

Client and Activity

GIS Based Mapping of Electrical Distribution System and Consumer Indexing for Muzaffarnagar Circle, under Purvanchal Vidyut Vitran Nigam Ltd.(PVVNL)

Objective

To create a GIS based Network Information Management System (NIMS) using modern techniques of Remote Sensing, Satellite Imagery, GPS based surveys and Consumer Indexing for Muzaffarnagar town.

Location

- Geographical Location (Centroid) : Latitudes : 29.4683 & Longitudes 77.6967
- Total Area : 16.28 sq.kms.



Deliverables

1. Study area with ground control points selected through Differential GPS to ensure accuracy of 0.5 mt. In X, Y, Z directions.
2. BASE MAPS on 1:4000 Scale based on Latest IKONOS or QUICKBIRD Satellite data (in Arc .e00, .shp, dgn or.dxf format) with Graphical layout for entire study area, containing layers for Transportation (Roads/ Railway lines, Cart tracks), vegetation, water bodies, drainage, canals, Built-up Areas etc.
3. Field Mapping output of Electrical Utilities for various listed features.
4. Technical report containing the GIS based Base Maps, Thematic Maps, with complete graphical layouts (with full colors) on paper.
5. Base Maps in Arc .e00, .shp, dgn or.dxf format with single line diagram of Electric Network (Georeferenced and superimposed).
6. Database of consumers delivered separately as well as integrated with Network Information Management System (NIMS).
7. All the digital data shall be delivered in CD ROM's / DVD ROM's and hard copy formats such as plotted outputs and printouts.

Approach

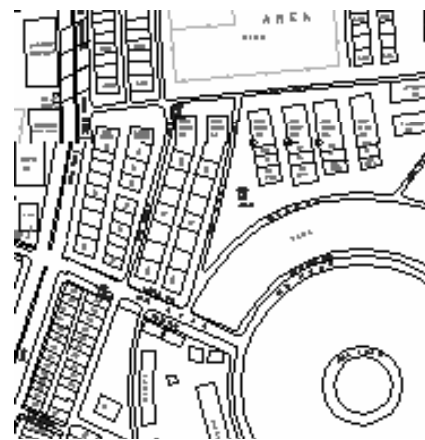
Satellite Image

Creation Of Base Map + Distribution network Maps

Integrating the consumer data with GIS data

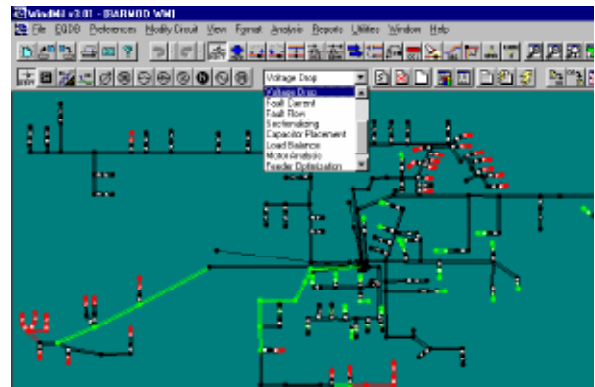
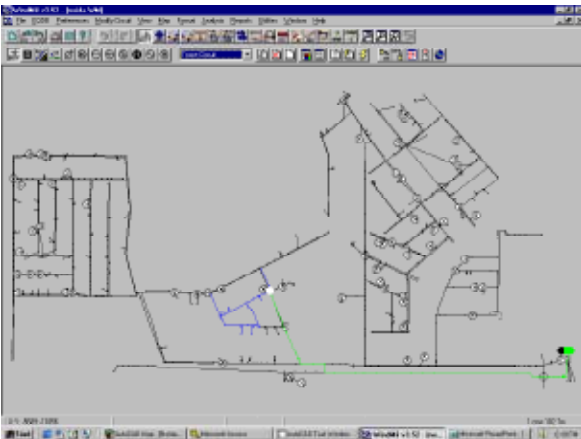
Data Analysis

Implementing the Consumer Indexing & billing System



Methodology

- Selection & Acquisition of IKONOS / QUICKBIRD Satellite Imageries for Muzzafarnagar (either 1.00 Meter or less than 1.0 Meter Colour data).
- Geocoding & Geometric Corrections of Satellite data.
- 2D Feature Extraction, Feature Codification.
- Creation of GIS layers.
- Thematics Mapping.
- Ground Survey for Electrical Utilities.
- Transforming this on Large Scale Base Maps.
- GIS Based data linking for Consumer Indexing.



Engineering Advantages

Improved Engineering and Construction Planning.

Better Transformer Load Management.

Meter reading route optimization via routing analysis.

Quicker outage response.

Improved perception from employees, customers, and regulators.

Easier distribution of records throughout the organization.

Increased outage response time.

Better and easier management decisions.

More accurate underground conductor

Advantages of a GIS Enabled System

Outage Tracking & Management

Facilities Management / Automated Mapping

Outage Analysis

Contingency Analysis

Growth Planning

Provider of Mapping Services

Thematic Queries

Accurate conductor type, size, and length

Operational Advantages

Enhanced Safety

Improved construction scheduling

ROW management (including Vegetation management and encroachment)

Equipment failure prevention through analysis

Integrated trouble call analysis