Base Maps: Creating, Using & Participating

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2010 MAGIP Technical Session

October 28, 2010

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Outline

- What is a Base Map?
- Using a Base Map
- Creating a Base Map
- Esri Community Maps Program
  - The Program
  - Using the Basemaps
  - Participation – What's involved
- Montana Base Map Service Center's Goals for the Community Maps Program

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What is a Base Map?

Characteristics of a Base Map:

- **Helps create geographic meaning**
- **Creates a common geographic layer for an organization to use**

"Base maps provide the background upon which thematic data are overlaid and analyzed."

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What is a Base Map?

Characteristics of a Base Map:

- **Examples of base map themes**

"…in general, refers to a map that depicts the fundamental map elements, such as streets, buildings, streams, etc., which are used frequently for locational reference."

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What is a Base Map?

Characteristics of a Base Map

- Seldom Changes & Used Repeatedly

"Map on which information would be placed for purposes of comparison. It may be used to construct other maps by addition of information. Base maps usually contain mapped data that seldom changes and is used repeatedly."

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What is a Base Map?

Characteristics of a Base Map:

- **A base for creating data**

"A map on which information can be placed for geographical correlation. Also can be used as a 'base' upon which to build other information."

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What is a Base Map?

The idea of a Base Map is shifting…

- **Since Google Maps and the Google Maps API were released, the term "base map" has taken on some additional meaning, particularly to a GIS professional**
- **Base Map layers are designed to contain pre-authored content, such as rasters or imagery. As a trade off for enhanced drawing and rendering performance, most geoprocessing tools cannot be used on base map layers."**

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What is a Base Map?

Operational vs. Base Layers

- **Operational Data Layers**
  - **Data layers used to support the operations of your organization.**
  - **These layers are dependent upon your industry.**
- **Base Data Layers**
  - **Data layers that seldom change but are always used as a background or geographic reference for mapping.**

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What is a Base Map?

Operational vs. Base Layers

Health Industry Example

Operational Data	Base data
• Hospital/health facility Locations • Emergency Service Routes • Patient census • General Population Information • Disease location	• Administrative Boundaries • Streets • Geographic Names • Hydrography • Terrain • Building Footprints

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Common Base Maps

First Paper…Then Digital

- **Original Base Maps**
  - **USGS Topographic Maps (DRGs)**
  - **Street maps**
  - **Orthophotography (ex: NAIP)**
- **New Digital Base Maps**
  - **Google/Bing – streets, aerial, some terrain**
  - **Esri – streets, aerial, topographic, terrain…**
  - **OpenStreetMap – streets**

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Using Base Maps

- Why would I want to use a base map?
  - Saves time and resources
  - Good cartography
  - Fast rendering (cached)
  - Focus on your data/task, not the background map
  - Common geographic base
  - Embed base maps into your applications:
    - http://gisservice.mt.gov/MCPDviewer/

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Using Base Maps

- URLs for ArcGIS Desktop
  - Base Map Service Center
    - https://gisservice.mt.gov/arcgis/services
  - Esri (ArcGIS.com)
    - http://services.arcgisonline.com/arcgis/services
    - www.esri.com/communitymaps
  - MSL/NRIS
    - http://gisportal.msl.mt.gov/arcgis/services

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Using Base Maps

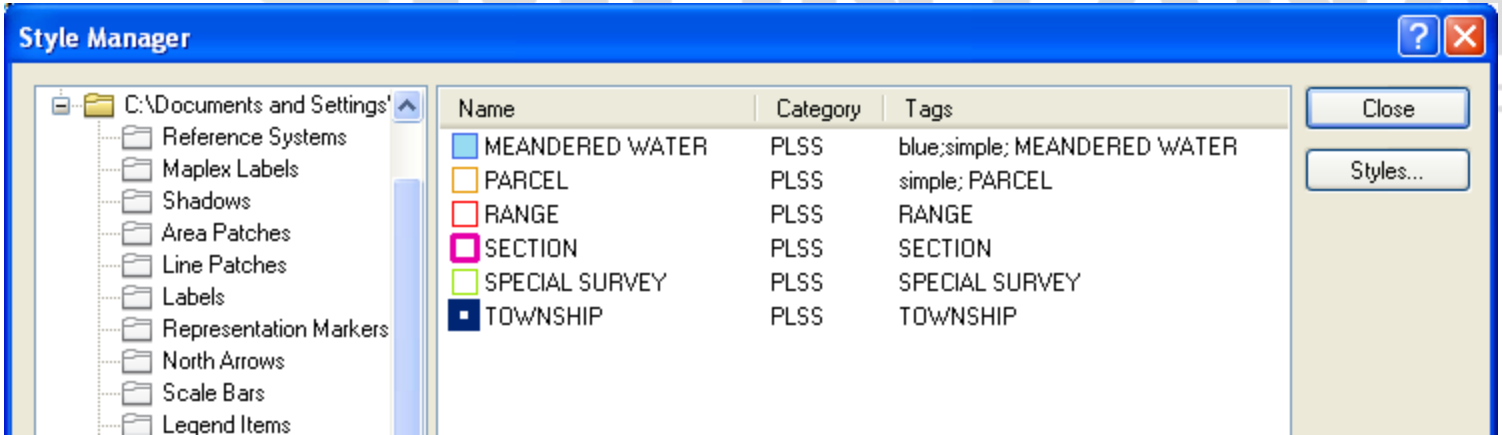
Basemaps Example: Administrative Boundaries

- **Type of Base Map: base for data creation & editing**
- **Use: personal / office / editing**

Operational Data Layers: **Administrative Boundary Layers being created and/or edited**

Base Data Layers: **GCDB (Township/Section/Range/Special Survey/GCDB Points), County Boundaries, parcel lines, Imagery (what ever is best!), other administrative boundaries (i.e. incorporated cities & towns or reservations).**

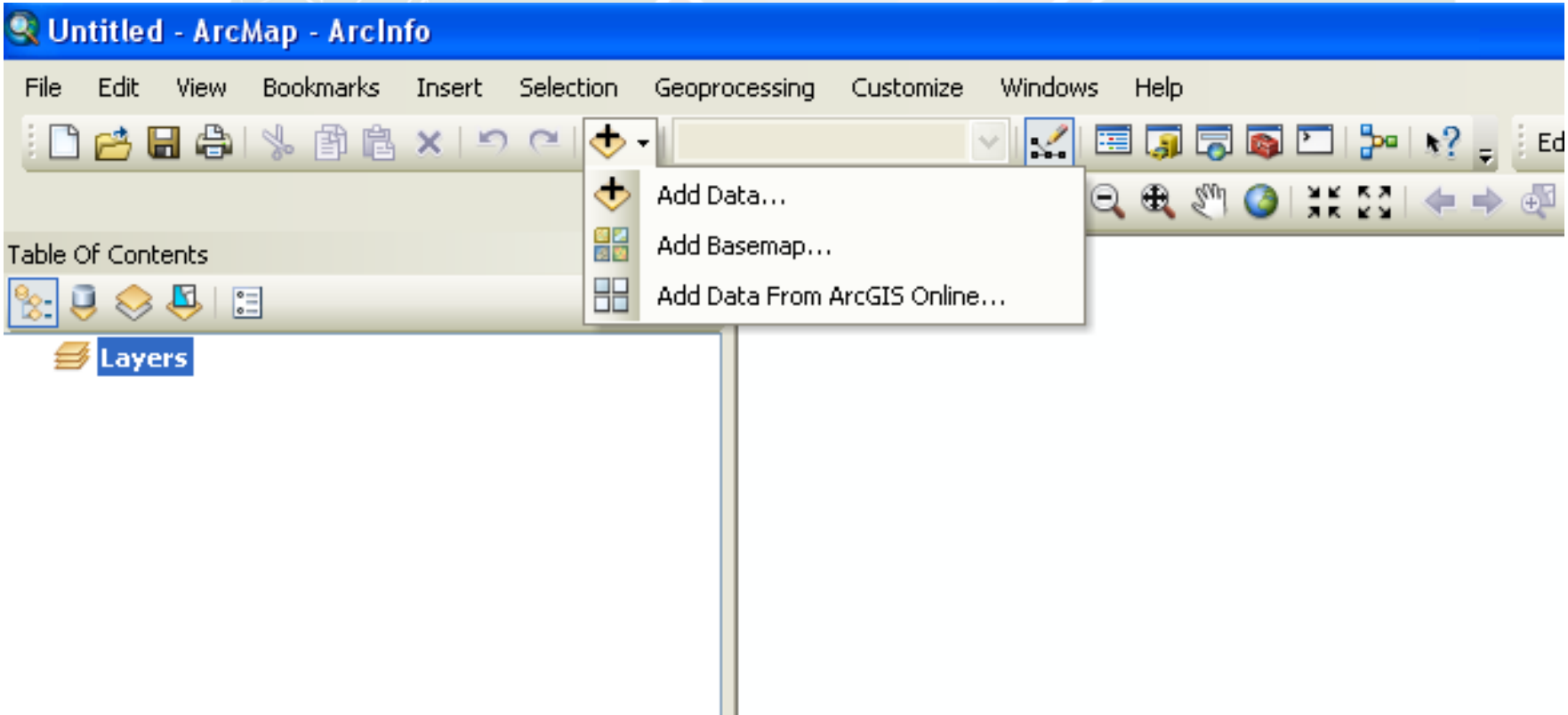
Demonstration: AdminsitrativeBoundariesEditingBaseMap.mxd



Using Base Maps

Cached Basemaps

- **Basemaps Embedded in Esri Technology**
  - **demonstration**



Base maps, they're nothing new!

- **Creating the Base:**
  - **Base maps have always been around.**
  - **Every GIS professional has a few base maps for their own individual purposes.**
  - **No more recreating the wheel!**
    - **Technology now enables us to use common base maps**

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Esri Community Maps Program

- Community Basemap Presentation
  - http://explorer.arcgis.com/
- Who is Participating?
  - http://www.esri.com/software/arcgis/arcgisonline/community-map.html.
- Why participate?
  - Demonstration – Embededmaps.mxd
  - Federated approach, have to adhere to their data standards
- Using Esri Basemaps is versatile:
  - Purchased Software, downloaded free software, or online (Desktop/ArcGIS Explorer/Explorer Online)
- Embed Base Maps into your applications

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Community Maps Program

Required Data Layers – large scale

- **Roads - MSDI Transportation**
- **Highways/Freeways - MSDI Transportation**
- **Parcels - MSDI Cadastral**
- **Administrative Boundaries - MSDI Administrative Boundaries**
- **City/Neighborhood boundaries – MSDI Administrative Boundaries**
- **Park Areas – Local, MSDI Administrative Boundaries, or MSDI Cadastral**

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Community Maps Program

Required (alternative data sets available) Data Layers – Large Scale

- **Buildings – local or teleatlas**
- **Water Bodies – MSDI Hydrography (NHD)**
- **Rivers/Streams - MSDI Hydrography (NHD)**
- **Railways – MSDI Transportation or RTA**
- **Transit – MSDI Transportation or RTA**
- **Contours – MSDI Hypsography**
- **Elevation – MSDI Elevation or Teleatlas**
- **Landform – MSDI Geographic Names or Teleatlas**
- **Landmark Areas – Local or Teleatlas**
- **Bike Paths – MSDI Transportation local or Regional GIS Clearinghouse**
- **DEM – MSDI or NED or ASTER**
- **Vegetation – MSDI Imagery or local**

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Community Maps Program

Datasets should be used if available – Large Scale

- **Landuse – MSDI Land Use/Land Cover or local**
- **Points of Interest – MSDI Geographic Names or local**
- **Bridges – MSDI Transportation**
- **Parking lots – local**

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Community Maps Program: What's Involved

- Check out the program online to see if it's for you
- Download templates
- Take ESRI training
- Preparing your data
- Integrating your data into the templates
- QA/QC
- Updated annually

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Base Map Service Center's Goals

- Participate and Complete the Medium Scales Basemap for the Community Maps Program
- Work with local governments to get more participation throughout the state in the Large Scale Community Maps Program
- Work on the behalf of local governments to get local datasets integrated into the Community Maps program.

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Base Map Service Center's Goals

- **Participate and Complete the Medium Scales Basemap for the Community Maps Program**

- **Work with local governments to get more participation throughout the state in the Large Scale Community Maps Program**

- **Work on the behalf of local governments to get local datasets integrated into the Community Maps program.**

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Base Map Service Center's Goals

Ok, good, great, grand, wonderful….But how do we do it?

- **Most of the required data layers available: MSDI**
- **Cooperation, Communication, & Coordination**
  - **BMSC will partner with other MSDI Stewards and the Library to promote this program within the state.**
  - **BMSC and the Library will team up to help local governments that do not have the technological resources to complete the program.**

Base Map Service Center's Goals

Ok, good, great, grand, wonderful….But how do we do it?

- **Cooperation, Communication, & Coordination**
  - **BMSC will call on the help of MAGIP in promoting this program.**
  - **BMSC & Esri will partner to host a hands on workshop in Lewistown, Montana at the MAGIP Spring Meeting (early April)**
- **Esri is using the federated approach, let's take advantage of it!**

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Base Map Service Center's Goals

How will this benefit me?

When complete Montana will have…

- **A cached base map available to anyone worldwide**
- **A template used, available, and known throughout the worldwide GIS community**
- **Embeddable base map**
- **Free maintenance of the service (stored on Esri servers)**

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Ready to participate?

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