

Severe Ice Storm Hazard Streets in Portland, OR

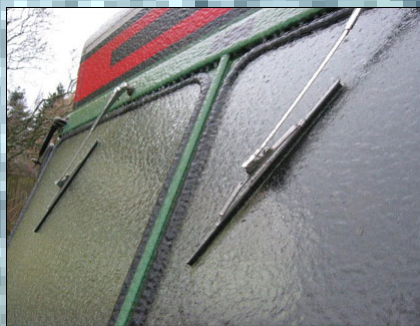


Hilly areas like Forest Heights saw many accidents. Mike S./KATU Viewer

Melissa Zagorski
March 14, 2005

Purpose

- * To create a network of streets that would be relatively safe to use during a severe ice storm



William Rihel/KATU Viewer

Goals

- * Identify streets with a slope $\geq 25\%$ (12°)
- * Create a routing network that excludes these streets
- * Help meet the needs of the city's Snow and Ice Control Objectives

Snow and ice control objectives are to:

- provide a street surface free enough of ice, snow or slush to allow reasonable traffic
- discourage private vehicles, encourage mass transit
- reduce accidents, bottlenecks, known hazard locations
- improve emergency response
- accommodate commerce.



Data From RLIS

- * Streets
- * Slope
- * Neighborhood Boundary
- * Airports
- * Fire Stations
- * Hospitals



Methods

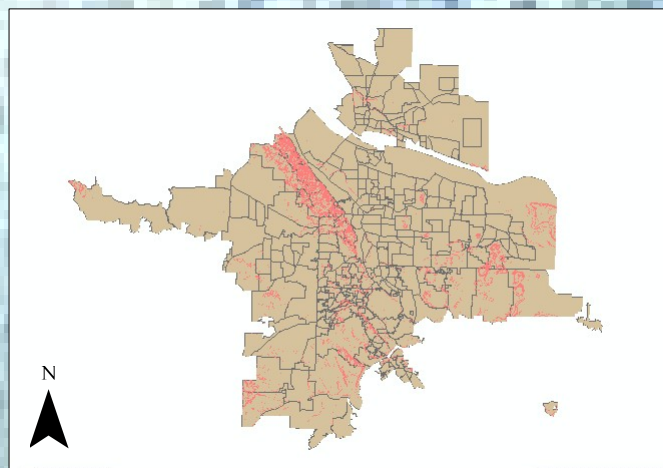
Arc Catalog

1. Create Personal Geodatabase
2. Create New Feature Dataset
3. Import Feature Class (single)
7. Create New Geometric Network

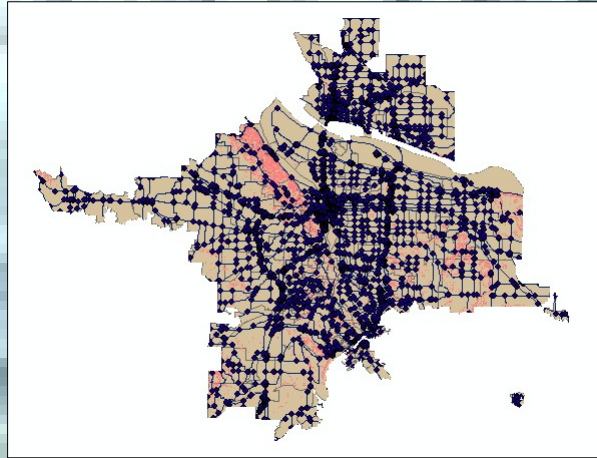
Arc Map

4. Open Feature Class / Projection
5. Use Identity Tool
6. Delete Records: Slope ≥ 25
8. Add Network Layer
9. Use Utility Network Analyst

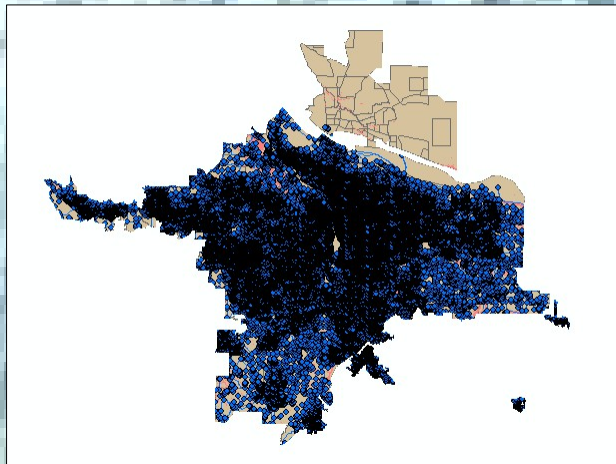
Slope $\geq 25\%$



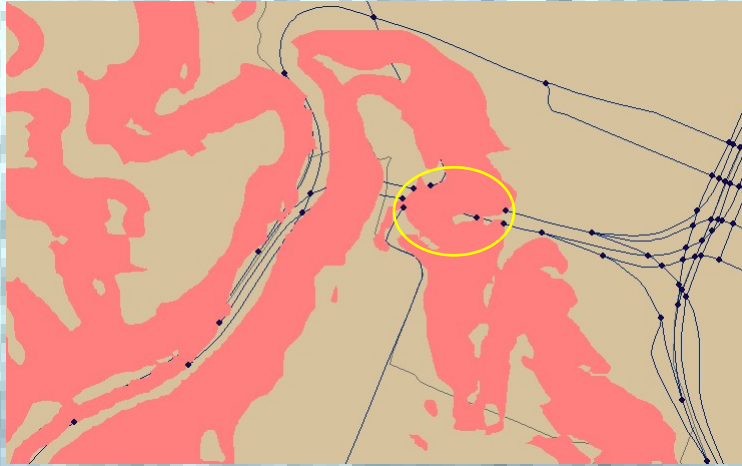
Usable Major Arterials



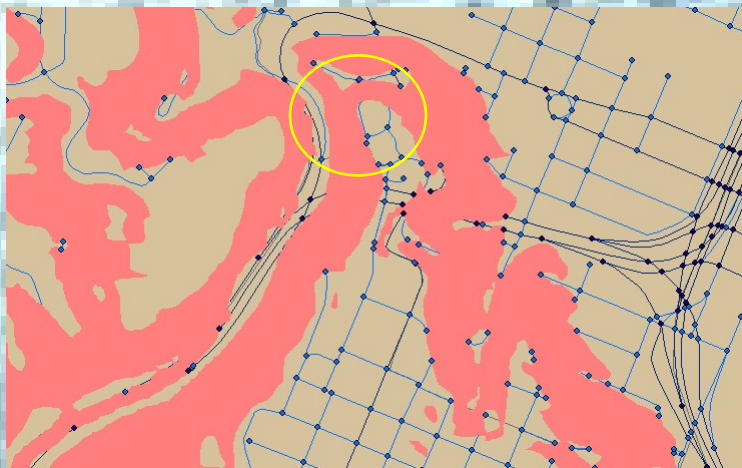
Usable Local Streets



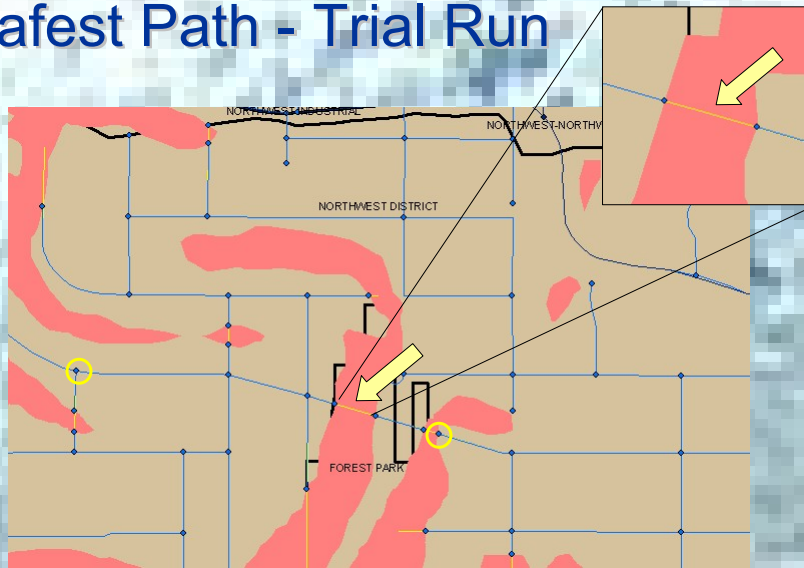
Breaks in the Arterial Network



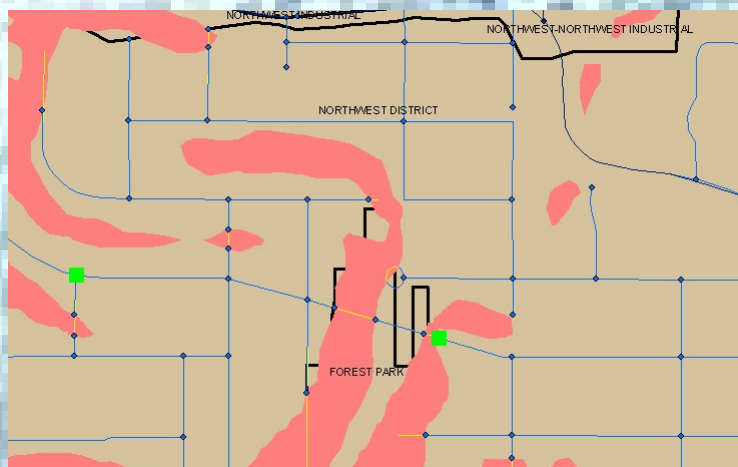
Breaks in Local Streets



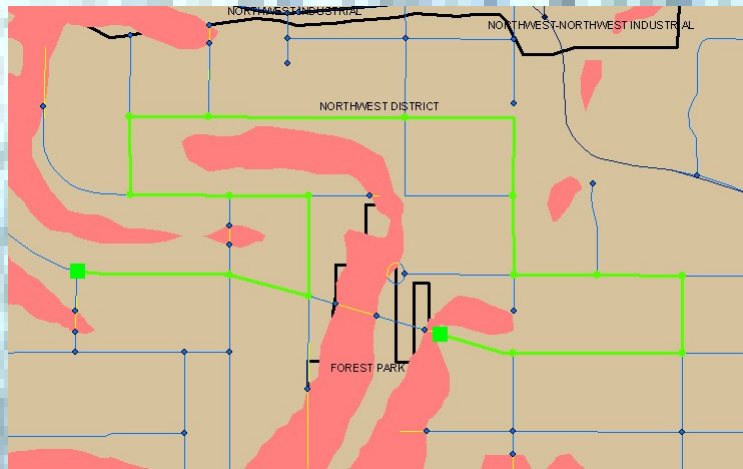
Safest Path - Trial Run



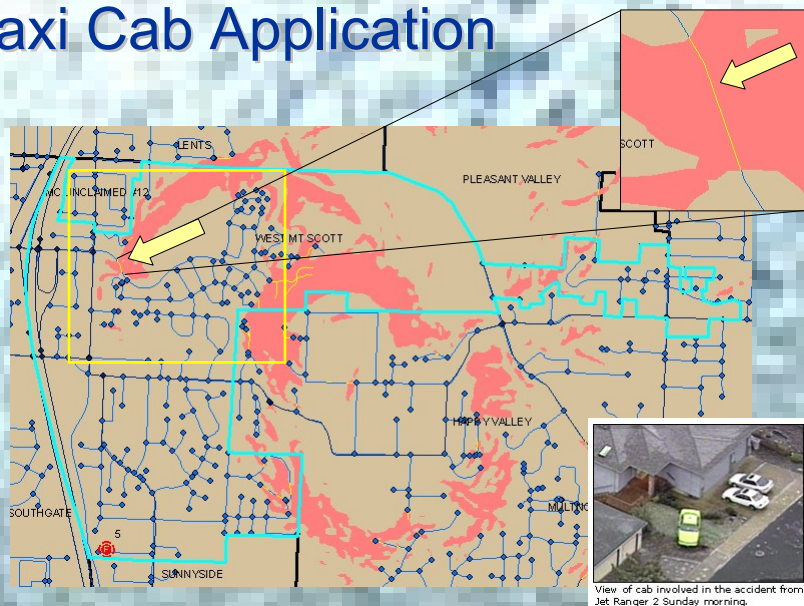
Place Flags



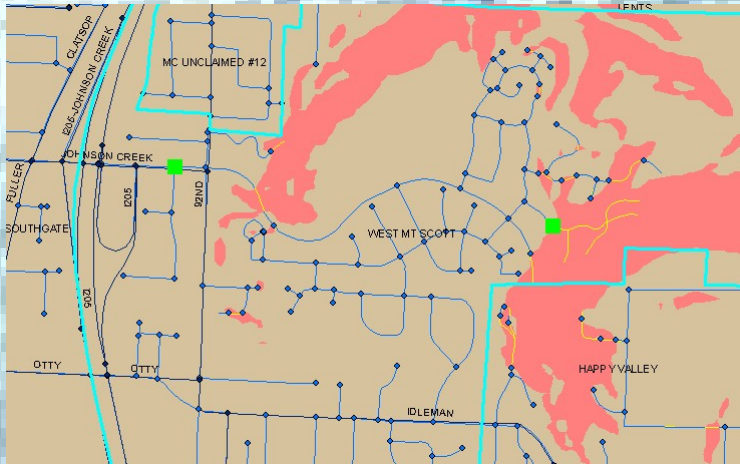
Safest Route



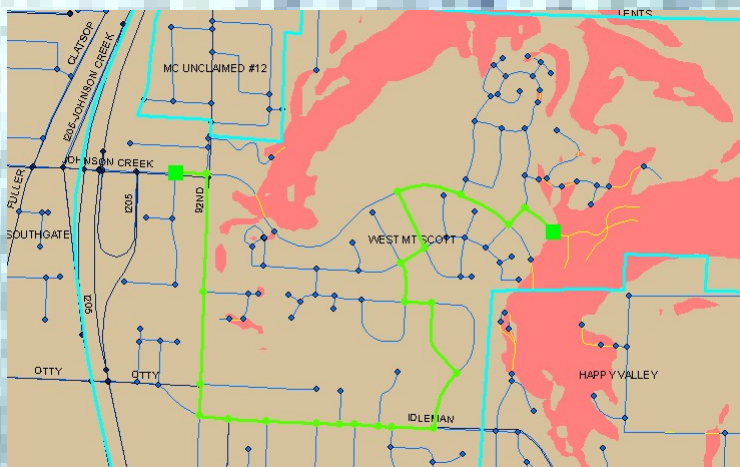
Taxi Cab Application



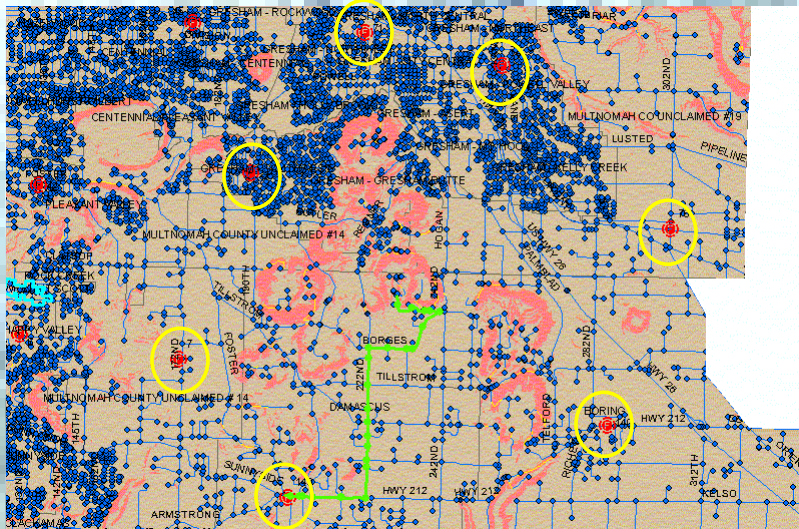
Taxi Cab Application



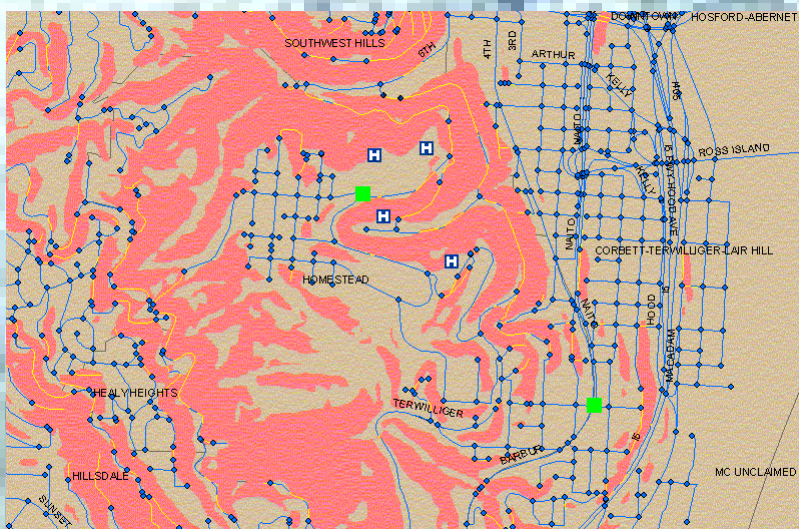
Safest Taxi Cab Route



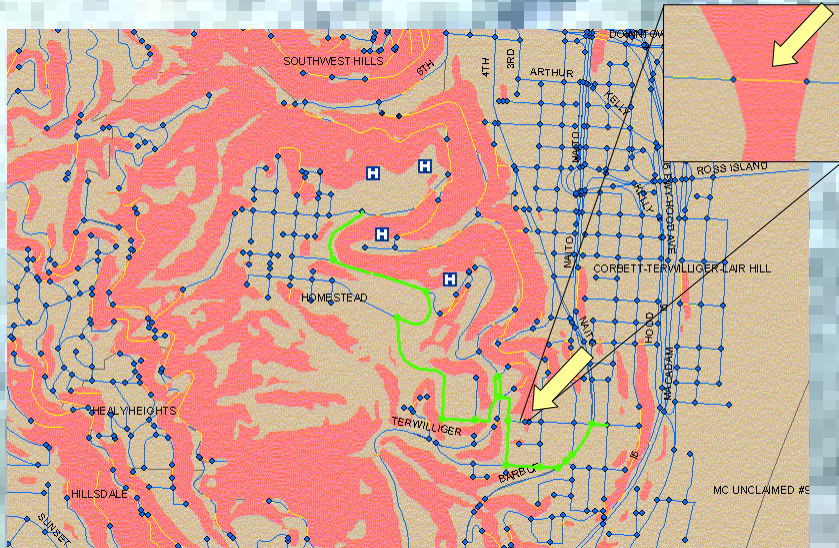
Fire Station with Safest Route



Access To/From Hospitals



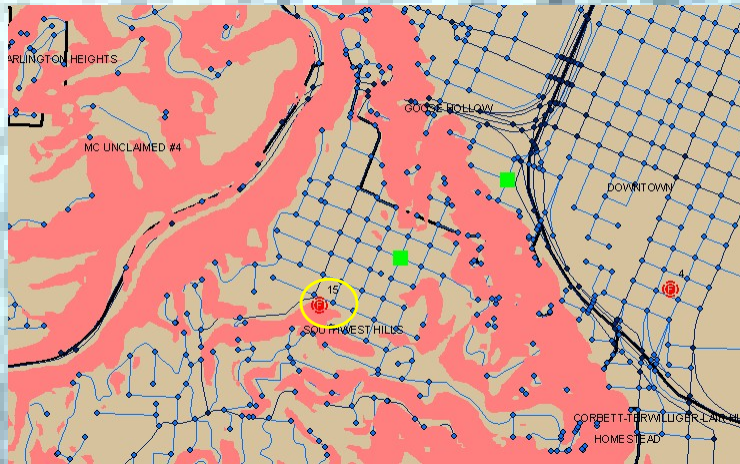
Safest Path To/From Hospitals



Completely Isolated Neighborhood



It Has a Fire Station!



Conclusions

- * Improvements in network needed for long distance routes
- * Network needs to be converted to a practical tool for end users



Courtesy: William Rihel

The Best Way to Get Around On Ice



The 2005 ice storm happened during the US Figure Skating Championships here in Portland

Questions?

