The Real time evacuation Planning Model (RtePM, or “Route-P-M”) is an evacuation simulation created to provide quick and accurate estimates of the time required for vehicles to evacuate a user-defined area. RtePM is an Internet hosted tool that can be used to model evacuations anywhere in the United States. It can be used for both natural and man-made disasters, including hurricanes, wildfires, radiological disasters (e.g. nuclear power plant accidents), or terrorist incidents.

UP TO DATE AND VERSATILE. RtePM automatically retrieves population data from the U.S. Census Bureau and road information from a proprietary road network information database to accurately reflect the evacuating area. Users can modify a wide array of relevant evacuation variables, including seasonal population changes and characteristics, evacuating population participation and response rates, roadway modifications (e.g., lane closures, speed reductions, contraflow), and general evacuation direction (for example, to avoid an approaching wildfire). RtePM also harnesses Federal, State, local and commercial information, and leverages available technology options and plume models such as “HotSpot” and “ALOHA®.”

WIDELY ACCESSIBLE. RtePM can be run using any personal computer and operating system through a standard web browser such as Mozilla Firefox®, Chrome™, Internet Explorer®, and Safari®. Proper functionality requires high-speed broadband Internet access and Adobe® Flash® (an automatic prompt to install Adobe Flash appears upon login).

GROUNDED IN RESEARCH. The Virginia Modeling, Analysis, and Simulation Center (VMASC) at Old Dominion University in Norfolk, Virginia, with funding and support from the Virginia Department of Energy Management, led further development and enhancements to RtePM. The Johns Hopkins University Applied Physics Laboratory completed initial development of RtePM through a grant from the US Department of Homeland Security Science and Technology Infrastructure Protection & Disaster Management Division initiative.

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http://rtepm.vmasc.odu.edu/
# QuickStart Guide

1. **Click on the link:** [http://rtepm.vmasc.odu.edu/](http://rtepm.vmasc.odu.edu/) to open the application. A map of the U.S. will appear with two additional windows. The first is a login window requiring acknowledgement of RtePM's purpose and limitations. Check the acknowledgement box and log in as a Guest or Registered User to enable the “Evacuation Planning Window” and display the “Scenarios Repository.”

2. **Select “New” to create a new evacuation scenario or double-click an existing scenario.**
   - **A.** If “New” is selected, enter a name under the “Summary” tab and click “Save.”
   - **B.** Double-click on an existing scenario, or click “View” or “Edit” to open the scenario.

3. **Click on the Evacuation Area tab to open “Evacuation Zone 1,” and begin working in RtePM.** Scenario modification tabs are sequentially oriented from left to right.
   - **A.** Navigate around the map with on-screen or keyboard tools, or the hand-shaped “Pan” tool.
   - **B.** Choose a tool from the drop-down menu under the green “+” icon to designate the evacuation zone. Selected population blocks will appear shaded in red/orange. To deselect unwanted population blocks from the simulation, use the tools found in the drop-down menu under the red “X” icon.

4. **Click on the “Roads” tab, to the right of the “Evacuation Area” tab.** Use tools from the green “+” icon or red “X” icon to designate or remove the roads to be used by the evacuating population. The road network should be larger than the designated evacuation area or an incomplete evacuation will result. Use the drawing tools to add or remove individual highways, roads, or sections to represent localized incidents such as flooding.

5. **This is enough information** for RtePM to calculate a basic evacuation simulation. Click “Save” and “Calculate” and RtePM will calculate the evacuation time for the designated area based on the inputs. An “Alert” will indicate that the simulation has started.

6. **Return to the Summary tab.** A green “✓” icon displays when the scenario is complete. Double-click the completed simulation to view the results or run an animation of the evacuation.

7. **A thorough User’s Guide is available on the RtePM website:** [http://rtepm.vmasc.odu.edu/](http://rtepm.vmasc.odu.edu/)

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## A Little More Depth

### Under the “Summary” tab
- Registered users can choose to make scenarios private or public, and choose whether or not public scenarios are locked for editing.

### Under the “Evacuation Area” tab
- The user can modify new or existing evacuation zones to reflect different factors (e.g. different participation rate, response rate, end point destinations).

#### A. Users with local expertise
- Can modify “Population Blocks” within an “Evacuation Zone.” To add more “Evacuation Zones” click on the green “+” icon in the upper right-hand corner.

#### i. Under the “Configuration” sub-tab
- Users can modify variables such as numbers of persons per vehicle, vehicles towing trailers (e.g. for livestock or recreational equipment), evacuation participation rate, and shelter usage.

#### ii. Under the “Response” sub-tab
- Under an “Evacuation Zone” the user can control the response rate and starting hour for different evacuation zones to create phased evacuations that reflect scenarios such as progressive storm damage or a delay for a hazardous plume.

### Under the “Seasonal” tab
- The user can add seasonal populations with the green “+” icon in the upper right-hand corner. Select a tool from the “Shape” drop-down menu, and select an area on the map to assign a seasonal population.

### Use the “Global Parameters” tab to define key aspects of an evacuation scenario (e.g. daytime or nighttime population data, hour of refuge of last resort activation, use of modified roads or seasonal population). Global Parameters also permits different simulation options (e.g. probabilistic modeling, modeling of accidents and incidents, background traffic).

#### A. Deterministic Modeling
- Uses fixed inputs and every run of the simulation will produce the same results.

#### B. Probabilistic Modeling
- Makes small, random modifications to variables like speed, vehicle length and acceleration, and numbers of evacuees. This gives a more complete picture of the evacuation, but with an associated increase in the time required to complete the final calculations.

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For additional information on RtePM, contact:

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