Selecting the Perfect Basemap

JESSICA ACOSTA, ANDREW GREEN, ANDY SKINNER

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Introduction

ANDREW GREEN
Workshop Outline

• Goal:
  - Maximize the presentation of your maps & apps… beginning with the selection of the best basemap for your data

• Basemap overview
  - Raster options & “New” Vector basemaps

• Selection criteria matrix

• Evaluation & examples
Terms

- **Scale Levels**

  - **Levels of Detail:** 24
  - **Level ID:** 0
    - Start Tile: End Tile
    - Resolution: 156543, 0392800014
    - Scale: 5.916575275915558
  - **Level ID:** 1
    - Start Tile: End Tile
    - Resolution: 78271, 51696399994

- **Content**

- **Multi-Scale**

- **Saturation**

- **Qualitative**

- **Quantitative**
Living Atlas of the World
Basemaps provide a foundation to your web maps and applications

- Ready-to-use
- Reference
- Multi-scale
- Variety of basemaps
Basemaps

- Street Map
- Topographic Map
- Light Gray Canvas
- Dark Gray Canvas
- Terrain with Labels
- Imagery (w/ Labels)
- National Geographic
- Ocean Basemap
- Shaded Relief
- Physical
- Streets with Relief
- Streets at Night
- Navigation Map
- Imagery Hybrid
- Other & User Generated
### ArcGIS Online Basemap Matrix

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Which Basemap?

ANDY SKINNER
Which Basemap?

• Cached or Vector Tile?

Vector Tile Basemaps:
• More responsive
• Updated more frequently
• Full coverage at all scales
• Can be loaded into ArcGIS Pro …
• … but cannot be loaded into ArcMap

Cached Basemaps:
• Can be used in most environments
• Include some basemaps not available in Vector Tile
Which Basemap?

- Cached or Vector Tile?
- What is your subject?

Water
Recreation
Demographic
Physical
Traffic
Location
Which Basemap?

- Cached or Vector Tile?
- What is your subject?
- What kind of data are you using? (Point/Line/Polygon)
Which Basemap?

- Cached or Vector Tile?
- What is your subject?
- What kind of data are you using? (Point/Line/Polygon)
- What is the geographic extent of your data?
Which Basemap?

- Cached or Vector Tile?
- What is your subject?
- What kind of data are you using? (Point/Line/Polygon)
- What is the geographic extent of your data?
- What scales are most appropriate for your data?
Which Basemap?

- Cached or Vector Tile?
- What is your subject?
- What kind of data are you using? (Point/Line/Polygon)
- What is the geographic extent of your data?
- What scales are most appropriate for your data?
- Are you trying to find a basemap to use with an existing map?
Which Basemap?

- Cached or Vector Tile?
- What is your subject?
- What kind of data are you using? (Point/Line/Polygon)
- What is the geographic extent of your data?
- What scales are most appropriate for your data?
- Are you trying to find a basemap to use with an existing map?
- ... or are you building a new map on top of your preferred basemap?
High Content and High Saturation

JESSICA ACOSTA
World Street Map

- Reference map and a basemap
- Emphasis on transportation-related features
- Reference map for routing purposes
- Great for overlaying qualitative point and line data
Strathcona County (Canada) Snow Removal web map
Centerville City Street Lights web map
National Geographic Map

- For users who want to display minimal data
- Reference map with a vibrant, highly detailed background
- National Geographic boundary treatment and proprietary fonts
- Recommended for mid-small scale point data overlay
Fifty Largest Ports Story Map
Mexico’s Historical Monuments Story Map
Imagery with labels

- Imagery + Boundaries & Places map services combined
- Labels serve as a reference framework for the Imagery service
- Labels with bold, vibrant colors, thick black halos
- Great for point, line, polygon data overlay
California Fire History web map
City of Naples, FL: Zoning web map
Imagery with Labels + World Transportation together
Hybrid Map

- World Imagery with Labels + World Transportation map services combined
- Updated cartographic design
- Works as a basemap and as a reference map
- Great for point, line, polygon data overlay
DC Cinema and Theater web map
Interstate 805 Closure, Detours & Alt Routes web map
Street Map Night

- Same content as the World Street Map
- Designed for use at night or low-light environments
- Vector Basemap – customizable; great for high-resolution display
- Works as a basemap and as a reference map
Minneapolis Public 311 Incidents web map
High Content and Medium Saturation

ANDREW GREEN

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Topographic Map

- Community Map
- Reference map and a basemap
- Emphasis on physical features
- Includes hillshade relief
- Muted color palette
- Great for overlaying all data types
Topographic Map

US Wildfire Activity Public Information Map

This is a map of US wildfire locations (active/recent) and other sources of information related to wildfires, including social media. Click on the areas of interest, explore, and be sure to bookmark this map to stay informed as the map updates.

Last modified 7/7/17 3:31 PM
4,379,913 views.
More information

Bookmarks
Western US
Alaska
Pacific Northwest
Southern California
Arizona / New Mexico
Topographic Map
Topographic Map

2016 Naperville Women's Half Marathon

Mile Marker
Event Locations
• Start
• Police Controlled Intersection
• First Aid
Race Routes
• Solid: Half Marathon Route
Points of Interest
• Church
• Fire Station
• Hospital
• Other Public Buildings
• Police Station
Road Closures
• Full Road Closure
• Northbound Curleen
• Southbound Lane
• Eastbound Lanes

City of Naperville, County of DuPage, Esri, HERE, Garmin. INCREMENT R Intermap, U...
San Diego's regional transportation network is a comprehensive system that relies on several individual pieces for the best transportation choices. Thanks to funding from TransNet, numerous highway, bus, and rail projects, as well as bike and pedestrian projects, local street repairs, habitat conservation efforts, and grant programs have been completed or are underway.

TransNet is the voter-approved half-cent sales tax administered by the San Diego Association of Governments ( SANDAG). To date, $3.3 billion in TransNet funds have been leveraged with more than $10 billion from federal, state, and local funding sources to deliver more than 650 projects throughout the San Diego region.

Every time you shop, dine, or play in San Diego County, your tax dollars contribute to keeping San Diego moving. We invite you to take a moment to learn more about the TransNet Story Map: Promises Made, Promises Kept.
Topographic Map

ArcGIS - North American Pipeline and Oil & Gas Infrastructure Proposals
Topographic Map
Navigation Map

- Vector map style only
- Reference map and a basemap
- Emphasis on road network, places
- Diverse, but not overpowering color palette
- Great for overlaying all data
- …but palette limits some color choices
Driving your car to Bloom........

There are two car parks available for those who wish to drive. Parking is available at a daily rate of €5. PLEASE HAVE THE CORRECT AMOUNT ON ENTRY TO THE CAR PARK AS THIS WILL HELP SPEED UP ENTRY TO THE VENUE - THANK YOU.

Red Car Park A:
Serving City Centre Traffic from the Main Gate to the Phoenix Park (Parkgate Street) and the NCR Gate. Once you enter the Phoenix Park, follow the signs for the Red Car park.

Green Car Park B:
Oceans Map

- Reference map and a basemap
- Oceans and undersea features
- Base layer
- Reference layer
- Map Sandwich
Optimal wind power begins at 7.5 meters per second and can be found within 50 nautical miles of the shore. While the Gulf of Mexico and Great Lakes are included as viable options, models show the strongest winds reside in the Pacific and Atlantic Oceans.

The Northeast and Mid-Atlantic regions of the US are ideal for offshore wind development. These regions possess high potential wind resources and the shallow water depths allow for more cost effective construction with currently available wind turbine platform technology.
While there are currently no developed wind energy facilities off the coast of the U.S., progress is being made in several state waters as well as leases in federal waters. Active Renewable Energy Leases off Delaware, Massachusetts, and New Jersey illustrate where companies have leased areas of the ocean with the intent to build wind energy facilities. Permits may be issued for development provided further site assessment for each leased area.

To download data in these maps, please visit our Data Registry.
Oceans Map
The Real Pirates of the Caribbean

Explore the travels and exploits of five real pirates of the Caribbean. Click through the tabs to track the adventures of each pirate overlaid on Spanish ports and pirate strongholds in the area. Zoom into the map to see additional detail.

Henry Morgan

Henry Morgan is often considered the quintessential pirate, although he was actually a privateer with the backing of England until 1670. Operating primarily out of Port Royal, Morgan was an admiral in the Royal Navy and eventually became a lieutenant governor of Jamaica.

Edward Teach (Blackbeard)
Low Content and Low Saturation

ANDY SKINNER
The ‘Map Sandwich’ concept
Using the Light Gray Canvas Map as an example

Reference Layer
Map Service
Base Layer
The ‘Map Sandwich’ concept with Feature Services
Using the Light Gray Canvas Map as an example
The ‘Map Sandwich’ concept: Update
Using the Light Gray Canvas Map as an example

*Move reference layer(s) to the ‘Basemap’ layer
Light Gray Canvas Map

- Stripped down’ map in variations of light gray
- Works with most maps, but is light on content
Using the Basemap with Point Information

Light Gray Canvas Map

Open Opportunity Data

- No real problems with colors
- Does the basemap carry enough detail to support your information?
Using the Basemap with Point Information
Light Gray Canvas Map

Portland Traffic Fatalities & Serious Injuries, 2005-2014

• Base and reference are available as separate layers
• … and can be used separately
Using the Basemap with Polygon Information

• Use transparency to allow the basemap to contribute …

• But build with strong colors to compensate for the transparency
Terrain with Labels Basemap (cached)

- Neutral base (on land), with a more detailed reference layer
- Does not continue into larger scales
Terrain with Labels Basemap (vector tile)

- Redesigned with a more neutral palette
- Uses the more sophisticated multi-directional hillshade
Using the Basemap with Point and Line Information
Terrain with Labels map: Population Growth and Decline

- Most symbols are OK
Using the Basemap with Point and Line Information
Terrain with Labels map: Population Growth and Decline

• Mix and Match

Terrain with Labels Basemap

Hillshade + Human Geography Basemap
Using the Basemap with Polygon Information
Terrain with Labels map: Landslide Susceptibility

- Try to use bright colors, and don’t create too many categories
Low Content and High Saturation

ANDY SKINNER
Dark Gray Canvas Map

- Dark base, good for ‘high impact’ maps in the right circumstances
- Same ‘stripped down’ content as the Light Gray Canvas Map
Using the Basemap with Point and Line Information

Dark Gray Canvas map:

- No color problems (unless you want to use a dark gray or black!)
- Brighter is better
Using the Basemap with Line Information
Dark Gray Canvas Map: Highway Access map

- No color issues, but use bright colors…
- … and use a gradient from dark for weak to bright for strong values
Dark Gray Canvas Map
Urban Observatory Highway Access map: Most Job Accessible Cities
Dark Gray Canvas Map
Most Job Accessible Cities (detail)
Using any map service as a basemap

“Add > Search for Layers” – basemaps that are shared
Adding your basemap directly from the service (“Add Layer from Web”)
Add a basemap on top of another basemap
Creation of your own basemap

- Create your own vector tile basemap in ArcGIS Pro
  - Clean, generalized data
  - Symbolize your map with simple symbols
  - Adjust label properties
  - Set up scale ranges for symbol/label classes and for visibility of the layers

- ... OR re-style one of our esri vector basemaps!
  - Copy tile layer
  - Download style file
  - Re-style it using one of our style editors
Conclusion
Selecting the Perfect Basemap

• Know the type of data you are mapping
• Know your subject, geographic area and scales of your data

• Decide on the geography and scales of the basemaps
• Decide on the content to support the purpose of your map
Basemap Road Ahead
What to expect from ArcGIS.com

- Continued basemap data updates
- Basemaps in GCS/WGS84
- Integration of Vector Basemaps into gallery
- More basemap styles
- Customization tools to improve your maps' functionality
Additional Resources
Related Technical Workshops and U.C. sessions

- Amazing and Inspiring Maps in ArcGIS
- Authoring Great Web Maps
- Corporate Brand Your Vector Basemap
- Creative Vector Basemaps
- Designing Esri's Vector Tile Basemaps
- Styling Vector Basemaps
- Styling Vector Tiles
- Tips and Tricks for Vector Basemap Customization

ArcGIS.com
- Living Atlas of the World
- blogs.esri.com/esri/arcgis/tag/vectorbasemap
Please Take Our Survey on the **Esri Events App**!

Download the Esri Events app and find your event

Select the session you attended

Scroll down to find the survey

Complete Answers and Select “Submit”