

AM/FM

- Automated Mapping & Facilities Management
- Closely Allied to Computer Aided Drafting (CAD)
- Major AM/FM GIS Users
 - Initially Private Sector Applications in Utilities, as well as Mechanical/Blg Services
 - Increasingly used by planing & maintenance departments within the public sector
- AM/FM is both a day-to-day and long range planning device

AM/FM

- Enables real time inventory of facilities and production of maps for use in the field and for the creation of a map library
- AM/FM GIS applications links the mapping capabilities with the facilities inventory

AM

- Principally the same concept of traditional cartography--but with rapid output
- Library Maintenance more efficient
 - up to 10 times more efficient than manual cartography
- Centralized Data Management
 - multiple users can access data once stored on single map
 - allocate access and editing rights to defined end-users

FM

- A traditional/tabular database of real world objects
 - output table/cross tab format
- A facilities management database inventories all ‘facilities’ and composite parts
 - utilities poles: when constructed, dimensions, hardware, ‘grid’ (network), unique ID (sequential)

No Linkage

- If no linkage exists between AM & FM redundancy is a significant issue
- Benefits of Linking Technologies
 - reduce data management costs
 - new forms of output/reporting
 - institutional data sharing promotes better decision-making

AM/FM

- Data sources & Quality
 - original sketches or drawings
 - depends on how 'old' sketches are
 - field work
 - recent CAD dwgs 'dxf-ed out'
- Data Structure
 - Mostly Vector
 - raster backdrop (air photo or image) often used for reference
- Scale
 - service maps 1:100
 - systems maps 1:100,000

AM/FM

- **University of Toledo Example**
 - **Grounds & Maintenance**

Demographic

- **Marketing & Retailing Applications** where spatial information plays a major role in many marketing and retailing decisions which involve decisions about location of present and future trade areas
- Government applications include **redistricting** following the census of population

Demographic

- Applications identify sites within target areas OR redefine target areas based on demographic features

Demographic

- Scale
 - Vector primarily TIGER 1:24,000 and smaller
 - Attribute
 - Block Group Data (250 households) for small facilities & redistricting
 - Census tract (2,000 households) is good for the location of larger facilities like supermarkets and fast food outlets

Demographic

- Accuracy Issues
 - spatial accuracy need only be relative
 - attribute accuracy needs to be absolute
- Data Sources
 - TIGER
 - must be updated by users
 - ZIP Code Boundaries
 - DMA Boundaries (Marketing Areas)

Demographic

- Types of GIS Functions
 - Overlay
 - Dissolve--Merge--Union
 - Address Matching
 - Aggregate--Summary Statistics by ED/Poly

Demographic

- **Related Terms**
 - Siting
 - Market Penetration
 - Targeting
 - Redistricting

Case Study from NCGIA

- Catholic School Redistricting--London, Ont.
 - 25% of child go to catholic school between grades k-8
 - children are bussed if they live 2 or more miles away
 - 27 Schools exist
- Objectives
 - Minimize Travel & Bussing Expense
 - Minimize Total Change
 - Maintain minimum enrollment of 75% of capacity
 - Maintain Community Parishes

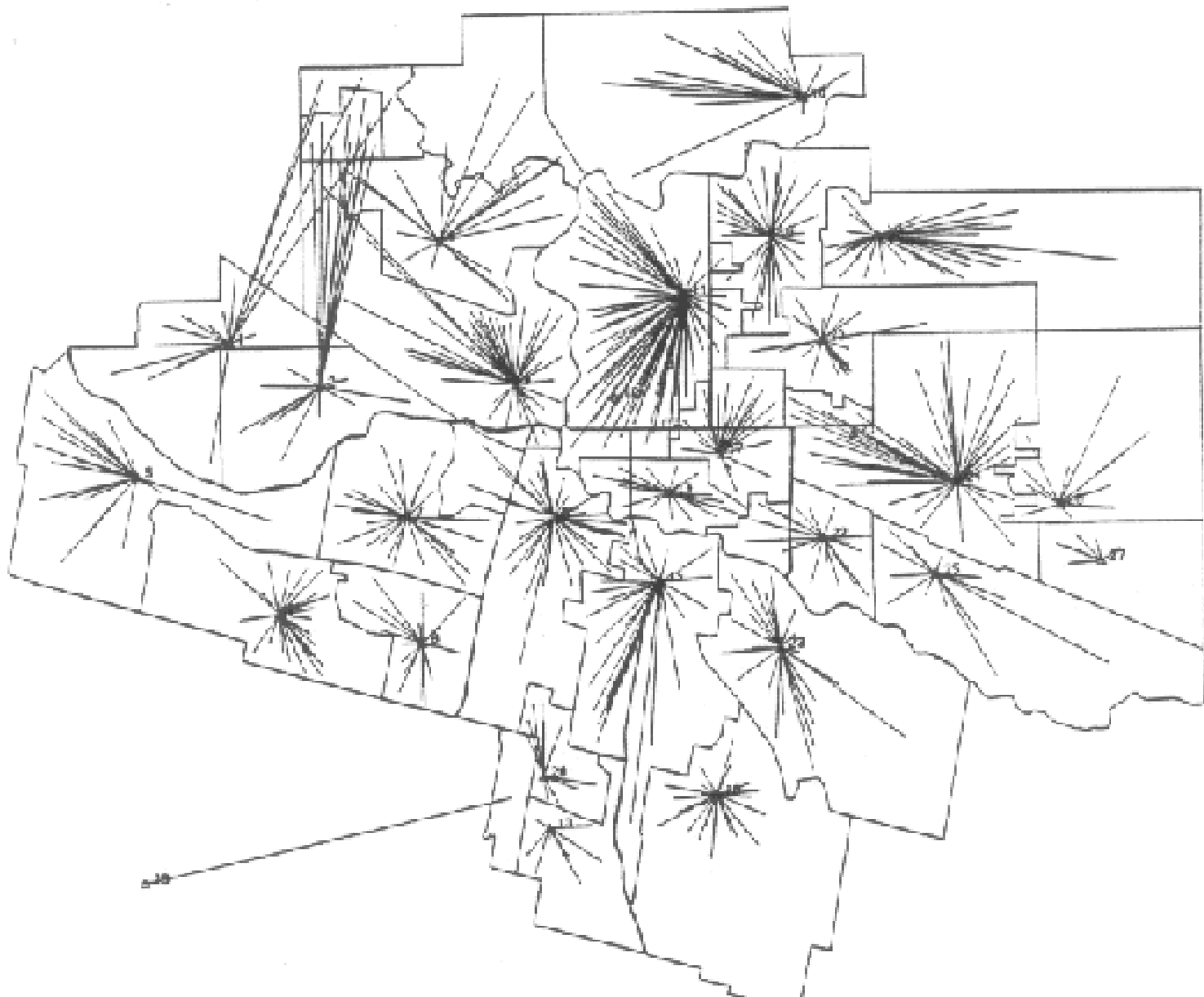
Case Study

- Available Data
 - polling boundaries
 - school age children forecasts by boundaries
 - school locations
- GIS Operations
 - Dissolve & Merge
 - Aggregate
 - “Distance”

GEO 448 GIS APPLICATIONS



GEO 448 GIS APPLICATIONS



GEO 448 GIS APPLICATIONS

#	School	Enrollments			
		Actual	Projections		
		1981	1986	1991	1996
3	St. Joseph's	186	341	423	496
4	St. Thomas More	229	340	479	496
8	St. Jude's	433	292	218	204
14	St. John's	223	149	139	108
15	St. Martin's	244	345	383	385
17	St. Mary's	169	116	106	114

	Current situation				Closure plan			
Number of schools	27				21			
Total capacity	11,488				9,446			
	1981	1986	1991	1996	1981	1986	1991	1996
Percent capacity	67	62	63	63	82	76	77	77
Number of schools	14	17	16	17	5	5	7	6
Number of schools	5	7	8	7	2	0	0	0
Percent not assigned	13	19	20	21	18	23	25	27
Mean distance travelled	0.59	0.72	0.79	0.83	0.67	0.79	0.87	0.93