

An aerial photograph of the Boston skyline, which appears to be partially submerged in water. The city's buildings, including the Prudential Center and various residential and commercial structures, are visible above a layer of blue water that covers the lower half of the image.

Boston Under Water

A Digital Approach to the Changing Climate:

/ Erick Friis
/ Calvin Zhong

/ Michelle Gelberger
/ Maya Madhavan

Contents

Introduction

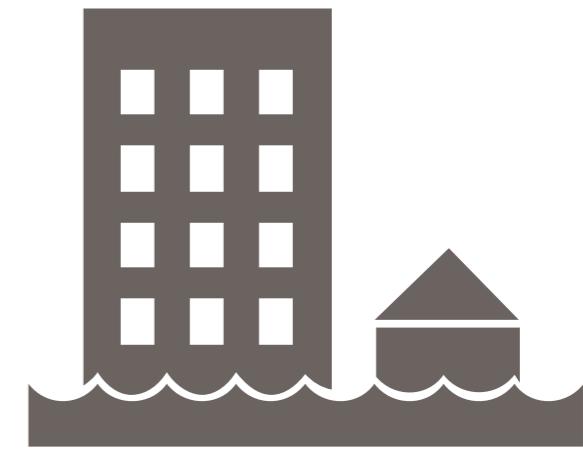
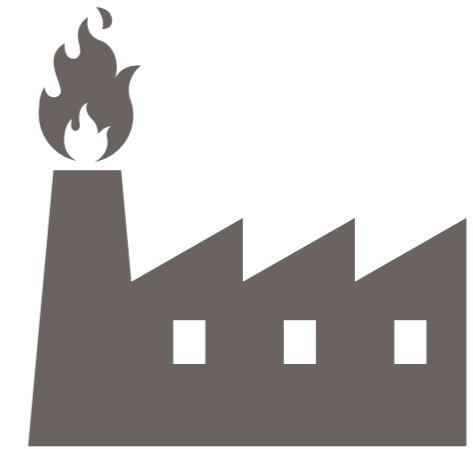
Process

Final Project



A Simple Task –

*Documenting the ways
humans have intervened
or can intervene in
Boston's land.*



The Team –

*Our interdisciplinary
team created this project
for CMS.633:
Digital Humanities*



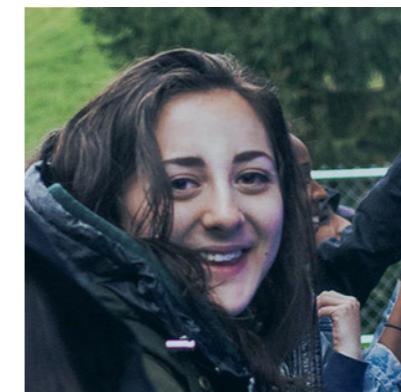
Erick Friis
Electrical Engineering & Computer Science

Web development
Technology coordination



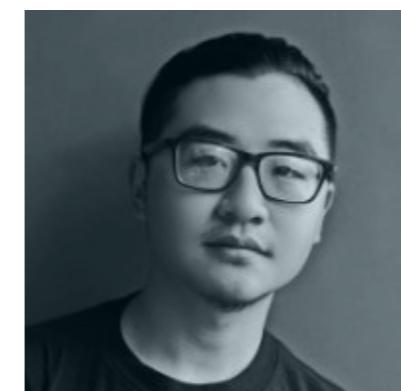
Maya Madhavan
Mathematics

Data collection & research
Narrative writing & documentation



Michelle Gelberger
Media Arts & Sciences

Project management
Interaction & experience design
Data visualization & graphics



Calvin Zhong
Architecture & Media Studies

Project management
Conceptual & narrative development
Mapping & data visualization

Towards Truth –

The rise of interactive digital journalism has powerful implications for news dissemination. In an effort to tackle a post-truth society, we hope to develop an idea focusing on the accurate representation, delivery, and accessibility of data in media. Our project will tie in qualitative information to create a holistic approach to representing the issue that takes a position, critically explains the data, and removes ambiguity between truth and alternative fact for the public.



This project will re-evaluate the role of data scientists, journalists, and designers in informing the public and making information, data, and factual evidence accessible for everyone once again.

Research Questions–

1 /

How can we effectively display some of the causes and effects of the rising sea level on Boston's topology in a way that audience members can easily understand?

2 /

The way information is disseminated has drastically since the introduction of the web. How can we apply technology to tell a truthful story about climate change and its far reaching impacts in the face of rampant false news?

A Manifesto—

We operated under these to guide our work and stay focused on the task at hand.

1 / *Write*

How we can utilize the written word and humanistic thinking alongside science and technology.

2 / *Articulate*

How we will articulate our writing and support it with images, videos, and other visualizations?

3 / *Truth*

How do we empower our audience to make better judgements on what is found in the media?

4 / *Examine*

How do we examine our sources for preventing falsehoods and inaccuracies?

5 / *Re-envision*

How can we incorporate principles of good interaction, experience, and graphic design?

Context-

Johanna Drucker

Edward Tufte

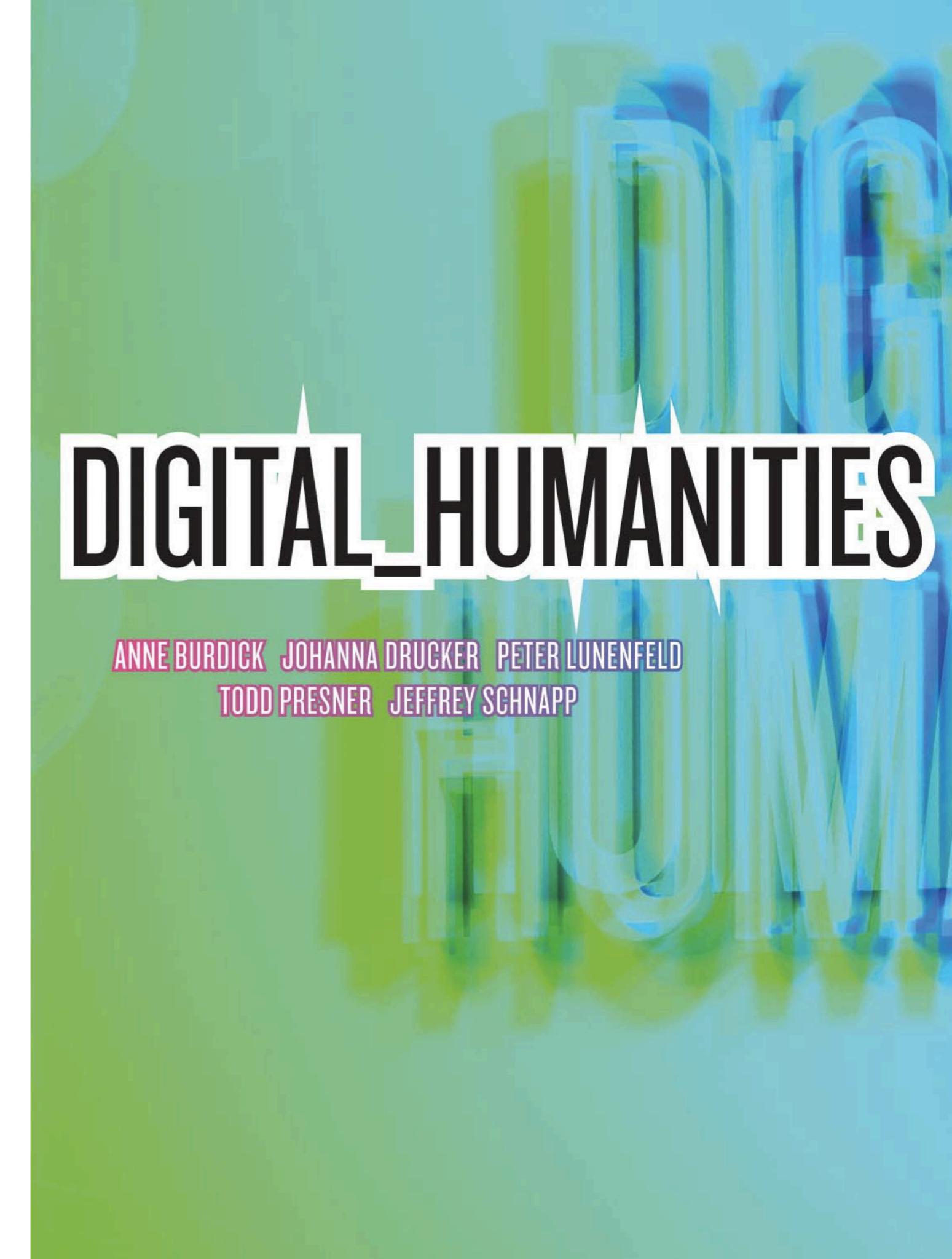
Daniel Rosenberg

Anthony Grafton

Clay Shirky

Vannevar Bush

Post-truth politics and media supercede the importance of truth; pertaining to an era or situation when truth is no longer significant or relevant; usually in a pejorative sense, uncaring of factual accuracy.



Influences—

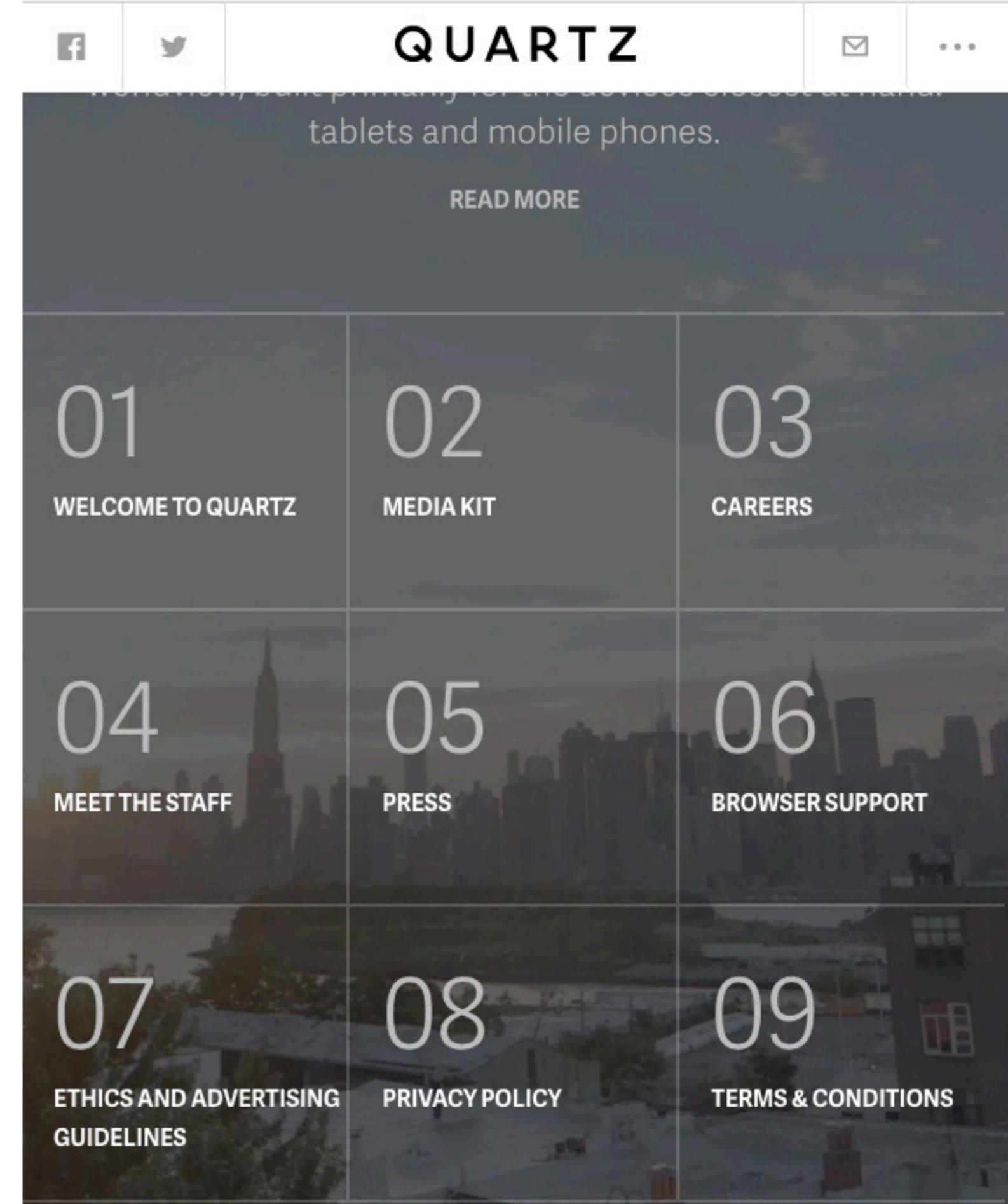
Sasaki: Sea Change

Quartz

Vox/AJ+ Videos

NYTimes Interactive

NOAA



Research -

Past: 2 Eras

Reclamation- Shaping Boston

Industrialization- Spurring Climate Change

Present:

Preventing and Defending Against the Rising Seas

What- Images, qualitative and quantitative info

Web based- gov't/educational sites, etc...

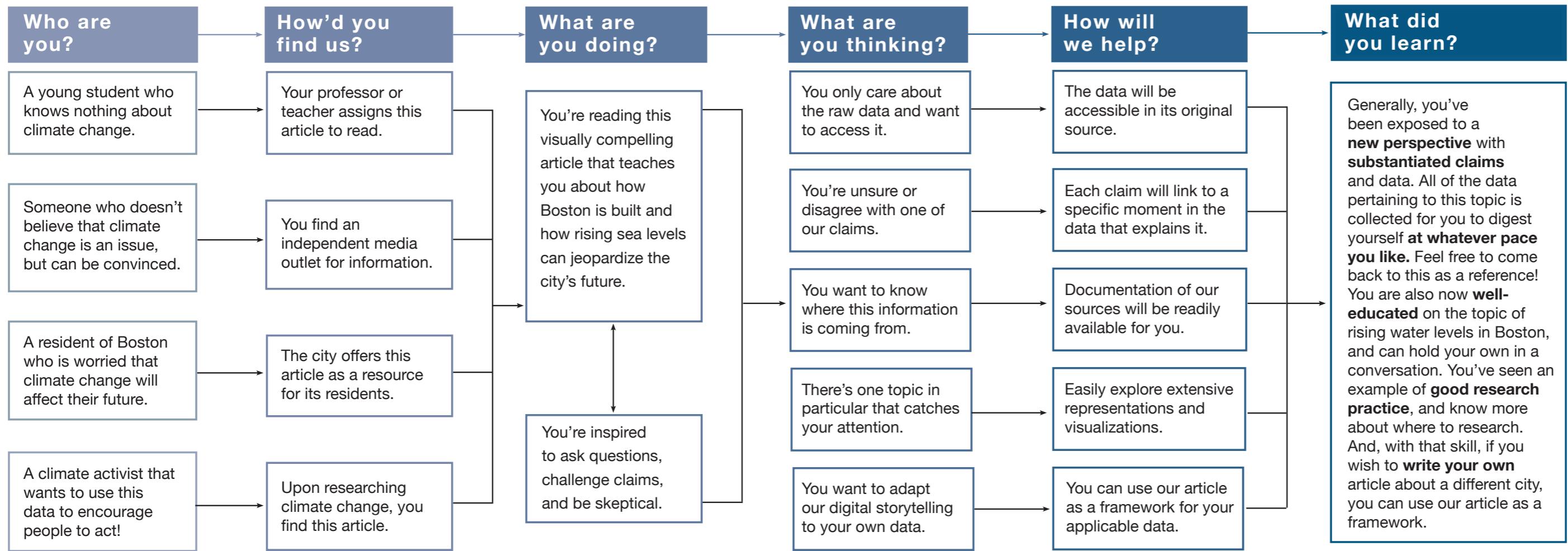
Future

Conjectures ≠ Fact

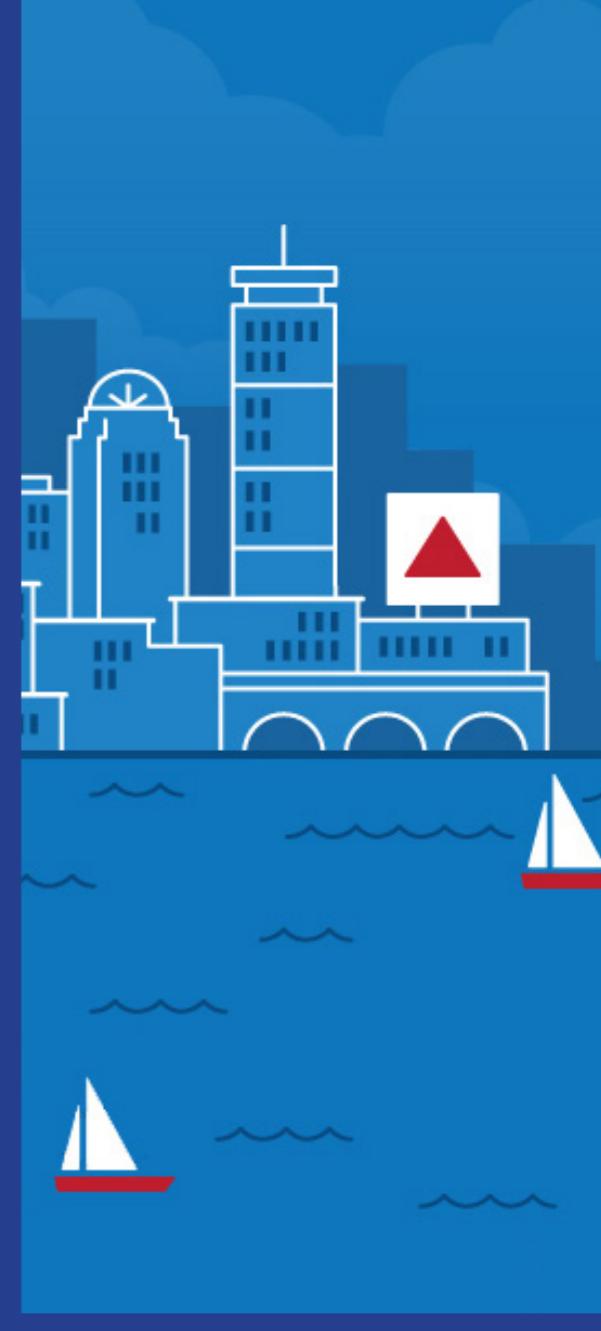
Choices about Data



Audience & Journey Map –



Boston
Under
Water



Development—

1 / Sketches & Concept

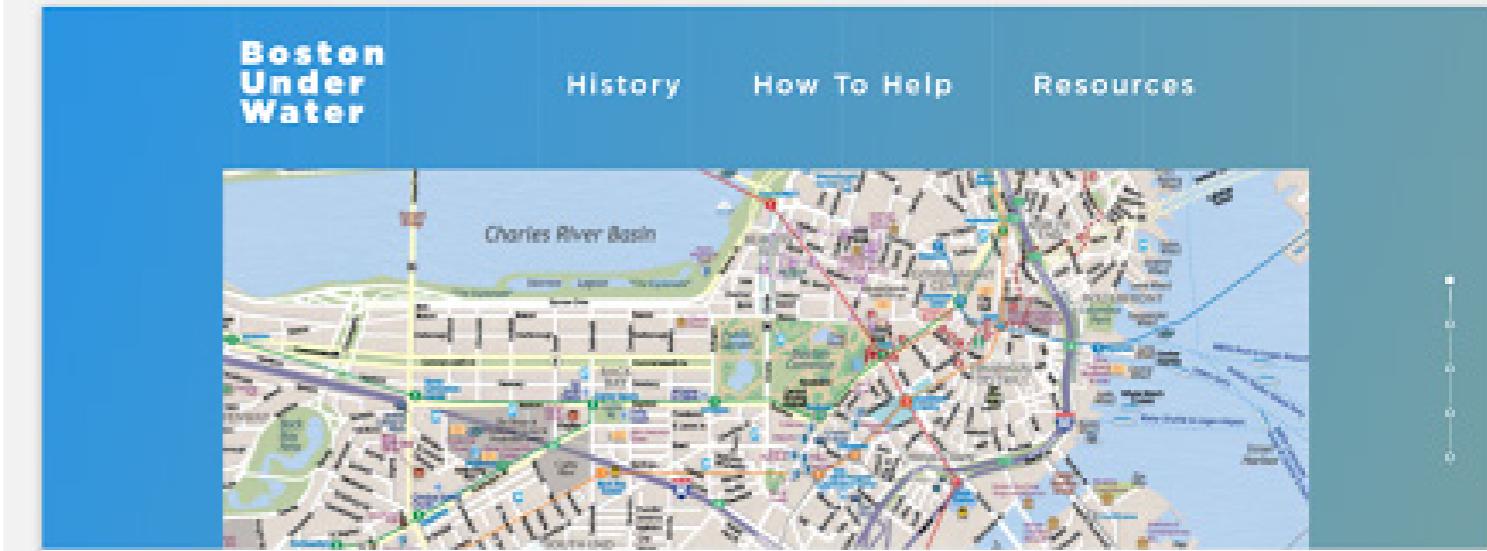
Whiteboard sketches + deciding on a website with compelling visualizations.

2 / Static Prototype

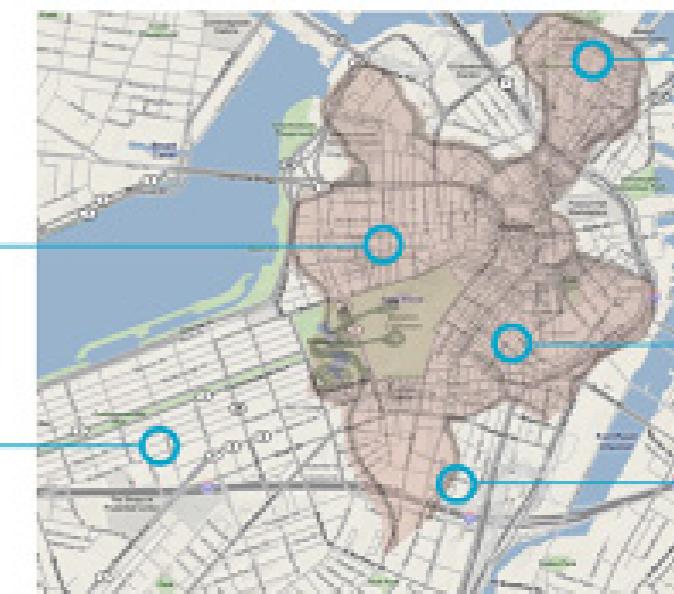
Digitizing static prototypes of our sketched out ideas, incorporating principles of user interface design and experience design.

3 / Interactive Prototype

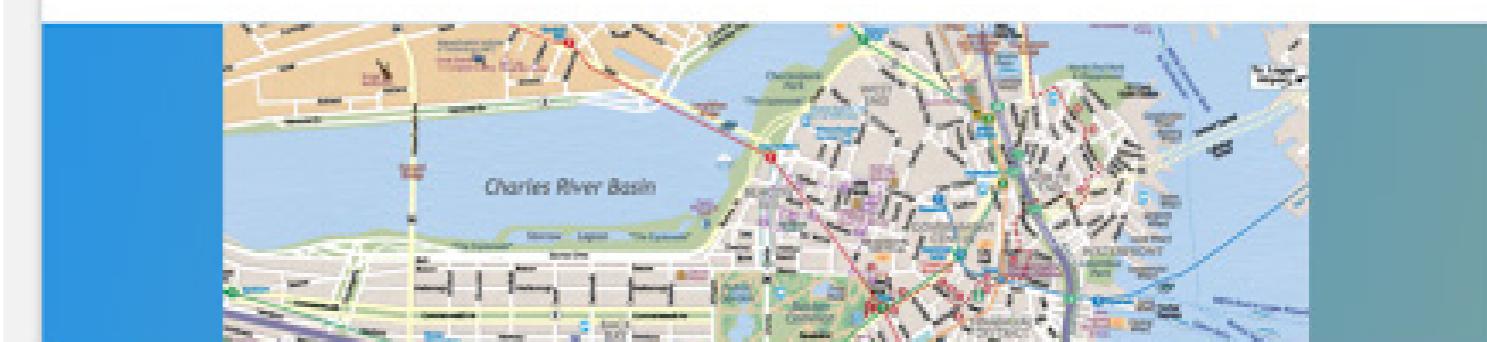
Interactive prototype, solidifying data points, writing our narrative.



Boston's Past - Underwater



Consectetur adipisci et labore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.



Development-

4 / *Web Prototype*

Simple web prototype with a first pass at our journalistic narration, and dynamic relevant map imagery.

5 / *High-Fidelity Prototype*

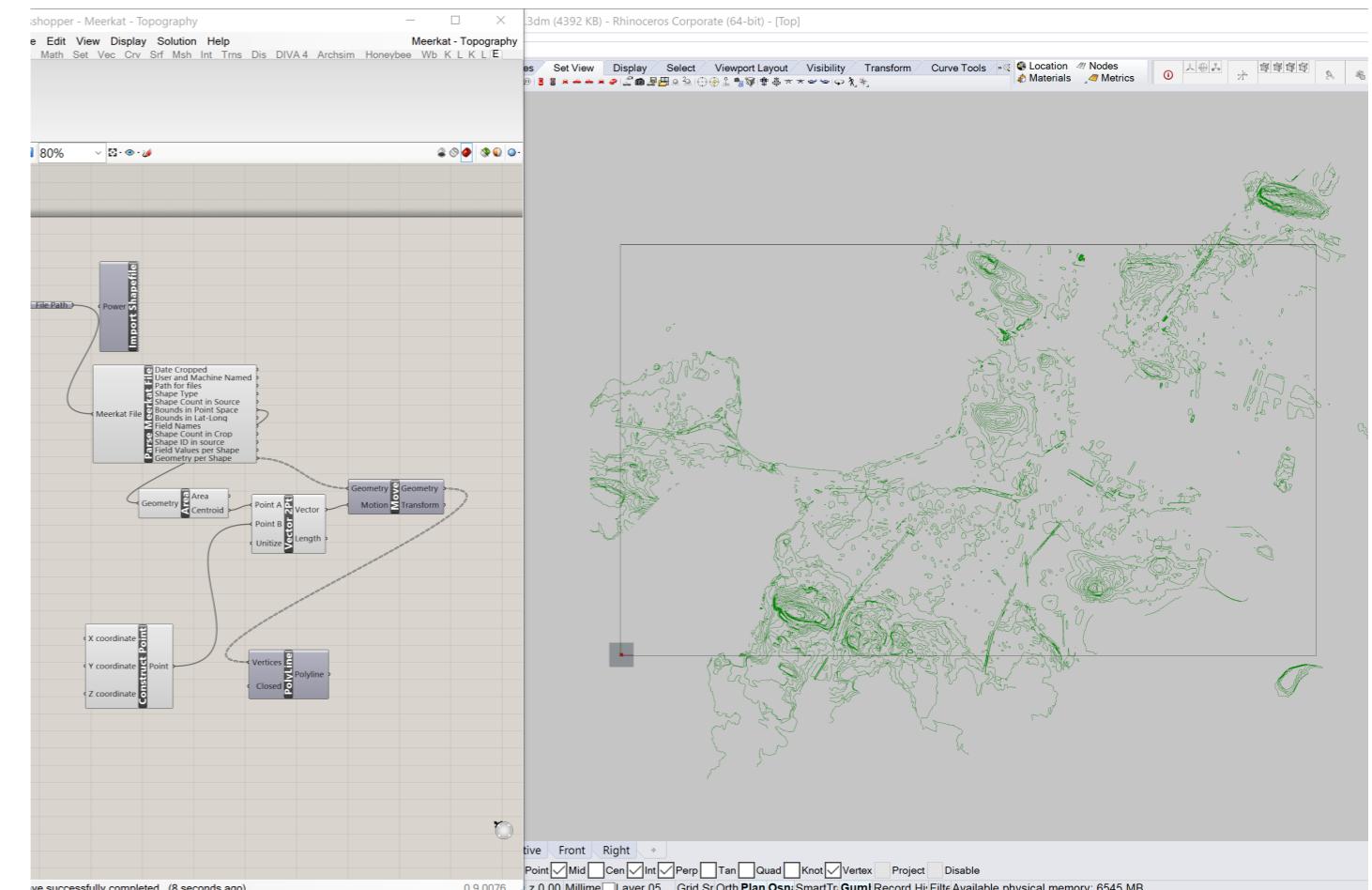
Fully implemented website prototype with narrative, interactive maps, call to action page, and an about/resources page.

Boston Underwater

Land Reclamation



In the early 1600s, approximately 1/6 of modern day Boston was underwater. The area was known to the locals as Shawmut. When William Blackstone, the first European settler in the area, first moved there in the 1620s. Boston

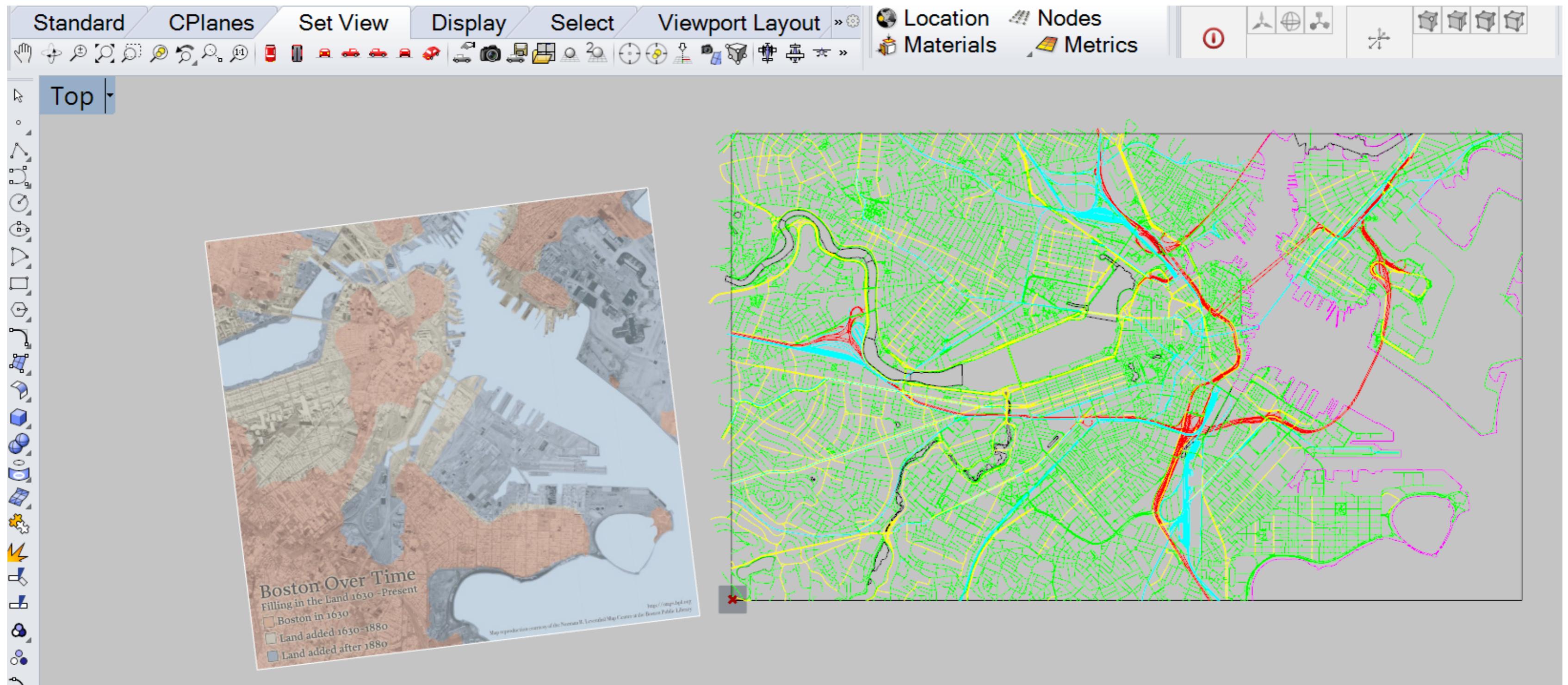


Flexible Technology –

```
// Adding to Storyline
{
    top: 100,
    content: "In the early 1600s..."
},
{
    top: 4500,
    content: "<h2>Industrialization</h2>"
}

// Adding to Storyline
{
    top: 400,
    bottom: 1400,
    type: "modal",
    button: "Beacon Hill",
    modal: {
        title: "Beacon Hill",
        body: "<p>It is a...</p>"
    }
}
```

Qualitative Data –



Quantitative Data -

ANALYZE BOSTON

Home > Organizations > Boston Maps > Contours

Dataset Topics Activity Stream

CONTOURS

City of Boston 1 foot contour data. Created Basemap and Planimetric project.

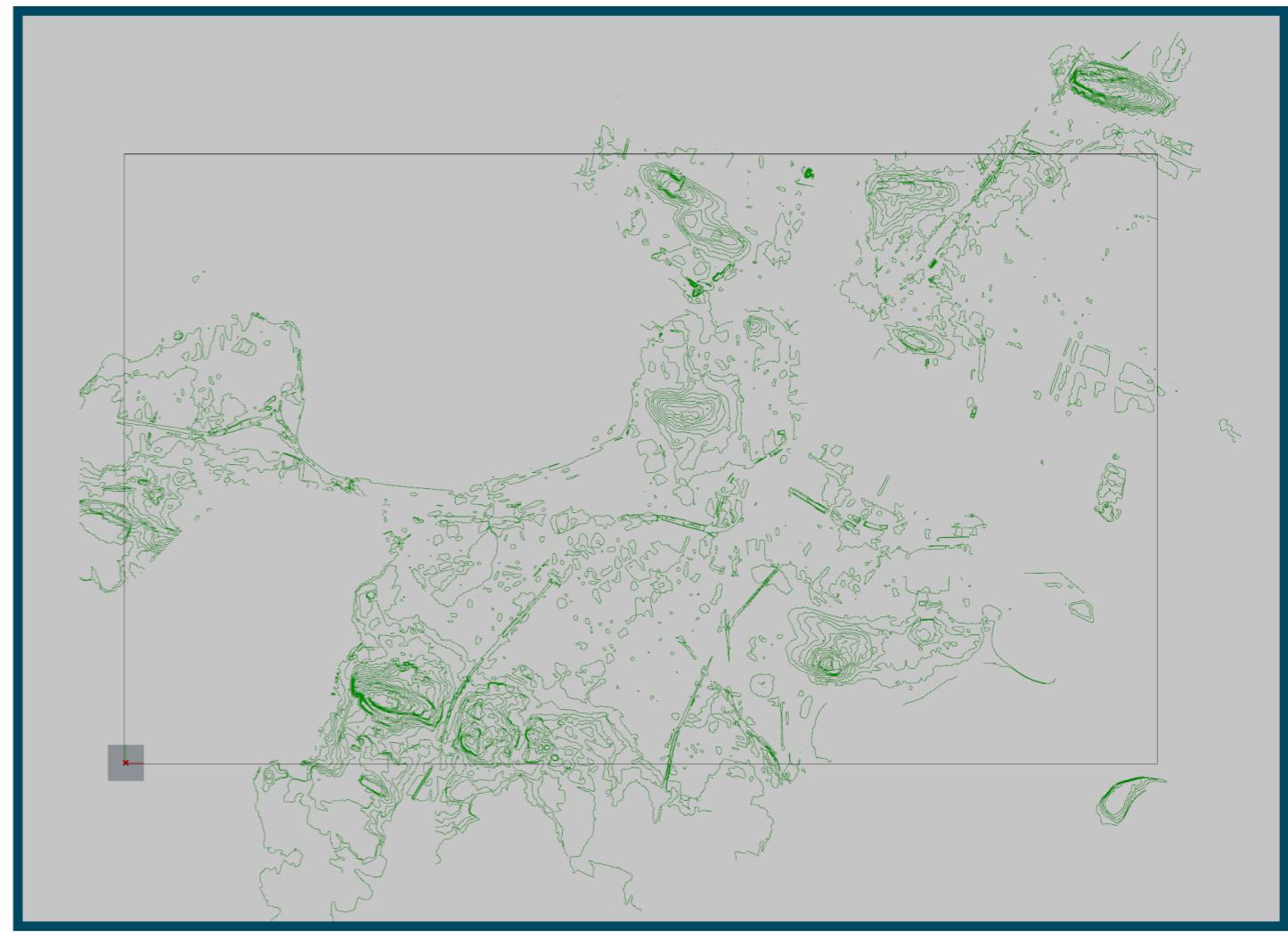
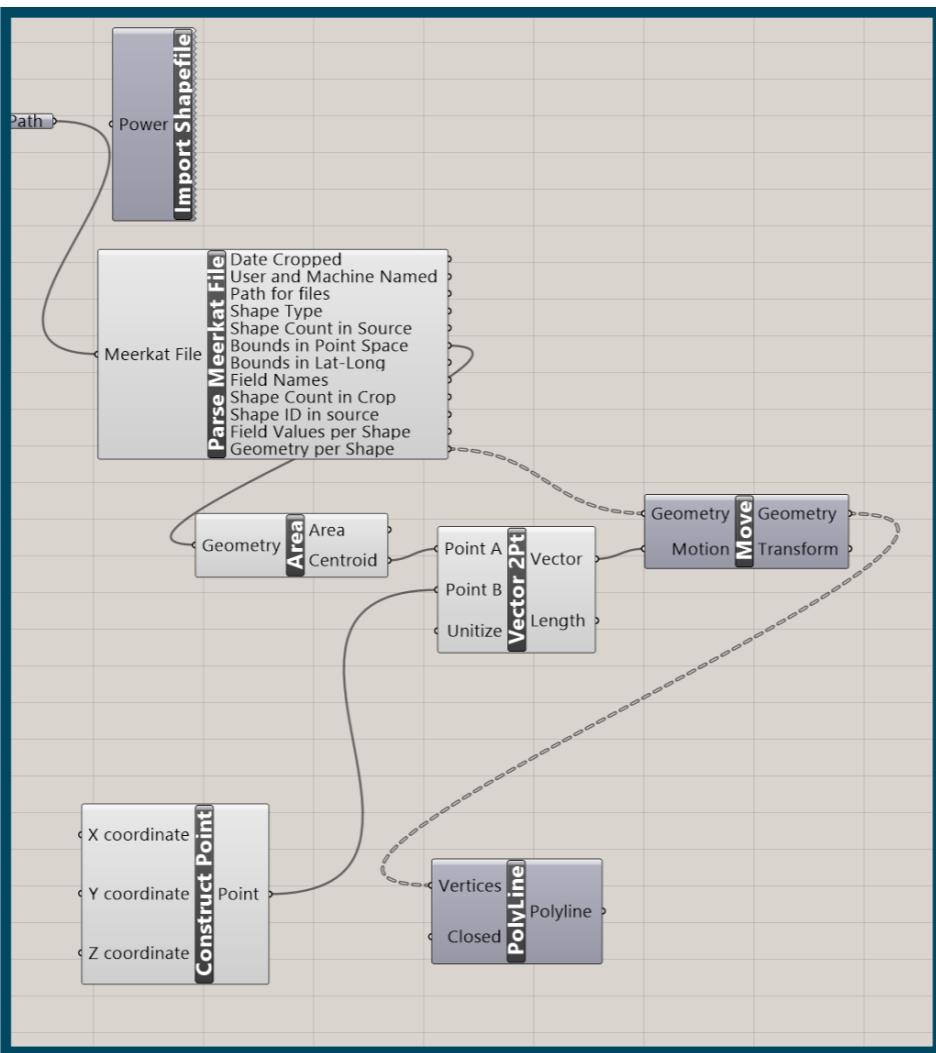
DATA AND RESOURCES

- GeoJSON [More Info](#) [DOWNLOAD](#)
- CSV [Preview](#) [DOWNLOAD](#)
- KML [More Info](#) [DOWNLOAD](#)
- Shapefile [More Info](#) [DOWNLOAD](#)

ORGANIZATION

 **BOSTON MAPS**

Geospatial data created by Boston's GIS



Raw Data (GIS)
data.boston.gov

Visual Programming
Grasshopper

Generated Model of Data
Rhinoceros 3D

Implementation –

Boston Under Water

History

Land Reclamation

In the early 1600s, approximately 1/6 of modern day Boston was underwater. The area was known to the locals as Shawmut. When William Blackstone, the first European settler in the area, first moved there in the 1620s, Boston was little more than a small peninsula surrounded by water and connected to mainland by a small land bridge named Roxbury Neck. Shawmut Peninsula was about 780 acres and was defined by three large hills called Cops Hill, Fort Hill and the Trimountain.

Get Involved

 **GREENOVATE CITY of BOSTON**

Greenovate Boston is an initiative to get all Bostonians involved in eliminating the pollution that causes global climate change, while continuing to make Boston a healthy, thriving, and innovative city. Join the Greenovate community to learn how to be a partner in solutions for building a thriving city despite a changing climate.

[Change your habits](#)

90.9 wbur
BOSTON'S NPR® NEWS STATION

Every single person can make a difference when it comes to climate change and reducing our footprint on the environment. You can take small and preventative steps by just changing your daily habits. Check out WBUR Boston's advice for how Massachusetts residents can make an impact on climate change.

[Learn how to help](#)

What you should know about our data

We want our narrative and visualizations to match up, so we've created both of them.

Usually, when you're observing data, you're not getting the whole picture. We're aiming to be as transparent as possible with our data, which means telling you about our process. Our contour maps were created using data from Analyze Boston. This data from Analyze Boston is open-source and accessible, but it is not very clean or easy to parse.

& We're not the only ones talking about the importance of this kind of data accessibility.


Sasaki's Sea Change Boston


NOAA's Sea Level Rise Viewer


Boston.gov's Climate Change Data

Visualization

Call to Action

Transparecny

The Future—

1 / *Improving Data*

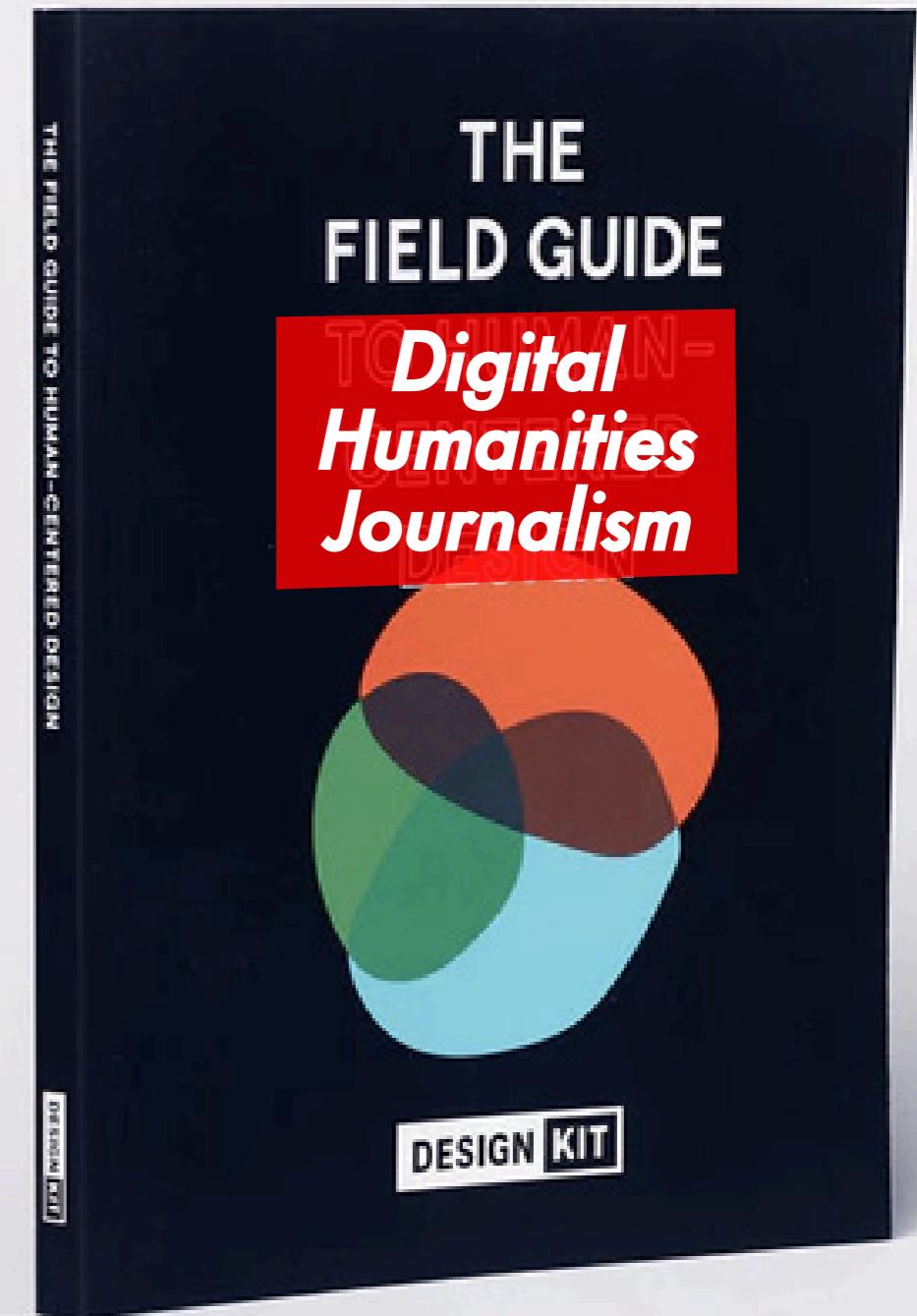
data.boston.gov does not have data that is easy and accessible for use.

2 / *Improving Design*

Solidifying our branding + iteration over our map designs

3 / *Extending the Ethos*

Applying this template to help other cities and topics

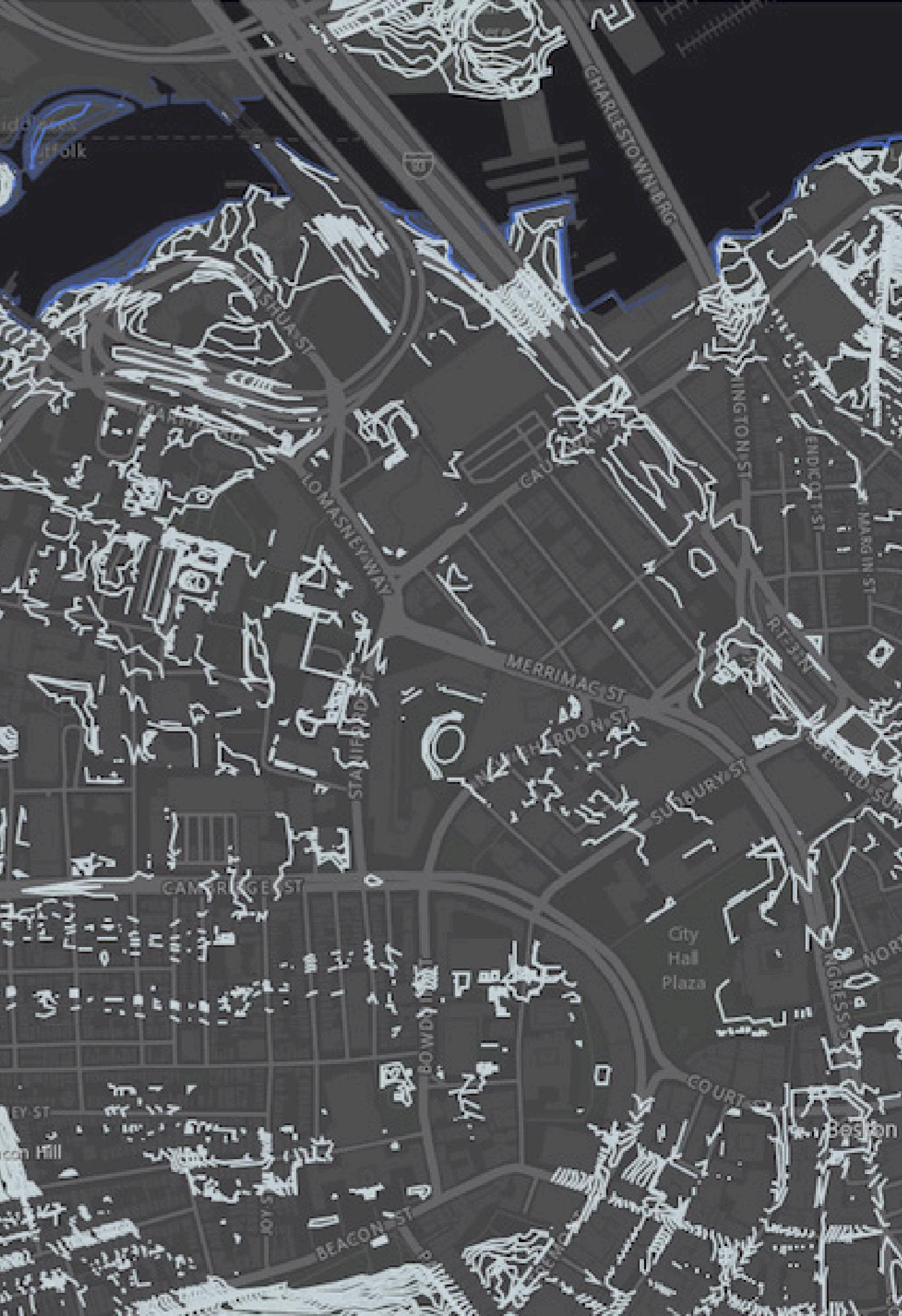


Conclusions—

We're presenting an issue, so we've also put together clear actions our visitors can take to mitigate the issue. We've looked at a multitude of organizations and groups aiming to convey this information, so we owe it to our visitors to give them access to the same information.

We've struggled with a lack of truly accurate data, so we're transparent to our visitors that the data they're consuming daily might not be as accurate as they think.

We've pivoted from focusing solely on compelling imagery to solidifying the holistic nature of our process. Our goal is data and information accessibility- in narrative, visual, and resource form.



An aerial photograph of the Boston skyline, featuring the Charles River flowing through the city. The background shows the dense urban landscape of Back Bay and the Financial District. In the foreground, there's a large, semi-transparent white rectangular area containing text.

Boston
Under
Water

cmswater@mit.edu

Thank You!