

# SKETCHUP + SCHOOLS + LAW ENFORCEMENT + FIRST RESPONDERS

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A means to capture community critical infrastructure and key resources (CI/KR) in 3D while building a shared experience between students, law enforcement, and first responders.

# Sketchup

Sketchup is a tool developed by Google to allow the creation of 3D models. As an example, the 3D buildings on Google Earth are created in Sketchup.

Sketchup is free to schools:  
<https://www.sketchup.com/education/sketchup-for-schools>



# Leveraging resources

- Use Sketchup in schools (high schools/community colleges, etc.) to capture CI/KR in 3D. This could be an elective, part of an industrial arts program, a design module in art, a computer graphics module, etc.
- Use first responders as consultants and mentors to guide the details of the 3D rendering. Examples would include:
  - Access points
    - Door width - will a gurney fit through this door?
    - Does this door open in or out?
  - Hazardous/explosive materials
    - Where are the oxygen bottles stored at the nursing home?
    - Where are the pesticides stored at the hardware store?
  - Utilities
    - Where are the firefighting stand pipes?
    - Where are the electrical disconnects?
    - Is there a fire suppression system in the kitchen?

# The benefits

- Allows the capture/sharing of building-level granularity of CI/KR data in 3-D.
  - Each year and/or semester the models can become more detailed and more nearly complete as the work builds on the previous year's effort.
  - The data can be used by law enforcement, first responders, city planners, emergency planners, etc.
  - Redacted models (with security-sensitive elements removed) can be posted to Google Earth.
- Increases the active engagement between first responders and students in schools.
  - A direct hands-on partnership between the students and the first responders.
  - A bridge to understanding and shared goals.

# Steps to realize the idea – interest?

Reach out to first responders and schools to assess the potential.

- What drafting/drawing programs are currently used in local schools?
  - Could the curriculum benefit from a computer graphics program?
  - Are there personnel available who could engage in the program?
- What efforts are being made by law enforcement and other first responders to reach out to schools and students?
  - How often are law enforcement and first responders in the schools?
- What are the “nightmares” for first responders?
  - Nursing homes, memory care facilities, etc. – Do we know enough to respond effectively?
  - Schools – Where are the shelter-in-place sites for storms? Where are the rally points for fires, or evacuations?
  - Hazardous sites – hardware stores have propane, ammunition, pesticides, herbicides, paint, and a host of other chemicals. Everything burns, explodes, or becomes shrapnel.

# Steps to realize the idea – plan/execute

- Plan
  - Identify the potential participants in the program
  - Ensure the curriculum is consistent with state policies, protocols, etc.
  - Ensure there are the means and methods to allow students to gather data on buildings
- Execute
  - Explain to the community the intent and purpose of the program
  - Ensure a solid student/teacher/first responder schedule for mentoring/feedback
  - Launch the class

# Questions/Discussion