

# The Washington State Earthquake & Tsunami Hazard Mitigation Programs: **Collaborating with our Partners to Build a more Resilient Washington State**



John Schelling

Washington State Emergency Management Division

Earthquake/Tsunami Programs Manager

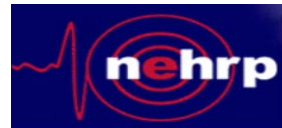
August 20, 2013



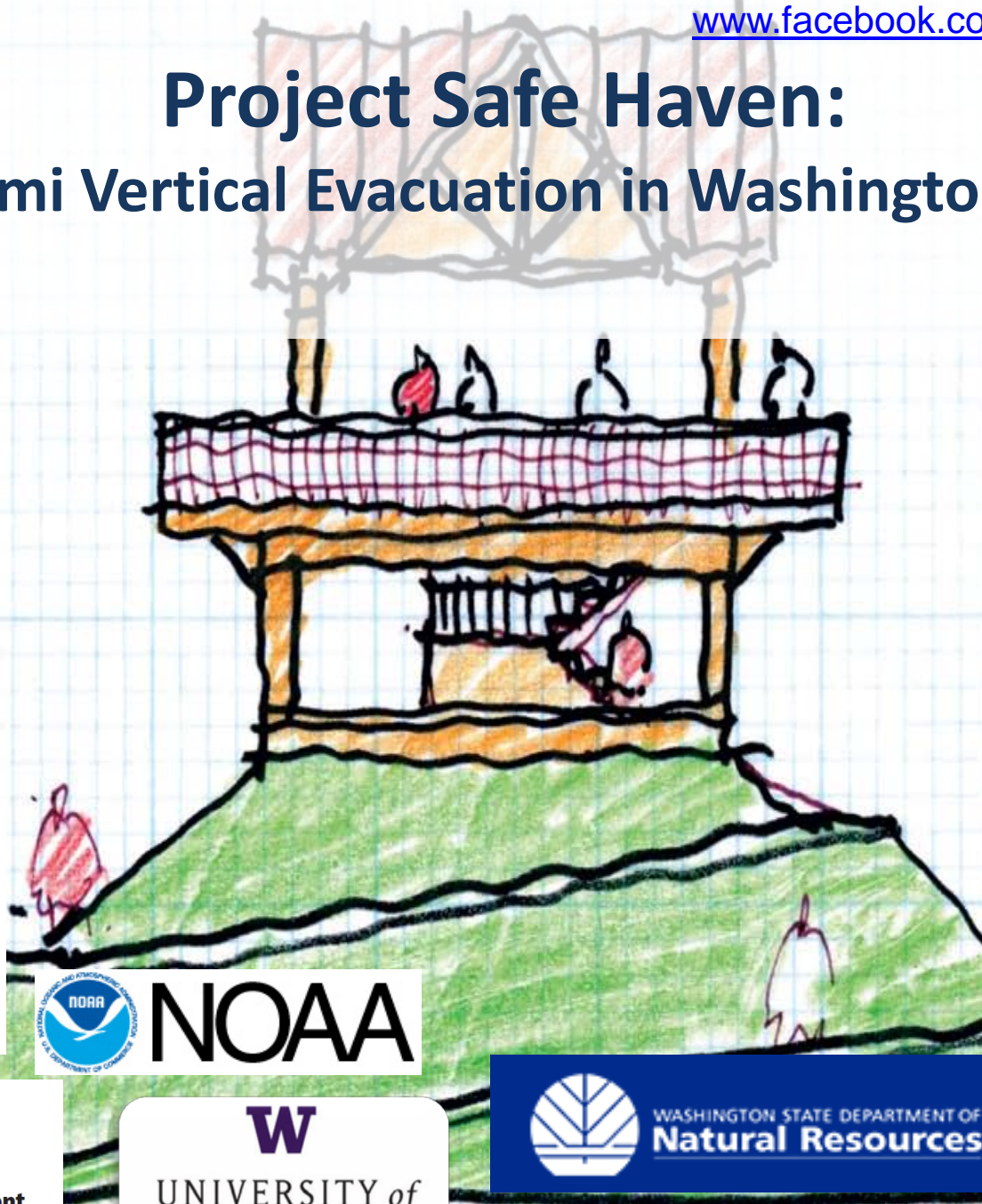
Washington Military Department  
Emergency Management Division



National Tsunami Hazard  
Mitigation Program



# Project Safe Haven: Tsunami Vertical Evacuation in Washington State



National Tsunami Hazard  
Mitigation Program



NOAA



FEMA



Washington Military Department  
Emergency Management Division



UNIVERSITY of  
WASHINGTON



WASHINGTON STATE DEPARTMENT OF  
Natural Resources



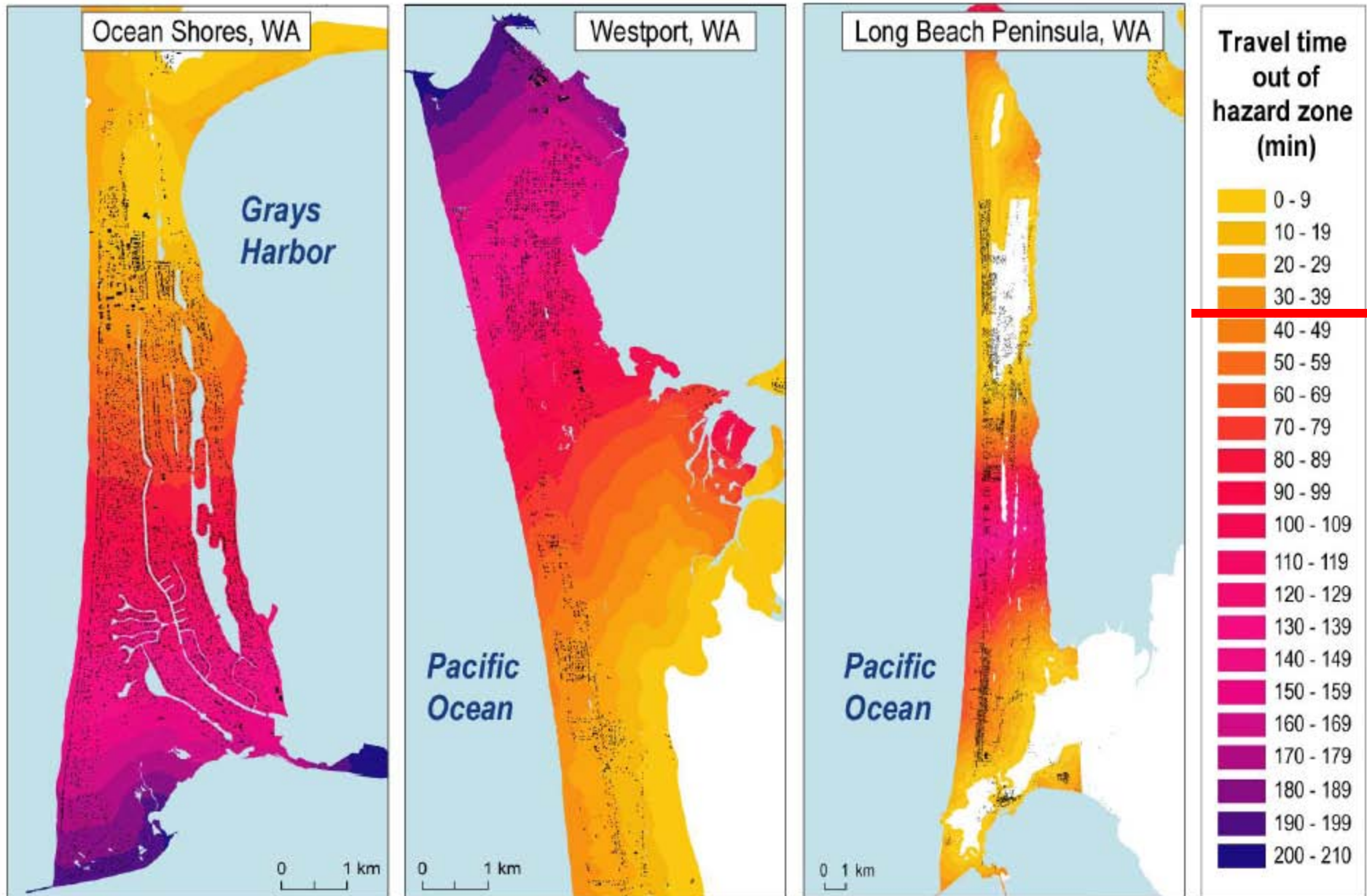
USGS

science for a changing world

ron kasprisk



# Hotspots of Evacuation Challenges

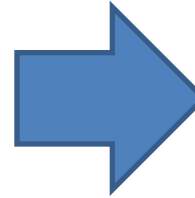


Source: Wood & Schmidlein, 2011

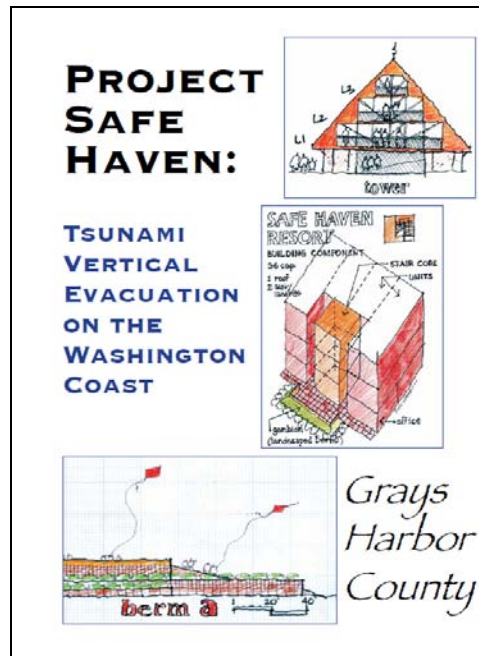
Based on 1.1 m/s travel speed



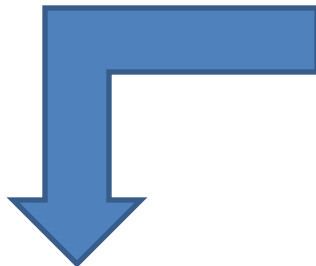
Community members



Community strategy



Community plan







Covered play structure

Custodian/Maintenance

16 General classrooms including math  
2 Kindergarten classrooms  
2 HeadStart & early childhood classrooms  
3 Title 1 classrooms

Art/Science classroom

Gymnasium (Potential tsunami refuge  
on roof of gym, music, cafeteria)

Music Classroom

Cafeteria and Kitchen

Special Education Areas

Library/Media Center with computer lab

Administration Offices and support

Support Spaces (counseling, parent room,  
etc.)

Staff parking

New parent drop off

Existing parking to remain

New parking

Improvements to bus pick up  
and drop off lane

10:30 am - April 24, 2013 — Updated: 10:30 am - April 24, 2013

## Voters OK ambulance service in McCleary, school measures in Ocosta and Satsop.

### The Vidette & The Daily World

**MONTESANO** — People living in the McCleary area will still get an ambulance when they call one, Ocosta School District will get a renovated grade school and Satsop School District voters approved a property tax levy during a special election Tuesday.

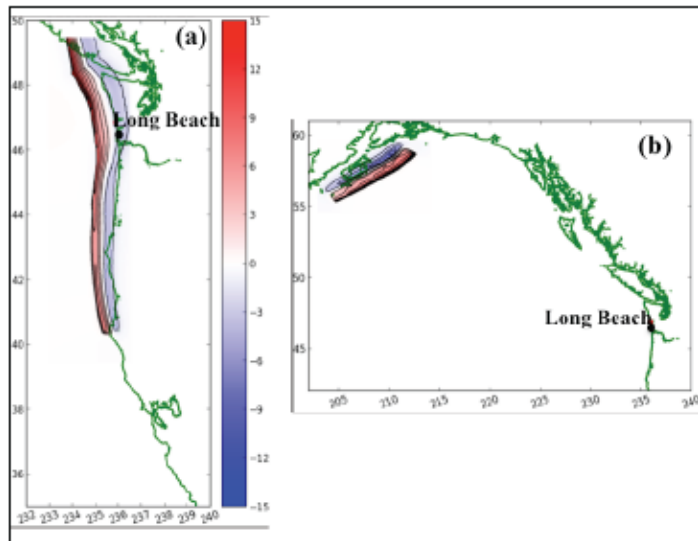
In initial vote counting, McCleary area voters in Fire District 12 were approving a property tax increase for ambulance service, with an approval rate of 85.47 percent.

Fire District 12 voters turned down several earlier attempts and without this approval there is a question as to what would happen if someone called 911 in a medical emergency.

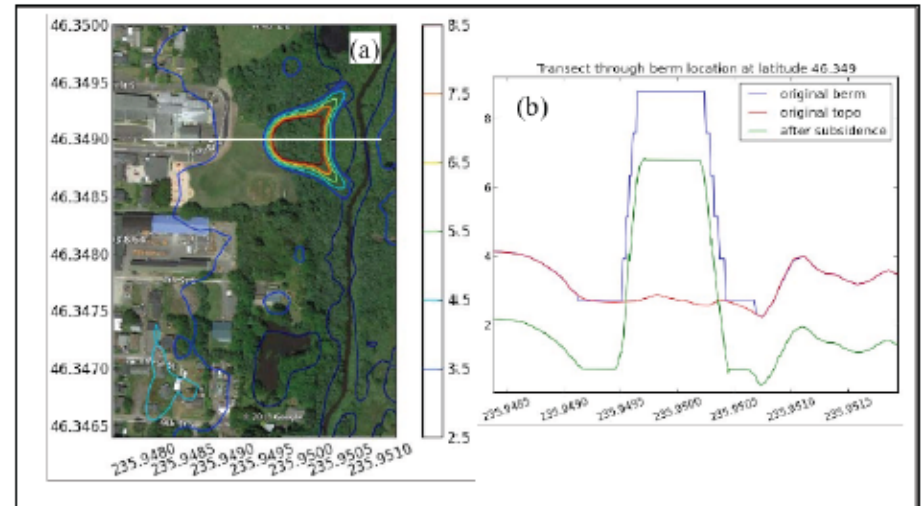


# Tsunami Hazard Assessment: School Berm Site in Long Beach, WA

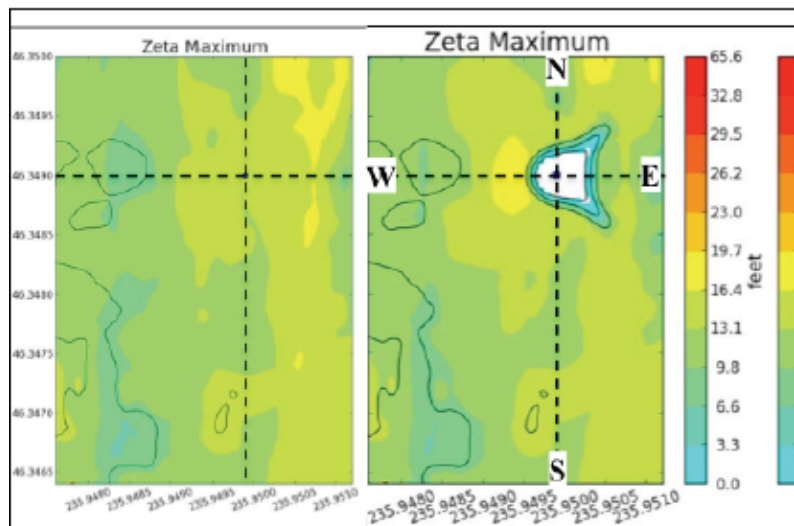
## 2 Sources: Near & Distant



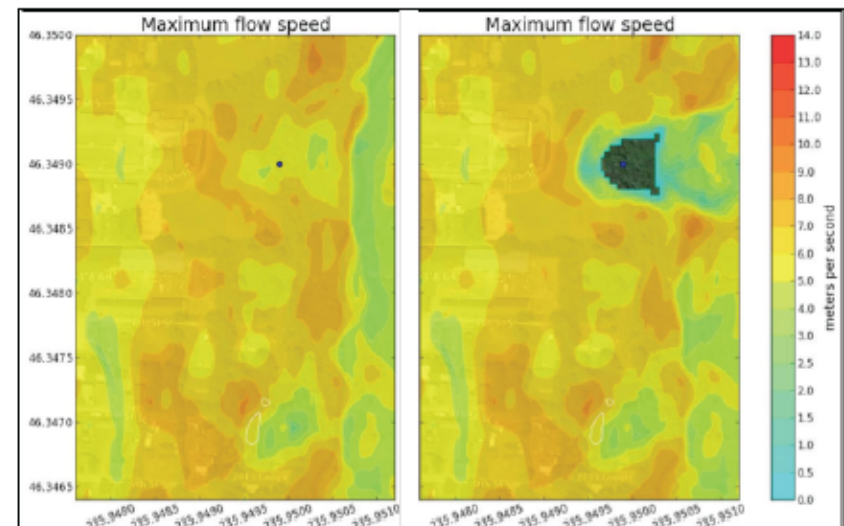
## Site and Topo Model



## Max Flood Depth

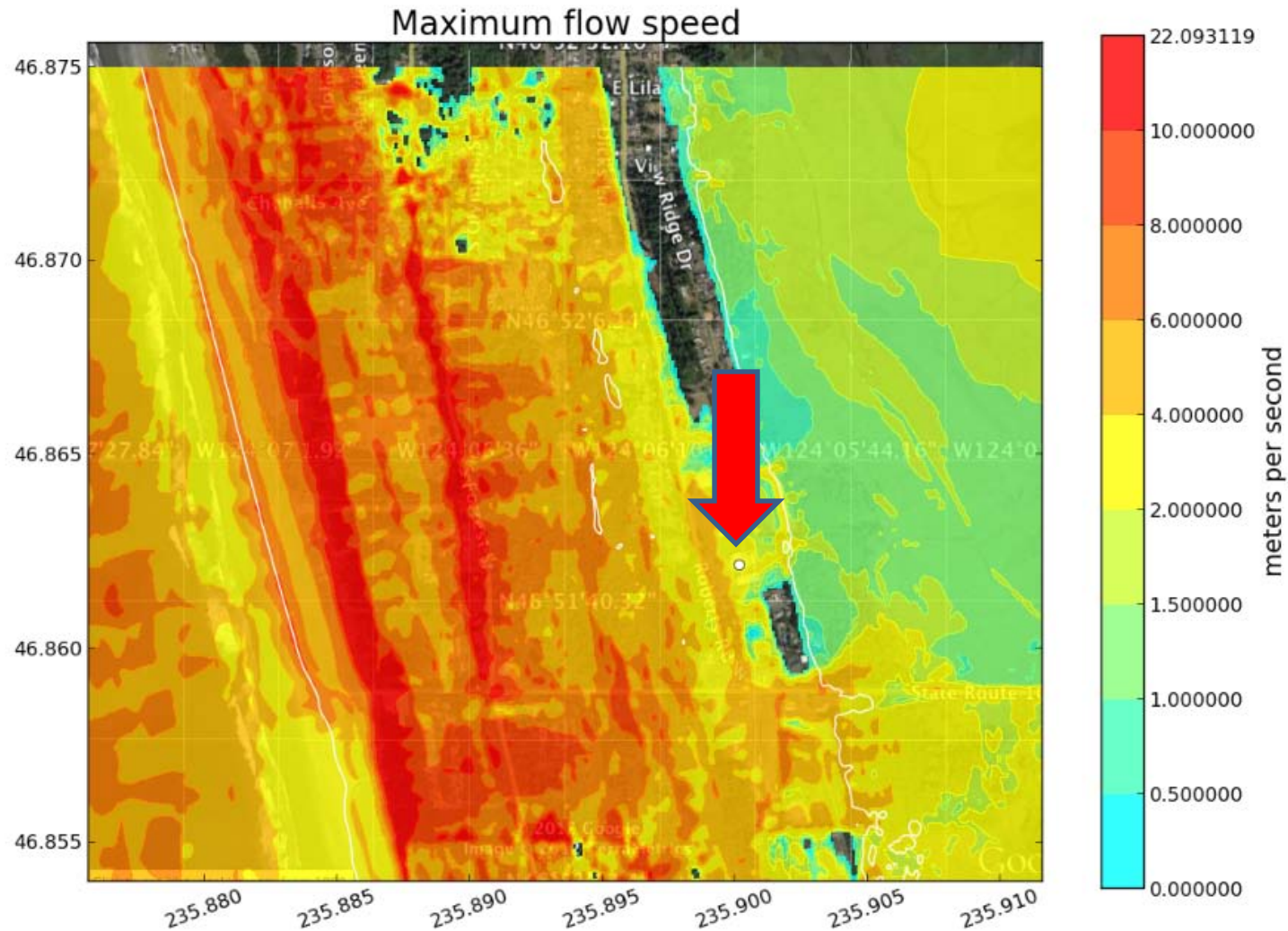


## Max Current Speed



Huge Credit to: Gonzalez, LeVeque, Adams

# Some Early Lessons Learned...



Huge Credit to: Gonzalez, LeVeque, Adams



- Be prepared, it can be iterative process... and this isn't a bad thing!
  - Integrating artificial high-ground into the DEM
  - Testing different designs and elevations in the models to validate heights and flow characteristics
- Get project design team engaged early.
- Trying to account for uncertainties and all of the “what if’s” from designers
- Public support is crucial...and has been readily forthcoming in Washington
- FEMA funding might be an option...and the cost-benefit ratios can be out of this world! Still pending a decision in Long Beach...

**Risk = Hazard + Outrage**



# Acknowledgements

Without the **extremely generous support** and time of the following individuals, these projects would not be nearing actual construction! **I owe them...BIG TIME!**

- Randy LeVeque
- Frank Gonzalez
- Loyce Adams
- Tim Walsh
- Cale Ash
- Stephen Slaughter