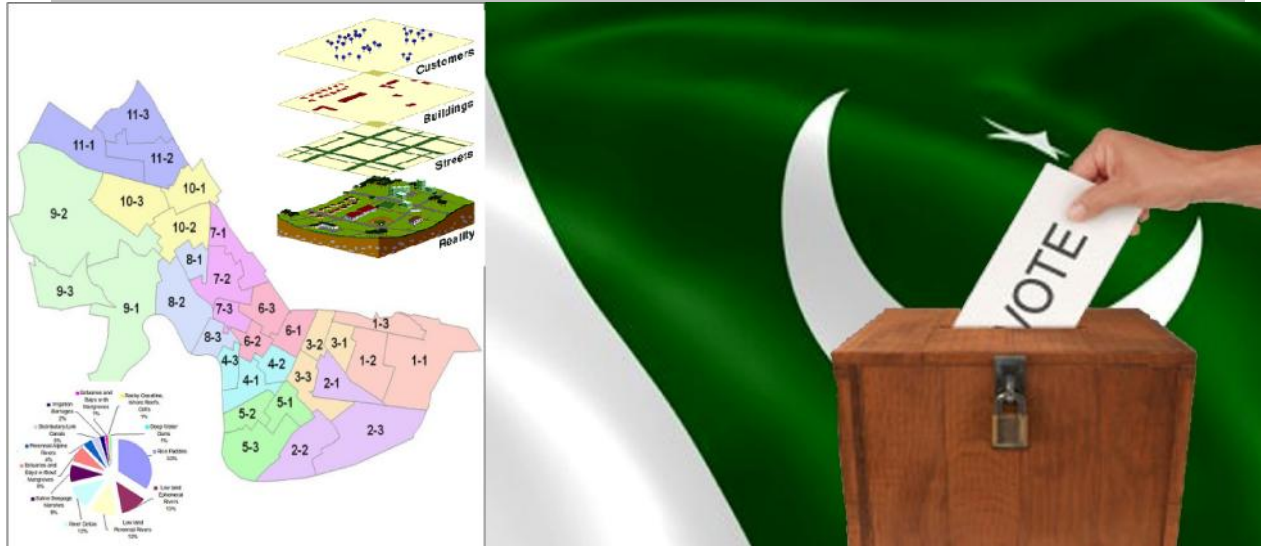




جامعة الملك فهد للبترول والمعادن
King Fahd University of Petroleum & Minerals



DEPARTMENT OF CITY AND REGIONAL PLANNING



GIS Based Elections In A Democratic Country.

CRP 514 –
GEOGRAPHIC
FORMATION
SYSTEMS
TERM 122

INSTRUCTOR :
DR. BAQER AL-RAMADAN
SUBMITTED BY:

NADIM AHMED
JAMALI ID: G201207260

Date:
April, 23, 2013

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GIS BASED ELECTIONS IN A DEMOCRATIC COUNTRY

ABSTRACT:

An election is a formal decision making process by which a population chooses an individual to hold public office, Nowadays most challenging part of elections is "how to conduct Free and Fair Elections", this research paper is all about how to conduct free and fair election with modern techniques "Use Of GIS". Use of GIS will help to Government bodies, All other stakeholders to conduct election with peace and credibility; GIS also help people to participate in elections with ease.

1. INTRODUCTION:

This is called 3rd generation world, where every 3rd hand have a smart phone and connectivity with global village; now people are going to solve daily life problems with the help of technology. Nowadays most challenging question in many democratic countries is "How to conduct free and fair elections?" to solve this question many research were made in different times.

"Electoral GIS has the capability of providing comprehensive and logical spatial analysis for electoral experts and literate persons. Map based visualization also attracts and enables the common man to

understand situations in consonance to their interest. Electoral GIS also includes within its purview the analysis of various variables categorized within the election scenario as social and economic indicators related to the electoral behavior of areas". (Syed Nawaz-ul-Huda, Farkhunda Burke, Muhammad Miandad and Maliha Naz Rana, 2011).

To participate in polls, and chose a right person or party, it can be solved with the help of advance technology, GIS is also a great achievement by ESRI, Town planners, Geographers and many others are using GIS to solve urban and rural related problems; ESRI develops some applications, use of that application will be helpful to conduct free and fair elections and enhance participation of people.

2. OBJECTIVES OF STUDY:

The objective of this study stands over two line agenda using GIS:

1. Conduct free and fair election with credibility,
2. Enhance the participation of people in elections.

3. RESEARCH METHODOLOGY :

The research methodology of this paper is based on Literature review about electoral process in democratic countries and GIS as tool to conduct free and fair elections and enhance the participation of people in elections. In addition , I will include a Case Study : Analysis of National Assembly 55-Rawalpindi Franchise: An Electoral GIS Perspective of Pakistan, 2011.

4. LITERATURE REVIEW

Case Study : Analysis of National Assembly 55-Rawalpindi Franchise: An Electoral GIS Perspective of Pakistan, 2011

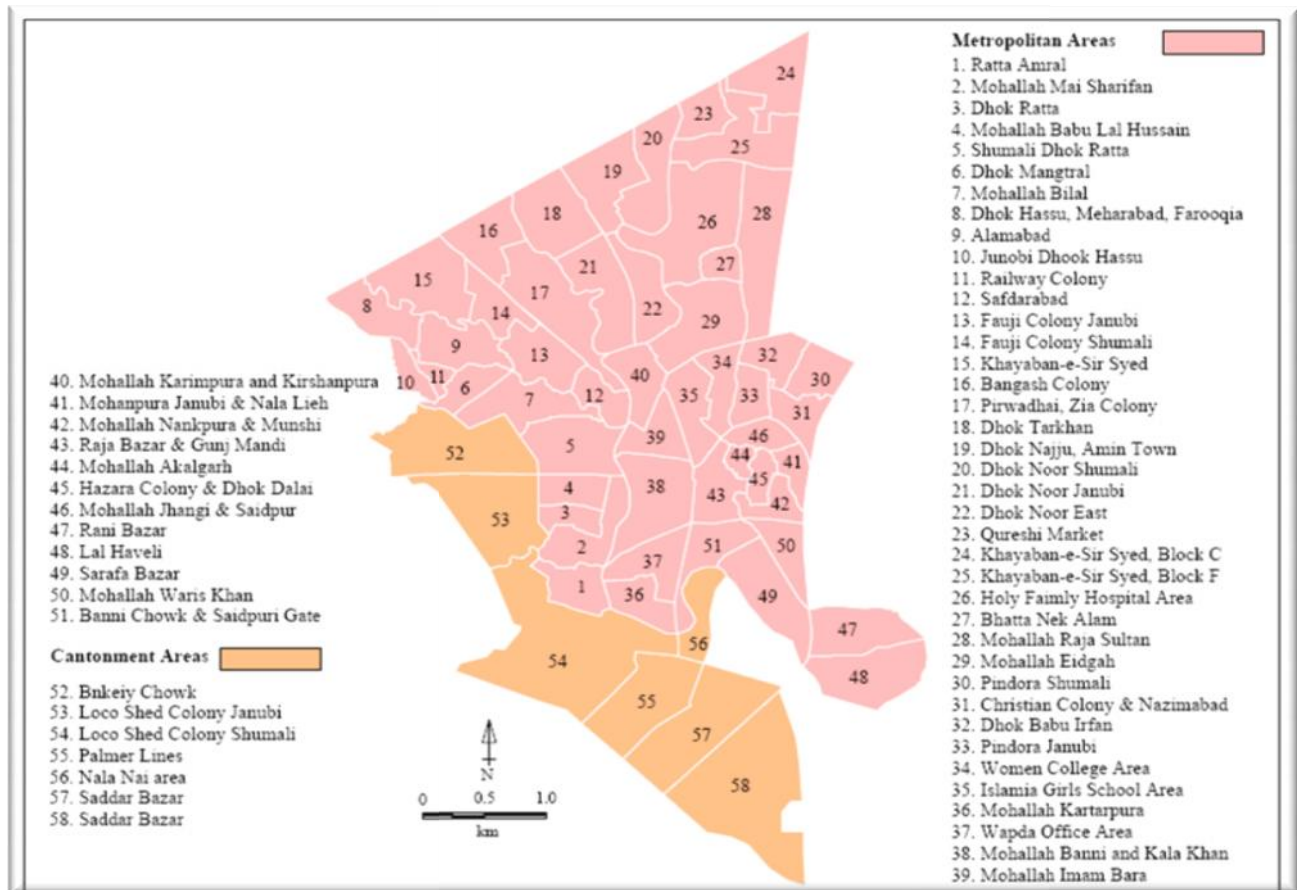
Objectives of Study:

1. Providing a model for the development of electoral GIS in Pakistan,
2. Laying emphasis on the application of the given model for exploration of Electoral Geography in Pakistan by electoral analysts.

Study Area:

National Assembly 55 consists on parts of Rawalpindi Metropolitan Corporation and Rawalpindi Cantonment.

Fig.1 Selected Study Area for Illustration of Electoral GIS Applications:



MATERIALS AND METHODS

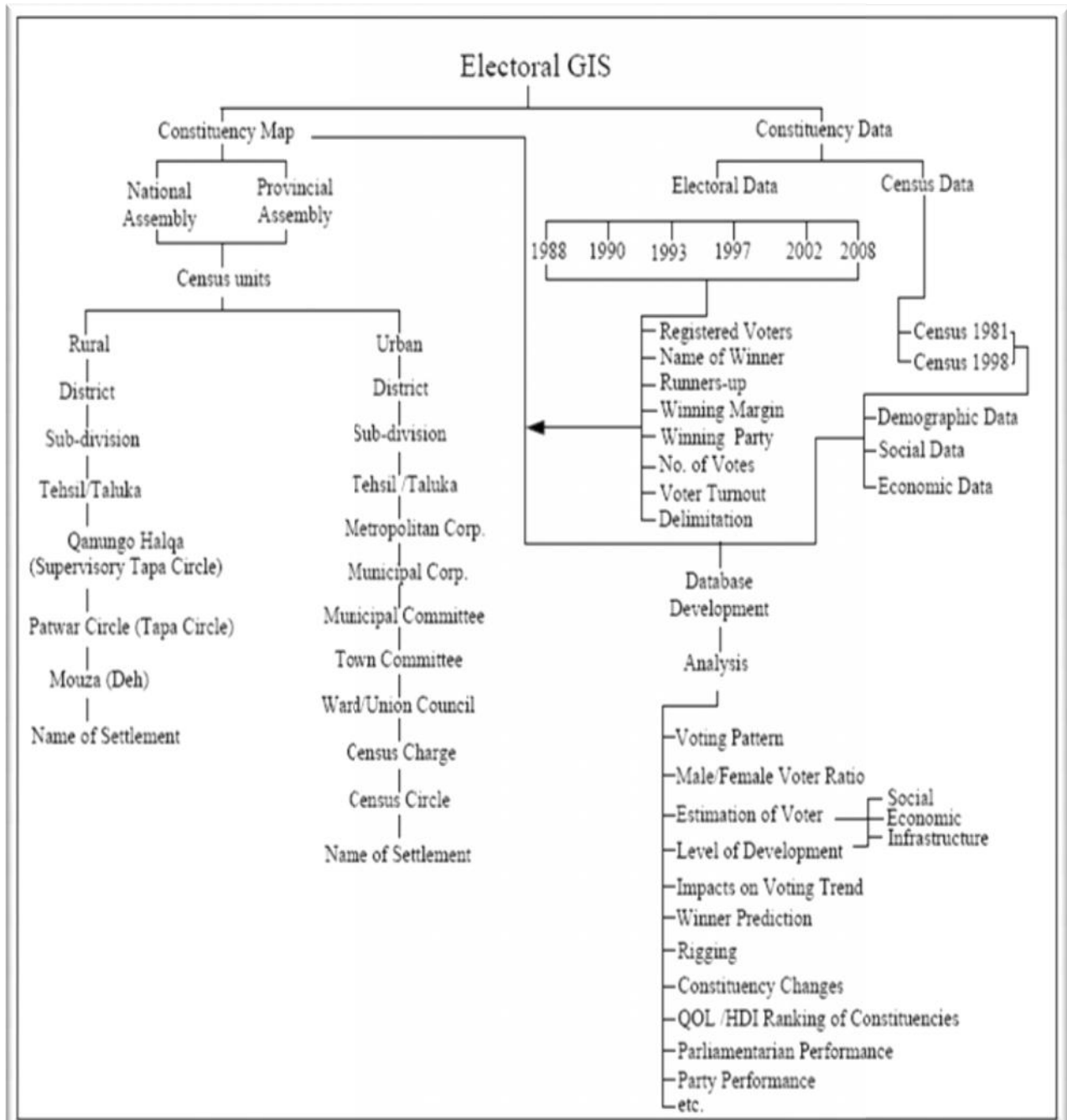
They Collect data for this case study :

1. Electoral data has been obtained from Election Commission of Pakistan,
2. other related data regarding electoral delimitation maps and social & economic

data from Population Census Organization, Government of Pakistan Census 1998 publications.

They propose Electoral GIS Model (EGM) for spatial analysis in electoral research

Fig. 2 Electoral GIS Model for Pakistan:



RESULTS AND DISCUSSION FROM CASE STUDY:

They used GIS for following results:

1. Time Series Percentages of Vote Distribution
2. Voting Pattern of Settlements - By Election 2010 and General Elections 2002-2008
3. One to One context between two parties in General and By Elections
4. Population 1998 and Voter Turnout 2002 and 2008 General Elections

5. Average Spatial Percentage of party's' level Voting Zones to Total Registered Voters 2002 General Election
6. Average iterate Population.
7. Average Per Acre Population Density
8. Percentage of Parties' Level Voting Zones to Total Registered Voters - 2008 & 2010 General Election

5. CHALLENGES IN ELECTORAL PROCESS:

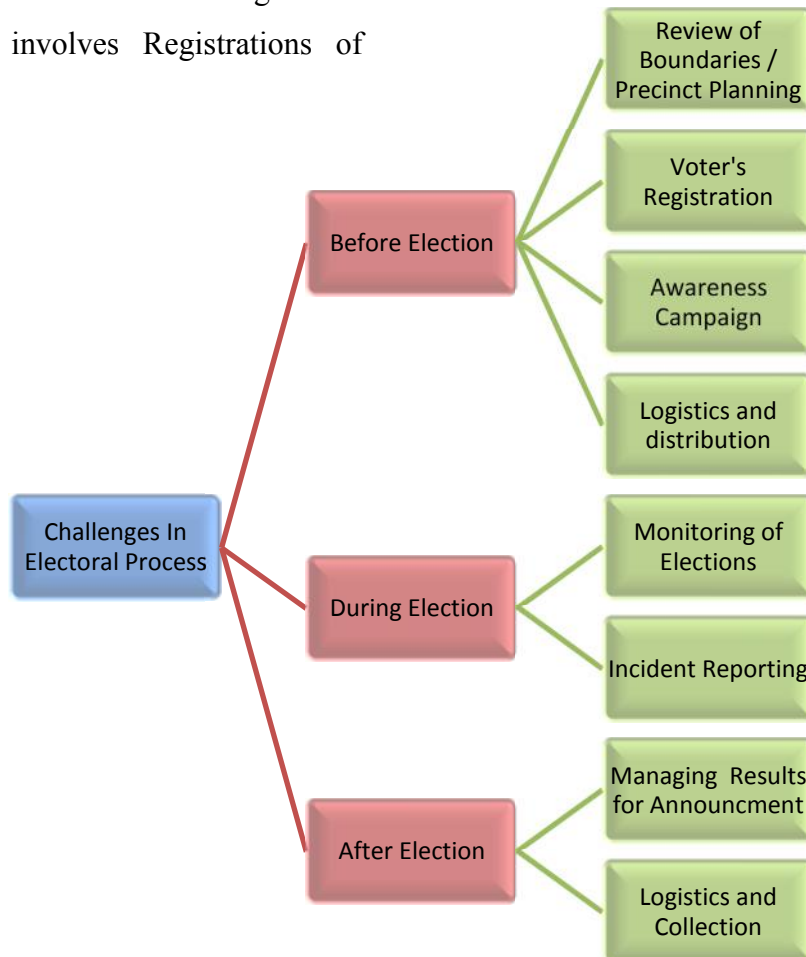
It is most common but very important question that why Electoral process do not meet with International standard of being "Free and Fair". It obviously due to weak rule of law, corruption ,and involvement of mafia in Electoral process is major cause of failure of Electoral process being "Free and Fair". Other cause is "Interference with Elections Campaigns" also leads to unfair elections.

Electoral Process involves three steps in itself:

- **Before Election:** Challenges for officials involves Registrations of

voters, Election awareness campaign or education of voters, Precinct Planning or review of boundaries, Locating polling stations, and Logistics and distribution process.

- **During Election:** Monitoring of elections process is major component for election commission to tackle this carefully for free and fair elections, incident reporting and Disseminating Provisional results are also part of challenges for officials.
- **After election:** Managing of results for announcement, logistics and collection are after elections challenges.



6. WHAT GIS CAN DO?

6.1. PRECINCT PLANNING:

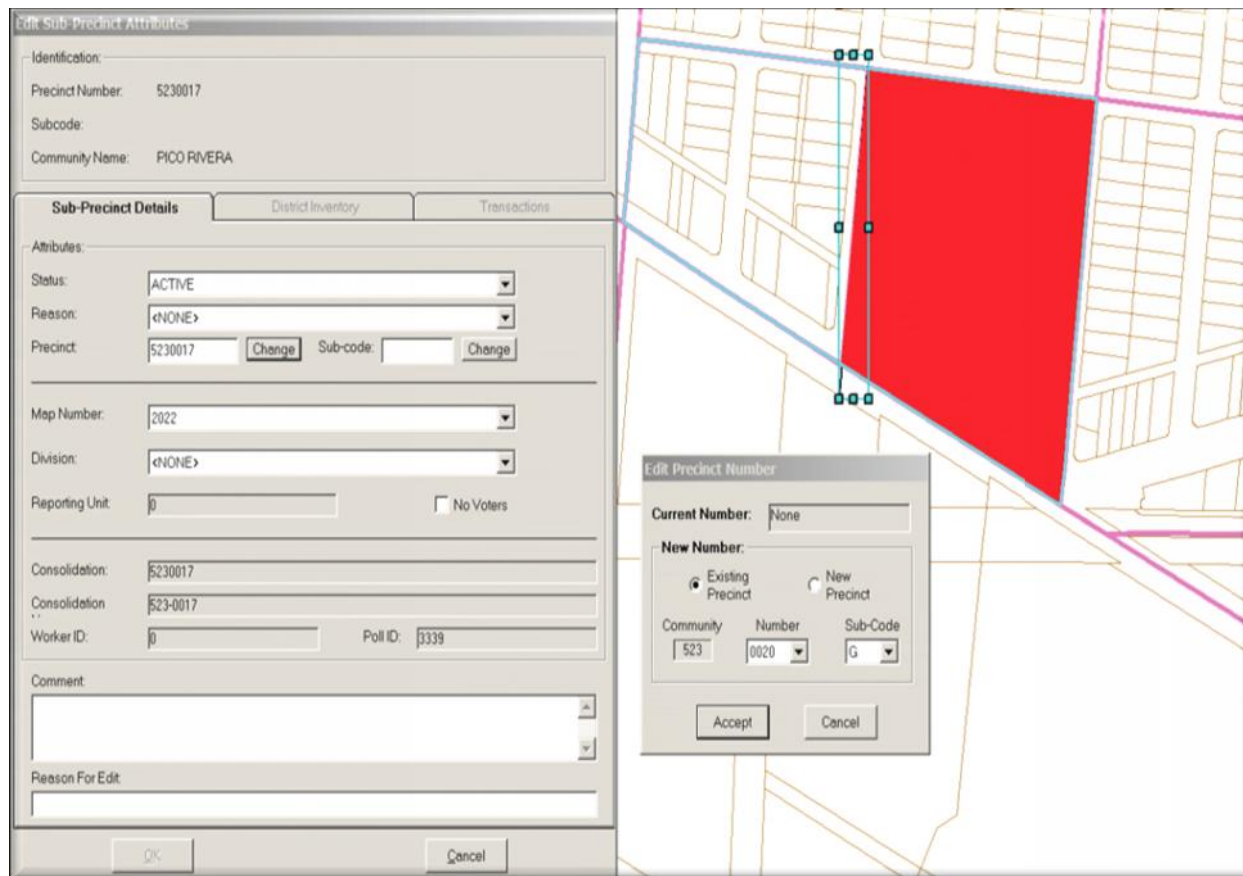
In all democratic countries Federal, State and all local government officials must use decennial census data to review and redraw their election districts once in ten years. Redistricting is a geographic problem; GIS is a geographic solution, with the help of an application by Arc GIS ESRI "Precinct Consolidation" we can prepare precinct plans in better way and easily understandable.

It should be categorized according polling stations, It allows to create ballot groups,

Geographic areas those have same district characteristics for the active district in an election , once the ballot groups for a particular election have been identified, Precinct Consolidation is used to combine established Precinct with the same ballot group into election Precincts. It allows With the Single Point Data Entry System, users can split selected sub precinct polygons, then modify the attributes of the new sub precincts created (Fig: 01).

Precinct consolidation would save money and help the County Office of Elections better meet challenges imposed by new technological requirements

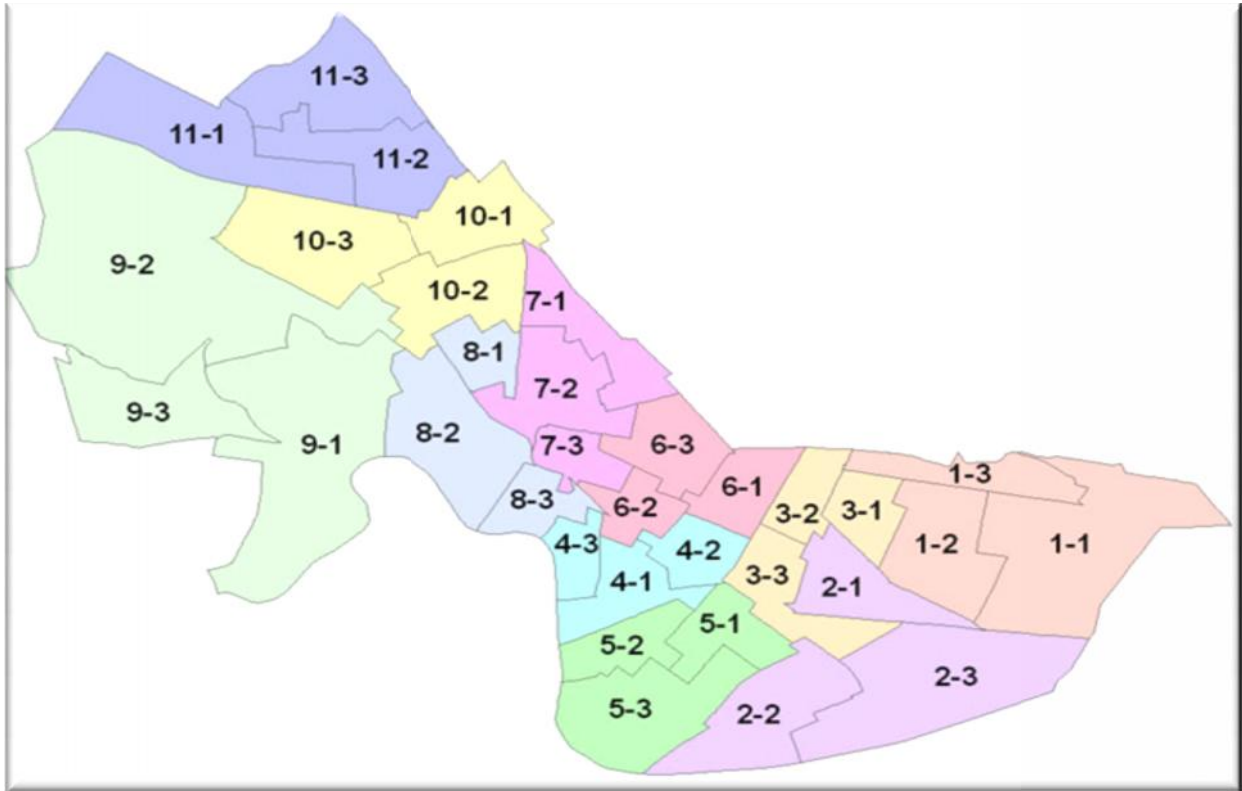
(Fig:03, Precinct Consolidation Application for editing of boundaries for elections)



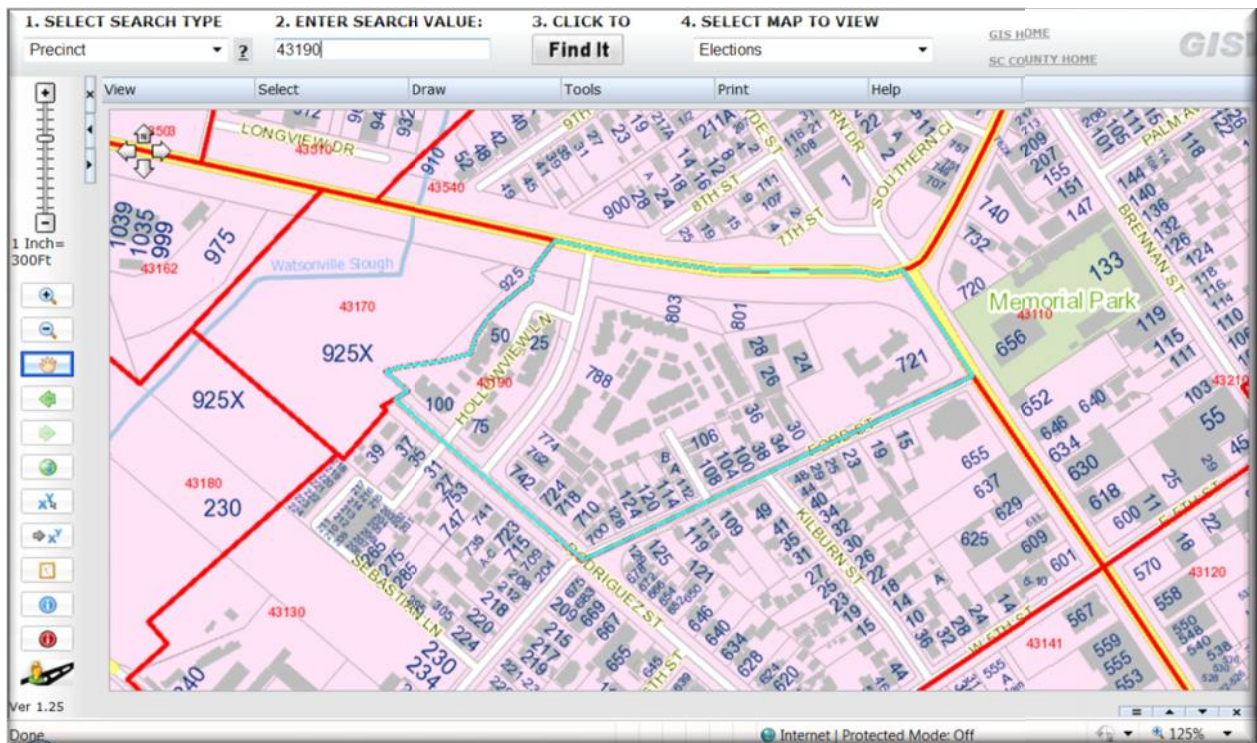
<http://www.esri.com/news/arcuser/1207/electionsupport.html>

(Fig:04 examples of Precinct Planning for elections)

<http://gis.cambridgema.gov/DataDictionary/Datapages/WardsPrecincts.html>



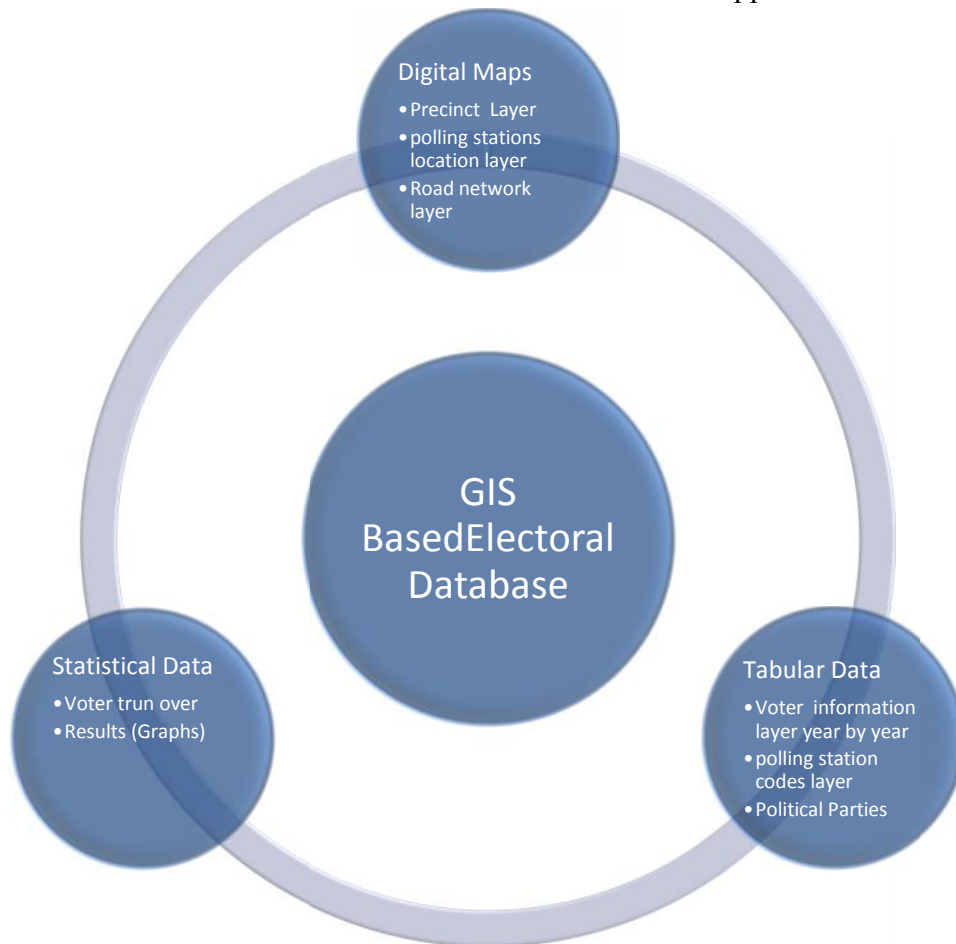
(Fig:5 examples of Precinct Planning for elections online finding precinct)



6.2 DATA MANAGEMENT FOR ELECTORAL PROCESS:

GIS enables its users to analyze, interpret, edit various types of data for decision making process and solve issues social, economical and now political. GIS provides easy understandable results in shape of maps, tabular or graphical summary. In the past for the data management in electoral

process large size printed maps were used and voter registrations and other tabular data were manually entered, that method of editing was required manpower and huge amount of money as well as time and chances of error also high level. But now digital maps and GIS can improve data management system for electoral process, GIS data management system will be easy, less time required for editing, accuracy and economical approach as well as.



6.3 BETTER WAY TO FIND POLLING STATION:

In past time it was very difficult to locate polling station, either there is adequate parking place available or not? But nowadays it is very easy with help of GIS, Web GIS system provides people navigation system and all other relative information about polling station, prior to go there you can find all required information.

"Electors can now locate online the polling stations where they are supposed to cast their vote. They can do so by visiting the Election Commission or state chief electoral officer's website," Tripura Chief Electoral Officer Ashutosh Jindal said.

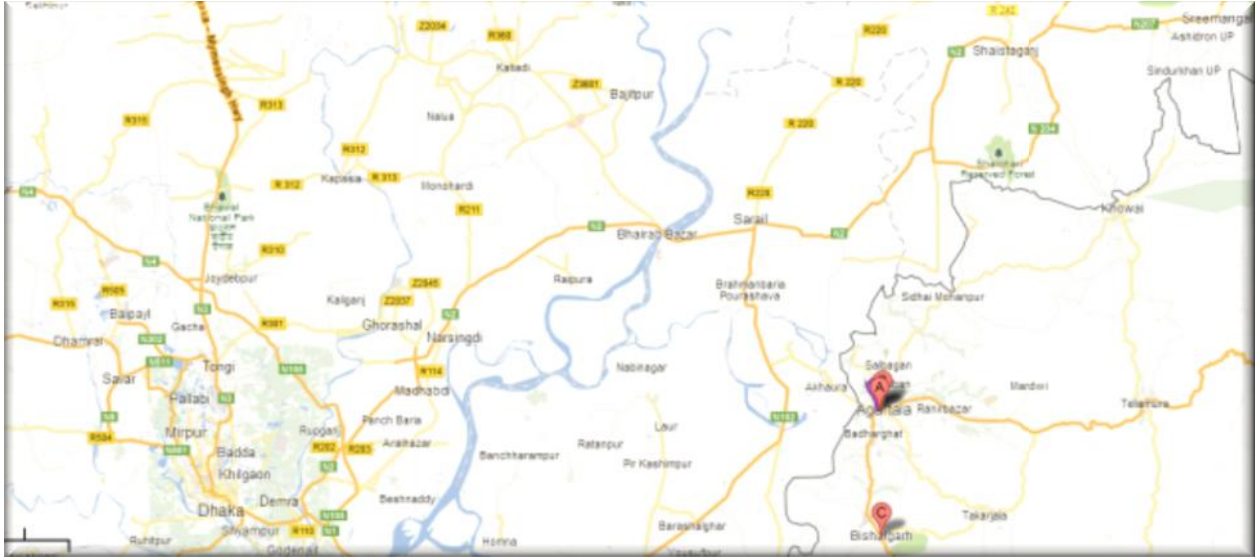
(Fig:06 examples for find a polling station by using your smart phone)

<http://googlemobile.blogspot.com/2010/10/find-your-polling-place-and-follow-us.html>



(Fig:07 examples for find a polling station by using your computer)

<http://gadgets.ndtv.com/apps/news/polling-station-information-in-india-to-be-available-on-google-maps-305806>



7. CONCLUSION:

There are so many techniques to depict your spatial data but GIS based mapping is one of the best techniques of depicting spatial data rather than any other form of statistical visualization. GIS based electoral system will provide safe and efficient database for

officials, and will be useful to enhance officials to conduct and manage elections with credibility and ensure the transparency in elections. It will reduce cost, time and errors, those may occur in previous systems. It will also enhance geographic visualization of electoral dynamics and elections outcome.

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