



XXVII FIG CONGRESS

11-15 SEPTEMBER 2022
Warsaw, Poland

Volunteering
for the future –
Geospatial excellence
for a better living

Presented at the FIG Congress 2022,
11-15 September 2022 in Warsaw, Poland



The Developments Enabled by Determining the Quality of Cadastral Data in Türkiye



General Directorate
of
Land Registry and Cadastre

National Spatial Data Infrastructure (NSDI), GIS and Land Administration

Mehmet Zeki ADLI **Director General**
Mustafa ASLAN **Head of Department**
Dr. İsmail DURSUN **Senior Specialist**



Cadastral Activities

Ottoman Empire – in the 1910s



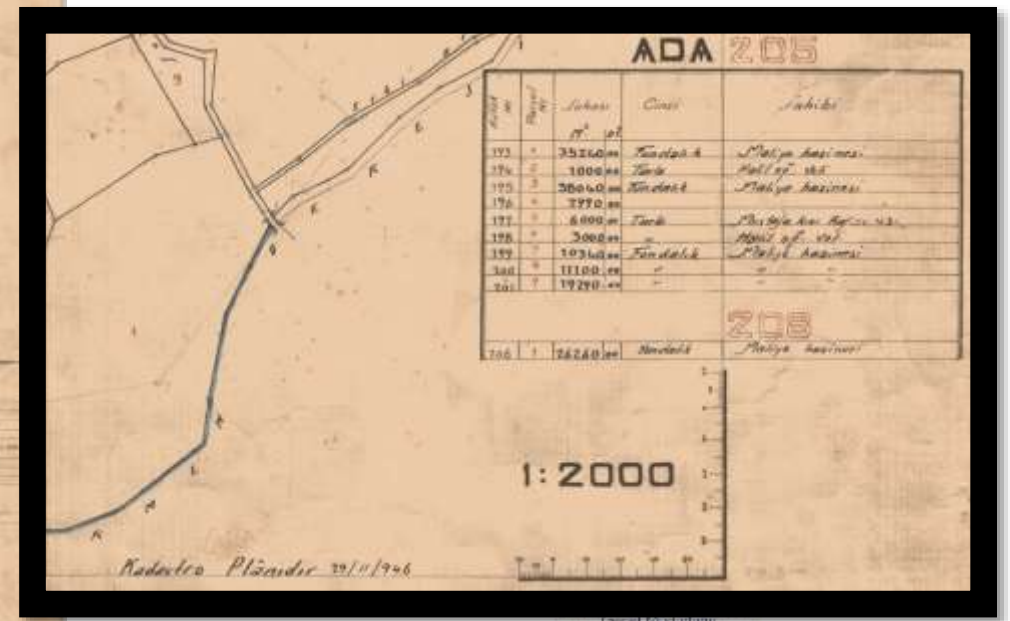
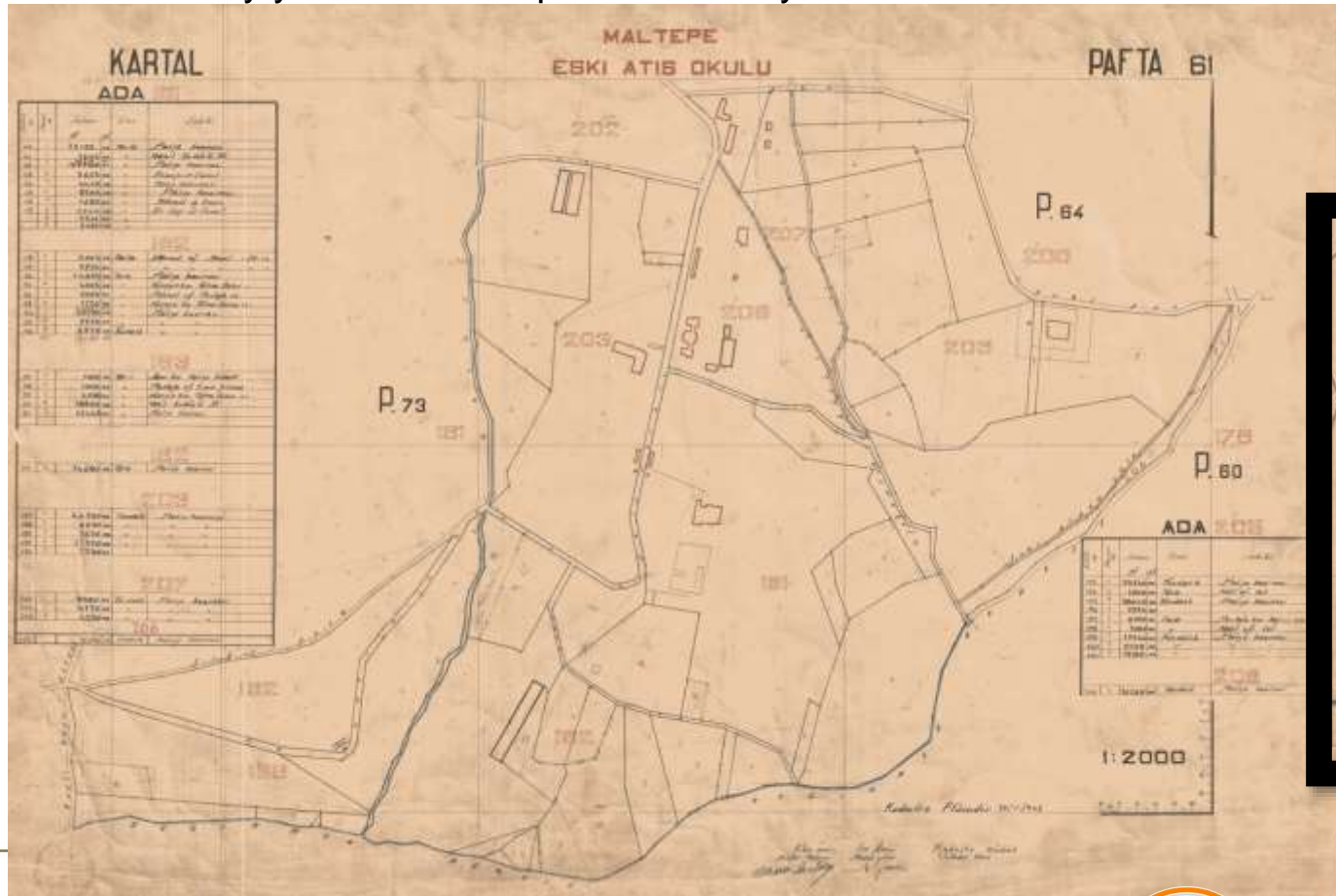
۲۱ ۵

آطه ۲۳

ردیف	نام مالک	مساحت (متر مربع)	نوع زمین	سایر مشخصات
۱	محمد علی	۶۵.۰۰	آب	
۲	عبدالله	۴۷.۰۰	خشک	
۳	عبدالله	۹۷.۰۰	آب	
۴	محمد علی	۲۰.۰۰	آب	
۵	محمد علی	۲۱.۰۰	آب	
۶	محمد علی	۳۸.۰۰	آب	
۷	محمد علی	۱۶۳.۰۰	آب	
۸	محمد علی	۲۲۸.۰۰	آب	
۹	محمد علی	۷۳۸.۰۰	آب	
۱۰	محمد علی	۸۶.۰۰	آب	
۱۱	محمد علی	۲۸.۰۰	آب	
۱۲	محمد علی	۶۵.۰۰	آب	
۱۳	محمد علی	۳۶.۰۰	آب	
۱۴	محمد علی	۱۶۵۲.۰۰	آب	

Cadastral Activities in Türkiye

Early years of the Republic of Türkiye



Development of Geospatial Maturity Process

- Parcel Inventory Application (2009)
- Spatial Property System (MEGSIS) (2010)
- Cadastral data sharing with map services (2011)
- Cadastral data sharing at e-Government Portal (2012)
- Parcel Inquiry Application: Web Platform (2014)
- Ortophoto services (2016)
- Parcel Inquiry Application: Mobile Platform (2016)



Where Cadastre Meets Technology:

MEGSiS

- With **MEGSiS**, we integrate the property data and all the other attribute data in cadastre maps and transfer them to the digital environment, and we offer them to all the stakeholder institutions in electronic environment.



Administrative Details
City / District / Quarter



**Areas outside
of registration**



**Military Forbidden Zones
and Restricted Public
Access Areas**



**Orthophoto
Details**



Property Details
Parcel
Building
Easement
Annexes
Innovation

Cadastral Data

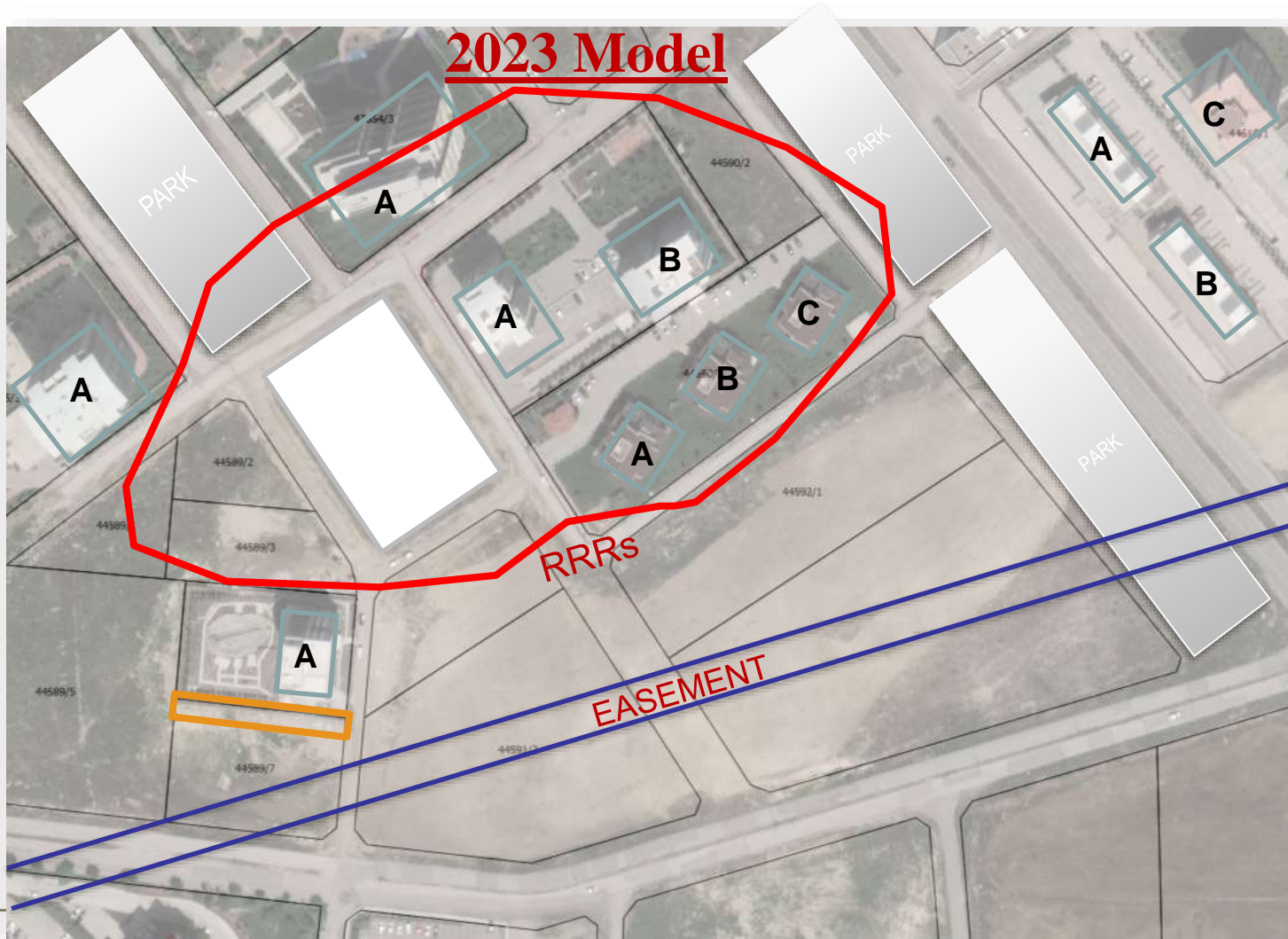
Cadastral data within the scope of land administration

As mentioned in the international literature and standards (LADM) of the concept of Land Administration, the **Land Ownership** component is different from the traditional cadastre; It is expected to contain more data. It is expected to include the **temporal data management, the operations on the parcel, the buildings in parcels, the right of easement, attribute information** from cadastral data, **RRRs** (Rights, Restrictions, and Responsibilities), the information coming from **the zoning plan, the data generation method and transformation parameters and technical archives** in the cadastral data.

Geographic information — Data quality

ISO 19157:2013(E)

- **Positional Accuracy**
- **Temporal Accuracy**
- **Thematic Accuracy**



- Parcels
- Buildings
- Easements
- Zoning Plans
- RRRs
- Attribution details
- Technical Archives

Spatial Property System (MEGSIS)

1 2 3 4

Web
Application

Web Application

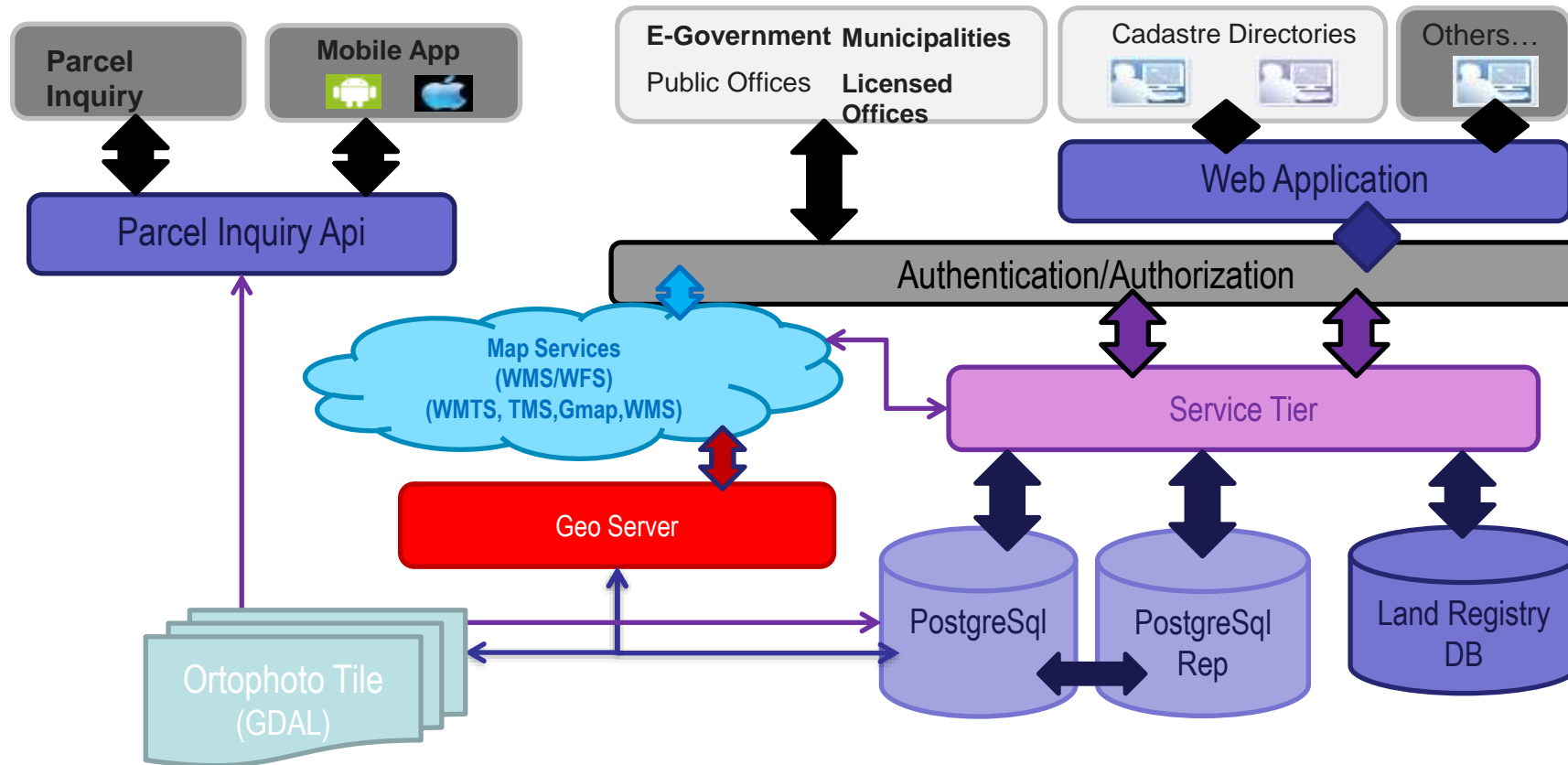
Web-based application software allows the application to be used at different levels under the roof of authorization, and is made up of modules that control and monitor internal and external user data entry, data downloads, and land registry data integration process...



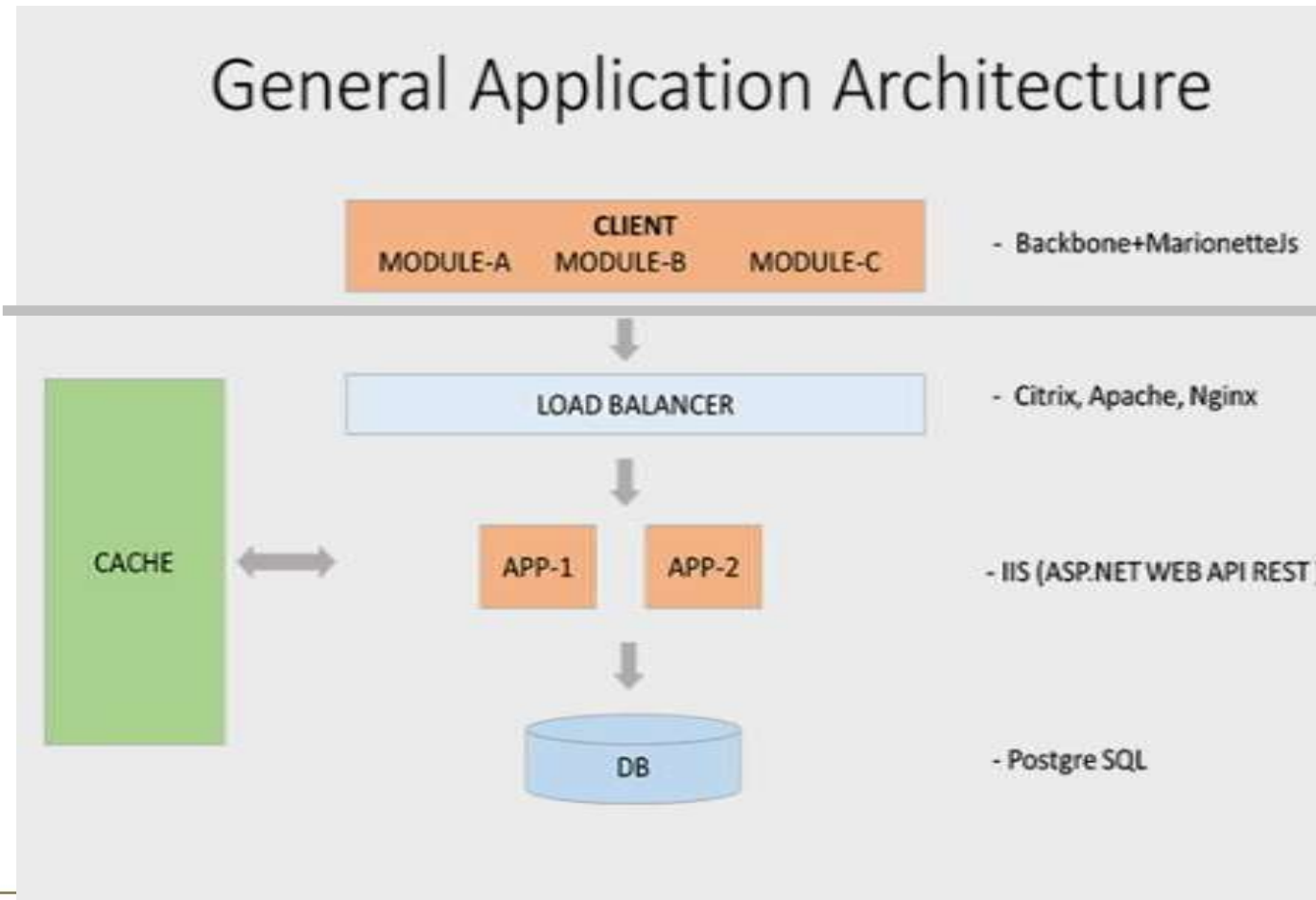
Web Application

- Controlling the compatibility of land registry and cadastral data with each other
- Collection of attribute information
- Integration and presentation in the ITRF96 coordinate system
- Verification by using ariel images (orthophoto and googlemaps)
- Increasing the quality of the data with control inquiries
- The data can be kept up to date

Spatial Property System (MEGSIS)



Software Architecture



Client-Side Features

- Single Page Application
- Modular Design
- Run Time Module Loading
- Responsive Design
- Cross Browser Support

Client-Side Technologies

- HTML5
- CSS3
- TypeScript
- Leaflet
- Apache Cordova



Server-Side Features

- Load Balancing
- Application Server
- Logging
- Caching
- Database

Server-Side Technologies

- CSharp (C#) & ASP.NET Core
- Python
- NodeJs
- PostgreSQL
- GeoServer
- **Geospatial Data Abstraction Library**



The Address of the Property:

PARCEL INQUIRY

- With **PARCEL INQUIRY**, we enable display of the location and attribute details of all the properties, allowing an analysis for your investments.



ATTRIBUTES



INVESTMENT



LOCATION

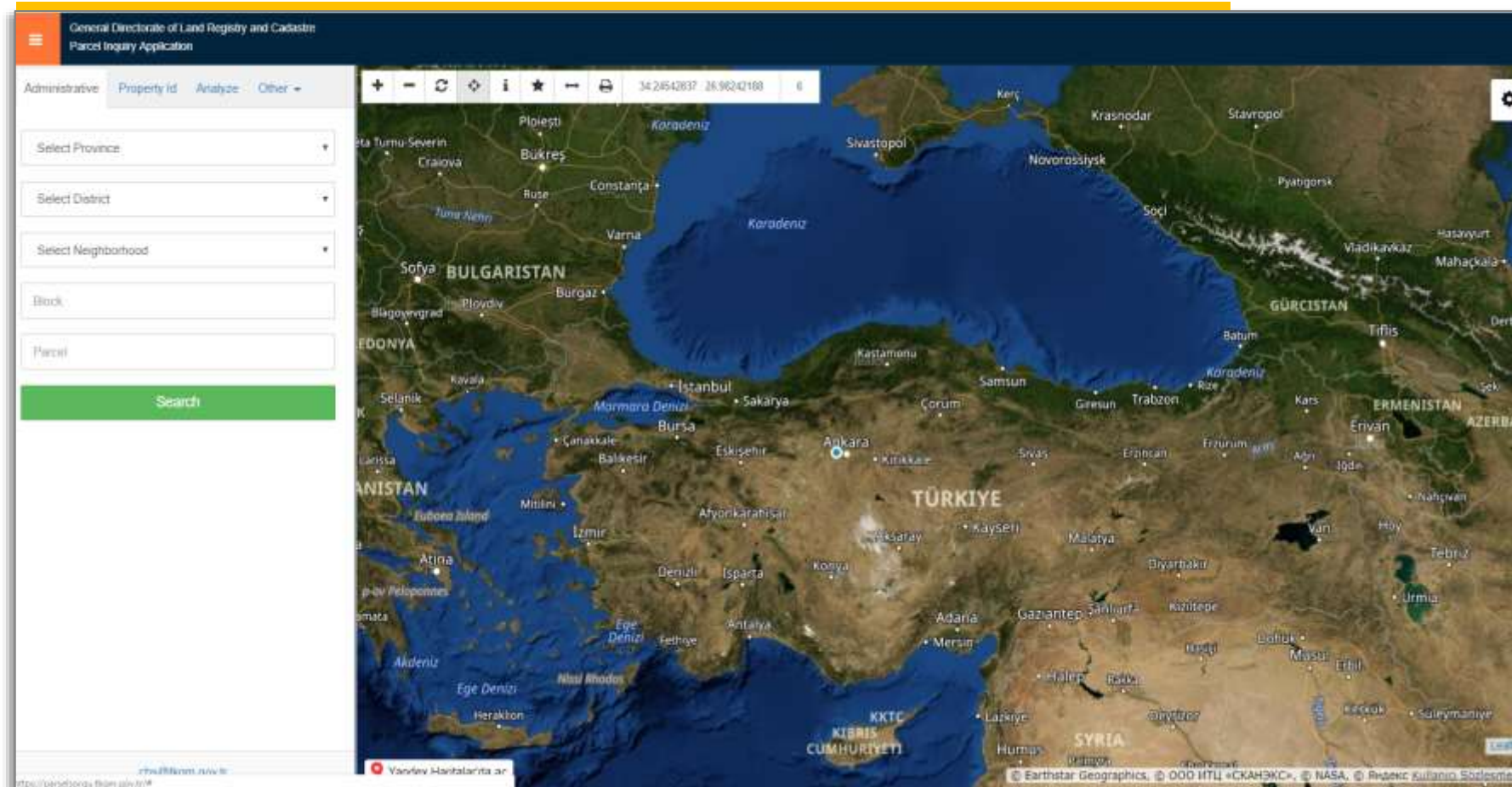
- Over **2 Million** Inquiries a Day

<https://parselsorgu.tkgm.gov.tr>



General Directorate of
Land Registry and Cadastre

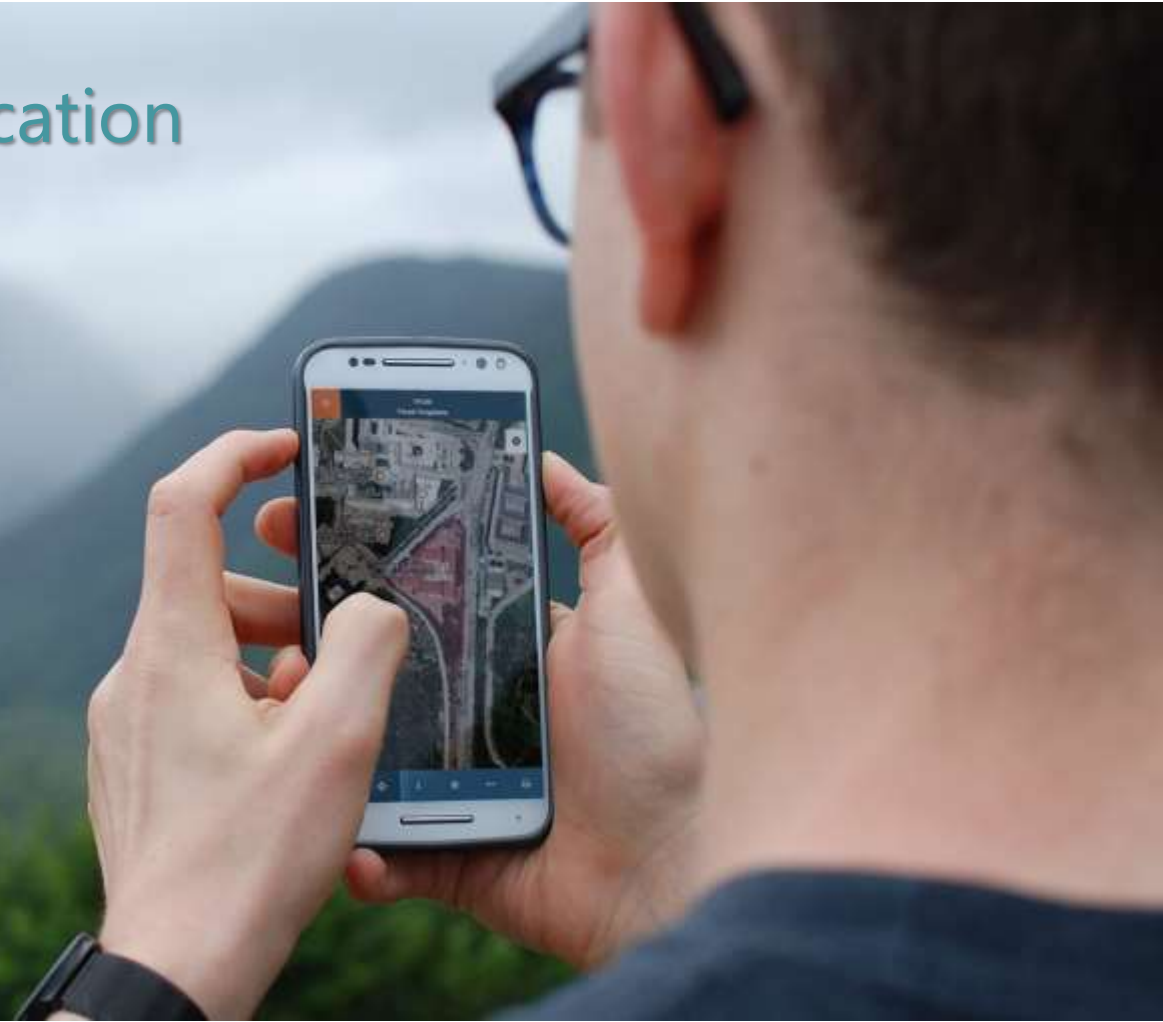
Parcel Inquiry



Parcel Inquiry Application

- Open Source
- Multi Language
- Google Street View integrated
- Navigation compatible
- Everyone can access
- Mobile Platform Downloads
 - Google Play Store (~2.500.000)
 - App Store (~1.000.000)

<https://parselsorgu.tkgm.gov.tr>



Parcel Inquiry - Usage Density



Sample Functionalities

- Map Inquiry
- Address Inquiry
- Property ID Inquiry
- Administrative Inquiry
- Attributes Window
- Export data in many formats
- Integration with navigation applications
- Print

Administrative Inquiry - User Interface

Administrative Property Id Analyze Other ▾

Istanbul ▾

Zeytinburnu ▾

Merkezefendi ▾

2987

1

Search



Türkiye Cumhuriyeti
TAPU SENEDİ

City: ...
Town: ...
District: ...
Village: ...
Street: ...
Area: ...

Plot No: ...
Block No: ...
Panel No: ...

Type of Property: ...
Floor Space: ...

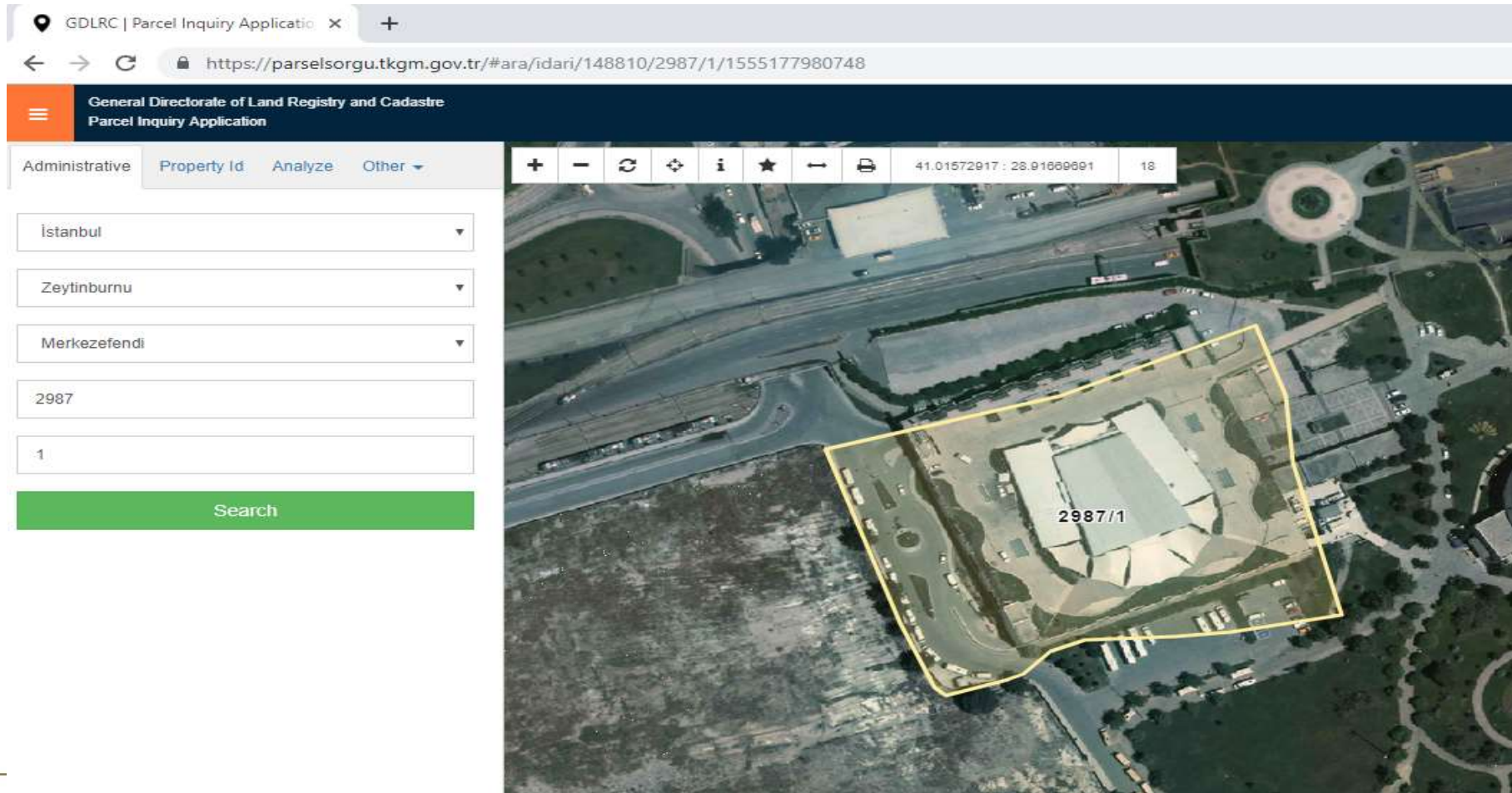
Property Ownership: ...
Construction Servitude: ...
Time Share Property: ...

Sale Value: ...
Property Type: ...
Land Share: ...
Block No: ...
Floor No: ...
Flat No: ...

Reason of Acquiring: ...
Owner: ...

Deed Office Details: ...
Sign and Seal of Tapu Officer: ...

Administrative Inquiry - Result

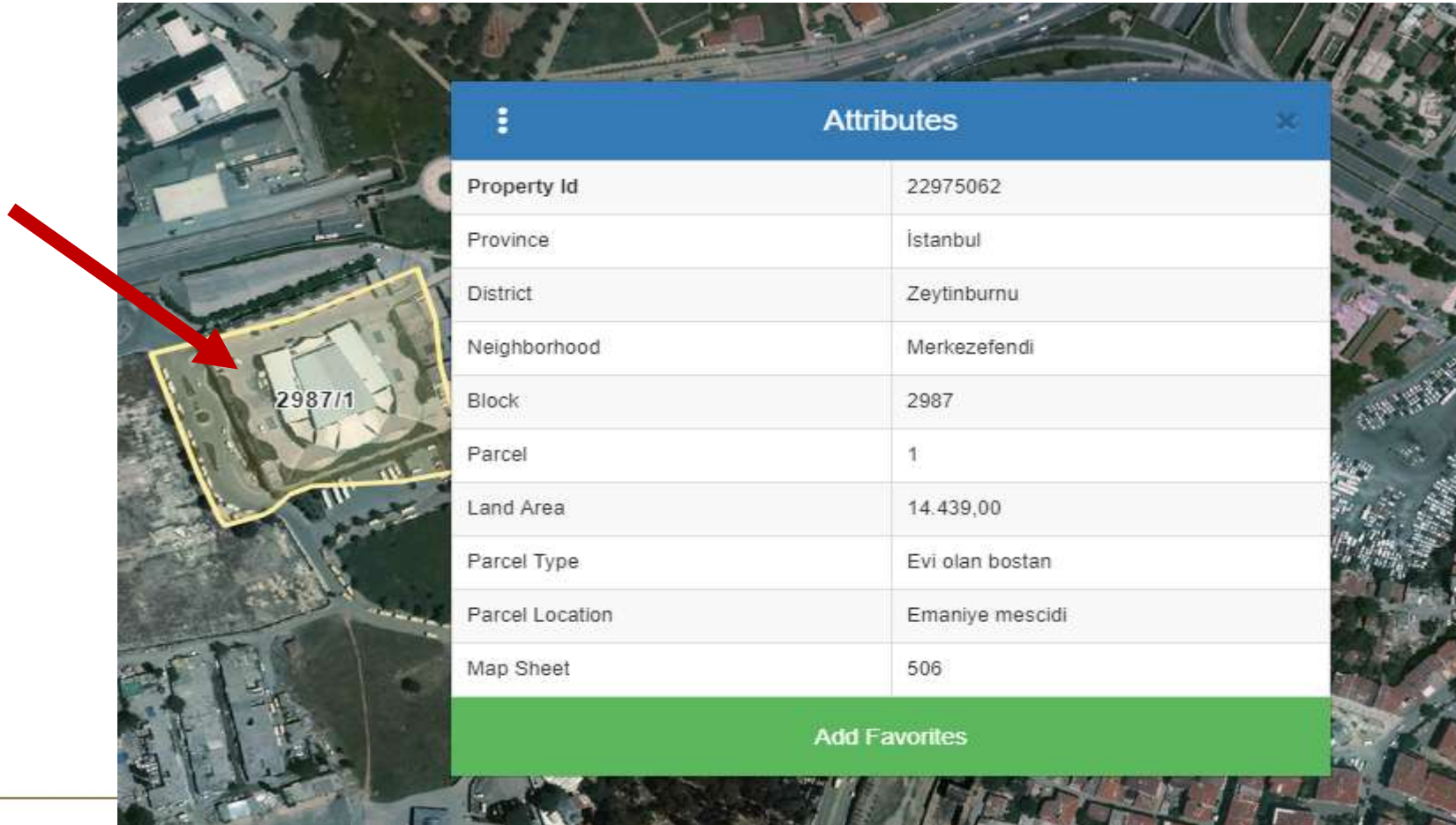


The screenshot displays the 'General Directorate of Land Registry and Cadastre Parcel Inquiry Application' web interface. The browser address bar shows the URL: <https://parselsorgu.tkgm.gov.tr/#ara/idari/148810/2987/1/1555177980748>. The interface includes a search panel on the left with the following filters:

- Administrative: Property Id, Analyze, Other
- City: İstanbul
- District: Zeytinburnu
- Neighborhood: Merkezefendi
- Parcel No: 2987
- Plot No: 1

A green 'Search' button is located below the filters. The main area shows an aerial map with a yellow boundary around a parcel labeled '2987/1'. The map includes navigation controls (zoom in, zoom out, pan, etc.) and a coordinate display: 41.01572917 : 28.91609691.

Attributes Window

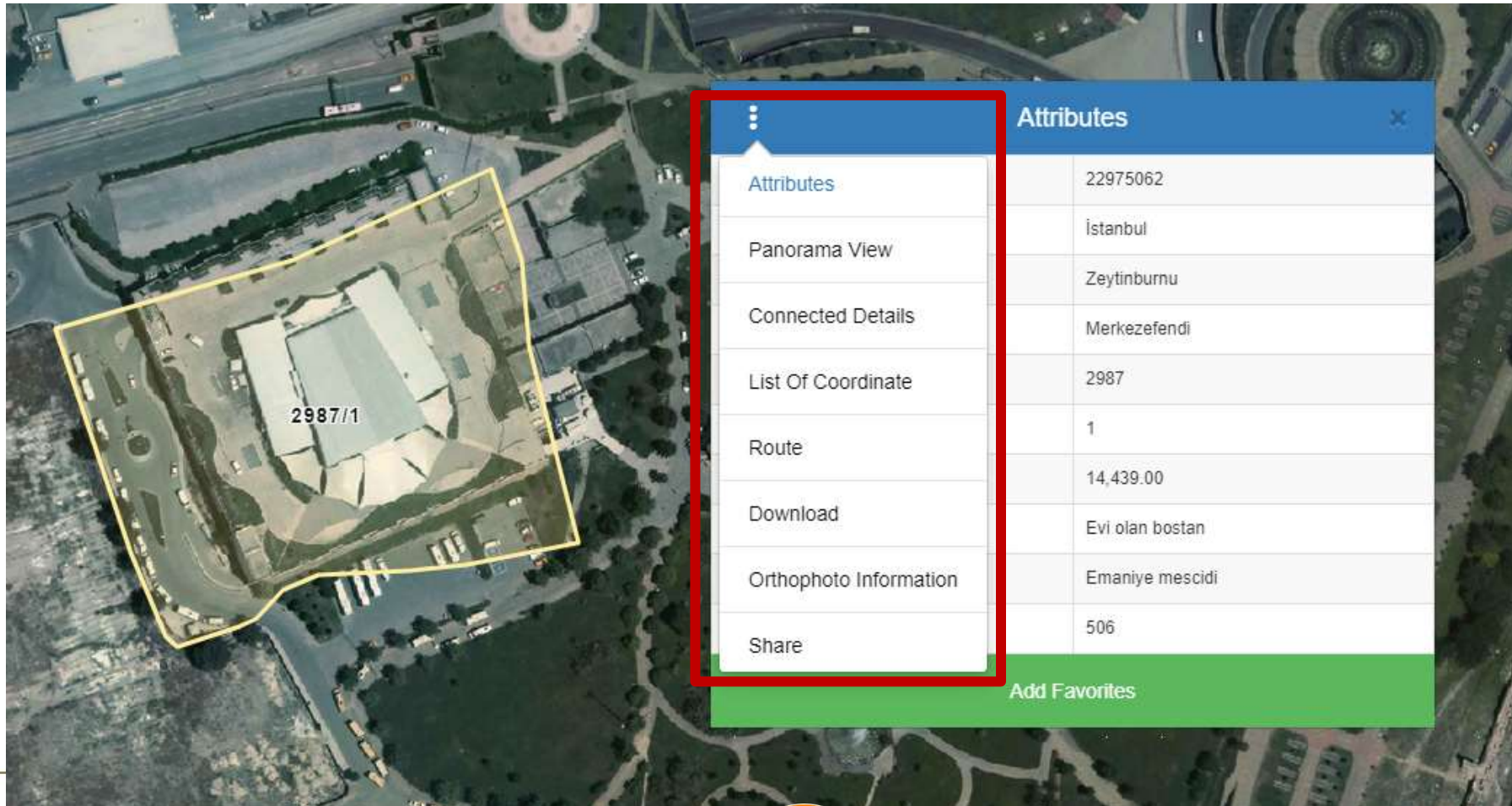


The screenshot shows an aerial view of a city with a yellow-outlined parcel labeled '2987/1'. A red arrow points from this parcel to an 'Attributes' window. The window contains the following data:

Attributes	
Property Id	22975062
Province	Istanbul
District	Zeytinburnu
Neighborhood	Merkezefendi
Block	2987
Parcel	1
Land Area	14.439,00
Parcel Type	Evi olan bostan
Parcel Location	Emaniye mescidi
Map Sheet	506

At the bottom of the window is a green button labeled 'Add Favorites'.

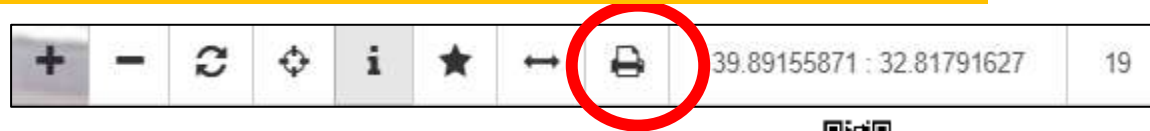
Attributes Window-Functionalities





Attributes	
Attributes	22975062
Panorama View	İstanbul
Connected Details	Zeytinburnu
List Of Coordinate	Merkezefendi
Route	2987
Download	1
Orthophoto Information	14,439.00
Share	Evi olan bostan
	Emaniye mescidi
	506

Add Favorites

Map Toolbar - Print









GENERAL DIRECTORATE OF LAND REGISTRY AND CADASTRE PARCEL INFORMATION				
Province				Neighborhood
Arkusz	Ciekawy			Owspol
Block	Parcel	Land Area	Parcel Type	Parcel Location
7540	25	49000	Reg	Map Sheet
				
<ul style="list-style-type: none"> • Every user who uses the Parcel Inquiry Application, shall be deemed to have accepted the terms of use of the application. • Data and distances presented in the query result is informational. Cannot be used in official transactions. Also for commercial purposes is prohibited. • Users can not claim to have suffered damage due to faulty or any way of the information contained on this website. • In disputes that may arise between the GDRBC and Users will be accepted as evidence of GDRBC records. • All Rights Reserved 				

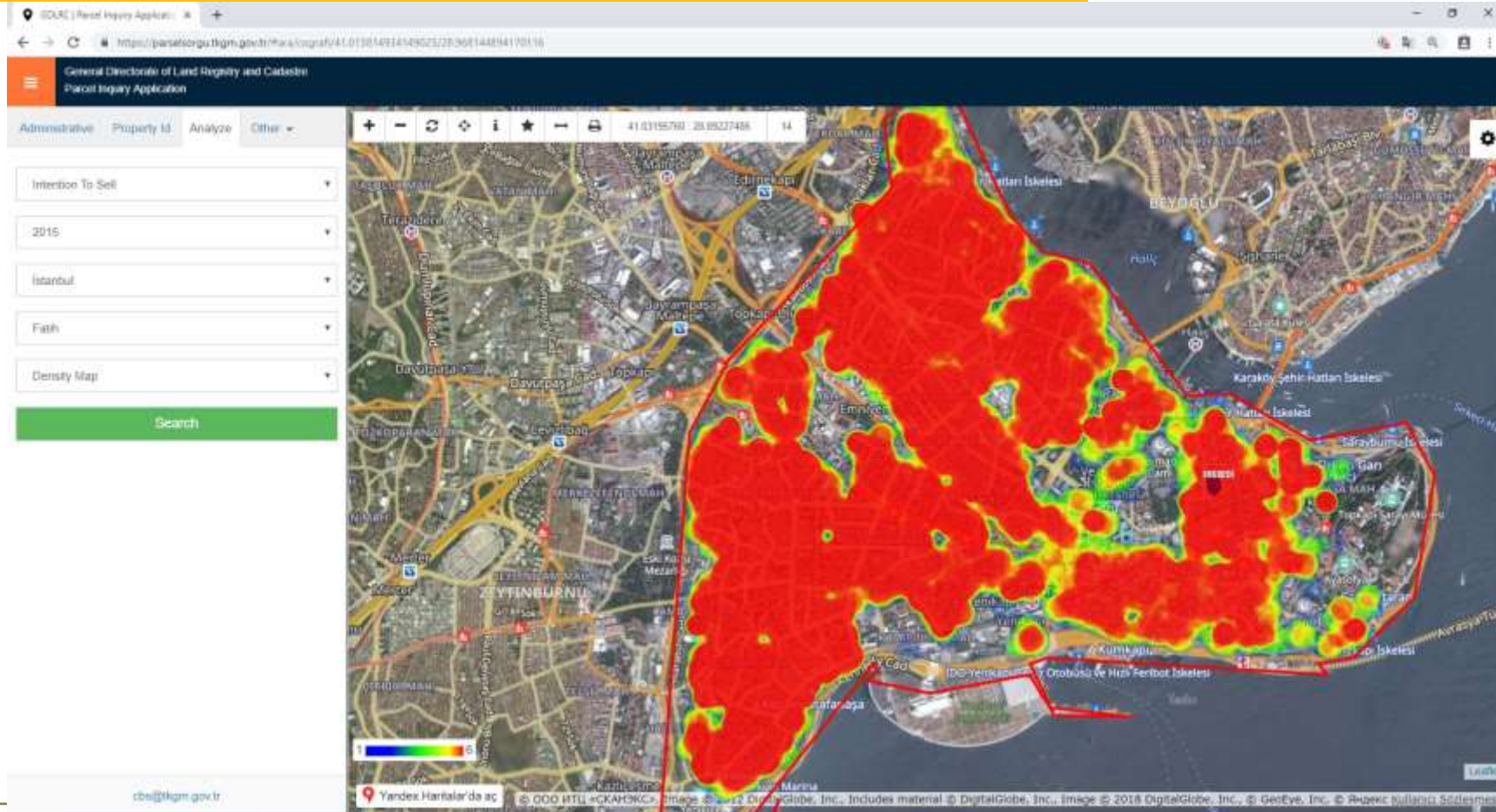
Layers



Layer

- 
Turkey Orthophoto
- 
Yandex
- 
TKGM Parcels
- 
Başar Soft Labels

Analyses – Intention to Sell



Using QR Code

İli		İSTANBUL		Türkiye Cumhuriyeti		Fotoğraf	
İlçesi		ESENYURT					
Mahallesi							
Köyü		ESENYURT					
Sokağı							
Mevkil				TAPU SENEDİ			
Pafta No.		Ada No.					
721024AJA3B		1746		Parsel No.		Niteliği	
				ARSA		Yüzölçümü	
						ha	
						m ²	
						dm ²	
Sınırı		Planındadır					
		Zemin Sınırı No : 94378716 - QRKodu kullanarak taşınmazın haritasına ulaşabilirsiniz.					
KAT MÜLKİYETİ		<input type="checkbox"/>		KAT İRTİFAKI		<input checked="" type="checkbox"/>	
DEVRE MÜLK							



Traffic Statistics - 2022

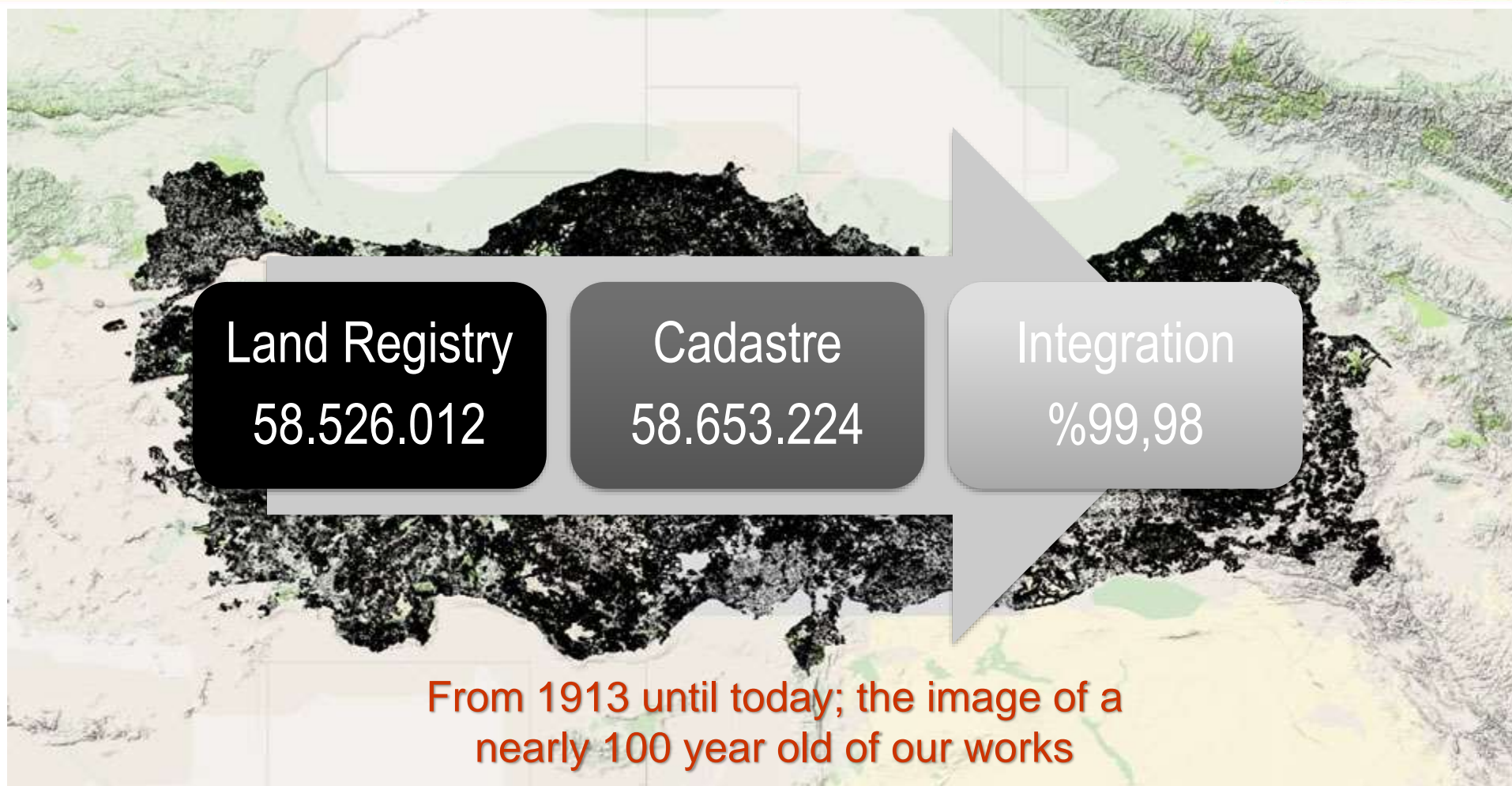
Minute Request	:	3,902
Hourly Request	:	233,852
Daily Request	:	5,612,456
Weekly Request	:	39,287,192
Monthly Request	:	169,373,680
Total Request	:	881,155,606 (1 January – 6 June)
2021 Total Request	:	2,150,000,000



Android Installs
2.500.000+



iOS Installs
1.000.000+



Spatial Property System (MEGSIS)

1

2

3

4

Map
Services

Map Services

- Map services are developed in order to share cadastre data collected within the scope of MEGSIS with institutions, organizations, and municipalities that have demanded them according to appropriate protocols.
- The standards of the data are tested with open source and commercial products.



Where Cadastre Meets Technology:

MEGSiS

Data shared with **1150** institutions



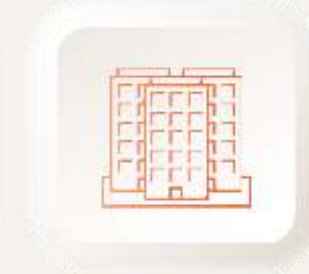
MINISTRIES



MUNICIPALITIES



BANKS



UNIVERSITIES

MERNIS
IDENTITY SHARING
SYSTEM

MINISTRY
OF
INTERIOR

MINISTRY
OF
FINANCE

MASAK
ECONOMIC CRIMES

DASK
EARTHQUAKE
INSURANCE

UNDERSECRET
ARIAT OF
TREASURY

MINISTRY
OF
JUSTICE

PROPERTY DATA
LAND REGISTRY-CADASTRE



Spatial Property System (MEGSIS)

1 2 3 4

E-Government
Services

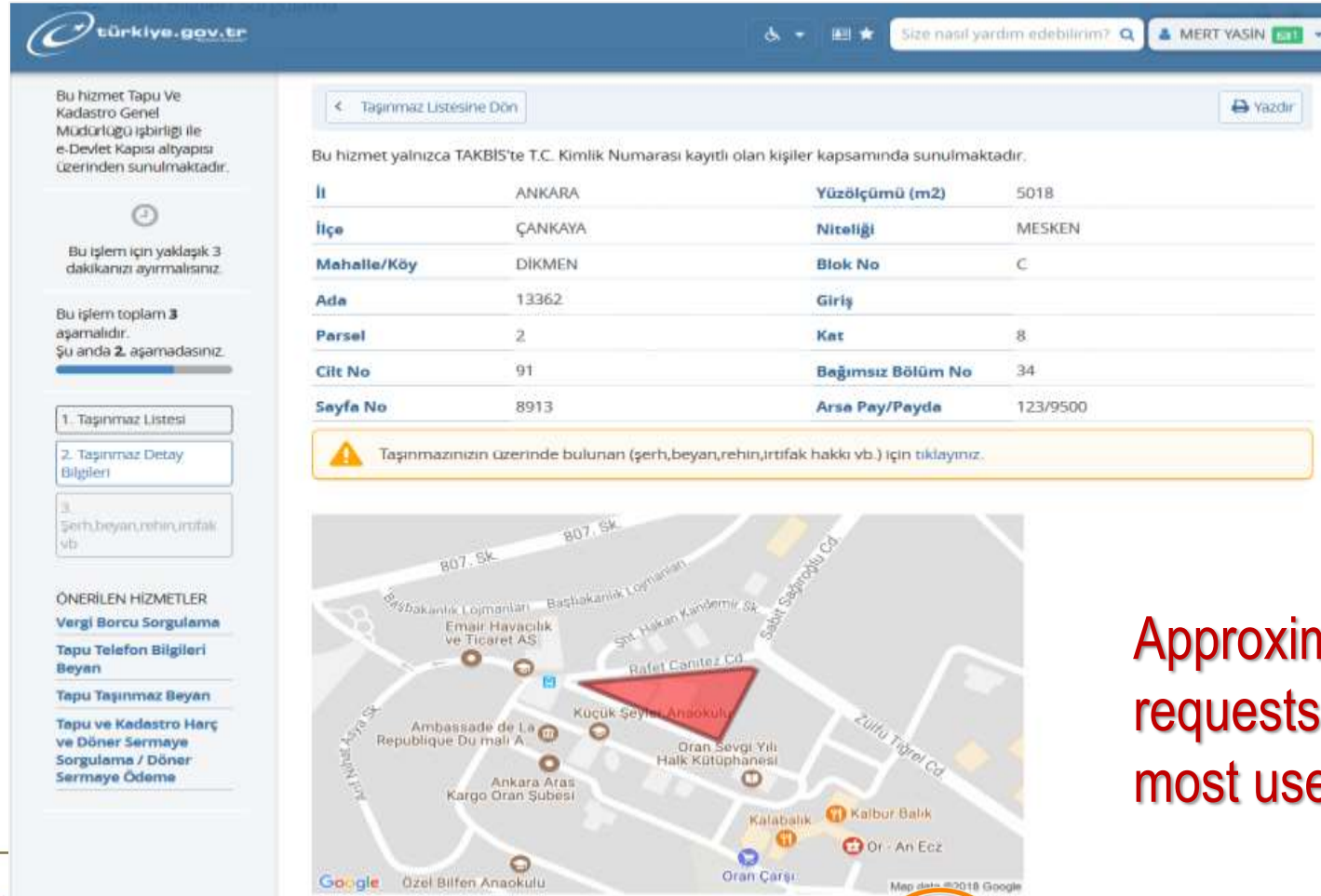
E-Government Services



- E-government map services present the collected cadastral data with land registry records from the e-government gate since 06 October 2010 to citizens.
- These services are the first geographical services offered from www.turkiye.gov.tr.



E-Government Services


Size nasıl yardım edebiliriz? MERT YASIN

[← Taşınmaz Listesine Dön](#) [Yazdır](#)

Bu hizmet yalnızca TAKBİS'te T.C. Kimlik Numarası kayıtlı olan kişiler kapsamında sunulmaktadır.

İl	ANKARA	Yüzölçümü (m2)	5018
İlçe	ÇANKAYA	Niteliği	MESKEN
Mahalle/Köy	DIKMEN	Blok No	C
Ada	13362	Giriş	
Parsel	2	Kat	8
Cite No	91	Bağımsız Bölüm No	34
Sayfa No	8913	Arsa Pay/Payda	123/9500

⚠ Taşınmazınızın üzerinde bulunan (şerh,beyan,rehin,irtifak hakkı vb.) için tıklayınız.



ÖNERİLEN HİZMETLER

- Vergi Borcu Sorgulama
- Tapu Telefon Bilgileri Beyan
- Tapu Taşınmaz Beyan
- Tapu ve Kadastro Harç ve Döner Sermaye Sorgulama / Döner Sermaye Ödeme

Approximately 6 million requests in a month and 7th most used of 3.897 services

Spatial Property System (MEGSIS)

1 2 3 4

Ortophoto
Services

Ortophoto Services



Ortophoto services present orthophoto maps that have been produced at 1/5.000 scale, by using the open source GDAL library at a Tile Map Service (TMS) standard.



Thank you for your listening...



General Directorate
of
Land Registry and Cadastre

Dr. İsmail DURSUN
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Cadastre Department