JMT TECHNOLOGY GROUP

pennsylvania
DEPARTMENT OF TRANSPORTATION

Using Esri's ArcGIS Hub to Create a One-Stop GIS Resource Tool

August 2022

Presenters

Chelsea Howard-Foley
Pennsylvania Department of Transportation
chowardfol@pa.gov

Jason Ramsey, PE, GISP, AICP
JMT Technology Group
jramsey@jmttg.com

PennDOT by the Numbers

pennsylvania
DEPARTMENT OF TRANSPORTATION

Motivation/Reasons

- The PennDOT Bureau of Planning and Research's Geographic Information Division (GID) identified a need for a **one-stop** geospatial hub to act as the **core communication, support, and resource center** for PennDOT GIS data

- Many disconnected platforms; too many places to look for information

- Centralizing resources and accessibility to PennDOT's GIS assets, allows **better utilization** of data for:
  - ✓ Planning
  - ✓ Advanced analytics
  - ✓ Application development

Motivation/Reasons

The creation of the Geospatial Hub satisfied four themes from the PennDOT Strategic Plan:

- **Theme 1:** Safety at all levels
- ✓ **Theme 2:** Innovation
- **Theme 3:** Mobility and connectivity
- ✓ **Theme 4:** Customer service
- ✓ **Theme 5:** Communication that fosters relationships and encourages new ideas
- **Theme 6:** Recruiting, retaining and developing a diverse and inclusive workforce
- ✓ **Theme 7:** Effectively leveraging available resources by modernizing technology and assets

Motivation/Reasons

What is ESRI's ArcGIS Hub?

- Software as a Service (SaaS) - cloud-based, browser-accessible
- Majority of the content contained in the hub is publicly accessible data and apps with a small percentage that is only available to PennDOT staff
- No-code/low-code solution to web application development
- Leverages PennDOT's existing investment in and use of Esri's platforms:
  - ✓ Open Data portal
  - ✓ ArcGIS Online
  - ✓ Other ESRI tools
- Hub pages and content are responsive

Stakeholder Involvement

Identified groups that use PennDOT resources

- ✓Geographic Information Division – creates, hosts, and maintains GIS data/applications for PennDOT
- ✓PennDOT District personnel
- ✓County GIS staff
- ✓Planning Partners – PennDOT planning personnel & MPOs
- ✓System Administrators

Stakeholder Involvement

Used Microsoft Forms for questionnaires

- Create questionnaires/monitor responses
- Core questions in addition to group-specific questions
- Emailed survey link prior to stakeholder meetings

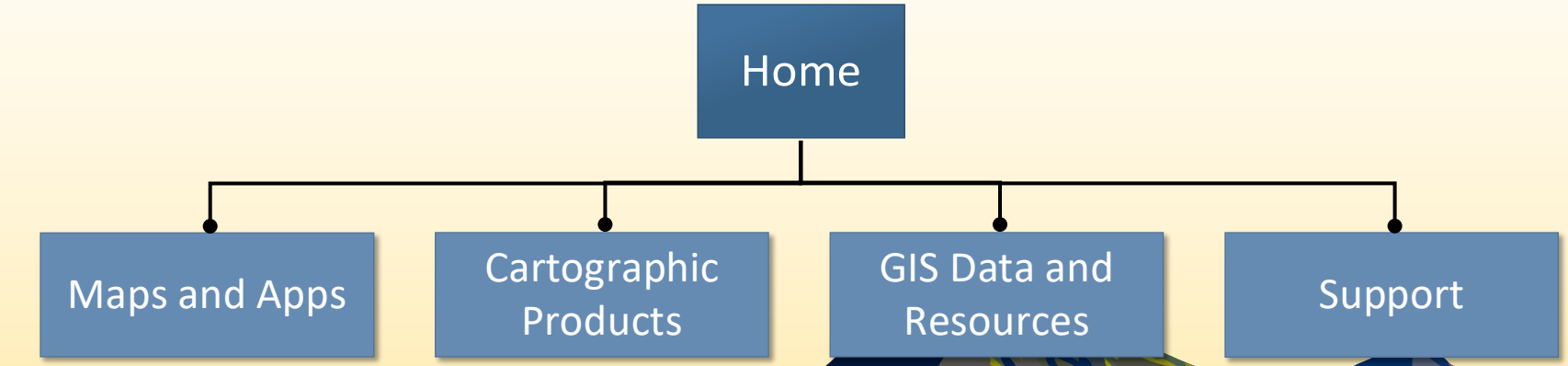
Examples:

1) Do you currently use the (existing) GIS home page?
2) How do you currently interact with or seek out applications/data?
3) What BPR/GID-developed apps/data do you access most frequently?
4) Have you ever encountered any problems with accessing needed apps/data?
5) What would you like to be more easily accessible?
6) What type of support questions do you get that could be answered in the GIS Hub?

Stakeholder Involvement

Virtual stakeholder meetings (Microsoft Teams)

- Demonstrated other ArcGIS Hub examples
- Shared content inventory assembled so far
- Reviewed and clarified survey responses
- Discussed the Hub as the place to go to learn about GIS-related training opportunities and other support from GID



Development Process

pennsylvania
DEPARTMENT OF TRANSPORTATION

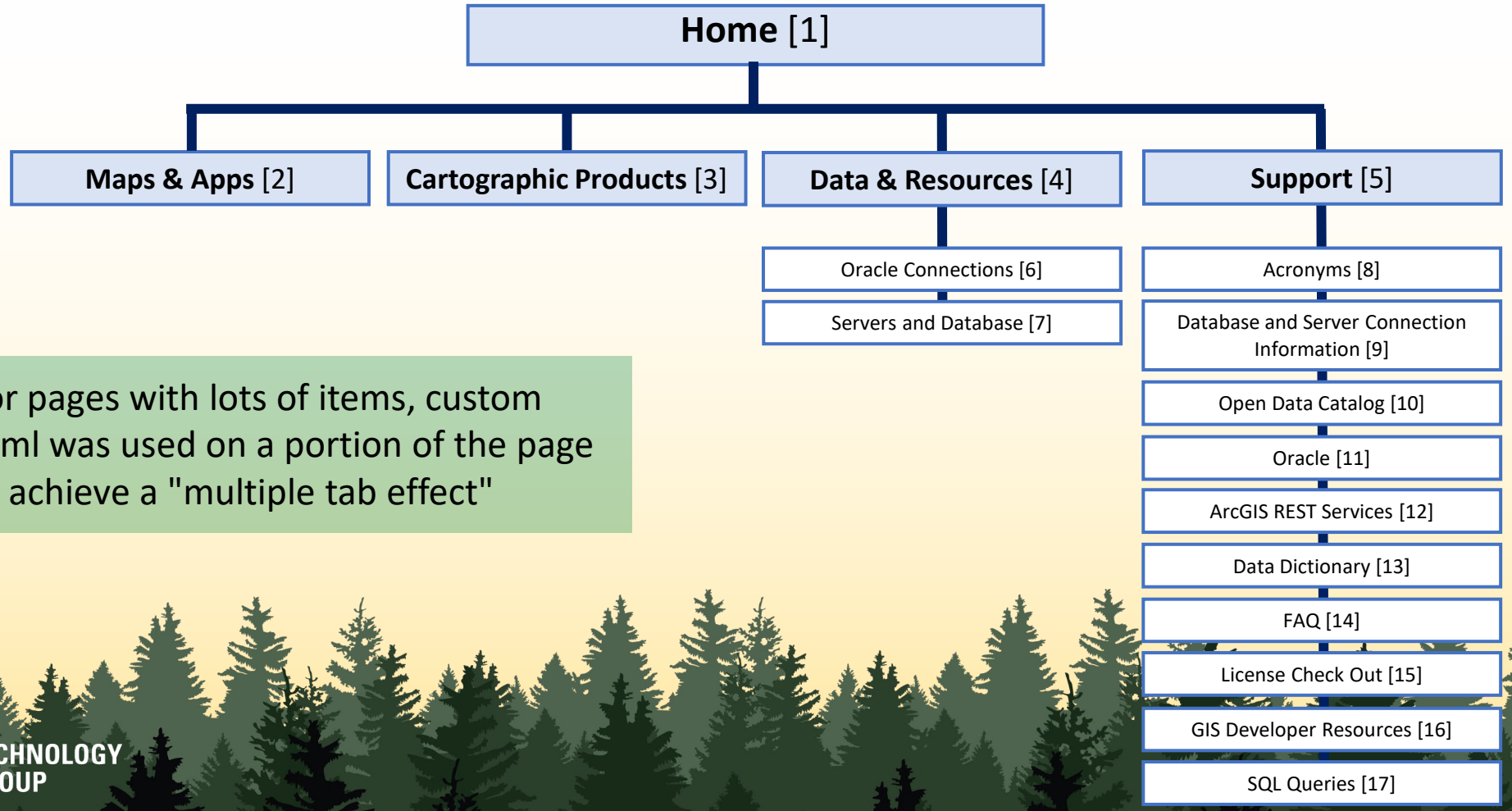
High-level requirements document

- Functional/Non-functional requirements:
  - Hub site/pages will be hosted in Penn Share (PennDOT's ArcGIS Online Organization)
  - Hub pages will comply with PennDOT style guide
  - Search utility functions appropriately against Hub content
- Content requirements (for each page):
  - Introduction text
  - List of items
  - Web URLs

JMT | TECHNOLOGY GROUP

Development Process

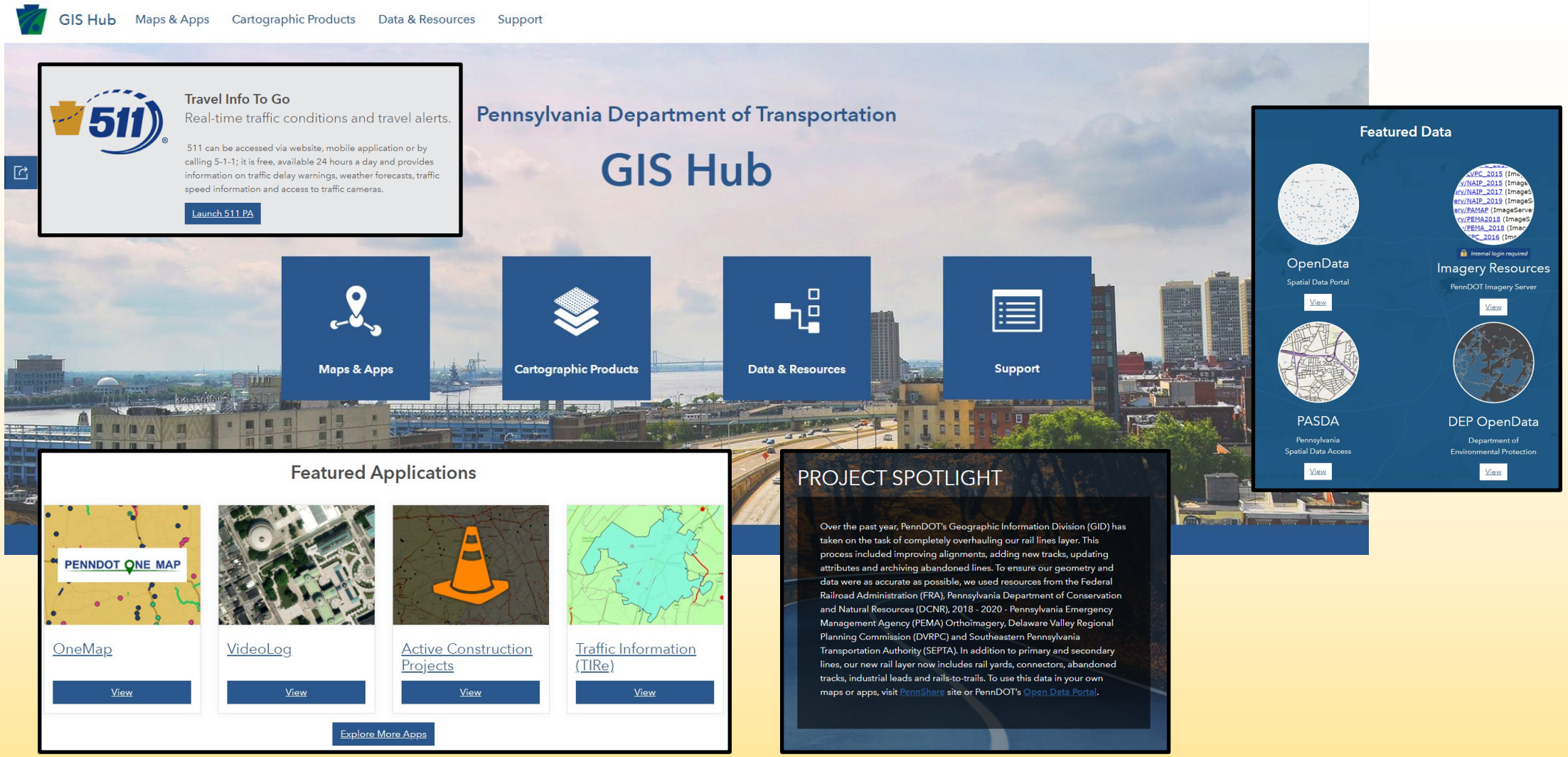
Organizing the Information



For pages with lots of items, custom html was used on a portion of the page to achieve a "multiple tab effect"

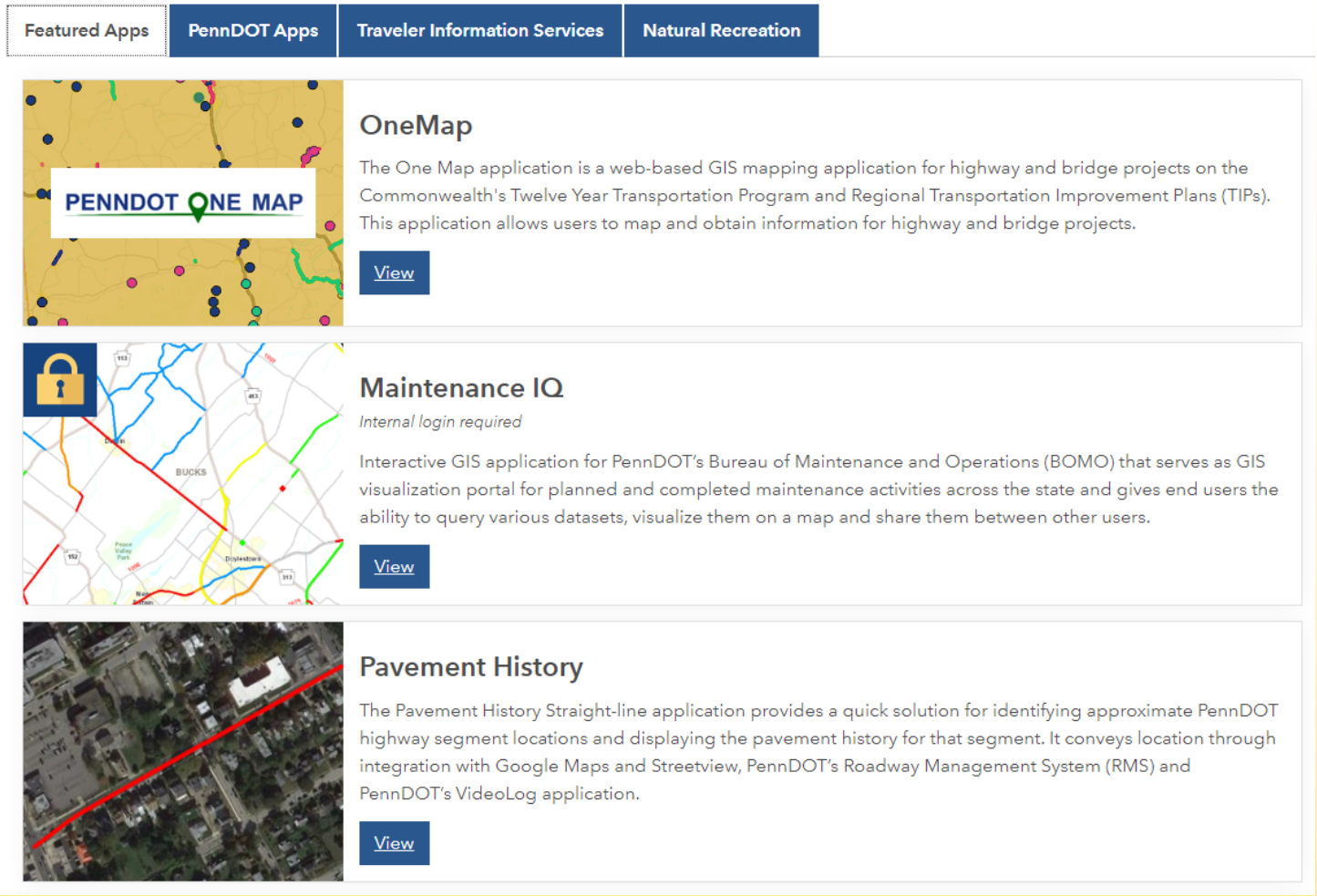
Development Process

Organizing the Information



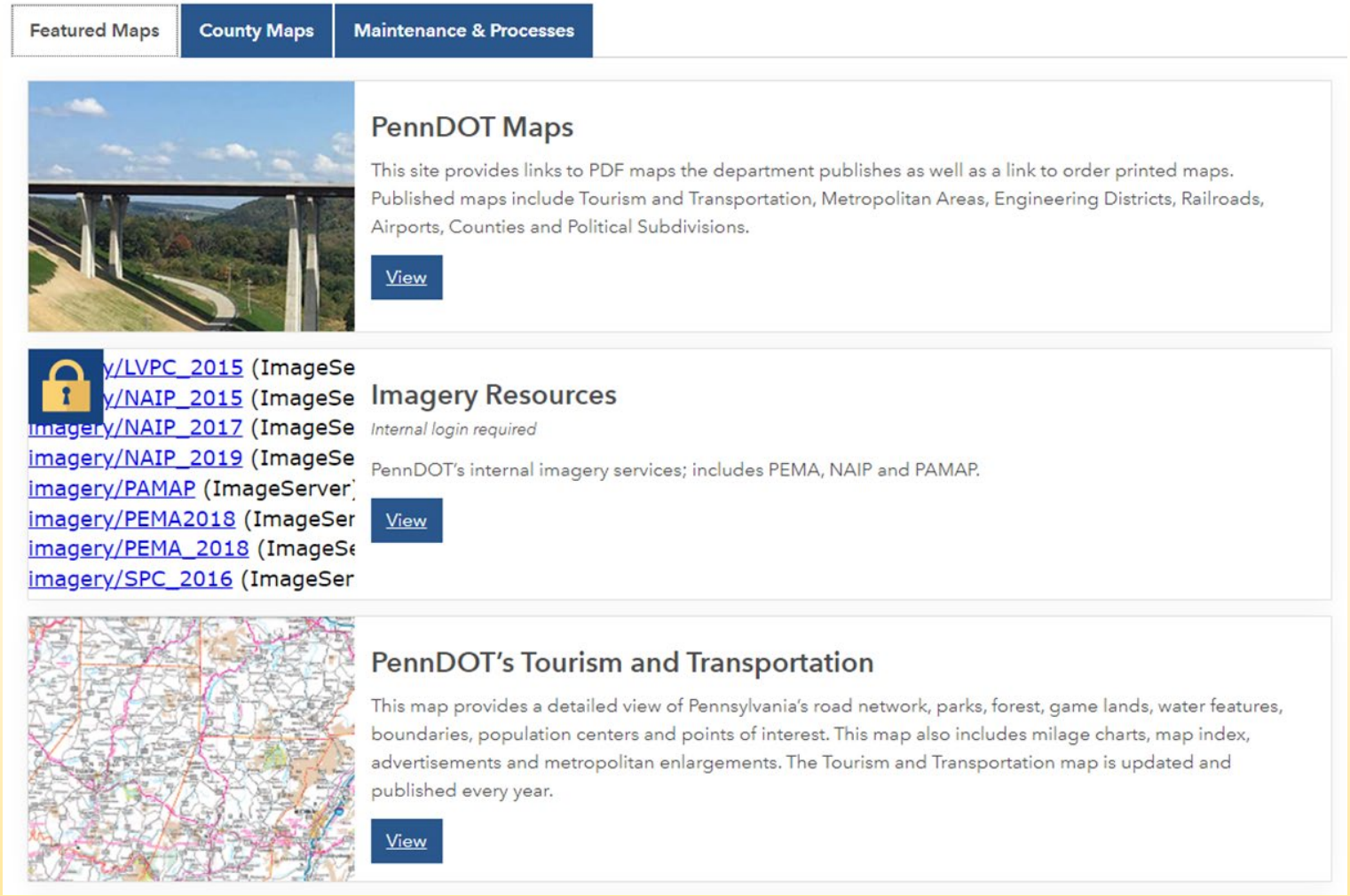
Development Process

Organizing the Information – Maps & Apps



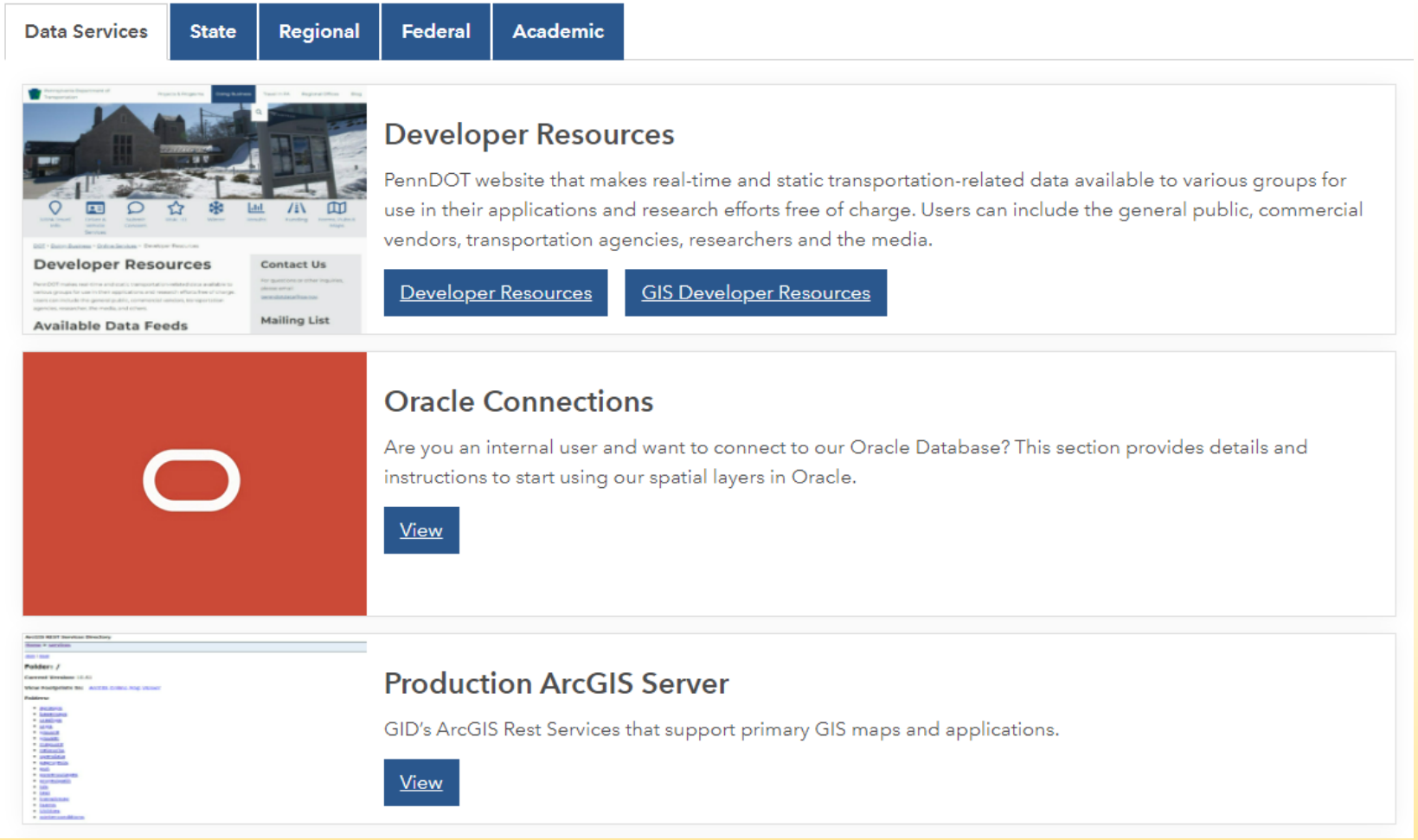
Development Process

Organizing the Information – Cartographic Products



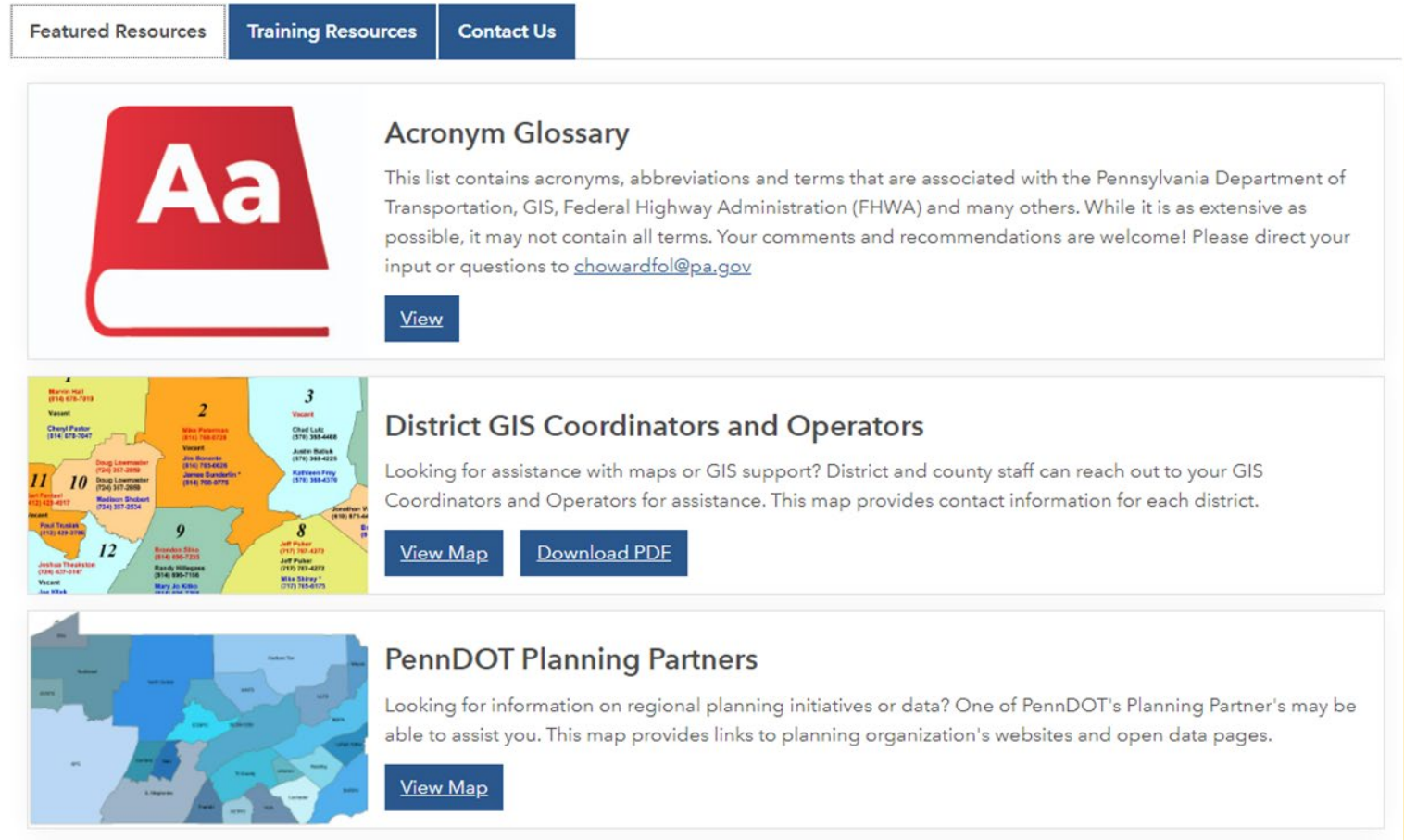
Development Process

Organizing the Information – Data & Resources



Development Process

Organizing the Information – Support

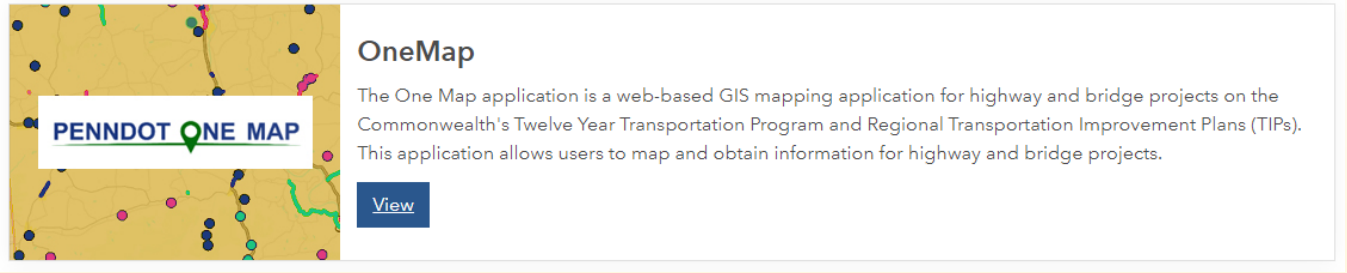


Development Process

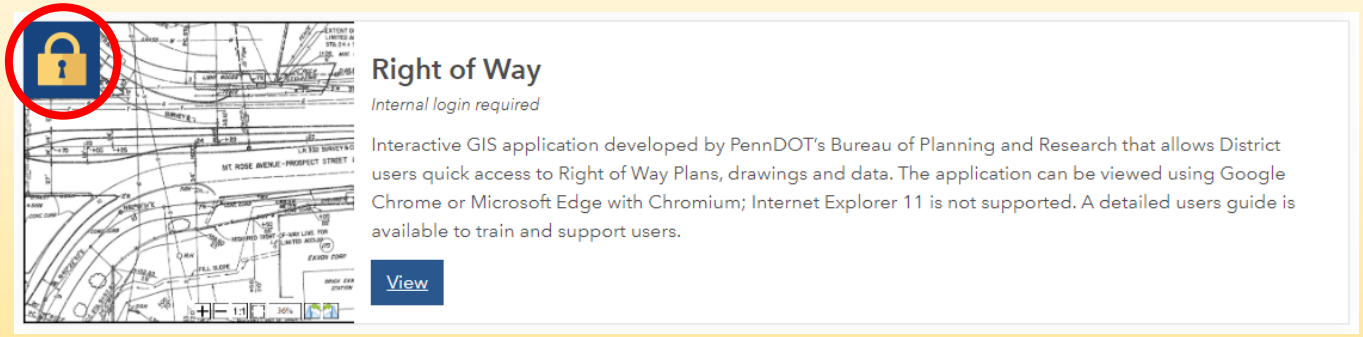
pennsylvania
DEPARTMENT OF TRANSPORTATION

Public vs. Internal Content/Links

- Publicly accessible content (PennDOT OneMap, 511PA)
  - Public URL
  - No lock icon



- Content available only to internal PennDOT staff (in-development apps, sensitive data)
  - Internal URL – must be connected to the PennDOT network
  - Lock icon



JMT TECHNOLOGY GROUP

Development Process

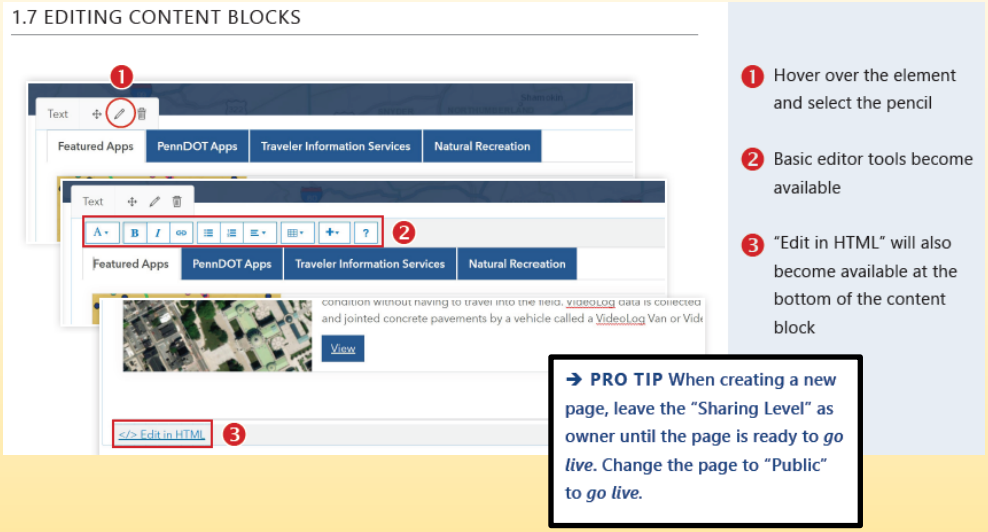
pennsylvania
DEPARTMENT OF TRANSPORTATION

Test Plan Document and Testing

- Test all public and internal links
- Test search functionality
- Readability check (spelling/grammar)

Step	Go to page -->	Go to tab -->	Name on card -->	Click on -->	Expected result -->	Pass (Y/N)? -->	Describe issue/problem if not passed
1	Maps & Apps	Featured Apps	OneMap	View	Launches named app/resource in new browser tab		
2	Maps & Apps	Featured Apps	Maintenance IQ	View	1) Not connected to PennDOT network - "Site can't be reached" 2) Connected to PennDOT network - Launches named app/resource in new browser tab		

GIS Hub Administrator's Guide



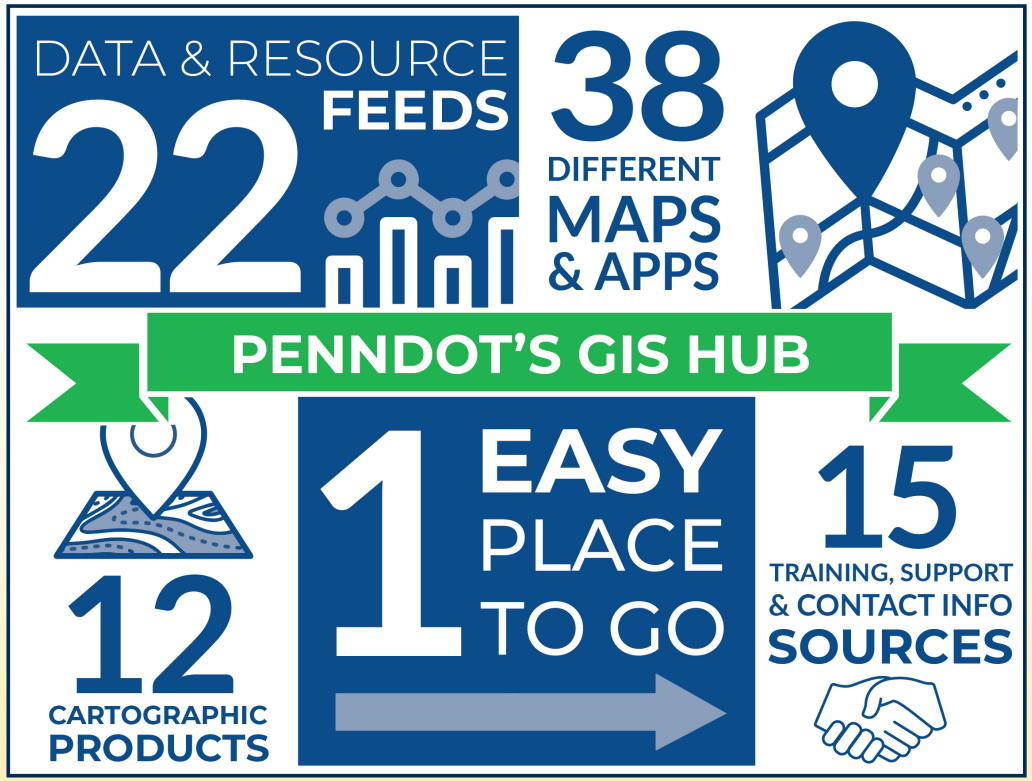
pennsylvania DEPARTMENT OF TRANSPORTATION | GIS Hub TRAINING MANUAL

```
<div class="card-base card-wide">
  <div class="card-wide-image-wrap">                    IMAGE
    <img alt="OneMap" class="card-wide-image"
    style="position:initial;"
    src="https://gis.penndot.gov/gishub/images/
    maps-apps-thumbs-onemap.jpg">
  </div>
  <div class="card-content">
    <h4><b>OneMap</b></h4>                              TEXT
    <p>The One Map application is a web-based GIS mapping
    application for highway and bridge projects on the
    Commonwealth's Twelve Year Transportation Program and
    Regional Transportation Improvement Plans (TIPs). This
    application allows users to map and obtain information for
    highway and bridge projects.</p>
    <a class="btn btn-primary" href="https://gis.penndot.gov/
    onemap/" target="_blank">View</a>                   LINK
  </div>
```

Marketing/Outreach

pennsylvania
DEPARTMENT OF TRANSPORTATION

Infographic



One-sheet flyer

QR Code

Boilerplate text

The PennDOT Bureau of Planning and Research's Geographic Information Division (GID) is delighted to announce the roll-out of their new GIS Hub that will act as your one-stop for all things GIS! Geographic information systems, or GIS, connect data to maps by integrating location data with descriptive information that allows the viewer to make better-informed decisions — PennDOT One Map is a great example of a geographic information system.

The new GIS Hub acts as the core communication, support, and resource center for PennDOT GIS data…

JMT | TECHNOLOGY GROUP

Marketing/Outreach

Promoted Through

- ✓ Internal emails to PennDOT staff
- ✓ Emails to external organizations and colleagues
- ✓ GIS Teams channels
- ✓ GIS user groups
- ✓ Geospatial steering committee
- ✓ Various presentations to these organizations
- ✓ PA GIS conference
- ✓ Social media through PennDOT's Press Office

Results

Statistic on the GIS Hub Site Since Go Live

Results

What People are Saying

"This is especially helpful to students in our Remote Sensing course. Have you also contacted the folks at the WCU GIS lab in the Geography department?"

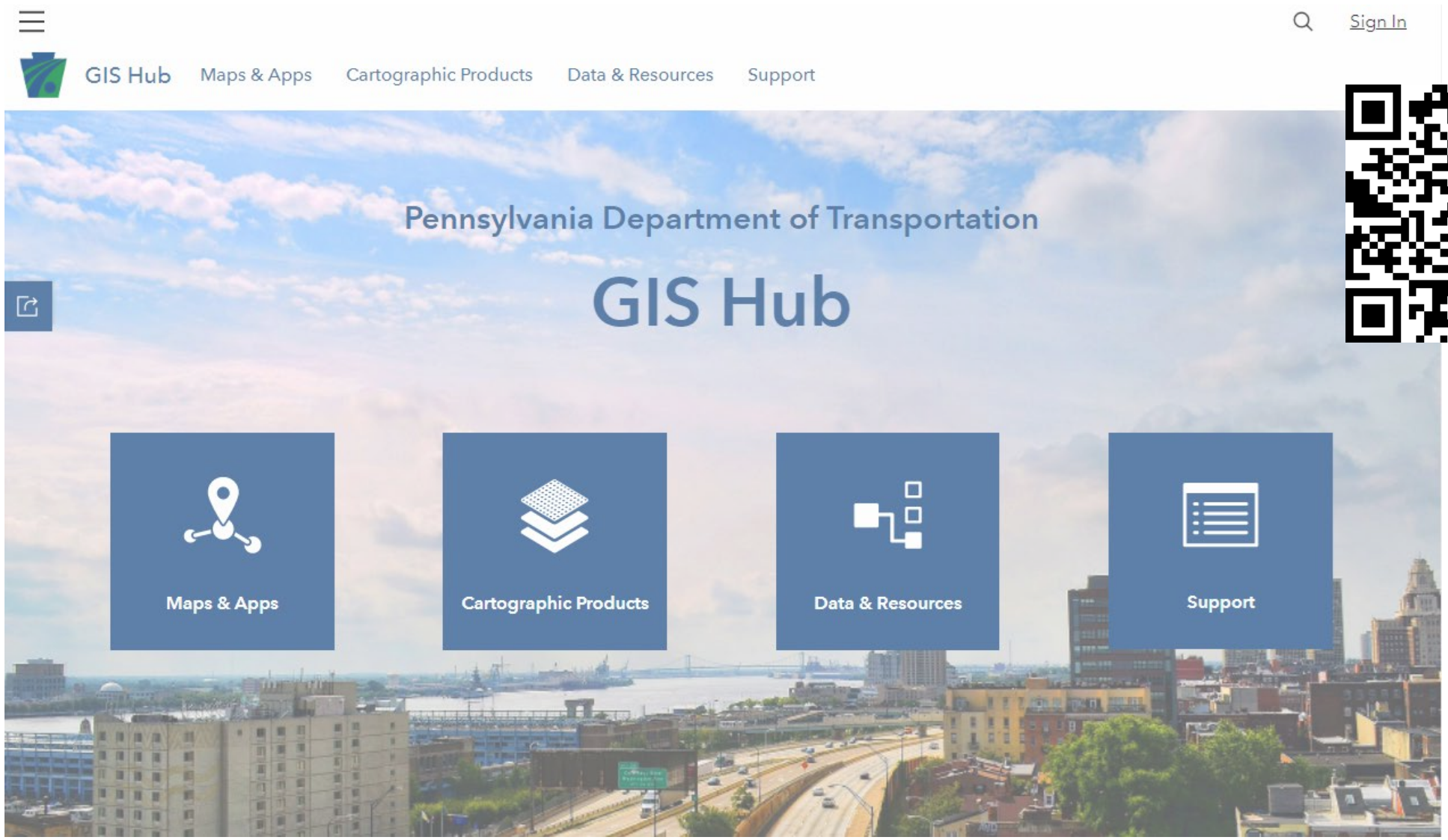
"Thank you for sharing this! We do use lots of PennDOT data in classes."

"Thank you very much for sharing this with me. I will pass it along to the other faculty who teach GIS courses at Dickinson College….The revised data portal is excellent!"

"Thank you for making us aware of this resource! It's beneficial to have everything in one spot. This will certainly aid us in our work."

pennsylvania
DEPARTMENT OF TRANSPORTATION

JMT | TECHNOLOGY GROUP



https://gis-hub-pennshare.hub.arcgis.com/

Questions?

pennsylvania
DEPARTMENT OF TRANSPORTATION

JMT | TECHNOLOGY GROUP