

Implementation of Cartographic Standards at the City of Bellingham, Washington



**ANN STARK, GISP
GIS SPECIALIST**

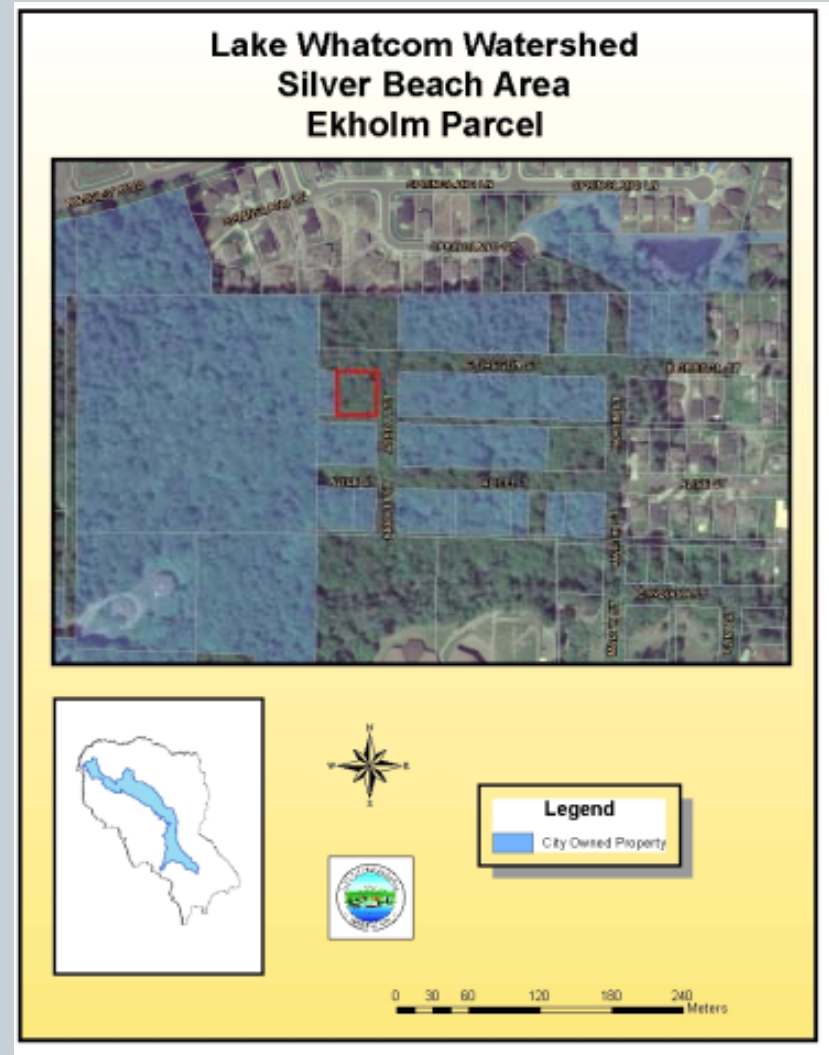
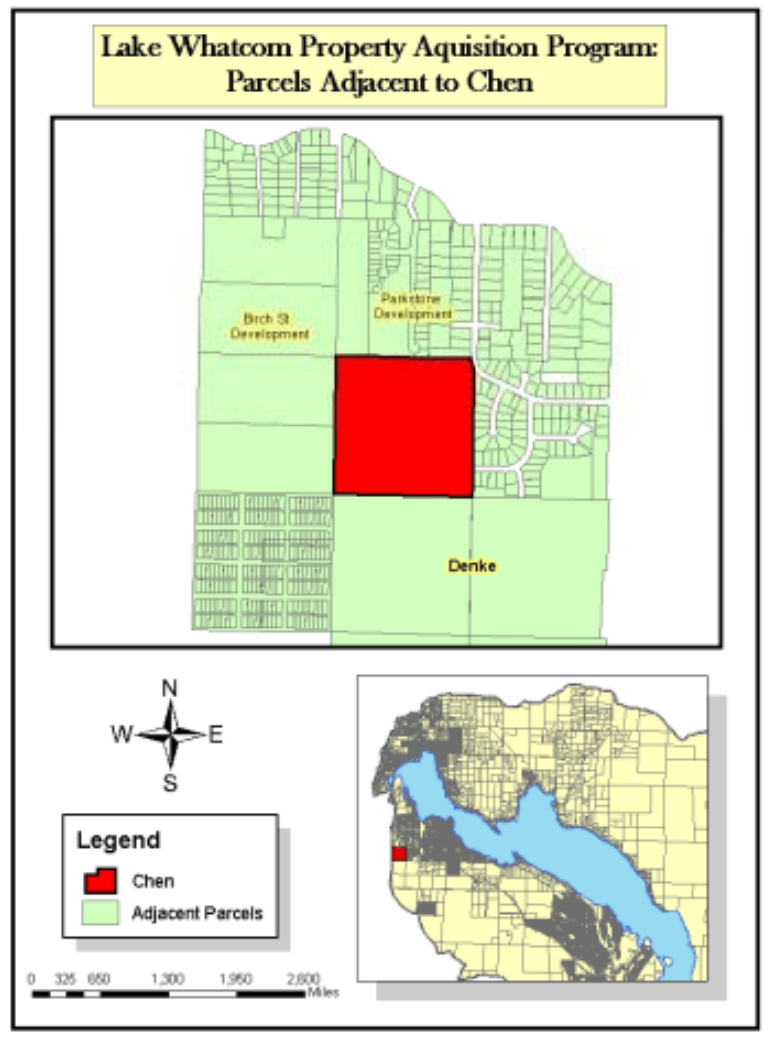
The need for cartographic standards



- **The request originated with City Council members**
- **Different subject matter should be presented in a consistent way to avoid confusion**
- **Consistent data should always look the same.**
 - Zoning, city boundary and UGA, administrative zones, streets, water features, schools, etc.

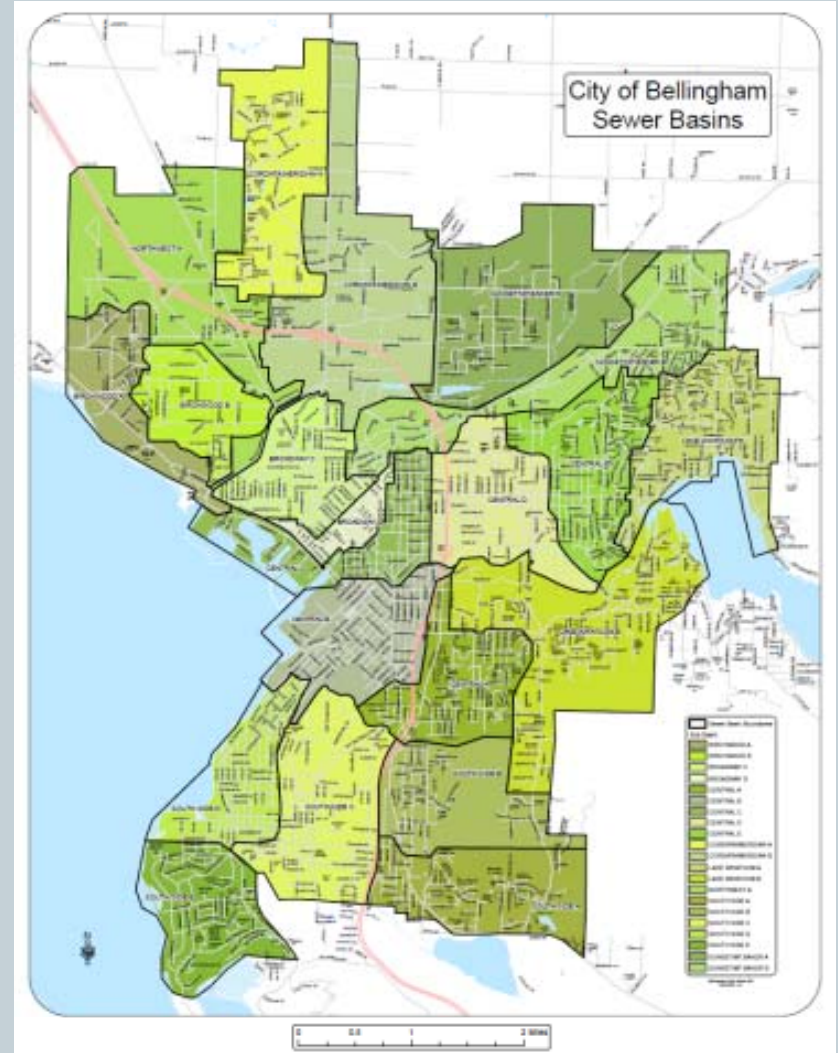
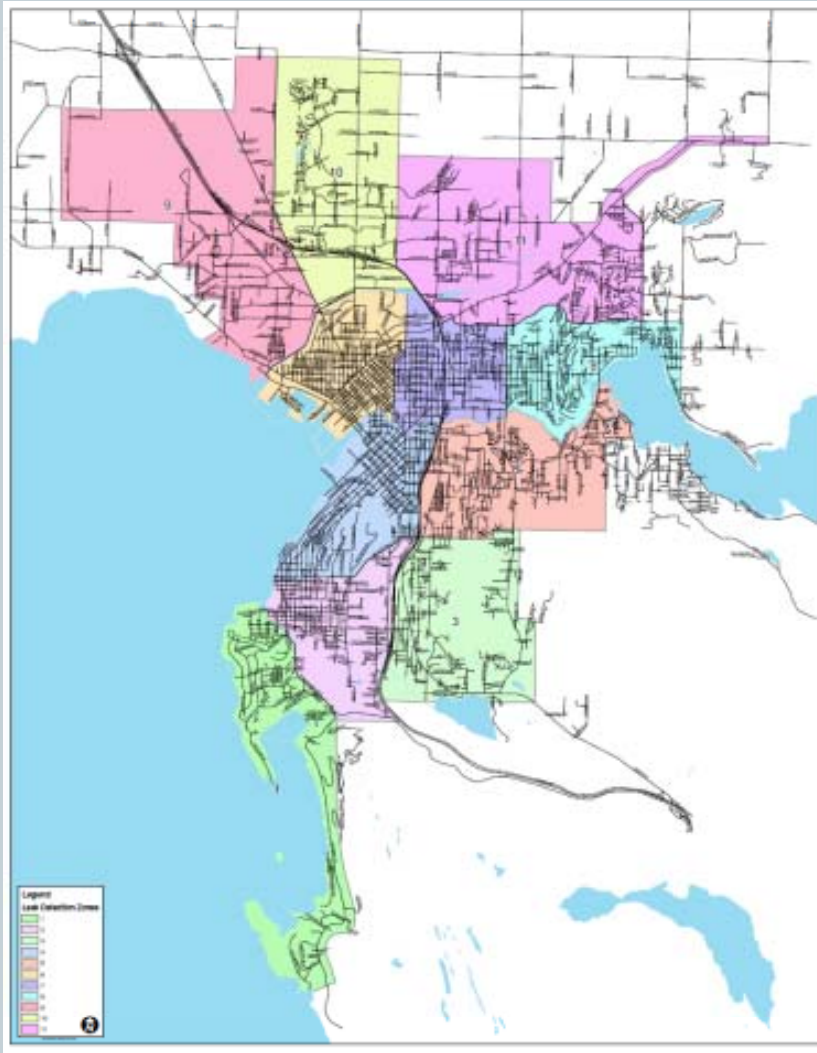
Before standards...

Inconsistent fonts, background colors, layout and sizes of map elements



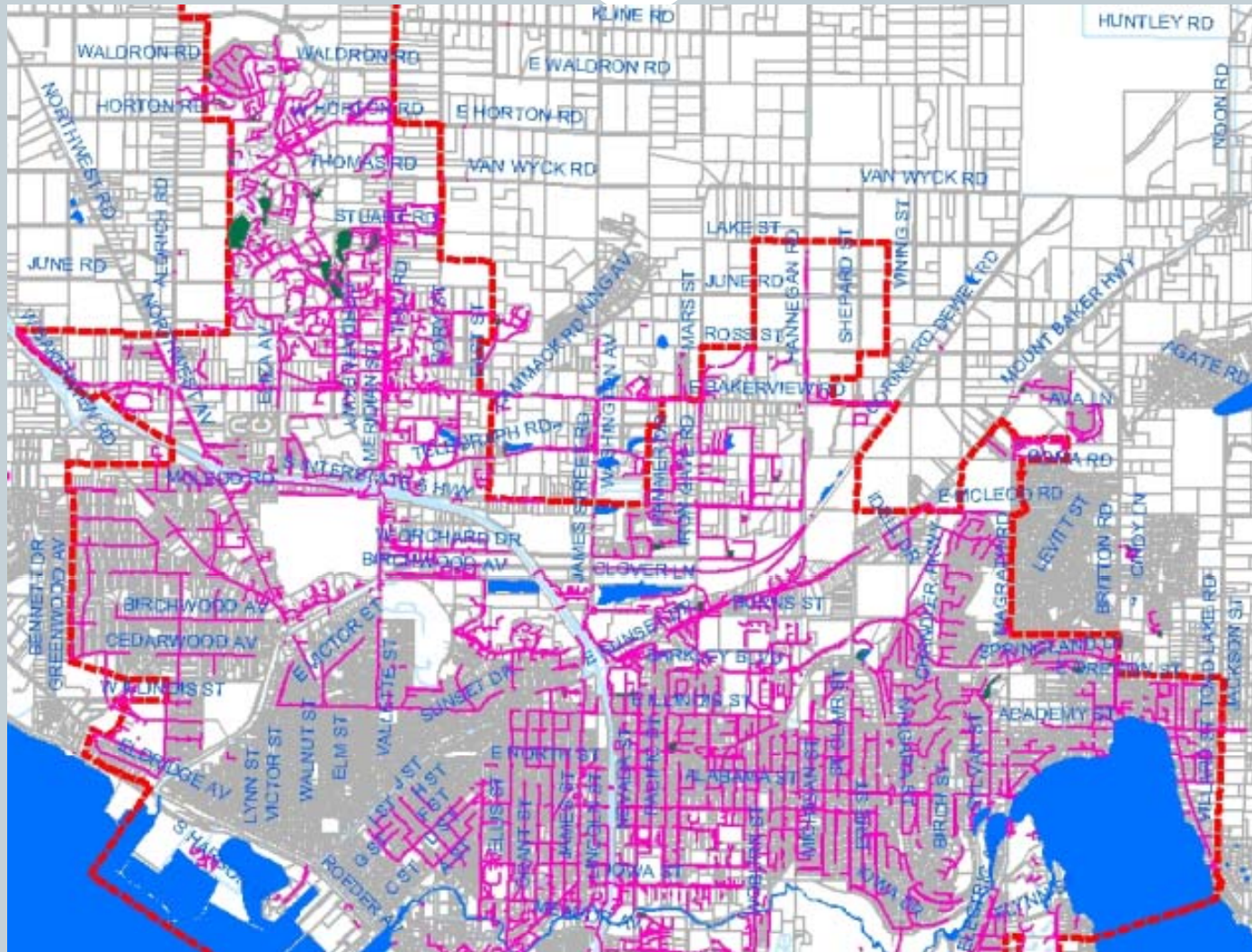
...two more...

Inconsistent or missing titles, scale bars, and rounded/square corners.

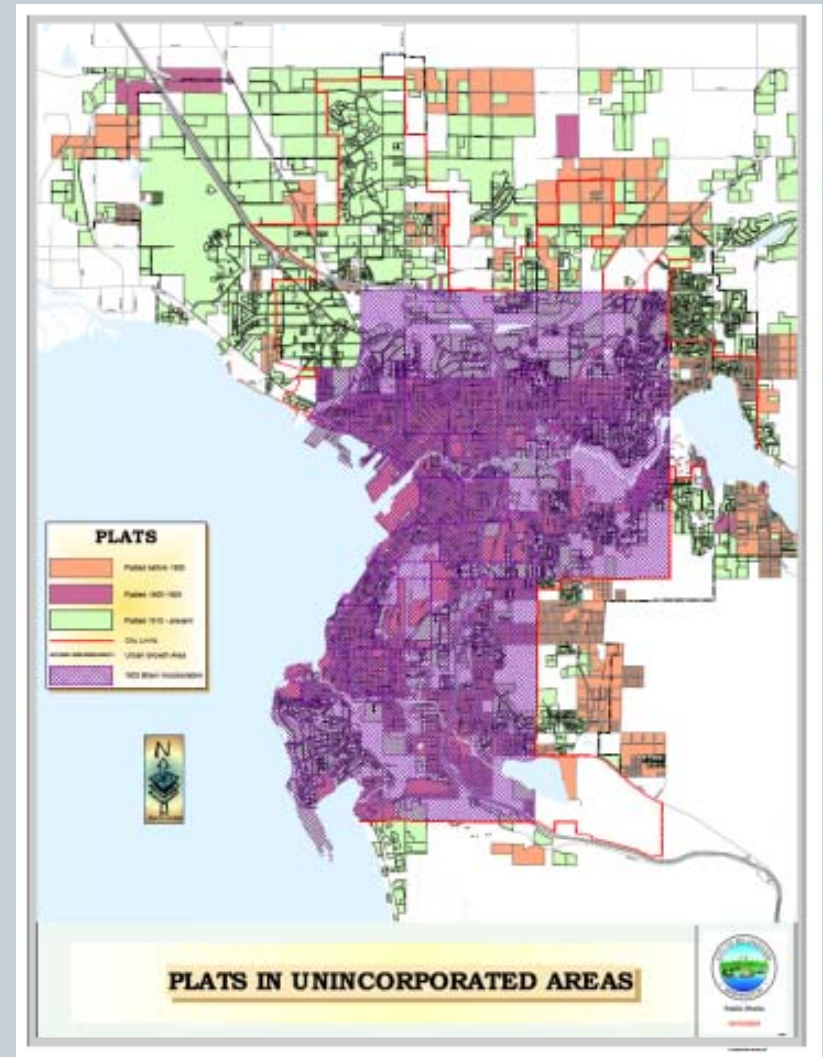
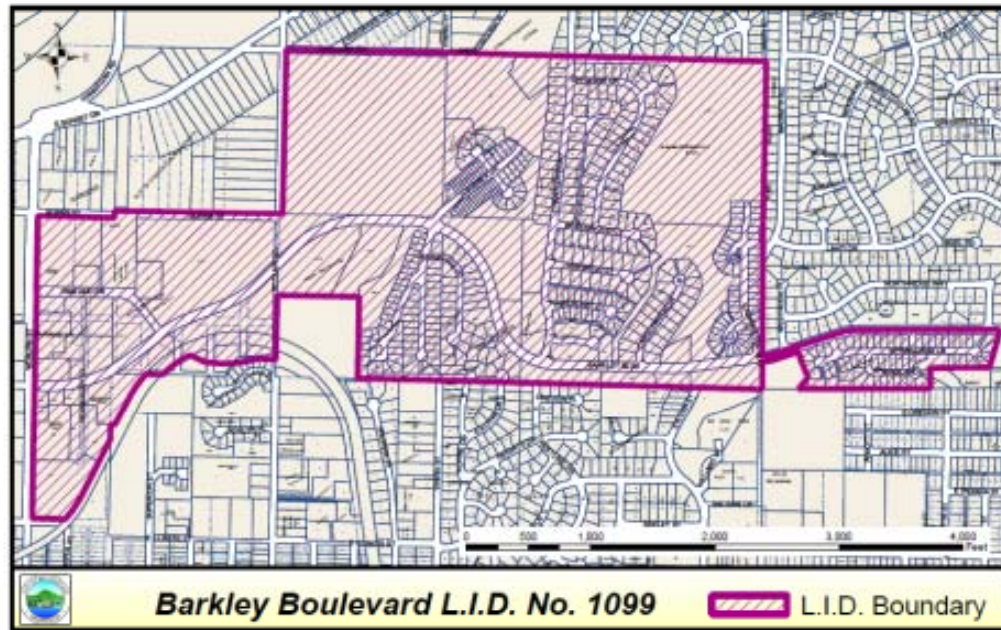


...and another...

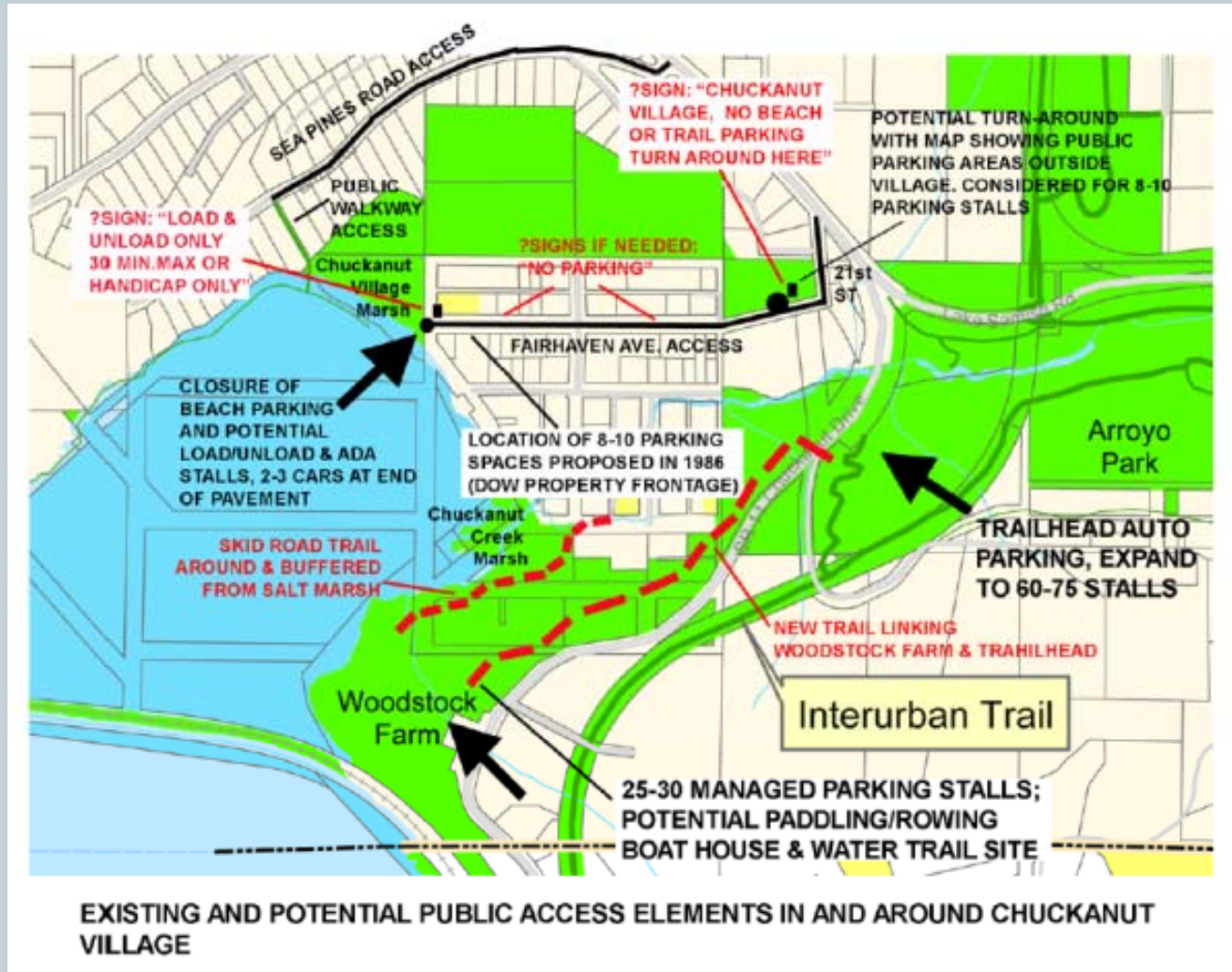
Color choice, parcel line weight, label color & size. No scale bar, north arrow, title, or legend.



...almost done...



...and finally.



Format Issues Summarized



- Layer symbology issues
- Inconsistent use of scale bars, north arrows, city logos
- Lacked standard author and date references
- Inconsistent physical arrangement and use of fonts, background shading on title, legend, and inset boxes

GIS Staff Response



- **Develop layer files with standard symbology**
- **Develop City templates**
- **Provide education on how to use those tools**
- **Provide education on the importance of using the tools**

Overview of Timeline



- **GIS Staff work group develops layer files (2007/2008)**
- **Templates designed/updated (2008)**
- **Open houses/labs to promote use, and educate users (2008/2009)**
- **Development of CityIQ (ArcGIS Server) map services (2008/2009)**
- **Beta-testing of CityIQ by core user group (2009 – ongoing)**
- **Labeling & Cartography classes for users (2009 – ongoing)**

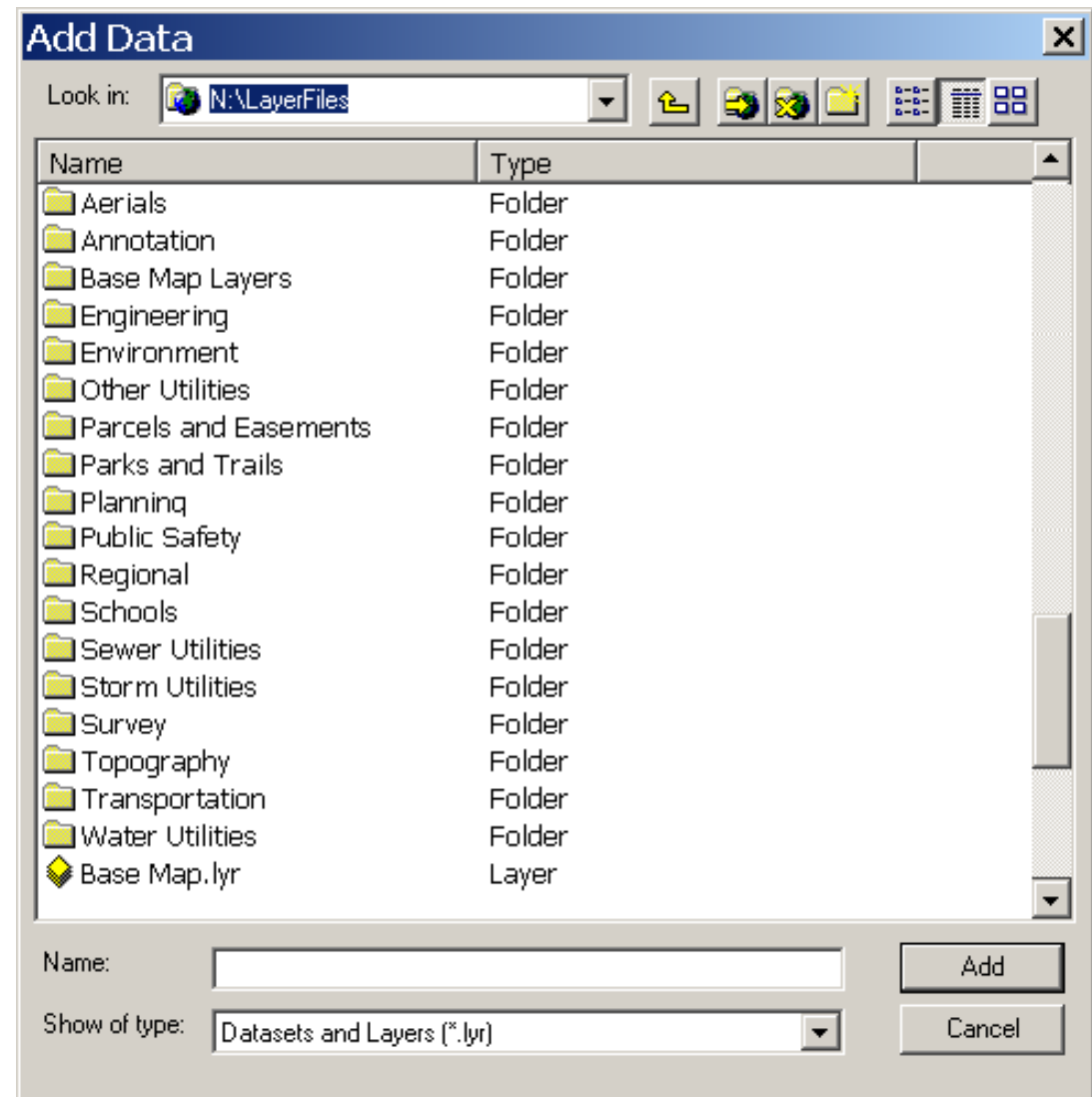
Layer Files



- Nearly every data set in SDE is symbolized with a layer file so the user only needs to go to one place to find the data
- Includes aerial images
- Data is organized by functional grouping
- Some layer files contain joins, store complicated symbology

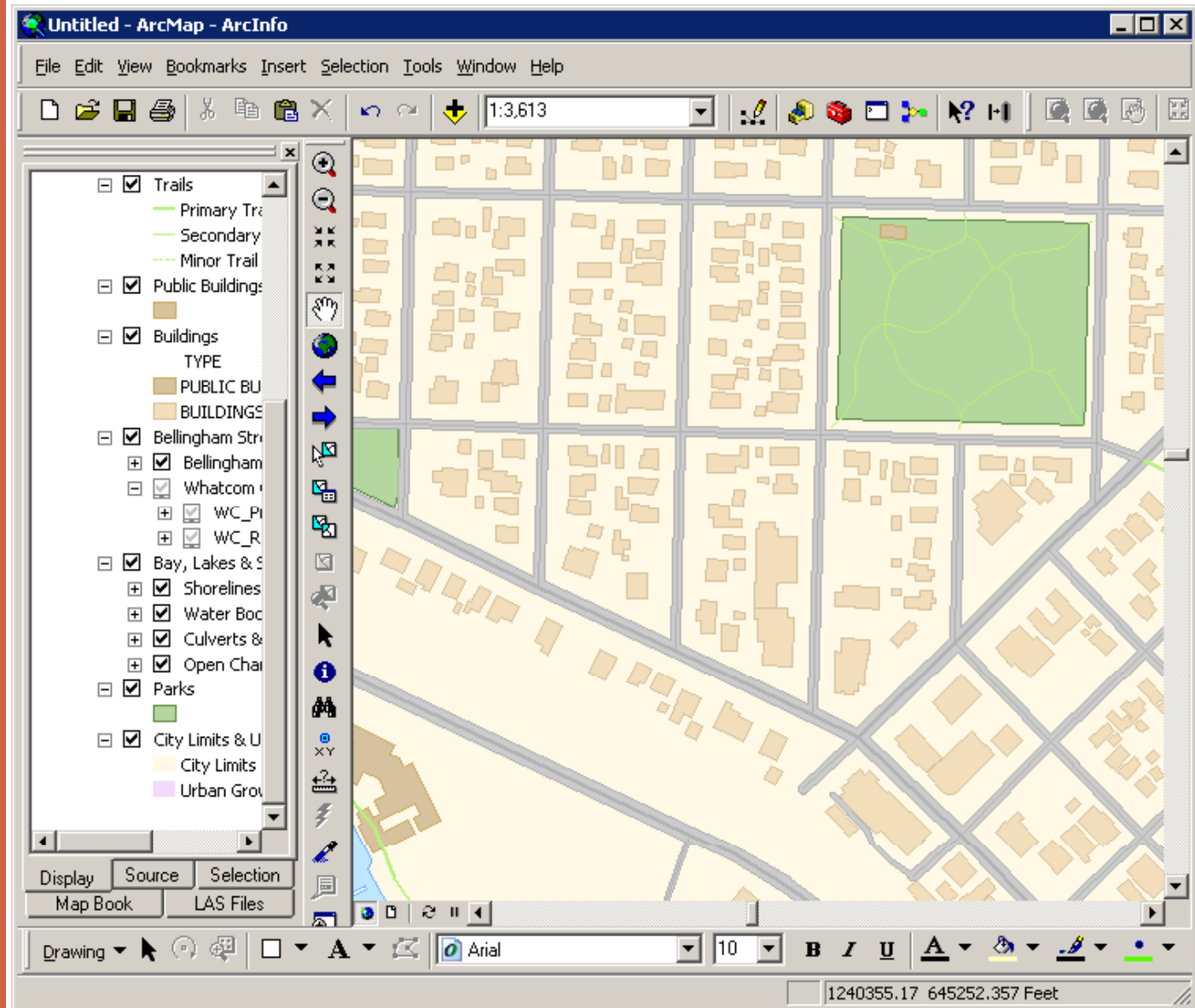
Layer Files

- All located in one folder for ease of use
- All point to the 'correct', most up-to-date data
- One layer file stores all base map data.
- Layer files store SDE connection information
- Layer files store complex cartographic symbology



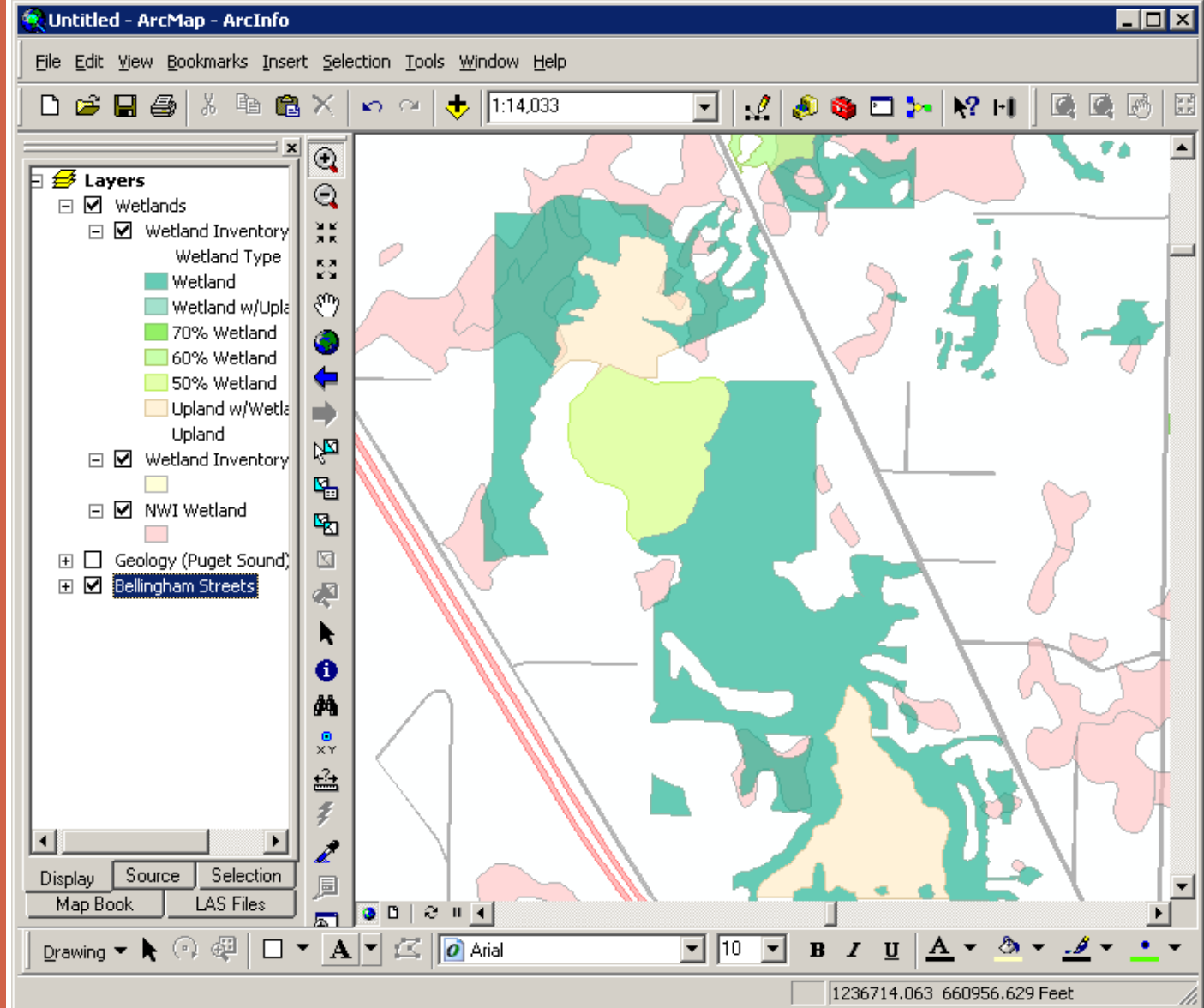
Base Map Layer File

- Contains the basic info
- Symbolized correctly
- All in one place with one click
- Scale dependent drawing turns data on at appropriate scales. Used sparingly.
- Users can turn labels on or off as needed.



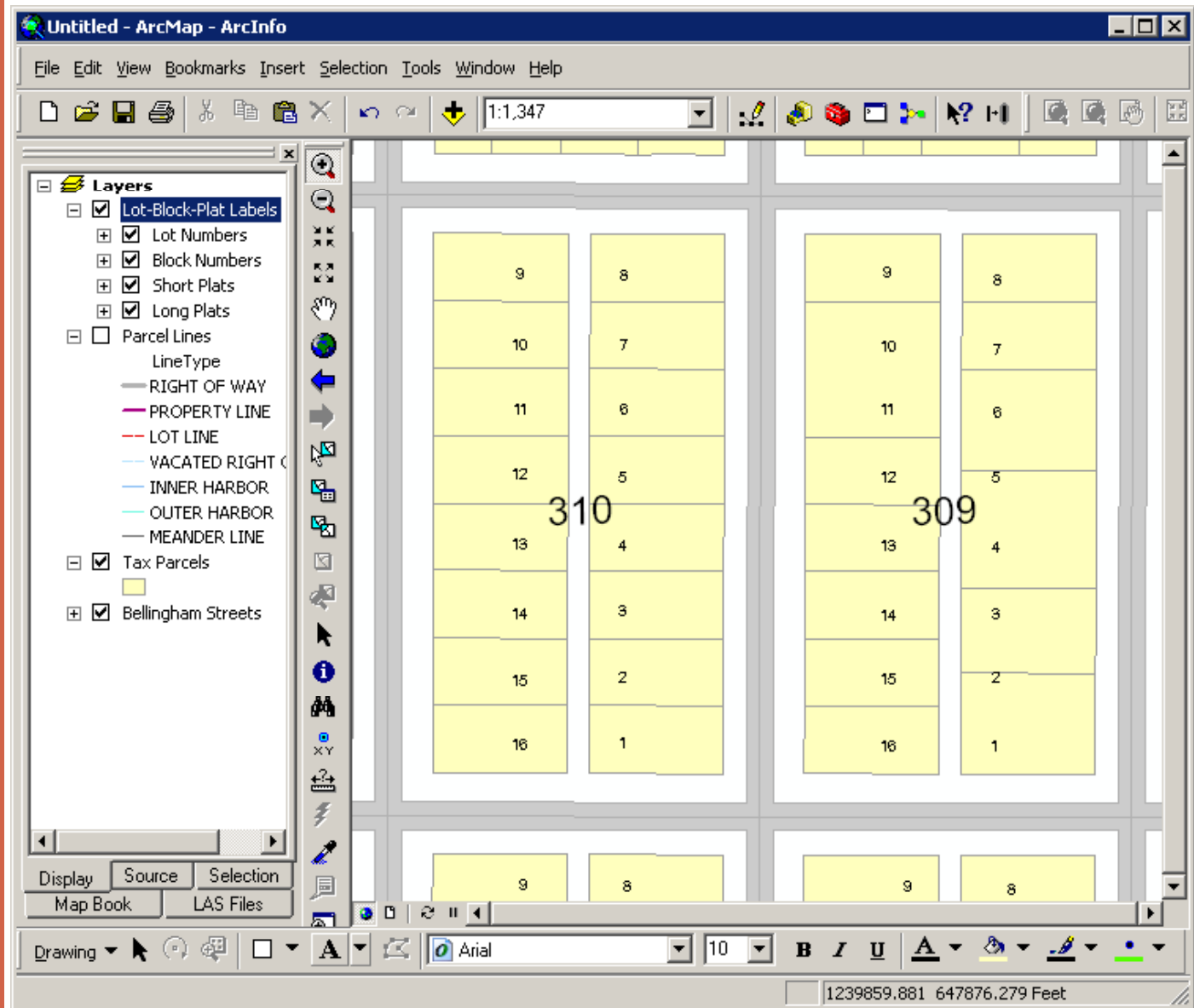
Wetlands

- Stores data from multiple surveys symbolized ...



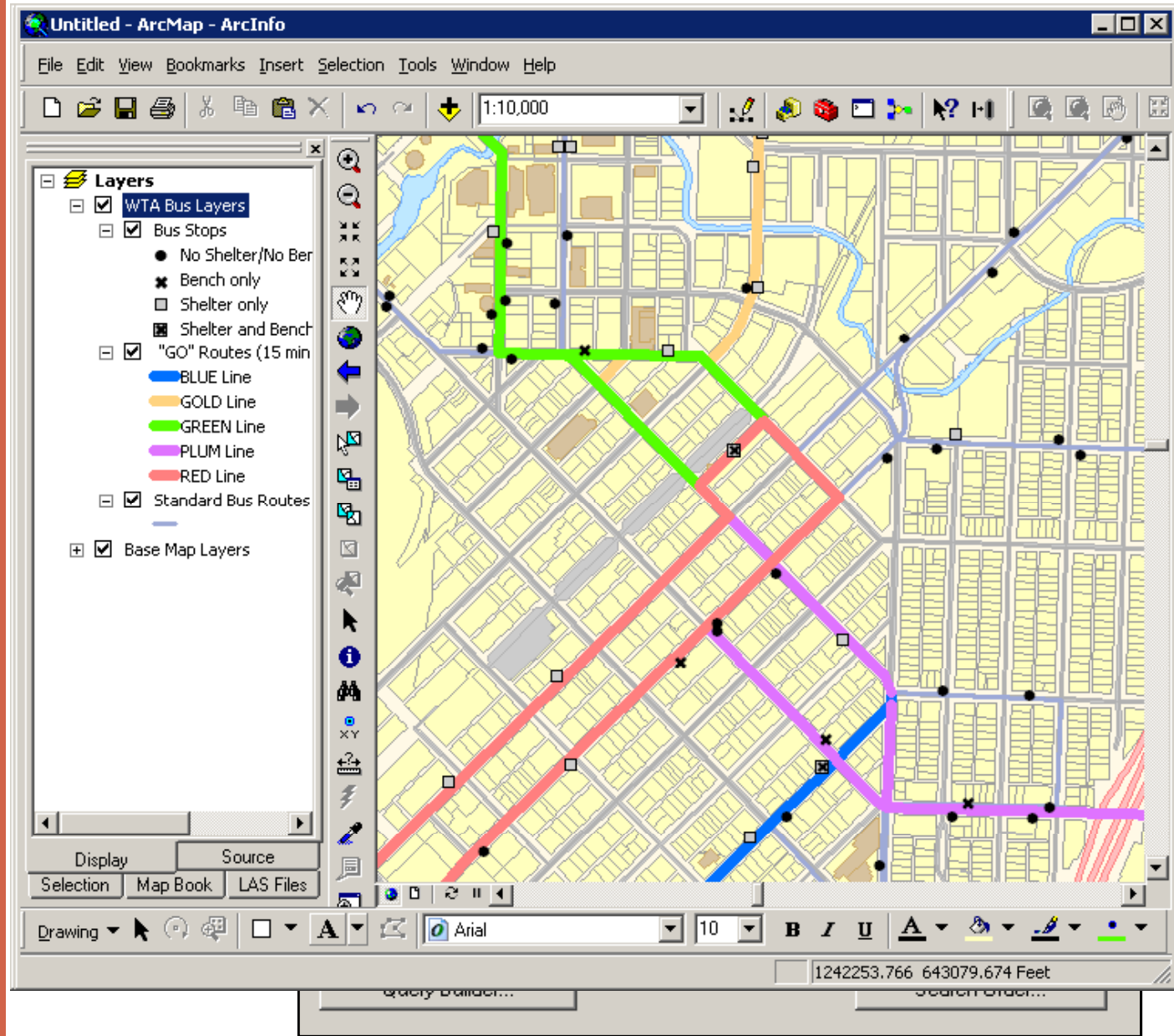
Landbase Layers

- Particularly important to maintain symbology on line types and accuracy
- Stores a join to County Assessor data so that current ownership information is available
- Easy access to annotation layers in one click



Complex Symbology

- Planning analyses
- Utility symbols
- Bus routes



Templates



- **Modified the install path to templates**
- **Populated with our own blank and pre-drawn files**

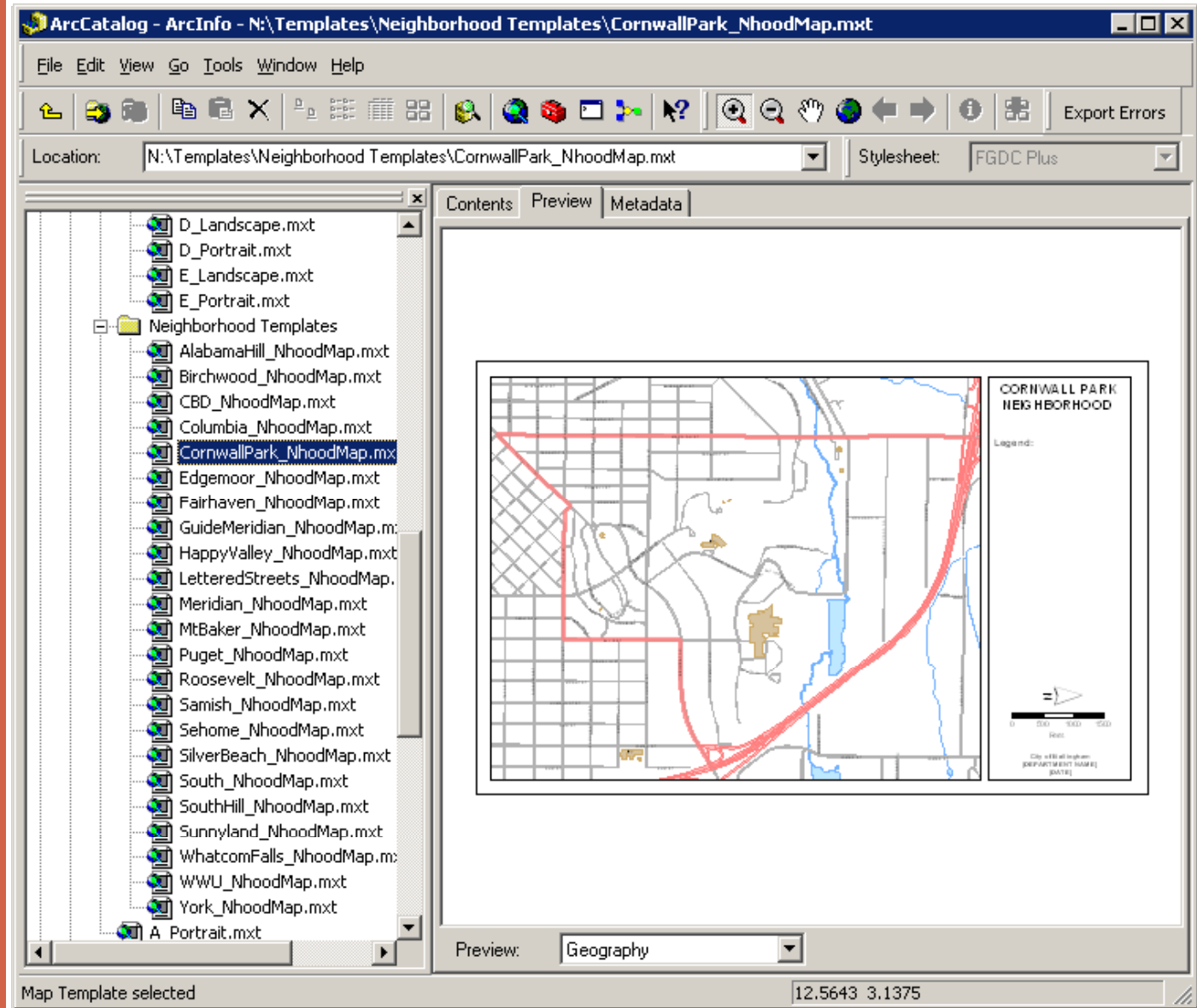
Templates

Folders contain blank and pre-drawn templates

Organized by paper size

Contains a map pre-formatted for recorded documents with correct margin set up

Also contains neighborhood maps oriented to best fit



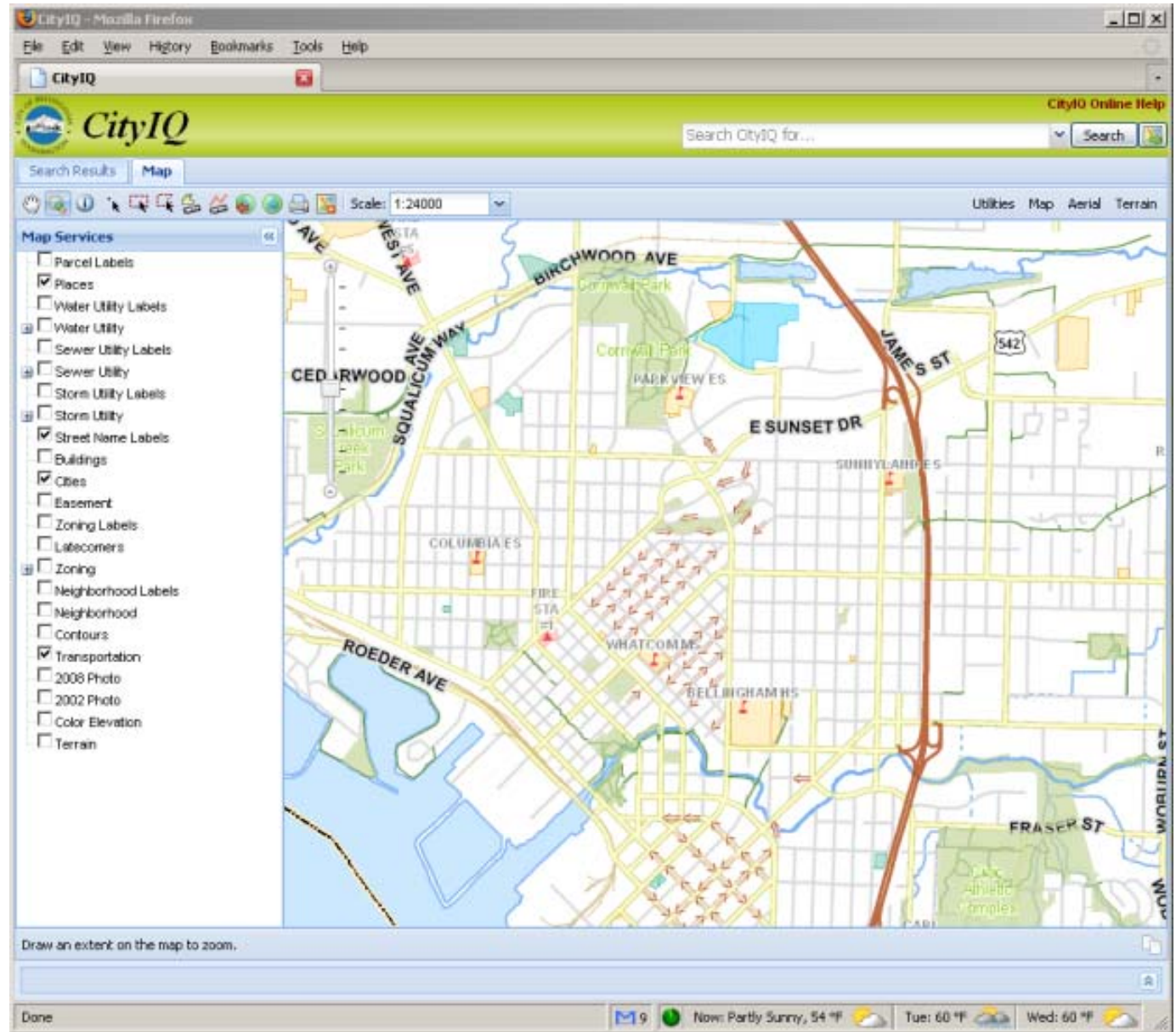
ArcGIS Server Map Services – “CityIQ”



- Effort made to tie the new look to the new CityIQ application where possible
- Provides reinforcement of the City look in all maps
- Will link from the data to the layer file, so users have easy access to the same data and the same look

City IQ Application

- Standards match where possible
- Issues of transparency groupings, ADA compliance, and screen resolution

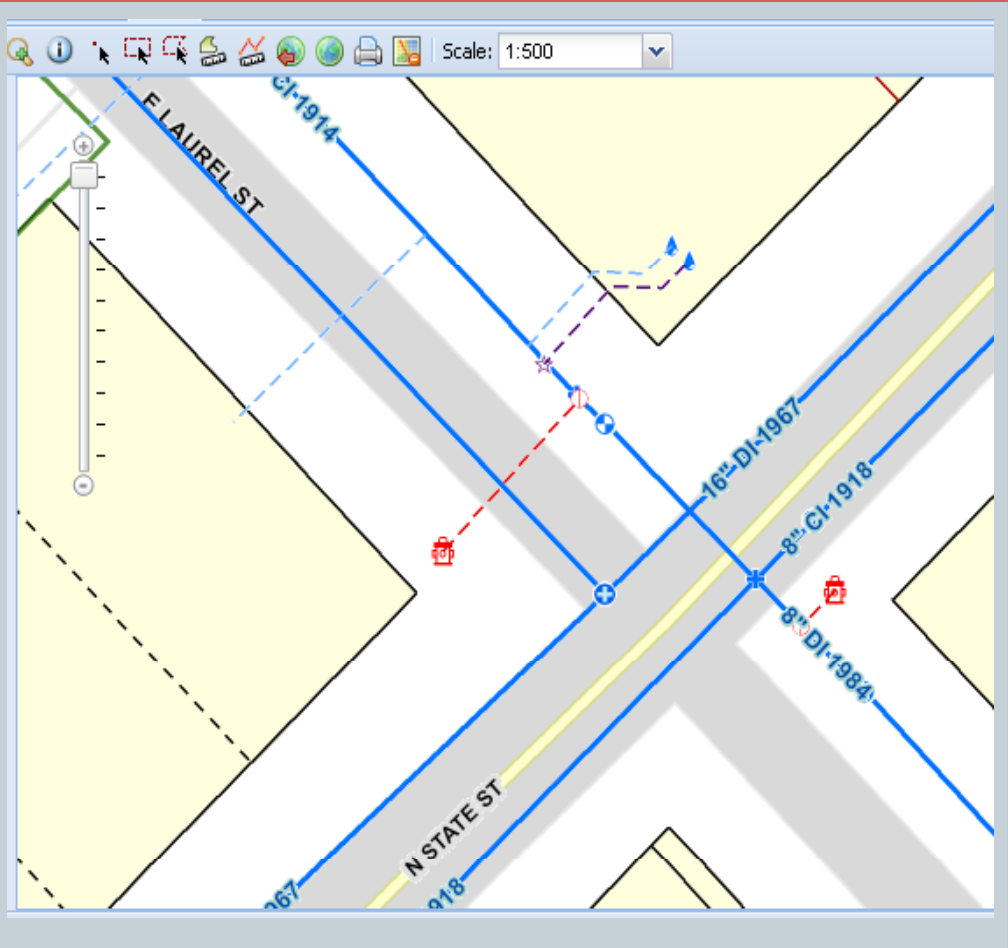
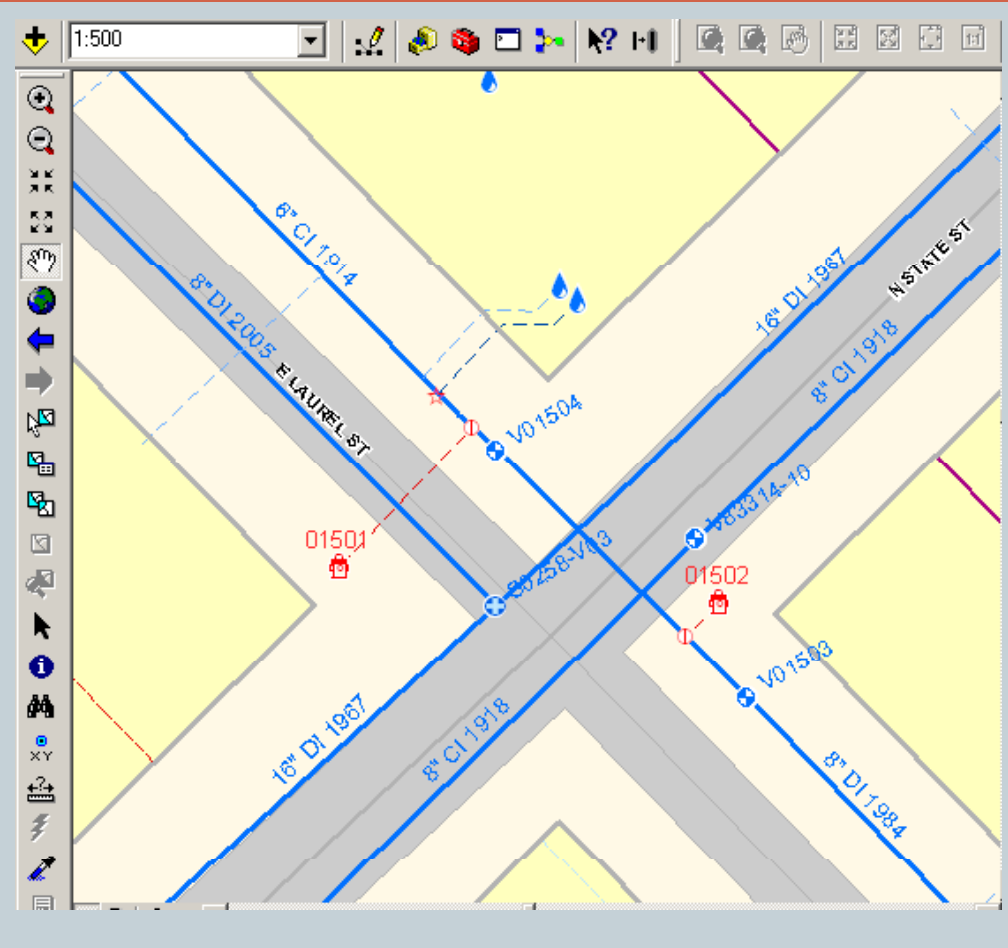


Comparison



Layer File

City IQ



Education effort



- GIS Open Houses – held quarterly
- GIS “walk-in clinic”
- Cartography classes & labeling class
 - Ongoing, city wide staff development training
- Face to face reminders
- GISHelp email address – same day response

Cartography Classes



- Using maps to communicate
- Map fundamentals
- Visual hierarchies and balance
- Layer files and color choices
- Using templates
- 1 ½ hour lecture/group discussion format

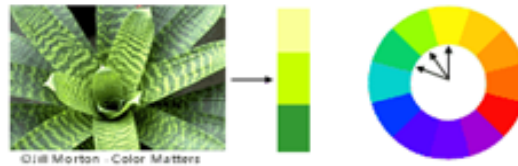
Cartography class

- Visual balance
- Color basics
- Color choices
- And more...

Color Choices

- Color Wheels

A color scheme based on analogous colors



A color scheme based on complementary colors



Same red square with different backgrounds



Labeling Classes



- **Types of text: labels vs. annotation**
- **Controlling which features are labeled**
- **Advanced expressions**
- **Controlling where labels are placed**
- **Focus on using Maplex extension**
- **3 hour lecture/lab format**

Lessons Learned



- **Layer files – Cons**
 - 9.2 and 9.3 versions are not compatible
 - If we tweak a layer file, the end user must reload it
 - Data changes location: have to reassign all the layer files
- **Education effort will be ongoing**
- **Eliminated renegade datasets**
- **Integrated comprehensive effort**

User comments



- “Consistently high quality maps have helped make our outreach and education efforts a great success!”

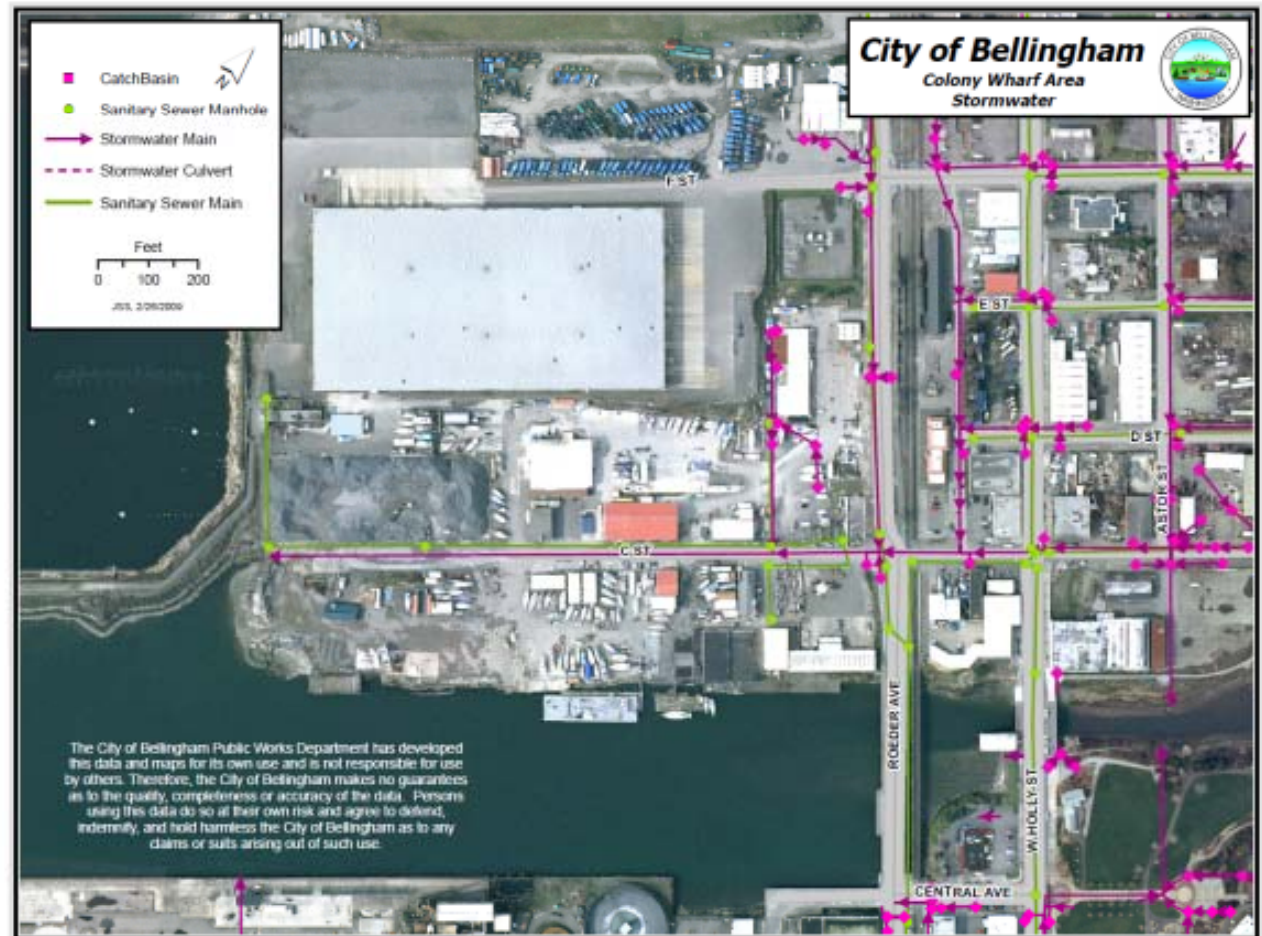
Katie Franks - Project Manager

- “The maps produced by our staff are a critical resource for our council, staff, and the public. Having a reliable and consistent product ensures ease of use and inspires confidence and trust.”

Tim Stewart – Planning Director

User Maps

- Standard title & logo
- Standard city boundary and colors
- Standard utility symbology



Questions? Thank You



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