

US EPA ARCHIVE DOCUMENT

A satellite image of the Earth, centered on North America. The image shows the continents of North and South America, the surrounding oceans, and the Arctic region. The text is overlaid on the image.

# USEPA R7 Response/Sensitivity Atlas

Presented at  
**The Freshwater Spills Symposium**  
**St. Louis, MO**  
**April 2009**

Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
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## R7 Sensitivity/Response Atlases

- Resource tool for spill and disaster response
- Google Earth-based display and mapping components
- Data layers can be turned on or off
- Data attributed with response pertinent information
  - emergency responder contact information
  - boom deployment strategies
- Designed and built using ESRI ArcGIS and standard HTML editing software
- Easily updated and enhanced
- Low cost and efficient maintenance.



# Sensitivity/Response Atlas Mapping Components and Layers

- Response consideration information and photos
  - River access points (boat ramps)
  - Mile marker, bridge, dike and levee locations
  - Booming strategies
  - River navigation maps
- Sensitive species information (NatureServe)
- Nation Pipeline Mapping System (NPMS) information
- EPA facility location and information
- Other base map layers
  - county boundaries
  - township and range
  - United States Geological Survey (USGS) topographic maps



# R7 Sensitivity/Response Atlases

(projects in development)

- Missouri River – Kansas City to St. Joseph
- Siouxland Subarea
- Omaha/Council Bluffs Subarea
- Central Platte (NE) Subarea
- Missouri River – St. Louis Subarea



# KCMO-St. Joe MO River Atlas

**Missouri River Sensitivity Atlas**  
Kansas City to St. Joseph, Missouri

The Missouri River Sensitivity Atlas is designed to aid the Environmental Protection Agency (EPA) in the planning of appropriate action and cleanup procedures in the event of an oil or hazardous material spill into the Missouri River and surrounding sensitive environments. This application allows for the viewing of geographic data, supporting documentation, and photos through Google Earth via clickable icons draped over the standard Google Earth mapping environment.

This spill contingency atlas covers approximately 88 miles of the Missouri River from mile marker 367 south of the Kansas City Downtown Airport to mile marker 455 just north of the city of St. Joseph, Missouri. Along this stretch of the Missouri River there are numerous potential spill sources, sensitive species, and natural resources.

The following data layers are included in this atlas:

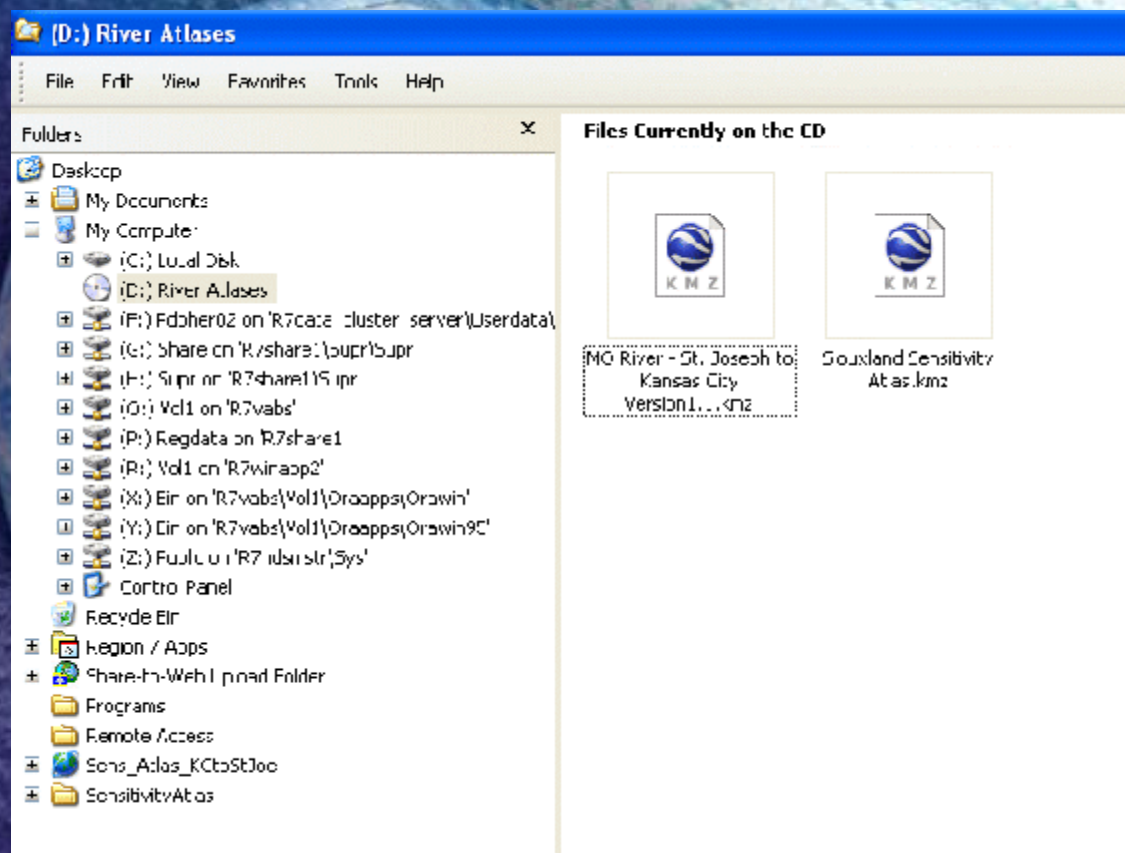
- Response Considerations
- Facility Pictures
- Navigation Information
- EPA Facilities
- Response Plans
- Sensitive Species
- Water Intakes
- Base Map Features

Logos: EPA, TETRA TECH, MISSOURI DEPARTMENT OF NATURAL RESOURCES

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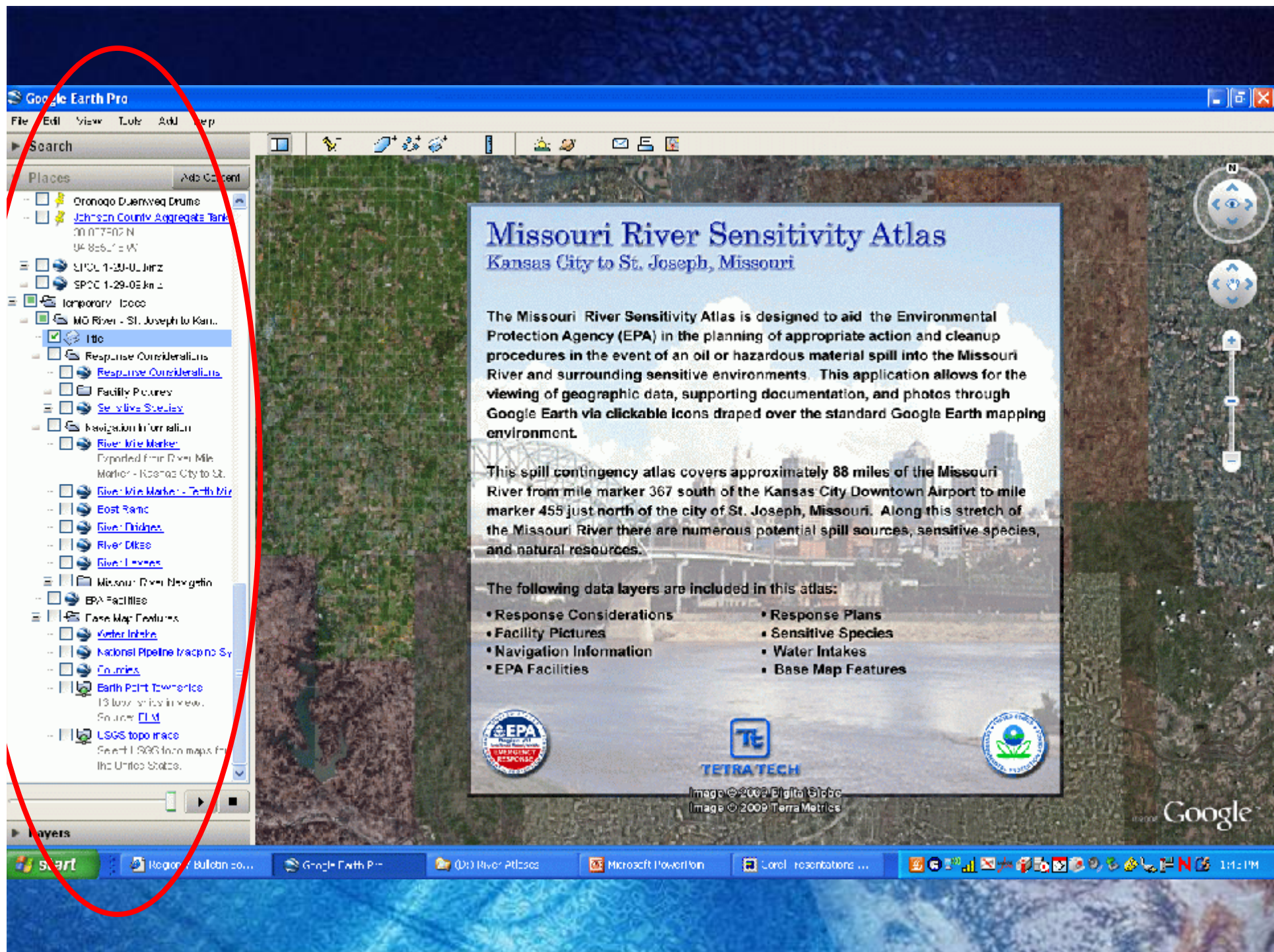
Google





- Atlas on CD as \*.kmz file
- Google Earth-based data layers
- Stand-alone or internet connectivity





Google Earth Pro

File Edit View Tools Add Help

Search

Places Add Content

- ☐ Ononogo Duennweg Drums
- ☐ Johnson County Aggregate Tank
  - 39.077-02 N
  - 94.855-11 W
- ☐ SPOC 1-20-UL JmZ
- ☐ SPOC 1-29-05 JmZ
- ☐ Temporary Icons
- ☒ MO River - St. Joseph to Kan...
  - ☒ Title
  - ☐ Response Considerations
    - ☐ [Response Considerations](#)
  - ☐ Facility Pictures
    - ☐ [See video Stream](#)
  - ☐ Navigation Information
    - ☐ [River Mile Marker](#)
      - Exported from River Mile Marker - Kansas City to St. Joseph
    - ☐ [River Mile Marker - North River](#)
    - ☐ East Bank
    - ☐ [River Bridges](#)
    - ☐ River Dikes
    - ☐ [River Intakes](#)
  - ☐ Missouri River Navigation
  - ☐ EPA Facilities
  - ☐ Base Map Features
    - ☐ [Water Intake](#)
    - ☐ National Pipeline Mapping System
    - ☐ [Countries](#)
    - ☐ Earth Point Commerce
      - 13 locations in view.
      - Source: [EPA](#)
    - ☐ USGS topomaps
      - Search USGS topomaps for the United States.

Layers

## Missouri River Sensitivity Atlas

Kansas City to St. Joseph, Missouri

The Missouri River Sensitivity Atlas is designed to aid the Environmental Protection Agency (EPA) in the planning of appropriate action and cleanup procedures in the event of an oil or hazardous material spill into the Missouri River and surrounding sensitive environments. This application allows for the viewing of geographic data, supporting documentation, and photos through Google Earth via clickable icons draped over the standard Google Earth mapping environment.

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- Water Intakes
- Base Map Features

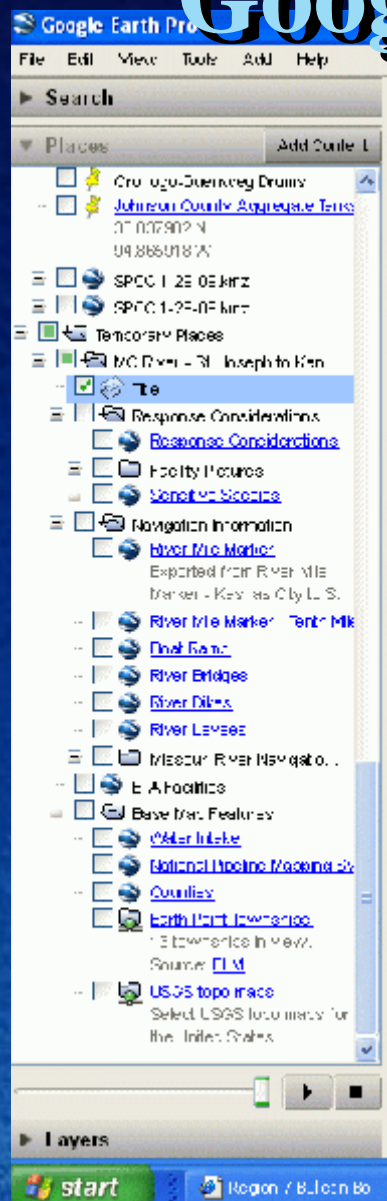


Image © 2002 Digital Globe  
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# Google-Earth Layer Pick Lists (temporary layer)



- Response Considerations
- Navigation Information
- Sensitive Environments
- Base Map Features



Google Earth Pro

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Fly To Find Businesses Directions

Fly to e.g., 37.407229, -122.107162

Places

Add Content

- Temporary Places
- MO River - St. Joseph to Kan...
- Title
- Response Considerations
  - ☒ Response Considerations
  - Facility Pictures
  - Sensitive Species
- Navigation Information
  - River Mile Marker
    - Exported from River Mile Marker - Kansas City to St.
  - River Mile Marker - Tenth Mile
  - Boat Ramp
  - River Bridges
  - River Dikes
  - River Levees
- Missouri River Navigatio...
- EPA Facilities
- Base Map Features
  - Water Intake
  - National Pipeline Mapping Sy
  - Counties

Layers

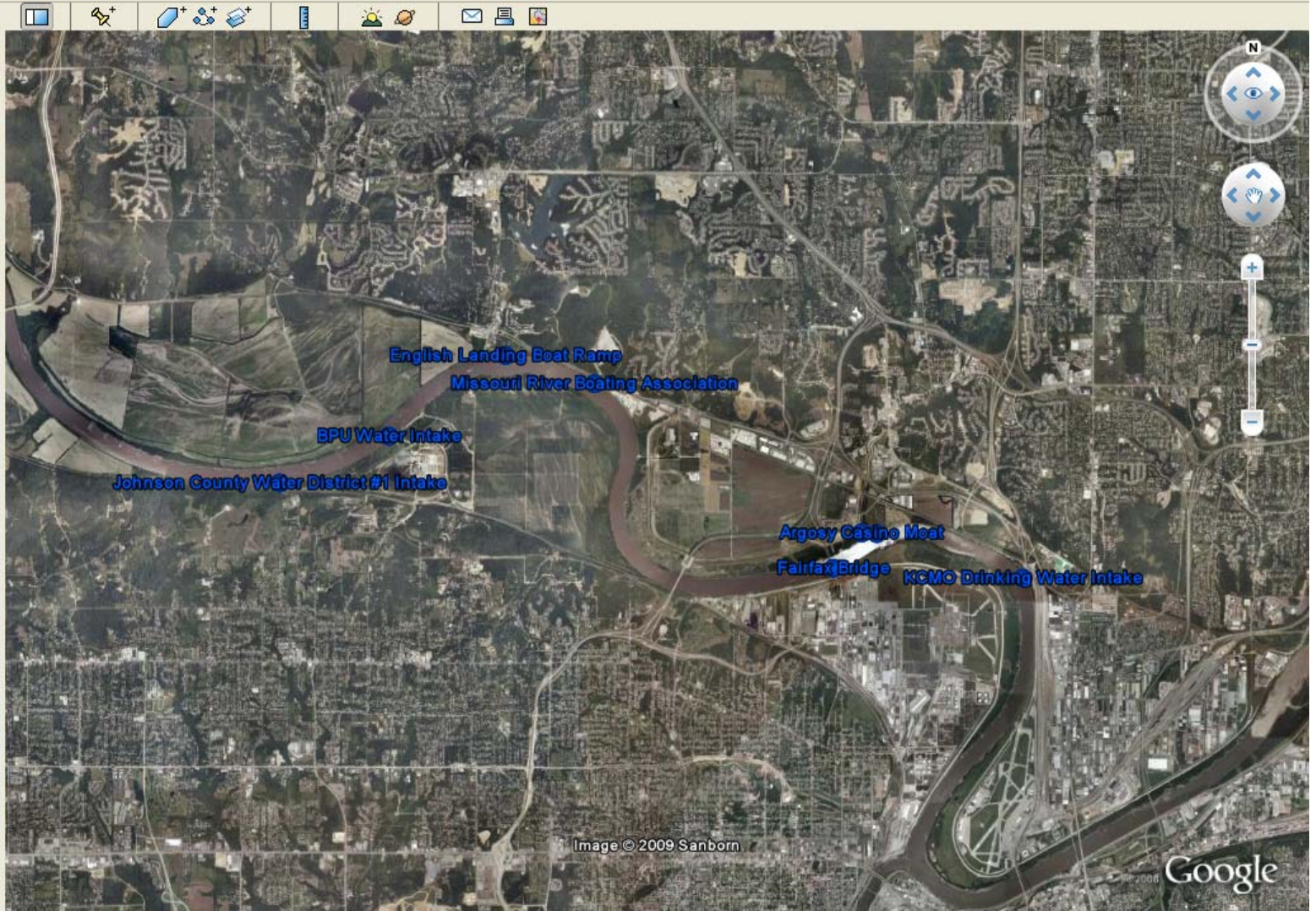


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Google

start

Paul Doherty - Inbo...

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(D:) River Atlases

Google Earth Pro

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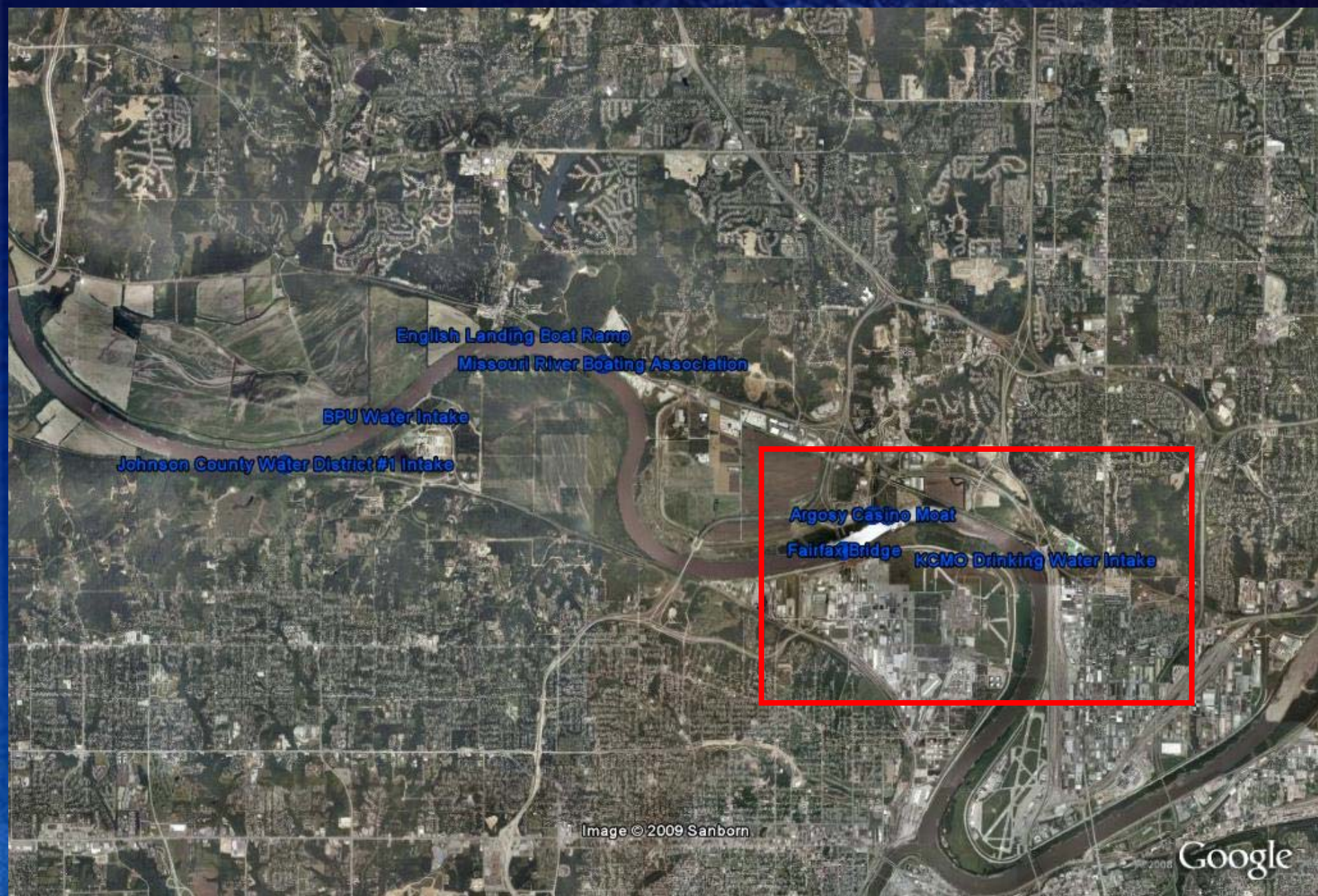
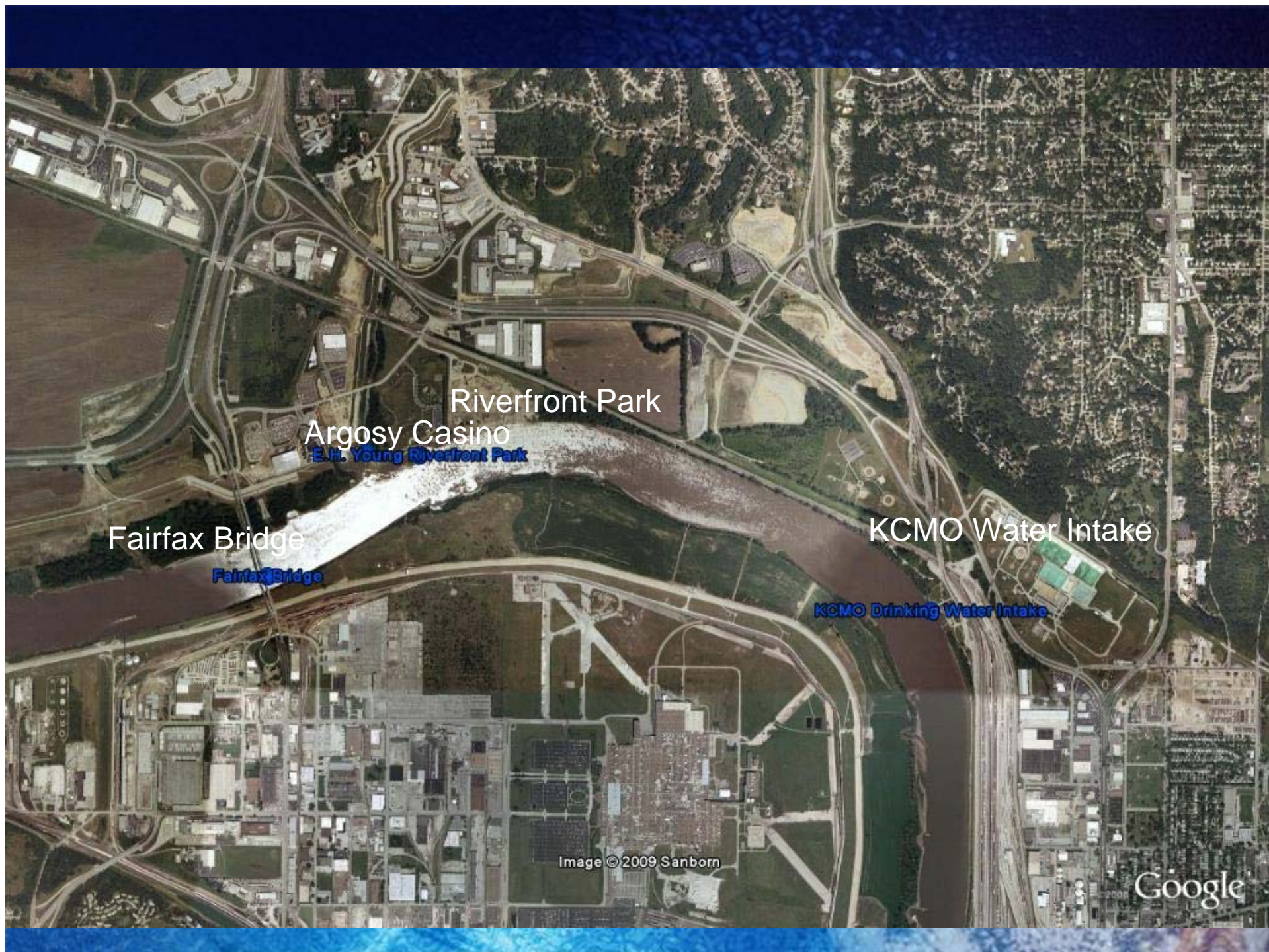


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## Missouri River Sensitivity Atlas

Kansas City to Saint Joseph, Missouri  
(Mile Marker 367 - 455)



|                    |   |
|--------------------|---|
| Response Target:   | KCMU Drinking Water Intake  |
| Latitude:          | 39.154543   |
| Longitude:         | 94.548085   |
| Mile Marker:       | 370.5   |
| Facility Contact:  | Dispatcher  |
| Facility Phone:    | 816-274-1256  |
| Response Strategy: | <a href="http://ftp.tetrattech.com/River_Atlas/MO_KC/Target370-5.pdf">http://ftp.tetrattech.com/River_Atlas/MO_KC/Target370-5.pdf</a> |



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## Missouri River Sensitivity Atlas

Kansas City to Saint Joseph, Missouri  
(Mile Marker 367 - 455)



|                    |   |
|--------------------|---|
| Response Target:   | KCMO Drinking Water Intake  |
| Latitude:          | 39.154543   |
| Longitude:         | -94.589495  |
| Mile Marker:       | 370.5   |
| Facility Contact:  | Dispatcher  |
| Facility Phone:    | 816-274-1256  |
| Response Strategy: | <a href="http://ftp.tetratechstart.com/River_Atlas/MO_KC/Target/370_5.pdf">http://ftp.tetratechstart.com/River_Atlas/MO_KC/Target/370_5.pdf</a> |



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Google Earth Pro

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Fly To Find Businesses Directions

Hypocenter: 37.407230 -112.11716

Places

Add Content

- Temporary Places
- MO River - Kansas to Kan...
- Tile
- Response Considerations
- Response Considerations
- Facility Notes
- Relative Slopes
- Navigation Information
- River Mile Marker
- Exported from River Mile Marker - Kansas City to SL
- River Mile Marker - North Mi...
- East Ramp
- River Bridge
- River Entry
- River Levee
- Missouri River Navigatio...
- EPA Facilities
- Base Map Features
- Water Intake
- National Pipeline Mapping S...
- Coultree



http://clip.letraelectra.com/River\_4.kas/MO\_KC/Target/370\_5.caf

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Common

Places

Layers

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Places

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Layers

Response Strategy  
Kansas City, MO Drinking Water Intake

| Site Name                  | Water Body     | River Mile | Room Length | Strategy  | Land Access | Water Access | River Access Location | Staging Area                     | Contact Phone | Latitude | Longitude |
|----------------------------|----------------|------------|-------------|-----------|-------------|--------------|-----------------------|----------------------------------|---------------|----------|-----------|
| KCMO Drinking Water Intake | Missouri River | 370.5      | 120 Feet    | Exclusion | Yes         | Yes          | Kaw Point             | Parking lot adjacent to facility | 816 274 1266  | 39.16454 | 04.589096 |

http://clip.letraelectra.com/River\_4.kas/MO\_KC/Target/370\_5.caf

start

Paul Doherty - Job...

Essential Presenta...

Local Prescriptions...

MO River Photos

Google Earth Pro

12:21 PM





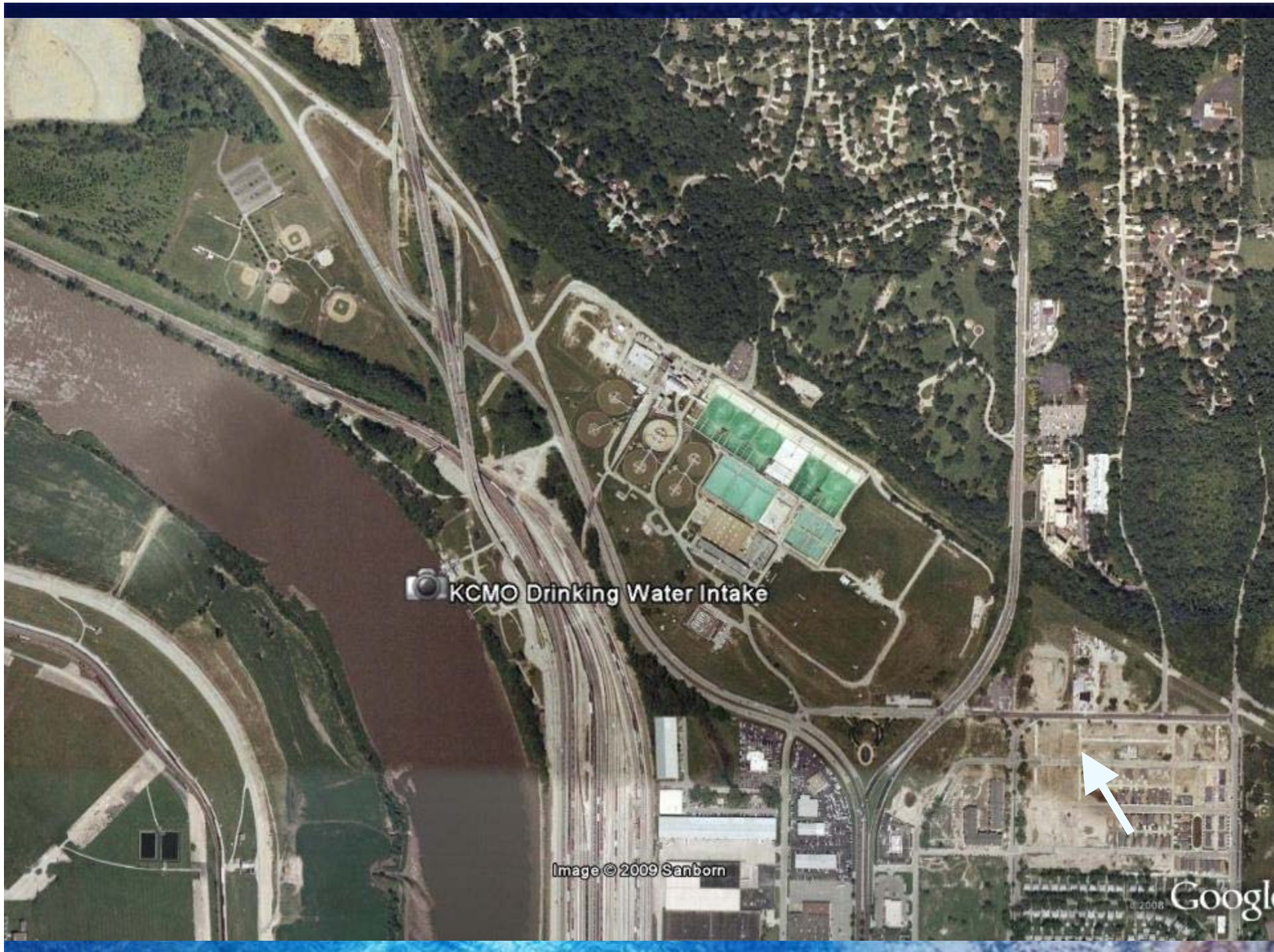













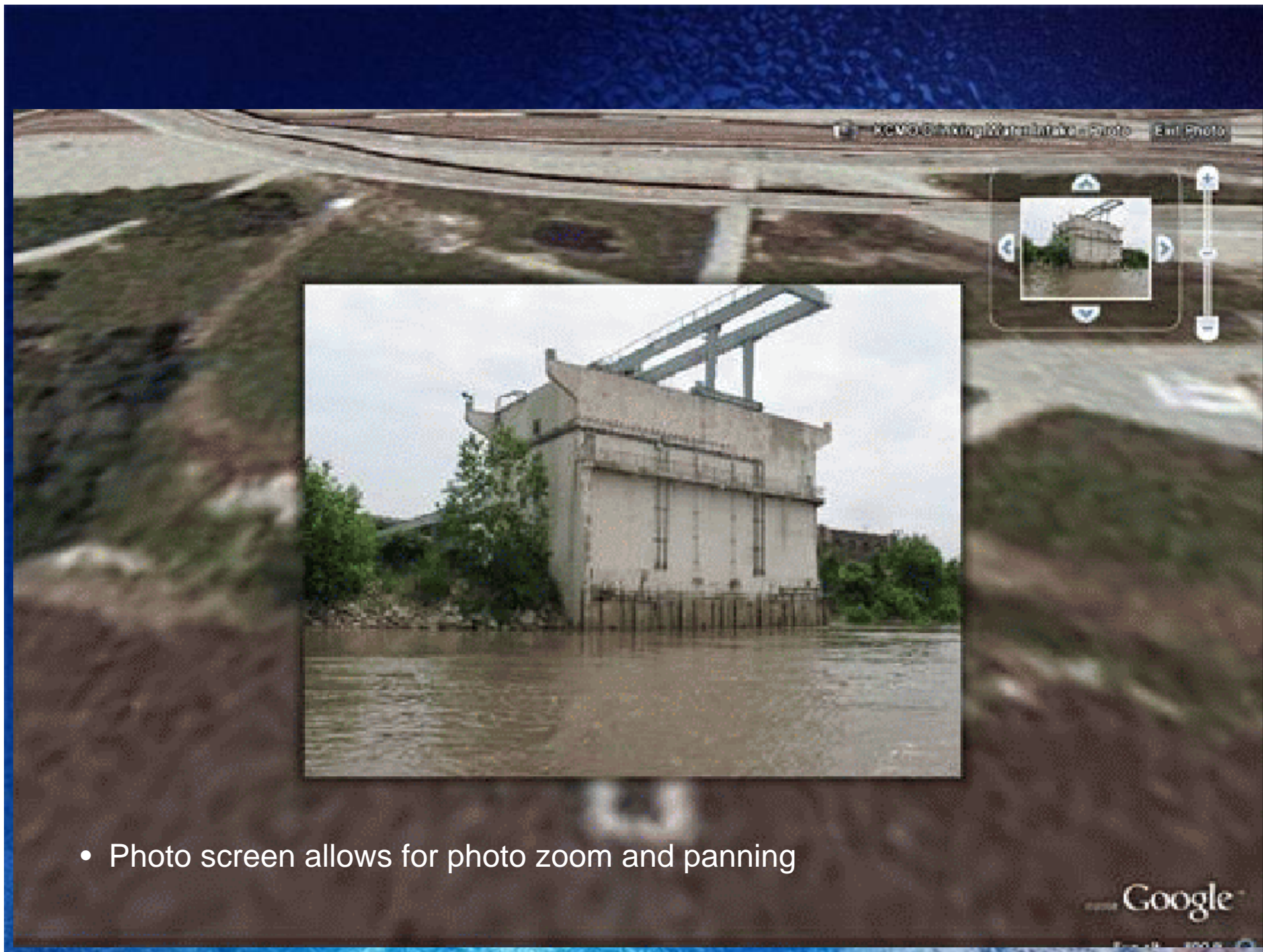
 KCMO Drinking Water Intake

Image © 2009 Sanborn

2008 Google





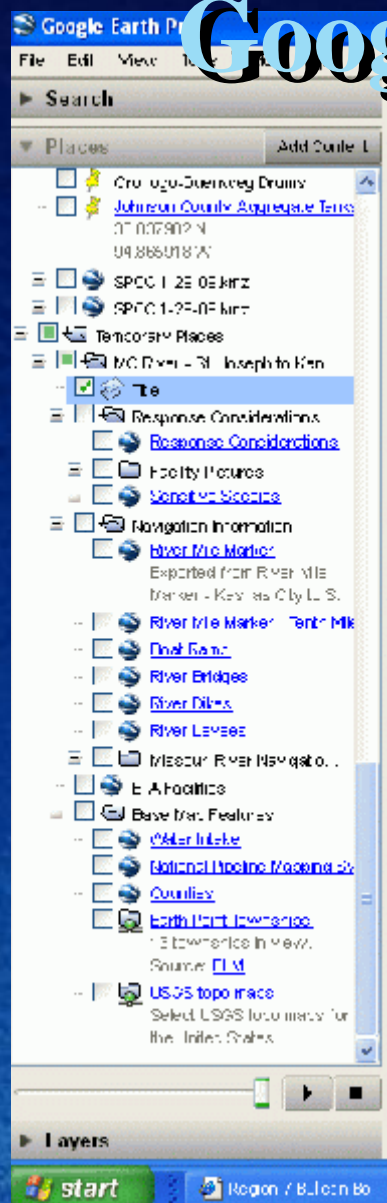
- Photo screen allows for photo zoom and panning







# Google-Earth Layer Pick Lists



• Sensitive Environments

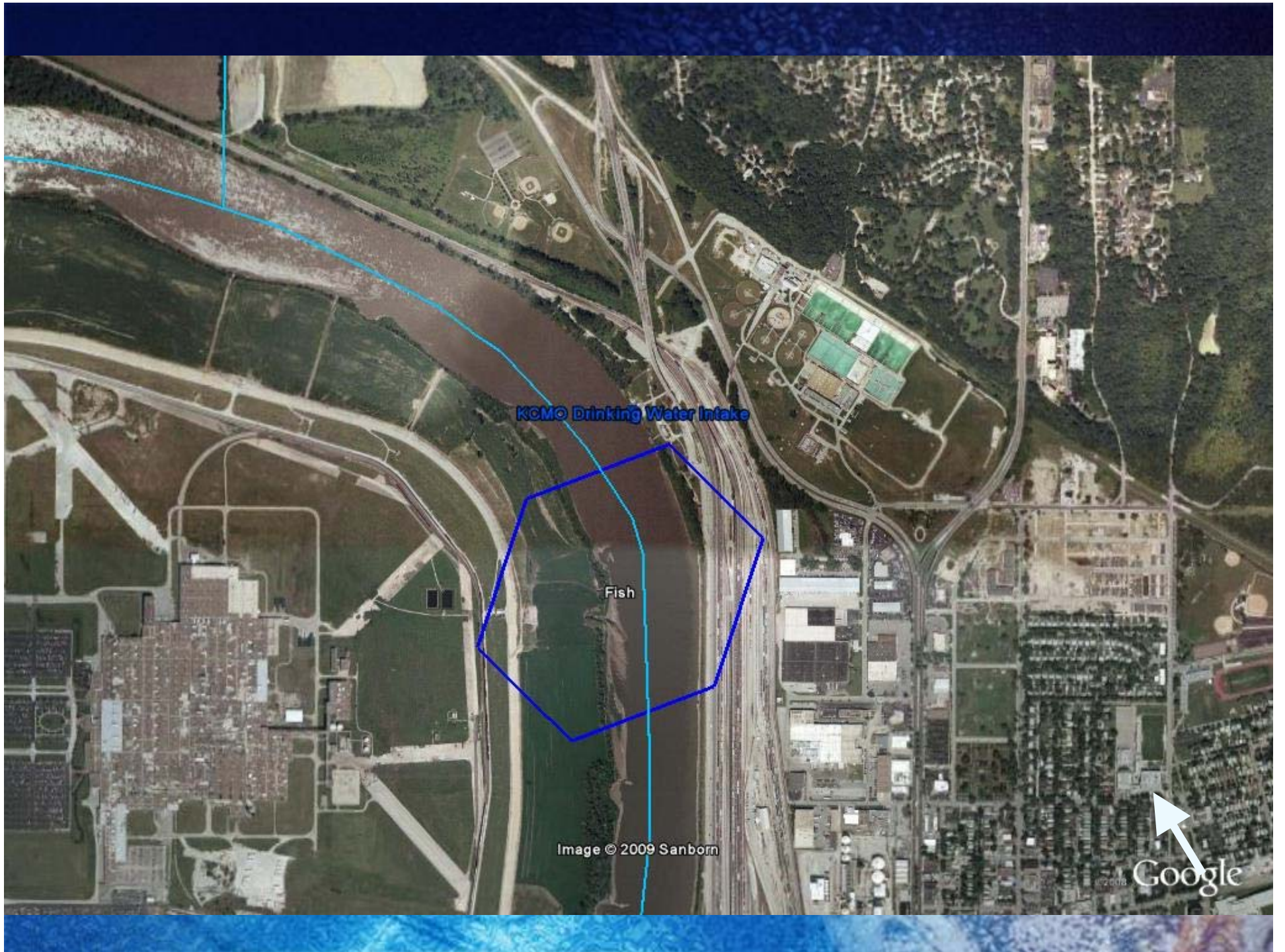


KOMO Drinking Water Intake

Fish

Image © 2009 Sanborn

Google







## Missouri River Sensitivity Atlas

Kansas City to Saint Joseph, Missouri  
(Mile Marker 367 - 455)



|                |                                     |
|----------------|-------------------------------------|
| County:        | CLAY                                |
| State:         | Missouri                            |
| Department:    | Missouri Department of Conservation |
| Title:         | Conservation Agent                  |
| Contact Phone: | 816-903-3322                        |



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KCMO Drinking Water Intake

Fish

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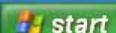
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Search 1 - 20 of 133 records matching [your criteria](#).Results: [Plants/Animals: 133](#) | [Systems: 0](#) | [Associations: 0](#) | [Alliances: 0](#)Show Details: ☒ Yes ☐ No<< [Prev](#) | [Next](#) >>
[Deselect All](#) [Select All](#) [Show Selected Only](#)
[Download Species Data](#) ?

[New Search](#) [Change Criteria](#)
Plant/Animal Records ☒ = Selected for report browsing.

| Selected for Report Download:                                |   |             |        |         |   |   |
|--|---|-------------|--------|---------|---|---|
| Browse<br><input checked="" type="checkbox"/><br>(Unique ID) | Scientific Name<br>Common Name                                  | Status      |        |         | Distribution:<br>United States & Canada   | <br>Image<br>Available |
|  |   | NatureServe | US ESA | COSEWIC |   |   |
| Animals, Invertebrates <i>Crustaceans</i>                    |   |             |        |         |   |   |
| <input checked="" type="checkbox"/><br>2.108637              | <a href="#">Triops longicaudatus</a><br>Longtail Tadpole Shrimp | G5          |        |         | CAN: AB<br>USA: AZ, CA, CO, KS, MO, MT, NE, NM, NV, OR, TX, WY  |                        |
| Animals, Vertebrates <i>Fishes</i>                           |   |             |        |         |   |   |
| <input checked="" type="checkbox"/><br>2.105060              | <a href="#">Polyodon spathula</a><br>Paddlefish                 | G4          |        | XT      | CAN: ON <sup>P</sup><br>USA: AL, AR, IA, IL, IN, KS, KY, LA, MI <sup>P</sup> , MN, MO, MS, MT, NC, ND, NE, NY <sup>P</sup> , OH, OK, PA <sup>P</sup> , SD, TN, TX, VA, WI, WV |                        |
| <input checked="" type="checkbox"/><br>2.106124              | <a href="#">Hybognathus placitus</a><br>Plains Minnow           | G4          |        | C       | CAN: SK<br>USA: AR <sup>P</sup> , CO, IA, IL, KS, KY, MO, MT, ND, NE, NM, OK, SD, TN, TX, UT <sup>P</sup> , WY  |   |
| <input checked="" type="checkbox"/><br>2.106309              | <a href="#">Macrhybopsis gelida</a><br>Sturgeon Chub            | G3          |        |         | USA: AR, IA, IL, KS, KY, MO, MT, ND, NE, SD, TN, WY   |   |
| <input checked="" type="checkbox"/><br>2.101978              | <a href="#">Macrhybopsis meeki</a><br>Sicklefin Chub            | G3          |        |         | USA: AR, IA, IL, KS, KY, MO, MT, ND, NE, SD, TN   |   |
| <input checked="" type="checkbox"/><br>2.101653              | <a href="#">Macrhybopsis storeriana</a><br>Silver Chub          | G5          |        | SC      | CAN: MB, ON<br>USA: AL, AR, GA, IA, IL, IN, KS, KY, LA, MI, MN, MO, MS, ND, NE, NY, OH, OK, PA, SD, TN, TX, WI, WV  |   |
| <input checked="" type="checkbox"/><br>2.104871              | <a href="#">Notropis buchanaui</a><br>Ghost Shiner              | G5          |        | NAR     | CAN: ON<br>USA: AL, AR, IA, IL, IN, KS, KY, LA, MN, MO, MS, OH, OK, PA, TN, TX, WI <sup>P</sup> , WV  |   |
| <input checked="" type="checkbox"/><br>2.105832              | <a href="#">Platygobio gracilis</a><br>Flathead Chub            | G5          |        |         | CAN: AB, BC, MB, NT, SK<br>USA: AR, CO, IA, IL <sup>P</sup> , KS, KY, MO, MS, MT, ND, NE, NM, OK, SD, TN, TX, WY  |   |
| <input checked="" type="checkbox"/><br>2.100992              | <a href="#">Cycleptus elongatus</a><br>Blue Sucker              | G3G4        |        |         | USA: AL, AR, IA, IL, IN, KS, KY, LA, MN, MO, MS, MT, ND, NE, NM, OH, OK, PA, SD, TN, TX, WI, WV   |   |

Internet



RE: St. Joe At...

2 Adobe Re...

Corel Present...

Microsoft Pow...

Google Earth Pro

3 Internet E...

8:33 AM





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*Polyodon spathula* - (Walbaum, 1792)

paddlefish

**Unique Identifier:** ELEMENT\_GLOEAL2.106060

**Element Code:** AFCAB01C10

**Informal Taxonomy:** Animals, Vertebrates - Fishes - Long - fishes - Other Long Fishes



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| Kingdom  | Phylum   | Class          | Order            | Family        | Genus    |
|----------|----------|----------------|------------------|---------------|----------|
| Animalia | Chordata | Actinopterygii | Acipenseriformes | Polyodontidae | Polyodon |

Genus Size: A - Monotypic genus

Check this box to expand all report sections: ☒

#### Concept Reference

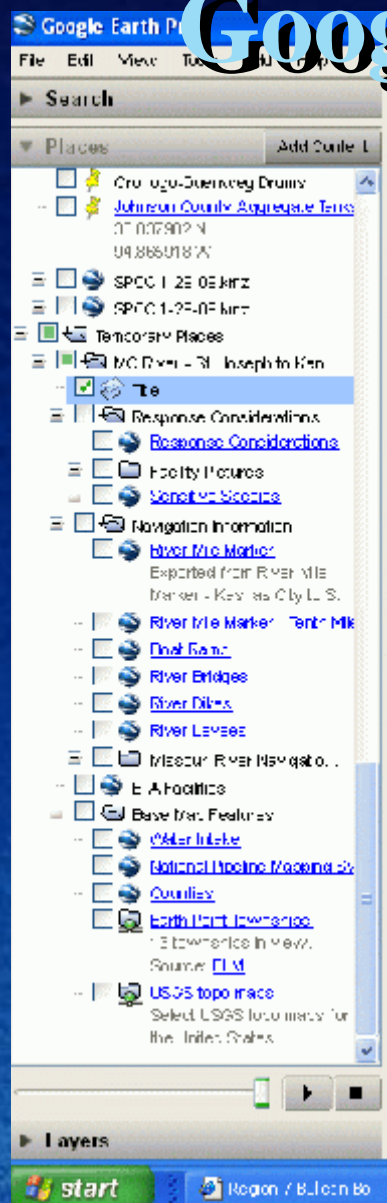
**Concept Reference:** Robins, C.P., J.M. Bailey, J.E. Bond, J.R. Brooker, E.A. Lachner, R.N. Lea, and W.B. Scott. 1991. Common and scientific names of fishes from the United States and Canada. American Fisheries Society Special Publishing 23. 183 pp.

**Concept Reference Code:** B91F0B01NALS

**Name Used In Concept Reference:** *Polyodon spathula*



# Google-Earth Layer Pick Lists



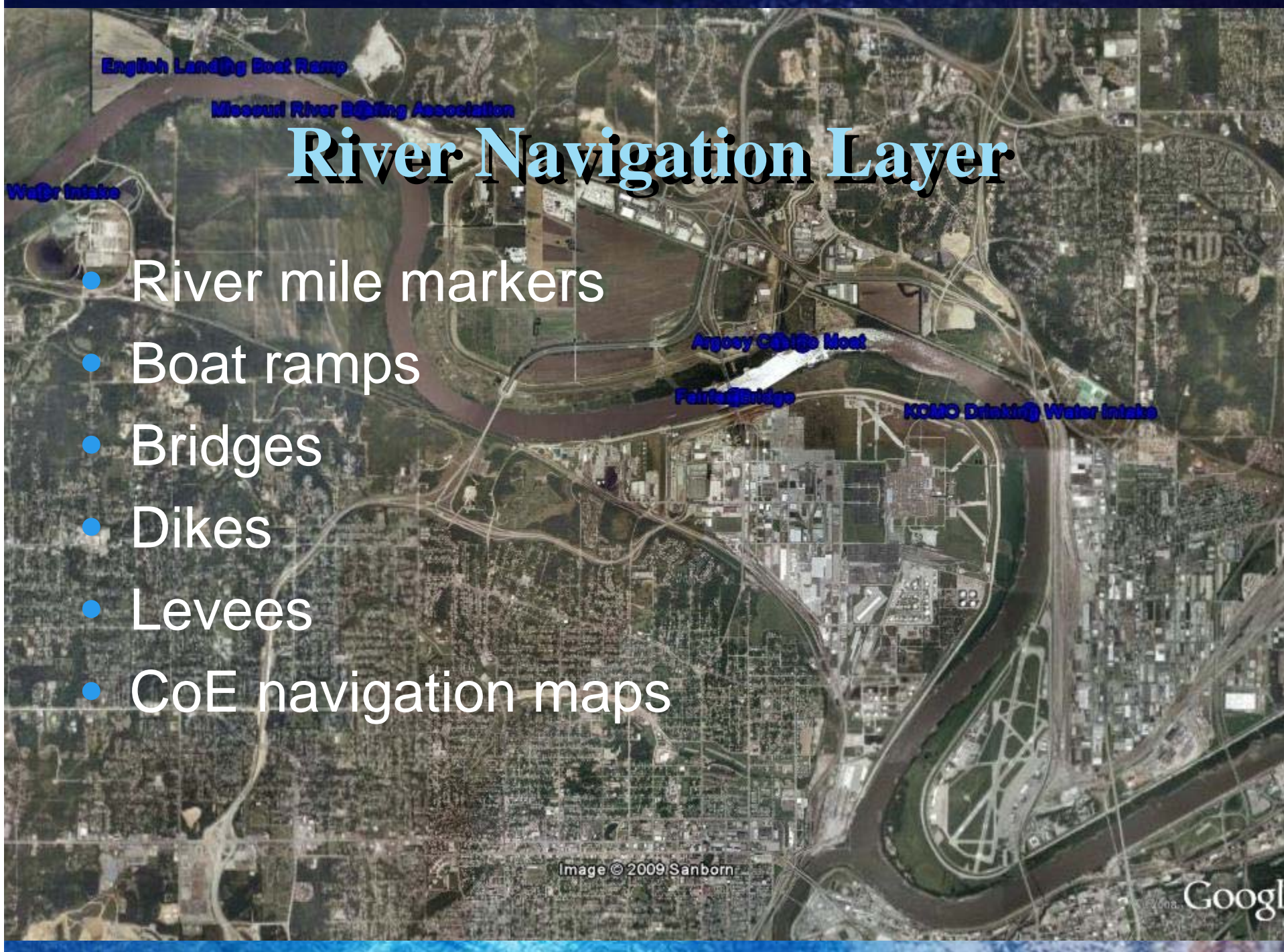
- Navigation Information





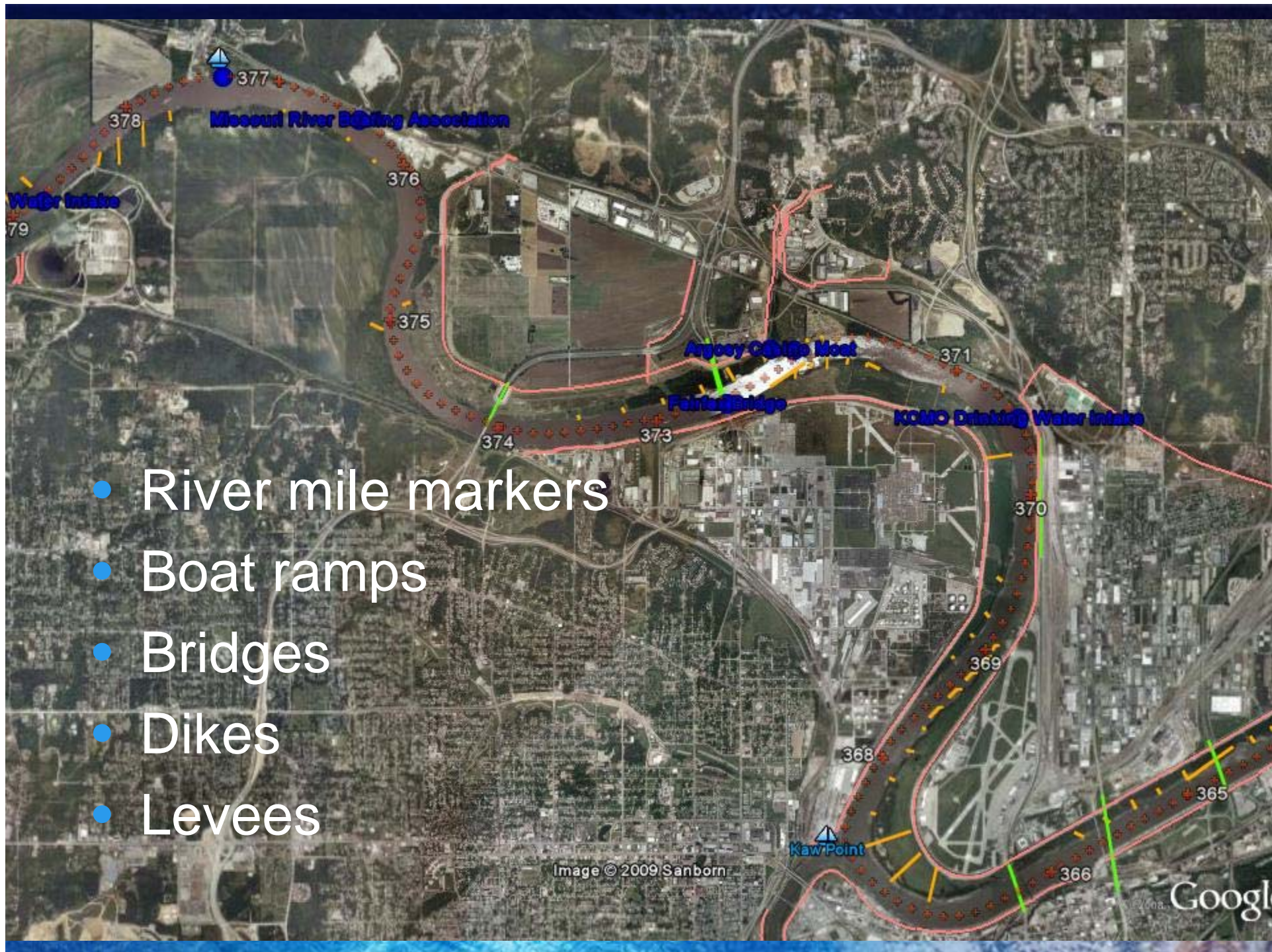
# River Navigation Layer

- River mile markers
- Boat ramps
- Bridges
- Dikes
- Levees
- CoE navigation maps

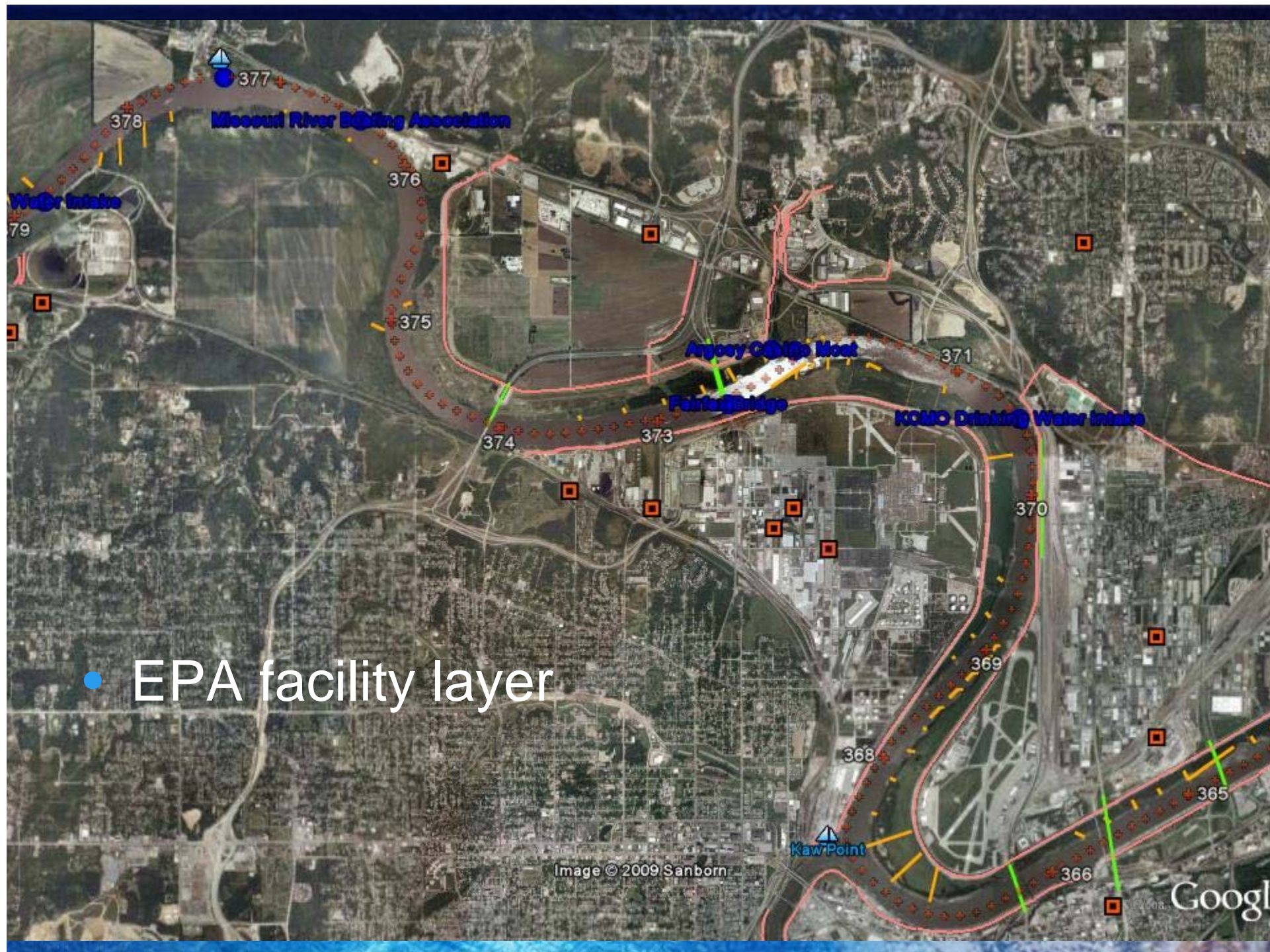




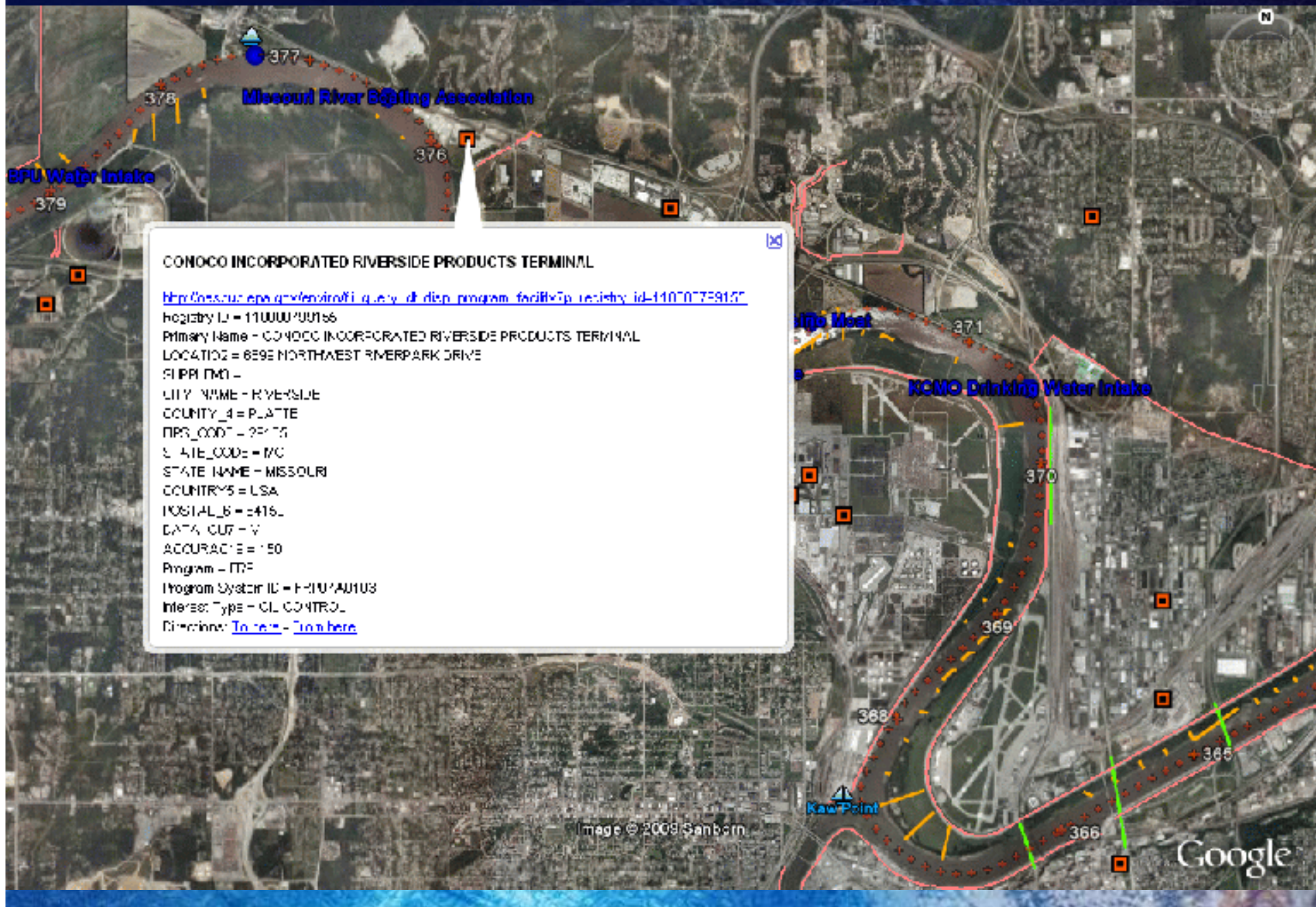
- River mile markers
- Boat ramps
- Bridges
- Dikes
- Levees















- CoE navigation maps











# Other Base Map Features

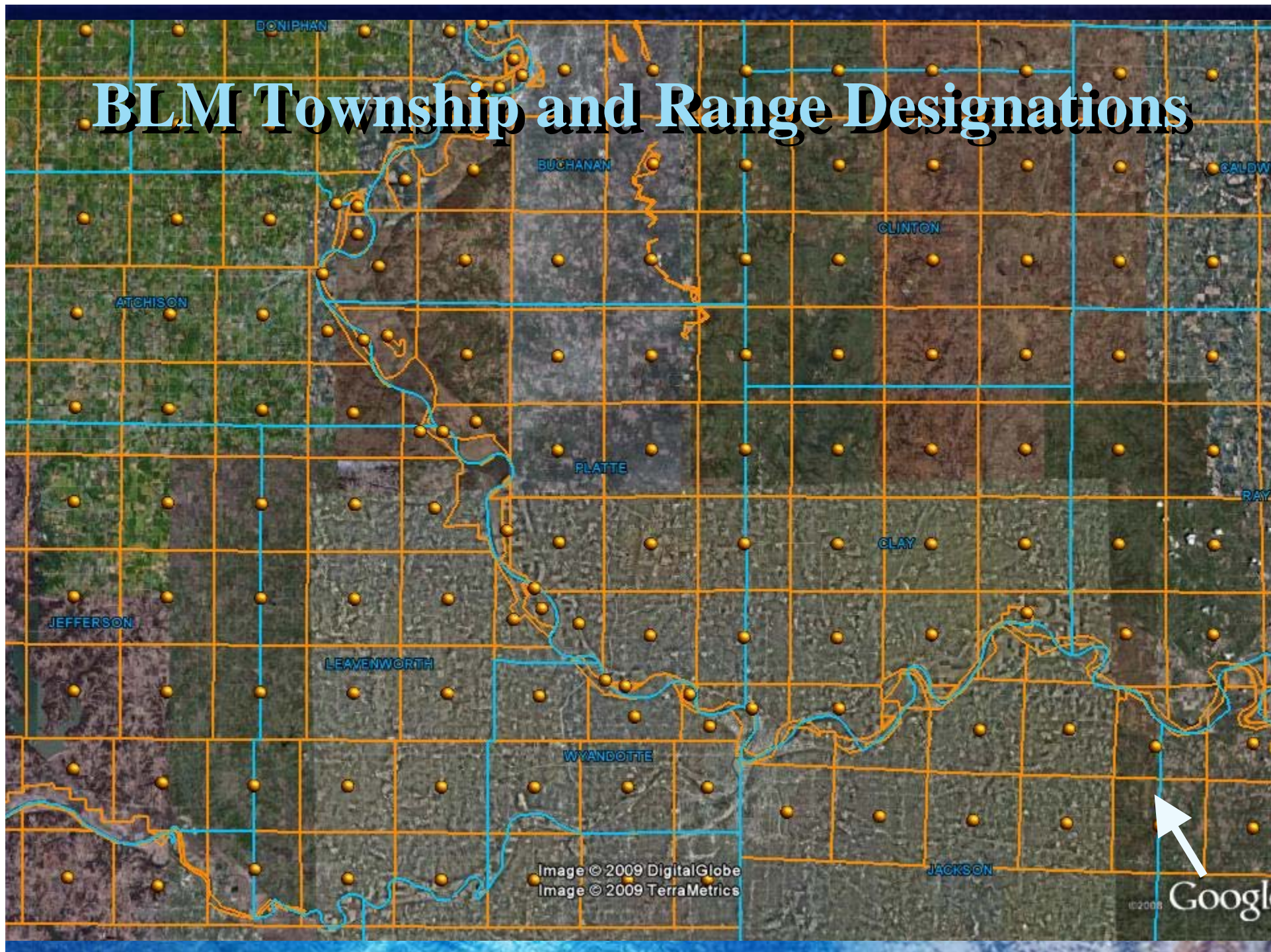
- County boundaries
- BLM township/range
- National Pipeline Mapping System
- USGS Topo layer

Image © 2009 DigitalGlobe  
Image © 2009 TerraMetrics

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# BLM Township and Range Designations





# BLM Township and Range Designations

**Township** T01NR04W  
**Meridian** Fifth  
**State** Missouri  
**Source** [USFS](#)

**Calculated Values**  
**Acres** 21,745  
**Centroid** 39.2230227, -94.7153251  
**Corners** NW 39.2639744, -94.7705366  
NE 39.2673957, -94.6567508  
SE 39.1616471, -94.6595708

For illustration only. User to verify all information  
[www.earthpoint.us](http://www.earthpoint.us)

Image © 2009 DigitalGlobe  
Image © 2009 TerraMetrics

EarthGoogle

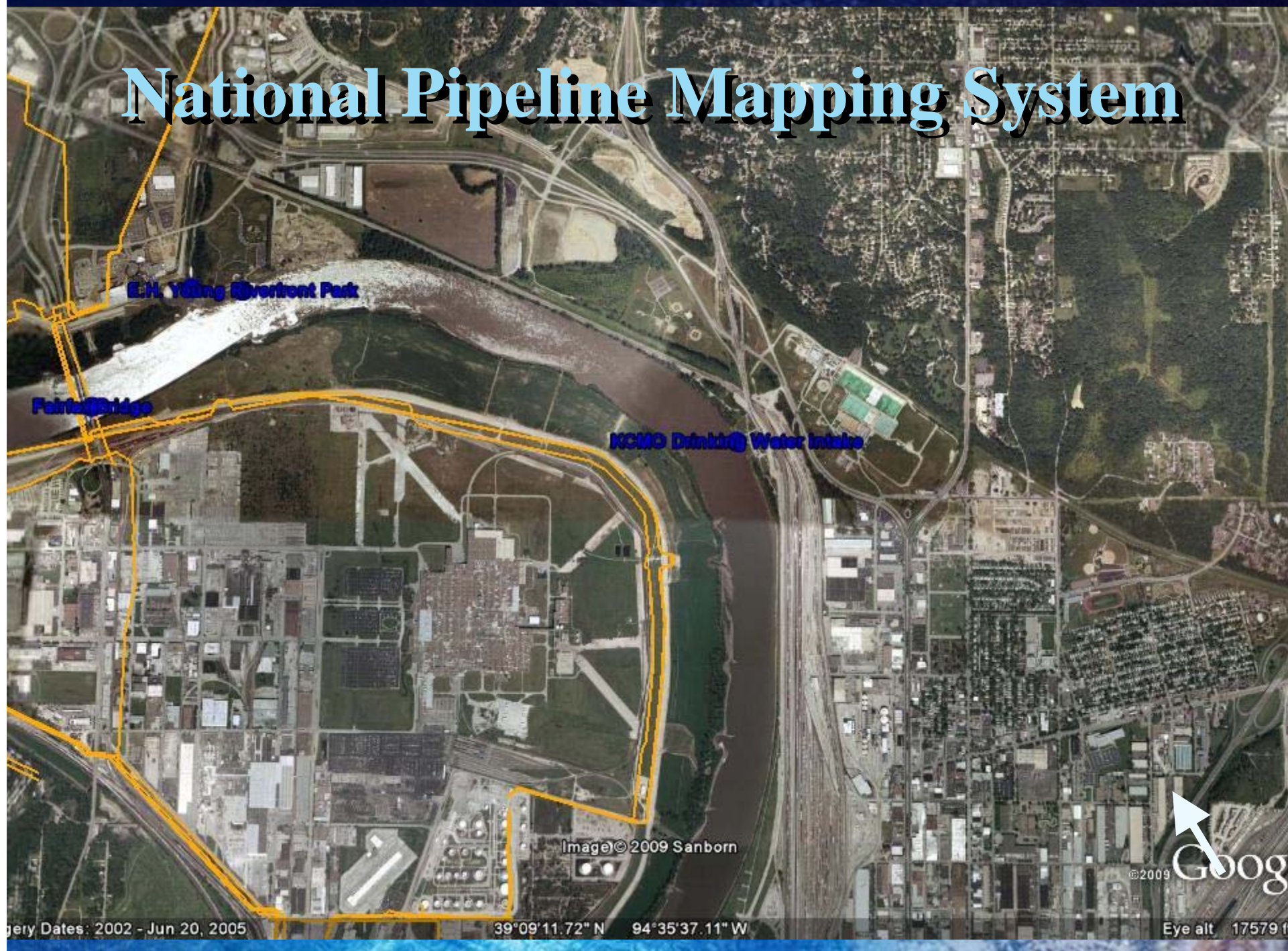


# National Pipeline Mapping System





# National Pipeline Mapping System





# National Pipeline Mapping System

- Operator Name
- System Name
- Commodity
- Pipeline ID
- Diameter
- Length
- Emergency Contact Phone Number



## Missouri River Sensitivity Atlas

Kansas City to Saint Joseph, Missouri  
(Mile Marker 367 - 455)



|                  |                                |
|------------------|--------------------------------|
| Operator Name:   | MAGELLAN PIPELINE COMPANY, LLC |
| System Name:     | MAGELLAN PIPE LINE             |
| Commodity:       | PRD                            |
| Commodity Desc.: | PRODUCT                        |
| Pipeline ID:     | 6225                           |
| Diameter:        | 0                              |
| Length (miles):  | 1,485.46                       |
| Contact Phone:   | 800-720-2417                   |



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Image Dates: 2002 - Jun 20, 2005

39°09'11.72" N 94°35'37.11" W

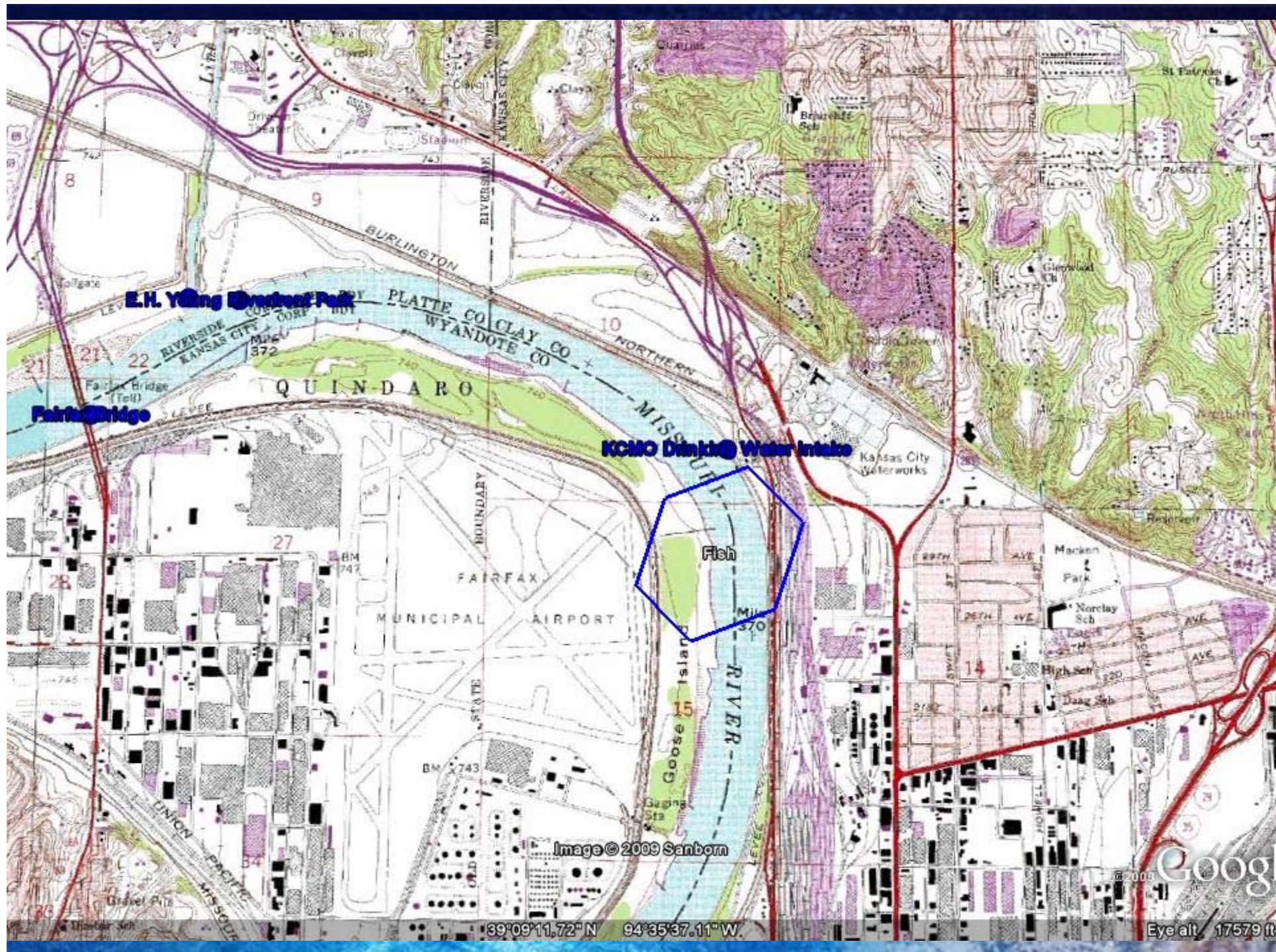
Eye alt 17579 ft



# USGS TOPO Overlay

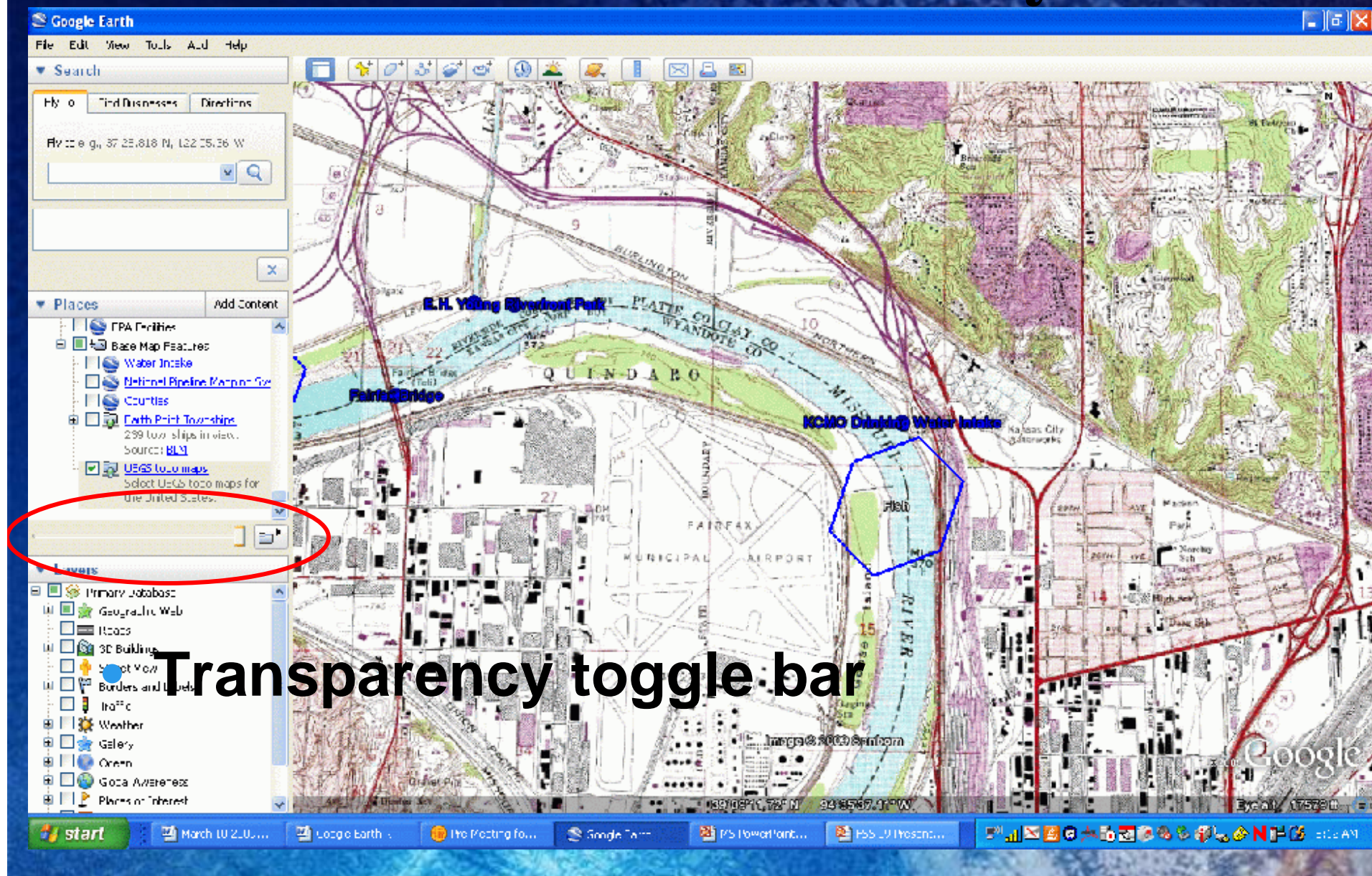






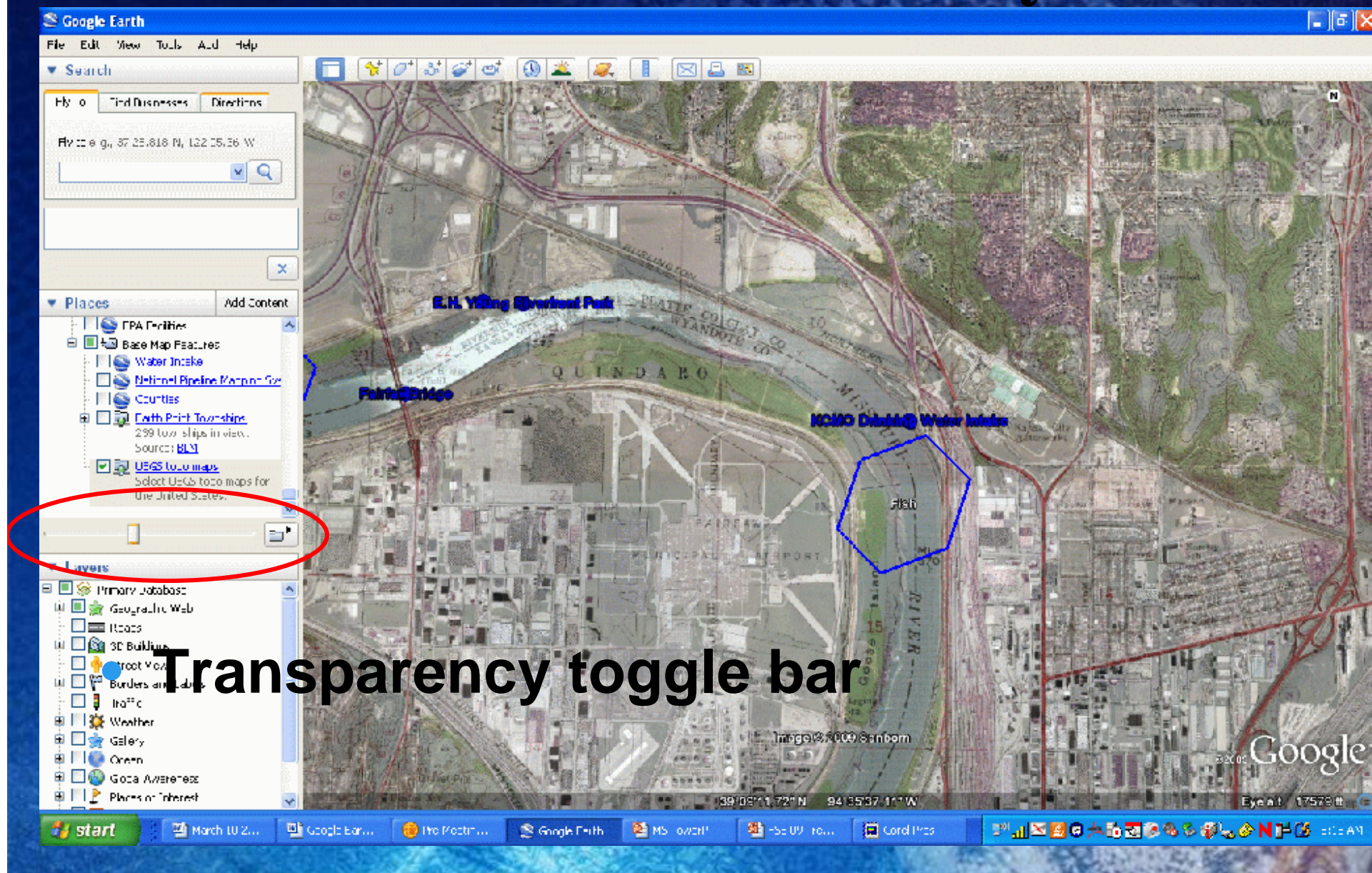


# USGS TOPO Overlay





# USGS TOPO Overlay





# USGS TOPO Overlay





A satellite image of the Earth showing North America, the Atlantic Ocean, and parts of Europe and Africa. The text "THE END" is overlaid in large, blue, outlined letters across the center of the image.

# THE END

Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
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