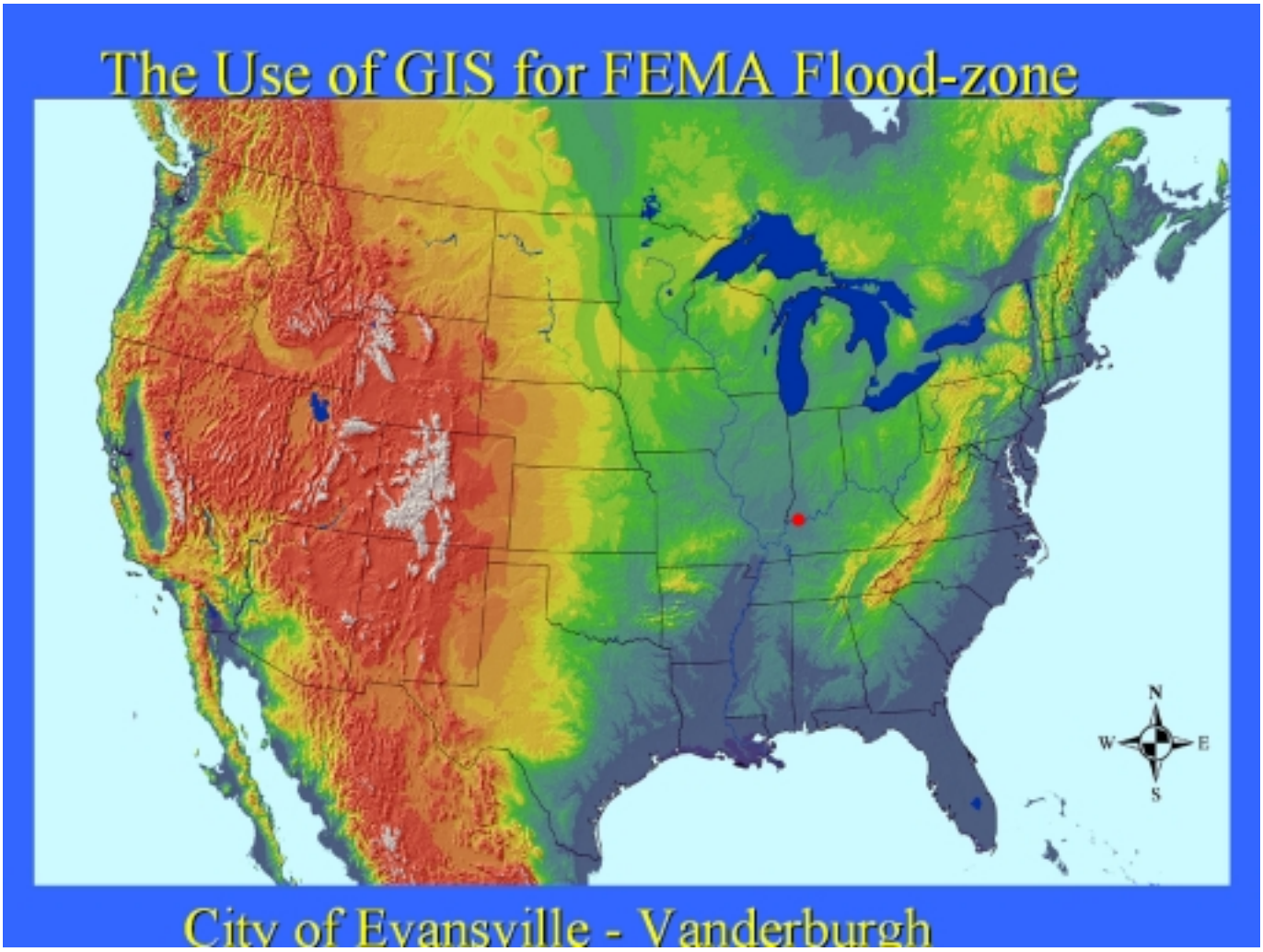
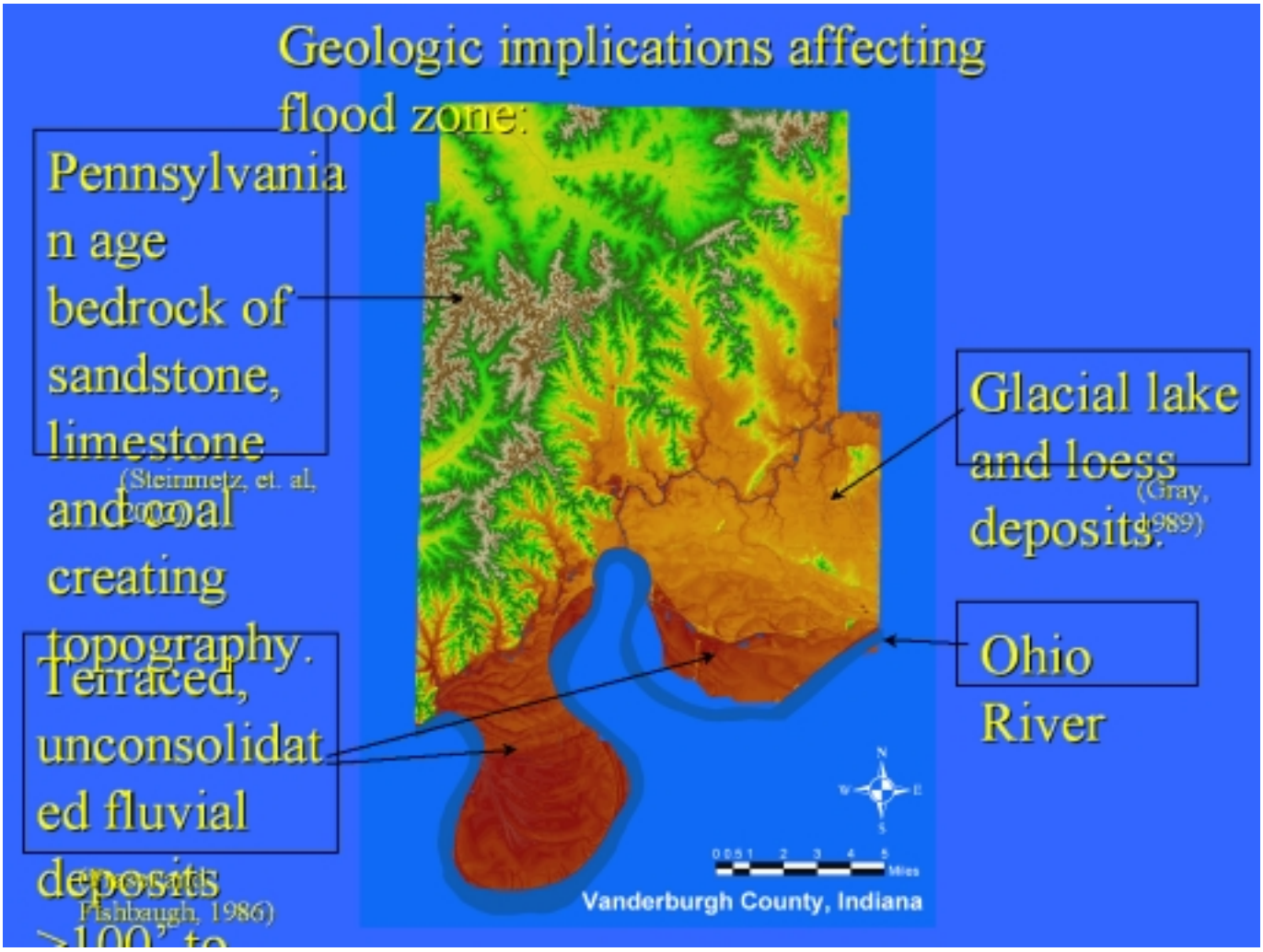
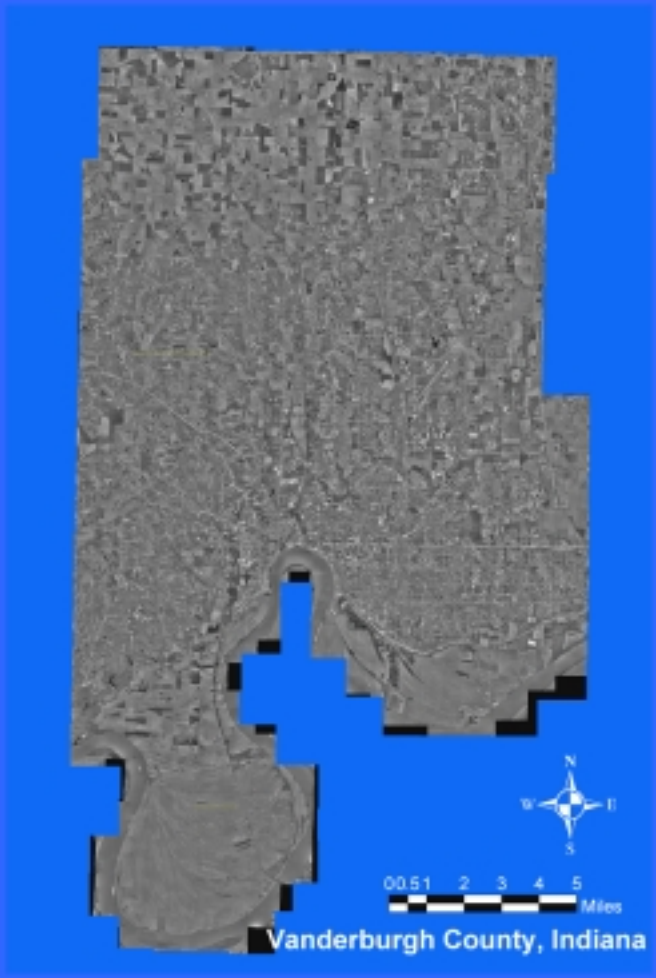
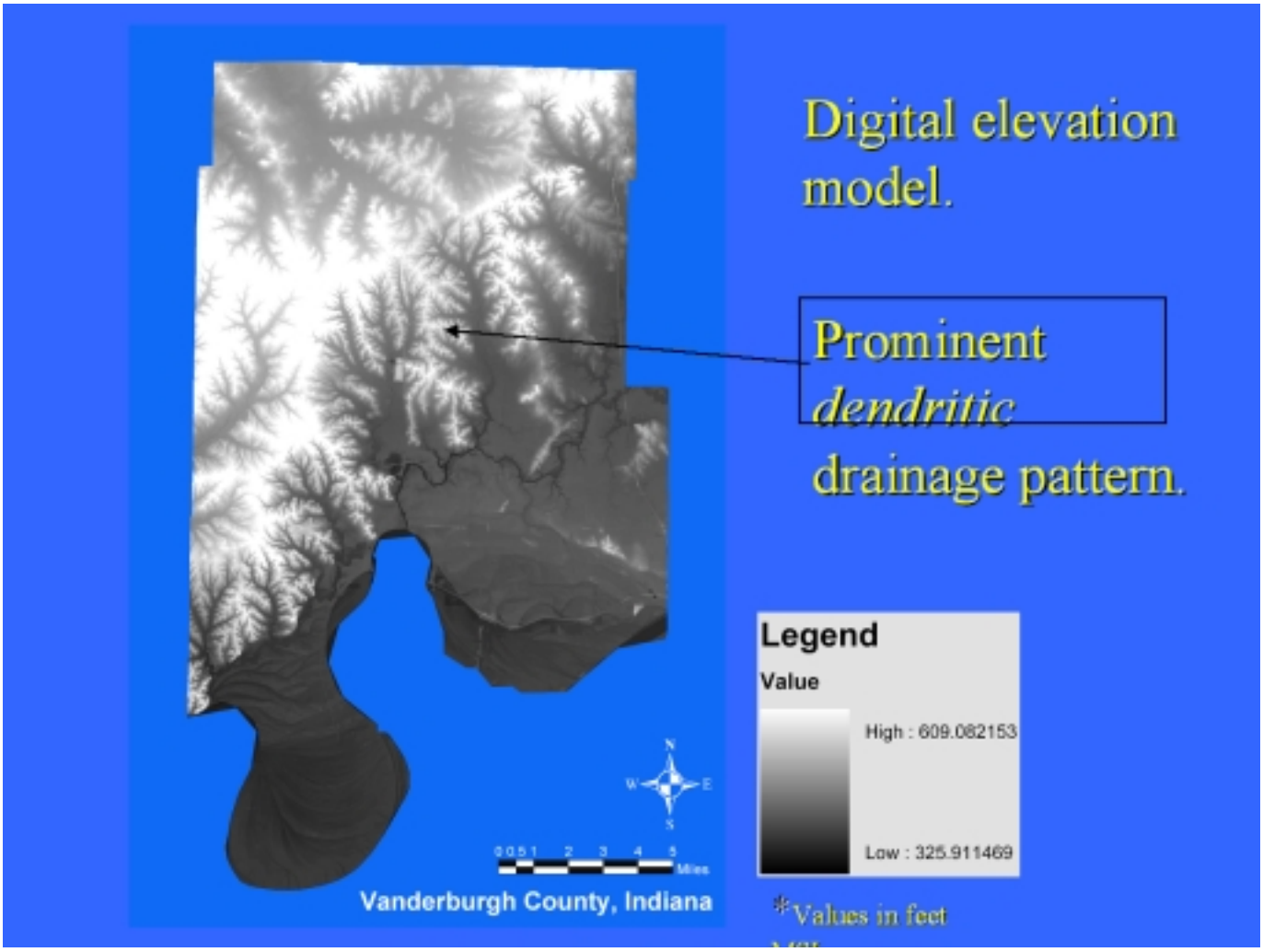

The Use of GIS for FEMA Flood-zone
N
W
E
S
City of Evansville - Vanderburgh


Geologic implications affecting flood zone:
Pennsylvania n age bedrock of sandstone, limestone and coal creating topography.
(Steirmetz, et. al, 2000)
Glacial lake and loess deposits.
(Gray, 1989)
Ohio River
Terraced, unconsolidated fluvial deposits >100' to
(Wayne and Fishbaugh, 1986)
Vanderburgh County, Indiana

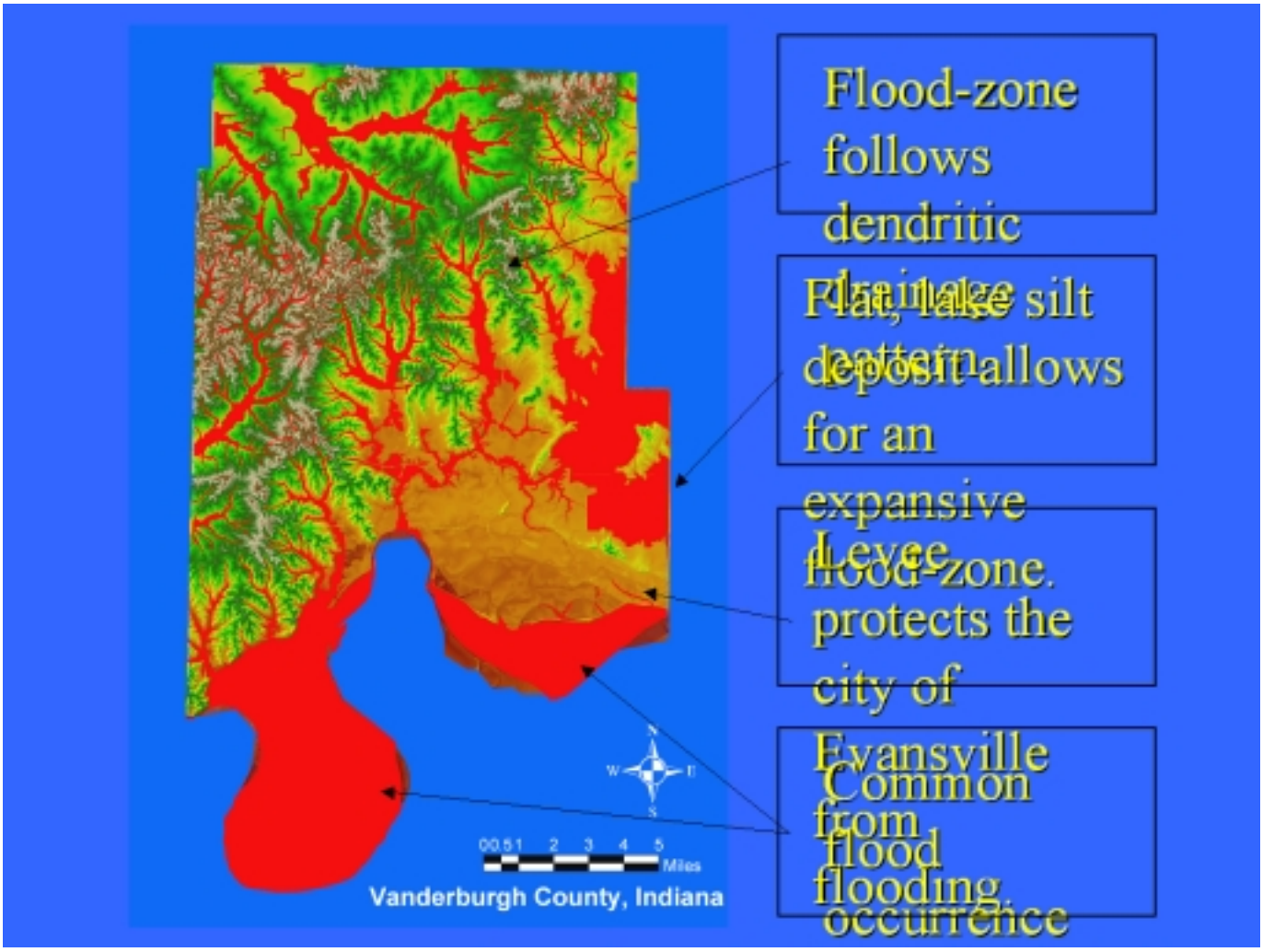


Ortho-photography "image catalog" of entire Vanderburgh County.

6 inch resolution


Digital elevation model.
Prominent *dendritic* drainage pattern.
Legend
Value
High : 609.082153
Low : 325.911469
Vanderburgh County, Indiana
*Values in feet


Hill shade derived from digital elevation data.
Meander scrolls of the Ohio River recorded in alluvial deposits.
N
W
E
S
0 0.5 1 2 3 4 5
Miles
Vanderburgh County, Indiana


Flood-zone follows dendritic drainage pattern
Flat, lake silt deposit allows for an expansive flood-zone.
Levee protects the city of Evansville
Common from flood occurrence
Vanderburgh County, Indiana
Miles

Parcel shapefile of entire county *invaluable* for flood-zone research using GIS based platform.

Example flood-zone determination:

EVANSVILLE – VANDERBURGH CO BUILDING COMMISSION
DRAINAGE CHECK REQUEST

PERMIT#_____ DATE: 2-20-03 CLERK: RB

CALLER/CONTRACTOR:_____ PHONE#:_____

ADDRESS:_____ CITY:_____ STATE:_____ ZIP:_____

REQUEST: LETTER_____ CALL_____ BOTH_____

LOCATION OF PROPERTY: 4121 Saddlebrooke LN

SUB-DIVISION: Valley Downs LOT#:_____

PLANIMETRIC#_____ SEC_____ TOWNSHIP_____ SOUTH_____ RANGE_____ WEST

Addition: comm_____ foundation_____ res_____ 40>_____ 40<_____ New Home_____ New Comm_____

Garage: __attached_____ detached_____

Results of Check: Flood Zone: _____
Community Panel #: _____
Effective Date: _____
1st Floor Elevation: _____

Date completed:_____ Researched By:_____

Staff researching of

Federal
Emergency
Manageme
nt **A**gency

Flood

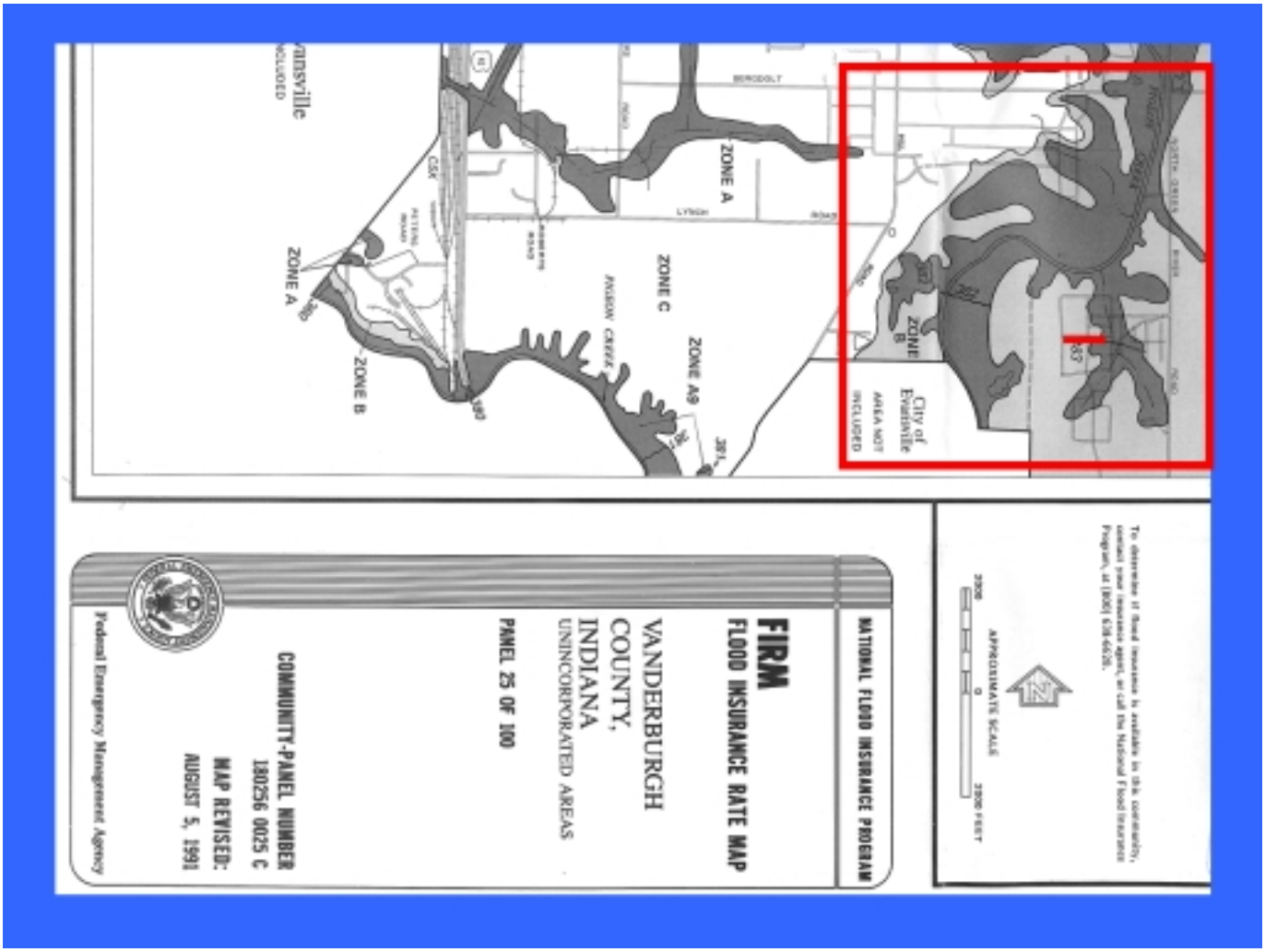
Insurance

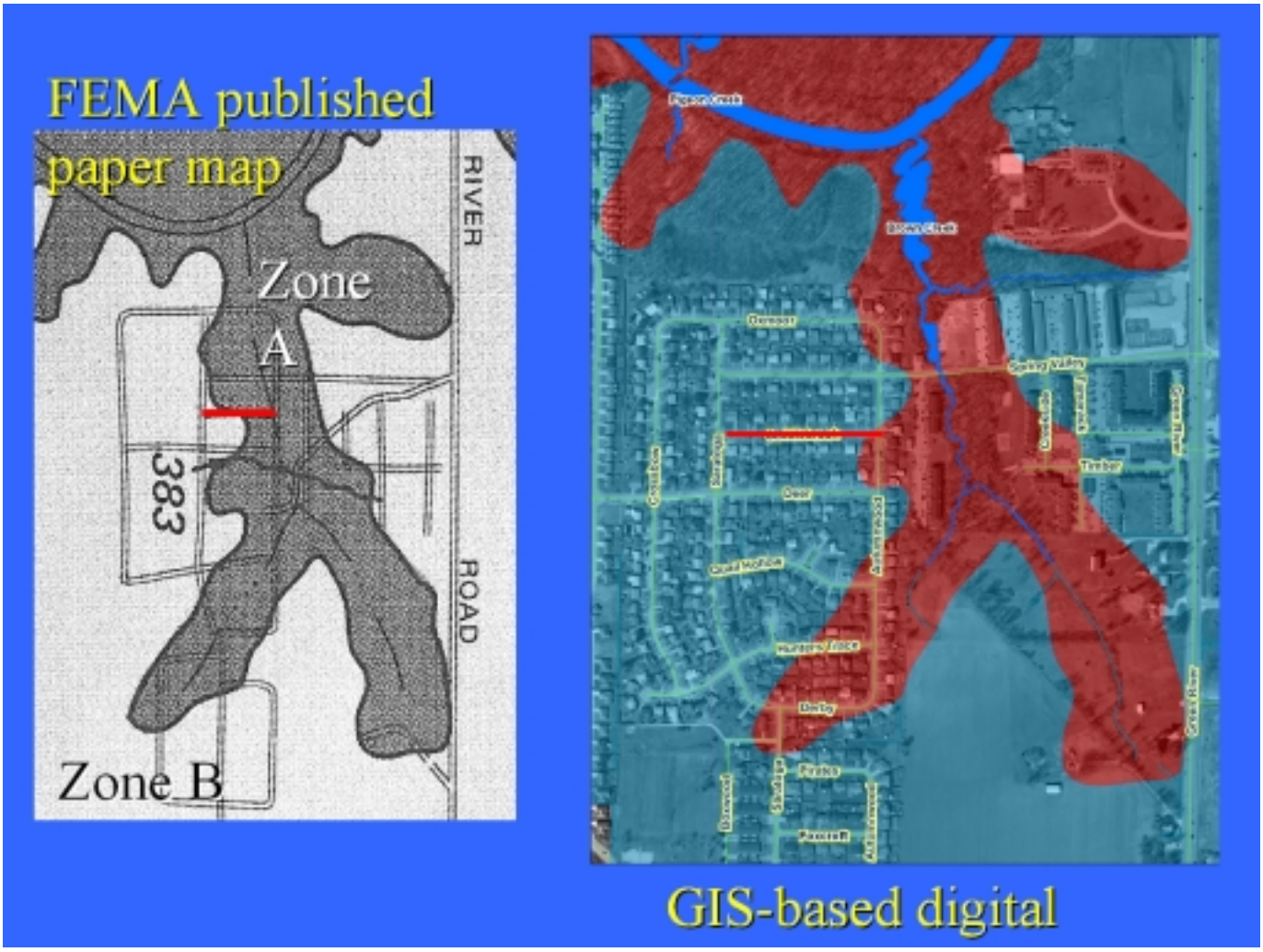
Rate

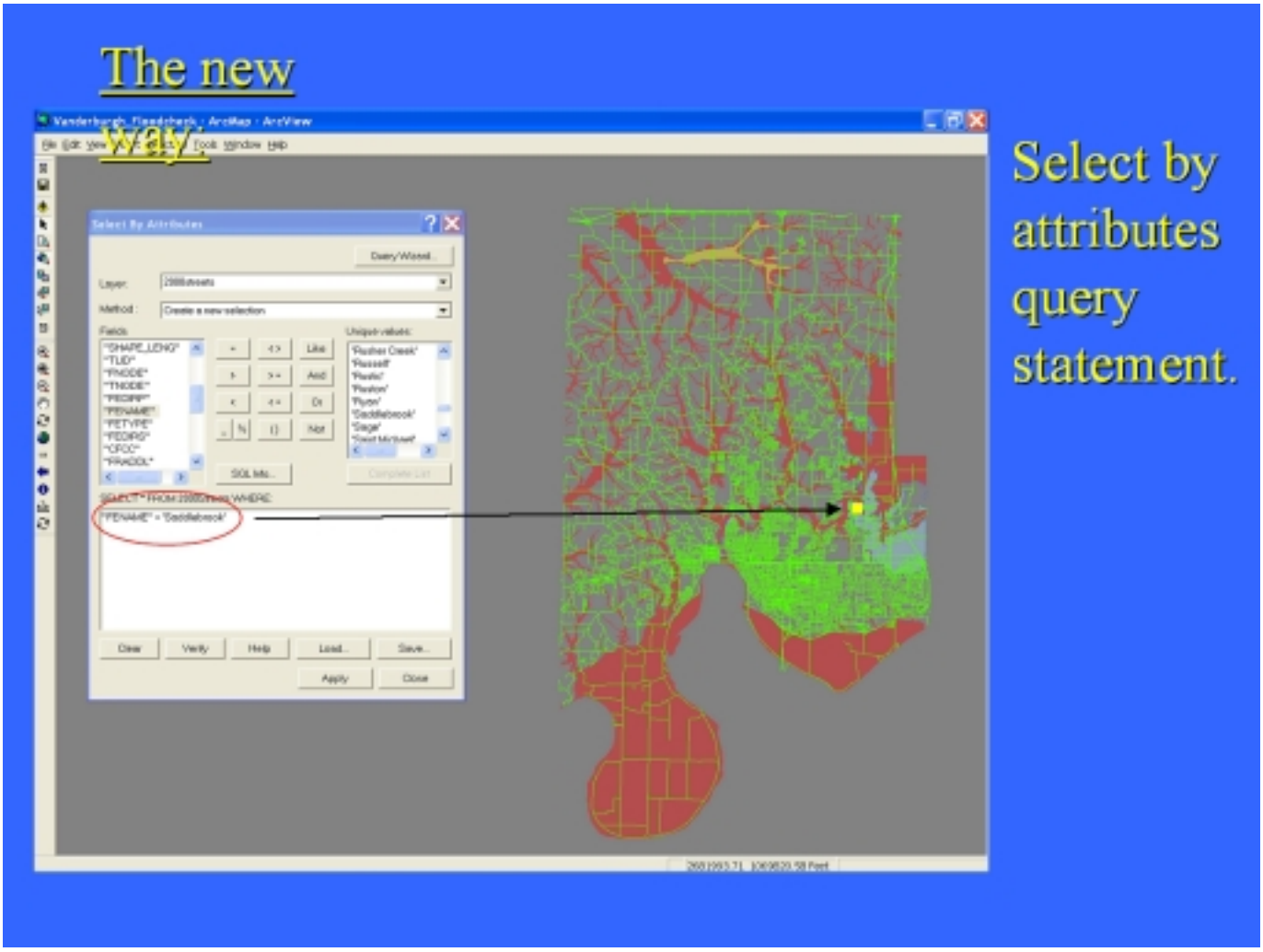
Map

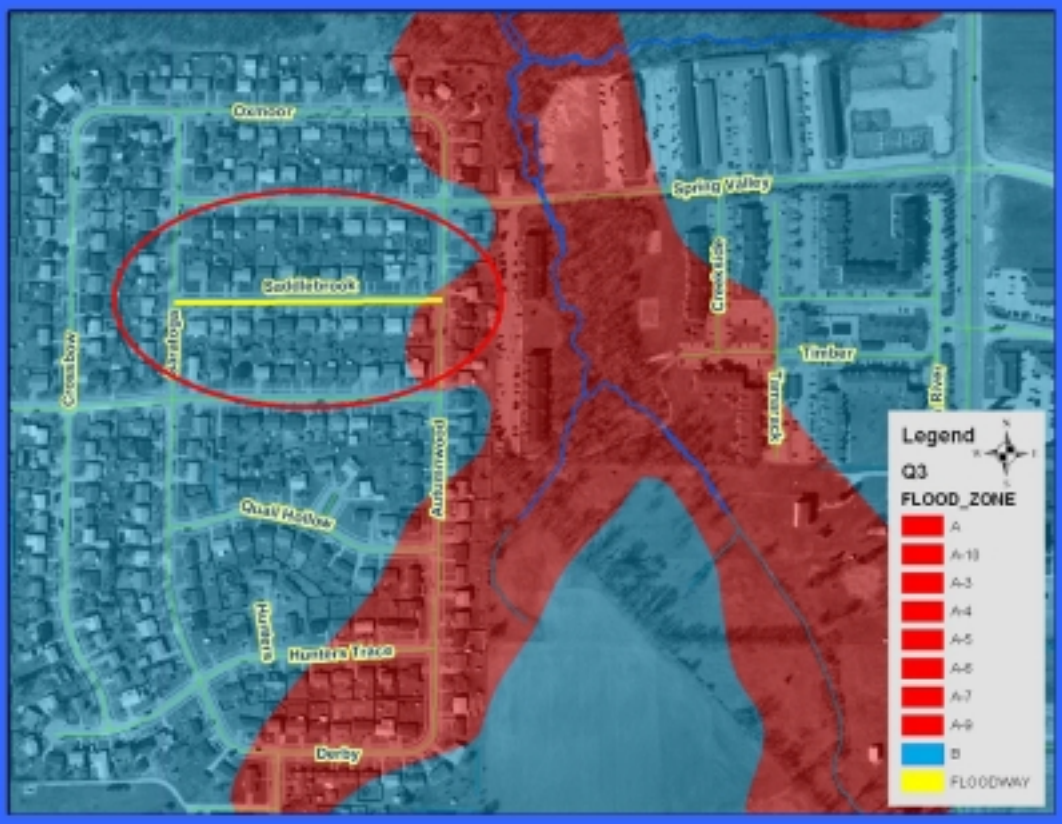
The old way:

Original 1968 planimetric map.


To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.
APPROXIMATE SCALE
2500 0 2500 FEET
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
VANDERBURGH COUNTY, INDIANA
UNINCORPORATED AREAS
PANEL 25 OF 100
COMMUNITY-PANEL NUMBER
180256 0025 C
MAP REVISED:
AUGUST 5, 1991
Federal Emergency Management Agency
City of Evansville
AREA NOT INCLUDED
ZONE B
ZONE A
ZONE C
ZONE A9
ZONE B
ZONE A
BERGOLT
LYNCH
PIGEON CREEK
CSX
PETERS ROAD
ROBERTS ROAD
Evansville
INCLUDED


FEMA published
paper map
Zone
A
383
RIVER
ROAD
Zone B
GIS-based digital


The new
way:
Select by attributes query statement.



Selected street identified

.

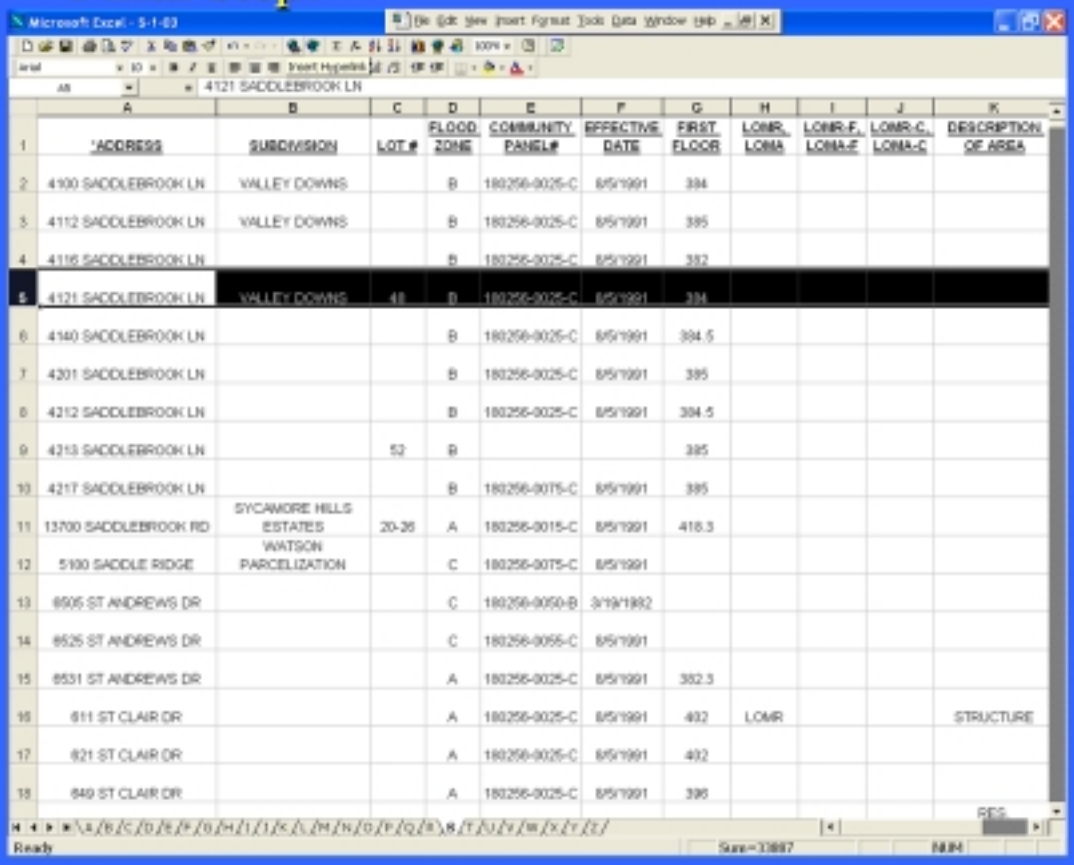
Address located and flood-zone easily determined.

Current "Q3" floodmap shapefile.

Proposed floodmap revision shapefile "DFIRM".

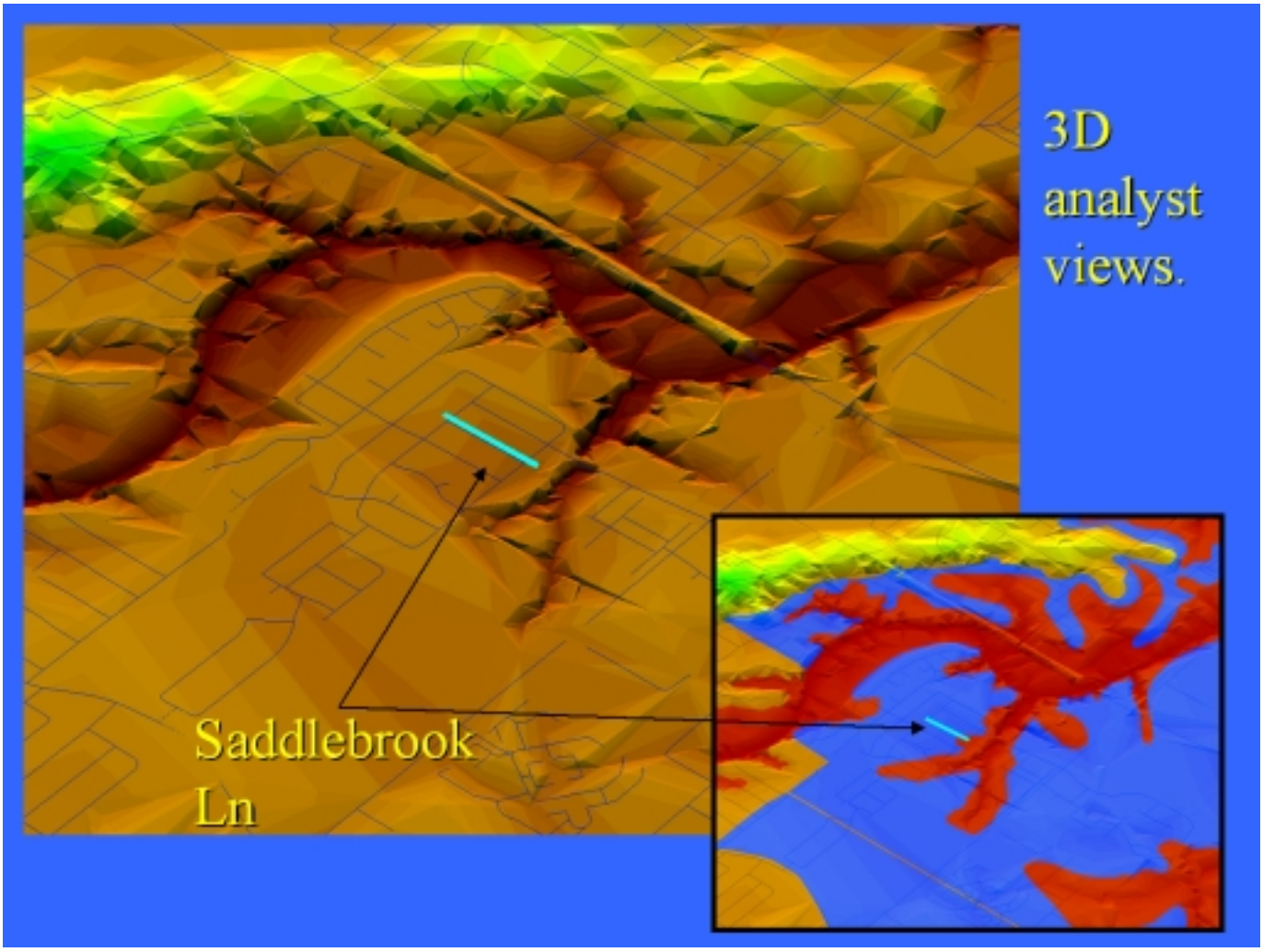
Property touches flood zone, but the ***structure*** is not within 100 year

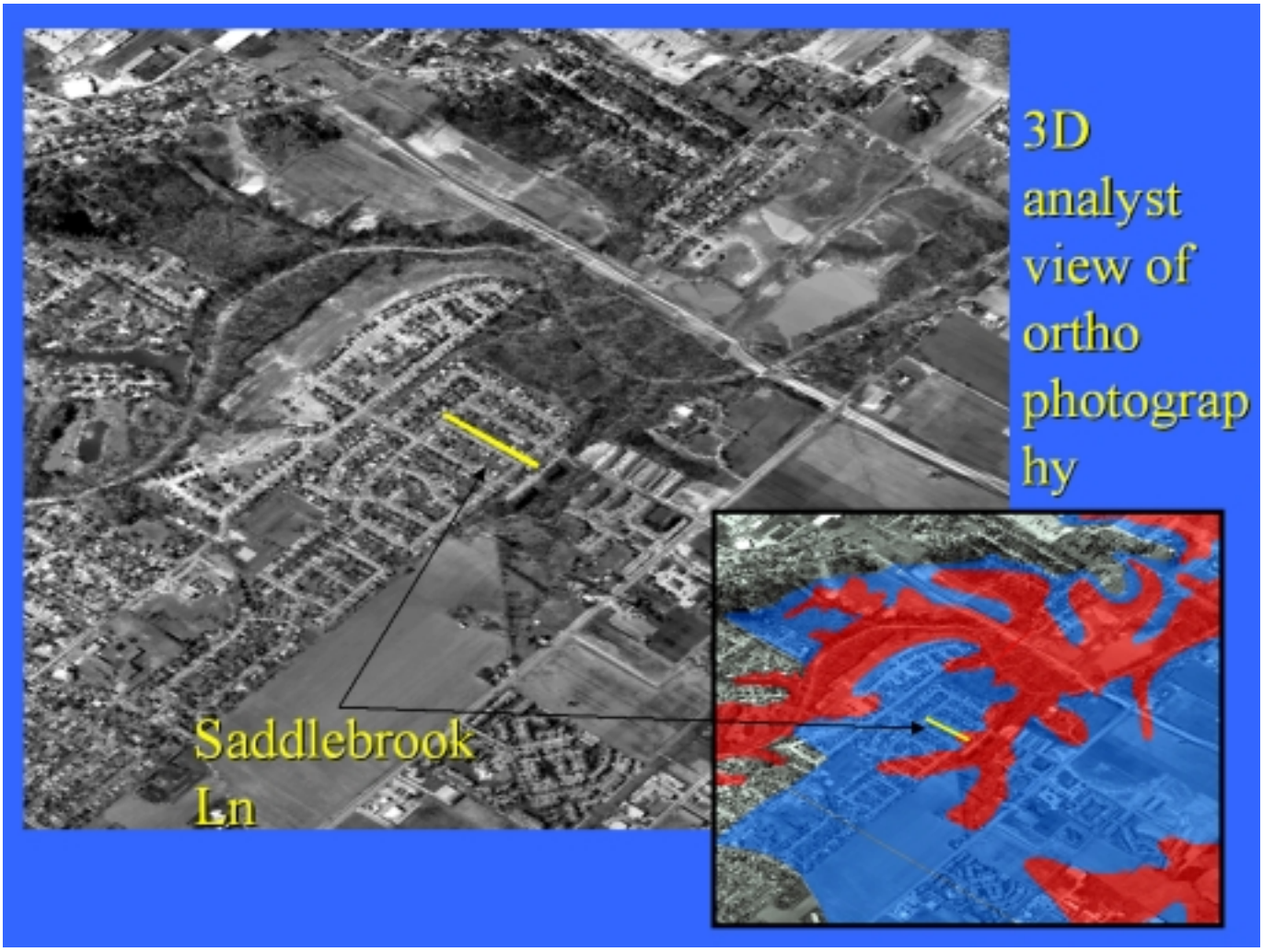
Final step:

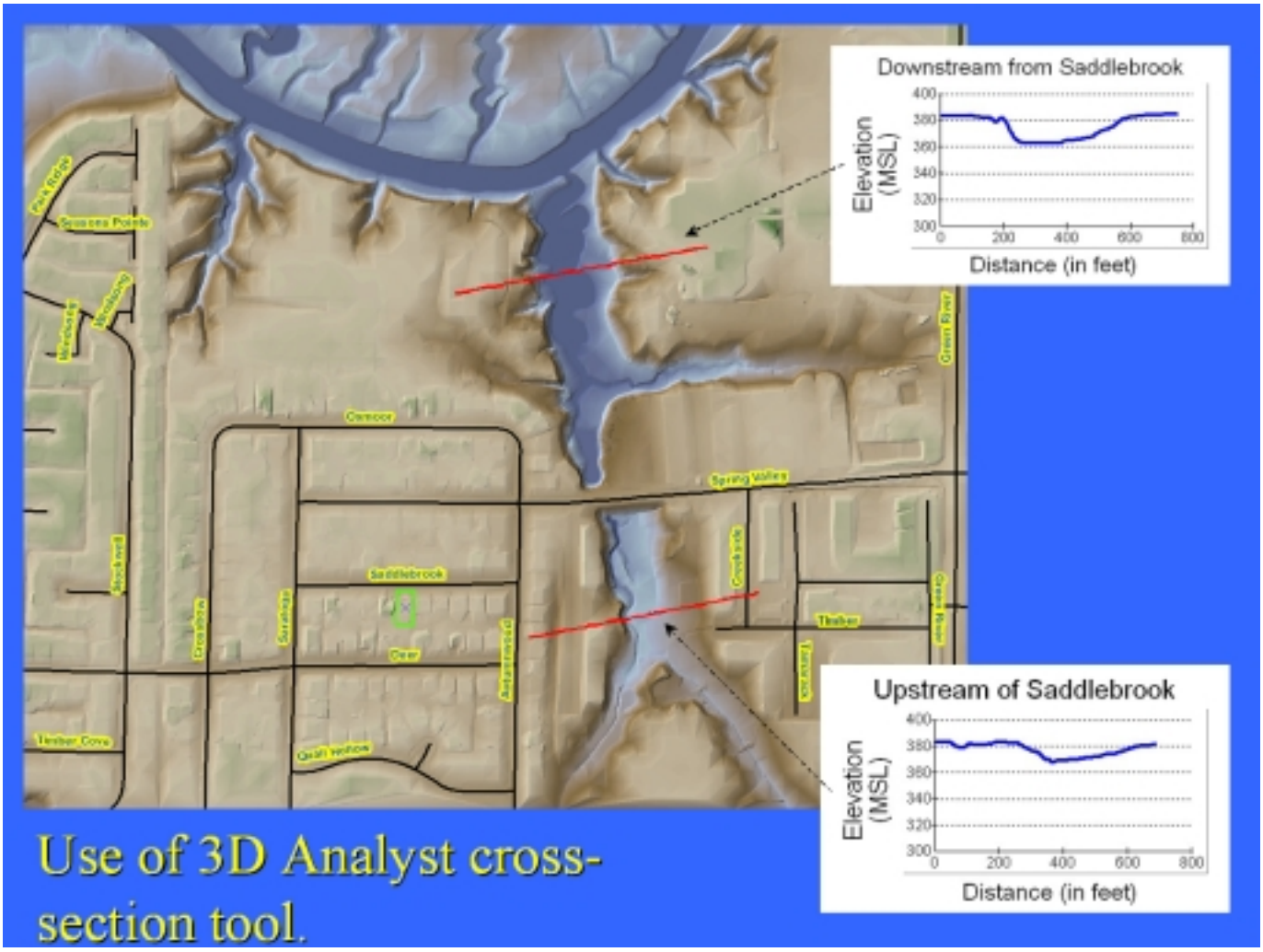


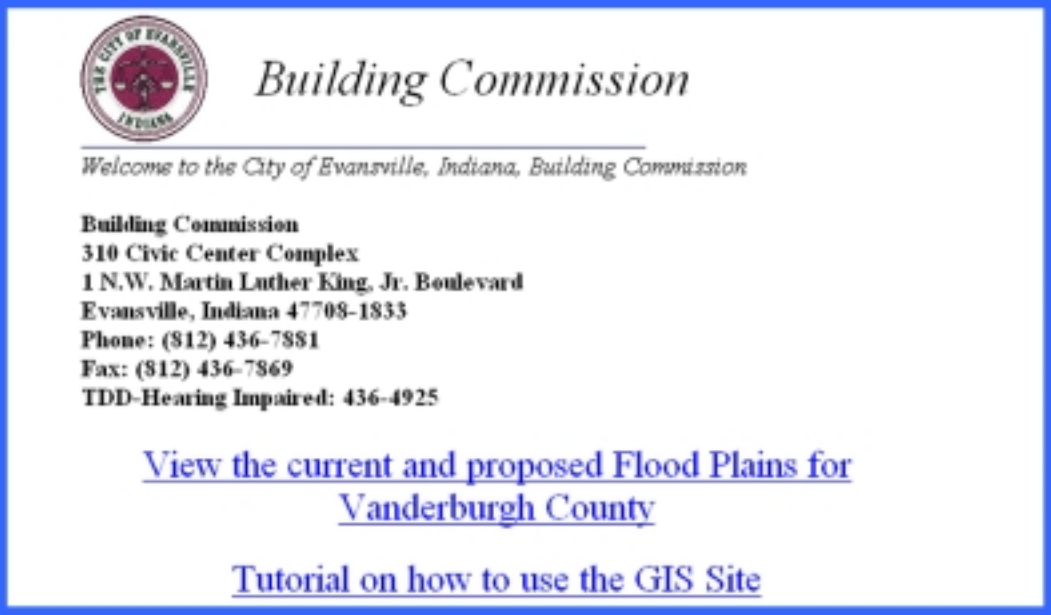
	ADDRESS	SUBDIVISION	LOT #	FLOOD ZONE	COMMUNITY PANEL#	EFFECTIVE DATE	FIRST FLOOR	LOMR, LOMA	LOMR-F, LOMA-F	LOMR-C, LOMA-C	DESCRIPTION OF AREA
2	4100 SADDLEBROOK LN	VALLEY DOWNS		B	180256-0025-C	8/5/1991	384				
3	4112 SADDLEBROOK LN	VALLEY DOWNS		B	180256-0025-C	8/5/1991	385				
4	4116 SADDLEBROOK LN			B	180256-0025-C	8/5/1991	382				
5	4121 SADDLEBROOK LN	VALLEY DOWNS	48	B	180256-0025-C	8/5/1991	384				
6	4140 SADDLEBROOK LN			B	180256-0025-C	8/5/1991	384.5				
7	4201 SADDLEBROOK LN			B	180256-0025-C	8/5/1991	385				
8	4212 SADDLEBROOK LN			B	180256-0025-C	8/5/1991	384.5				
9	4213 SADDLEBROOK LN		52	B			385				
10	4217 SADDLEBROOK LN			B	180256-0075-C	8/5/1991	385				
11	13700 SADDLEBROOK RD	SYCAMORE HILLS ESTATES	20-26	A	180256-0015-C	8/5/1991	418.3				
12	5100 SADDLE RIDGE	WATSON PARCELIZATION		C	180256-0075-C	8/5/1991					
13	6505 ST ANDREWS DR			C	180256-0050-B	3/19/1982					
14	6525 ST ANDREWS DR			C	180256-0055-C	8/5/1991					
15	6531 ST ANDREWS DR			A	180256-0025-C	8/5/1991	382.3				
16	611 ST CLAIR DR			A	180256-0025-C	8/5/1991	402	LOMR			STRUCTURE
17	621 ST CLAIR DR			A	180256-0025-C	8/5/1991	402				
18	649 ST CLAIR DR			A	180256-0025-C	8/5/1991	396				

Microsoft Excel spreadsheet records data for ***all*** floodchecks.


3D
analyst
views.
Saddlebrook
Ln


3D analyst view of ortho photograp hy
Saddlebrook Ln


Downstream from Saddlebrook
Elevation (MSL)
400
380
360
340
320
300
0
200
400
600
800
Distance (in feet)
Upstream of Saddlebrook
Elevation (MSL)
400
380
360
340
320
300
0
200
400
600
800
Distance (in feet)
Use of 3D Analyst cross-section tool.

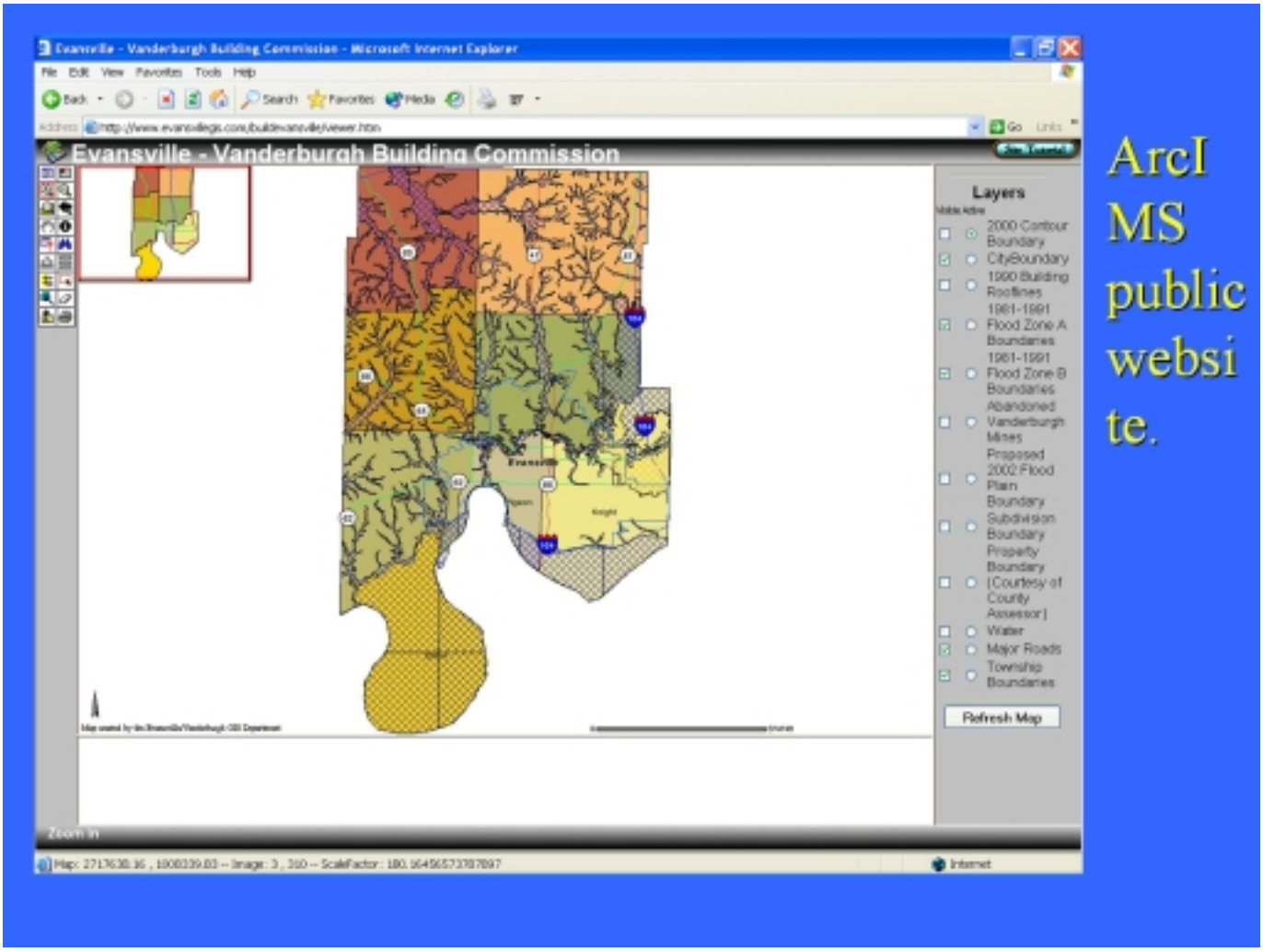


Q3 flood information and *proposed* map revision "DFIRM" available online for public use

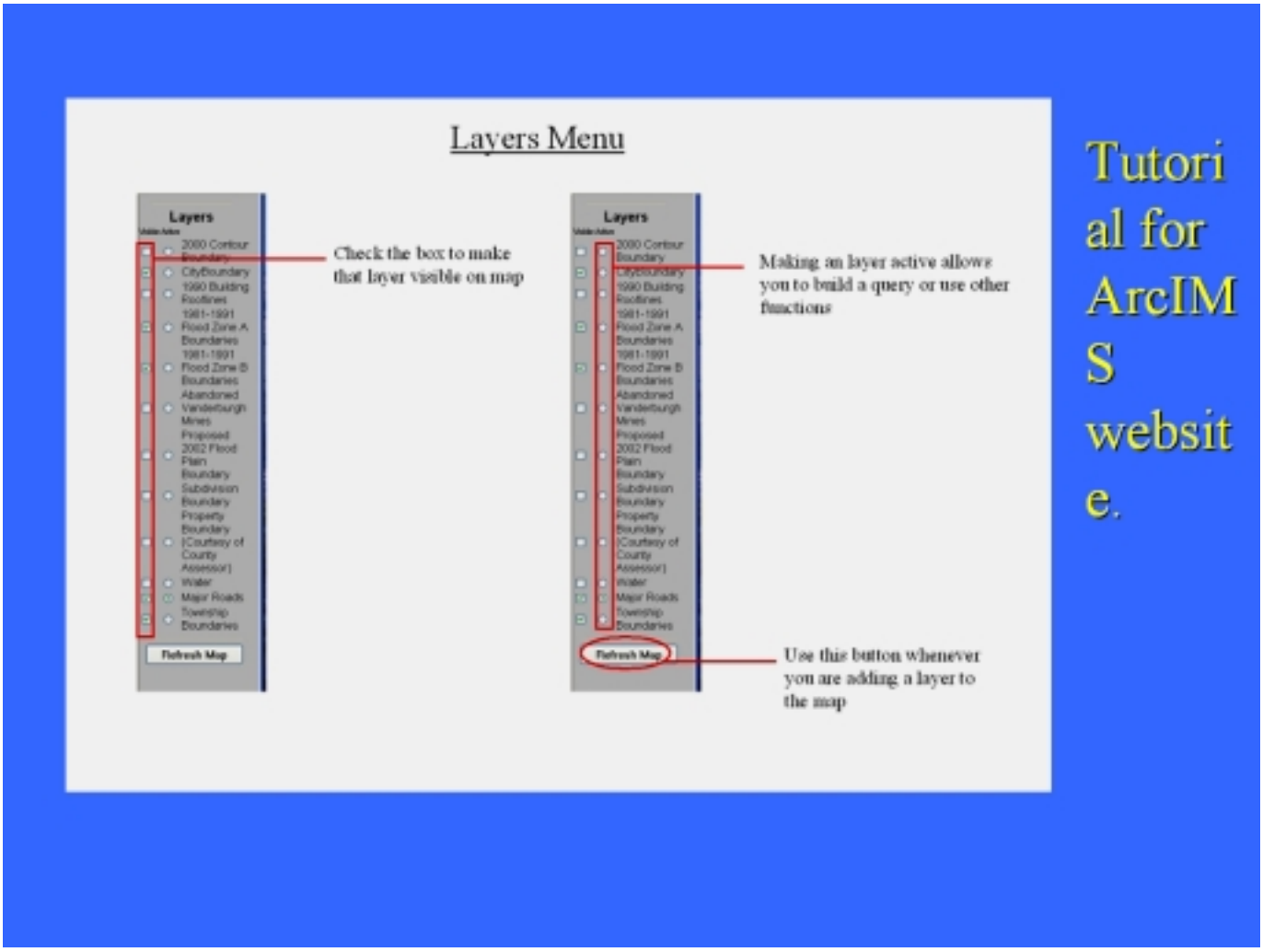
http://www.buildevansville.com

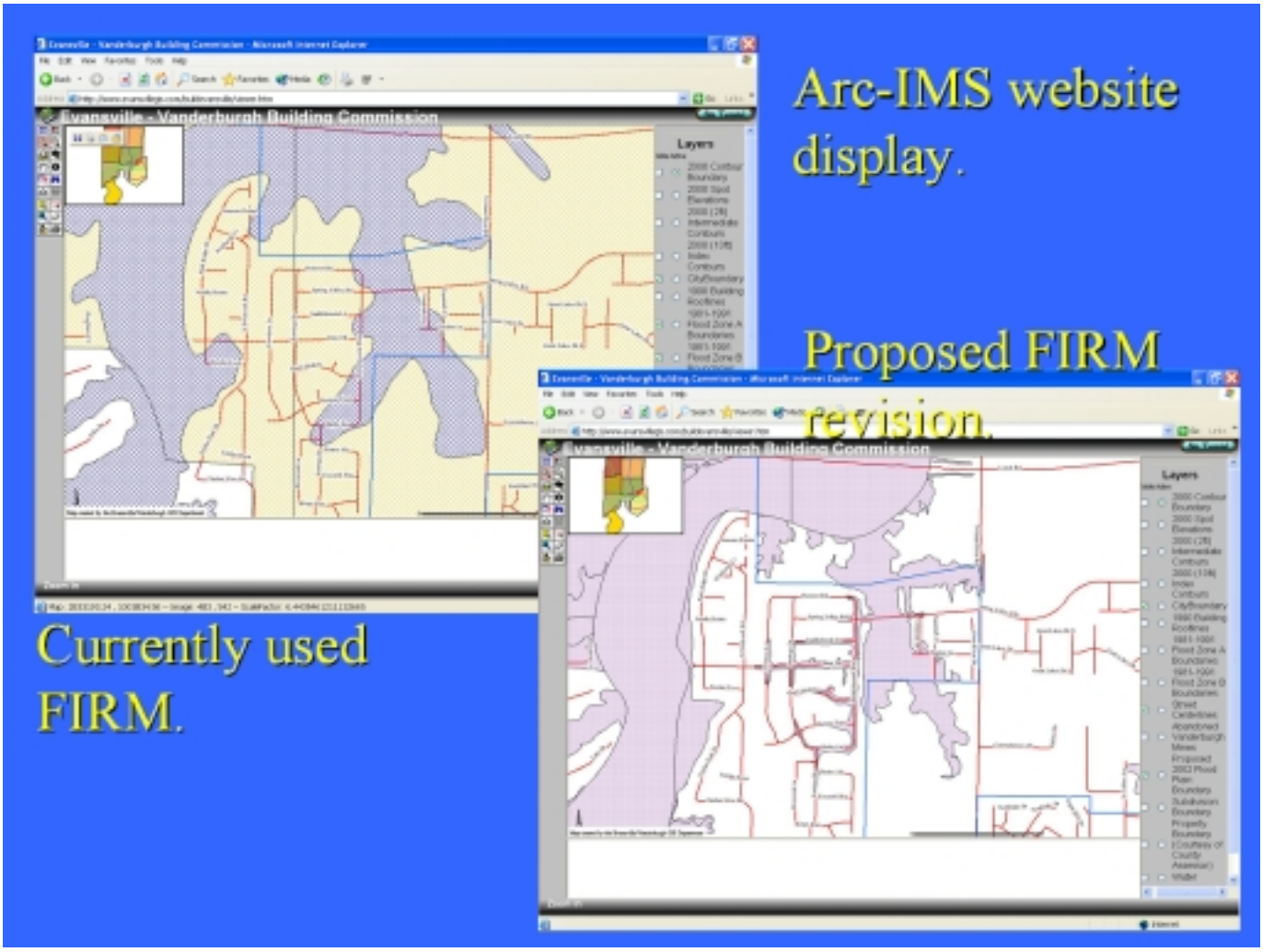
or

http://www.evansvillegis.c



ArcIMS public website.

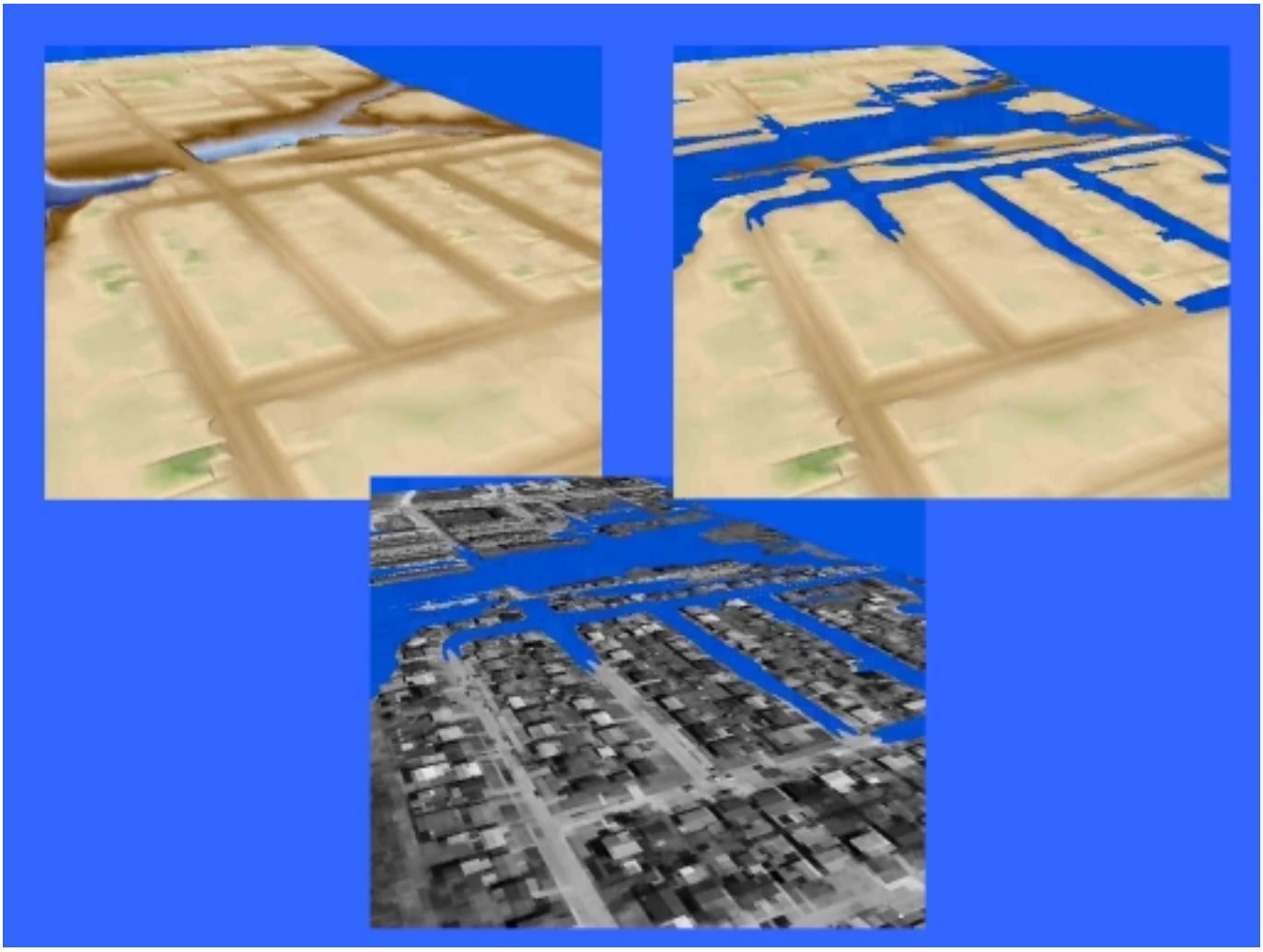

Layers Menu
Layers
Check the box to make that layer visible on map
Making an layer active allows you to build a query or use other functions
Use this button whenever you are adding a layer to the map
Refresh Map
Tutorial for ArcIMS website.


Arc-IMS website display.
Proposed FIRM revision.
Currently used FIRM.
Evansville - Vanderburgh Building Commission
Evansville - Vanderburgh Building Commission

Layers available on ArcIMS site:

* Flood-zone boundary (current and proposed revision)
* Hydrology (stream, ditch, lake, pond, swamp, river)
* Contour and spot elevation
* City / County boundary
* Rooflines
* Street centerlines
* Ortho photo
* Abandoned underground coal mines

Courtesy of County



References Cited:

Fraser, G.S., Fishbaugh, D.A., 1986, Alluviation of the Ohio River Valley near Evansville, Indiana, and It's Effect on the Distribution of Sand and Gravel in the Area. Indiana Department of Natural Resources, Indiana Geologic Survey Special Report 39.

Gray, H.H., 1989. Quaternary Geologic Map Of Indiana. Indiana Department of Natural Resources, Indiana Geologic Survey. Miscellaneous Map 49. 1:500,000

Steinmetz, J. C., Harper, D., Walls, A. C., A Geographic Information System Atlas for Southwestern Indiana. Indiana University, Indiana Geological Survey.
Http://gis.indiana.edu/geology/maps/gisSouthwest/ofs0123Readme.cfm

Acknowledgements:

Evansville GIS Department, Matt Arvay, Director. Maintenance, management of local data and operations.

Federal Emergency Management Agency. Q3 digital flood insurance rate map and proposed revision.

Vanderburgh County Assessor, Cheryl Musgrave. Development and management of parcel data.