Appendix

Contextual Analysis: Prince George's County Vision Zero Story Map

Samuel Ajala, *Data Visualization Specialist*
Omar Akbari, *ArcGIS Specialist*
Janell Coleman, *Data Visualization Specialist*
Kishan Patel, *ArcGIS Specialist*
Asqa Rauf, *Designer*
Kayla Sheehy, *Designer*

Introduction

The objective of this project is to create a detailed and visually appealing story map that represents the crash data for 2,000 miles of Prince George's County maintained roadways that range from rural to urban classifications. The crash data includes pedestrian-vehicle and bicycle-vehicle crashes. This visualization will be used to create reduction targets and thus reduce serious injuries and fatalities in Prince George's County.

The project uses a data dashboard and ArcGIS to analyze original data and review findings to develop a story map prototype.

Scope

The Department of Public Works & Transportation is committed to ensuring safe road conditions in Prince George's County. This story map aligns with this vision by showcasing crash data in a reliable and intuitive way.

The project began with a review of findings from previous story maps to better understand story mapping and methods. After reviewing the story maps, the team integrated county data into an original story map and data visualization.

This project has two internal stakeholders—the Prince George's County's Department of Public Works & Transportation and the I-School consultancy team. External stakeholders, who directly benefit the from the final deliverable, are groups and organizations invested in reducing serious injuries and fatalities due to pedestrian-vehicle and bicycle-vehicle related crashes.

Internal Stakeholders

I-School consultancy team	tasked to create the final product
Prince George's County Department of Public Works & Transportation	agency that needs the data visualization

External Stakeholders

Transportation professionals	transportation professionals in PG county should be aware of crash data
Policy makers	local individuals who work to change, remove, or add policies
Public health officials	County health officials who monitor crash data and who respond to crashes
Police	County sheriff and police who respond to crashes
Community members	residents and businesses that use the roads

Project Objectives

The final deliverable will be a story map dashboard showing the details of traffic incidents and fatalities on Prince George's County roads. The data generated will be an interactive map that highlights the exact locations of accidents. The data presented will be based on 2012-present crashes information and will be separated by year. The dashboard will also include incident information that the agency deems necessary.

This information and presentation can help County officials' decision making by spotlighting high priority areas that require safety measures. The impact of policy changes can be measured by comparing yearly data to find patterns and locations that might cause more or fewer traffic incidents. To measure the change, the data collected after this project's implementation should be compared to previous year's data to gauge whether traffic incidents have reduced in high priority areas.

The beneficiaries of this project are Prince George's County officials and service departments such as police and fire department. Project data can inform decisions about road services and enforcement in certain locations. This data can lead to a more effective use of resources and help implement a more efficient system.

Team Risk Assessment

Category	Rating	Notes
Project Size	6/10	Completing this major has required a project in every course. This project's scope and data work is not unusual. However, the project timeline depended on the client's response which adds a potential time crunch.
Requirements Stability	3/10	In an interview, the client conveyed clear project goals. Other area jurisdictions have completed data visualization for Vision Zero, and the client wants to match those for Prince George's County.
Learning Curve	8/10	The team members were unfamiliar with ArcGIS. This project required recoding and importing data and creating data visualizations in an unfamiliar software. The team learned the software to complete the project.

SWOT Analysis

A SWOT analysis allows an assess the team's strengths and weaknesses.

Strengths
- Resources: The team has access to McKeldin library professionals to guide us in ArcGIS
- Skill: Each team member has completed the I-School major course and is familiar with the process for identifying where their expertise can be useful in the project.

Weaknesses
- Learning Curve: The team is new to ArcGIS and must quickly learn the software to produce the client's product.
- Time Constraints: This project must be completed in a few weeks. Team members have different schedules and the team must factor in spring break.

Opportunities
- Relevancy: The I-School has prepared us to be information professionals. We are good candidates for this project about displaying information in an intuitive and user-friendly format.
- Current Examples of Vision Zero: Area jurisdictions have already completed their Vision Zero story maps and dashboards, which allows the team to view examples and implement a better design.

Threats
- Requirements/Scope of the Project Change: The client may decide to change the initial scope or requirements of the project
- Data recoding is beyond our capabilities. The client may deliver data that has to be recoded to function in ArcGIS. Depending on the amount of data, we may need to work with an external party to accomplish this.
- Agency's Technical Limitations: The County's IT department has standards posting content on their website, which may present conflicts with this project.

Team Risk Scenarios

In any assignment, there are challenges. In this case, the development platform may not change since the focus is a story map and the client may not want to move away from that. The client themselves are not going to change but they may request changes to the final story map. Our team is dynamic enough that we can switch the workload to address changes.

Additionally, our team is taking an agile approach to this project. Our goal is to reduce the time spent and make sure we meet the deadline, if not deliver earlier. But we must ensure the deliverable meets the client's needs. The worst-case scenario is that the deliverable isn't what the client needs; we may need regroup, adjust, and continue from there. If this is the case, we plan to work with the instructor and/or the TA on a plan to resolve the issue.

Project Constraints

There are two constraints for this project: time and resources.

The time constraints are scheduling client meetings, assembling the entire team to attend client meetings. Due to scheduling conflicts, it isn't possible for all team members to attend client meetings, which can result in miscommunication and lack of understanding about changes or progress. Also, each team member has a limited amount of time each week to work on this project due to work and other classes. This can lead to many things in the project not getting as much attention and being completed later since everyone has a time constraint.

Our software resource, ArcGIS is also constrained by the University library which has granted us limited online access. If we need more credits, we may not be able to efficiently deliver the product. To overcome this, it is essential that all project aspects are communicated completely to every team member.

Due to these issues, the final project might not be as detailed. Also, these constraints might exclude some items from the final deliverable. We will resolve this by focusing time and attention on the highest priority deliverables. Also, dividing the work among the six team members can help achieve all the deliverables.

Stakeholder Communication Plan

We will communicate with stakeholders via email to keep everyone up to date; as well as refer to emails as needed. Omar Akbari is the point of contact, and will connect with Andrea Lasker, Special Assistant to the Director of Prince George's County Department of Public Works & Transportation, to schedule meetings as well as to receive weekly status reports.

On more technical items, we will work with Nima Upadhya, Special Projects Manager for Prince George's County, who is experienced in ArcGIS. Nima also has the necessary database knowledge.

Most meetings will take place virtually through Zoom but we will meet in person as needed, particularly a midterm meeting after the Washington Region Vision Zero Summit March 19, 2020. We will also have a final in-person meeting at the end of the semester to present the final project.

Governance and Transition Plan

During our first client meeting we discussed the constraints and expectations for the project and for the team. During the second meeting, online on March 5, they will provide further details about constraints and requirements for the project. We will be communicating with the client on

a regular basis and checking in multiple times to make sure we are headed in the right direction.

Once we have completed a project that meets the client's constraints and requirements, we will present the final product. Through both PALS and our client, we will discuss how and when to pass over our project to the client. In the first client meeting, they asked for a write-up that will be delivered with the final project. The write-up will be a user guide that gives steps on how to maintain, add, and change the dashboard.

Interview Questions

1. Can this meeting be recorded?

2. Do you want a web application or just a dashboard visualizing the data ?

3. What is the backstory that led up to creating the visualization? Who are the end users? Stakeholders? Who the stakeholders aren't?

4. How do you envision data visualization helping the targeted users? What would they do with the information?

5. Compared to the City of Tempe, its roads are set up as square blocks and easier to follow than in Prince George's County. Looking at their data and how it's helped them make their roads safer, do you think the data will help the County in the same way? Would it help more or less?

6. How often will you be updating the data to keep it up to date with construction as well as to see if any changes made has helped make the roads safer?

7. What other sources of data can we collect besides the created Strategic Roadway Safety data?

8. If serious injuries and fatalities are cut in half by 2030, would the story map access just be for locals and County officials only? Have you considered any public accessibility for this? Anybody else?

9. How far back does the data go and how far back do you want the visualization to show? (For example, the Arizona Visualization includes data from 2012.)

10. What information should be included in the visualization? (For example, Date, Street, Cross Street, Injuries, Fatalities, Injury Severity, Collision Type, Light Condition, Weather, Surface Condition, and Each Parties Involved Type, Gender, Action, Violation, Alcohol and Drug status.) Is there any additional information you would like to include or anything they included you want to exclude?

11. Would you like a feature that allows people to report an incident through the website and then be included on the visualization in real time? For example, neighborhood traffic issues (speeding), as well as drivers cutting through the neighborhood (shortcuts).

    a. Especially if there are multiple reports of the same incident, it could be fast tracked to be included on the visualization.

12. Would you like an option to flip between the visualization in two points of view?

        a. For example, one view cold show how much has changed from past years indicating success of certain actions.

        b. Alternatively, the visualization could show current time incidents, allowing travelers to avoid areas and to plan ahead.

13. Are you looking to cover the entire Prince George's County area or just a particular area?

14. What kind of filters or features should be included or excluded in the final visualization? How will this differ in terms of Prince George's County areas?

15. What format do you want the data set in?

Interview Notes

Vision Zero – Team needs to look at their website:
- Vision Zero Summit on March 19th in DC
- Might be good for a couple of us to attend
- PALS will pay the registration fee
- Look online at their e-brochures for colors and designs
- They want the story map to match the colors as the brochures
- 4th Tuesday of every month they have their internal meetings

Data:
- They have an Excel version of the data
  - make sure they send it as a .csv not a .xlsx file
- Data is from 2012-present
- They get the data from state highway administration
- The data is already available, and they can send to us right away
- Data will be sent over after Thursday's meeting on zoom

Requirements:
- Similar to the Arizona example, they want to view data from each individual year but also see all of the data together
- Add jurisdiction and council district boundaries (they will give us those boundaries)
- Ideally, a cascading story map with a dashboard incorporated
- Also have bar charts with information overviews for information like drug use
  - They don't think that information needs to be available on the map at the specific incidents where drug use was involved for respect to the families involved in those crashes
- Be able to view the data on the map based on different parameters
  - Year, month, day, time of day, light conditions, bicycle/pedestrian involvement, etc.
- The client will provide information about what the map should highlight and what should be shown as summary data in a bar chart, pie chart, etc.
- Develop an easy way for their technical team to import data correctly as it comes in.

For Video Chat on Thursday – Time TBD:
- Look at story maps/dashboards from other Vision Zero sites around the country
  - Seattle, Chicago, Orlando, Durham, and Montgomery County and Baltimore
  - See what information they included for each incident
    - Note what we like/didn't like and if they included too much or too little

If possible, email this information to them before the meeting Thursday
- Reach out to the PM of ArcGIS at McKeldin Library for technical constraints of story maps

Keep in Mind:
- Client wants a write-up at the end of the project with guidance on maintain the story map/dashboard with new information