Regional Safety Data Scoping Study

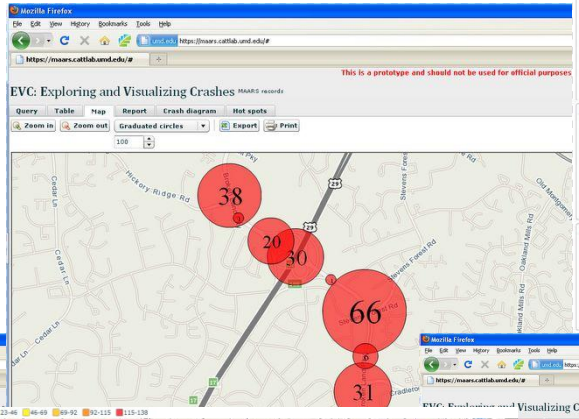
March 16, 2012

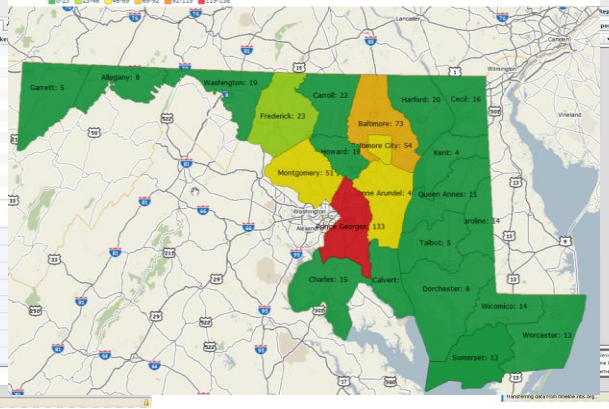
The Problem

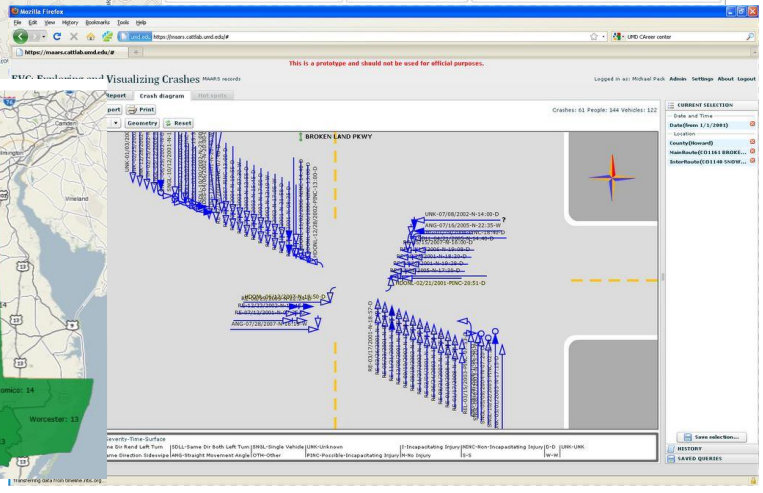
- MD State Highway Administration's MAARS Project
- Local Engineer's/Analysts not able to access and interact with safety data

A Solution

- **Filterable, Sortable, and Exportable Tables**
- **Maps**
  - Heat maps
  - Cluster maps
  - County or State Summary maps
  - Other map outputs
- **Summary Reports**
- **Crash Diagrams**
  - Intersection Diagrams
  - Corridor Diagram
- **Hot Spot Diagrams**







MWCOG's Interest

- Would like to have similar capabilities for the region.
- Assume that DC & VA would like to have similar capabilities
- Funded of a Scoping Study through the CATT Lab

Regional Scoping Study

- What would it take to turn EVC into a regional solution?
  - How different are the data sets?
  - What are the weaknesses of EVC?
  - What would need to be done to create a regional tool?
  - How expensive would it be?
  - How long would this take?

Current Limitations of EVC

- Large Query Limitations
- Client vs. Server Side Processing
- State Specific Data Tables/Queries

MD	DC	VA
	Backing hit parked car	Backed into
	Fixed object	Fixed object in road
		Fixed object off road
Head on	Head on	Head on
Head on left turn		
Same direction left turn	Left turn hit vehicle	
Same direction both left turn		
Opposite direction both left turn		
Other	Other	Miscellaneous or other
	Parked vehicle	
	Ran off roadway	Non-collision, overturned, jackknifed or ran off road
Same direction rear end	Rear end	Rear end
Same direction rear end right turn		
Same direction rear end left turn		

More Examples of Differences: Causality

- VA has a single causality field for each collision record, with 9 options to choose from.
- DC allows for 4 contributing circumstances per collision, with approximately 14 options for each (additional options may exist that are not represented in the sample dataset). Although 4 contributing circumstances are allowed per collision, it appears that that these circumstances may be limited to one per vehicle involved, rather than allowing multiple circumstances for a single vehicle.
- The MD dataset stores contributing circumstances in a separate table with links to a specific person or vehicle, allowing for any number of circumstances to be applied to each person and vehicle involved in the collision. There are a total of 83 unique options grouped into 7 categories. This setup allows for very specific causality information to be recorded for a given collision.

A Path Forward

- Recreate the functionality of EVC in a new tool that accommodates all three regions.
- This would require 1 full year of development time with multiple developers.
- Estimated costs = $195k

Assumptions

- The app would be best built around a standardized data format and would include data from all 3 agencies. This means the CATT Lab will need to create a “common” database schema that includes all three agency data sources, fused together as best as can be accommodated. This also means that some fields that can’t possibly be standardized between all three agencies might need to be dropped.
- The application would allow the user to compose a query using all fields and lookup table values available in our standard format, similar to what EVC does now.
- We are also assuming that all agency accident reporting data will be provided to us in a timely manner, and that no major schema changes will have occurred between now and receipt of the data.
- At least one new database server and a web application server will need to be purchased

Potential Risks

- **Data Accessibility**: For the project to be a success, all three agencies will need to be committed to providing their data to MWCOG and the UMD team. Furthermore, the agencies need to agree on when and how to provide updates to the data as new records are reported. The tool will be of little value until all three agencies have updated their data.
- **Application Accessibility**: MWCOG will need to establish an "administrator" for the tool. This person will be responsible for creating accounts for individuals who need access to the tool. The three agencies will need to agree on who should have access to the tool, for what period of time, and for what geographic region. While all three states may be providing data to the tool, it may be desirable to only give complete regional access to certain individuals. This will be a MWCOG and agency decision.
- **Data Retention:** The agencies will need to decide how far back in time the data should be available? 3 years, 10 years, or 20 years? This is important in deciding how much storage space is needed. This budget assumes a 15-year period of data will be available.