Revaluing Property in St Vincent and the Grenadines using GIS

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St Vincent and the Grenadines
St Vincent and the Grenadines

- St Vincent and the Grenadines are in the Eastern Caribbean
- Population of 120,000 scattered across 30 islands

St Vincent

Grenadines
- Bequia
- Mustique
- Canouan
- Mayreau
- Union Island
- Palm Island
- Petit St. Vincent
St Vincent and the Grenadines

A beach in Tobago Cays
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Background

- SVG Government wanted to revalue property
- Across the whole of St Vincent & the Grenadines
- To implement a fairer tax system
- Required on Market Value (MV) basis
- Last national property re-valuations done in 1992 on ARV (Annual Rental Value) basis
Background

- Property revaluation survey required on Market Value basis
- Implement a fairer tax system
- Capture all Property
- Brown & Co LLP have been contracted to design, implement and undertake the re-valuation
- Over 35,000 properties
- Halcrow provide GIS and data management support
- 2 previous projects
  - St Lucia 2004
  - St Vincent 2006
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Initial Stages

- Define revaluation strategy
- Define GIS project plan
- Purchase of hardware and software
- Set-up of system
- Training of office and field staff in GIS and GPS data collection
Initial Stages

- Gathering comparable sales data
- GIS data processing
- Existing dataset discovery
  - Recent property sales data
  - Electricity
  - Water supply records
  - Street names?
  - Existing maps (DOS)
  - Aerial imagery - Blom Simmons
  - Building outlines
Initial Stages

A Department of Overseas Surveys Map

Buildings digitised from Blom Aerofilms Aerial Imagery
Initial Stages

- GIS used in project planning stage
- Used to assess building density (number of buildings per map tile)
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GIS Data Workflow

Start

Maps and Data Prepared

Data uploaded to Mobile Unit

Field Teams estimate Property value

Data downloaded to Geodatabase

Valuer approves/amends values of Property

Data linked to Valuer’s Form

Finish

Viewable in Project Web GIS
GIS Data Workflow
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Field Work

- 18 months
- 9 teams of 2 persons
- 4 valuers/managers
- 35,000 properties plus
- Magellan Mobile Mapper 6 GPS
- ArcPad 7.1.1.12
Field Work

- 20 properties per day per team = 4000 + per month

- Interview of house owner .....if available

- 60 data fields to collect

- Digital photographs captured and geo-referenced in the field

- Unique ID assigned to every property on capture
Field Work

- Customised ArcPad Form
- VB Script customisation
- Drop-down lists used where possible
- Photograph tagged to the point
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Office Support

- 2 permanent Brown and Co staff; 1 consultant manager, Halcrow provide support from UK and St Vincent

- GIS data management
  - Daily field team data upload and download
  - Digitisation of other data sources

- Spatial analysis of data and map production using ArcGIS ArcMap

- Management of progress

- Valuation of properties
Office Support

- Analysis of former ARV data
- Split by Tax Reference Boundaries

Annual Rental Value Average (EC$)

- < 250
- > 250 to <= 500
- > 500 to <= 1000
- > 1000 to <= 2000
- > 2000 to <= 3000
- > 3000 to <= 4000
- > 4000 to <= 18060
Office Support

• Analysis of progress
Valuation

- Valuations approved/signed off using MS Access Forms

- Linked directly to the personal Geodatabase

- Map and photographs linked together

- Enables the valuer to quality check the work before approving the value

Form with map and photo of property
Without GIS and GPS?

- No overview of progress
- No way of linking information together
- Masses of data - but where?
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Web GIS

- Secure site - user name / password protected
- Access to data by project staff from anywhere in the world
- Built using ESRI ArcGIS JavaScript API
Web GIS

- Provides an up-to-date map view of current progress
- Search for a property by owner/occupier name
- View property details and a photo
Web GIS

- The user can create a PDF Map of the area of interest
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- **Challenges**
- **Successes**
- **Conclusions**
Challenges

• No house numbering and street addressing system

• Lack of up-to-date tax roll data

• Information exists in silos

• Culture of paper-based workflows leads to missing information

• VB Scripts in ArcPad!
Successes

- The first island wide GIS field data capture project of all built property.
- St Vincent mainland property assessments nearly complete
- Successful training
  - ArcGIS to office staff
  - ArcPad and GPS to field staff.

- ESRI ArcGIS
  - Provides **better coordination** of data collection
  - Allows **more efficient** use of resources
  - Prevents **duplicate** data collection
Conclusions

- GIS and GPS has allowed rapid data collection - over 25,000 properties visited in less than 12 months.

- Fairer tax system by market value will be achieved thanks to the innovative GIS data capture process.

- Digital data capture prevents costly digitisation and allows easier recording and searching for data.

- GIS will enable the Inland Revenue department to manage the collection of property value data much more effectively.

- The Web GIS portal allows staff to quickly view survey progress and easily search for completed surveys.
Questions

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• Article in Geo:Connexion Magazine
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