Infrastructure Planning The High-Tech Way- The King Fahd

University of Petroleum & Minerals GIS- Based Digital Master Plan

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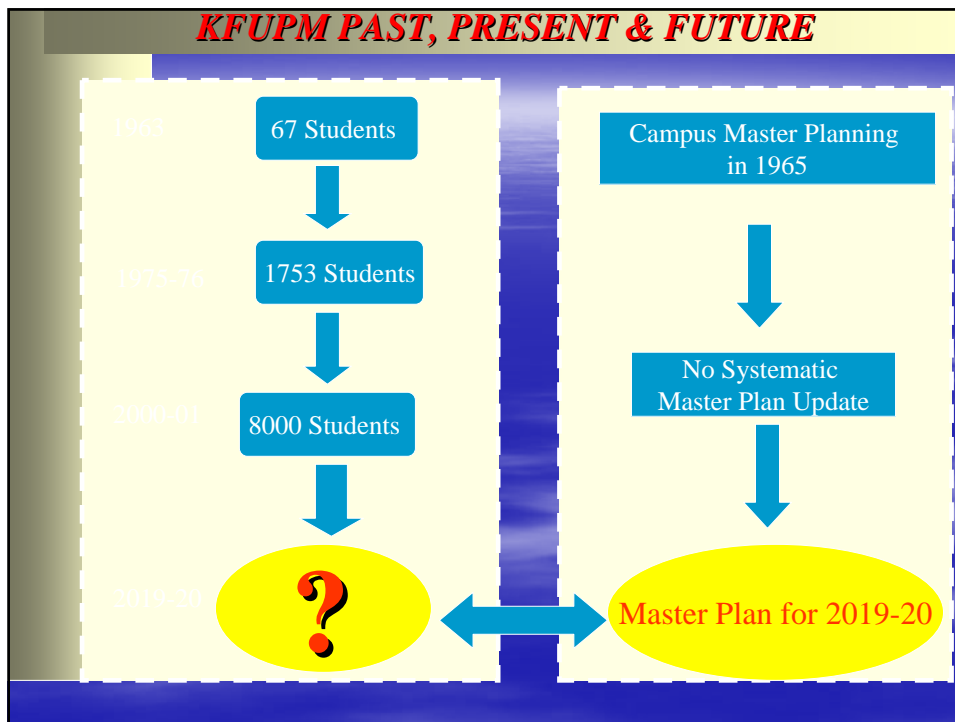
May 28, 2006   Dubai, UAE

Objectives of the Presentation

The objectives are to Outline:

❑ KFUPM *Land Use Map* using the GIS Based Digital Master Plan

❑KFUPM *Support Services* Land Use Statistics

67 Students	Campus Master Planning in 1965
1753 Students	
8000 Students	No Systematic Master Plan Update
?	Master Plan for 2019-20

Purposes of a Master Plan

❑ A *guide* for future development.

❑ The *development* of campus and its facilities.

❑ *Align* campus development with the University's educational *Strategic* Plan.

Comparison of Aerial Photographs
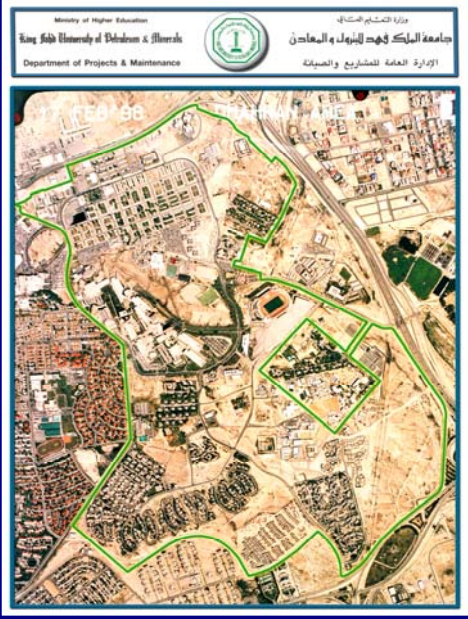
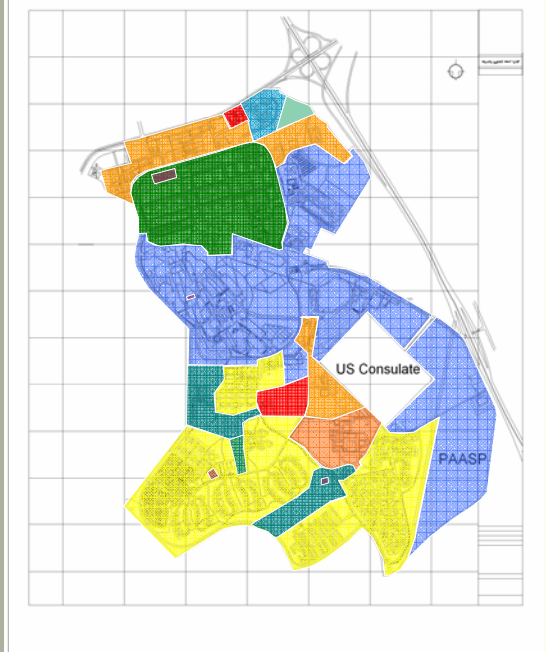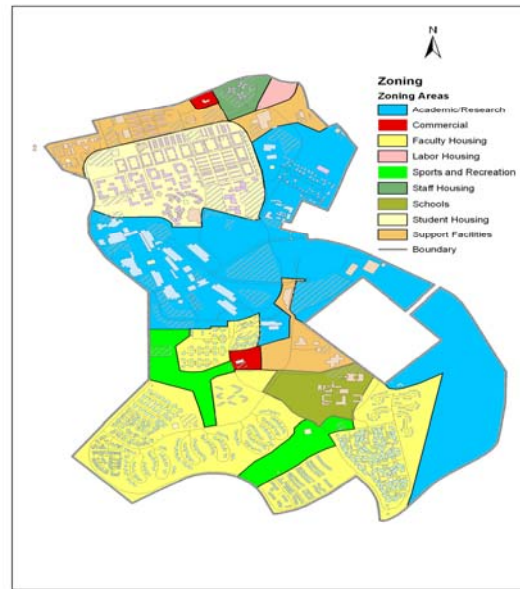1976   1998

FINAL LAND USE MAP FOR KFUPM (2005)

Student Housing

Academic/Research

Faculty Housing

Staff Housing

Commercial

Support Services

Main Mosques

School

Community Services

Labor Housing

US Consulate
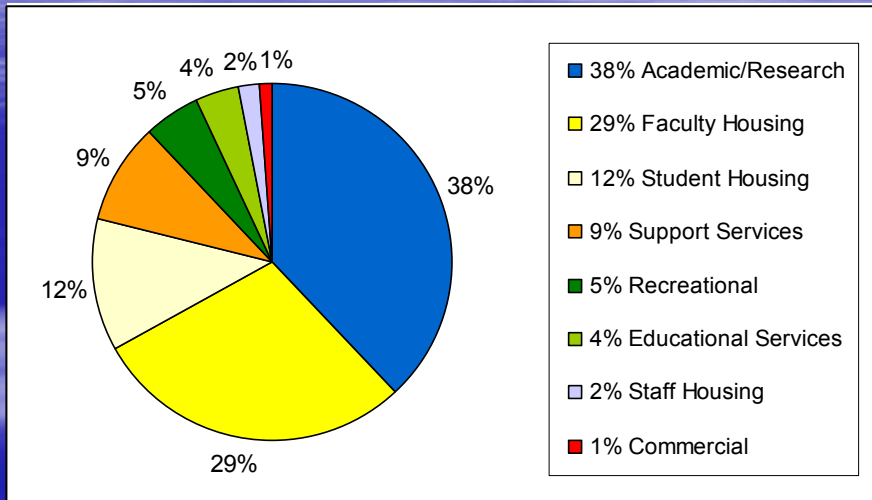
PAASP

Final Land Use Map, August 2005

Land Use Distribution as of August 2005

S. No	Zoning Areas	Proposed % of land use of Total Campus Area
1	Academic/Research	38
2	Student Housing	12
3	Faculty Housing	29
4	Support Services	9
5	Labor Housing	1
6	Staff Housing	1
7	Commercial	1
8	Recreational	5
9	Education Services	4

Percentage of Land Use Excluding US Consulate

Legend:
- 38% Academic/Research
- 29% Faculty Housing
- 12% Student Housing
- 9% Support Services
- 5% Recreational
- 4% Educational Services
- 2% Staff Housing
- 1% Commercial

Percentage of Land Use Including US Consulate

Legend:
- 34% Academic/Research
- 26% Faculty Housing
- 11% Student Housing
- 9% Support Services
- 6% US Consulate
- 5% Recreational
- 4% Educational Services
- 3% Staff Housing
- 2% Commercial
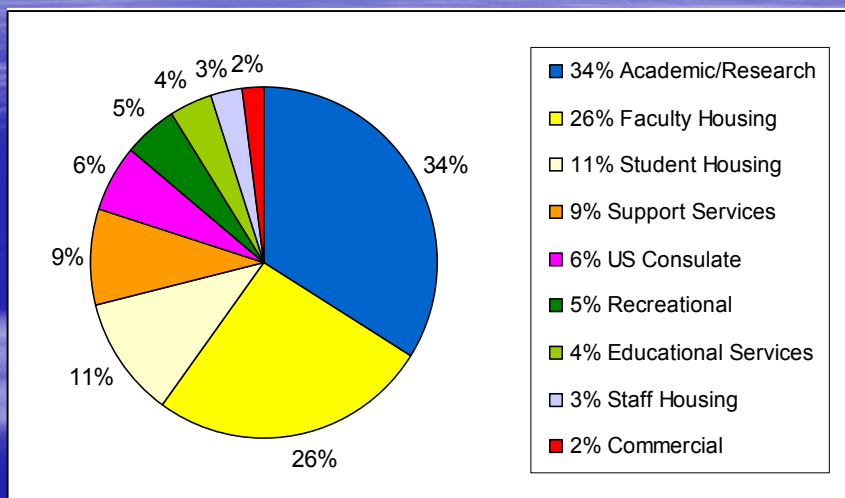
Fig 1. Showing the Boundary of KFUPM campus with the surroundings
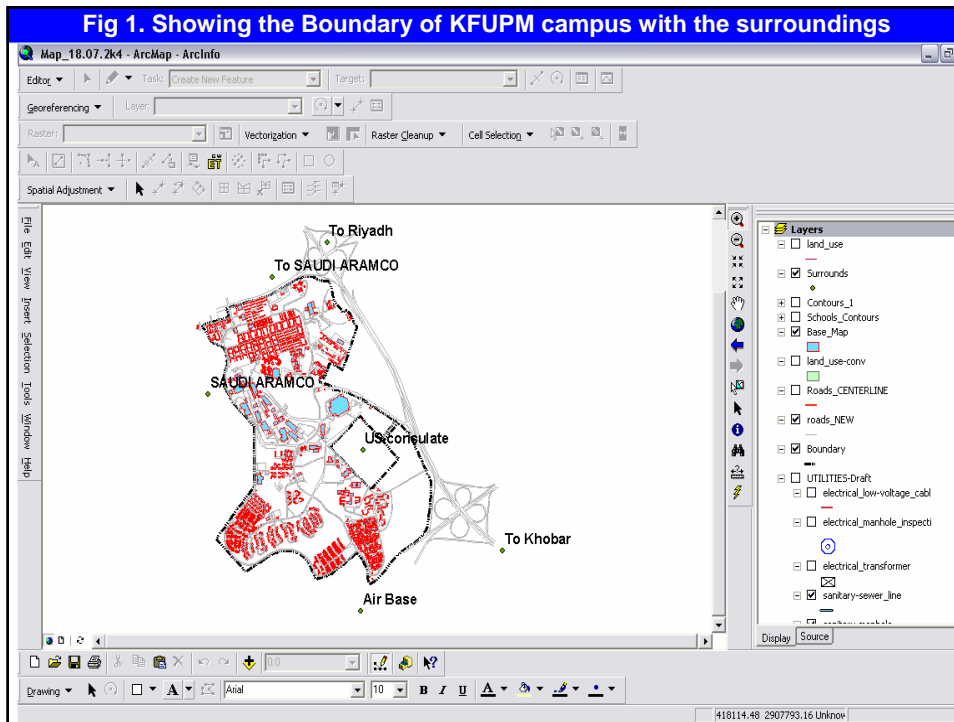
Fig 2. Showing the Land Use Zones in the Campus

Fig 3. Showing the Road Centerline for the entire Campus

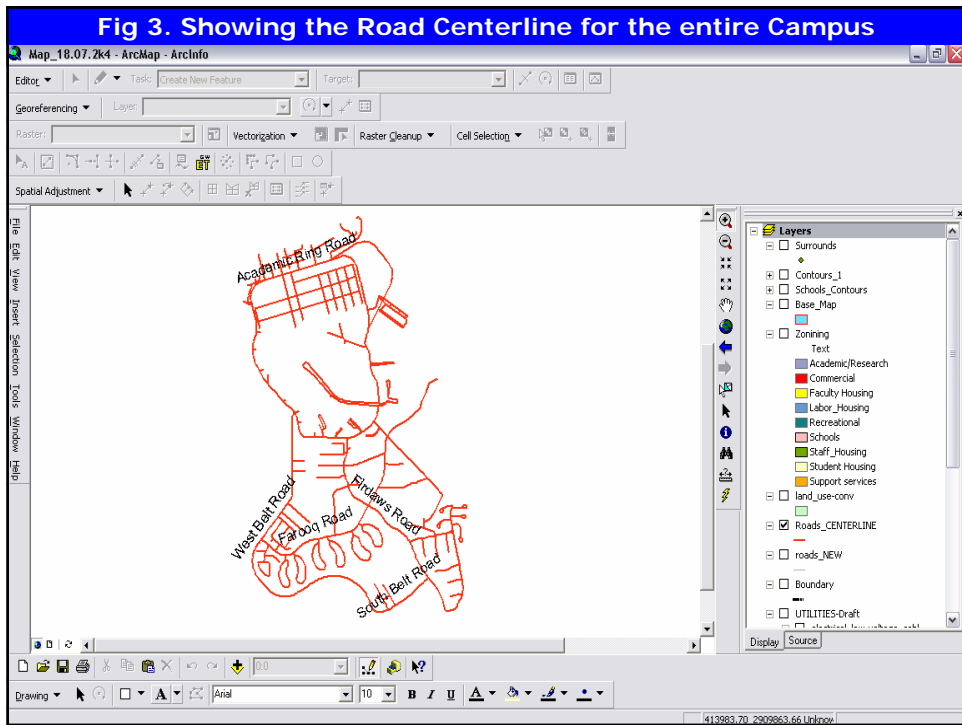Fig 4. Showing the Power Network Grid Line for Students Housing
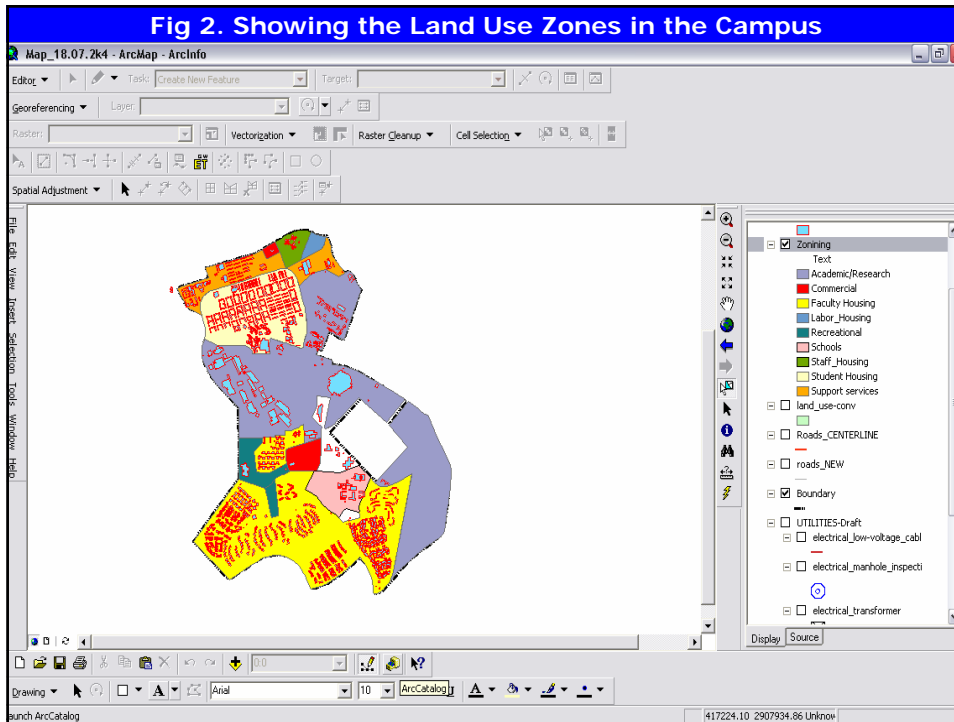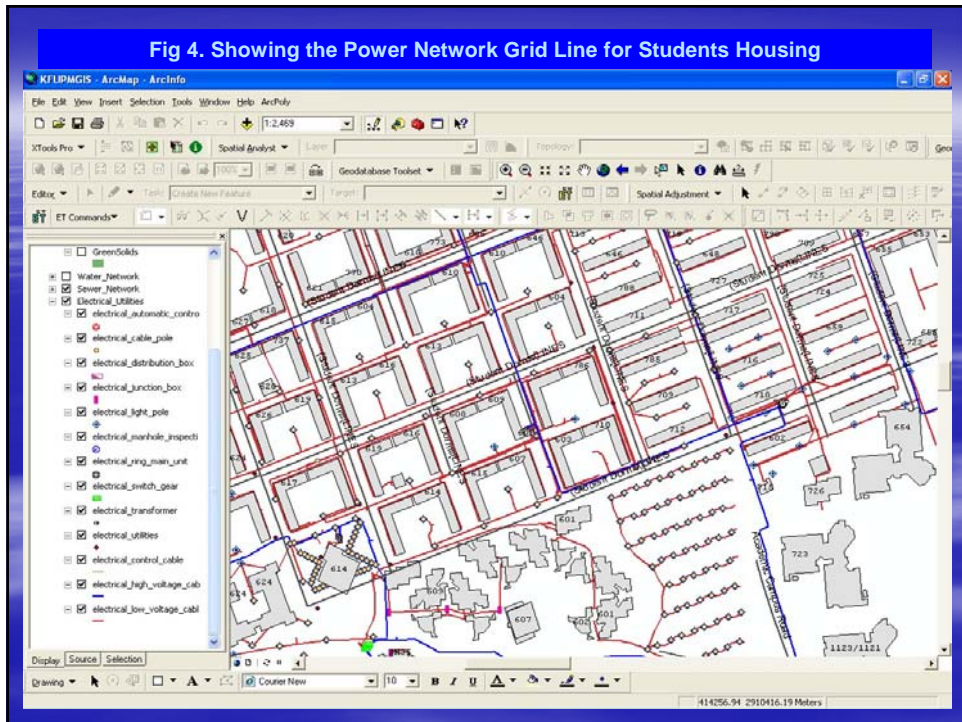
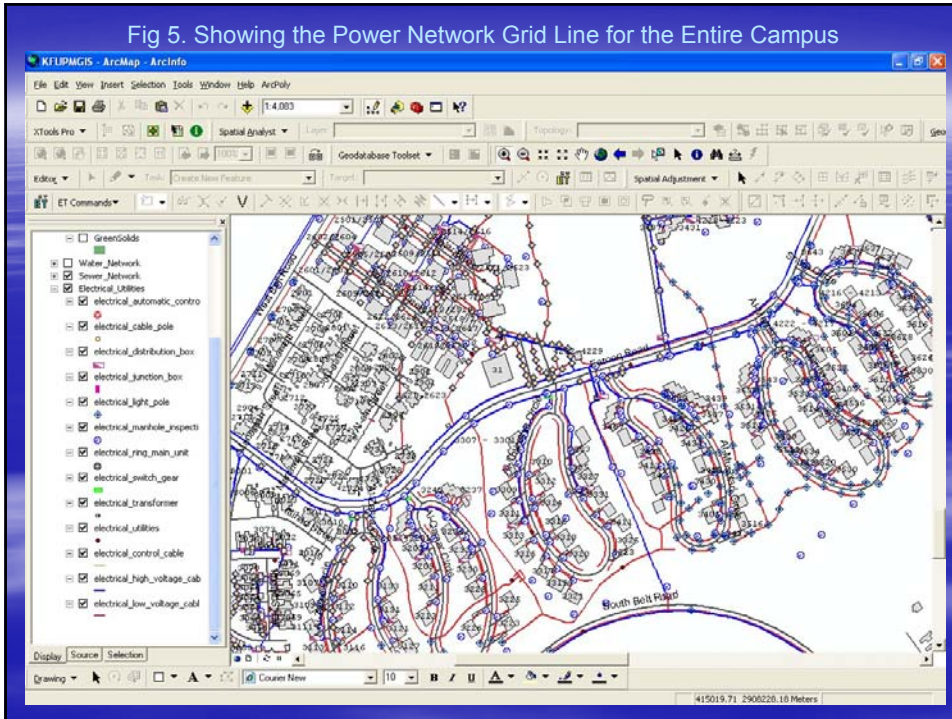Fig 5. Showing the Power Network Grid Line for the Entire Campus

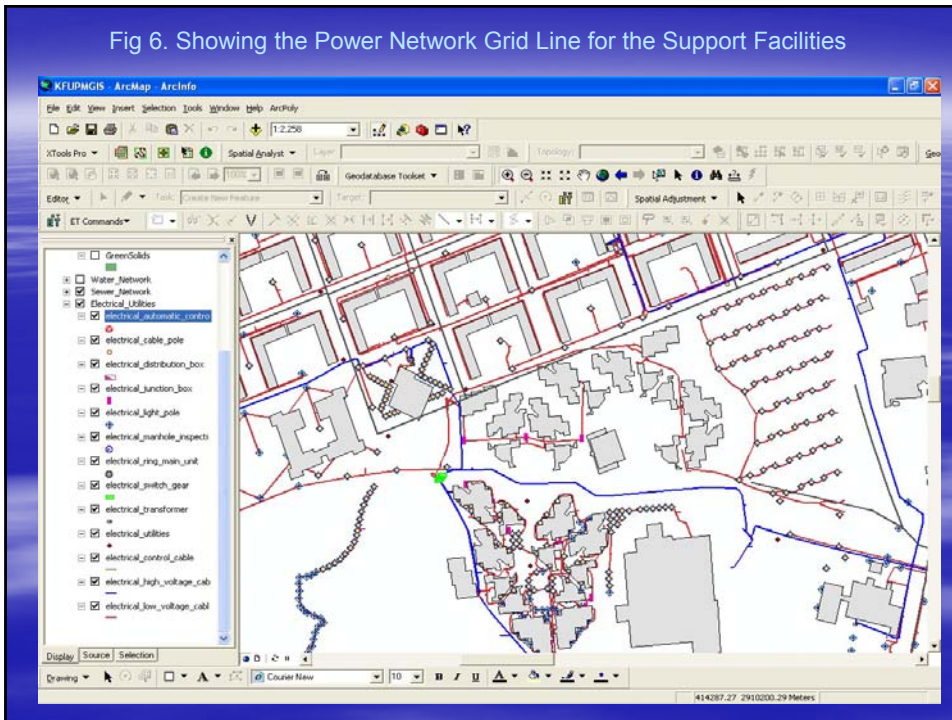Fig 6. Showing the Power Network Grid Line for the Support Facilities
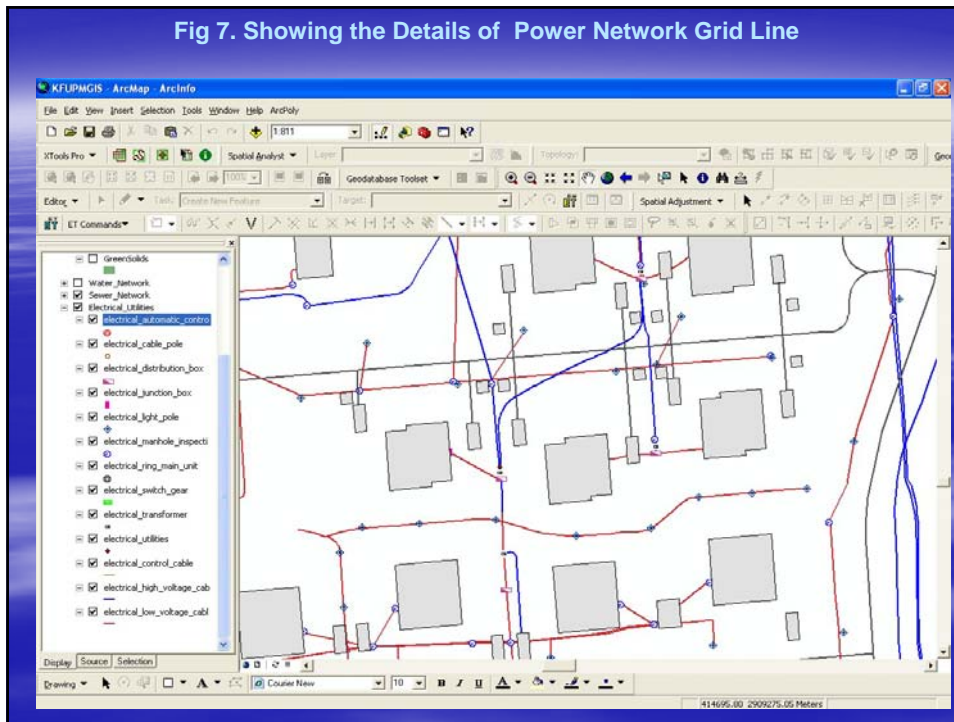
Fig 7. Showing the Details of Power Network Grid Line
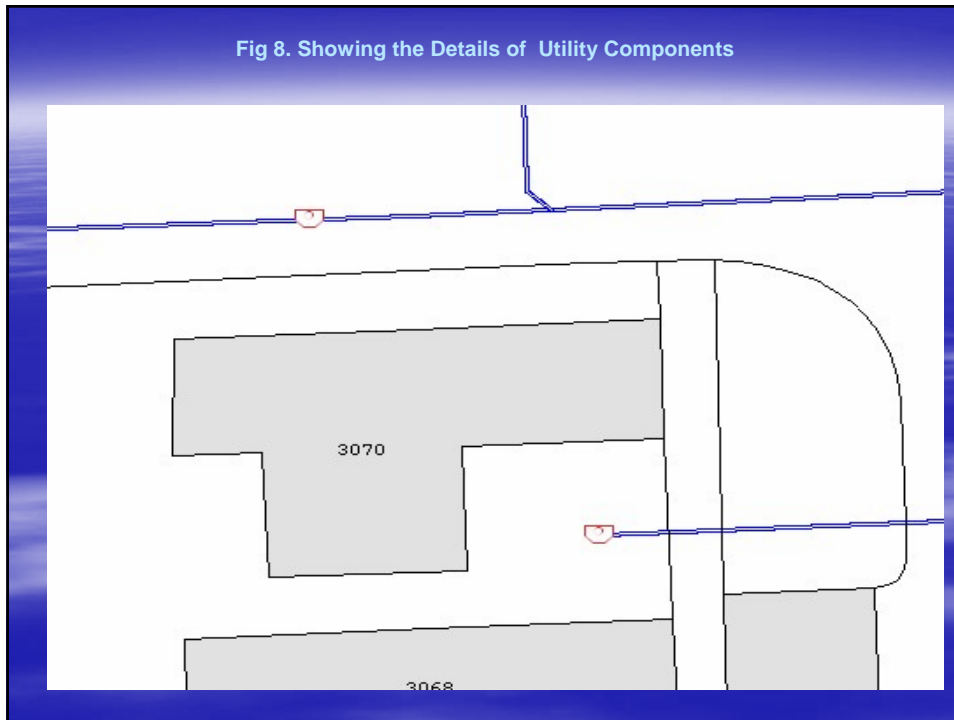

Fig 8. Showing the Details of Utility Components

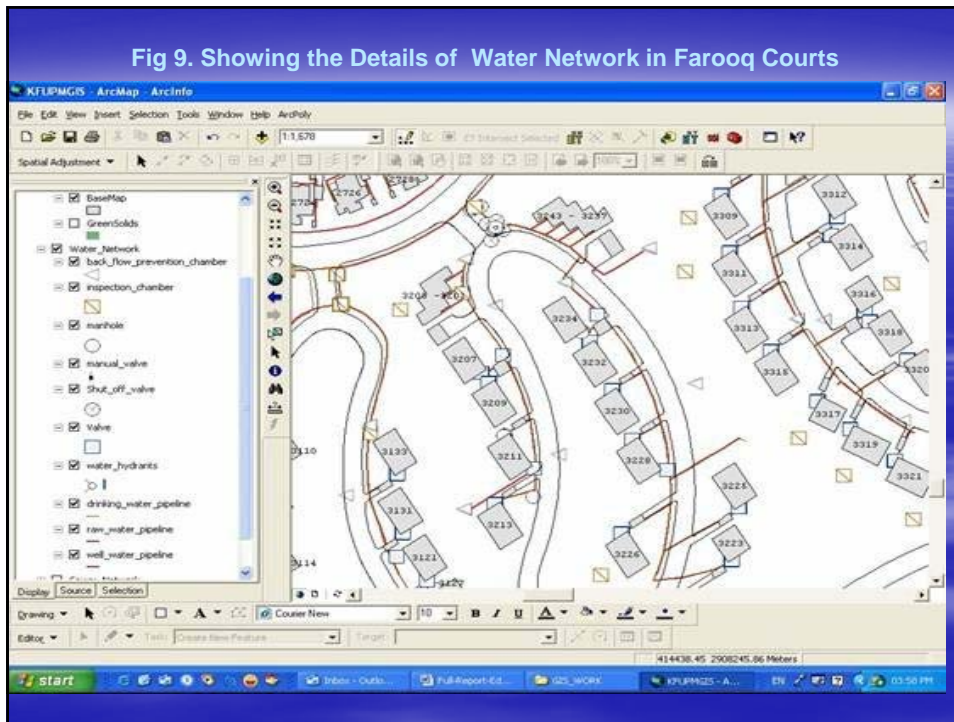Fig 9. Showing the Details of Water Network in Farooq Courts

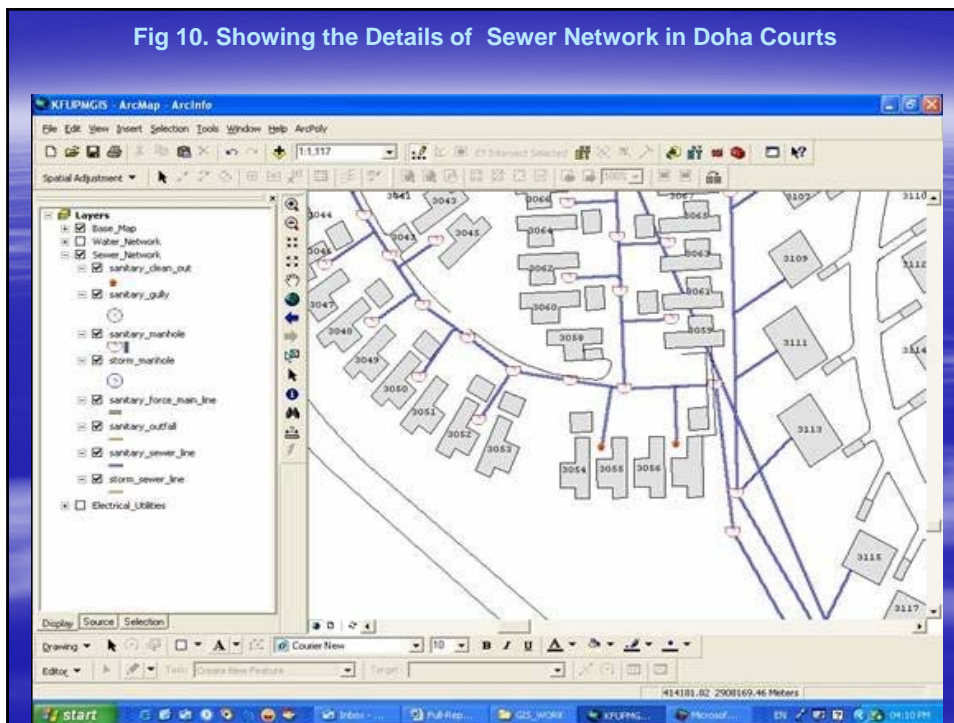Fig 10. Showing the Details of Sewer Network in Doha Courts
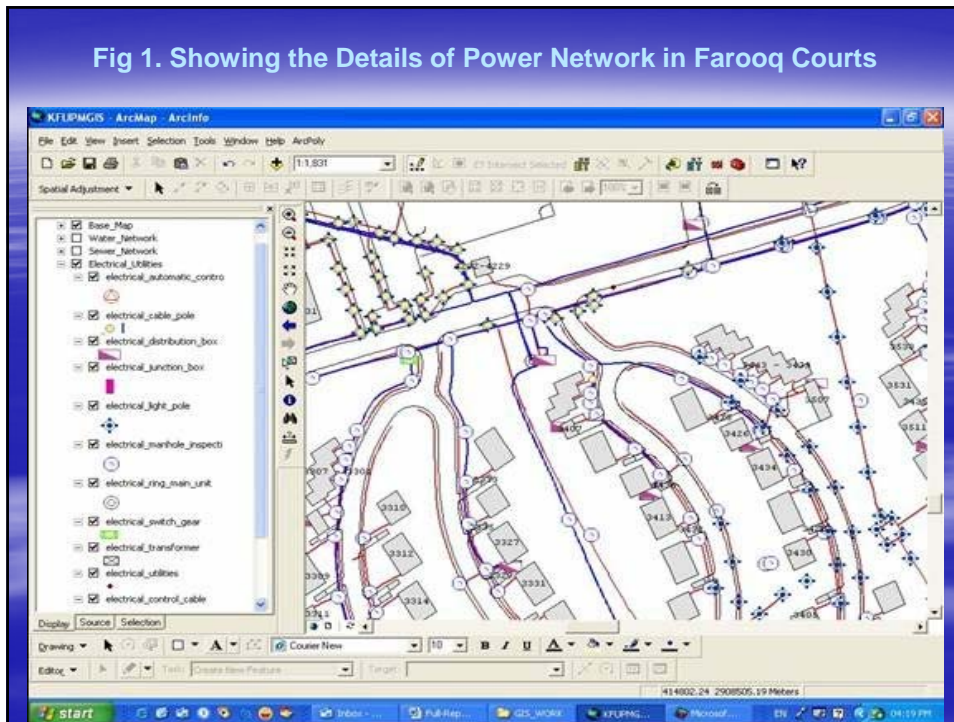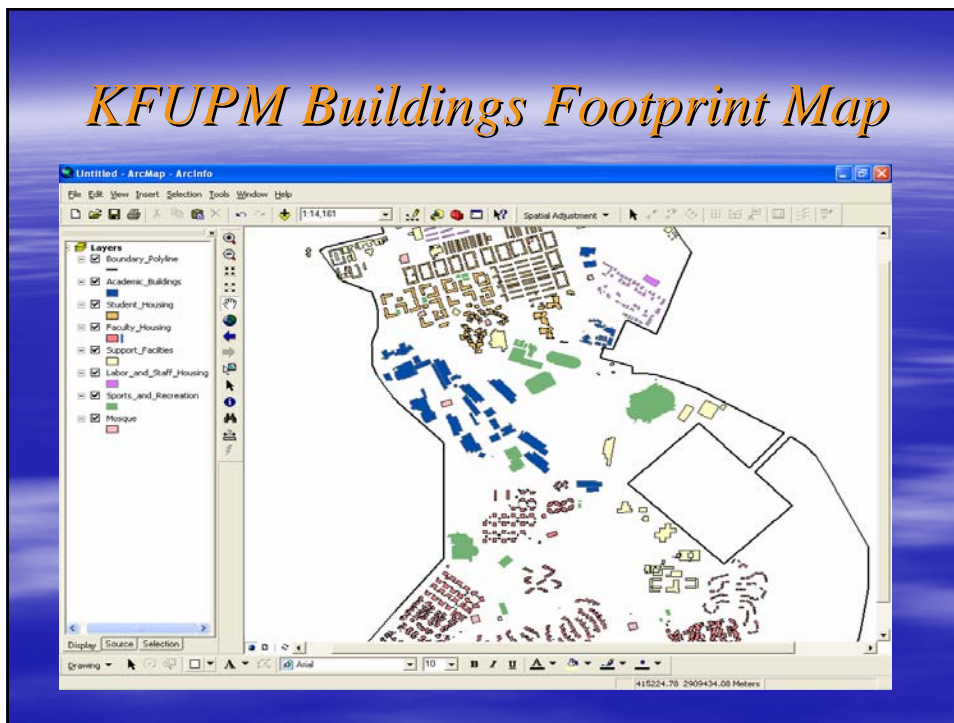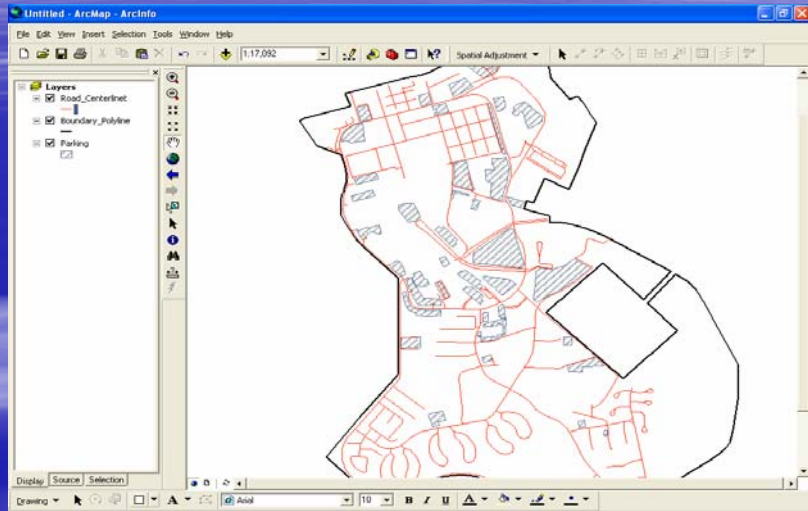
Fig 1. Showing the Details of Power Network in Farooq Courts

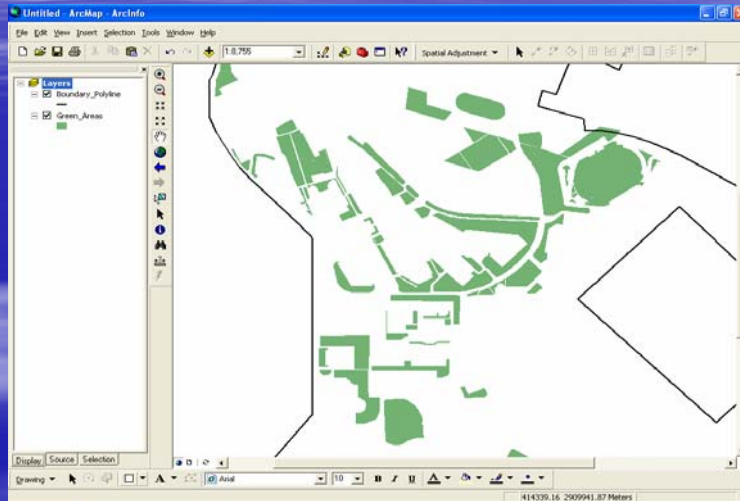# *KFUPM Buildings Footprint Map*

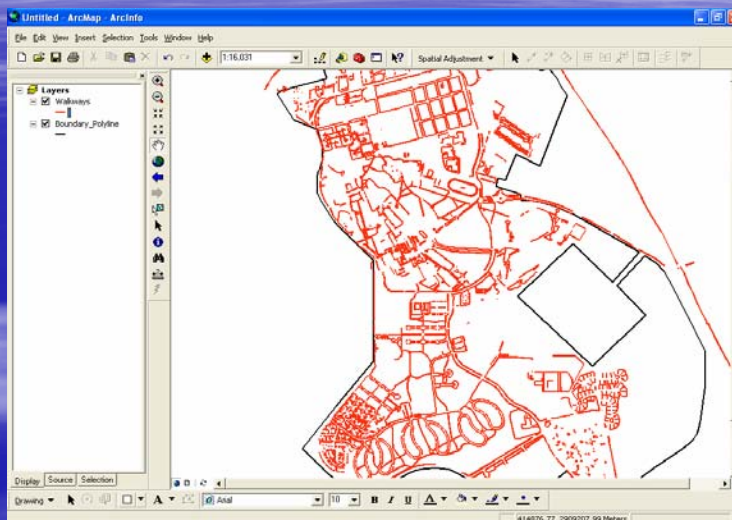# KFUPM boundary, road centerline and parking areas Map

Conceptual Zones of KFUPM Central Park

Map Showing Green Areas on KFUPM Campus
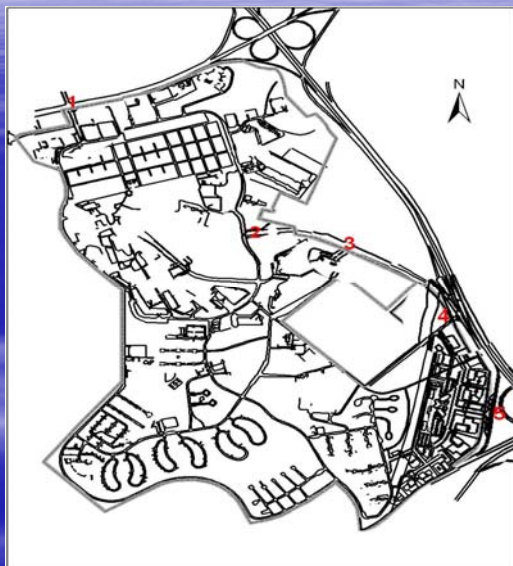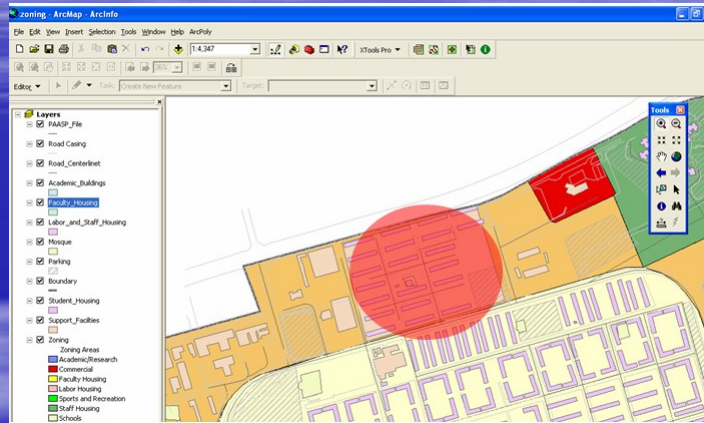

Pedestrian Walkways Network Map

New Student Housing Units

Existing and Proposed Entrances Map

The labor lines are phased out to accommodate New Storehouse Facility

Total Area of Support Facilities Zone = 131,157 Sq.m

Built Area of Support Facilities	81,734 Sq.m
Parking	12,958 Sq.m
Mosques	1,098 Sq.m
Green Areas	18,930 Sq.m
Labor Lines (New Storehouse Facility)	9,102 Sq.m
Total Area Occupied in this Zone	123,822 Sq.m
Area Remaining	7,335 Sq.m

Areas Calculated based on the GIS data available. Roads are not included.

Advantages of the *GIS Based Master Plan System*

- Comprehensive Control System.
- High Cost-Performance.
- Support Client/Server.
- Real Time Decision Making.
- Universal impact System
- Early Warning Mechanism
- Reserve Output to needed stations through Block Allocation Method

Thank You