Level 1
WORKSHEET

PROJECT FIRESTORM

EXTREME EVACUATION

This worksheet shows you how to use statistics, mapping tools and informed assumptions to create an evacuation plan for a NSW suburb.

Using a Google map of the area downloaded into SketchUp, you can analyse data and investigate the logistical challenges involved in the safe evacuation of the residents of St Ives, to the north of Sydney, during a catastrophic bush fire event.

Set up the mapping

- Open SketchUp and select the Simple Template - Metres.
- Select Geo Location in the drop File menu.
- Select the area north of Toolang Rd. The map will be imported into SketchUp. Repeat and add More Imagery to obtain the entire suburb.
- Referencing maps, use the drawing feature to mark the approximate boundaries of the suburb.
- Select Entity Info in the drop down Window
- menu to obtain the SQ M data of the suburb.
- Convert to SQ KM and hectares.
- Use the population density data (1081 people per SQ KM) to estimate the actual population of St Ives Chase.

Make some general assumptions

- Average family size =
- Average number of cars per household =
- Percentage of residents at home on a Sunday morning =
- Average length of a car in metres (including a 1m buffer) =

Calculate the logistics of a mass evacuation

By combining your assumptions with the population data calculated above, you can investigate the limitations of a mass evacuation of St Ives Chase. To do so, you must first analyse road maps of the area and determine the limited number of exit points available to residents who reside north of Toolang Rd.

Respond to this evacuation scenario

NSW GOVERNMENT | NSW RURAL FIRE SERVICE | FIRE + RESCUE

Developed by NSW Rural Fire Service with NSW Department of Education

GET READY

A catastrophic bushfire is bearing down on the community of St Ives Chase. Residents have been given 60 minutes to evacuate the area North of Toolang Rd. Using your knowledge of the population in combination with your assumptions, you must:

- Calculate the average number of residents that need to leave each minute.
- Calculate the number of cars that will be leaving each minute.
- Calculate the total traffic length (in terms of metres) that will arrive at Toolang Rd each minute.

Work out:

- Using an estimate of six cars per minute being able to leave the suburb at each available exit point, will there be a smooth traffic flow?
- If not, what will be the shortfall in terms of cars / people per minute?
- At this rate, how long would it take for all residents to leave safely?

Then revise your calculations above by adjusting the evacuation time to just 40 minutes.

When asked to leave, residents will typically take some time to pack precious items and essentials. This delay can often lead to fatalities!

- How many cars per minute would need to exit onto Toolang Rd for a safe evacuation to occur?
- Is this figure realistic?

Explain your reasoning.

This worksheet courtesy of St Ives North Public School.