

Smart Municipal Service Delivery & Revenue Enhancement Strategy Using GIS



**Welcome
at**

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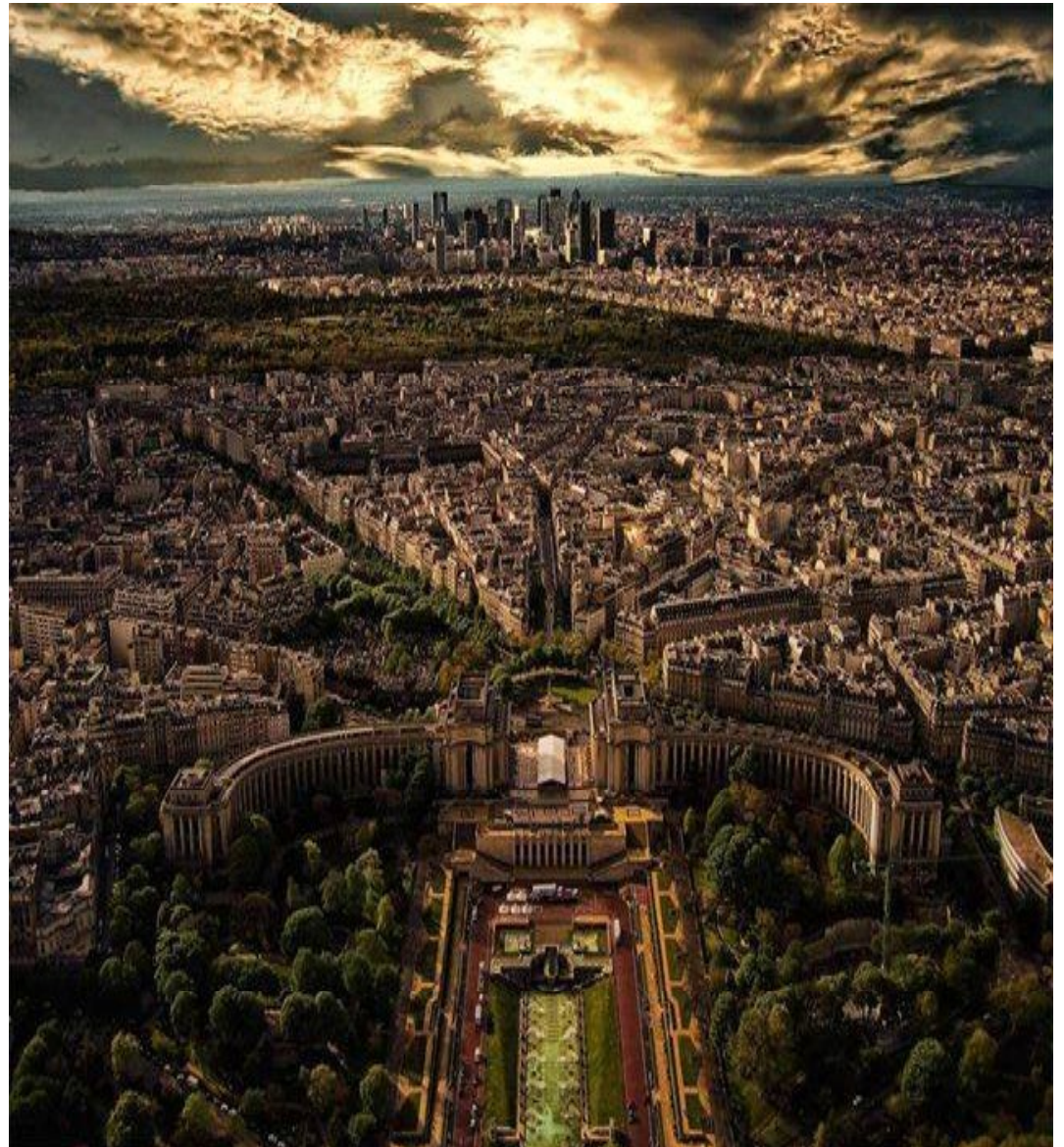
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Smart city–Smart Delivery &GIS

- Create sustainable intelligent communities
- Embrace the concept of less is more.
- 24/7 ready **Digital Map**,
- Use it as a Planning Tool
- Can display the **problems** and the **solutions** on the maps

Which Promote –

- Transparency
- Accuracy
- Productivity
- Efficiency
- Quality
- Equality
- Revenue
- Accountability



Presentation content

- **Municipal GIS**
- **Revenue Enhancement Strategy**
- **Mapping Strategy**
- **Mapping Public Services Utility infrastructure inventory / Additions**
- **Use of Municipal GIS Map**
- **Case Studies ,**
- **Question / Answer session**

Defining Municipal GIS

- **Geography – Municipal Area/ Space (Importance of space)**
- **Information – Relevant Data and its meaning**
- **System – Electronic tool to help analyze space and data.**

Thus identifying gaps in Planning and Revenue with ease.

A PLANNING TOOL

Revenue Enhancement Strategy

- Create/ Update Digital Map of the city,
- Integrate present data of revenue streams to digital map,
- Resurvey the selected streams with the help of present attribute data integrated map,
- Create different layers for the different streams
- Update-Add/ Delete attribute /spatial data as on site,
- Authenticate and Use
- Explore new streams

Municipal Area Mapping Strategy

The following information may be incorporated in the mapping of the city :

- Maintain City-Wide (Enterprise) Perspective
- Master Plan for Land Use
- Boundaries (municipal corporation, ward)

Mapping Public Services Utility infrastructure inventory / Additions

- **Roads** (Name - according to the importance)
 - ✓ Road Improvement & Assessment
 - ✓ Road Sign Inventories
 - ✓ Road Reporting & Inventory
 - ✓ Flyover
- **Railway line with station** (main, circular, metro)
 - ✓ Tramways
 - ✓ Ferry
- **Bridges** (railway, road)
- **Canal** (with name)
- **Locality name**
- **Other Public utilities**
 - ✓ bus terminal,
 - ✓ railway reservation counter,
 - ✓ airline office,
 - ✓ fire station,
 - ✓ police station,
 - ✓ bank,
 - ✓ market,
 - ✓ milk booth, public call office)
- **Important landmarks**

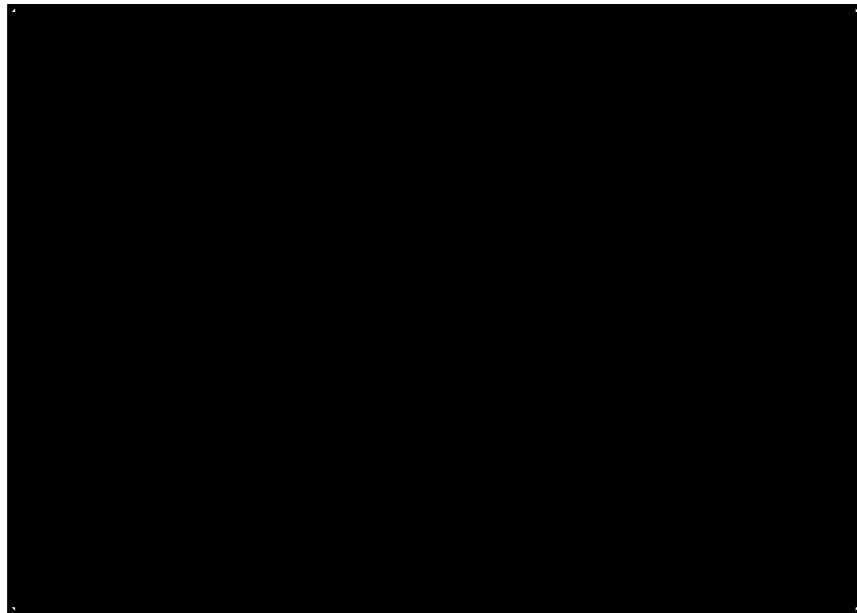
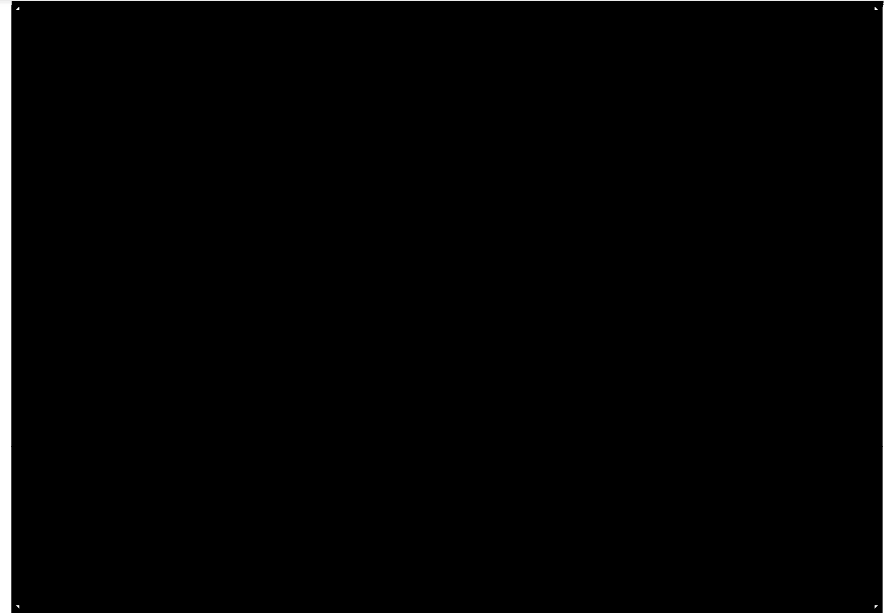
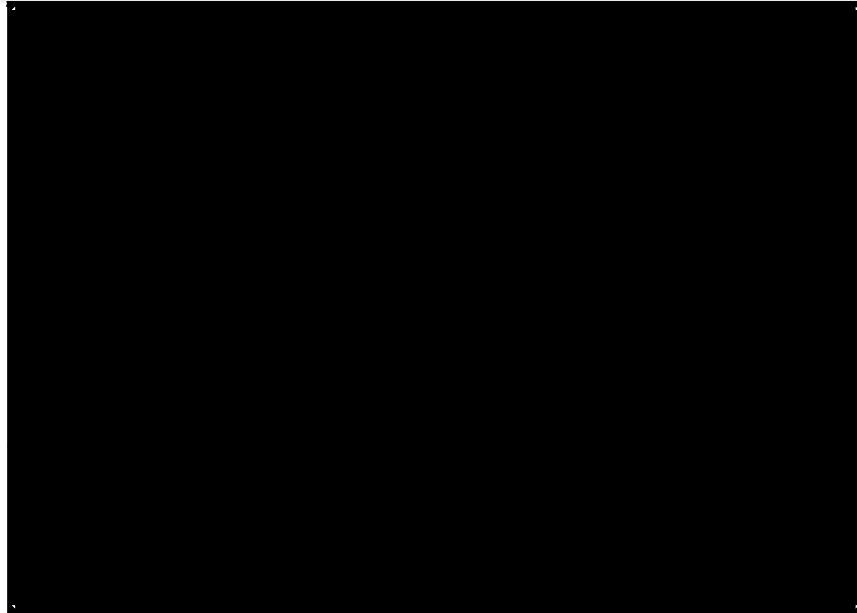
Mapping Public Services Utility infrastructure inventory / Additions (contd)

- **House number** (Ward Number, Sector/Block Number)
- **Property Tax Assessment**
- **Mapping of Advt.-Boards** and its revenue Management system
- **Asset Mapping** and Management Practices
- **Land use** (built up area, park/garden/green field, water body)
- **Places of worship** (temple, church, mosque, gurdwara)
- **Health centre** (hospital and nursing home, blood bank, clinic/dispensary/medical store, pathological laboratory/diagnostic centres, eye bank)
- **Areas Natural Features** , Green Infrastructure Inventories ,City Regulated Parks & Recreation centres,
- **Telecom** (post office)

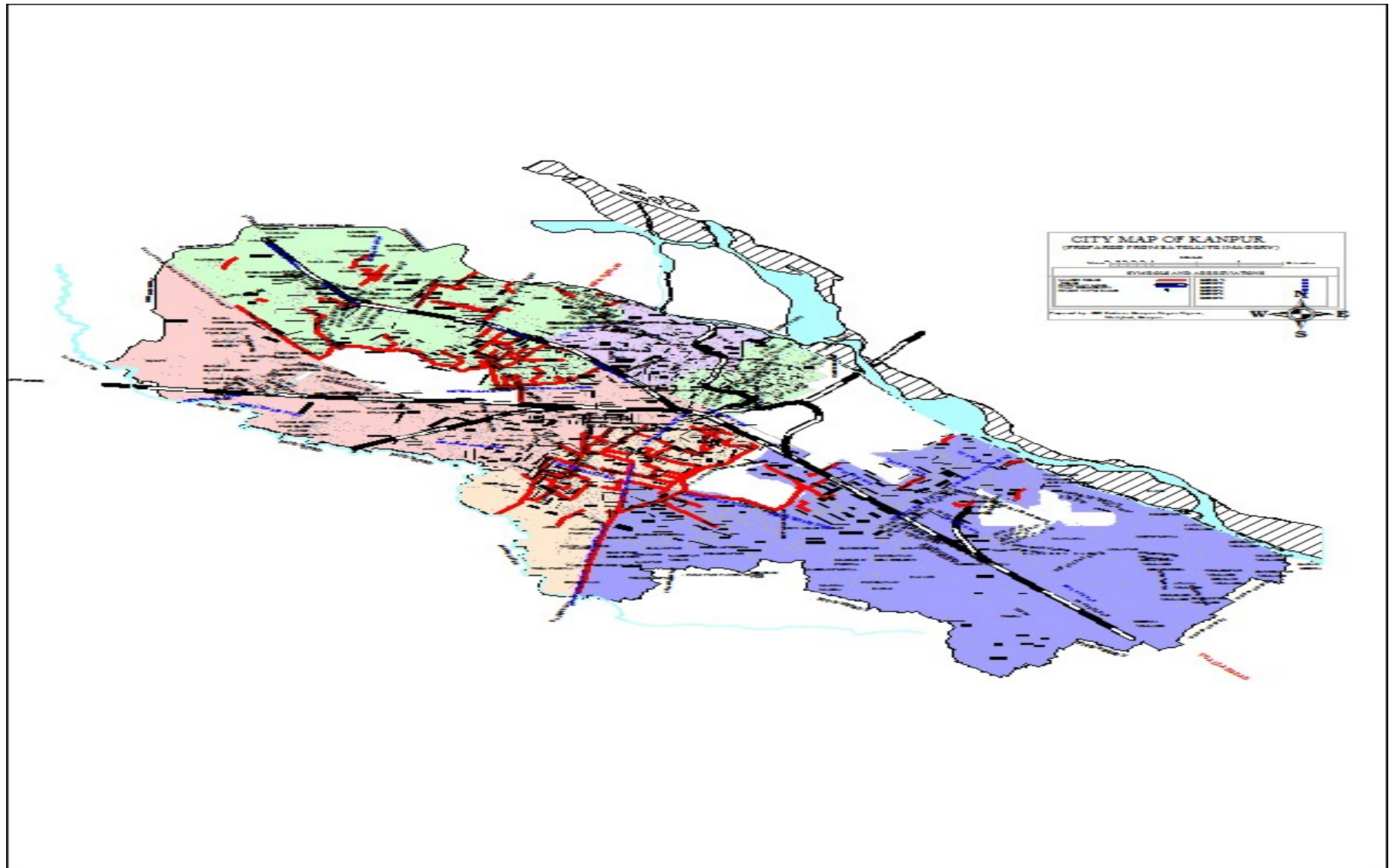
Use of Municipal GIS MAPs in various activities....

- ☐ Planning and revenue generation.
- ☐ Delimitation of Wards,
- ☐ Ward wise Backward Population Survey,
- ☐ BPL (Below Poverty Line) Survey,
- ☐ For planning, design/ implementation of water supply & sewerage projects under JNNURM,
- ☐ For power distribution planning and revenue generation,
- ☐ Census- For enumerator block boundaries,

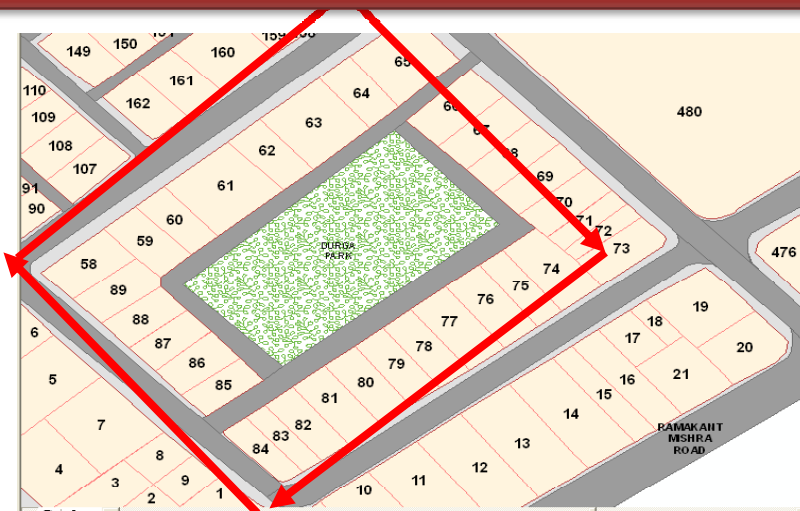
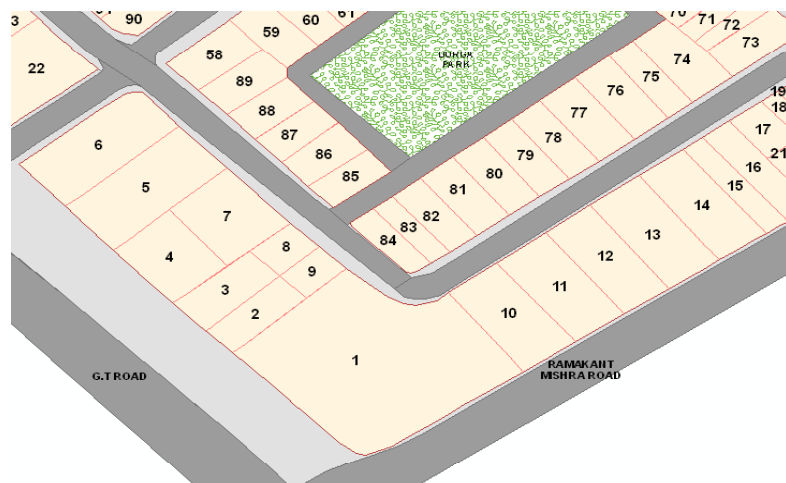
GIS Maps used in Census-2010



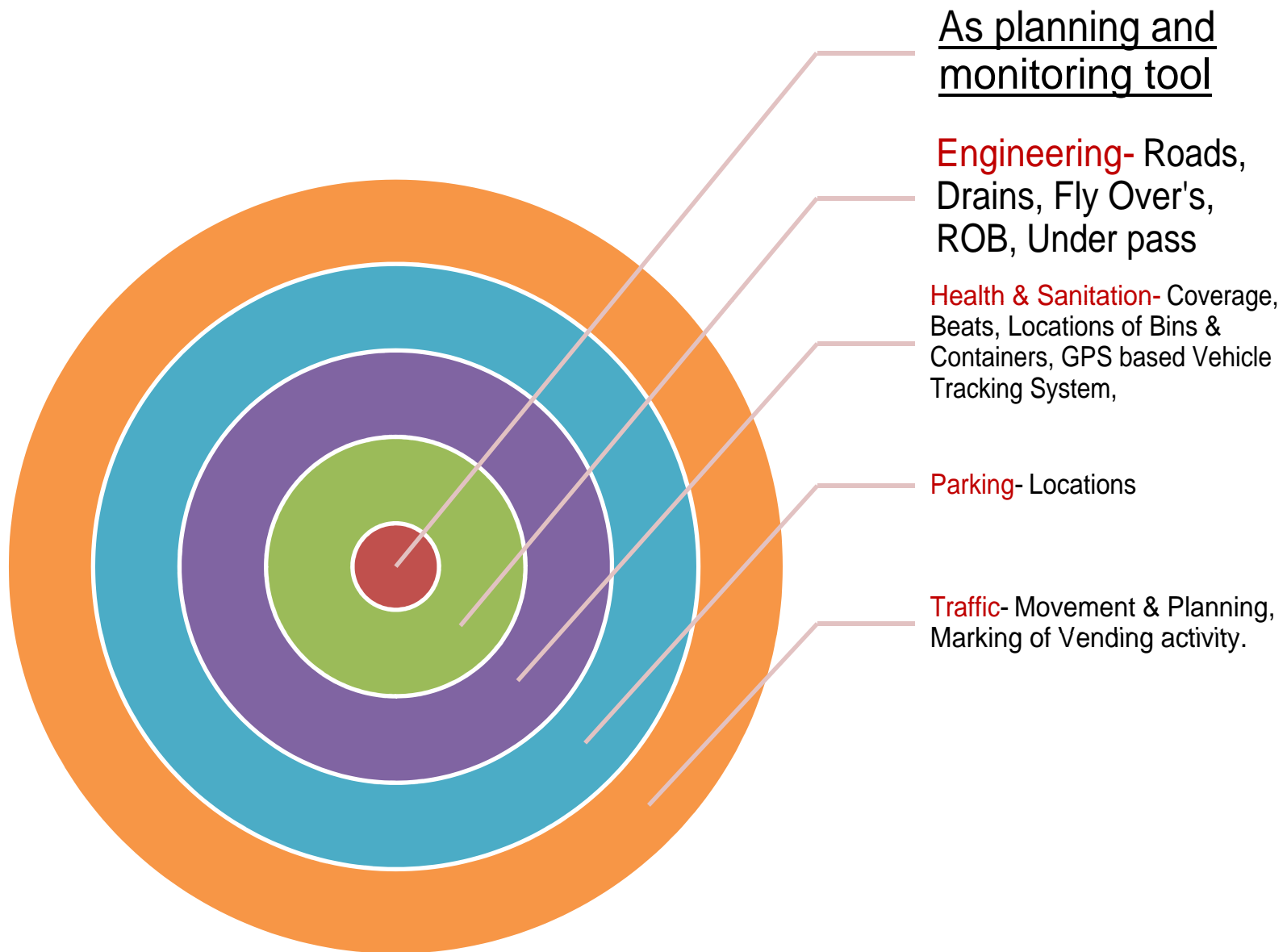
Demarcation of open main Drains



New House Numbering Building ID Generation

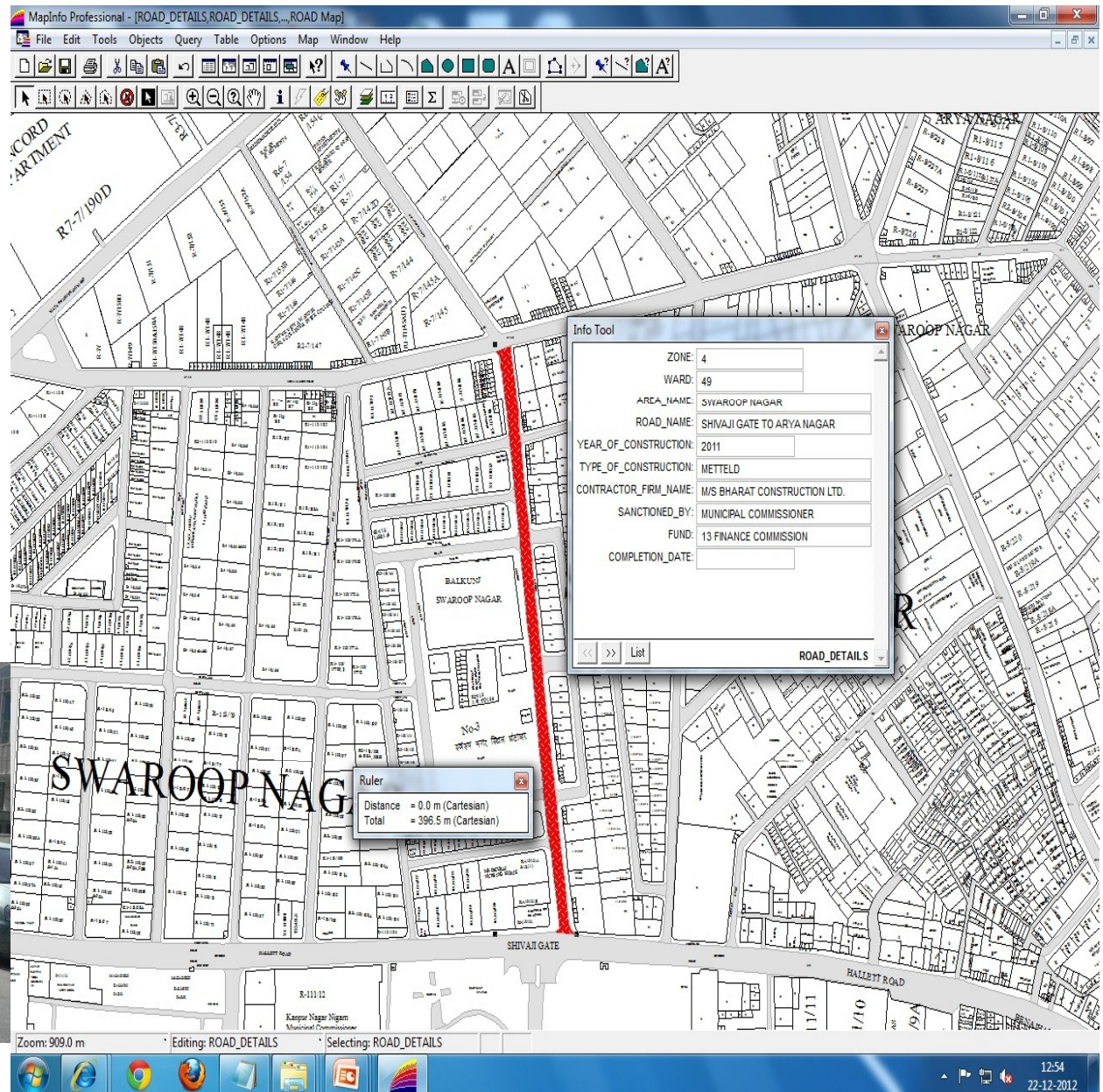


In different municipal departments

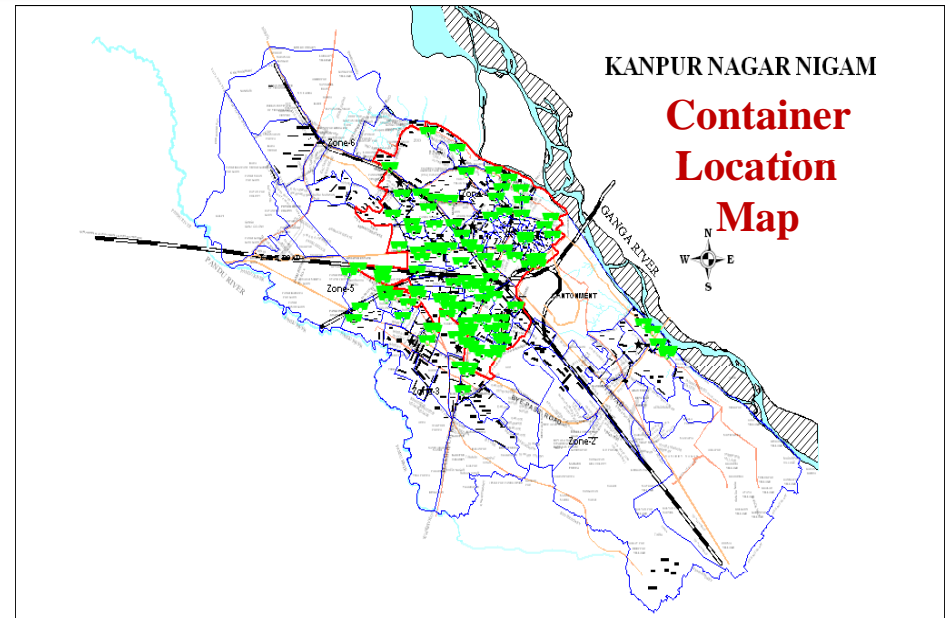
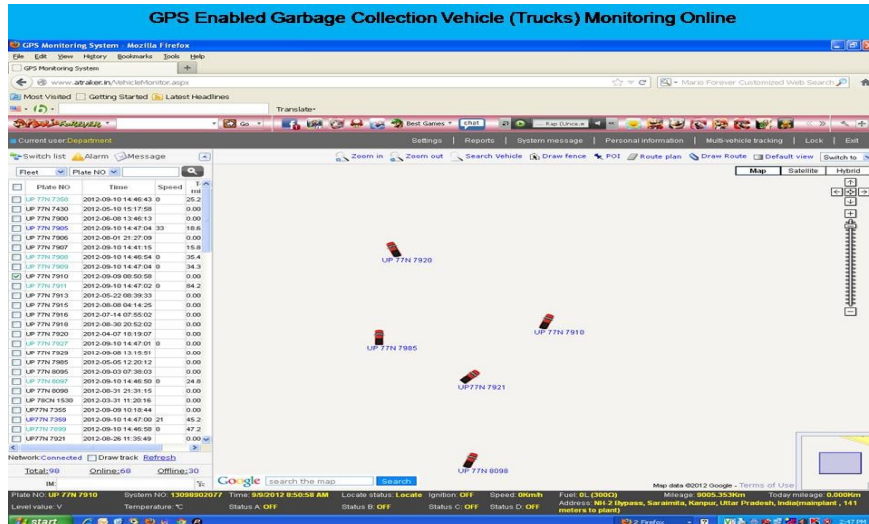
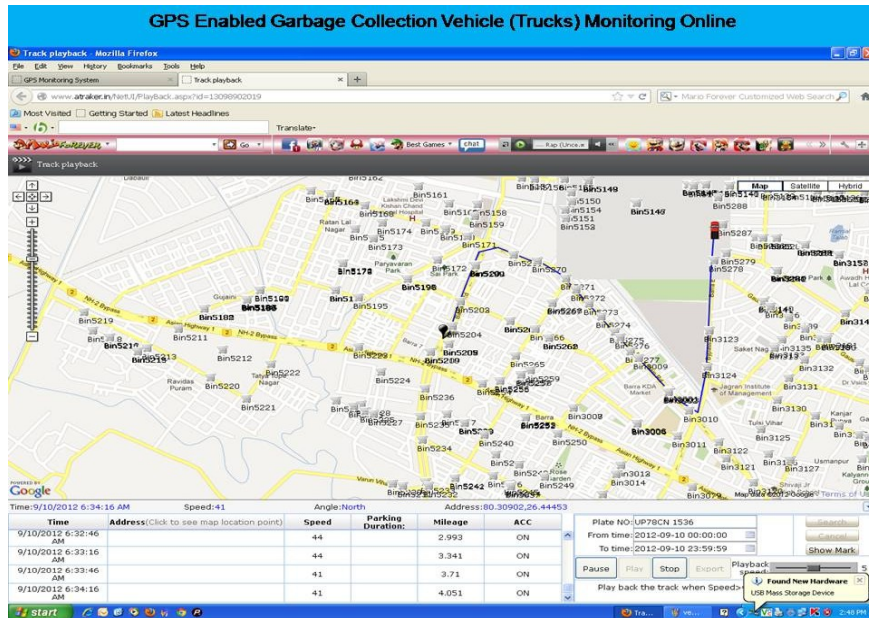


Engineering Department

- Measurement of road length & width.
- Year wise marking of constructed roads and drains & Cost.
- Linking of MIS data & picture of the road with spatial data (Map).



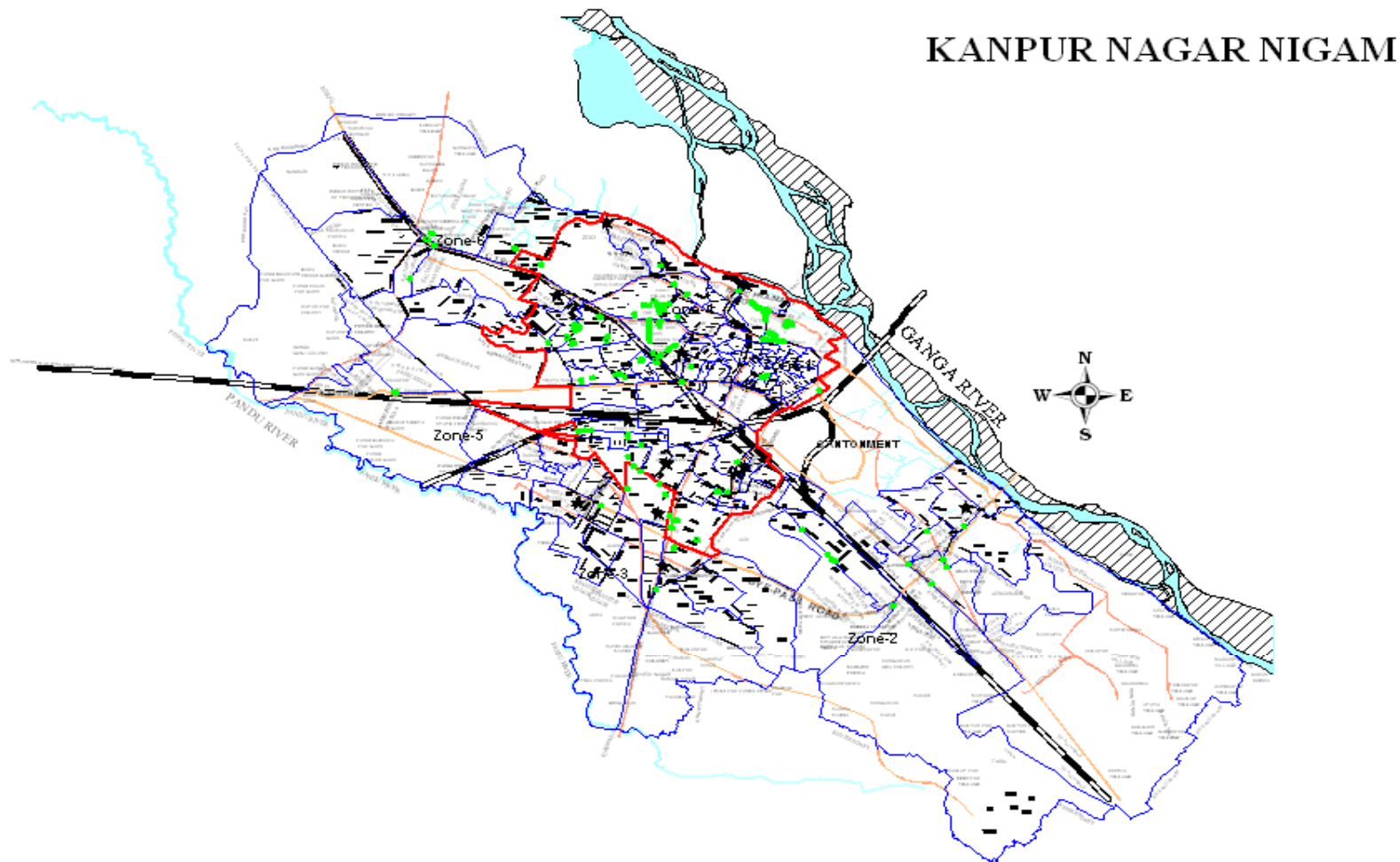
Health & Sanitation Department



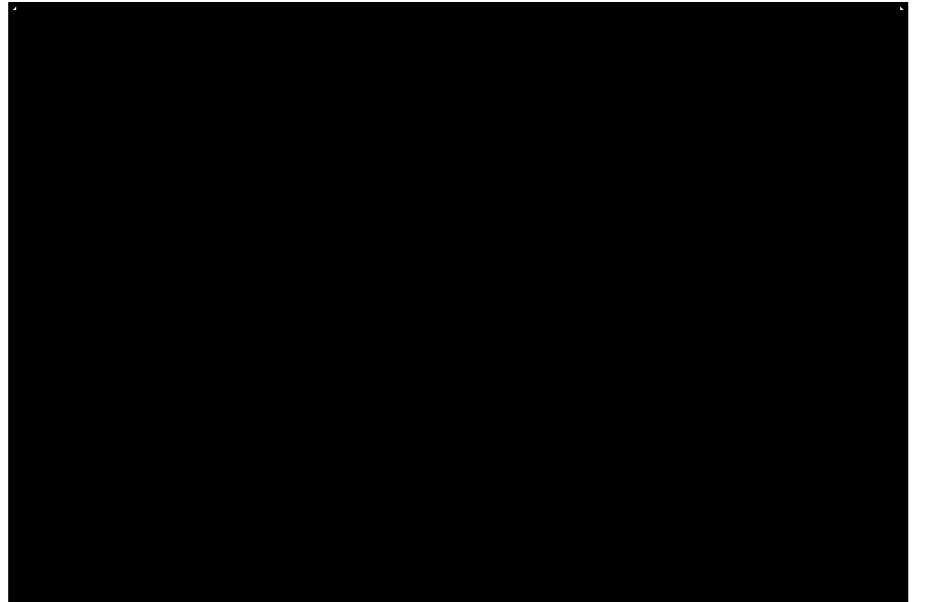
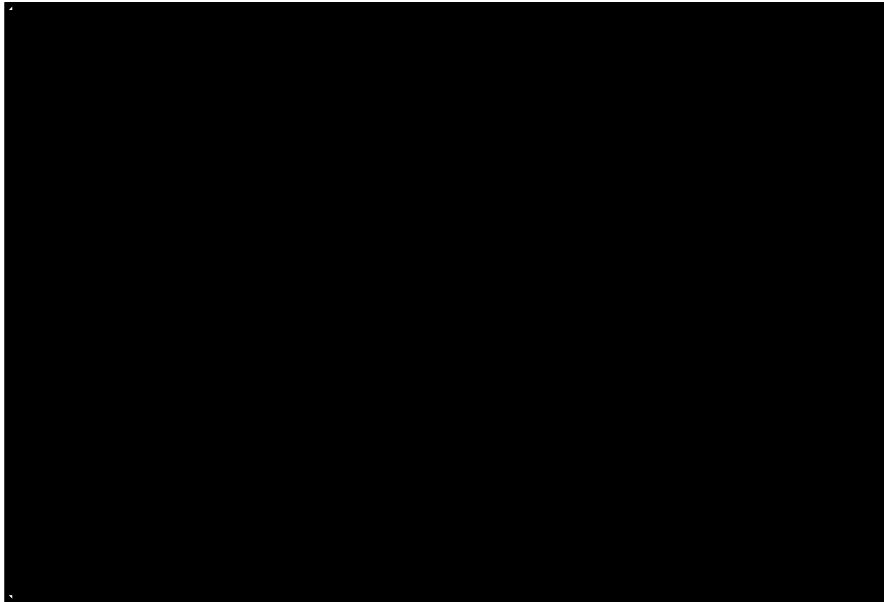
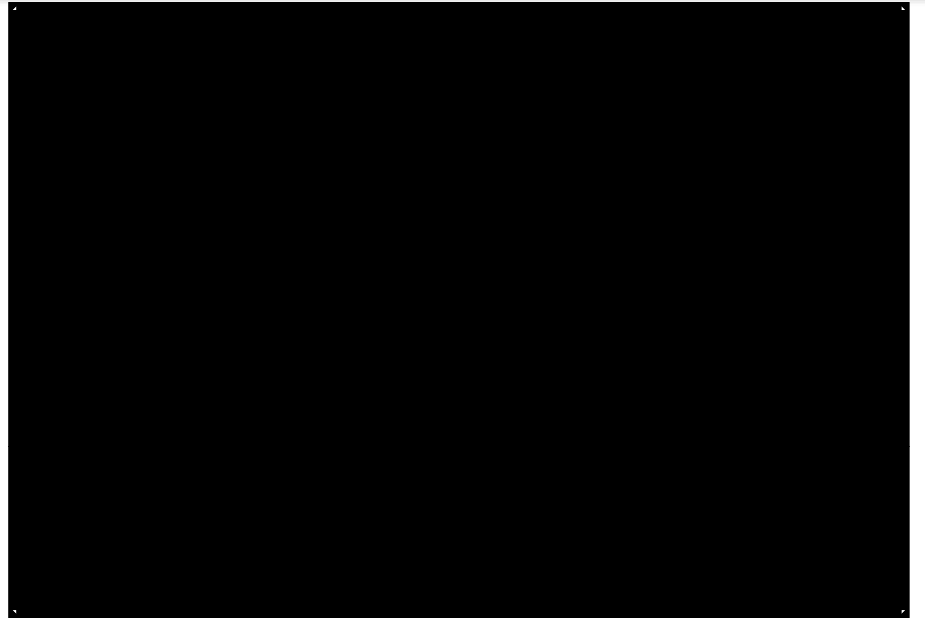
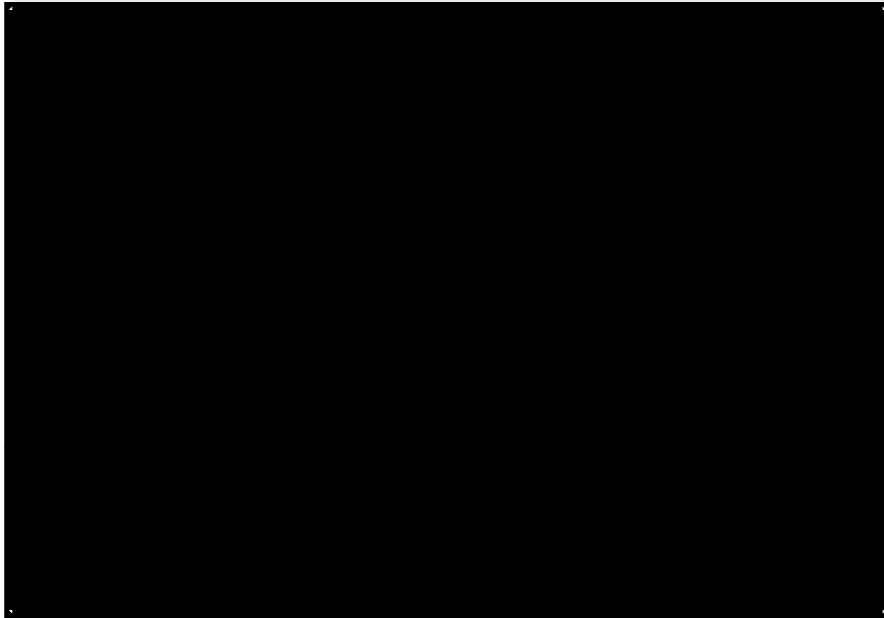
GIS Map for Traffic Planning

- Can Use GIS Map' for Development of **Comprehensive Mobility Plan**
- We can use GIS Map's for identify/making
 - No Vending Zone.**
 - Semi Vending Zone
 - Vending Zone
 - **Regulating Traffic**

Marking Parking Locations



Disaster Management planning



Case Studies

- Ad GIS
- GIS Based Property Management System



GIS as a tool for Revenue Enhancement through Advertisement.....



AD-GIS

An Advertisement fee is collected from the following sources:

1. Hoardings / uni-poles erected in municipal sites
2. Hoardings / uni-poles in private premises
3. Hoardings / uni-poles in Government-leased sites
4. Glow / neon sign boards
5. Bus Shelters
6. Brand names
7. Mobile advertisements
8. Pole ads
9. Miscellaneous

AD-GIS

- ❖ Locations for advt. marked on the map,
- ❖ Data base readily available & 24/ 7 access
- ❖ AD-GIS used for fixing the premium locations,
- ❖ **Unauthorized advts. located on the map, removed/regularized.**
- ❖ Photograph of advt. attached with location,
 - Financial loss percent & amount (from unauthorized advt.) calculated,
 - With the help of map one may reach easily at the advt. site
 - The survey & photograph of map used as evidence for revenue collection & legal action
 - The data helped in the visualization of the advt. scenario of the city/area

Methodology for AD-GIS

- GPS survey - ward wise in the prescribed format
- Photograph of advt.
- Linking photograph on GIS map.
- Field authentication of survey data
- Final data base creation.
- Data analysis.
- Updating.
- Conclusion

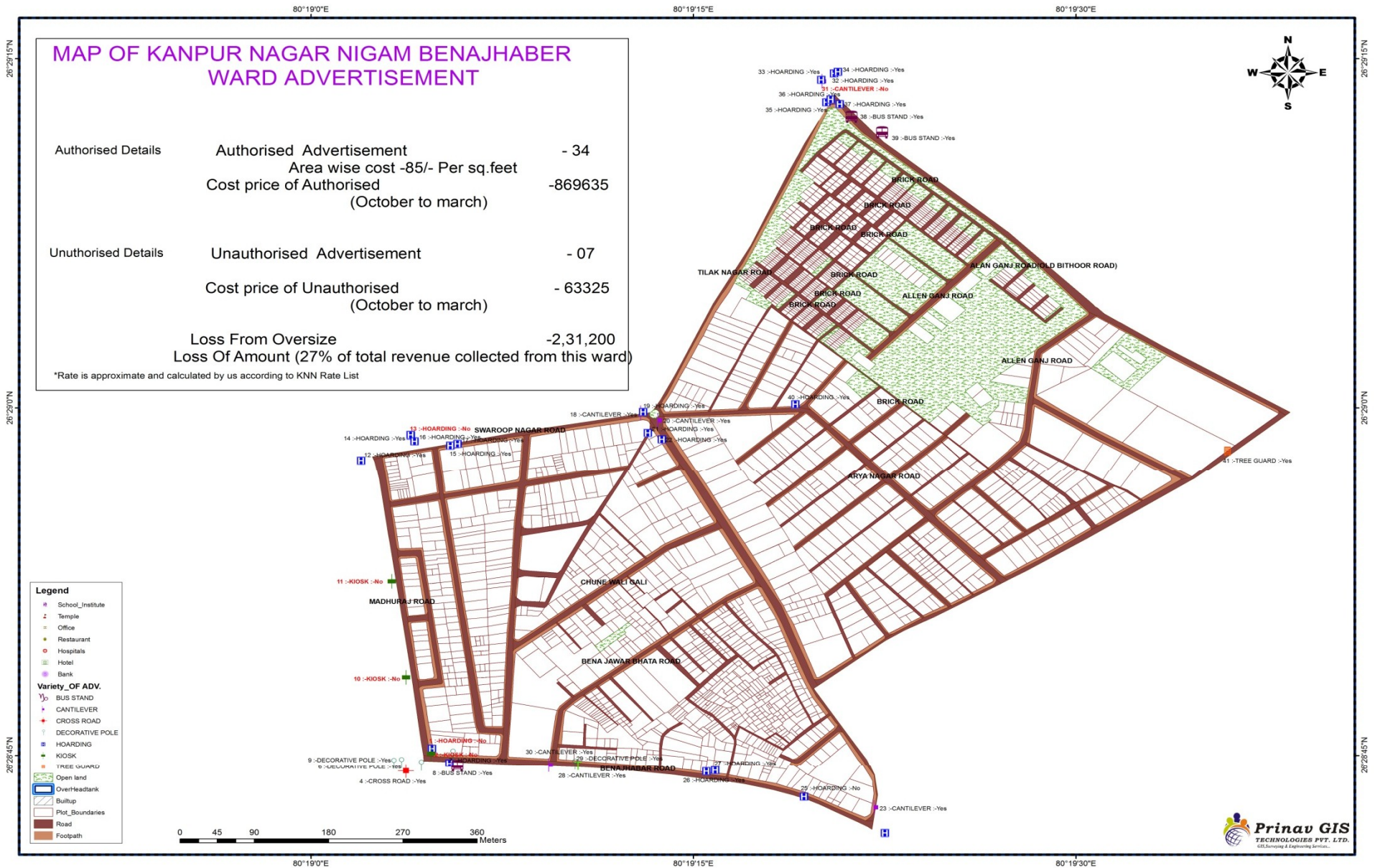
SAMPLE SURVEY POINT COVERED IN DATA SHEET

- **Road/lane name**
- **Name of advt. Agency**
- **Variety of advt.(Unipole/ Cantilever/ Kiosk/ Hoarding/ Decorative pole/ Cross road/ Gantry)**
- **Size of advt.**
- **No. Of kiosk/ tree guard/ decorative pole**
- **Location of advt.**
- **Landmark**
- **Permission from KMC- Yes/No**
- **Approval date & expiry date of advt.**
- **Matter of present advt.**
- **Advance tax status**
- **Site suitability**
- **Remark**

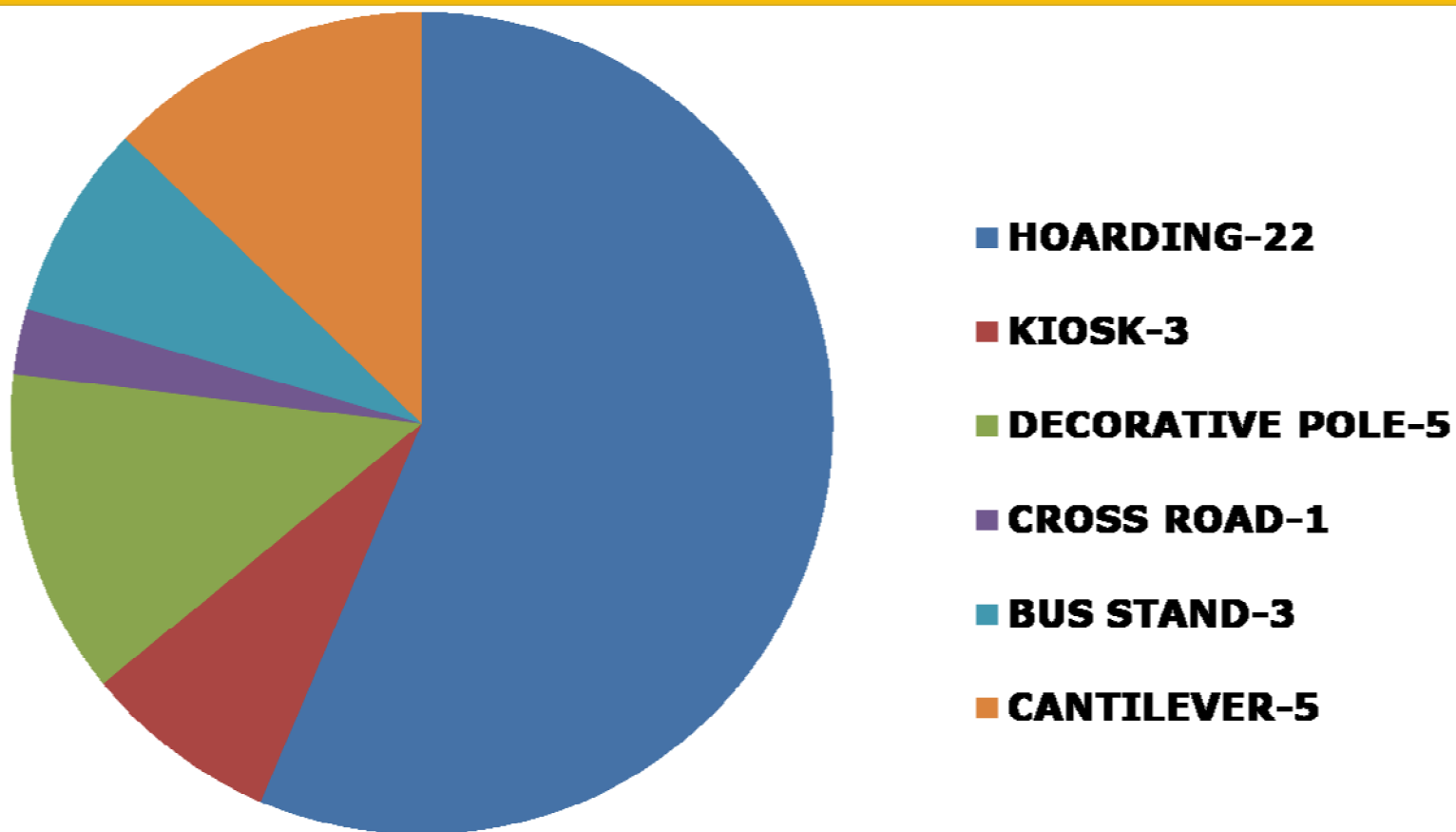
PHOTOGRAPH OF THE ADVERTISEMENT



GIS MAP OF BENAJHABER WARD ADVT.



STATUS OF ADVERTISEMENTS IN SAMPLE Benajhabar ward -SURVEY AREA



Findings of the sample survey Ad-GIS project

- **Most of the agencies –**
- did not show name & mobile no. ,date of permission & date of expiry on advt. Board.
- did not show registration no. on the advt.
- All the advt. sites were suitable
- The loss of revenue from unauthorized advt. is **27% (Rs.2,31,200)** as compared to authorized **(Rs.8,69,635) March to Oct (6 months)** in Benajhaber ward which is smallest ward of KMC near Motijheel.
- expect more losses in remote areas.
- **Ad-GIS project may enhance revenue by at least 3 times once all the survey and mapping is done and the advts. are regularized**

Recommendations

The permission should be given with following conditions:

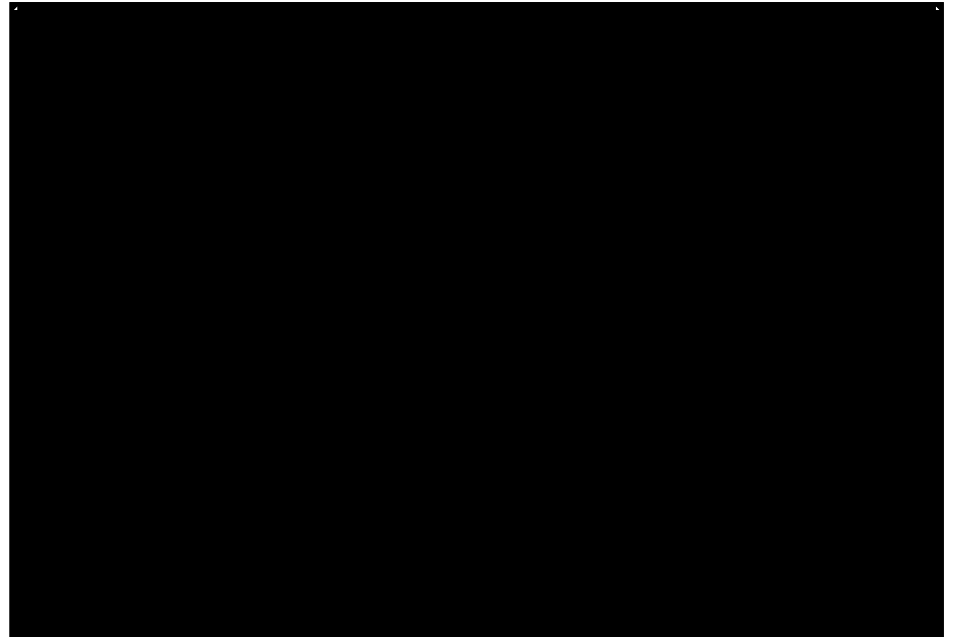
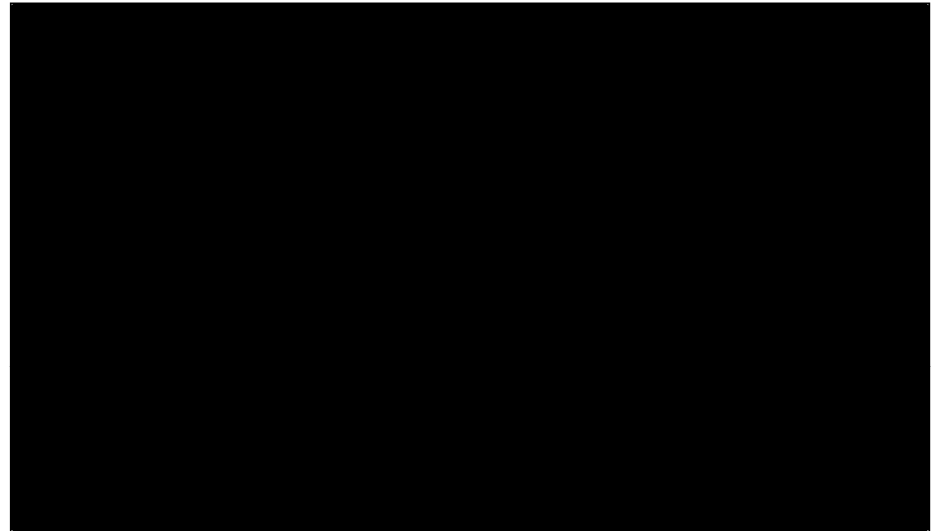
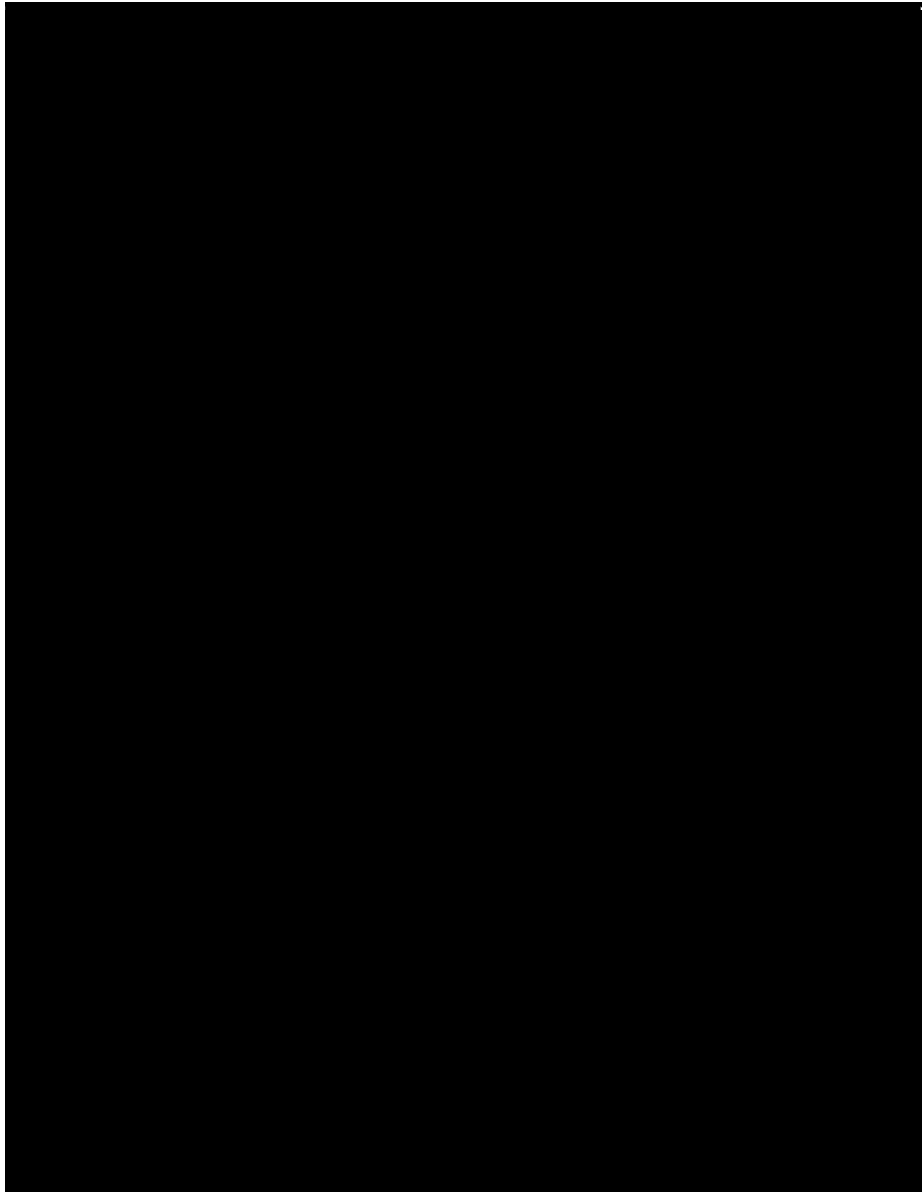
Must ensure the site suitability. (No hindrance to traffic flow)

Every advt. Agency must display :-

- the name & license no. over advt.
- mobile no. of advertiser.
- date of permission & expiry over advt.

Illegal advt. must be dealt severely.

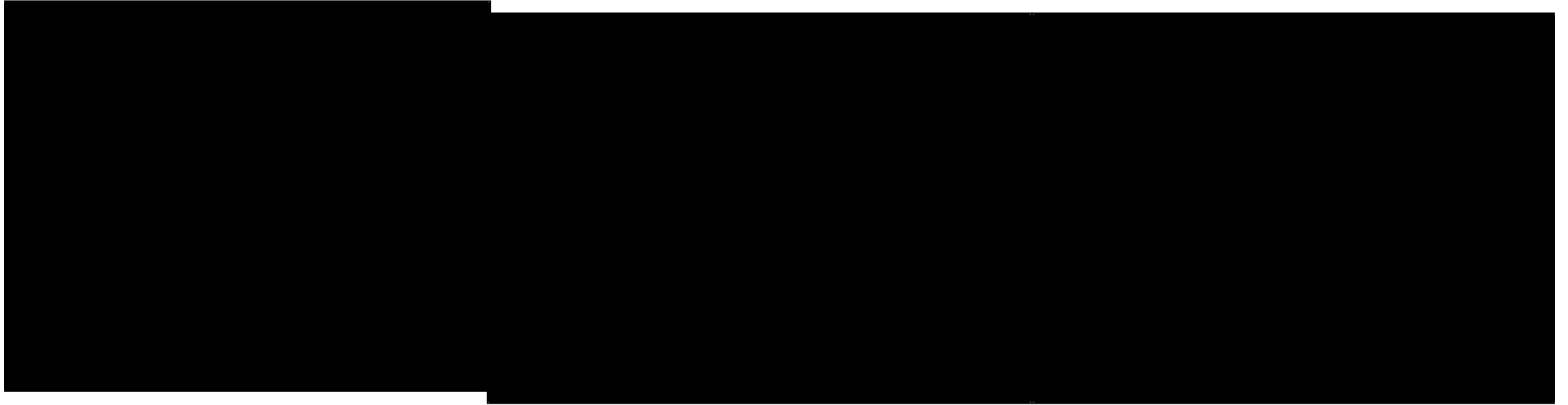
Property Tax Management System Using Geo-Spatial Technology –A Hurdle race



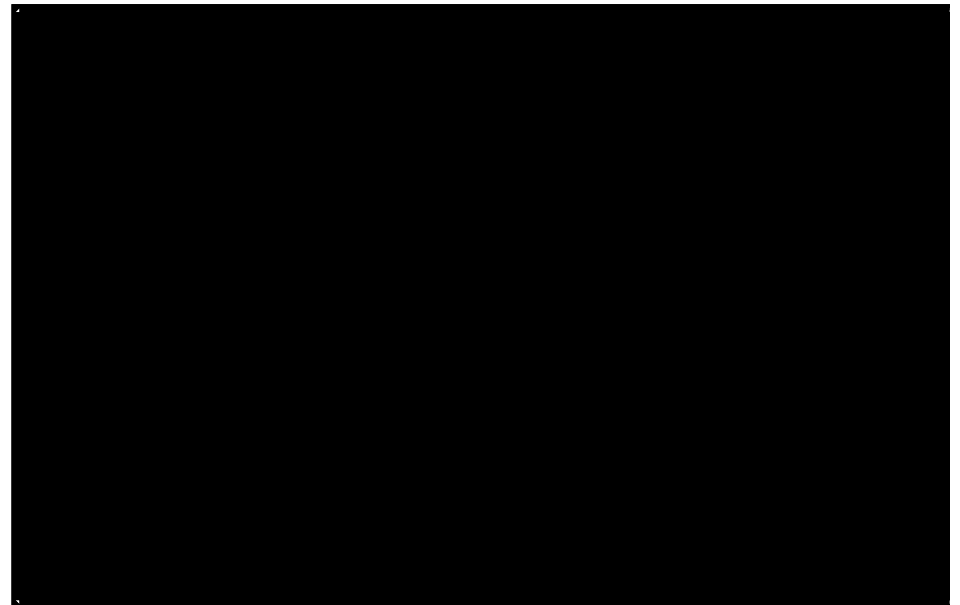
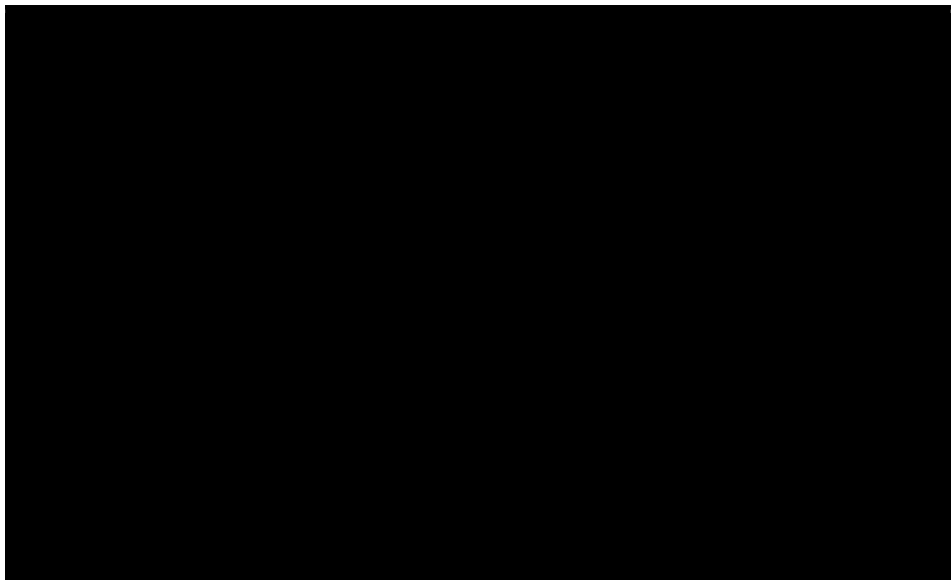
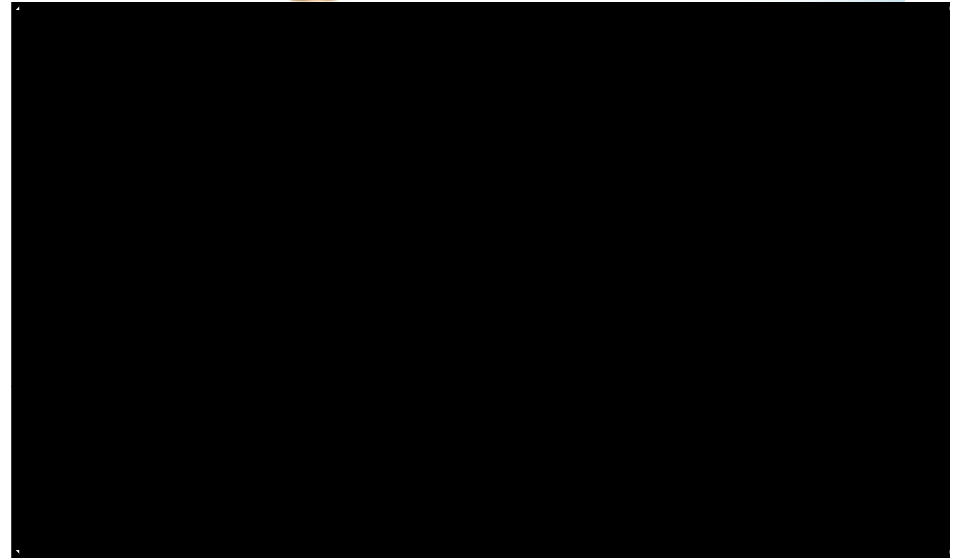
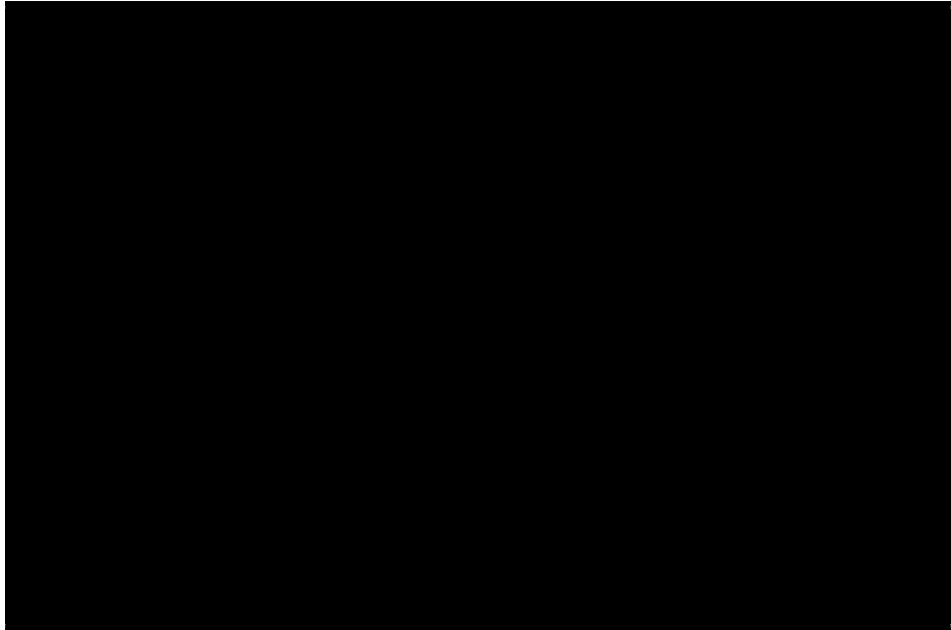
GIS BASED PROPERTY MAPPING/ TRACKING PROCESS



Implementation strategy



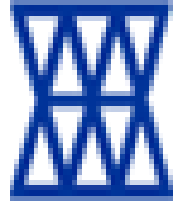
Benefits from KMC Property Tax GIS Project.....



Lessons learnt

- Joint working to ensure data quality and acceptance of data generated through project
- Ensure and develop quality of manpower employed in the project
- Set Quality Benchmark
- Facilitation and support the implementing agency
- Ensure active stake holders participation
- Follow timelines
- Highlight achievements
- Participate in State/ National/ International Awards

First Complete Municipal Project which has Won State /National and International Awards



NJS ENGINEERS INDIA PVT. LTD.

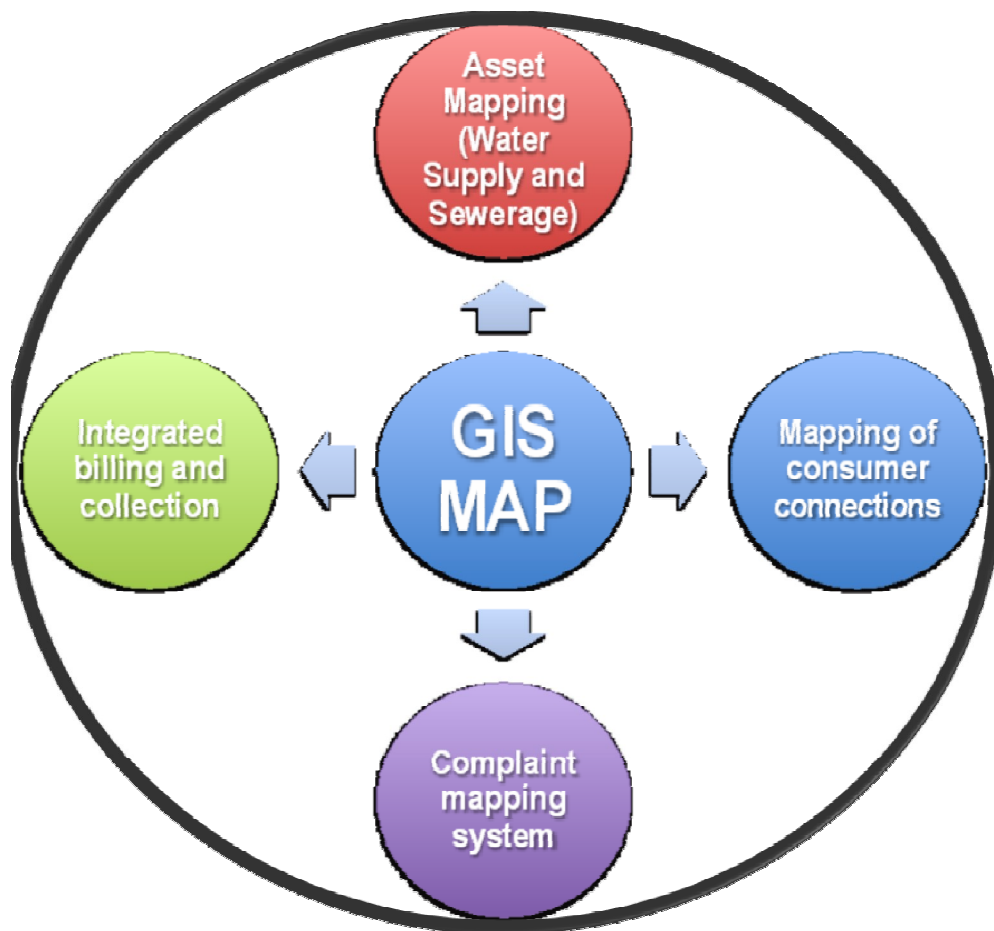
- NJS Engineers India Pvt Ltd (NJSEI), established in 2007 in Pune India,
- Wholly owned Subsidiary of NJS Consultants Co. Ltd., Japan (NJS) established in Tokyo, Japan in 1951
- Leading environmental engineering companies in Japan.
- 60 years of worldwide experience and enjoys a reputation for providing technical excellence and a superior quality of work to its clients.

Projects at:

- Agra,
- Bangalore,
- Hyderabad,
- Kanpur,
- Nagpur,
- Kolhapur,
- Goa ,
- Gauwhati,
- Tiruchirapalli,
- Varanasi,
- New Delhi
- Nasik
- Gangtok

Institutional Development
Action Plan
Varanasi

GIS Asset Mapping and Management



Geographical Information System

- Formulate **State Level** MIS- GIS Master Plan
- Preparation of Up-to-date large scale Geo-referenced Web GIS map,
- Updating and integration of Billing data with Map

Asset Mapping and Management Plan

- Prepare Comprehensive Asset Management Plan
- Survey and Mapping of all Assets of VMC/Water Supply, Sewerage and Consumer Connections
- Integrate Asset Map with GIS
- Transfer of Technology and addition of

An aerial photograph of a coastal scene. In the foreground, a small, crescent-shaped island with green vegetation and a rocky shore is visible. A bay within the island's curve contains several small white sailboats. A speedboat is moving across the water in the lower right, leaving a white wake. In the background, a large, flat-topped headland or cliff extends into the sea under a blue sky with scattered white clouds.

THANK YOU