GIS Based Property Tax Solution Module
(Pilot Phase for 31 Sq Km)

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BENEFITS OF GIS SOLUTION MODULE

- A modern GIS provides both simple point-and-click query capabilities and sophisticated analysis tools to provide timely information to managers and analysis alike. GIS technology really comes into its own when used to analyze geographic data to look for patterns and trends, and to undertake “what if” scenarios. Modern GIS have many powerful analytical tools, but especially important for property Tax are analysis of Proximity, adjacency, containment, overly analysis and evaluating connectedness (finding paths).

- Property tax collection will be computerize and a GIS Based Property Tax Information System will be in place to streamline the process of property tax collection.

- Record keeping of properties will be improved and the Excise & Taxation Officers and Officials will be able to make informed decisions.

- Identification of Un-assessed and Un-authorized property will be done through new technology of GIS to bring them into assessment and to maximize coverage of properties into tax net. By this the system will be rationalized.

- Transparency in property tax levy and collection take place.

- A real property tax information system linked with a Geographic Information Systems (GIS) will be develop that can provide a spatial dimension and could aid in the analysis of the assessment of real property taxation process till property parcel level.

- GIS interface for the tax payer/citizens will be in place to make them able to easily identify their property on web site & cross check assessment calculations and to perform spatial queries on database which will build faith of the assess on the whole process.

- Reports can easily be generated on map with precise locations of defaulters.
**Work Flow**

- **Satellite Imagery:** First of all 0.6m quick bird satellite imagery will be acquired which will not be one month older from the date of digitization.

- **Control Points / Ground Truthing:** Trimble Juno and Trimble GeoExplorer (GPS devices) will be used as Rover and Base stations to achieve the 10cm accuracy. The same control points will be used for DGPS implementation.

- **Geo-Referencing:** Satellite maps will be geo-referenced using ERDAS tool and the ground control points.

- **Digitization:** Digitization will be performed in the ESRI ArcGIS tool by using base map of cadastral map and 0.6 m quick bird satellite imagery along with ground truthing of the catchment area. There will be different layers which will be maintained like main roads, sub roads, streets and most importantly Parcel level map of each and every Parcel having unique PIN (Parcel Identification Number).

- **Field Survey:** Field Survey will be conducted using latest Trimble Juno GPS hand held devices. Satellite Images and the digitized data will be loaded on the Trimble Juno and the survey and Meta data entry work will be directly performed on the mobile version of ArcGIS, which is called ArcPad. So most of the work will be performed during the field work. Only the Quality Assurance is required to be done as post processing work in the office.

- **Quality Assurance:** Testing is a process of intent of uncovering the error and removing the anomalies during the digitization and field work phase. The quality of maps will be evaluated along with field data, digitized and surveyed by the firm.
Progress

- Total area under GIS Module Solution in the Project Titled “Computerization of Property Tax Record” are 31 sq km area of Hayatabad and University Town of Peshawar.
- Digitalization and GIS Based Survey of Hayatabad area are completed (Phase, Sectors, Roads, Streets, Parks and parcels)
- GIS Based Survey of Hayatabad area are submitted to ETO-III for approval.
- Digitization of University town area are completed, while GIS Based Survey are under process along with ETO-III staffs as directed by DG Excise and Taxation.
How it works

Existing Property Tax Database

Integrated with

Geo Database