

GIS Initiatives

for The Strategic Development of The

Emirate of Fujairah

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Introduction

- Fujairah is one of the seven members of U.A.E.
- Population is 190,000 with growth rate of 6%.
- It has an area of about 1450 km².
- It is second largest bunkering port in the World (after Singapore).



Due to the oil pipeline between Abu Dhabi Emirates & Fujairah and due to many oil companies established their storage tanks in Fujairah, it may soon overtake Singapore.

- Wadies, Mountains, Beaches, Ancient Forts make it an attractive tourist destination.
- Since Fujairah Emirates is covered with mountains and deep wadies, limited land is available for urban / rural settlement.

Emirate of Fujairah





Emirate of Fujairah

- Fujairah Emirate is administered through two major Municipalities: Fujairah Municipality & Dibba Al Fujairah Municipality. There are about 36 Towns & Villages under Fujairah Municipality and Dibba Al Fujairah Municipality.



Fujairah Municipality



- Mission Statement
 - Sound infrastructure and environment as per the international standards
- Initiative
 - To become outstanding in Services
 - Effective in Planning and Development
 - Use of Technology to Assist Operation
- Services
 - Planning
 - Commercial Licensing
 - Public Health
 - Environmental Control
 - Public Relations
 - Research and Building Material Testing



Brief History



- Fujairah Emirate started implementing GIS since 1995 by making Orthophoto maps for entire Emirate at an scale of 1:5000 & Cl = 5 m. In subsequent years line mapping were made for Fujairah Town, Dibba Town, Mirba and Qidfa at an scale of 1:1000 & Cl = ½ m
- In 1996, there were continuous rains for 3 to 4 days with the result that numbers of villages were flooded. One such village which was severely affected was Qurayya about 7 km from Fujairah Town. It was decided to resettle the village at a new location. Orthophoto maps of 1:5000 & Cl = 5 m with software like AutoCAD, Arc View, CAD Overlay GSX were used to plan new township for 200 houses with hospital, schools, shops, channels for water flow from surrounding mountains etc within 2 days. Qurayya is now a thriving village. So far GIS technology has been used for planning new towns, shops, roads etc.
- Now Fujairah Emirate has decided to create Geo-database with land records as the basis.

Land Allotment



- In Fujairah Emirates, Towns / villages (depending on their size) are divided into sectors and each sector is divided into blocks.





Site Plan

- Assuming that the land is allocated to a person, a site plan is issued by the Lands Department having validity of six months to one year.

GOVERNMENT OF FUJAIRAH FUJAIRAH MUNICIPALITY		حكومة الفجيرة بلدية الفجيرة	
MANAGEMENT OF ENGINEERING AND LAND AFFAIRS		ادارة الشؤون الهندسية والاراضي	
SECTION OF LAND SERVICES / LAND DIVISION		قسم خدمات الاراضي / شعبة الاراضي	
TEMPORARY SITE PLAN (VALID FOR THREE MONTHS FROM DATE OF ISSUE)		مخطط ارض مؤقت مدة صلاحية الخارطة ثلاثة اشهر	
NAME:		الاسم	
LOCATION:		المنطقة	
BLOCK:	PLOT NO:	رقم القطعة	المربع
LAND USE: RESIDENTIAL	AREA: SQ.METERS	المساحة	متر مربع
NO.OF FLOORS PERMITTED:		عدد الالوار المسموحة	
SET BACKS		الارتدادات	
FRONT: 3	REAR: 1.5	جنب خلفي 1.5	جنب امامي 3
SIDE RIGHT: 1.5	SIDE LEFT: 1.5	جنب يسار 1.5	جنب يمين 1.5
DATE OF RENEWAL:		25-04-2013	تاريخ التجديد
DATE OF EXPIRY:		24-07-2013	تاريخ الانتهاء
DRAWN BY:		رئيس قسم التخطيط العمراني	الرسم
		رئيس قسم خدمات الاراضي	
		مدير ادارة الشؤون الهندسية والاراضي	

ملاحظة: تعتبر الارض مسحوبة مباشرة بعد انتهاء المدة المسموح بها

RESIDENTIAL

Specimen Temporary Site Plan Sheet



Site Plan

GOVERNMENT OF FUJAIRAH FUJAIRAH MUNICIPALITY LANDS DEPARTMENT SITE PLAN ISSUED BY THE LANDS DEPARTMENT		حكومة الفجيرة بلدية الفجيرة قسم الأراضي خريطة الأرض المباشرة من قسم الأراضي	
الاسم : LATE / MOHAMMED JAMES ALZAHBI رقم القطعة : المنطقة : المساحة : مسطوح :	الاسم : ورثة / محمد صبيح الرحيمي القطاع : زراعية رقم القطعة : 179 رقم العتقار : PA مساحة : متر مربع مسطوح : 3925.3	الاسم : رقم القطعة : المنطقة : المساحة : مسطوح :	الاسم : القطاع : زراعية رقم القطعة : 179 رقم العتقار : PA مساحة : متر مربع مسطوح : 3925.3
SURVEYED BY : UMESH المساح SURVEY DATE : 14-01-2014 التاريخ DRAWN BY : MSA رسم DRAWN DATE : 16-01-2014 التاريخ		DIRECTOR : Eng. MOHAMED SAIF ALAFKHAH مدير إدارة المسح الهندسية والأراضي المهندس : م. محمد سيف الأفحان	

AGRICULTURAL

GOVERNMENT OF FUJAIRAH FUJAIRAH MUNICIPALITY MANAGEMENT OF ENGINEERING AND LAND AFFAIRS SECTION OF LAND SERVICES / LAND DIVISION		حكومة الفجيرة بلدية الفجيرة إدارة الشؤون الهندسية والأراضي قسم خدمات الأراضي / شعبة الأراضي مخطط أرض مؤقت مدة صلاحية الخارطة ستة أشهر	
TEMPORARY SITE PLAN (VALID FOR SIX MONTHS FROM THE DATE OF ISSUE)		مخطط أرض مؤقت (VALID FOR SIX MONTHS FROM THE DATE OF ISSUE)	
الاسم : المنطقة : الموقع : نوع الأرض : عدد الأتوار المسموحة :	الاسم : المنطقة : الموقع : نوع الأرض : عدد الأتوار المسموحة :	الاسم : المنطقة : الموقع : نوع الأرض : عدد الأتوار المسموحة :	الاسم : المنطقة : الموقع : نوع الأرض : عدد الأتوار المسموحة :
ملاحظات: 1. يجب صياغة مخطط تقسيم الأرض وفقاً للمواصفات المعمول بها. 2. يجب صياغة المخطط وفقاً للمواصفات المعمول بها. 3. مخطط الأرض مؤقت لمدة ستة أشهر من تاريخ إصداره. 4. يجب صياغة المخطط وفقاً للمواصفات المعمول بها.		ملاحظات: 1. يجب صياغة مخطط تقسيم الأرض وفقاً للمواصفات المعمول بها. 2. يجب صياغة المخطط وفقاً للمواصفات المعمول بها. 3. مخطط الأرض مؤقت لمدة ستة أشهر من تاريخ إصداره. 4. يجب صياغة المخطط وفقاً للمواصفات المعمول بها.	
NOTES : 1. APPLICATION AND THE SITEPLAN ARE VALID FOR SIX MONTHS ONLY. 2. THE CONSTRUCTION OF THE BUILDING SHOULD START WITHIN THE SPECIFIED PERIOD OF TIME. OTHERWISE, THE APPLICATION & THE SITEPLAN WILL BE CANCELLED WITHOUT ANY NOTICE.		3. THE PLOT IS NOT SUBJECT FOR SELLING OR RELEASE PURPOSES BEFORE THE ISSUANCE OF THE MILKHA. 4. NUMBER OF FLOORS PERMITTED TO BE FOLLOWED. 5. NO PROJECTION ALONG 10M ROAD. 6. MAXIMUM PROJECTION ALLOWED IS 1.2 M.	
DATE OF ISSUE : 07-02-2007 التاريخ الإصدار DATE OF EXPIRY : 06-03-2007 التاريخ الانتهاء DRAWN BY : HUDA AL-KAABI الرسم	التاريخ الإصدار : 07-02-2007 التاريخ الانتهاء : 06-03-2007 الرسم : HUDA AL-KAABI	التاريخ الإصدار : 22-04-2013 التاريخ الانتهاء : 21-10-2013 الرسم :	التاريخ الإصدار : 22-04-2013 التاريخ الانتهاء : 21-10-2013 الرسم :

RES.COMMERCIAL

GOVERNMENT OF FUJAIRAH FUJAIRAH MUNICIPALITY MANAGEMENT OF ENGINEERING AND LAND AFFAIRS SECTION OF LAND SERVICES / LAND DIVISION		حكومة الفجيرة بلدية الفجيرة إدارة الشؤون الهندسية والأراضي قسم خدمات الأراضي / شعبة الأراضي مخطط أرض مؤقت مدة صلاحية الخارطة ستة أشهر	
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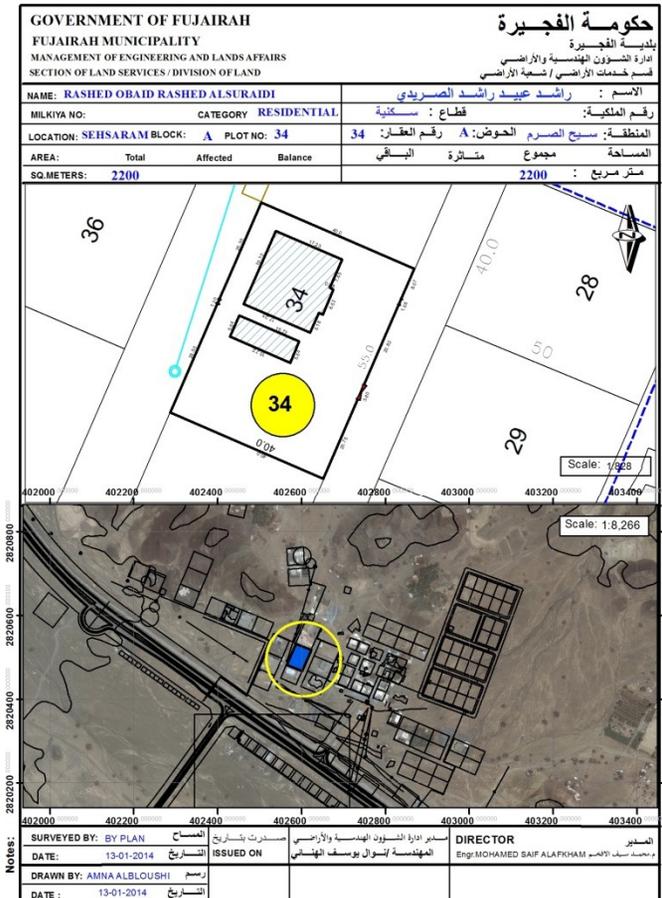
MOSQUE + DU + ETISALAT

Specimen Temporary Site Plan Sheet

Milkiya



- After the construction has been made in the allocated parcel, another site plan is issued by the Lands Department. In this Milkiya no. (Title Deed no) is mentioned. With this the person has confirmed ownership of the land with construction on it.



Specimen Site Plan Sheet With Milkiya

GeoSpatial Data



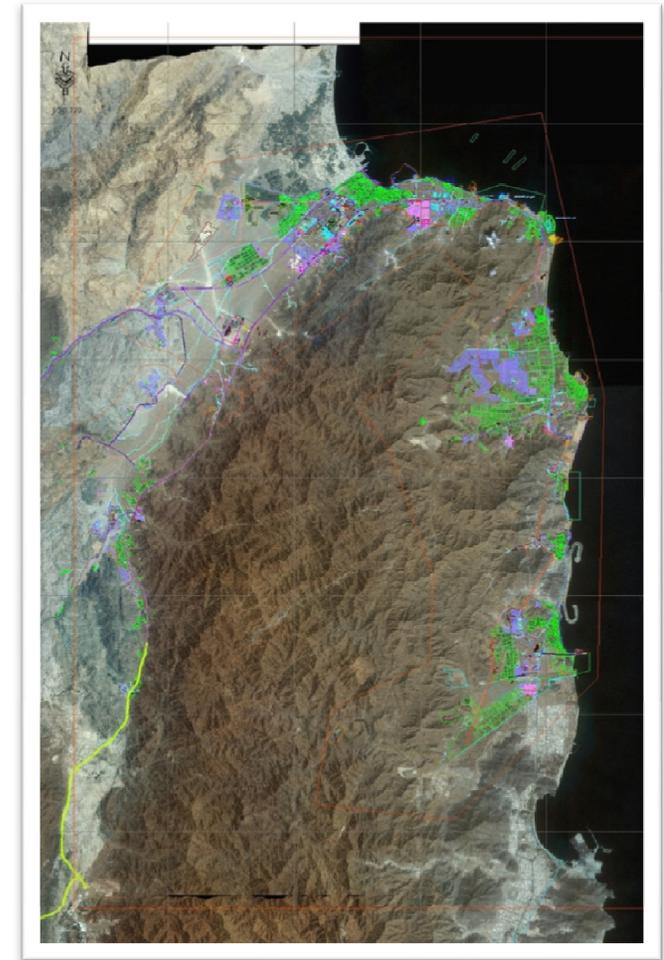
- The two site plans mentioned forms the basis for creating GeoSpatial Data.
- Since existing maps available were old it was decided to prepare new maps in 2011 - 2012 at an scale of 1:1000 and CI = 0.5 m for about 120 Sq Km covering Fujairah Town, Qurayya, Mirba, Qidfa, Al Hayl Industrial Area & Gisemmeri. These maps have been converted in to Shape file format. Utility layers for Etisalat, Electricity, Water, Sewerage pipeline and Gas pipeline has been created depending upon the information available with municipality and on site.
- In 2013 mapping of Dibba Al Fujairah Town and all the villages under Fujairah Emirates covering an area of 230 Km² has been completed.
- Also sections like Planning, Building, Survey, Lands, License and Sewerage are keeping their records pertaining to land. Creating a centralized Geo – Data Base will help to integrate the information available with these sections at one place.



Future Plans



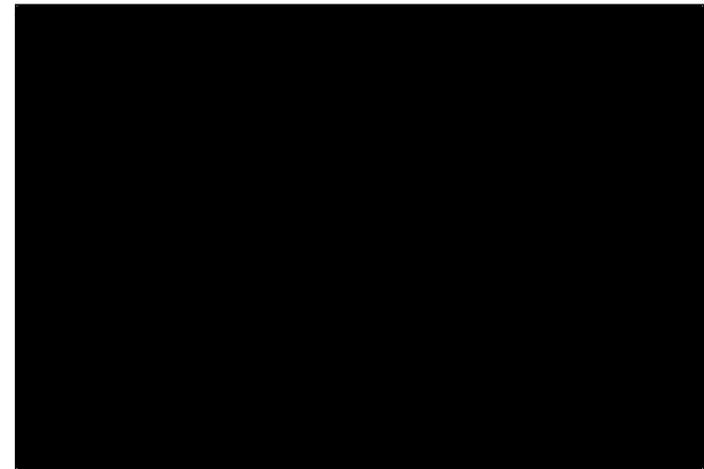
- There are about 25,000+ files with land section of Fujairah and Dibba Municipalities which have to be brought under Geo – Data Base.



GeoDatabase



- Geo database was designed so that parcel and owner information available with Fujairah Municipality is linked with map.
- Features are:
 - A. Search Module based on:
 - Name of owner
 - Name of block
 - Name of sector
 - Plot Number
 - National ID Number
 - B. View result as map & report
 - C. Language support English & Arabic.





Municipality Data

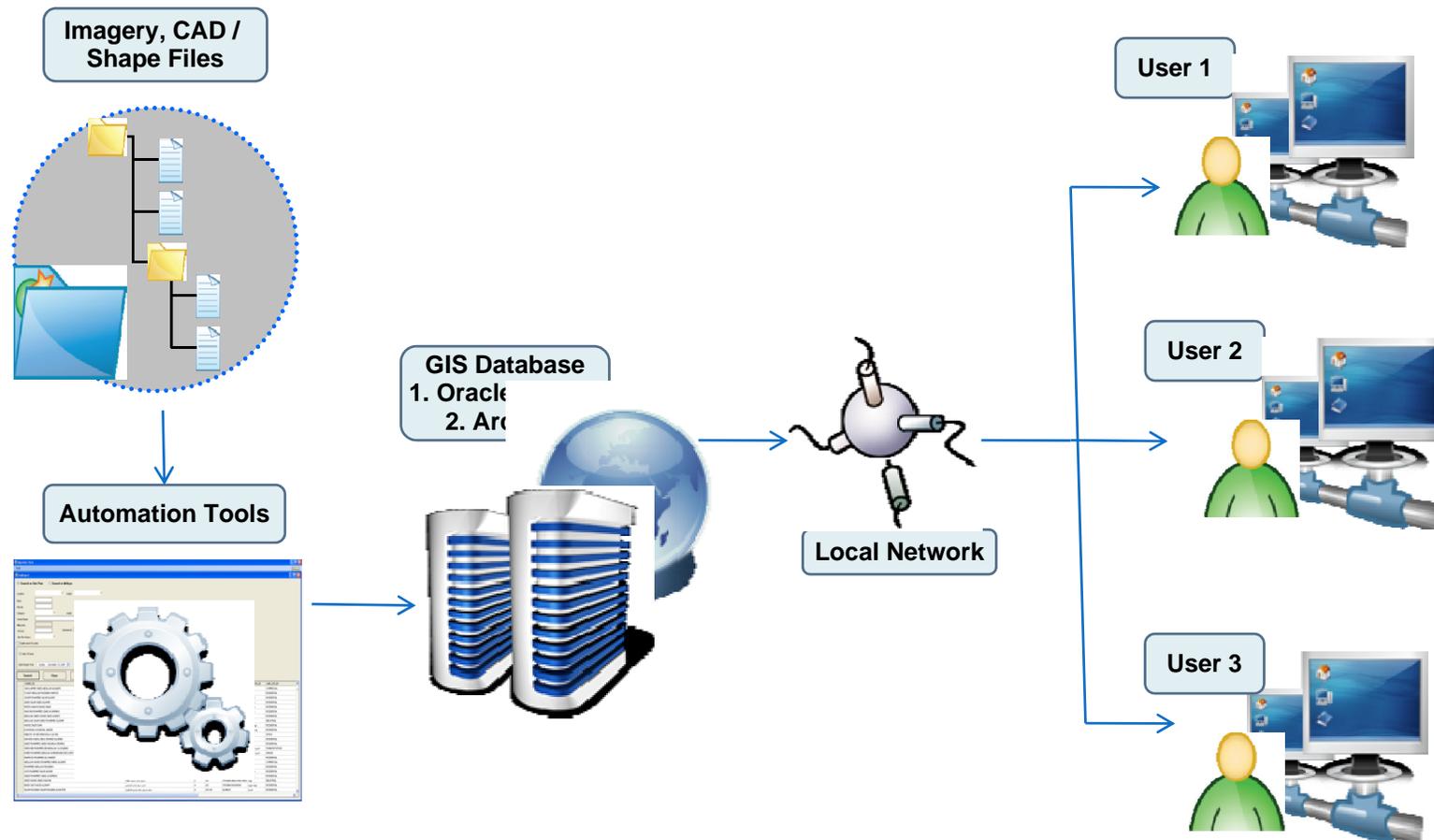
- **Data Components**

- Orthophoto (15 cm Resolution)
- Satellite Imagery (1m Resolution)
- Landbase data (Building, roads etc)
- Planning Data
- Approved Site Plans
- Approved Milkiya
- Owner Information
- 3D Geo-referenced Data Base





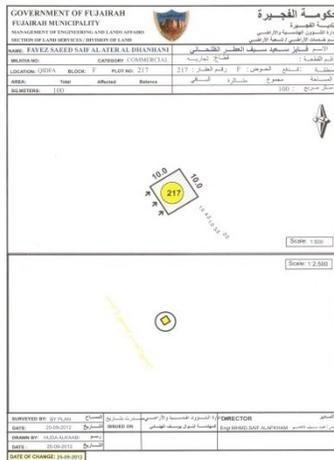
GIS Database



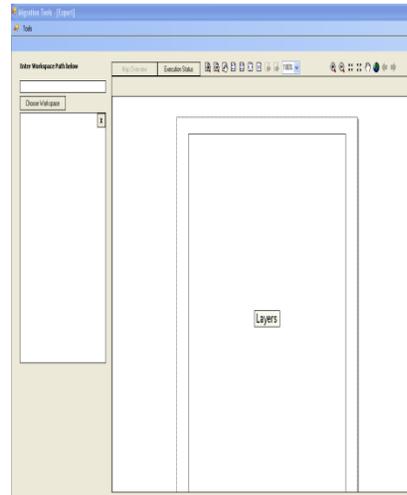


Data Migration

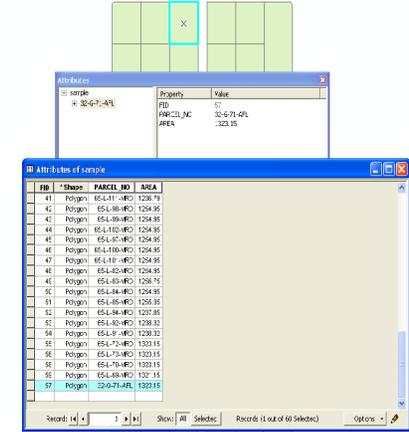
Raw Data



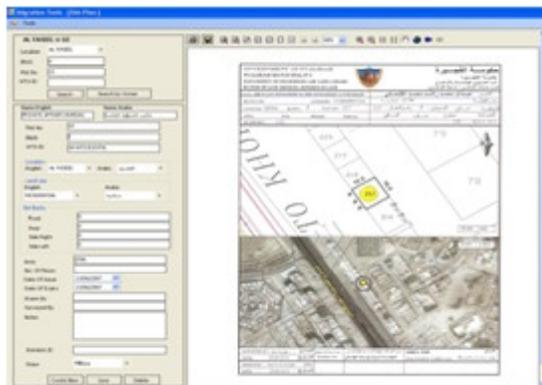
Automation Tools



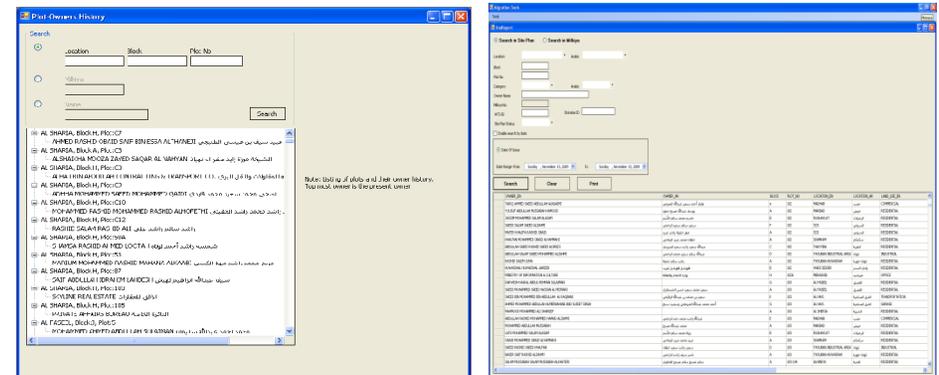
Migrated to GeoDatabase



Final Site Plan / Milkiya



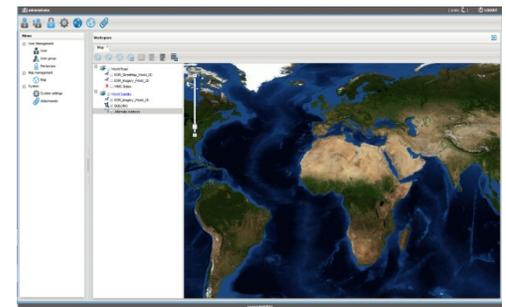
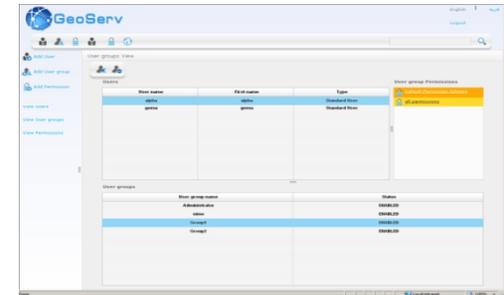
Create New / Search / Browse Owner History





Data Center

- Fujairah Data Center Creation in Progress
- Central GeoDatabase
 - All Data in one place
 - Web Based Edit Cycle
 - Automation tools - Check-in and check-out CAD data
 - Site Plan and Milkiya Automation
 - Owner Information Linked
 - 3D Geo-database linked
- Web Application - GeoServ
 - Authentication & Authorization
 - User & User Group Management
 - Virtual Map Services
 - Profile based privileges
 - Map Layers Management





Spatial Data Infrastructure

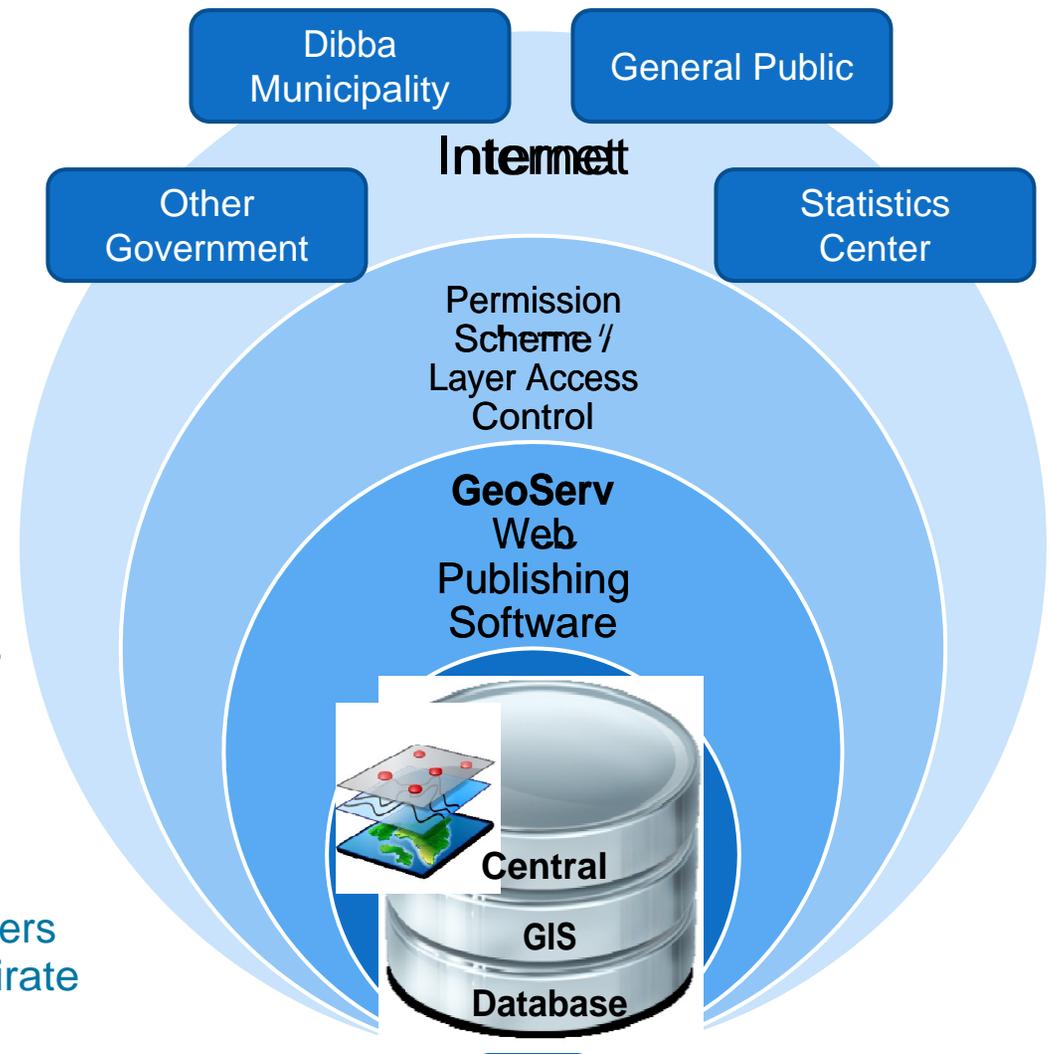
- **Fujairah Data Center**

- **Management**

- Central Data Server for
 - Fujairah Municipality
 - Dibba Municipality
 - Fujairah Statistics Center
- Central Data Management
- Permission Based Access
- Generate Reports, Statistics, Maps

- **Benefits**

- Allow all agencies to access data
- Track / Monitor Changes in Data
- Expand to accommodate Public Users
- Cater to Future Growth in the Emirate





Vision

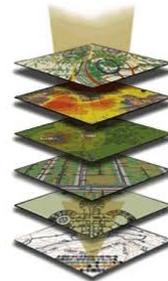
Data Sharing



Dibba Municipality

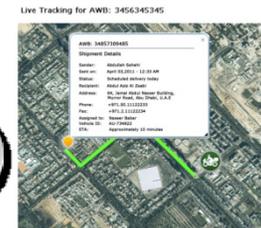


Statistics Center



Other Government

Public Access



Map Access

Fujairah Municipality



Survey / Planning



Statistics Data



Emirate Wide Maps



Verification / Control



Spatial Data Infrastructure

Onwani & Makani



- Once the data base is completed in 2014 the Emirates will go for the address system. Presently there are two approaches to this system: ONWANI by Abu Dhabi Municipality & Makani by Dubai Municipality. It will be a good idea to have one system for the whole of U.A.E.

- **Fujairah Municipality decided to launch its Fujairah3D initiative in 2009**
- **Objectives**
 1. To support the development of the Emirate with decision-making tools for the leaders of Fujairah
 2. To create 3D virtual interactive applications on different topics for decision-makers, citizen, investors, tourists.
 3. To build capacities of the 3D team of the municipality & educate the stakeholders on the initiative
- **Benefits**
 - ❖ **Mutualization:** one 3D virtual model (3D GIS database) for all uses
 - ❖ **Sustainability:** building capacities & education
 - ❖ **Large diffusion:** advanced technologies to target various publics locally and internationally





Gitex, October 2012



First Forum UAE planning diversity and integration, November 2011

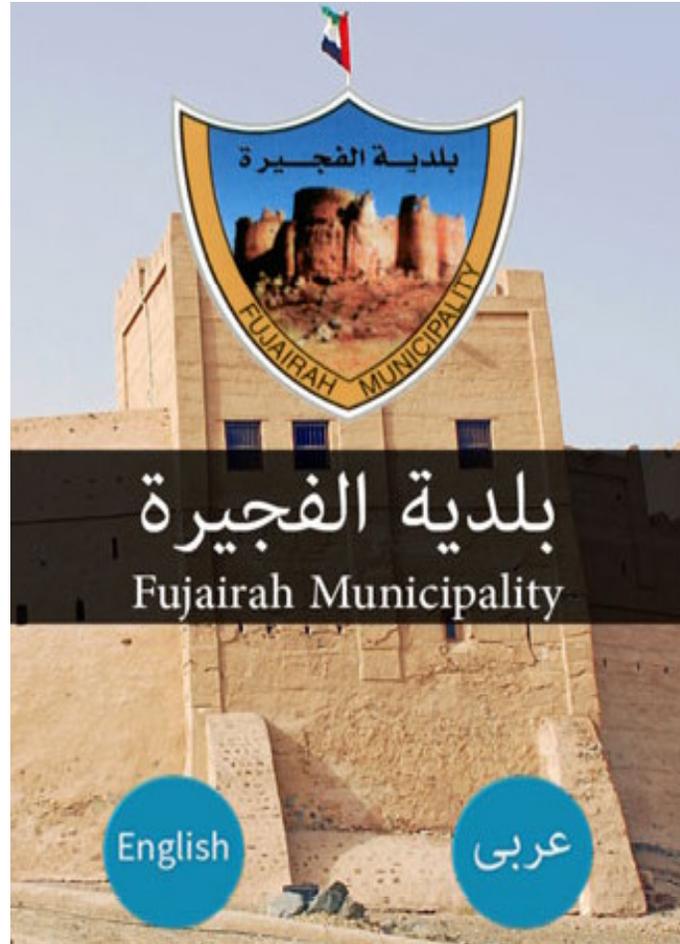


4th Gulf Tourism and Investment Forum, November 2012



National Day in City Center, December 2012

Smart Fujairah



Thank You



Fujairah Municipality

<http://www.fujmun.gov.ae/>