



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

Enterprise GIS Implementation Project

*“A Campus-Wide Geodatabase: Bricks and Mortar of a
University’s GIS”*

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***Facilities Planning and Construction
The University of North Carolina at Chapel Hill***

Have a Plan



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- **Build a Case from the Bottom Up**
- **Garner Support from the Top Down**
- **Educate Senior Management**
- **Top Level Support is Essential!!**

Assessment Recommendations



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- ◆ GIS Coordinator Position
- ◆ GIS Server Technology/Hardware/Software
- ◆ Master Data List-Metadata
- ◆ Work Flows to Maintain Data
- ◆ System Architecture-ESRI GIS Suite of Software
- ◆ Departmental Web Browser interface-ArcIMS



Key Planning Factors

- ◆ **Project Sponsors**
- ◆ **Master Planning-Needs Analysis**
- ◆ **Show Quick Successes**
- ◆ **Stakeholder Involvement**
- ◆ **Education-Training**
- ◆ **Ease of Use**
- ◆ **Enterprise Wide Solution**



Project Goals

- ◆ **Computerized mapping Server**
- ◆ **Single Repository of spatial information**
- ◆ **Enterprise wide sharing of data-Multi User Editing**
- ◆ **Data access from Desktop, web or mobile clients**

Project Team



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University Resources

- ◆ Senior Management Sponsors
- ◆ Campus Services
- ◆ Energy Services
- ◆ Facilities Planning Dept.
- ◆ Facilities Services
- ◆ GIS/Mapping Team
- ◆ IT Department
- ◆ Land Surveying Team

Solution Partners

- ◆ Geographic Technologies Group
- ◆ Sanborn Mapping Company
- ◆ ESRI Inc.- Charlotte Office



1. **GIS needs assessment study**
2. **Implementation Process**
 - ◆ **Phase I**
 - ◆ **Geospatial Database Development and work flows**
 - ◆ **GIS Web Presence**
 - ◆ **Phase II - Improving the quality of the datasets**
 - ◆ **Phase III - Application development**



Software

Interoperability
& Integration

Data

Design,
Collection,
Maintenance
& Update

People

Structure,
Accountability,
Staffing & Job
Description

Vision

Goals &
Objectives



Hardware

PCs, Hand Held Portable GIS,
Servers & Peripheral Devices

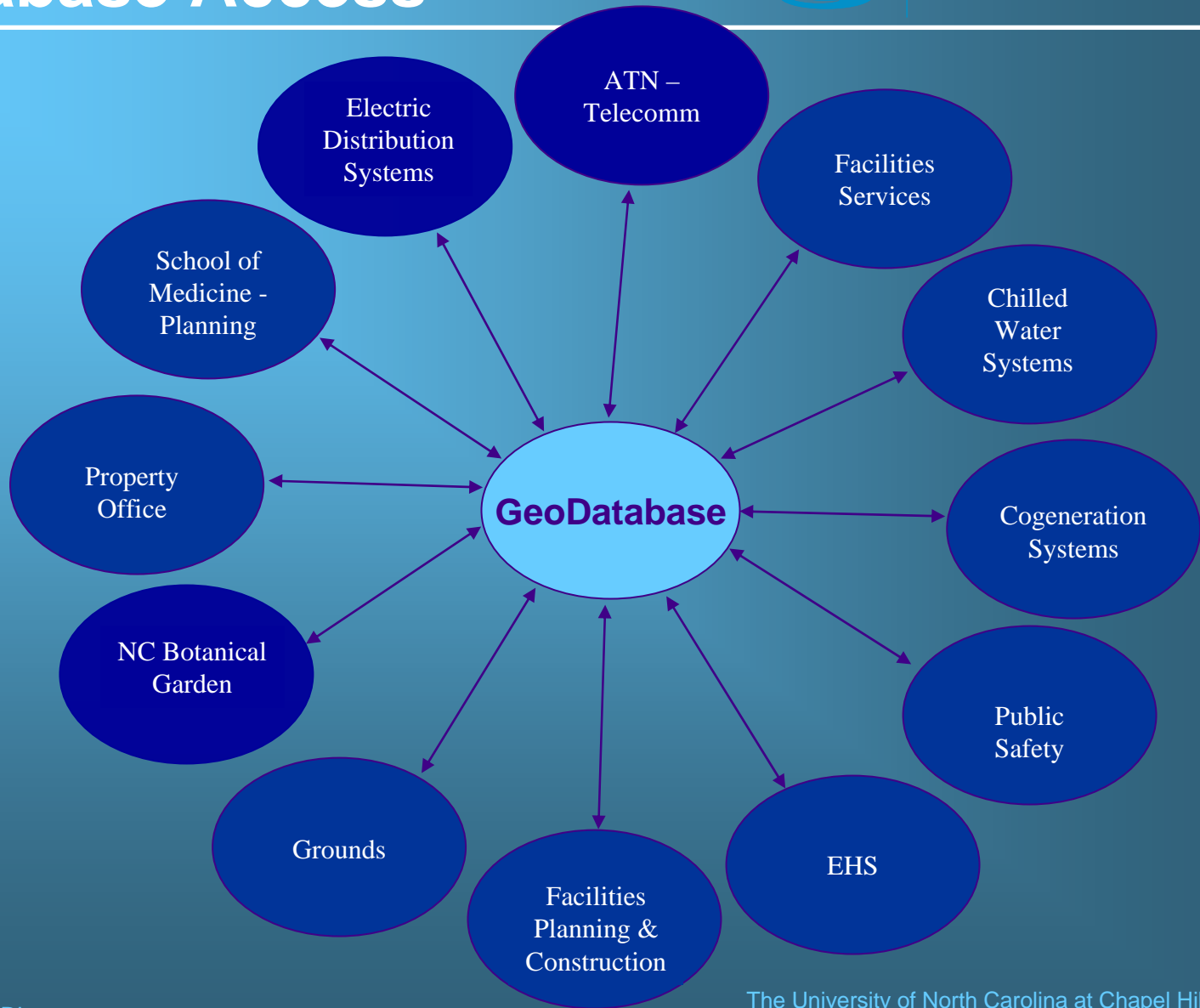
Network

Speed,
Architecture,
Accessibility
& Deployment

Procedures

Workflow,
Business Reengineering
& Costs Vs. Benefit

GeoDatabase Access



Master Data List



A	B	C	D	E	F	G	H
Priority	Data Layer	Data Source	Data Type	Existing Format	Preferred Format	Subject matter expert	Data Custodian - (Data layer editor)
1	Aerial Photography	Flyover	Raster	Color TIFF and MrSID	TIFF and MrSID	Abbas Piran	GIS/EIS
1	Steam Infrastructure	Survey of all ground features	Points and Lines	MGE	Geodatabase	Allen Johson-Cogeneration	GIS Technician - Electric Systems
1	Storm Water Infrastructure	Survey of all ground features	Points and Lines	MGE	Geodatabase	Meg Holton-Energy Services	GIS Technician - GIS/EIS
1	Streets	Aerial photography	Polygons	CAD/Coverage/Shapefile	Geodatabase	Paula Gee Davis	Paula Gee Davis - GIS/EIS
1	Survey Benchmarks	Read assigned coordinates, manually enter	Points	Does not exist	Geodatabase	EIS Surveyor	John Pickens, Surveyor
1	Telecommunication Infrastructure	Survey of all ground features	Points and Lines	MGE	Geodatabase	Roy Caudle-ATN	GIS Technician - Electric Systems
2	Topography (contour lines)	Flyover	Lines	ArcInfo Coverage	Geodatabase	John Pickens-GIS/EIS	John Pickens, Surveyor
2	Tree Canopy	N.C. State	Polygons	Shapefile	Geodatabase	Bob Davidson-Grounds	Bob Davidson-Grounds
1	Trees	N.C. State	Points	Shapefile	Geodatabase	Bob Davidson-Grounds	Bob Davidson-Grounds
3	Underground storage tanks	GPS	Points	Does not exist	Geodatabase	Larry Daw-EHS	Larry Daw-EHS
1	Utility-Electric Infrastructure	Survey of all ground features	Points and Lines	MGE	Geodatabase	John Lindberg	Joanne Talley - Electric Systems
2	Watersheds	Survey	Polygons	CAD	Geodatabase	Meg Holton-Energy Services	Paula Gee Davis - GIS/EIS
1	Whiteway (Lighting Corridors)	Survey of all ground features	Points and Lines	MGE	Geodatabase	Curtis Helfrich	GIS Technician - Electric Systems



Data Models

- ◆ **Allows Users to Define Data Requirements**
- ◆ **Enhances Communication Across Organization**
- ◆ **Reduces Redundancy**
- ◆ **Creates Buy-In**
- ◆ **Uncovers Work Flow Issues**
- ◆ **Identifies Potential Applications**
- ◆ **Encourages Vision**



Can be a long process...



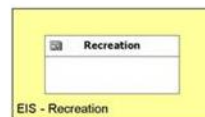
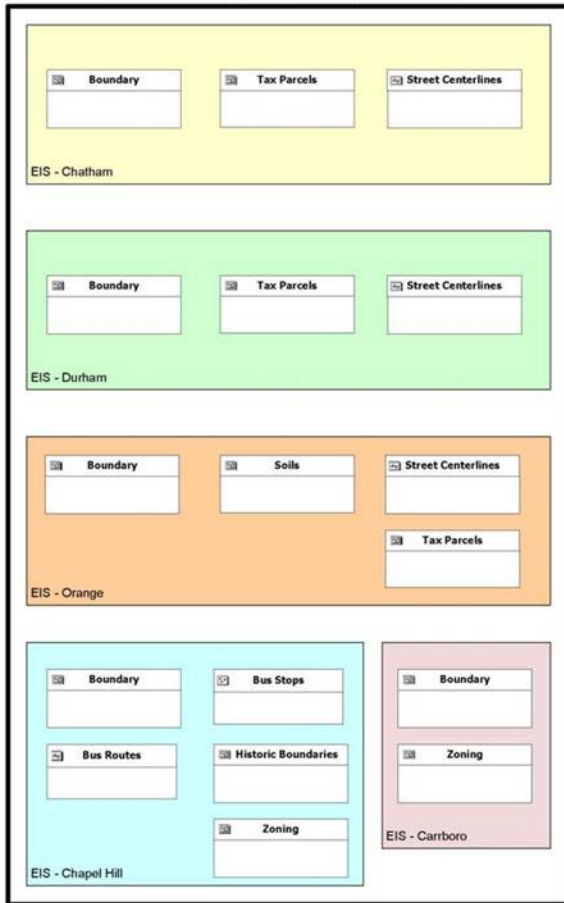
But well worth the investment.

Conceptual Model Example



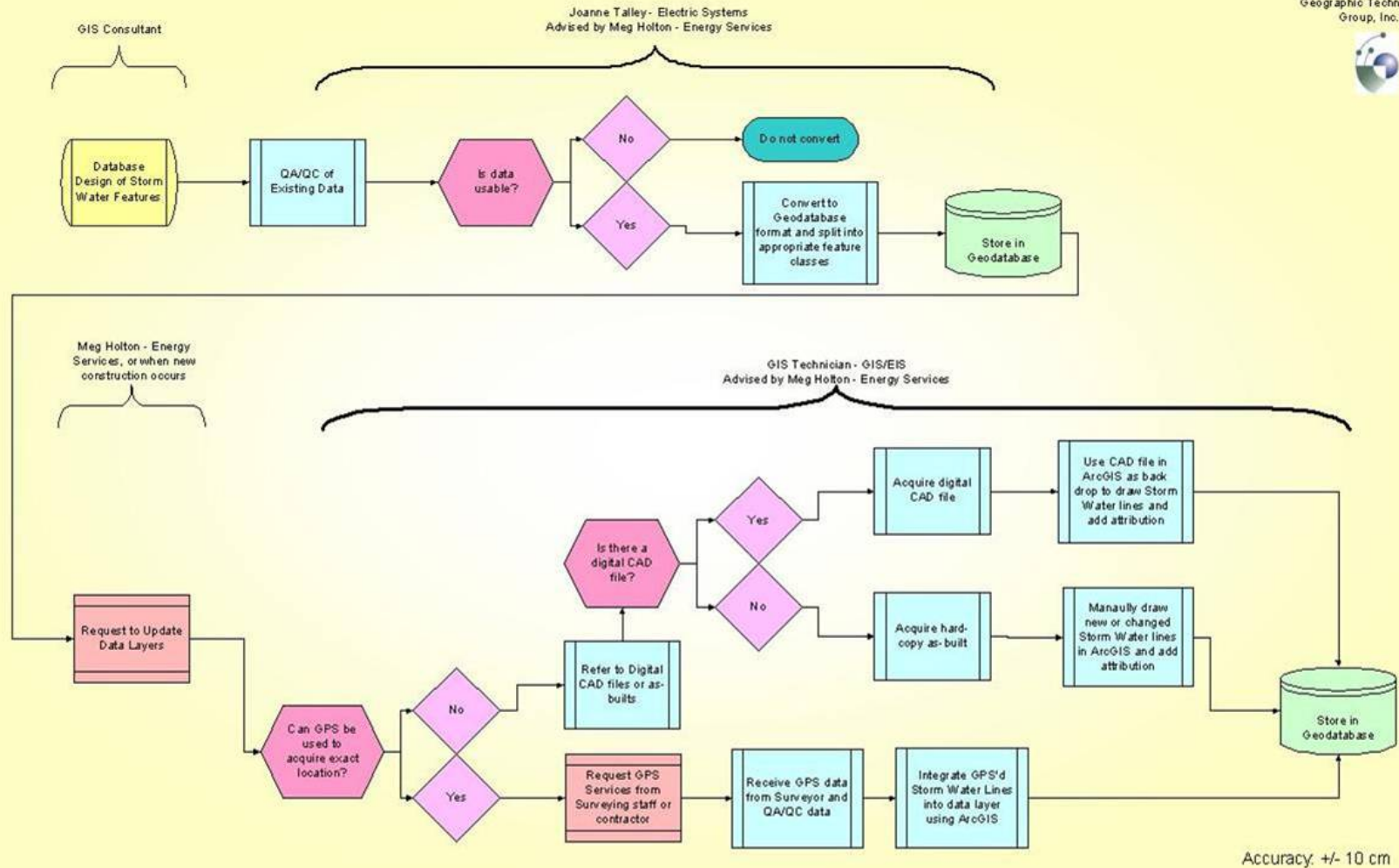
UNC - Engineering Information Services Data Model

These datasets come from outside sources (cities or counties)

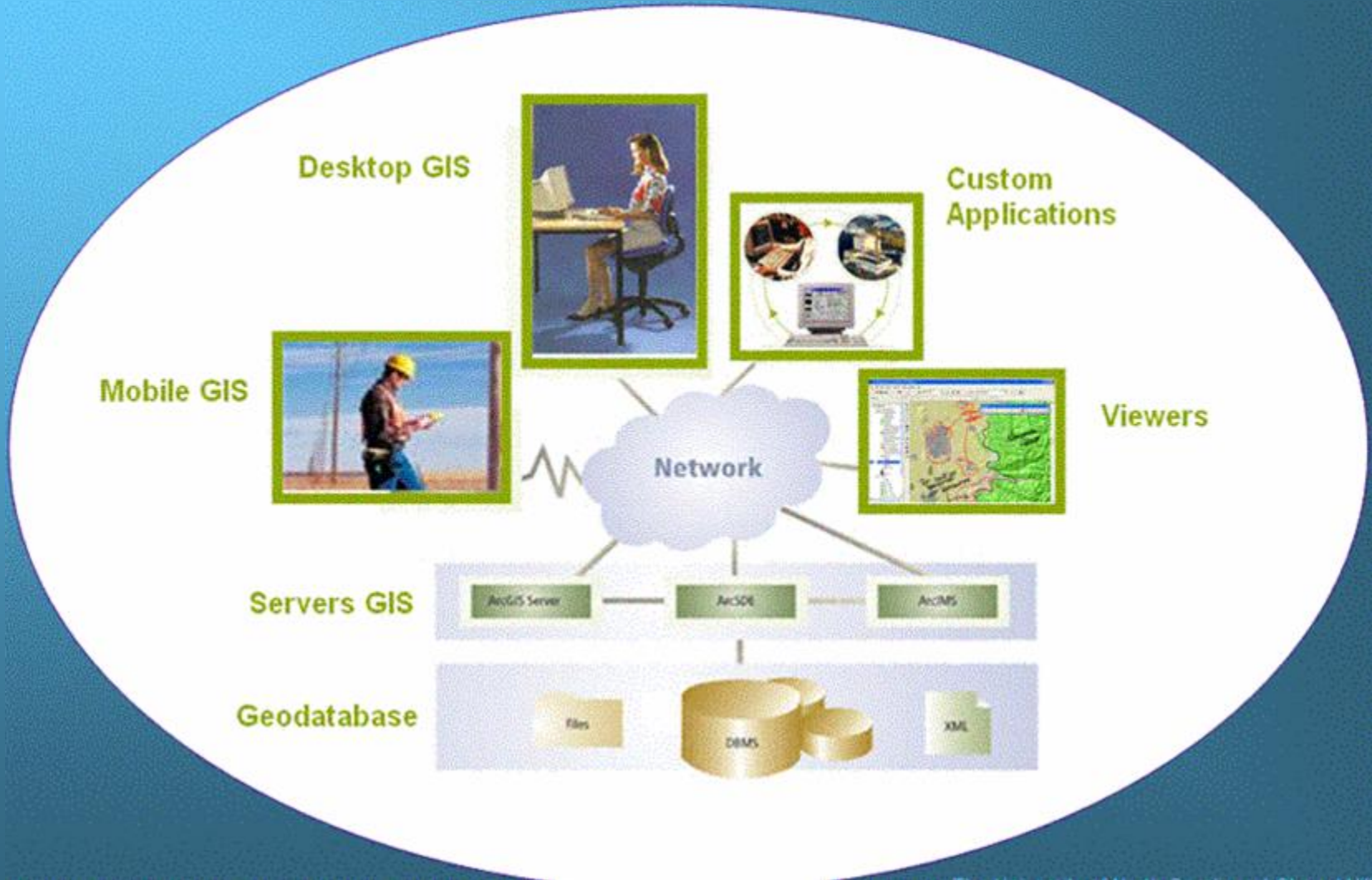


University of North Carolina - Chapel Hill
Engineering Information Services Division
Conceptual Data Model

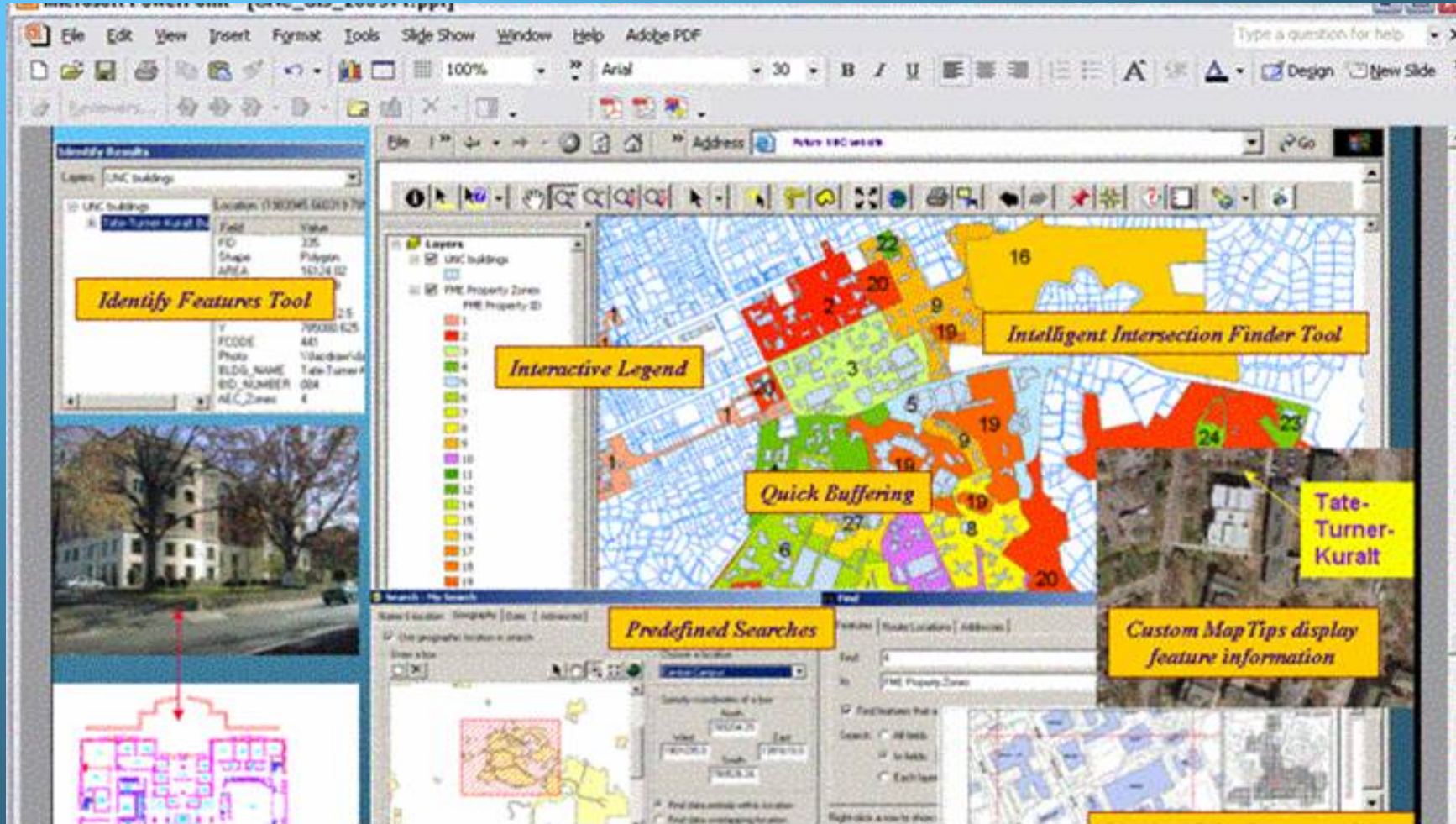
Workflow Planning



System Architecture



Potential Applications



Thank You



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Q & A



Project Summary

- ◆ **Needs Assessment Study Cost**
- ◆ **Aerial Photography and Planimetrics**
- ◆ **Two Servers**
- ◆ **ESRI Phase I Implementation**
 - ◆ **Data layers=120**
 - ◆ **Data Models=12**
 - ◆ **Oracle Enterprise GeoDatabase, 60GB**
 - ◆ **Customized GIS Web solution**
 - ◆ **Work Flow Analysis for all business units**
 - ◆ **List of applications for Phase II**