Bringing Maps to Life: DESIGNING & DEVELOPING INTERACTIVE MAPS

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Introduction:

» Map making takes a team

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Presentation Overview:

1. Benefits of and uses for interactive maps
2. Tools (platforms, cost, pros/cons)
3. Case studies
4. Things to consider
Benefits of Interactive Maps:

» **Easy exploration**: provides users a tool to more intuitively navigate and zoom to a specific area

» **Saves time**: easy to update and can provide real-time information

» **Customizable**: easy to tailor, stylize, and design to meet your project’s needs
Uses for Interactive Maps:

» **Information/data gathering**
  Comments on a plan, voting on alternatives, origin and destination points, issues and constraints

» **Information sharing**
  Construction updates, project introduction, proposed plans

» **Combination maps**
  Creative ways to push information out and pull information in
Planning Your Project, Choosing Your Tools:

» Understand **differences and limitations**

» Budget, deadlines, web security issues, personal preferences, coding skills, design skills, timelines, previous examples, mobile compatibility, website integrations, project duration, branding needs, project next steps, available data…
Tool:

OVERVIEW:
Embed Google Maps into your project and project website

COST:
Free to implement

SKILLS NEEDED:
Pros
▪ Free
▪ Very powerful and customizable
▪ Recognizable/very familiar

Cons
▪ Creating content from scratch
▪ Relying on custom coding
▪ Not for beginners
Tool: **MetroQuest**

- **OVERVIEW:** An immersive survey to collect data in a way that feels like a video game
- **COST:** Depends on project needs, contract-based
- **SKILLS NEEDED:** Familiarity with MetroQuest interface, a substantial amount of content and ideas
### Tool: MetroQuest

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<table>
<thead>
<tr>
<th><strong>Pros</strong></th>
<th><strong>Cons</strong></th>
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<tbody>
<tr>
<td>Surveys that are fun and engaging</td>
<td>Very proprietary; limited customization</td>
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<tr>
<td>Powerful, professional front and back ends</td>
<td>A fairly expensive tool</td>
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Tool: WikiMapping

» OVERVIEW: A survey within a map, letting users put comments where they want

» COST: $350/project/year

» SKILLS NEEDED: Familiarity with WikiMapping interface, ArcGIS data organization knowledge
**Tool: WikiMapping**

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**Pros**
- Fairly customizable
- Relatively inexpensive
- Great customer support

**Cons**
- Fairly customizable
- Subpar mobile compatibility
Tool: JotForm – Map Plugins

» **OVERVIEW:** An online form with various add-ons and integrations

» **COST:** Free to implement

» **SKILLS NEEDED:** Thoughtful question writing, user experience insight, CSS skills for advanced styling
Tool: JotForm – Map Plugins

» OVERVIEW: An online form with various add-ons and integrations
» COST: Free to implement
» SKILLS NEEDED: Thoughtful question writing, user experience insight

» Pros
  ▪ Creates impressive surveys and forms
  ▪ Easy to use interface
  ▪ Form elements are customizable with CSS styling

» Cons
  ▪ Form map plugin settings are not customizable
  ▪ Limited analytics compared to other survey tools
Tool: Google Maps API

» **OVERVIEW:** Embed Google Maps into your project and project website

» **COST:** Free to implement

» **SKILLS NEEDED:** Familiarity with coding and related programs (i.e. Custom Map Tiles, Google Earth, JavaScript)
Tool: Google Maps API

- **OVERVIEW:** Embed Google Maps into your project and project website
- **COST:** Free to implement
- **SKILLS NEEDED:** Familiarity with coding and related programs (i.e. Custom Map Tiles, ArcGIS, HTML/CSS)

**Pros**
- Free
- Very powerful and customizable
- Recognizable/very familiar

**Cons**
- Creating, organizing, and maintaining content from scratch
- Relying on custom coding
Tool: Esri – ArcGIS Online Web Applications

» OVERVIEW: Publish your GIS data with engaging presentation tools

» COST: Approx. $45/user/month

» SKILLS NEEDED: ArcGIS data organization and analysis skills
Tool: Esri – ArcGIS Online Web Applications

» OVERVIEW: Publish your GIS data with engaging presentation tools

» COST: Approx. $45/user/month

» SKILLS NEEDED: ArcGIS data organization and analysis skills

» Pros
  ▪ Data-driven
  ▪ Incredibly powerful analysis tools

» Cons
  ▪ Esri tools are complicated
  ▪ Sometimes too powerful
Planning Your Project, Choosing Your Tools:

- MetroQuest
- WikiMapping
- JotForm
- ArcGIS Online
- Google Maps
Case Studies:

1. Hibbing, MN Safe Routes to School Project
   WikiMapping

2. Dakota County East-West Transit Study
   WikiMapping

3. Mankato Transit Development Plan
   Jot Form – Map Plugin

4. Highway 169 Reconstruction
   Google Maps API
CASE STUDY: Hibbing, MN Safe Routes to School Project

Hibbing SRTS
Lessons Learned: Hibbing SRTS

» Cost-effective engagement tool
» Very customizable to reflect project branding
» Know your audience
» Balancing in-person and online engagement
CASE STUDY: Dakota County East-West Transit Study
Lessons Learned: Dakota County East-West Transit Study

» Great tools for engaging a large study area

» **Surveys can be integrated** into the tool, with limitations

» Background information can be helpful but **may load slowly**

» **Consider the desired input** from the public and what types of decisions others would like to make

» Importance of **providing the instructions** in multiple places and formats
CASE STUDY: Mankato Transit Development Plan

Mankato TDP Website
Lessons Learned: Mankato Transit Development Plan

» Integrating a map into a survey
» Good option for constrained budgets
» Tool does not allow the user to customize the zoom level
» Make sure to provide alternative methods for providing input

“This feature is not accessible. Try moving two fingers around a map with your eyes shut. It doesn't work.”
CASE STUDY: Highway 169 Reconstruction

Construction Outreach

Remove freeway ramps at southbound 16th St.

Lengthen acceleration/deceleration lanes at Cedar Lake Road

Replace Nine Mile Creek Bridge

Repair pavement between Hwy 55 and Hwy 62. Includes ADA ramp improvements.
Web Accessibility:

» **The Americans with Disabilities Act (ADA)**
Prohibits discrimination and ensures equal opportunity for persons with disabilities in employment, State and local government services, public accommodations, commercial facilities and transportation.

» **Section 508 of the Rehabilitation Act of 1973**
Electronic and information technology developed, purchased, used, and maintained by the Federal government must be accessible to people with disabilities.

» **Web Content Accessibility Guidelines (WCAG) 2.0**
Guidelines to ensure web content is accessible to a wider range of people with disabilities, including blindness and low vision, deafness and hearing loss, learning disabilities, cognitive limitations, limited movement, speech disabilities, photosensitivity and combinations of these.
CASE STUDY:
Highway 169 Reconstruction

Highway 169 Construction Outreach
Lessons Learned: Highway 169 Reconstruction

» Very **intuitive** for the public to use

» Understand the map’s **setup process** and **naming standards** from the beginning

» Keep up with updates on **both the website and the alternate PDF versions**

» Opportunities to **add more information** (i.e. detour routes)
In Conclusion:

Maps can help make complex information easy for the public to visualize, understand, and participate in.

The tool you choose depends on the type of project, the info you want to gather or share, budget and skills required.

Make it accessible, look for improvement opportunities, and be creative.
Questions?

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