SUMMIT deployment and sustainment plan

11:15-11:30   Discuss Sandia-CESC MOU and future opportunities

11:30-11:45   Travel to Zinfandel site

11:45-12:15   Tour Zinfandel site and discuss SUMMIT-driven incident command + field exercises

12:15-1:30   Working lunch at CESC and Travel to Cal OES

1:30-2:30   Meeting at Cal OES

CESC Tour and Edge Virtual Trainer

Standard Unified Modeling and Mapping Integration Toolkit (SUMMIT)

SUMMIT is a modeling & simulation software environment that enables analysts, emergency planners, responders, and decision makers to seamlessly access integrated suites of modeling tools & data sources for planning, exercise, or operational response.
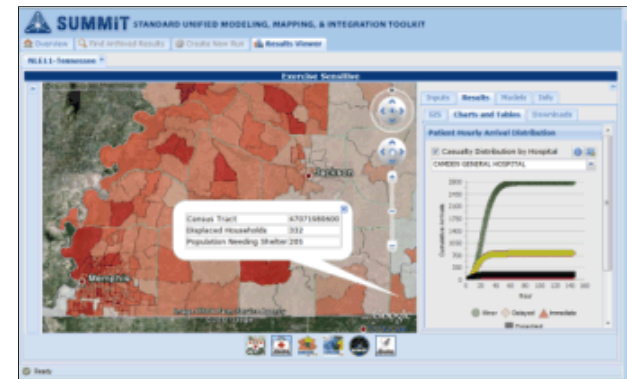
Enables analysis of emergency response scenarios.

Ties together existing modeling capabilities.

Makes modeling resources reusable.

Enhances exercise efficiency and planning robustness.

Is flexible and geo-agile.

SUMMIT Deployment at the CESC

SUMMIT at the CESC

Training Certifications (CICCS)

"Performance-based System"

Certification scenarios: Data on wildfire behavior, population impacts, affected infrastructure, economic disruption

Exercise scenarios and injects: Data on catastrophic incidents and downstream impacts
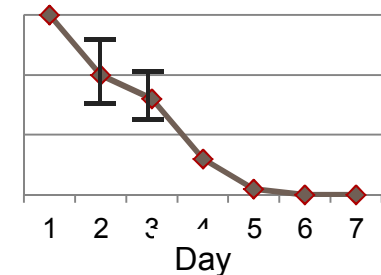
Incident Command Exercises

Suite of scenarios for robust testing of plans: Requirements data
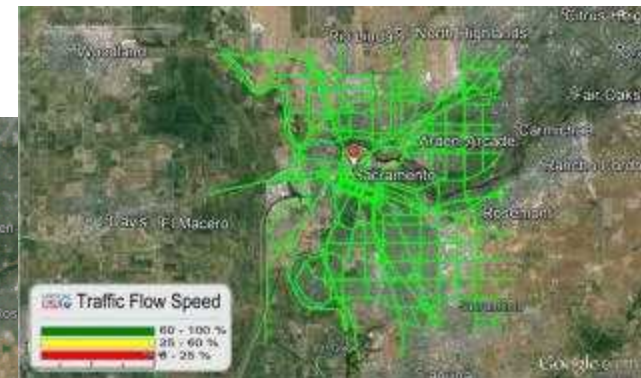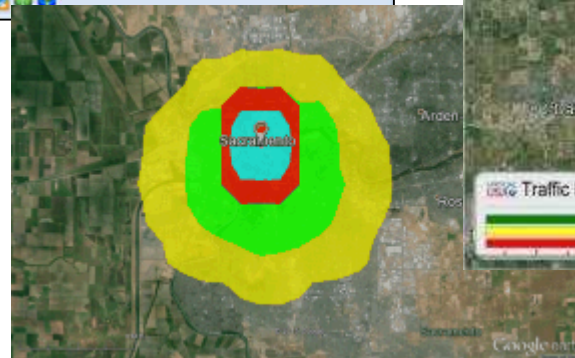
Plans Validation

Hospital Beds Needed
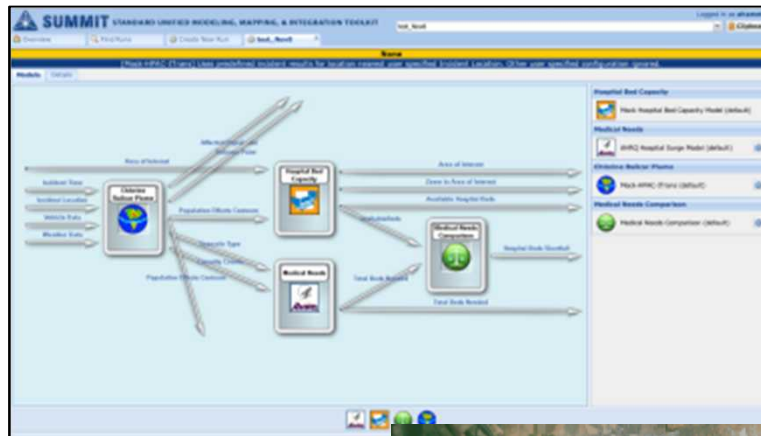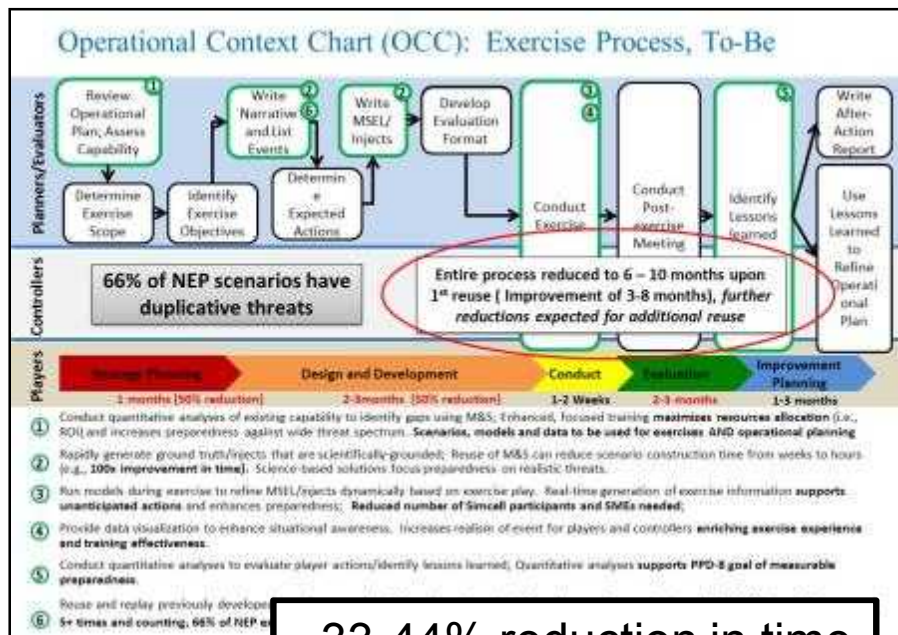
Day

SUMMIT demo

➡ Decisions Matter scenario

- Wildfire certifications

Estimates on SUMMIT Return on Investment for Exercises, in Time and Money

Operational Context Chart (OCC): Exercise Process, To-Be

66% of NEP scenarios have duplicative threats

Entire process reduced to 6 – 10 months upon 1st reuse (Improvement of 3-8 months), *further reductions expected for additional reuse*

~33-44% reduction in time

April 2014 CalFire IED/Flood Exercise at CESC

Of $1M/exercise total, $150K goes to Scenario creation, $600K goes to Injects*

- SUMMIT compresses Scenario Creation, validation and GIS work by 80% = $120K saved
- SUMMIT compresses Inject Creation and deconfliction by 10% (assuming that 10% of injects could come from SUMMIT) = $60K saved
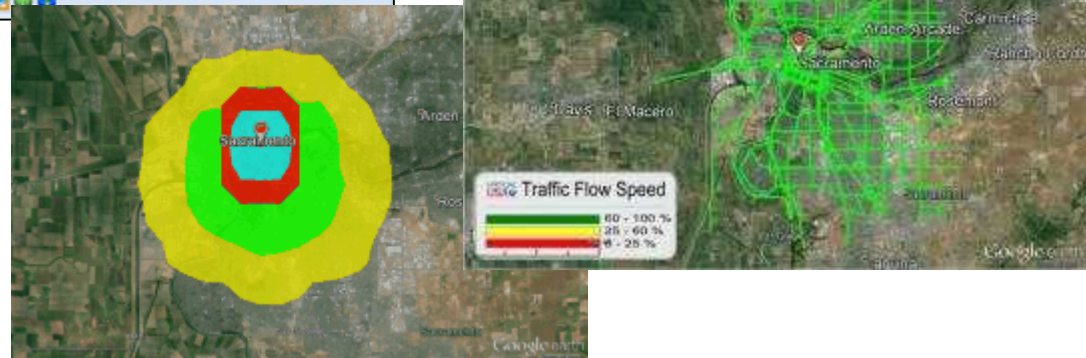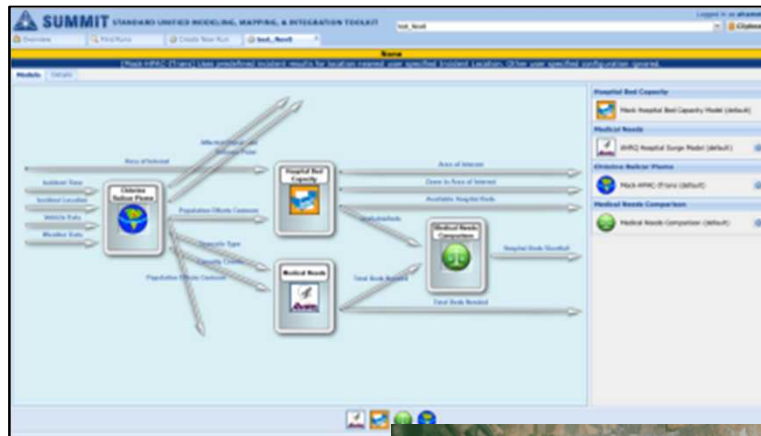
Total saved = $180K or ~20% reduction in cost of exercise.

* Estimates provided by exercise planner

~20% reduction in cost

SUMMIT demo

- Decisions Matter scenario
- Wildfire certifications

SUMMIT Sustainment Plan

<u>What is needed to sustain SUMMIT at the CESC</u>

- A trained SUMMIT user
- SUMMIT server (commodity off-the-shelf desktop)
- IT support for software/model/data updates (1-2x per year?)

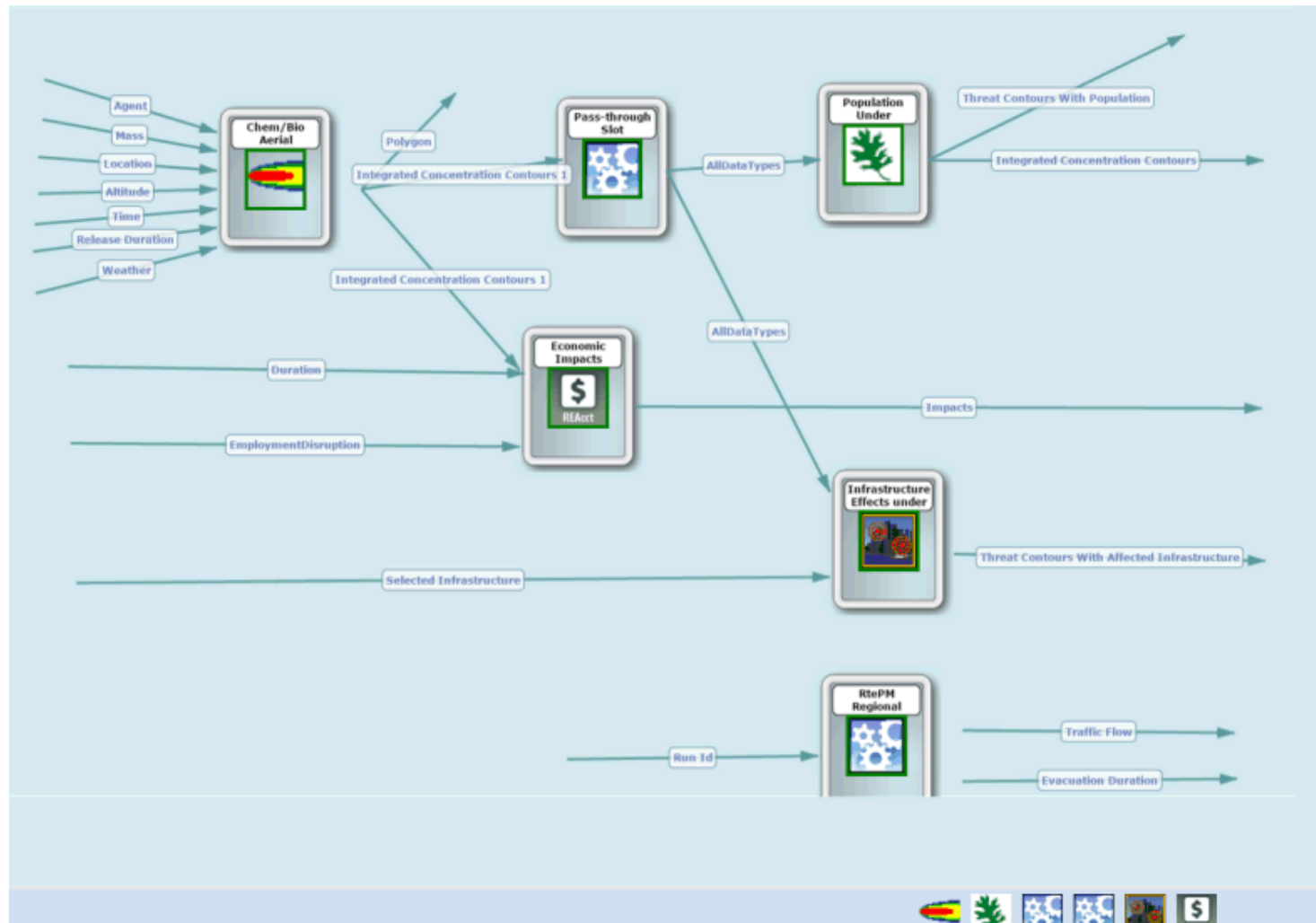<u>Business model for offering SUMMIT at the CESC</u>

- Short-term (through 7/15):
  - DHS S&T deployment task ("Decisions Matter" exercise)
- Medium-term (FY16):
  - SHSGP "Template" project proposal
  - Search for other funds
- Long term (FY16 and beyond):
  - **CESC as an enterprise, fee schedule/pay-per-use**
  - Shared resources with Edge virtual trainer

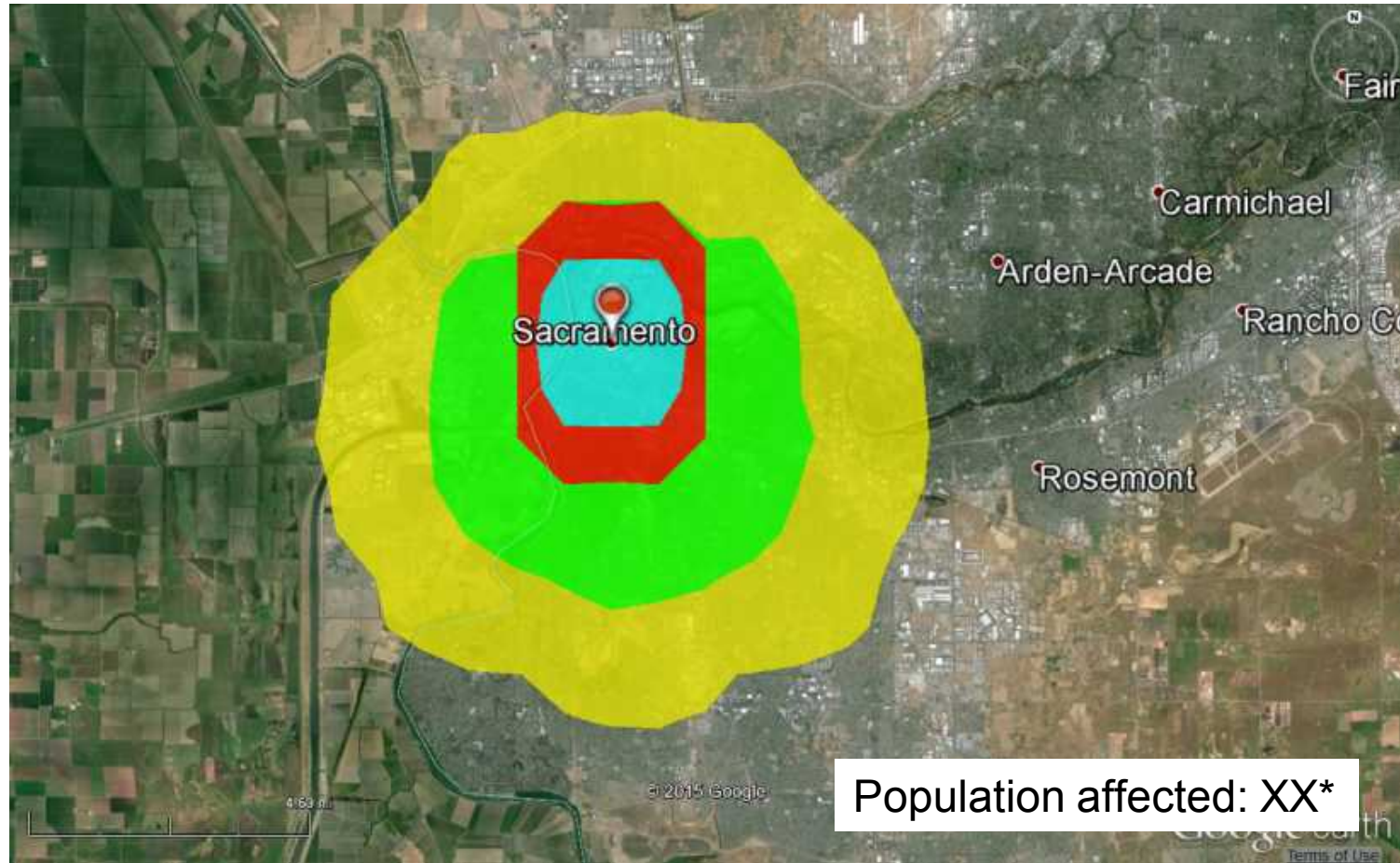# Backup Screenshots

Decisions Matter SUMMIT Template:

Chlorine Tanker Release with
Population, Infrastructure, Economic Effects, and Evacuation Modeling
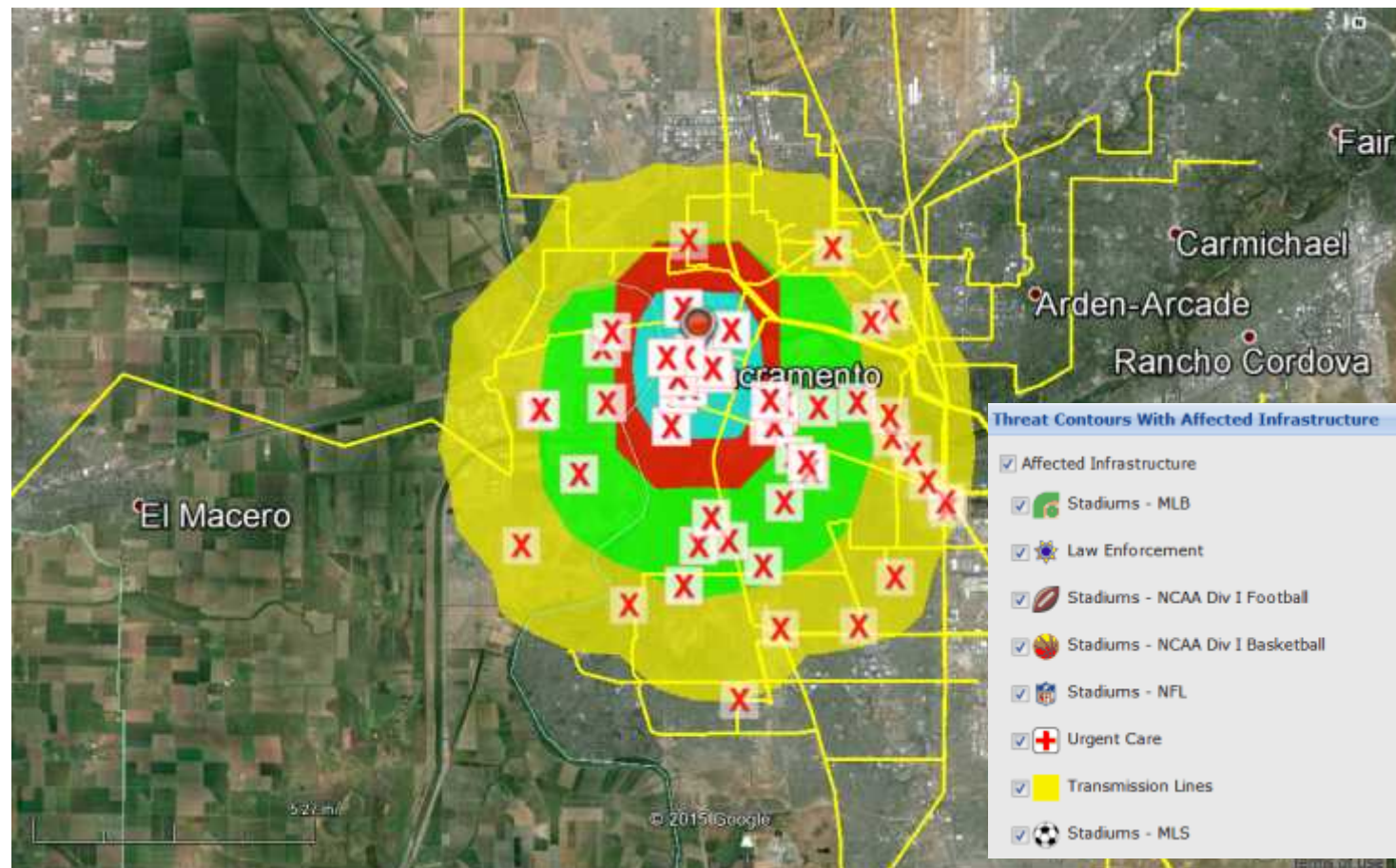
Decisions Matter SUMMIT Results:

Chlorine Concentration Contours, and Affected Population*

Population affected: XX*

*Concentration and population data removed due to sensitivity level of data
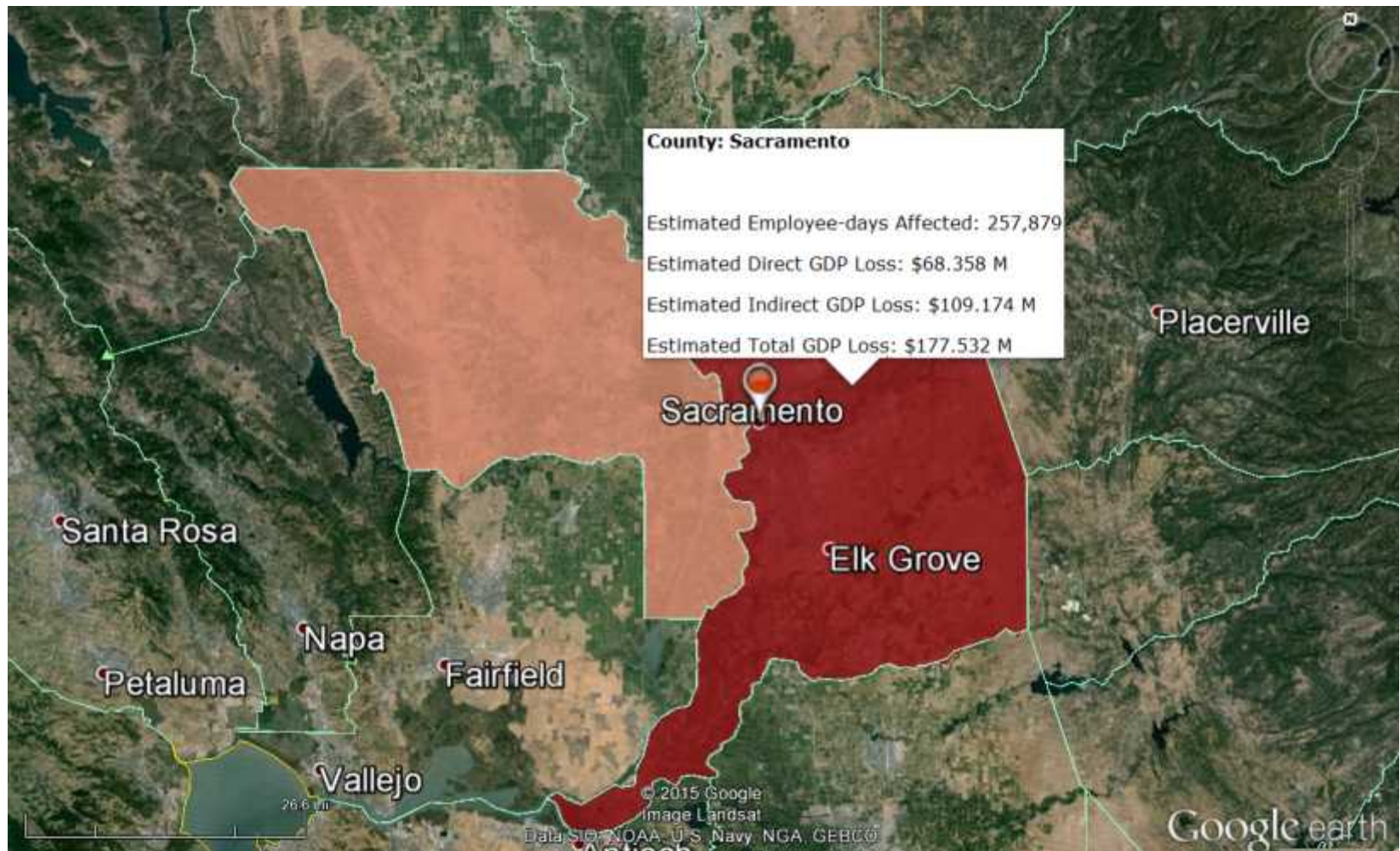
Decisions Matter SUMMIT Results:
Affected Critical Infrastructure*

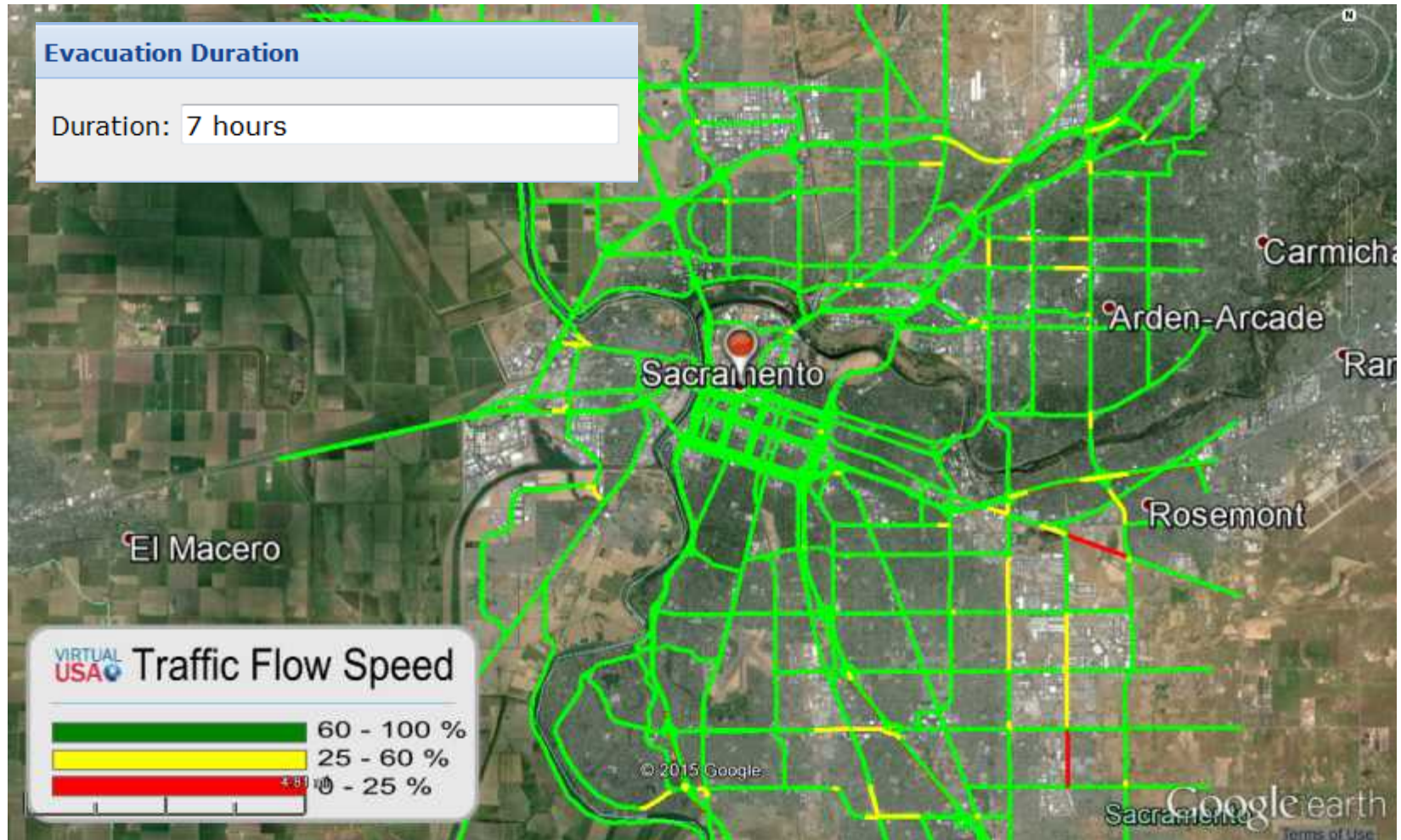*Infrastructure de-identified due to sensitivity level of data

Decisions Matter SUMMIT Results:
Economic Impacts

Decisions Matter SUMMIT Results:
Consequences of an Evacuation Decision

Decisions Matter SUMMIT Results:
Consequences of a Different Evacuation Decision