

How Storms Can Affect Transportation on the Eastern Shore

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1. Background

Inundation

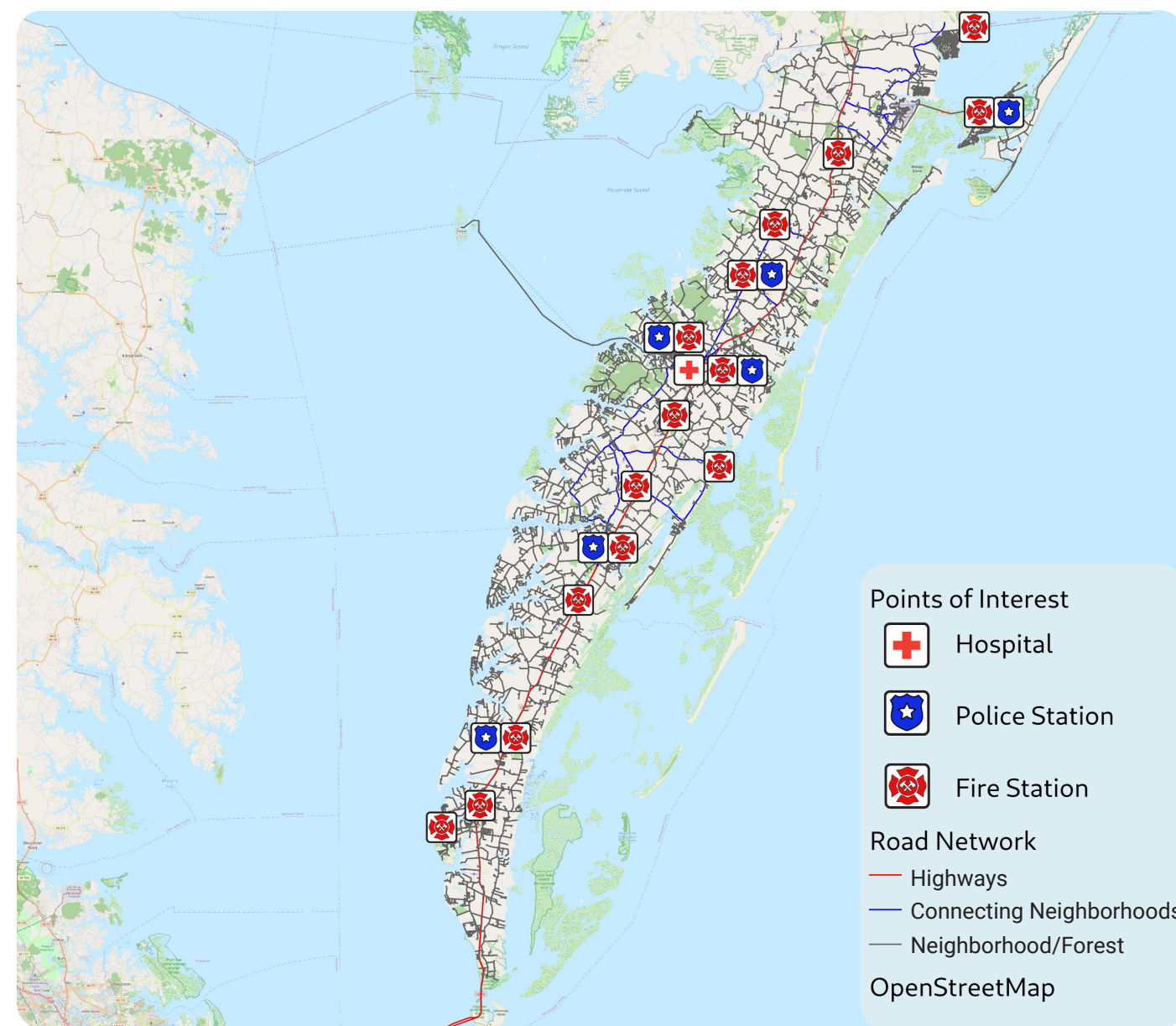
- Caused by storm surges, and rainfall
- Can cause erosion and damage to buildings and infrastructures
- Can interfere with residential septic systems
- Can cause salinization of farm fields
- Can cause road flooding which impacts people and their general quality of life



King Street near Onancock, Virginia (August 2017)
www.delmarvanow.com/story/news/2019/02/27/tidal-flooding-roads-accmack-residents-appeal-help/2978292002/

Examples of inundation impacts

- Increased time to reach hospitals and urgent care
- Longer response times for emergency personnel
- Longer Evacuation times (e.g., to MD)
- Commuting delays to work and school closures

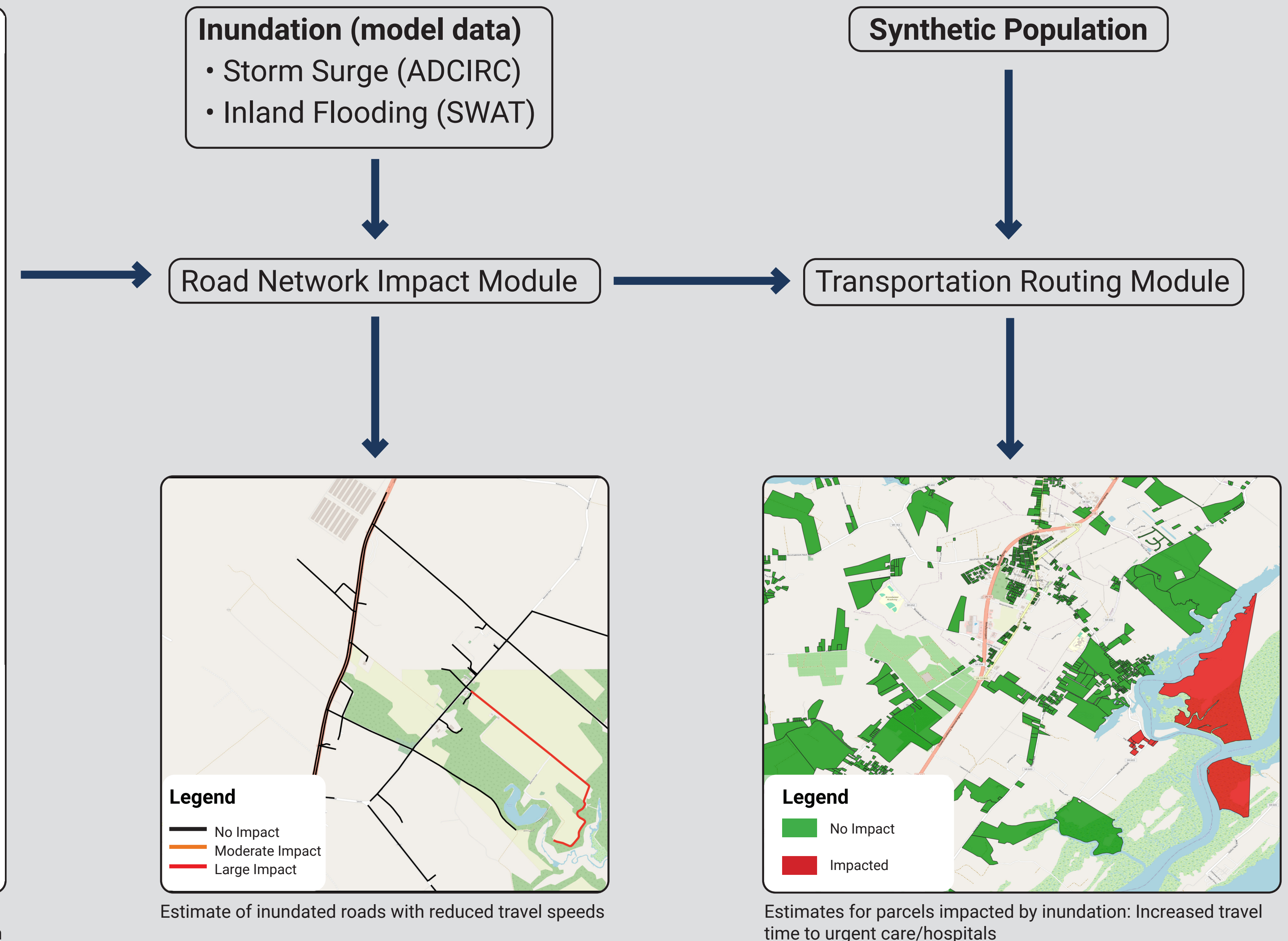


2. How do we estimate flooding impacts?

Example Scenario: A minor storm causes roads to flood in the Willis Wharf area.
Which households will need more time to reach urgent care?



Detailed Road Network
• Comparing against the data from the Transportation Inundation Infrastructure Vulnerability Assessment (TIIVA), Circa 2015

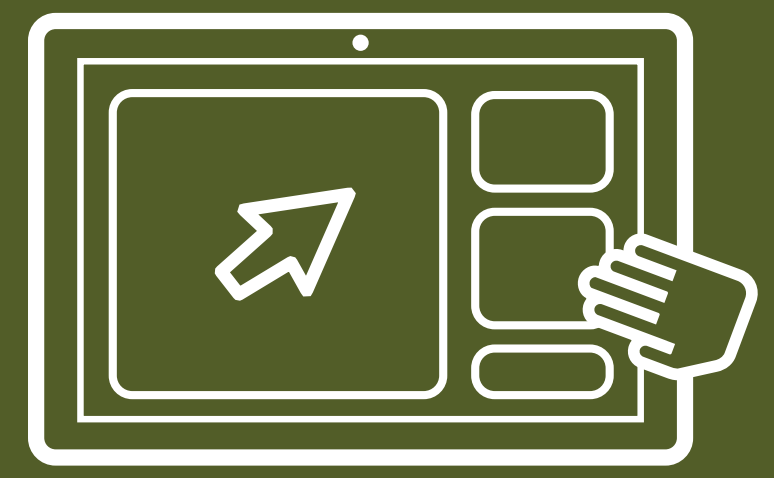


Key takeaway

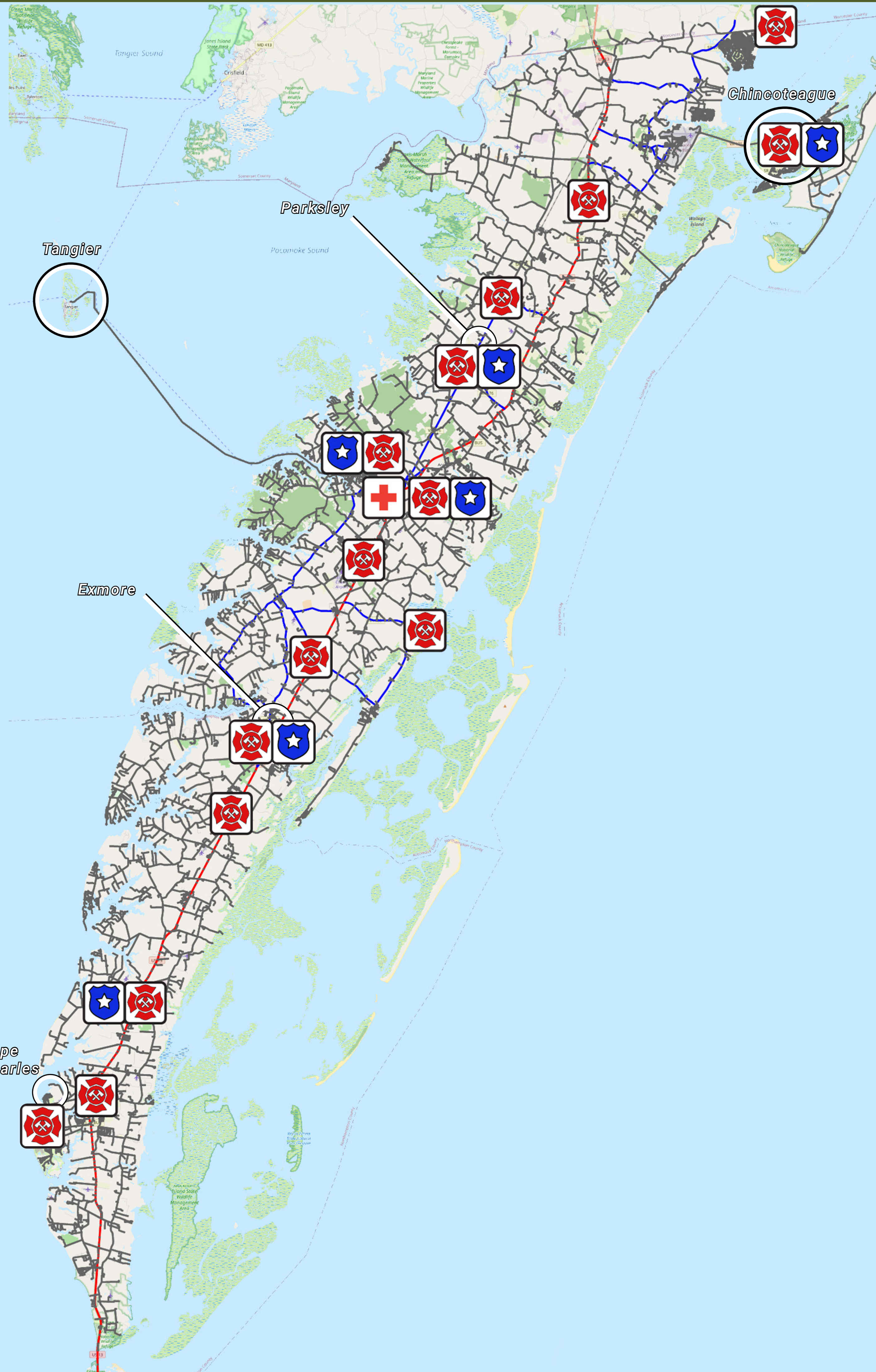
Understanding how storm flooding can affect transportation and evacuation routes is important on the Eastern Shore



Points of Interest During an Emergency on the Eastern Shore



Livability Tool Data Preview



About

This map shows the road networks on the Eastern Shore and their relationship to points of interest that can be helpful during a climate emergency (hospitals, police stations, fire stations).




Legend

Points of Interest

-  Hospital
-  Police Station
-  Fire Station

(*Point of interest locations are based on available HERE data.)

Road Network

-  Highways
-  Connecting Neighborhoods
-  Neighborhood/Forest

0 2.5 5 10 Miles



Key takeaway

Mapping the relationship between roads and points of interest can inform how flooding will impact residents

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Rasul, K., Seward, C., Schuster, I., & Vollgraf, R. 2021. *Autoregressive denoising diffusion models for multivariate probabilistic time series forecasting*. In *International Conference on Machine Learning*. pp. 8857-8868. PMLR.

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