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College OF Environmental Design
Department Of City & Regional Planning

***Simplifying Networks Using
Arc view Network Analyst.***

Presented to
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What is GIS

Geographical information system - A system of hardware, software, data, people, organization and institutional arrangements for collecting, storing, analyzing, and disseminating information about areas of the earth.

Introduction to arc view GIS

Arc View GIS is a desktop geographic information system (GIS) from ESRI. Arc View GIS software lets users see, explore, and analyse spatial data on their desktop. Arc View GIS software's extensible design makes it easy to add new capabilities when needed . The Optionally available *Arc View Network Analyst* extension to Arc View GIS provides additional analytic capabilities.

Introduction To Arc View Network Analyst

Network :A system of interconnected linear features representing possible paths for the movement of resources from one location to another.

Network Analyst which is an extension to Arc View,helps to solve the common Network Problems such as finding best route,finding the closest facility or identifying a service area around the site.

Project Objectives

- 1) Creating a Road Network for Riyadh**
 - 2) Attachment of the road attributes like Road type (highways ,major roads,minor roads)**
 - 3)To find the shortest distance between two points**
 - 4)To find the best route traversing through different points based on the direction,starting from the origin to the destination and returning back to the origin.**
 - 5) To find the closest facility near a location such as the best route for an ambulance to reach the nearest hospital.**
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Methodology Adopted

1)Map of Riyadh containing the road network was obtained

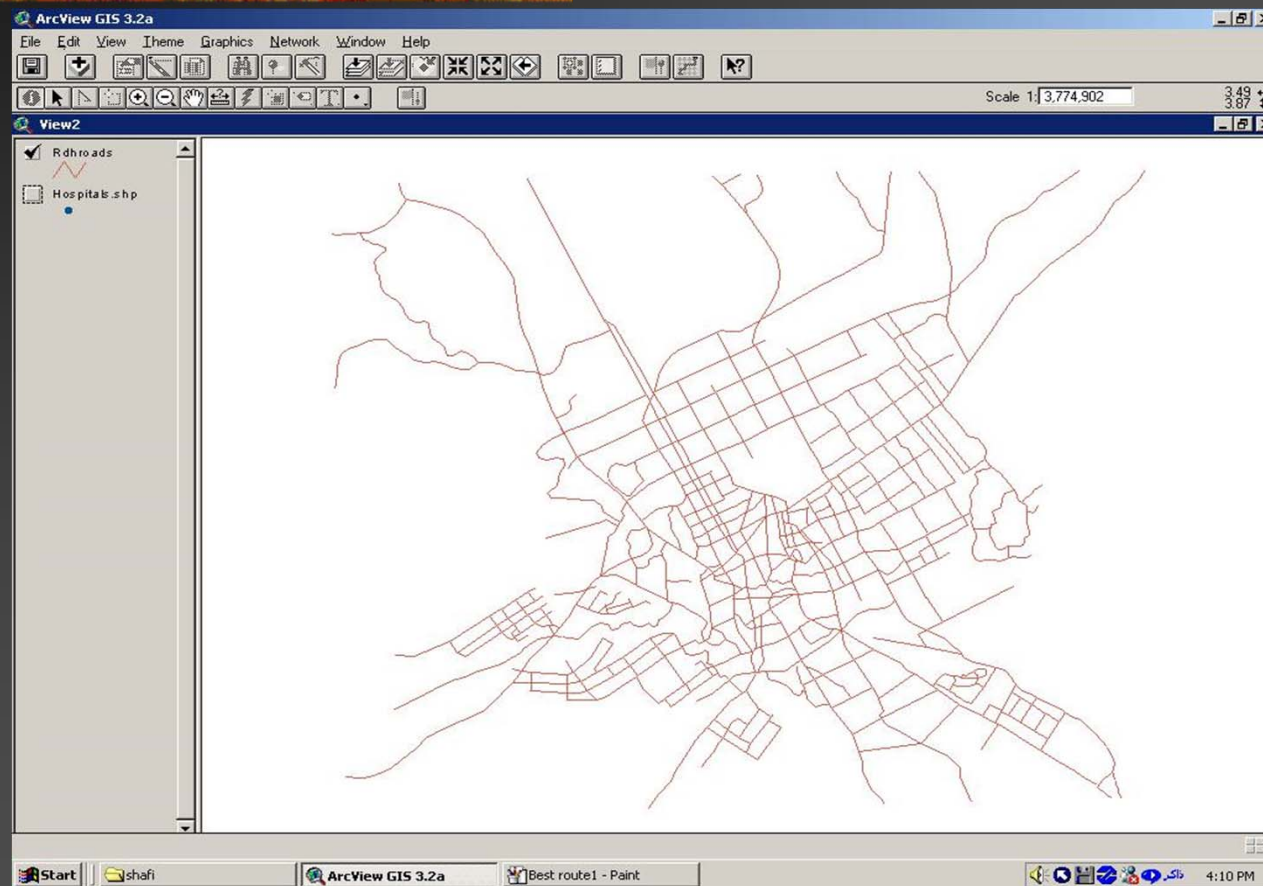
2)The Map was scanned and imported to AutoCAD and was digitized as a drawing file.

3)A workspace was created in Arc Info and the drawing file from AutoCAD was exported to dxf format.

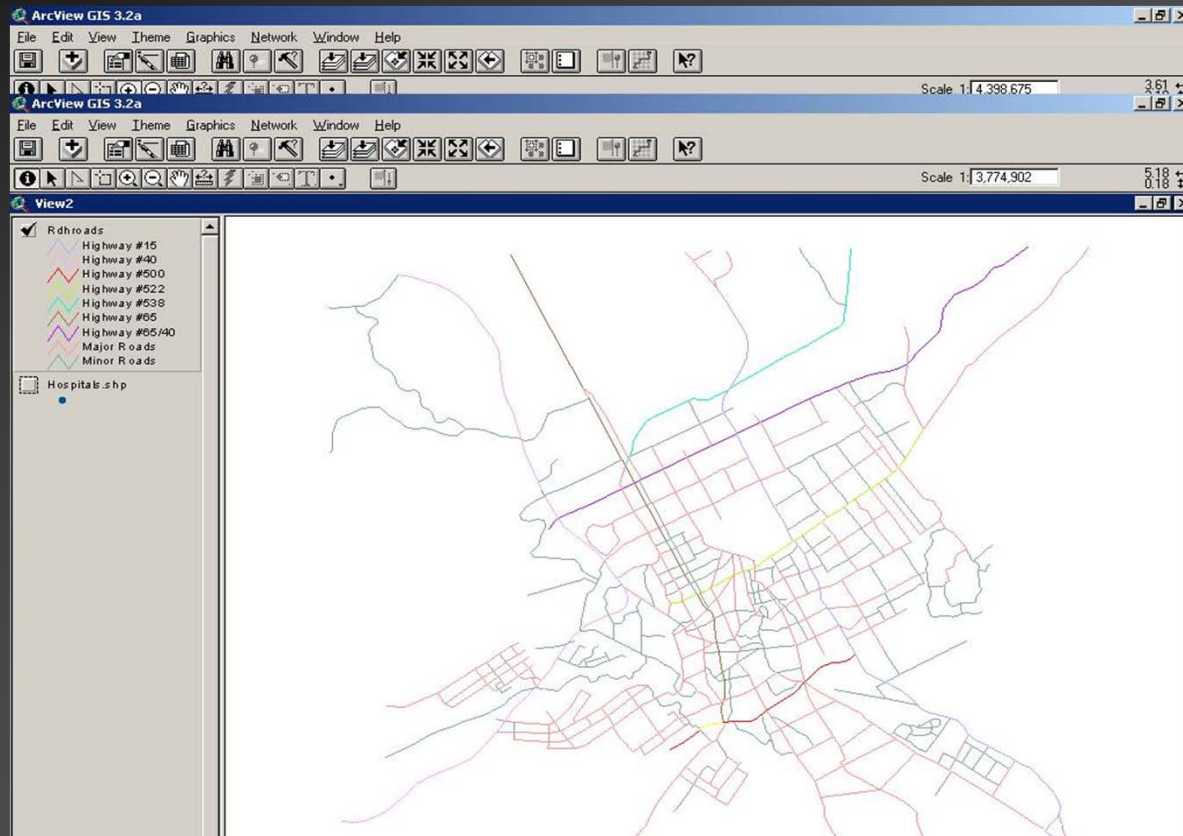
4)A feature class in the form of coverage was built in Arc info and the map was finally taken to arc view.

5)Road networks of Riyadh were analyzed using Arc View Network Analyst.

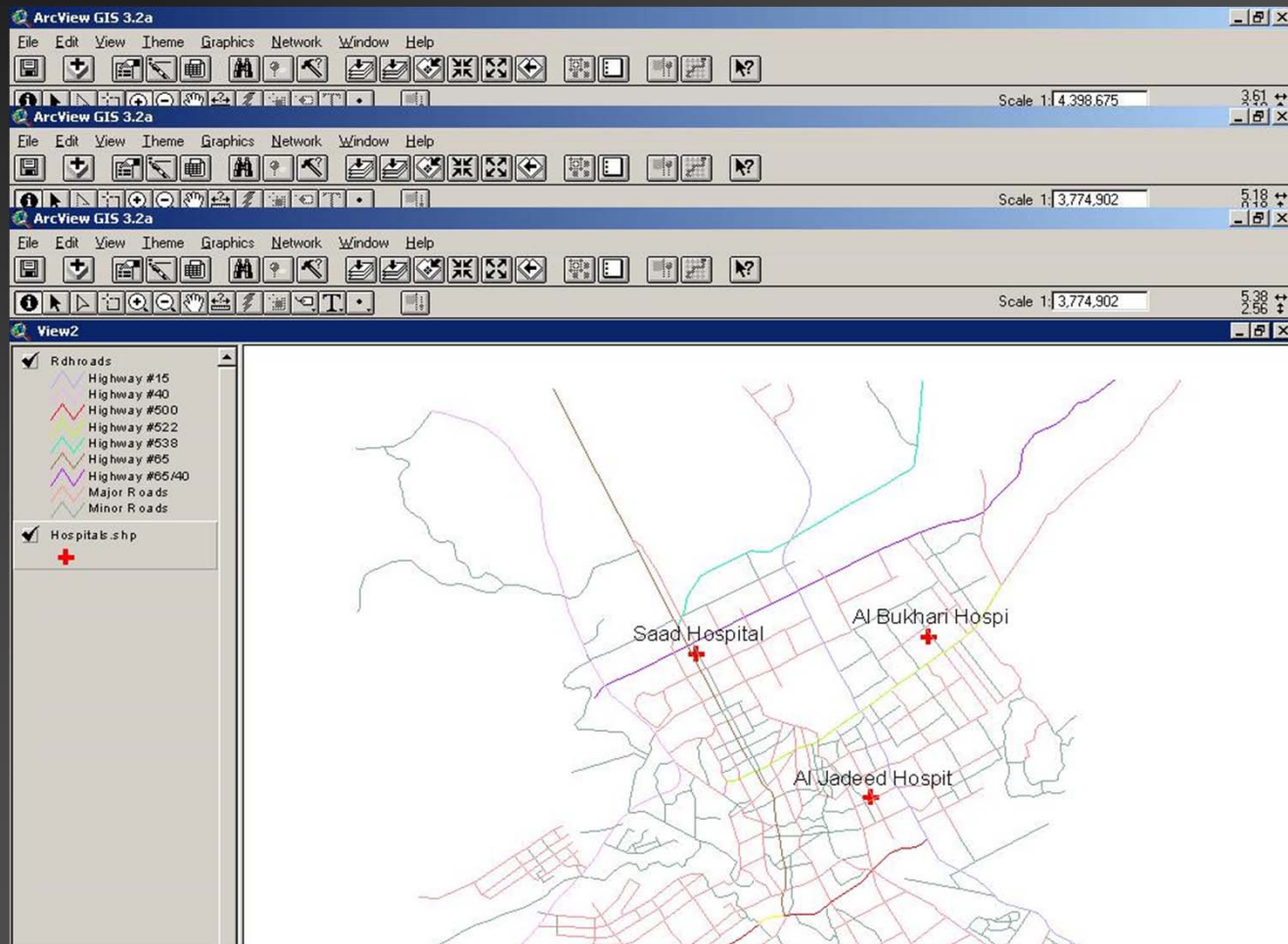
Map Of Riyadh



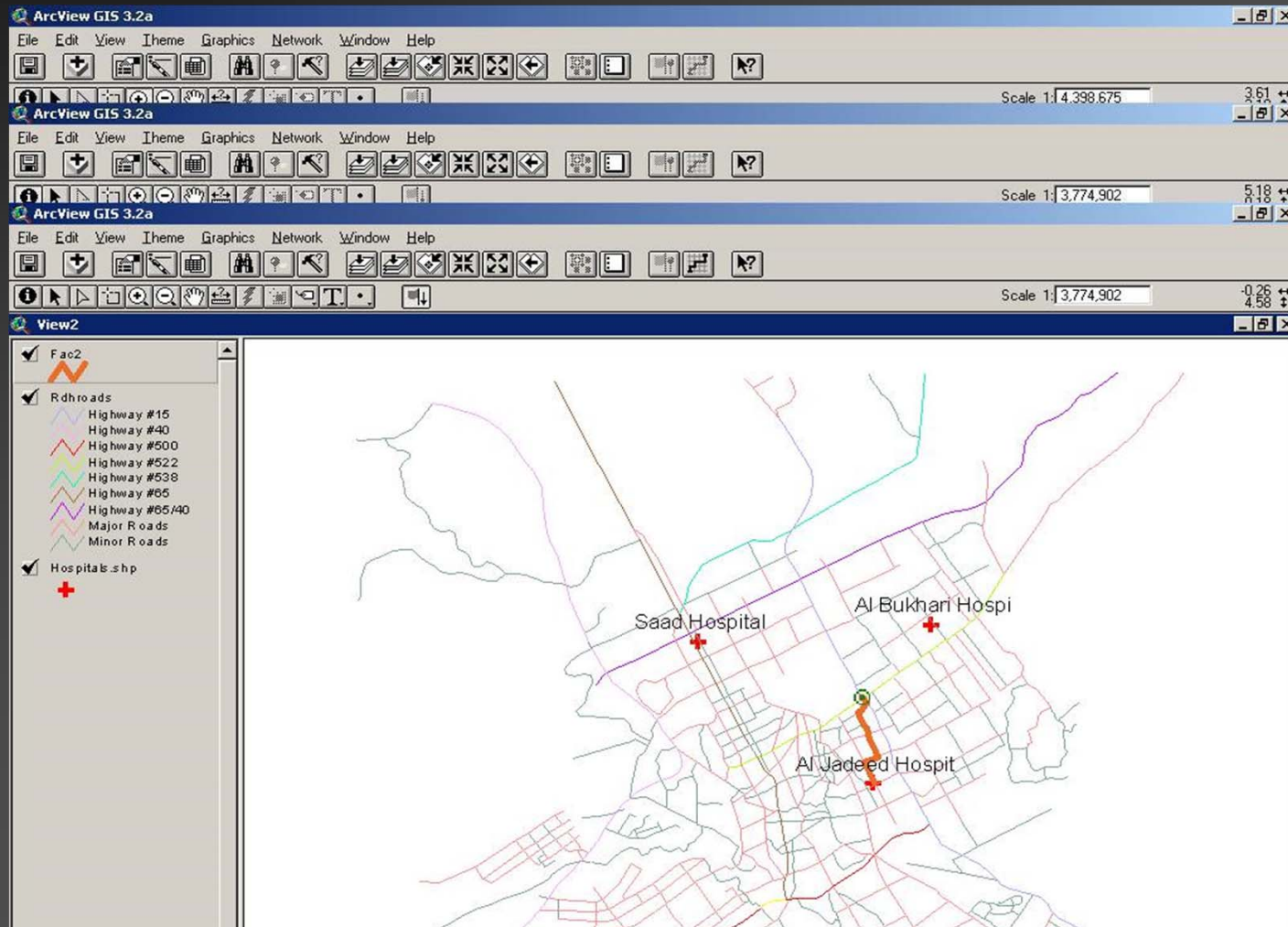
Roads Classification



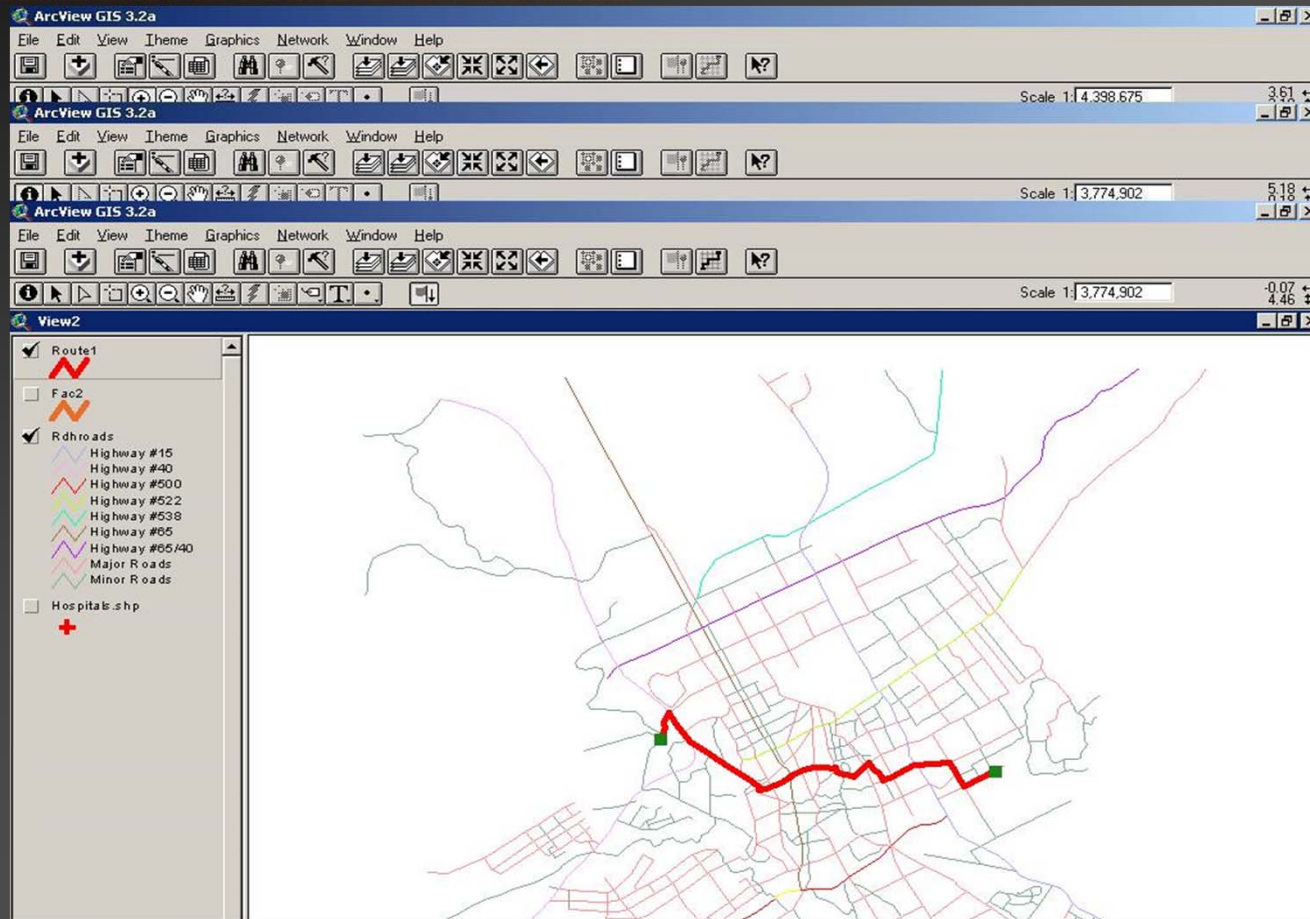
Location Of Hospitals



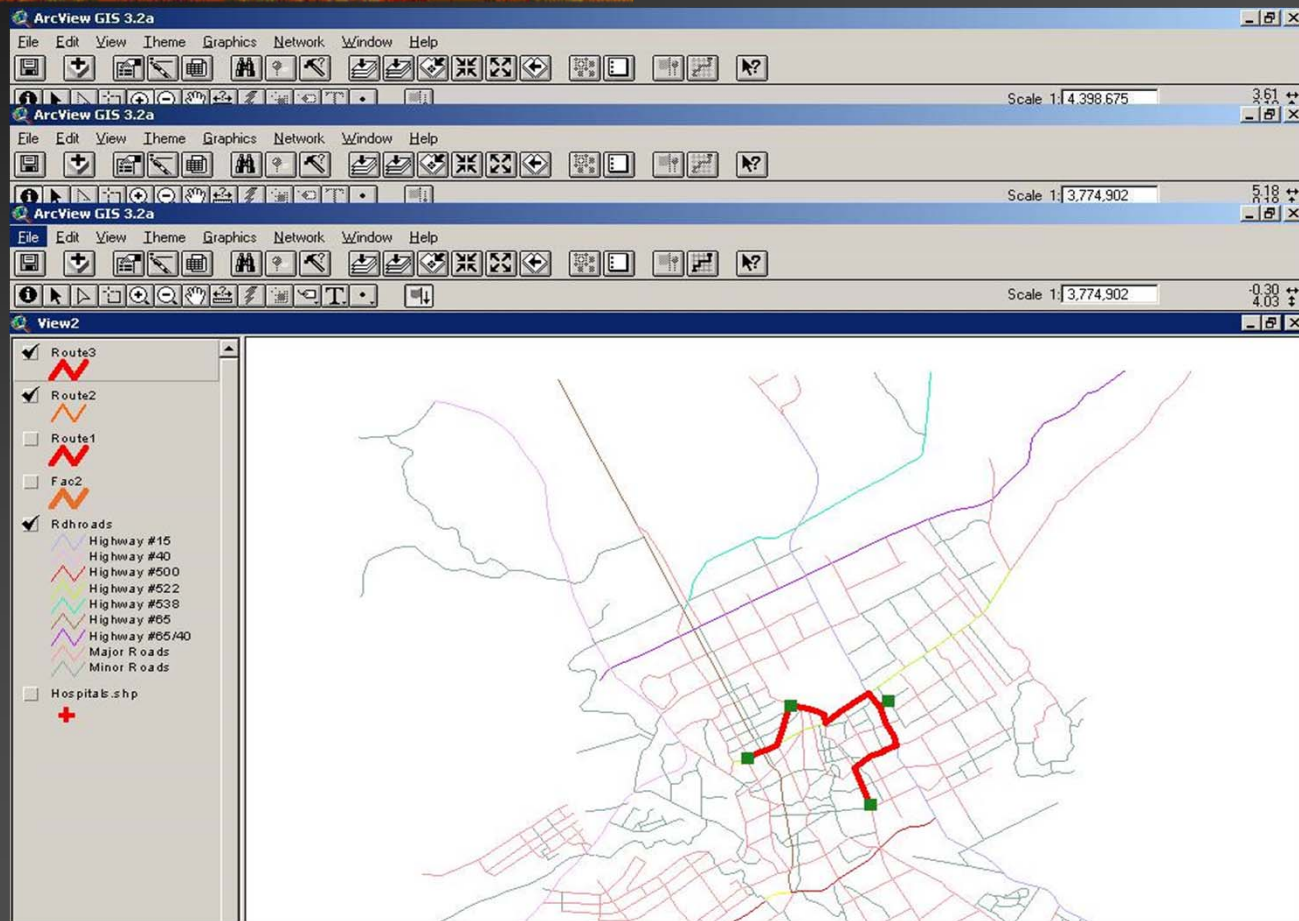
To Find The Closest Facility



Shortest Distance Between Two Stops



Best Route Without Return



Best Route Back To Origin

The screenshot displays the ArcView GIS 3.2a interface with a route calculation window open. The window shows a table of depot distances and options for finding the best route back to the origin.

Label	miles
Depot1	0.00
Depot2	67.82
Depot4	122.91
Depot3	166.01

Options:
 Find best order
 Return to origin

Buttons: Directions..., Load Stops..., Save Stops..., Properties...

Number of stops: 4

The background map shows a network of roads with a highlighted route in blue and green. The legend on the left includes 'Route4', 'Route3', 'Route2', 'Route1', 'Fac2', 'Rdroads' (Highway #15, #40, #500, #522, #538, #65, #65/40, Major Roads, Minor Roads), and 'Hospital.shp'.

Best Route Back To Origin With Direction

The screenshot shows the ArcView GIS 3.2a interface with a network analysis window titled 'Route4'. The window displays a table of depot distances and options for finding the best order and returning to the origin.

Label	miles
Depot1	0.00
Depot2	67.82
Depot4	122.91
Depot3	166.01

Options:
 Find best order
 Return to origin

Buttons: Directions..., Load Stops..., Save Stops..., Properties...

Number of stops: 4

The background map shows a network of roads with a highlighted route (Route4) connecting four depots. The depot list on the left includes Route4, Route3, Route2, Route1, Fao2, Rdnroads, and Hospitals.shp.

References

• www.esri.com

• www.gis.com

• www.campus.esri.com/

• Getting to know desktop Arc View

• Arc View Network Analyst

Acknowledgement

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Thank You

