

Urbana GIS



GIS

System of Information integrating
spatial and non-spatial data using
computers, software, people

“Smart maps”

Uses of GIS in Urbana

- **Land use and urban growth planning**
- **Economic development planning**
- **Infrastructure and transportation planning**
- **Needs assessments**
- **Crime tracking and law enforcement planning**
- **Emergency management**
- **Inventory and billing systems**

How does GIS help Urbana?

- **If then modeling**
- **Graphical representation of numerical data**
- **Fosters a unified approach to information**
- **Reduction of duplication of effort**

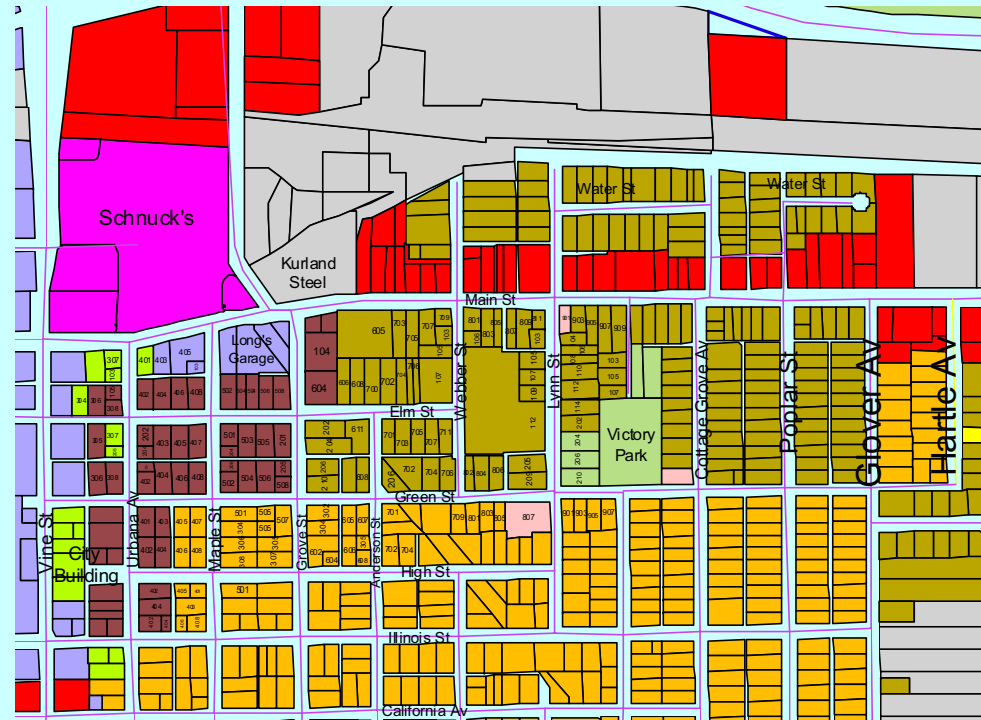
A properly implemented GIS improves the following

- **Accessibility of data**
- **Accuracy of data**
- **Availability of data**
- **Data collection time**
- **Communication of Information**
- **Confidence in analysis**
- **Identification of conflicts**
- **Explicitness of decisions**
- **Time to make a decision**

MAPS WE CURRENTLY USE

Parcel and Zoning Data

East Urbana Neighborhood Zoning



LEGEND

- B1, Neighborhood Business
- B3, General Business
- B4, Central Business
- B4E, Central Business Expansion
- CRE, Conservation Recreation Education
- IN, Industrial
- R3, Single & Two Family Residential
- R4, Medium Density Multiple Family Residential
- R5, Medium High Density Multiple Family Residential
- R6, High Density Multiple Family Residential

Existing and future land use

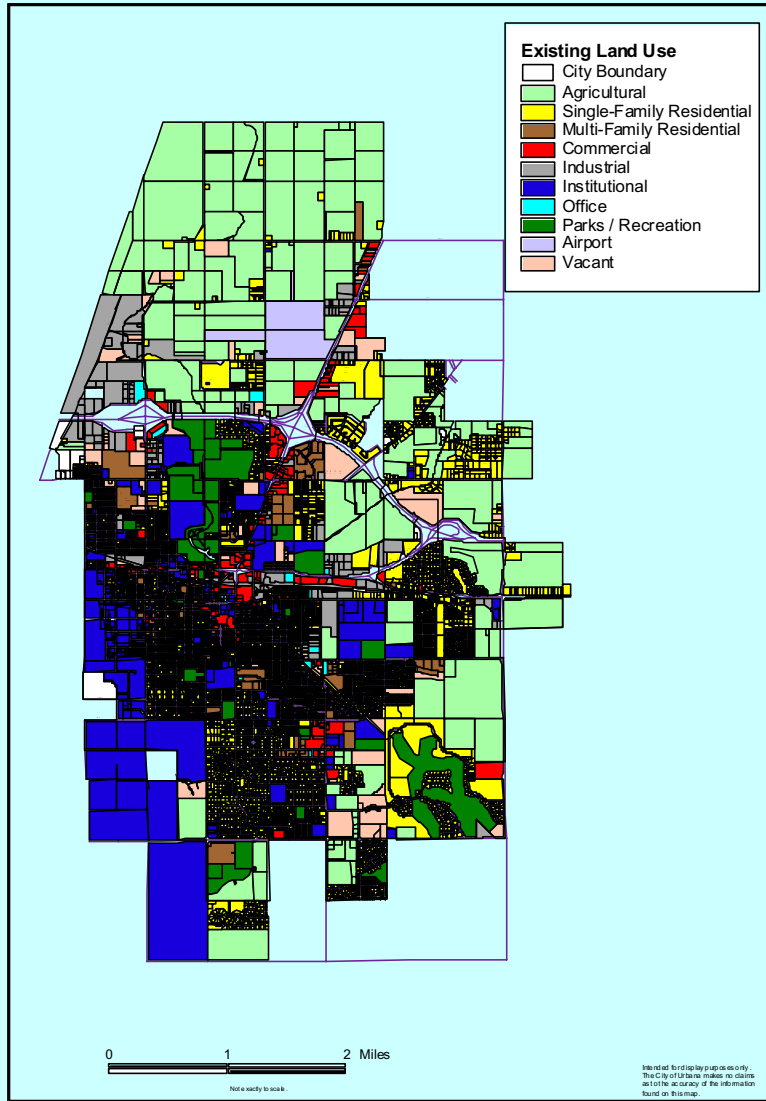


Figure 5-3 Existing Land Use Map
Urbana Comprehensive Plan 2002

Prepared May 23, 2001 by Community Development Services

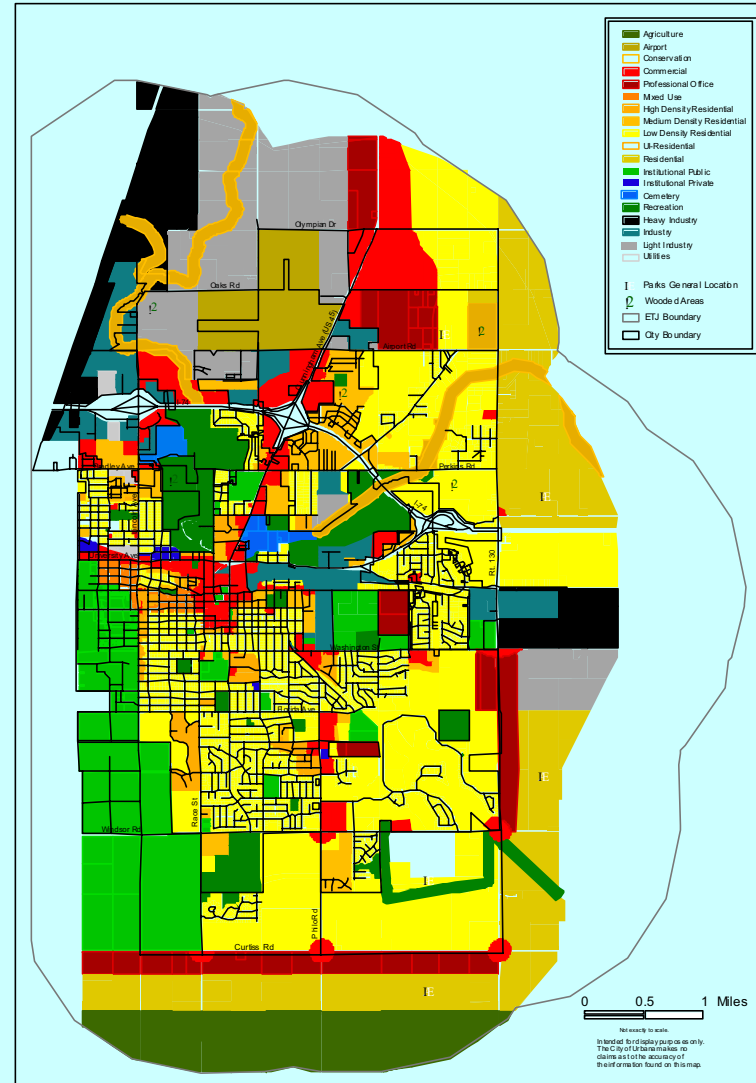
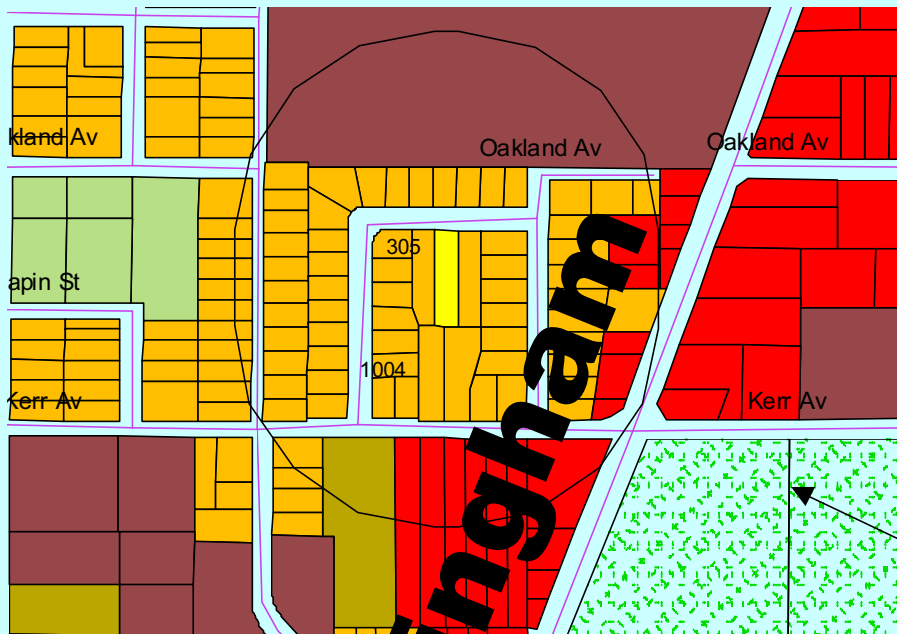


Figure 2-1 Land Use Plan Map
Urbana Comprehensive Plan 2002

Prepared February 14, 2001 by Community Development Services

Generation of maps and mailing lists



1	A	B	C	D	E	F	G	H
PN	DISTRICT	LAST	FIRST	OWNER	ADDR1	ADDR2		
1	31-21-08-276-011	RB	BURGIN	THOMAS E II	BURGIN-THOMAS E II	306 HIGHLA		
2	31-21-08-276-019	RB	DEPPE	SCOTT	DEPPE-SCOTT	1107 N GER		
3	31-21-08-276-019	RB	BURGIN	THOMAS E II	BURGIN-THOMAS E II	306 N HIGH		
4	31-21-08-276-017	RB	LUSTIG-ROBERT		LUSTIG-ROBERT	404 N HIGH		
5	31-21-08-276-018	RB	BUCK	KATHY A	BUCK-KATHY A	402 E HIGH		
6	31-21-08-276-018	RB	STURDYVIN	WANDA L	STURDYVIN-WANDA L	310 N HIGH		
7	31-21-08-276-014	RB	BOLTON	MARY E	BOLTON-MARY E	308 N HIGH		
8	31-21-08-276-013	RB	BURGIN	THOMAS E II	BURGIN-THOMAS E II	306 N HIGH		
9	31-21-08-276-012	RB	AVERY	GRAIG & KELLY	AVERY-GRAIG & KELLY	304 HIGHLA		
10	31-21-08-276-001	RB	RAUCH	SHERYLL S	RAUCH-SHERYLL S	801 E OAKL		
11	31-21-08-276-002	RB	JOHNSON	ANNICE D	JOHNSON-ANNICE D	803 E OAKL		
12	31-21-08-276-003	RB						
13	31-21-08-276-020	RB	BURGIN	THOMAS II	BURGIN-THOMAS II	306 E HIGH		
14	31-21-08-276-002	RB	HUMES	HOWARD LEE	HUMES-HOWARD LEE	1100 N DIM		
15	31-21-08-276-003	RB	HUMES	PAUL BRADLEY	HUMES-PAUL BRADLEY	1108 N DIM	SHUMES BEVERLY	
16	31-21-08-276-004	RB	SCROGUM	KAREN L	SCROGUM-KAREN L	1104 GERAL		
17	31-21-08-276-013	RB	FOTZLER	NEIL	FOTZLER-NEIL	1010 S SEC		
18	31-21-08-276-021	RB	WILLIAMS	RICHARD M	WILLIAMS-RICHARD M	1105 N HIGH		
19	31-21-08-277-001	RB	STIGALL	THOMAS E & TERRY	STIGALL-THOMAS E & TERRY	305 HIGHLA		
20	31-21-08-277-007	RB	WEBB	RICHARD E	WEBB-RICHARD E	307 N HIGH		
21	31-21-08-277-009	RB	BURGIN	TOM E II	BURGIN-TOM E II	306 E HIGH		
22	31-21-08-277-010	RB	JOHNSON	DANNY J	JOHNSON-DANNY J	1896 S FOR		
23	31-21-08-276-004	RB	SULLIVAN	TIM	SULLIVAN-TIM	1106 N DIM		
24	31-21-08-276-005	RB	DAKER	NANCEN	DAKER-NANCEN	1102 N GER		
25	31-21-08-276-022	RB	THORNTON	RUTH M	THORNTON-RUTH M	1103 N HIGH		
26	31-21-08-277-011	RB	SCHWARTZ	ANDREA	SCHWARTZ-ANDREA	1915 MCDC		
27	31-21-08-276-006	RB	RICHMOND	TROY A	RICHMOND-TROY A	1104 N DIM		
28	31-21-08-277-002	RB	LOTTMAN	DIANE J	LOTTMAN-DIANE J	1104 N HIGH		
29	31-21-08-276-006	RB	FOTZLER	NEIL	FOTZLER-NEIL	1010 S SEC		
30	31-21-08-276-014	RB	FOTZLER	NEIL	FOTZLER-NEIL	1010 S SEC		
31	31-21-08-276-014	RB	FOTZLER	NEIL	FOTZLER-NEIL	1010 S SEC		
32	31-21-08-276-023	RB	RANDOLPH	KENT RAY	RANDOLPH-KENT RAY	2303 WYLD		
33	31-21-08-277-012	RB	ELDRIDGE	ESTHER N	ELDRIDGE-ESTHER N	1011 GERAL		
34	31-21-08-276-006	RB	CHEVALER	FLORENCE K	CHEVALER-FLORENCE K	1107 N DIM		

Special Projects

- “On the fly” queries and maps

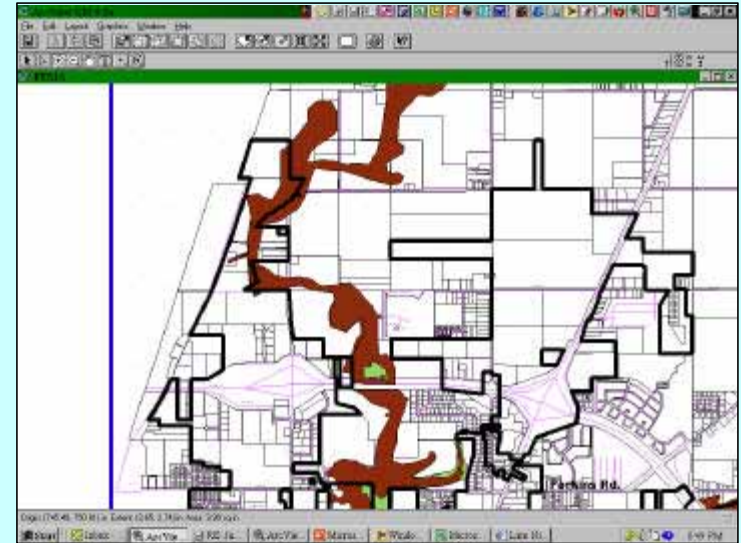
 - $EAV < 0$

 - B-1 zoning inventory

- Analysis of zoning district, future, existing land use by acres

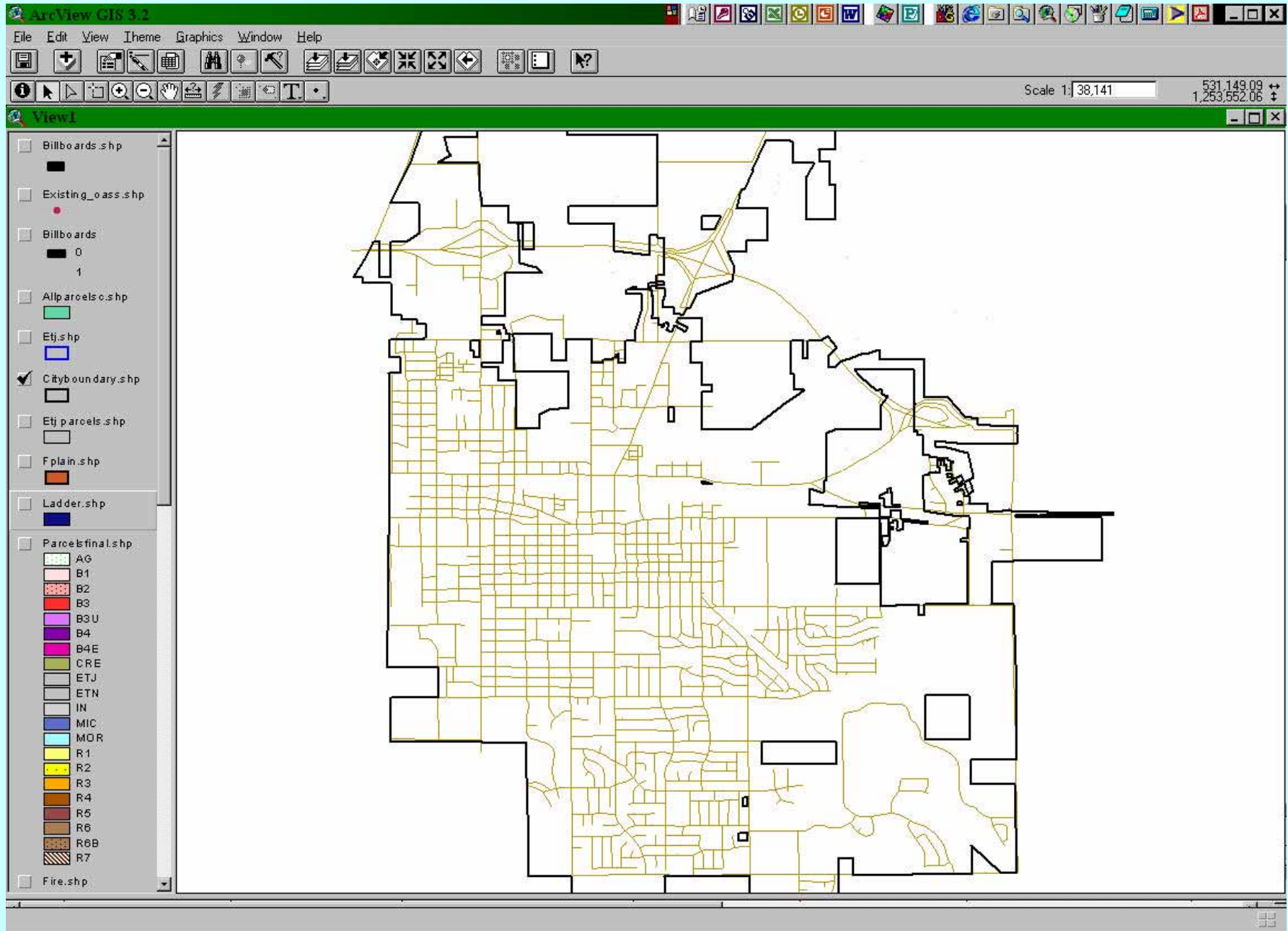
- TIF scenario: existing land use if built out according to future land use plan

- Lots of coverages “created” for Comprehensive Plan Update – great potential

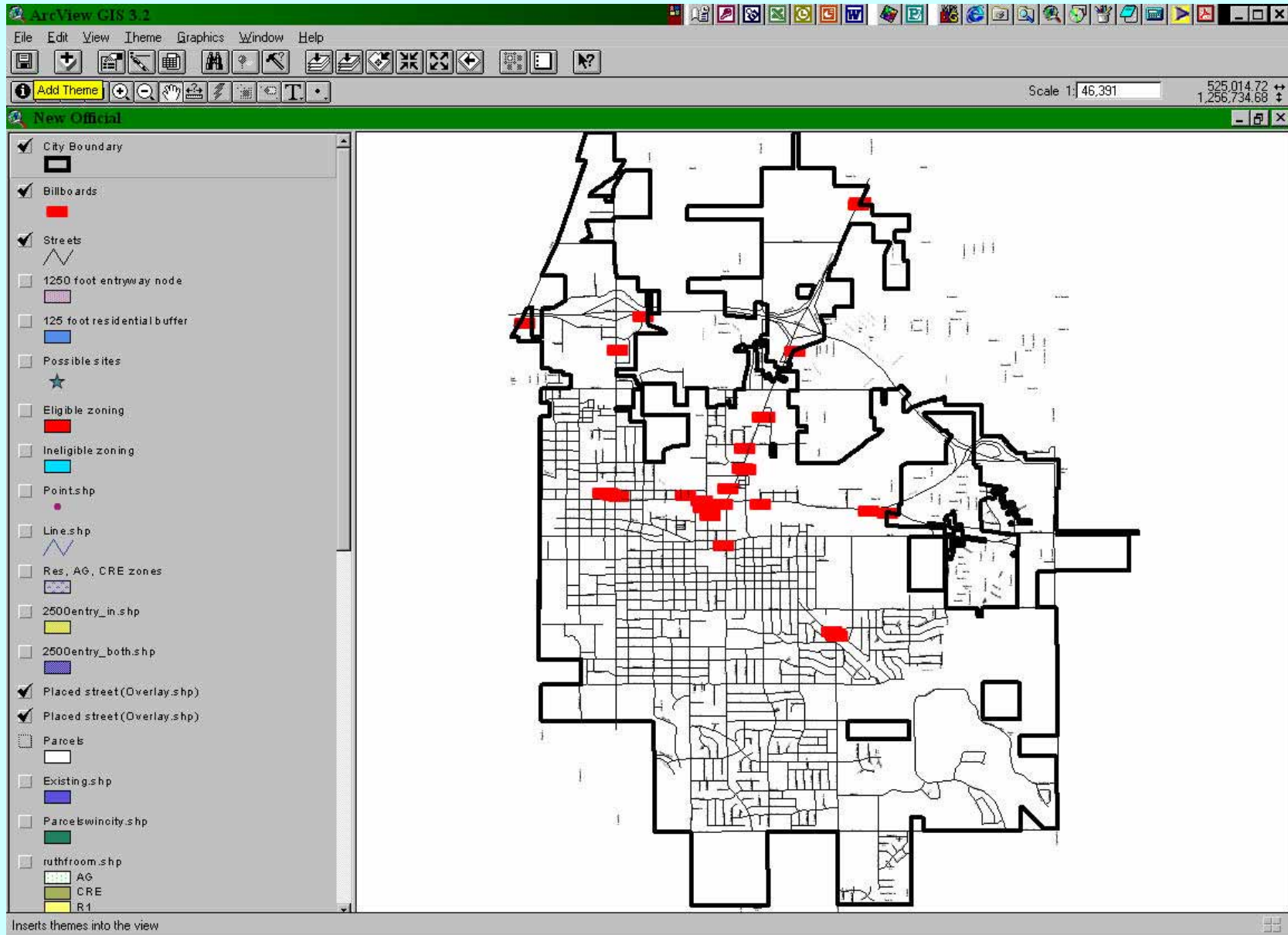


**Sample Application:
Review of Billboard Ordinance**

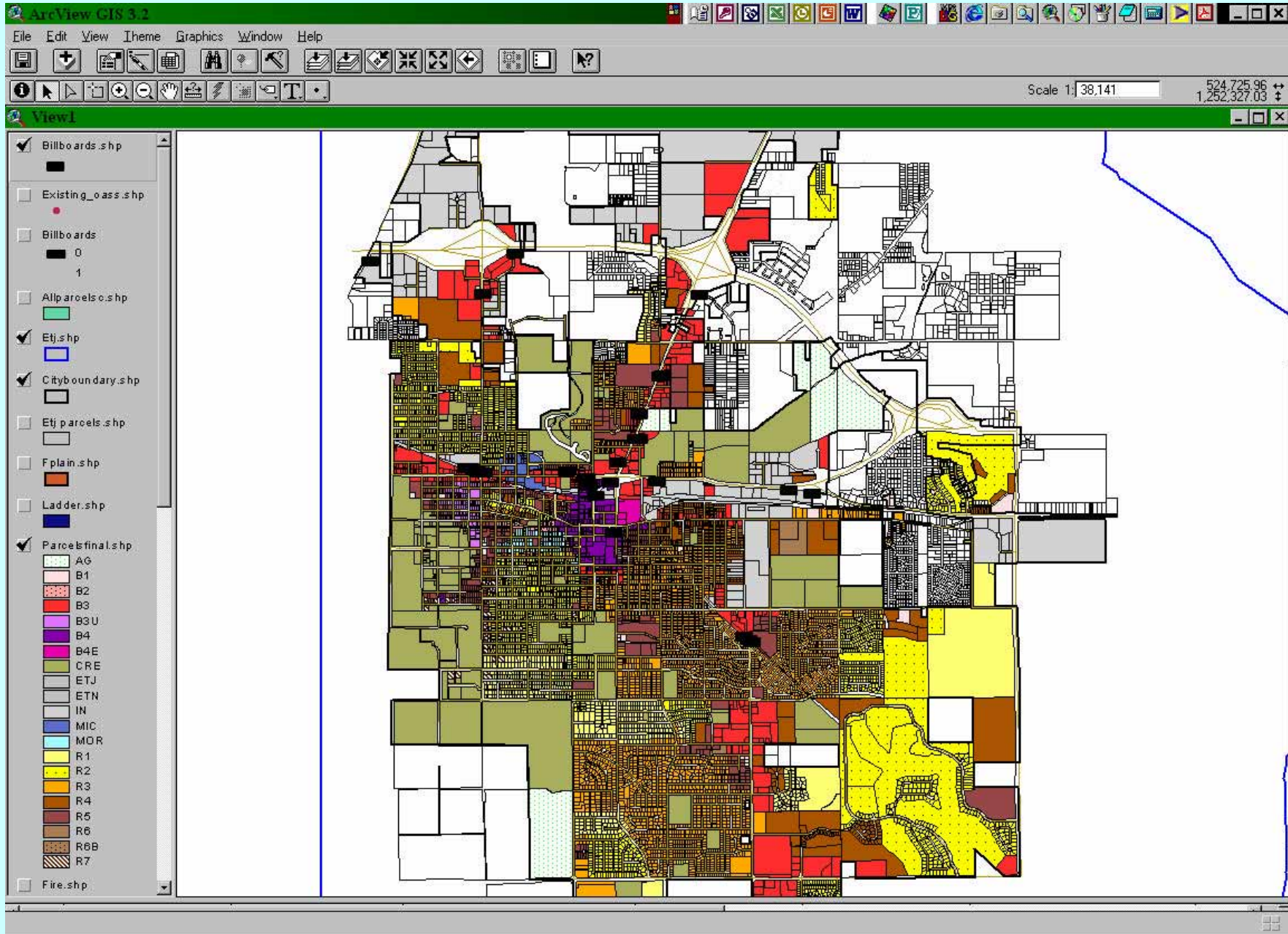
Layers 1&2: Streets and City Boundary



Layer 3: Billboard Inventory



Layer 4: Zoning Districts



- **Billboards not allowed within 50 feet of Residential, AG, CRE Zoning**
- **Question: What area covered by this requirement?**

Query database

The screenshot displays the ArcView GIS 3.2 interface. The main window shows a map of a city area with various parcels. A 'Parcels' query window is open, allowing the user to filter parcels based on their 'District' field. The query window includes a list of fields, a list of values, and a text area for the query expression.

Fields:

- [Shape]
- [Pin]
- [District]
- [Area]
- [Acres]
- [Perimeter]
- [Calcacres]

Values:

- "AG"
- "B1"
- "B2"
- "B3"
- "B3U"
- "B4"

Update Values

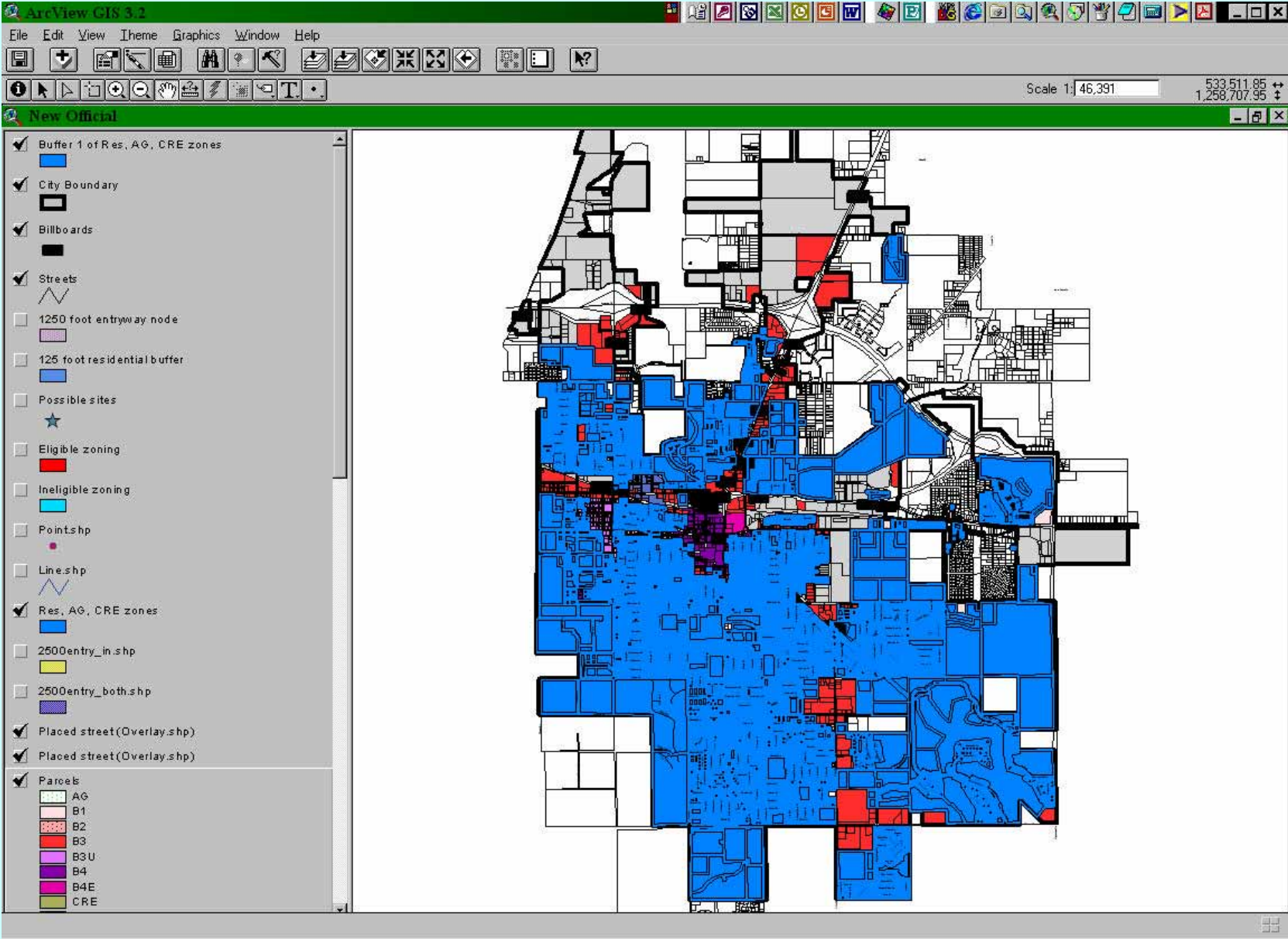
Query Expression:

```
(( [District] = ("AG" )) or ( [District] = ("CRE" )) or ( [District] = ("R1" )) or ( [District] = ("R2" )) or ( [District] = ("R3" )) or ( [District] = ("R4" )) or ( [District] = ("R5" )) or ( [District] = ("R6" )) or ( [District] = ("R6B" )) or ( [District] = ("R7" )) or ( [District] = ("MOR" )) )
```

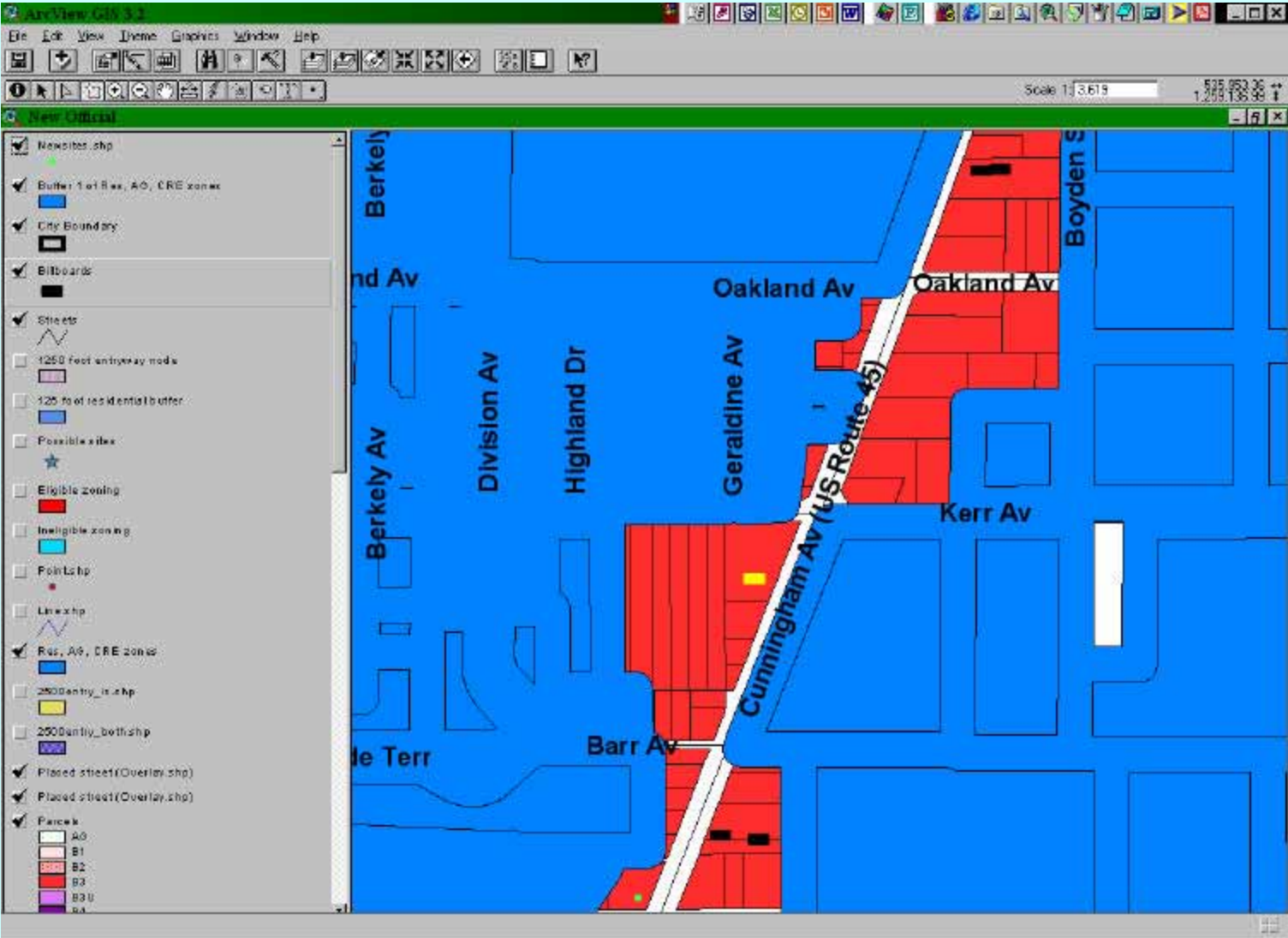
Map Legend:

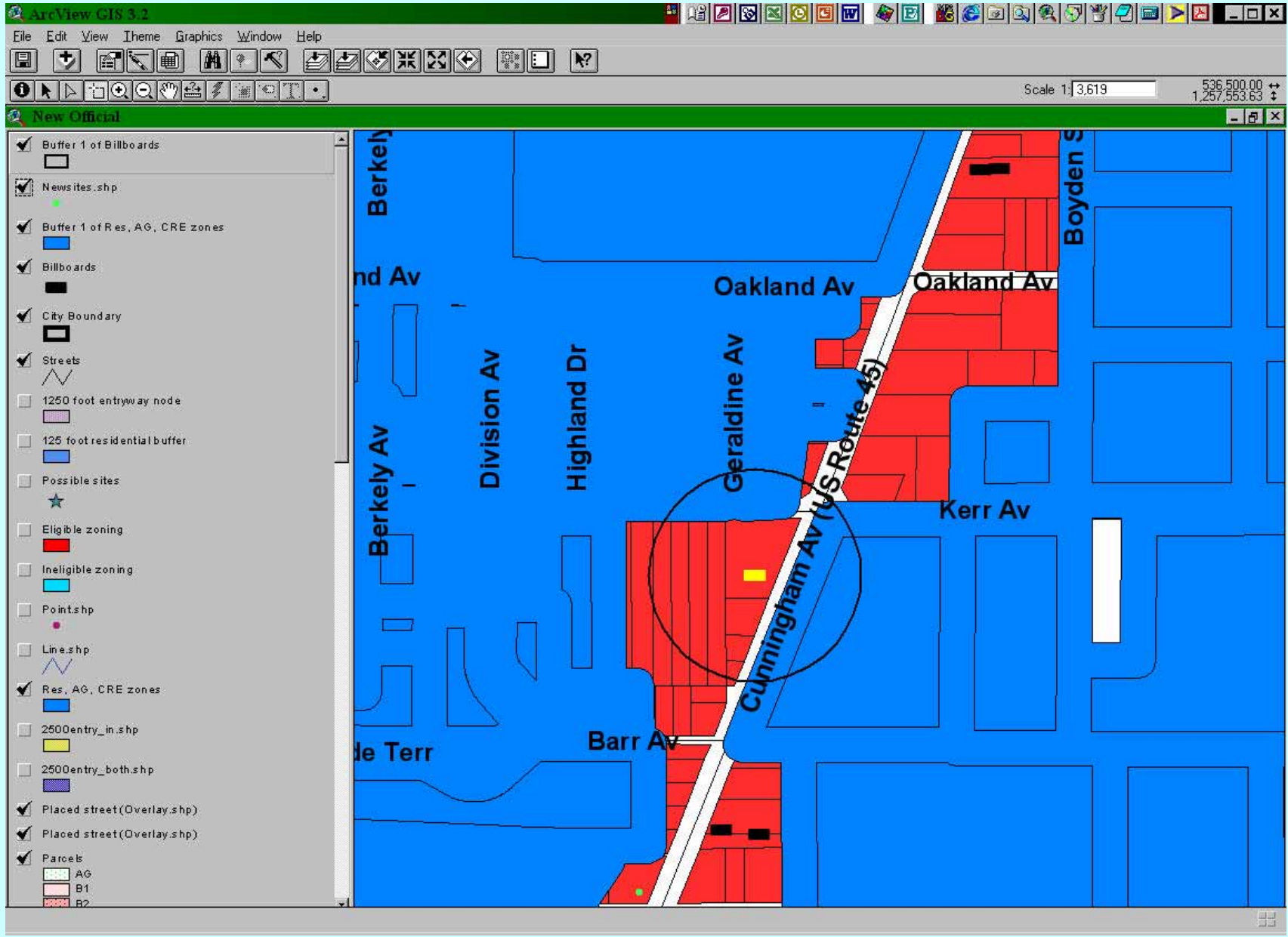
- AG
- B1
- B2
- B3
- B3U
- B4
- B4E
- CRE
- ETJ
- ETN
- IN

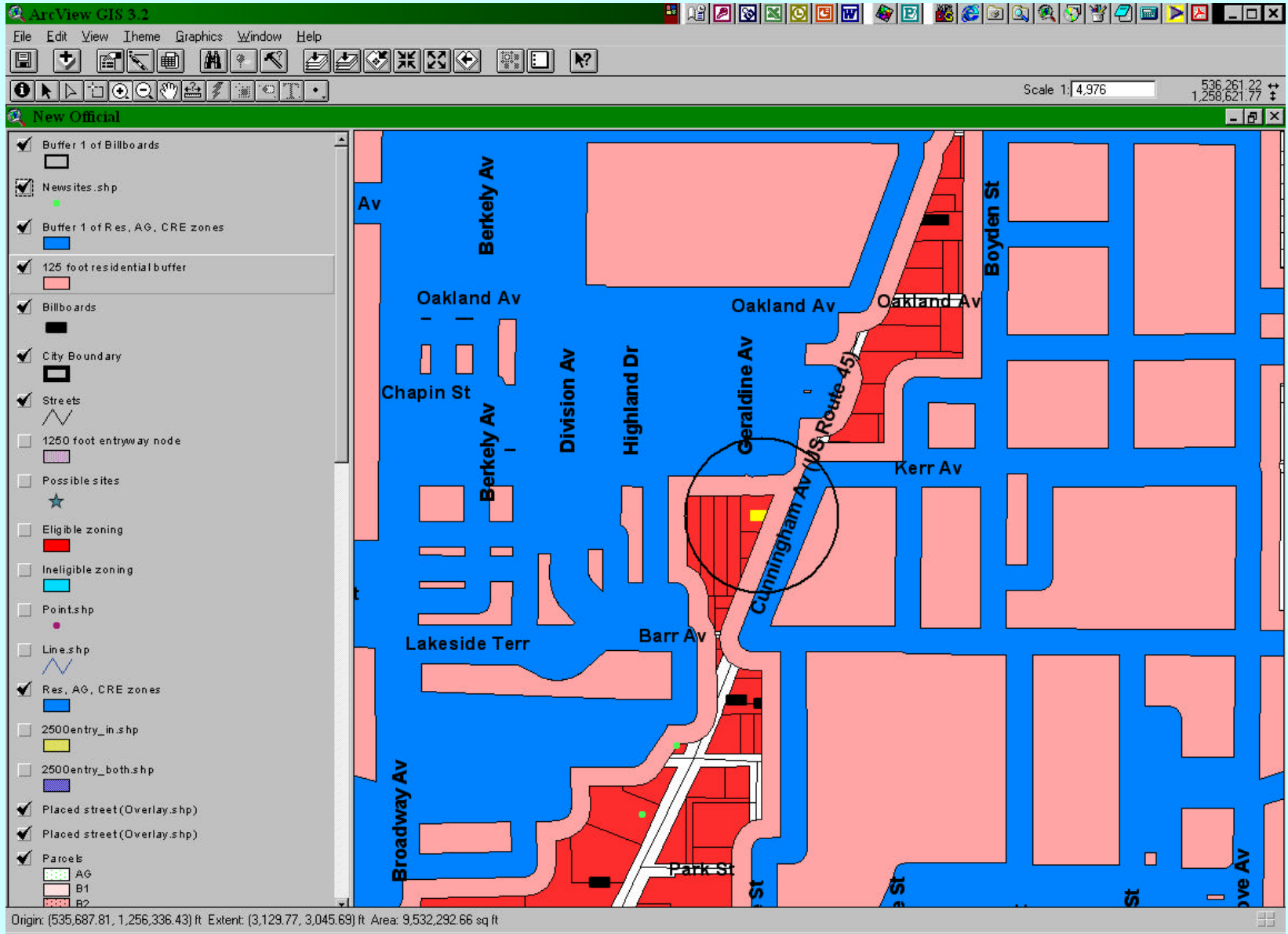
Blue= Ineligible zoning districts with 50' buffer



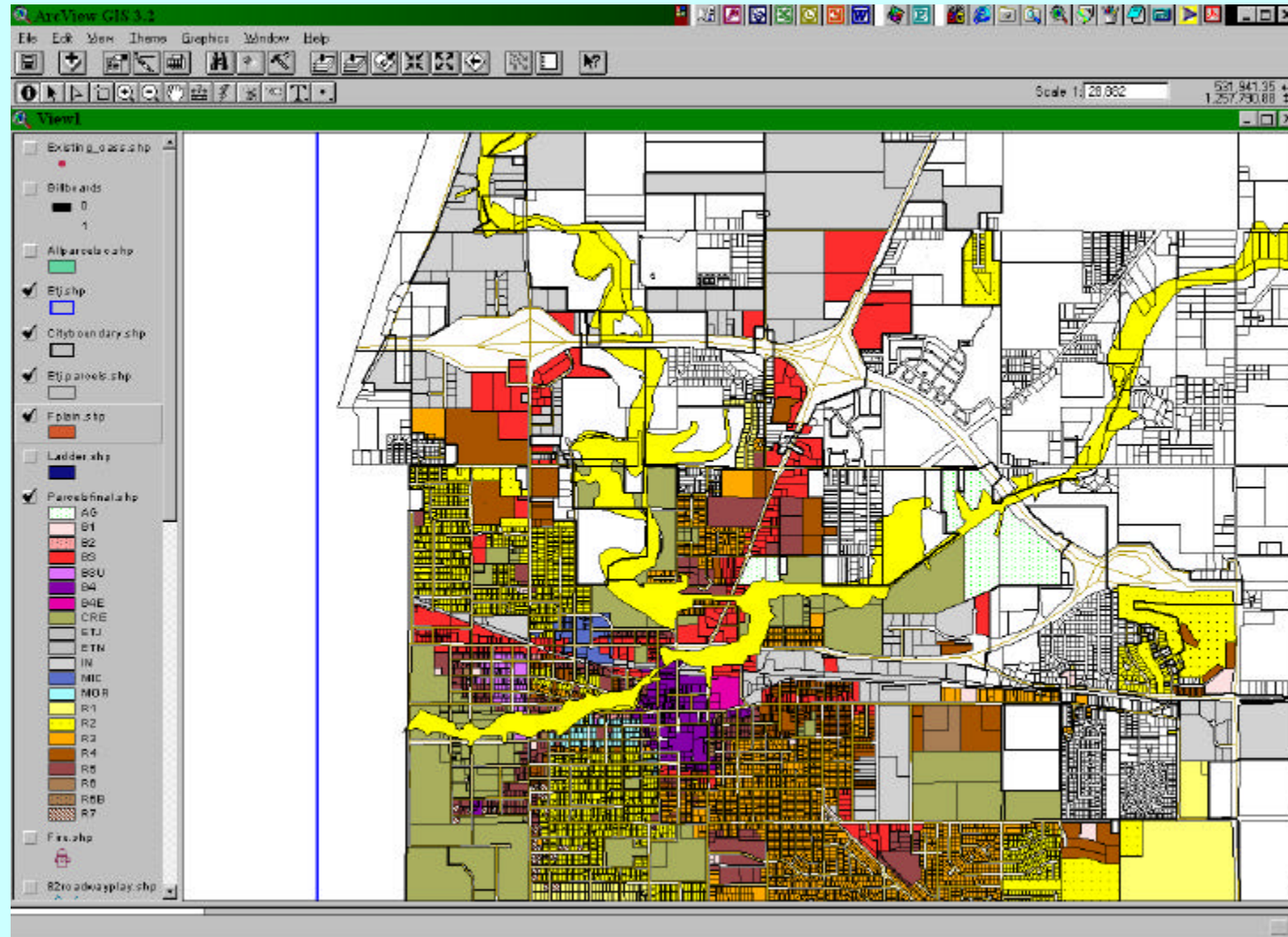
Looking at eligible properties for future billboards (300 foot spacing requirement)

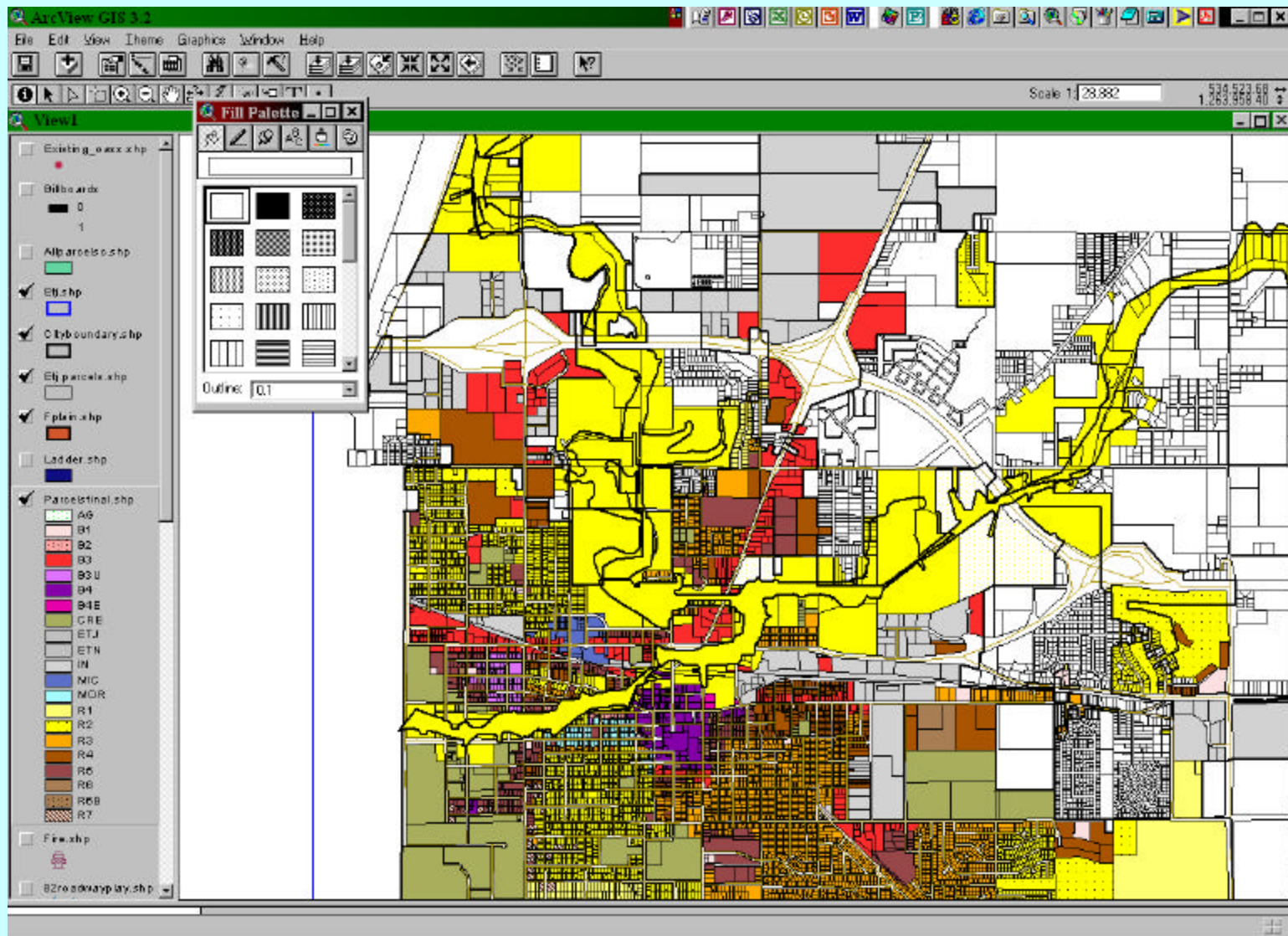






Question: Show property owners within 500 year floodplain





ArcView GIS 3.2

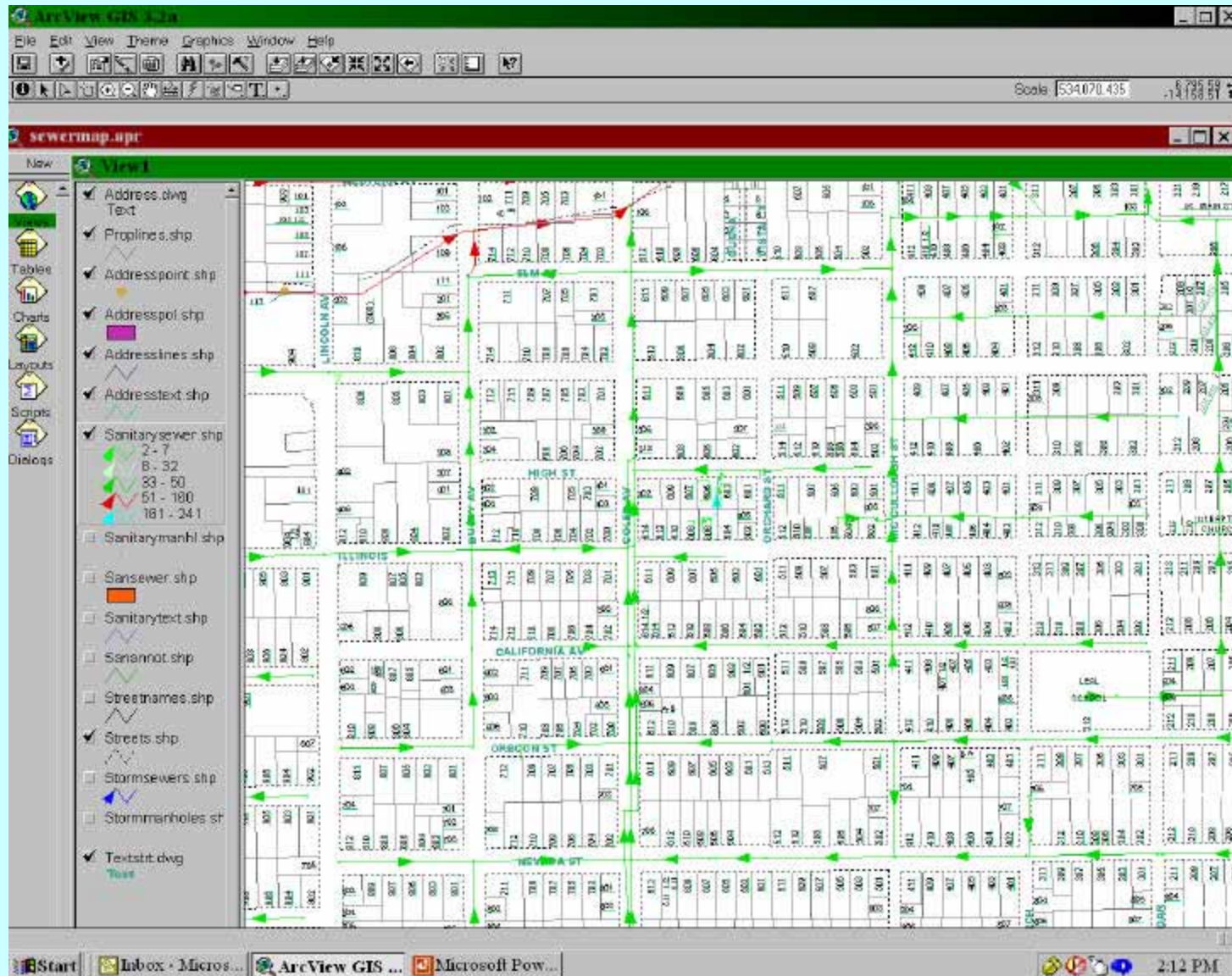
File Edit Table Field Window Help

372 of 11085 selected

Attributes of Parcelsfinal.shp

Shape	Pin	District	Area	Calcacs	Last	First	Owner
Polygon	91-21-09-152-001	AG	214403.253	4.92	EAST	LAWN BURIAL PK ASSOC	EAST<LAWN BURIAL PK ASSOC
Polygon	91-21-09-152-001	AG	0.028	4.92	EAST	LAWN BURIAL PK ASSOC	EAST<LAWN BURIAL PK ASSOC
Polygon	91-21-09-428-006	CRE	929117.998	22.13	DEPT	OF MILITARY AFFAIRS	DEPT<OF MILITARY AFFAIRS
Polygon	91-21-09-428-006	B3	97582.469	22.13	DEPT	OF MILITARY AFFAIRS	DEPT<OF MILITARY AFFAIRS
Polygon	25-15-28-452-003	ETJ	88087.898	2.02	HUGHSON	RODGER D. & JOYCE	HUGHSON<RODGER D. & JOYCE
Polygon	25-15-28-452-002	ETJ	45009.813	1.03	CORZINE	CLYDE B JR	CORZINE<CLYDE B JR
Polygon	25-15-28-452-001	ETJ	40964.379	0.94	CORZINE	CLYDE B JR	CORZINE<CLYDE B JR
Polygon	25-15-28-452-004	ETJ	29154.411	0.67			
Polygon	25-15-28-452-012	ETJ	33137.902	0.76			
Polygon	25-15-28-452-007	ETJ	51672.100	1.19			
Polygon	25-15-28-452-008	ETJ	51689.177	1.19			
Polygon	25-15-28-452-009	ETJ	51663.347	1.19			
Polygon	25-15-33-100-001	ETJ	17681.240	0.41	SPLITTSTOESSER	D J	SPLITTSTOESSER<D J
Polygon	25-15-33-100-015	ETJ	10423.977	0.24	ISGRIG	DWAYNE /EMILY DAVI	ISGRIG<DWAYNE /EMILY DAVI
Polygon	25-15-33-100-016	ETJ	11069.591	0.25	GOOD	ROBERT G	GOOD<ROBERT G
Polygon	25-15-33-100-007	ETJ	46222.547	1.06	STONE	DAVID M	STONE<DAVID M
Polygon	25-15-33-100-013	ETJ	1237312.743	28.40	FRASCA	RUDDOLF	FRASCA<RUDDOLF
Polygon	25-15-33-100-014	ETJ	39767.741	0.91	FREDERICK	GAYLORD	FREDERICK<GAYLORD
Polygon	25-15-33-100-018	ETJ	3450488.843	79.21	LAKEY	HERSCHEL W & TREVA	LAKEY<HERSCHEL W & TREVA
Polygon	25-15-33-251-005	ETJ	1658441.392	38.07	LAKEY	ROBERT W & MARY E	LAKEY<ROBERT W & MARY E
Polygon	25-15-33-226-008	ETJ	309798.469	7.11	LAKEY	HERSCHEL W & TREVA	LAKEY<HERSCHEL W & TREVA
Polygon	25-15-33-226-002	ETJ	69187.471	1.59	MARSHALL	GERALD	MARSHALL<GERALD
Polygon	25-15-33-227-001	ETJ	125994.294	2.89	GRIFFITHS	ALBERT O	GRIFFITHS<ALBERT O
Polygon	25-15-33-100-003	ETJ	48133.334	1.10	SQUIRE	HELEN M	SQUIRE<HELEN M
Polygon	25-15-33-100-004	ETJ	43471.918	1.00	GRACE	BIBLE CHURCH	GRACE<BIBLE CHURCH
Polygon	25-15-33-227-002	ETJ	42139.639	0.97	MCGUIRE	DAVID M & SUZANNE	MCGUIRE<DAVID M & SUZANNE
Polygon	25-15-33-227-003	ETJ	41935.001	0.96	MCGUIRE	DAVID M & SUZANNE	MCGUIRE<DAVID M & SUZANNE
Polygon	25-15-33-100-005	ETJ	215823.525	4.95	GRACE	BIBLE CHURCH	GRACE<BIBLE CHURCH
Polygon	25-15-33-227-004	ETJ	82540.481	1.89	MAHONEY	MICHAEL J	MAHONEY<MICHAEL J
Polygon	25-15-33-227-005	ETJ	83063.590	1.91	MAHONEY	MICHAEL J	MAHONEY<MICHAEL J
Polygon	25-15-33-227-006	ETJ	41370.422	0.95	EHLER	HERBERT & HELEN	EHLER<HERBERT & HELEN
Polygon	25-15-33-227-007	ETJ	41285.435	0.95	EHLER	HERBERT & HELEN	EHLER<HERBERT & HELEN
Polygon	25-15-33-227-010	ETJ	52683.350	1.21	EHLER	HERBERT & HELEN	EHLER<HERBERT & HELEN
Polygon	25-15-33-227-008	ETJ	41262.134	0.95	EHLER	HERBERT & HELEN	EHLER<HERBERT & HELEN
Polygon	25-15-33-100-006	ETJ	47510.007	1.09	FRASCA	ASSOCIATES	FRASCA<ASSOCIATES
Polygon	25-15-33-227-009	ETJ	43394.004	1.00	EHLER	HERBERT & HELEN	EHLER<HERBERT & HELEN
Polygon	25-15-33-251-006	ETJ	1187976.804	27.27	SALMON	GENE	SALMON<GENE
Polygon	25-15-33-276-007	ETJ	60965.489	1.40	JAC	ENTERPRISES	JAC<ENTERPRISES
Polygon	25-15-33-276-001	ETJ	22133.172	0.51	T	DAVIS ELECT INC	T<DAVIS ELECT INC
Polygon	91-15-33-100-020	IN	269001.536	6.18	FRASCA	ASSOCIATES	FRASCA<ASSOCIATES
Polygon	25-15-33-100-019	ETJ	1434514.619	32.93	FRASCA	ASSOCIATES	FRASCA<ASSOCIATES
Polygon	25-15-33-276-002	ETJ	14598.516	0.34	LEE	HARLAN	LEE<HARLAN

Urbana Sewer Map with jurisdiction and flow direction



Urbana Sewer Database

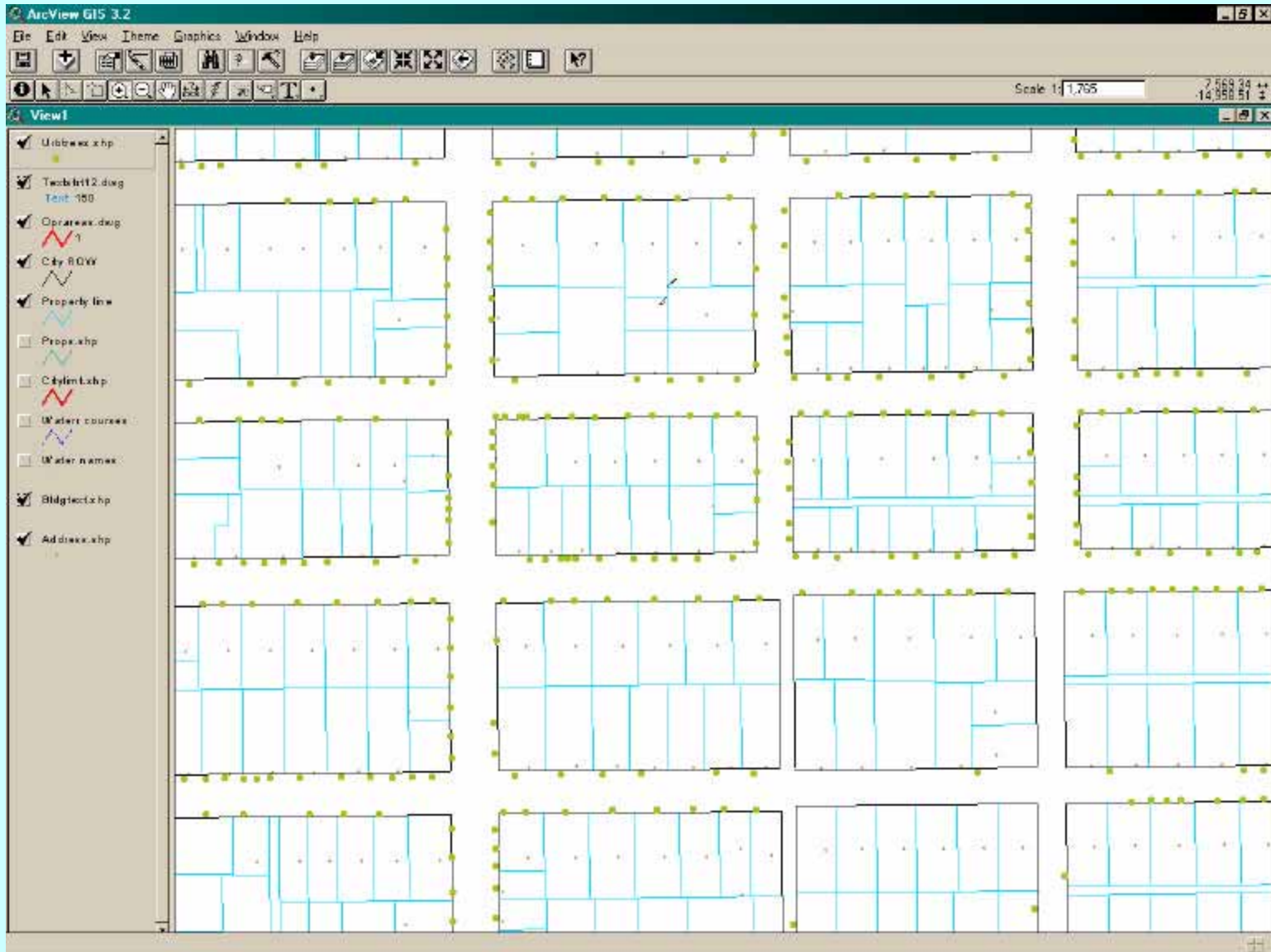
The screenshot displays the ArcView GIS 3.2a interface. The main window shows a map of the Urbana Sewer Database. The 'Attributes of Sanitarysewer.shp' window is open, displaying a table of sewer line attributes. The table has the following columns: Shape, FID, Name, Layer, Elevation, Thickness, Color, Linetype, and Linewidth. The data is as follows:

Shape	FID	Name	Layer	Elevation	Thickness	Color	Linetype	Linewidth
PolyLine	Line	13D978BB0	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978B1F	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978D20	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978C49	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978C20	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978BFF	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978BCC	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978AA7	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978D8A	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978CF9	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978C3C	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978C3B	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978C37	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978D12	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978D13	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978D10	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978C43	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978CFE	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978CF5	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978C55	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978D02	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978D06	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978C30	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978C2A	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978C35	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978C28	UISAN	0.00000	0.00000	160	BORDER2	0.0000
PolyLine	Line	13D978BF8	UISAN	0.00000	0.00000	160	BORDER2	0.0000

Aerial Photo showing planimetric overlay



Urbana's Tree Inventory



Linked Tree data

The screenshot displays the ArcView GIS 3.2 interface. The main map area shows a street grid with yellow dots representing tree locations. An 'Identify Results' window is open, showing the following data for a selected tree:

Field	Value
Shape	Point
Site_id	7188
Theme	STREET TREE
Area	6
Addr_no	506
Street	ILLINOIS ST W
Lot_side	F
Tree_cell	1
Genus	PLATANUS
Species	OCCIDENTALIS
Comm_name	AMERICAN SYCAMORE
WIRE	
TRUNK	0
SWALK	N
ROOT	0
MAINT	PRIORITY 2
LOCAT	G
LAWNw	11
DBH	25
CROWN	B
COND	F
BRANCH	0
Observed13	
Obs_cat14	
Observed14	
Obs_cat13	
Observed15	
Obs_cat16	
Observed16	
Obs_cat17	
Inactive	False
Site_str	
Observed17	
Obs_cat18	
Observed18	
Obs_cat19	
Observed19	
Obs_cat20	
Observed20	

How do we get there?

- **A countywide GIS model is currently being evaluated by a technical committee made up of representatives from the County, major municipalities and the University.**
- **The potential benefits of such a consortium are being evaluated including the setting of area wide standards and the sharing of costs and expertise.**

What will it cost?

The cost components include:

Hardware

Software

Training and education

Direct staff time for implementation

- As the consortium model becomes more clear the costs will also.**

For further information:

- www.gisday.com November 14, 2001
- www.esri.com Developer of geographic information systems
- [http://www.gis.ci.mil.wi.us/isa/Map Milwaukee/](http://www.gis.ci.mil.wi.us/isa/Map_Milwaukee/) example of a city with GIS web access
- <http://www.ci.des-moines.ia.us/departments/it/GIS.htm> example of a city in the process of implementing GIS throughout the City