Abu Dhabi Geo Municipal Hub
Smart City Platform for Municipal Decision Making

April, 2019
Our Mandate

Department of Urban Planning and Municipalities - SDI

Maintain and facilitate the Base Map mandate for all Government Stakeholders
Municipal SDI is the Base for Smart Cities

Integrating People, Processes, Things, and Data About Them

System of Record
SDI
Data Management and Integration

System of Insights
Analytics, Models, and Scenarios

System of Engagement
Sharing, Collaboration, and Dissemination
Quality of Life Integrated Solutions
Urban Planning, Land Management, Building Permits, Infrastructure, Landscape
Geo Municipal Hub Platform for Better Decision Making

- MePS
- elms
- Tawtheeq
- BDMS
- Onwani
- Aqarat Abu Dhabi
- MIMS
- eNOC

Integration with Digital Systems

Unified Municipal SDI
- Geosmart
- Smart GeoPlanner

Unified Portal
- MaKani ADM & DRM
- Al Ain Oasis

Unified Mobile APP’s
- GeoSmart Mobile
- OnwaniClick
✓ Geo Municipal Hub (GMH): state of the art Enterprise Geospatial Platform

✓ Envisioned to manage across all the three municipalities - Abu Dhabi, Al Ain and Al Dhafra.

✓ An interactive application that can compile geographic data and analyze mapped information from all the municipalities and integrate to a single projection system.

✓ Built using OGC, Open Geospatial Consortium compliant open source platforms.
Geo Municipal Hub Hybrid Platform

- GeoDatabase
- PostGIS + PostgreSQL
- Geo Server
- Arc Server

Integration with Digital Systems
OPEN SOURCE TECHNOLOGIES

- Angular 5 JavaScript - Client Framework
- Open Layers 4.0 - Map Rendering
- GDAL (Geospatial Data abstraction Library) - Spatial Operations, Import & Export
- QGIS (Quantum GIS) - Printing
- NTS (.NET Topology Suite), Geoserver WPS - Spatial Operations
- Mapbox API - 3D visualization
- ESRI JavaScript API 4.x - ESRI 3D visualization
- SignalR - Real Time Notifications
- OGC Compliant
Geo Municipal Hub Features

- Geo Municipal Hub has almost all the features of our various spatial applications, i.e. Smart GeoPlanner, GeoSmart, ...etc.
- GMH provides high level of security by providing Roles and Permissions for accessibility.
- Single Sign On with Active Directory Integration.
- Inbuilt spatial analysis and editing tools.
- Centralized database for DPM and all the other municipalities.
- Unification of workflow standards.
- Layers, Layer Fields, Table, Print Template and Permissions can be controlled by the admin.
Geo Municipal Hub Features

✓ Custom Layer catalog based on Roles and Permissions can be created.

✓ Seamless viewing and synchronization of 2D and ESRI 3D in the same view.

✓ Legends can be pinned and dragged all along the map.

✓ Various features in the print, i.e. Layers, Legends, Overview can be customized by the user while printing. High quality vector printing is also available.

✓ The built-in notification functionality enables to communicate through all the users.
**Required Spatial Analysis Tools for Urban Planning and Municipalities**

- Role Based User Access
- Single Sign on with Active Directory
- GIS Map Visualization
- General Mapping Tools
- Custom Mapping Tools
- Precision Editing with Versioning
- Spatial Operations
- Centralized Database for DPM and Municipalities
- Unification of Work Flow Standards
- Printing and Reporting, Dashboard
- 3D Visualization

### GeoSmart Portal - Tools Chart

<table>
<thead>
<tr>
<th>Navigation Panel</th>
<th>Spatial Operations</th>
<th>Querying</th>
<th>Custom Tools</th>
<th>General</th>
<th>Editing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoom In</td>
<td>Along</td>
<td>View/Change</td>
<td>Load by Selected</td>
<td>Insert</td>
<td></td>
</tr>
<tr>
<td>Zoom Out</td>
<td>Area</td>
<td>Dimension Attributes</td>
<td>Define Profile</td>
<td>Delete</td>
<td></td>
</tr>
<tr>
<td>Previous extent</td>
<td>Center</td>
<td>Assign Image to Feature</td>
<td>Linear Dimension</td>
<td>Modify</td>
<td></td>
</tr>
<tr>
<td>Pan</td>
<td>Midpoint</td>
<td>Length</td>
<td>Export Drawing</td>
<td>Copy</td>
<td></td>
</tr>
<tr>
<td>Zoom by box</td>
<td>Controll</td>
<td>Containment</td>
<td>Load plots</td>
<td>Features</td>
<td>Update attributes</td>
</tr>
<tr>
<td>Go to location</td>
<td>Proximity</td>
<td>Length</td>
<td>Documents</td>
<td>Draw</td>
<td>Draw feature</td>
</tr>
<tr>
<td>Home extent</td>
<td>AD-MVNAAM Search</td>
<td>First Location with Coordinates</td>
<td>Merge Layers</td>
<td>Erase</td>
<td>Layer</td>
</tr>
<tr>
<td>Next extent</td>
<td>Master Plan Search</td>
<td>Location with Coordinates</td>
<td>Export</td>
<td>Cut</td>
<td>Undo/Redo</td>
</tr>
<tr>
<td>Show Layers</td>
<td>Search</td>
<td>Coordinates</td>
<td>Display</td>
<td>Copy</td>
<td>Import/Export</td>
</tr>
<tr>
<td>SSM Mobile</td>
<td>Data</td>
<td>Import Coordinates</td>
<td>Print</td>
<td>Paste</td>
<td>Save</td>
</tr>
<tr>
<td>Identify</td>
<td>Utility</td>
<td>Import Utility</td>
<td>Manage</td>
<td>Cut</td>
<td>Open</td>
</tr>
<tr>
<td>Zoom To Scale</td>
<td>Points</td>
<td>Check for</td>
<td>ERD</td>
<td>Clear</td>
<td>News Update</td>
</tr>
</tbody>
</table>

### Map Interaction
- Change overlays
- North arrow
- Legend
- Print
- Overlay Layer
- Rotate
- Time slider
- Mouse coordinates
- Bookmarks
- Scale bar
- Measurement tool
- Change projection
- Linked map

### Overlay interaction
- Basemap gallery
- Layer list
- Marker cluster
- Heat map
- Opacity controls
- Jump to cities
- Label (on/off)
- Style editor
- Import by drag
- View my content

### Imagery
- Rendering
- Cropping
- Title rendering
- Image services
- Google Map

### 3D Feature
- 3D Map/Rendering
- Base height
- Satellite 3D view
- 3D to 2D switch
ADMIN PANEL DASHBOARD

Controlled by the Admin

Create a Tool Category

Create a Tool Group and add it to selected category

Add tools to selected tool category and tool group
Spatial TOOLS

COMPASS TOOL

Navigation Icons

Previous Extent
Next Extent
Dark Basemap
Light Basemap
Google Roadmap

Navigation Icons

Rotate
Clear

Measurement Tools

Analysis Tools

Editing Tools

General
Location

Searching Tools

Querying Tools
Search Plot Tools
Search

Reporting Tools

More Tools

Drawing Tools

More Tools

Google Tools

Selection Tools

Spatial Analysis Tools

Editing Tools

More Tools
Geo Municipal Hub Platform: 2D & 3D VIDEO
Integrated Building Management Information System
## Capacity Indicators

Progress of selected performance measurements.

### Population

<table>
<thead>
<tr>
<th></th>
<th>Existing</th>
<th>New</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Households

<table>
<thead>
<tr>
<th></th>
<th>Existing</th>
<th>New</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Jobs

<table>
<thead>
<tr>
<th></th>
<th>Existing</th>
<th>New</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td>7,972</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Building Space Use

Summary of total floor area per space use type.

<table>
<thead>
<tr>
<th>Use</th>
<th>% of total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail</td>
<td></td>
</tr>
<tr>
<td></td>
<td>413,703</td>
</tr>
</tbody>
</table>
Thank You