



WHAT IS GIS?

GIS



G = Geographic

I = Information

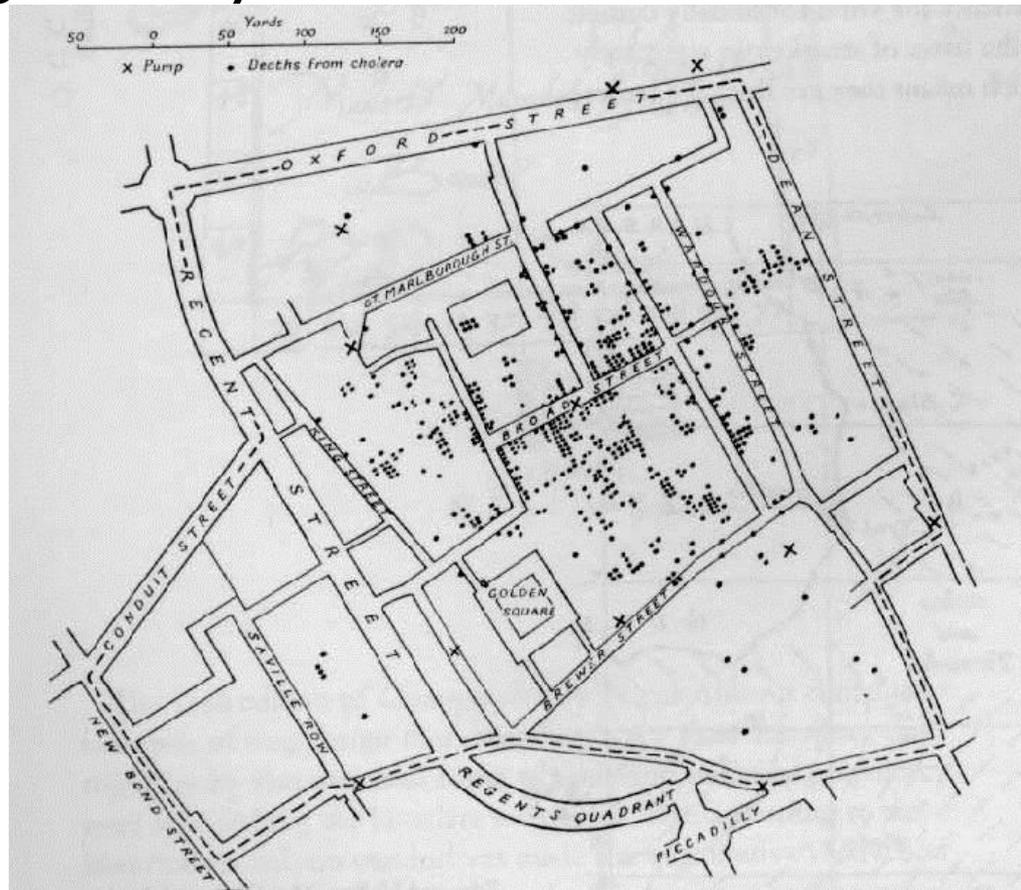
S = Systems, Sc (Science)

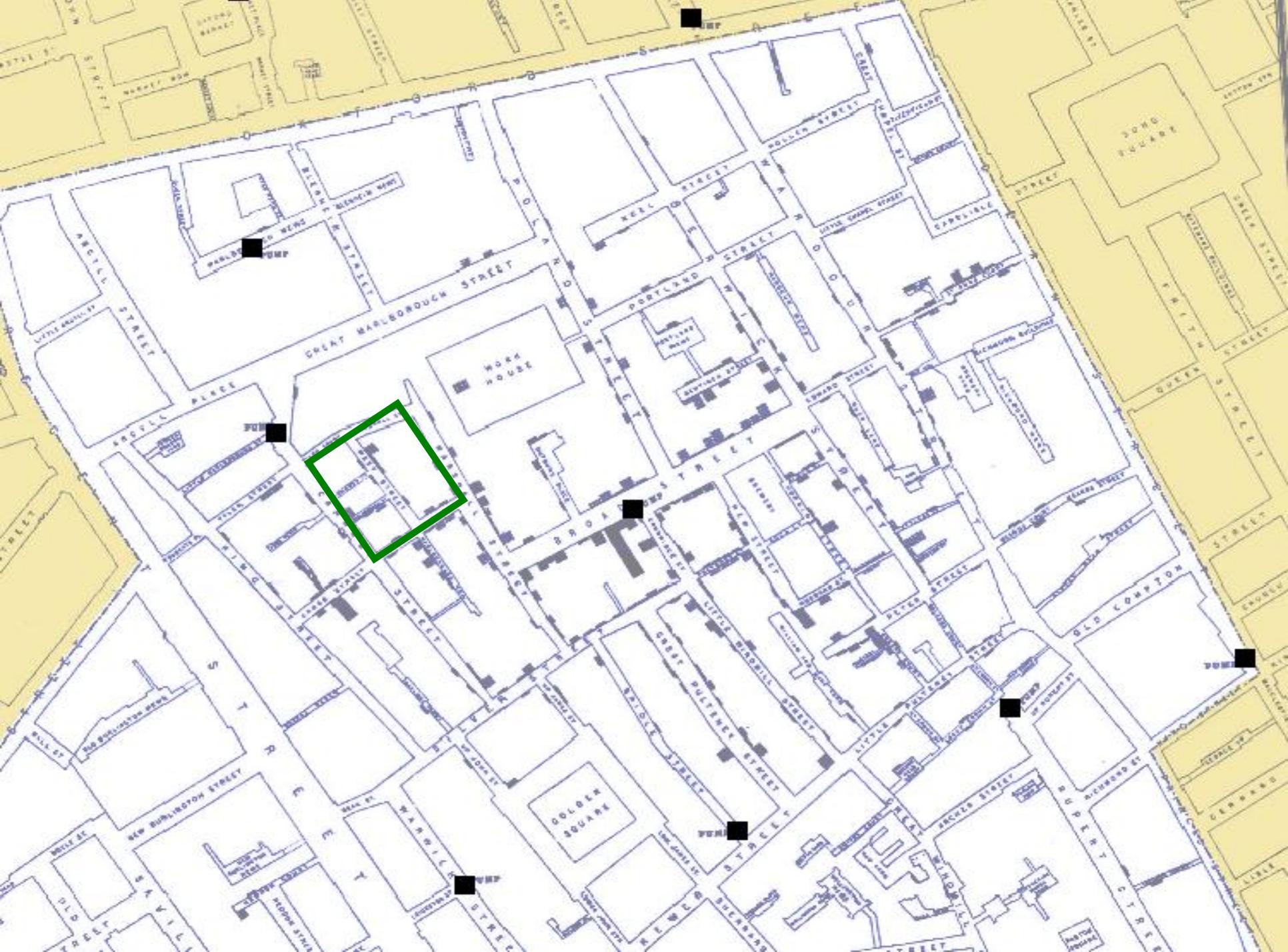


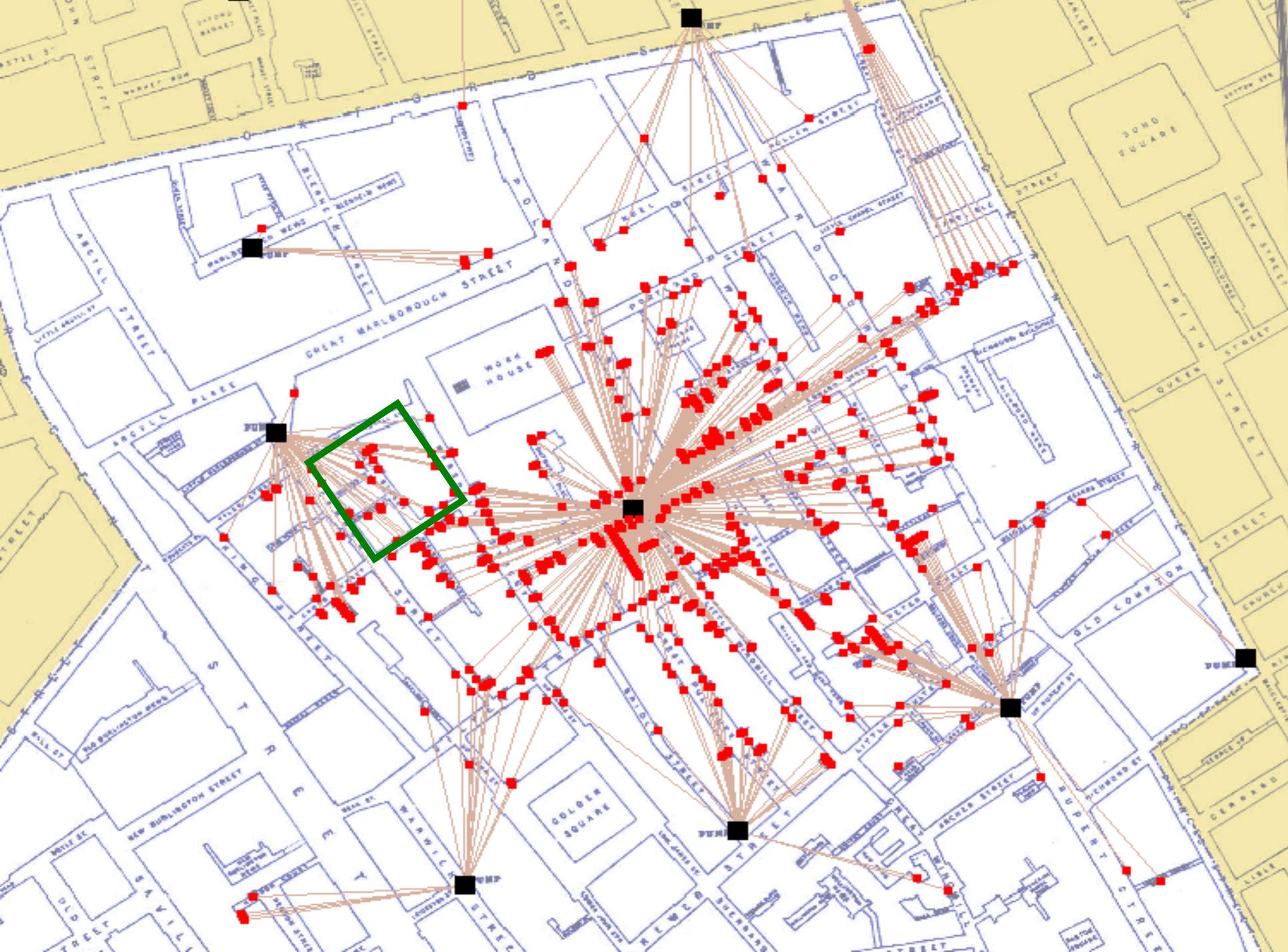
The First GIS Analysis

Linked information reveals patterns...

- 1854 Cholera Outbreak – Soho District, London.
Investigated by Dr. John Snow.







Video: Geospatial Revolution
(Episode 1)



Defining GIS



“Asking what GIS is about is sort of like asking ‘what is a computer about?’ The capabilities of GIS are so broad and its uses so pervasive in society, geography, and the technical world in general that a short, meaningful description is impossible.”

- Prof. Michael Kennedy (University of Kentucky) 2006



“Geographic Information Systems are **tools** that allow for the processing of **spatial data into information**, generally information tied explicitly to, and used to make decisions about, some portion of the **earth**... Like the field of geography itself, the term is difficult to define and represents the **integration** of many subject areas.”

- Prof. Michael DeMers (New Mexico State University) 2005



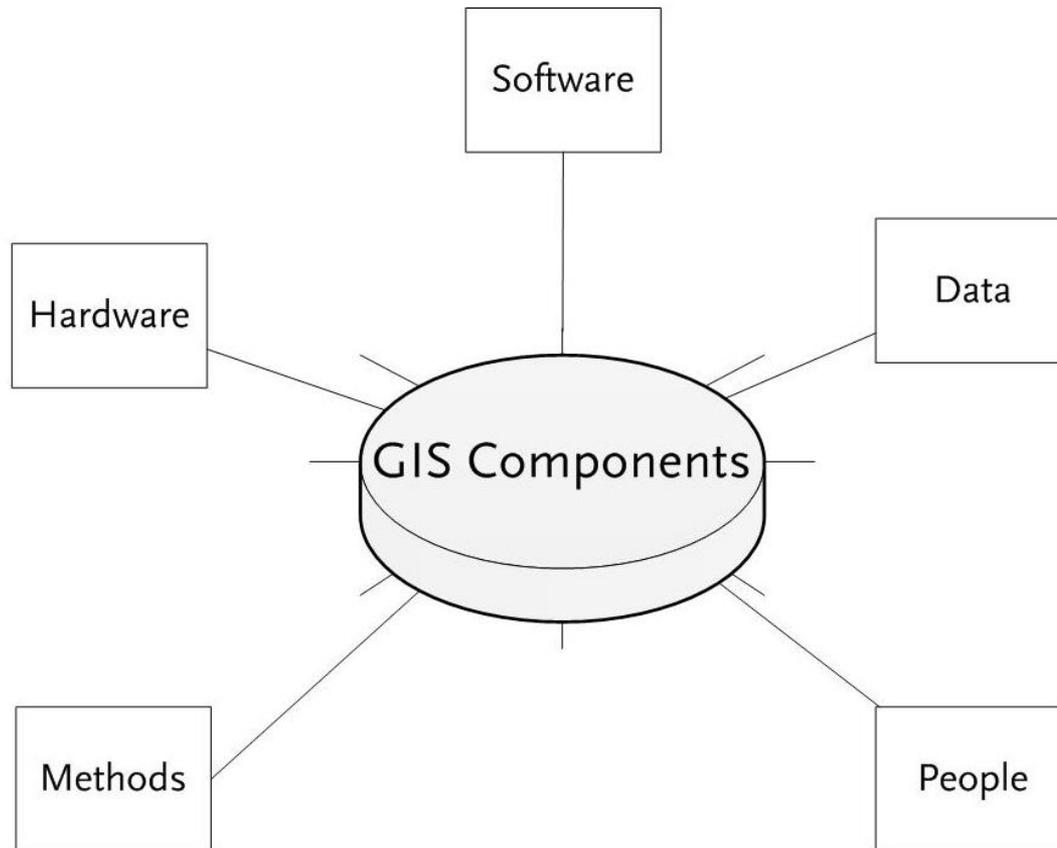
“....a **computer-based** system to aid in the **collection, maintenance, storage, analysis, output,** and **distribution** of spatial data and information”

- Prof. Paul Bolstad (University of Minnesota) 2005



Components of GIS

Integration





How does it work?

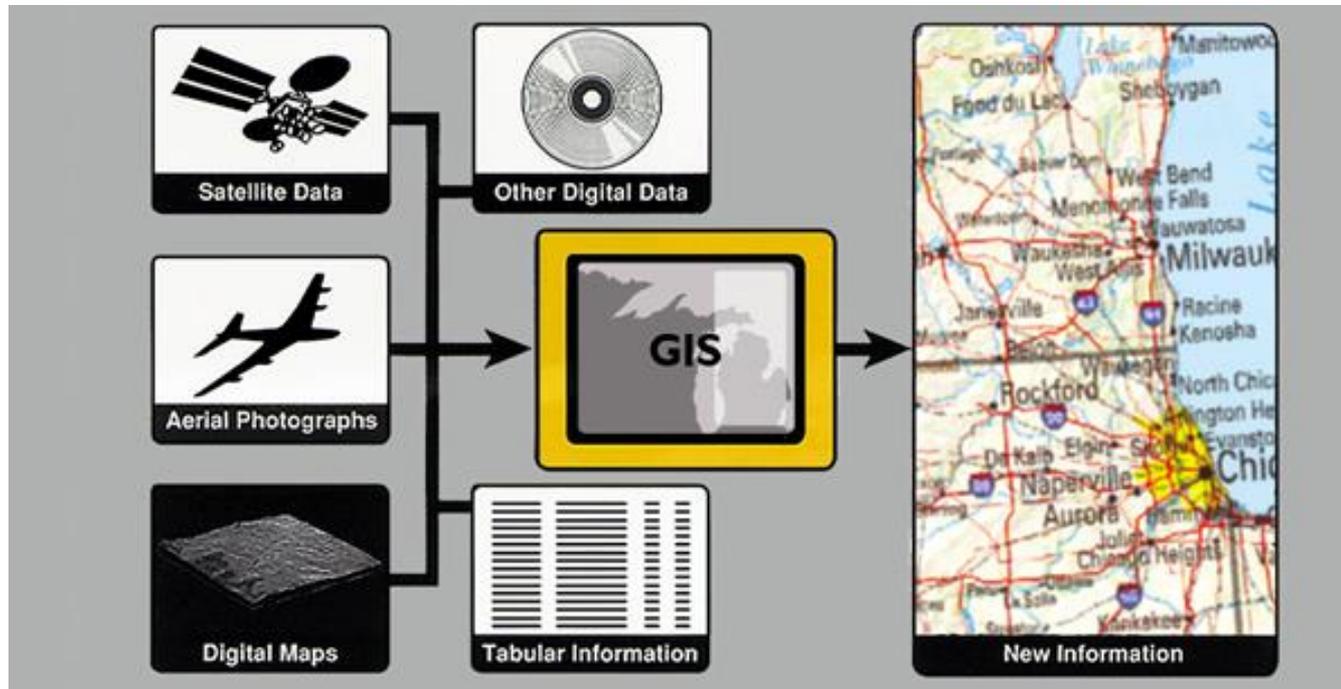
Attributes

A	B	C	D	E
OBJECTID	AREA	STATE_ID	RNO	OWNER1
81595	21500.00000	1N1E33AC 10400	R180225720	GEBA LLC
81601	20000.00000	1N1E33AC 5400	R180214130	METRO HOLDINGS WEST VII LLC
87783	10000.00000	1N1E33DB 3500	R180214930	1740 BUILDING LLC
87784	5992.00000	1N1E33DB 3900	R180213100	CHOWN EAST LLC
87790	20000.00000	1N1E33DA 2100	R180208210	300 NW 14TH AVENUE LLC
88009	5000.00000	1N1E33DB 90000	R862900010	VICTORIAN HOUSE CONDOMINIUM UN
88010	5000.00000	1N1E33DB 4000	R180213080	THE GOODMAN-DEUTSCH FAMILY LIM
88496	5000.00000	1N1E33CA 13900	R452304770	ALLENFORD INVEST LLC
88497	5633.00000	1N1E33CA 14000	R452304690	DONNELLY,MICHAEL J TR
88498	200.00000	1N1E33CA 14200	R452304760	DONNELLY,MICHAEL J TR
88499	3000.00000	1N1E33CA 14300	R452304680	THE EVERETT LLC
88500	3750.00000	1N1E33CA 14400	R452304670	NELSON,THOMAS E &
88501	5013.00000	1N1E33DB 9100	R180227100	NAGAPPAN,OLLIE &
88502	5006.00000	1N1E33DB 9000	R180226940	HOLMES,HELEN C EST OF-2/3 &
88503	5007.00000	1N1E33DB 8900	R180226920	CURRIN,MARY L
88504	52021.00000	1N1E33DB 7700	R180226860	TRINITY EPISCOPAL
88506	20000.00000	1N1E33DB 4800	R180215490	TRINITY EPISCOPAL
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88510	40000.00000	1N1E33DB 4600	R180215030	ST MARY CATHOLIC CATHEDRAL
88512	5000.00000	1N1E33DB 4500	R180213060	MALONE,JAMES T
88513	5000.00000	1N1E33DB 4400	R180213040	BARKLEN LLC

Geographic Features

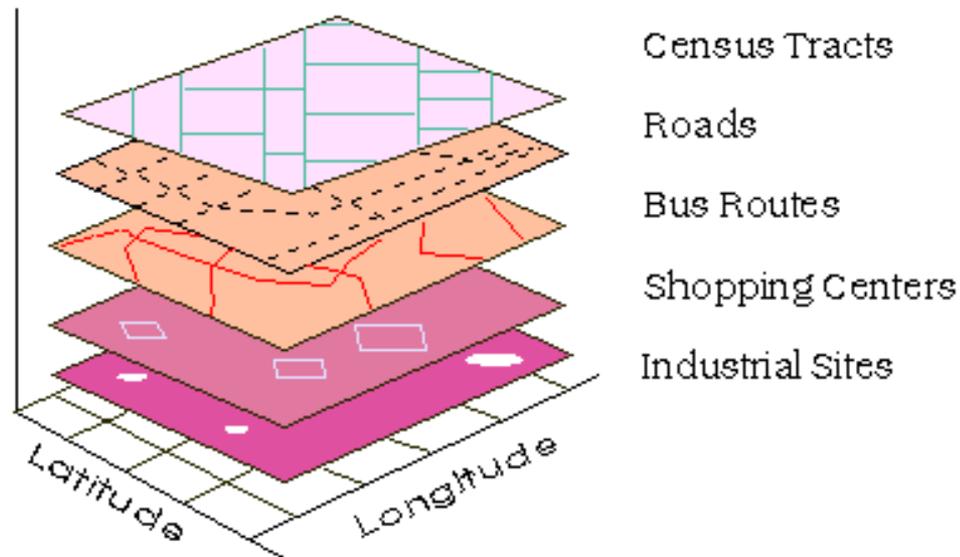


Data Integration



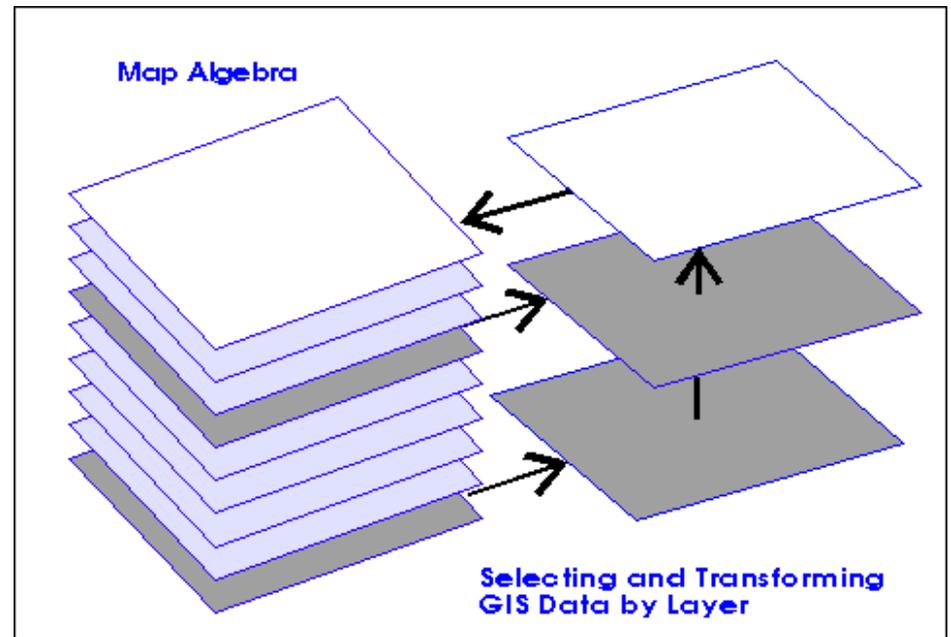
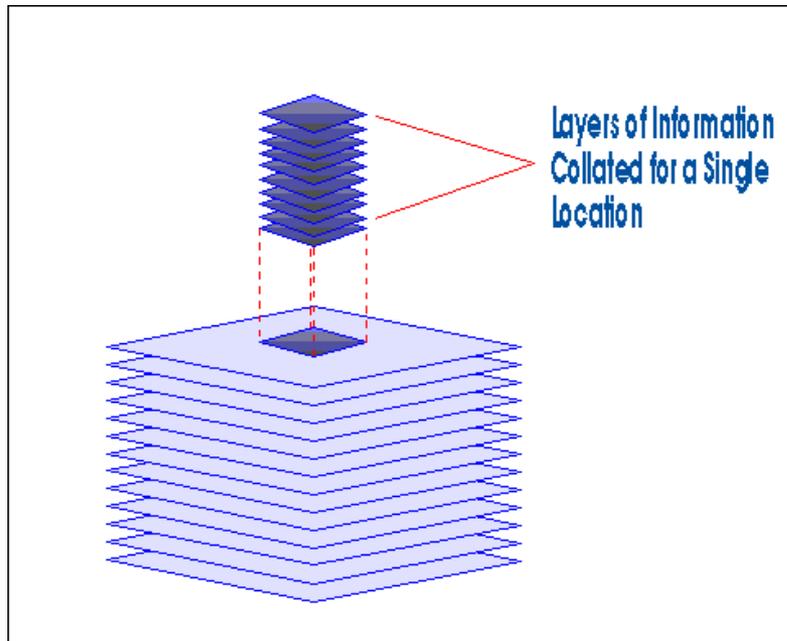
Layers of Data

- Displays information as layers with a common location reference system



Data Analysis

- Different layers can be compared and analyzed



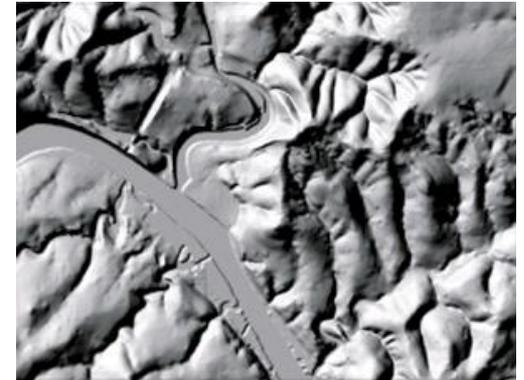
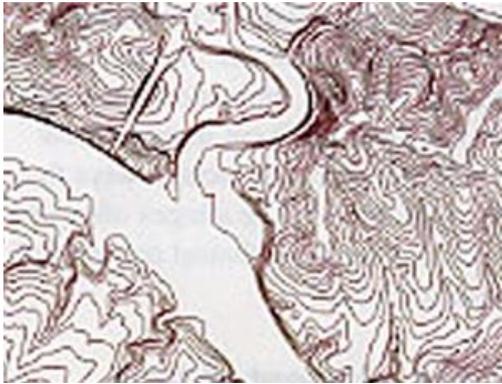


Main Functions of GIS

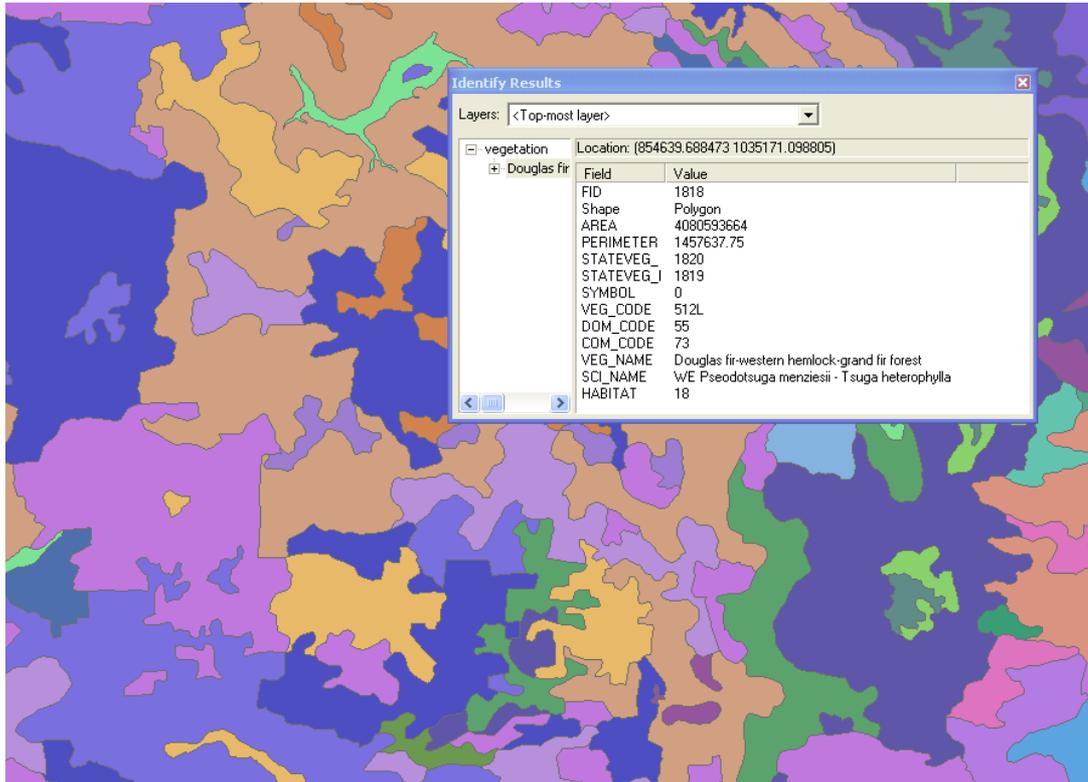
What can you do with GIS?

- Capture data
- Store data
- Query data
- Analyze data
- Display information
- Create data visualization

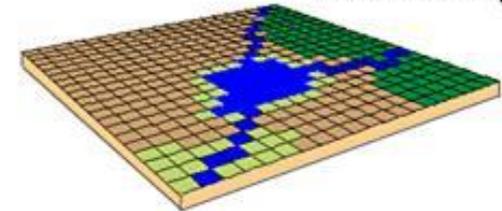
Capture data



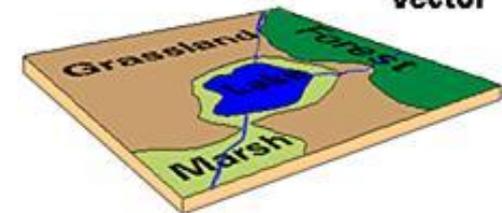
Store data



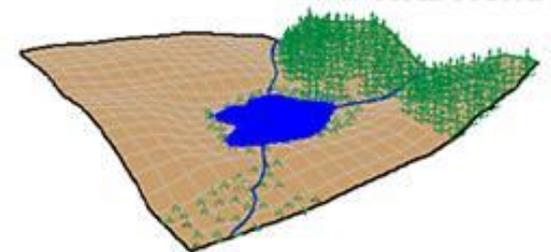
Raster / Image



Vector



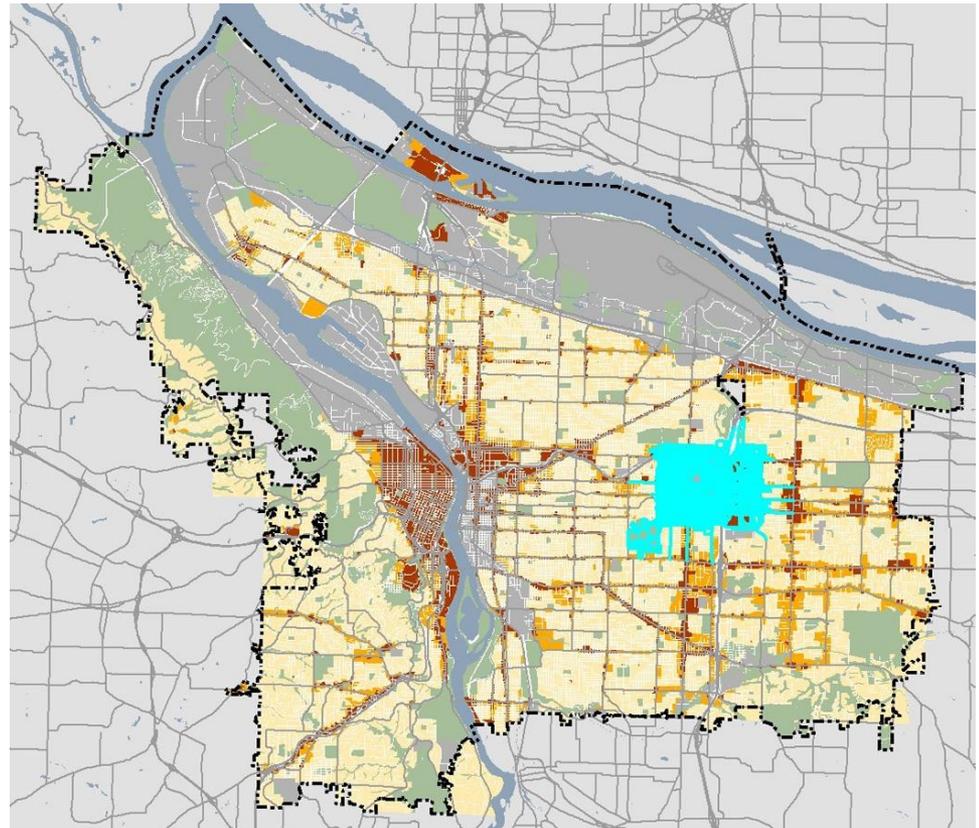
Real World



Query data

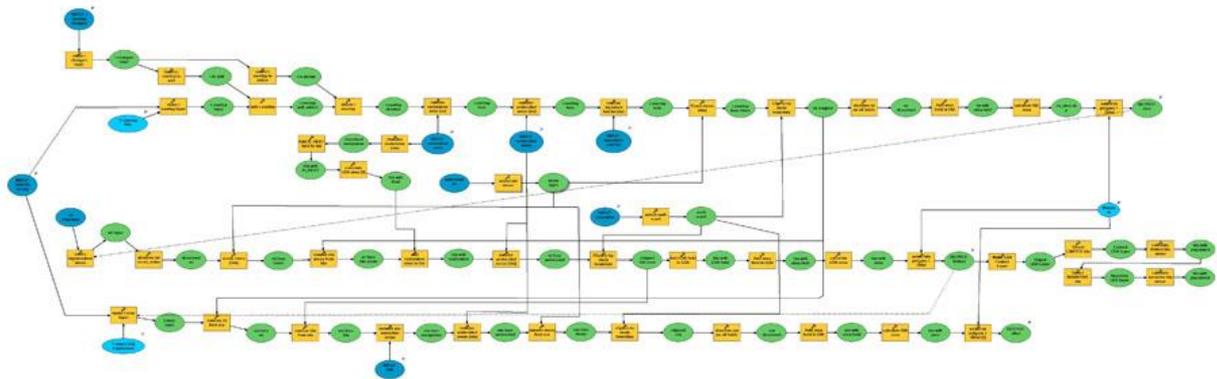
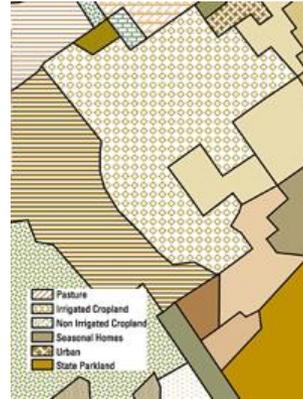
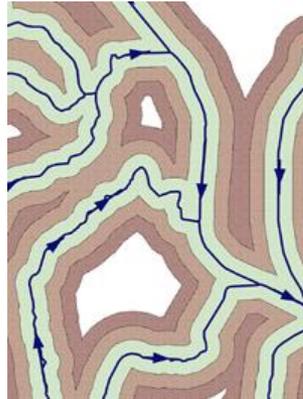
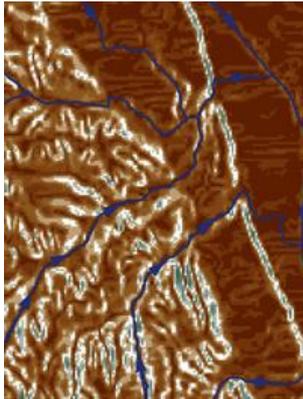
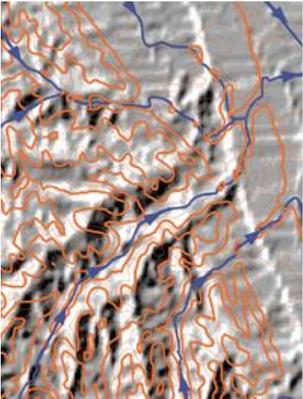
Attributes of Urban Form Default Map							
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12519	Polygon	122	R1	R1	R1		
12520	Polygon	126	R5	R5	R5		
12521	Polygon	160	R5	R5	R5		
12522	Polygon	156	R2	R2	R2		
12523	Polygon	236	EXd	EX	EX	d	
12524	Polygon	188	R5(R2.5)	R5	R2.5		
12525	Polygon	150	RH	RH	RH		
12526	Polygon	167	R2.5	R2.5	R2.5		
12527	Polygon	193	R5(R2.5)	R5	R2.5		
12528	Polygon	323	R7	R7	R7		
12529	Polygon	290	R7	R7	R7		
12530	Polygon	290	R1dGA	R1	R1	d	
12531	Polygon	218	CG	CG	CG		
12532	Polygon	235	R1a	R1	R1	a	

Based on attribute value(s)

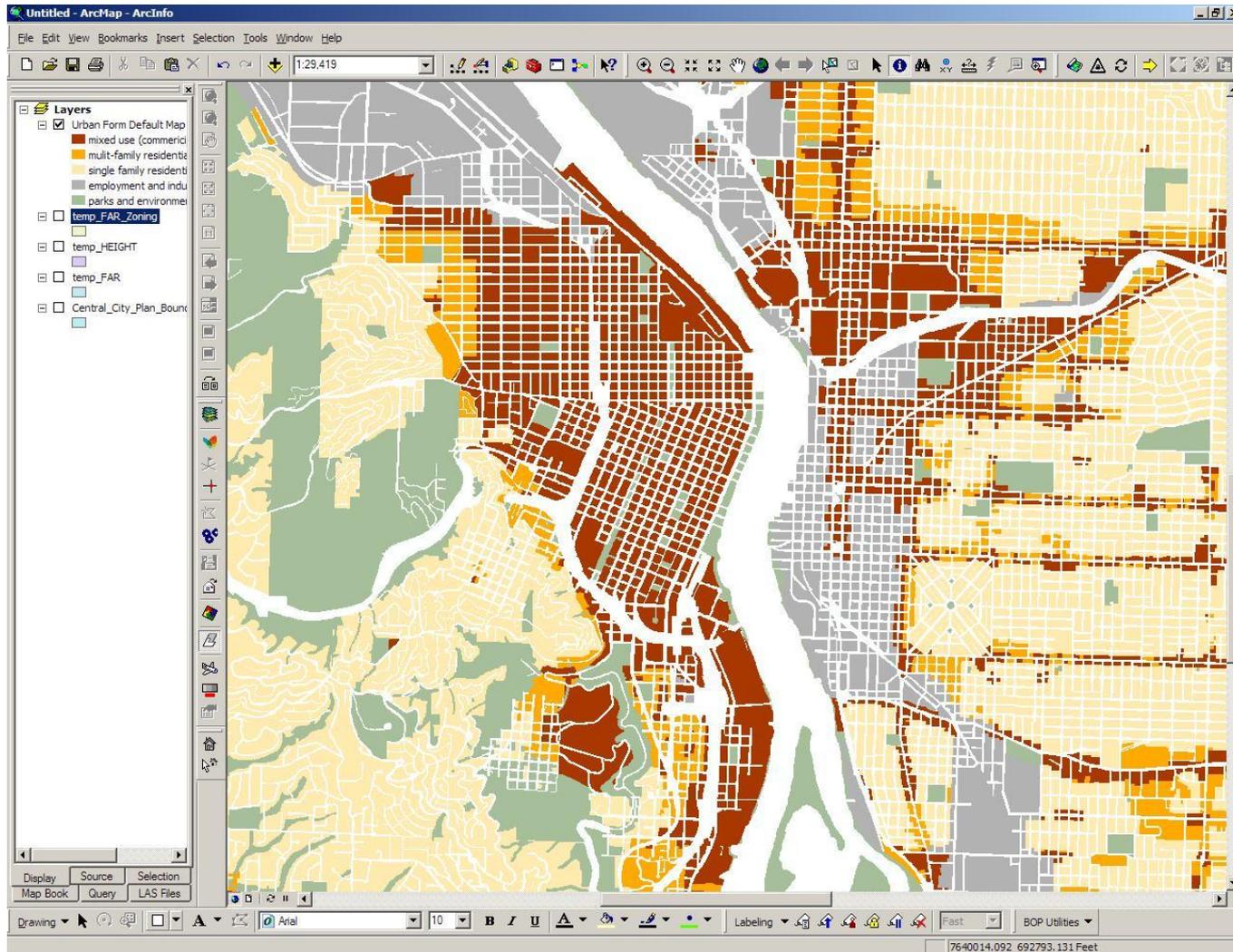


Based on location

Analyze data



Display information



Create data visualization

- Maps – static and interactive
- Graphs
- Charts
- Reports
- Statistics
- Animations (time-based)



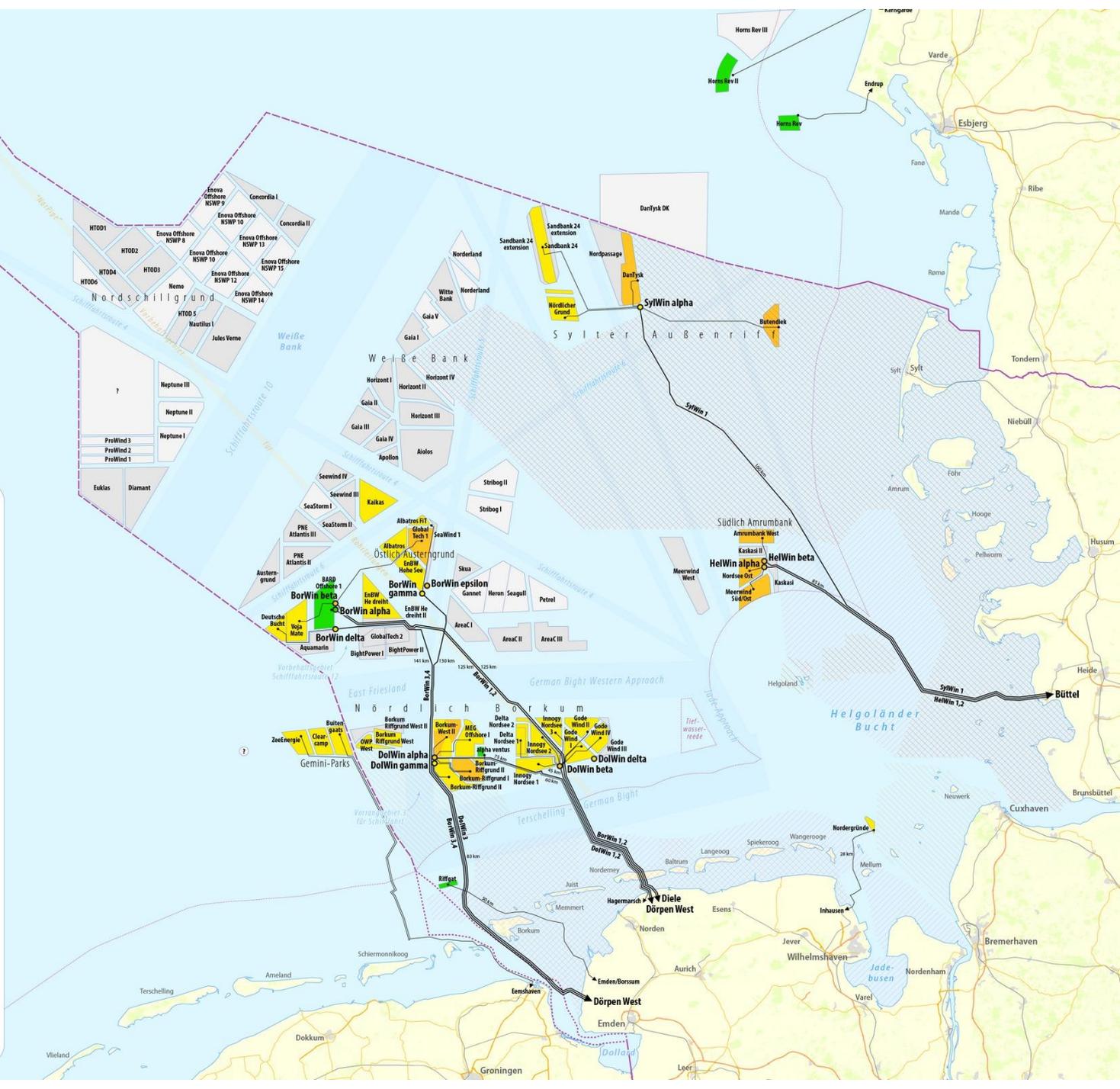
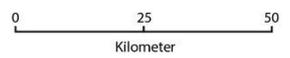
Offshore-Windkraftanlagen in der Deutschen Bucht

- Windkraftanlagen**
- in Betrieb
 - in Bau
 - genehmigt
 - beantragt
 - in Konzeption
- Offshore-Plattformen**
- Konverter in Betrieb
 - Konverter in Bau
 - Konverter in Planung
 - Umspannplattform

- Kabelanbindungen**
- Hochspannungs-Gleichstrom-Übertragung (HGÜ)
 - Drehstromübertragung
 - Weiterführung in Onshore-Zielstation

- Natura 2000-Schutzgebiete**
(dargestellt sind nur die Gebiete in der deutschen Nordsee)
- Flora-Fauna-Habitat (FFH)
 - EU-Vogelschutzgebiet

- Grenzlinien**
- Staatsgrenze
 - ungeklärte Grenzlage im Gebiet des Ems-Ästuars (deutsche und niederländische Grenzauffassung)
 - Grenzlinie des Hoheitsgewässers (12-Seemellenzone)
 - Grenzlinie der Ausschließlichen Wirtschaftszone (AWZ)





- DSM 40cm 2014 data
- DTM 40cm 2014 data
- DTM 1,6m 2008
- Ortofoto
- Skærmkort

+
-

i

Septima Labs BETA



Cyprus

Nicosia

Famagusta (Gazimağusa)

Paphos

Limassol

Larnaca

Kyrenia (Girne)

TROODOS MOUNTAINS

KYRENIA MOUNTAINS

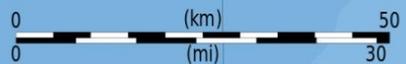
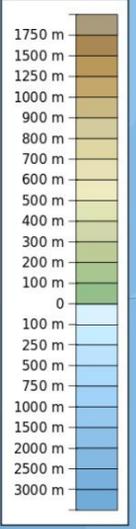
MESAORIA

Karpass Peninsula

AKAMAS PENINSULA

AKROTIRI PENINSULA

Mediterranean Sea

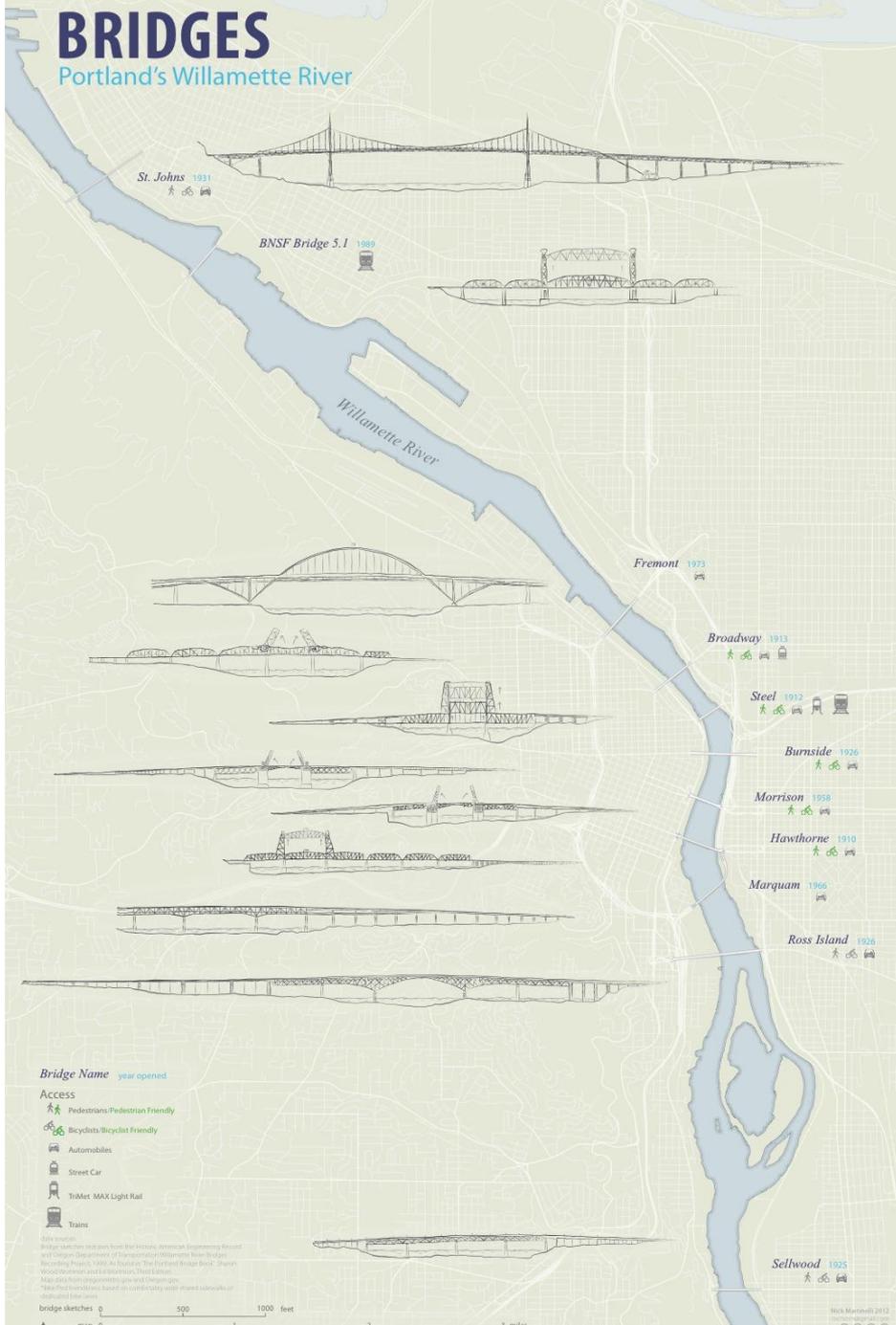


Projection: UTM

WGS84 datum

BRIDGES

Portland's Willamette River



St. Johns 1931

BNSF Bridge 5.1 1989

Fremont 1973

Broadway 1913

Steel 1912

Burnside 1926

Morrison 1958

Hawthorne 1910

Marquam 1966

Ross Island 1926

Selwood 1925

Bridge Name year opened

- Access**
- Pedestrians/Pedestrian Friendly
 - Bicyclists/Bicyclist Friendly
 - Automobiles
 - Street Car
 - Trinket MAX Light Rail
 - Trains

Bridge sketches were given from the Historic American Engineering Record and Oregon Department of Transportation Willamette River Bridges. According to Project 1, 1994 A Journal of The Portland Bridge Book. Shared Wood Structures and Structures, Third Edition. Map data from geonames.org and OpenStreetMap. *Map data from geonames.org and OpenStreetMap.



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- <http://tipstrategies.com/geography-of-jobs/>
 - <http://map-idph-ipro-org.bitnamiapp.com/>