



XXVII FIG CONGRESS

11-15 SEPTEMBER 2022
Warsaw, Poland

Volunteering
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Geospatial excellence
for a better living

Cadastral Data Migration Process to LADM-COL Model

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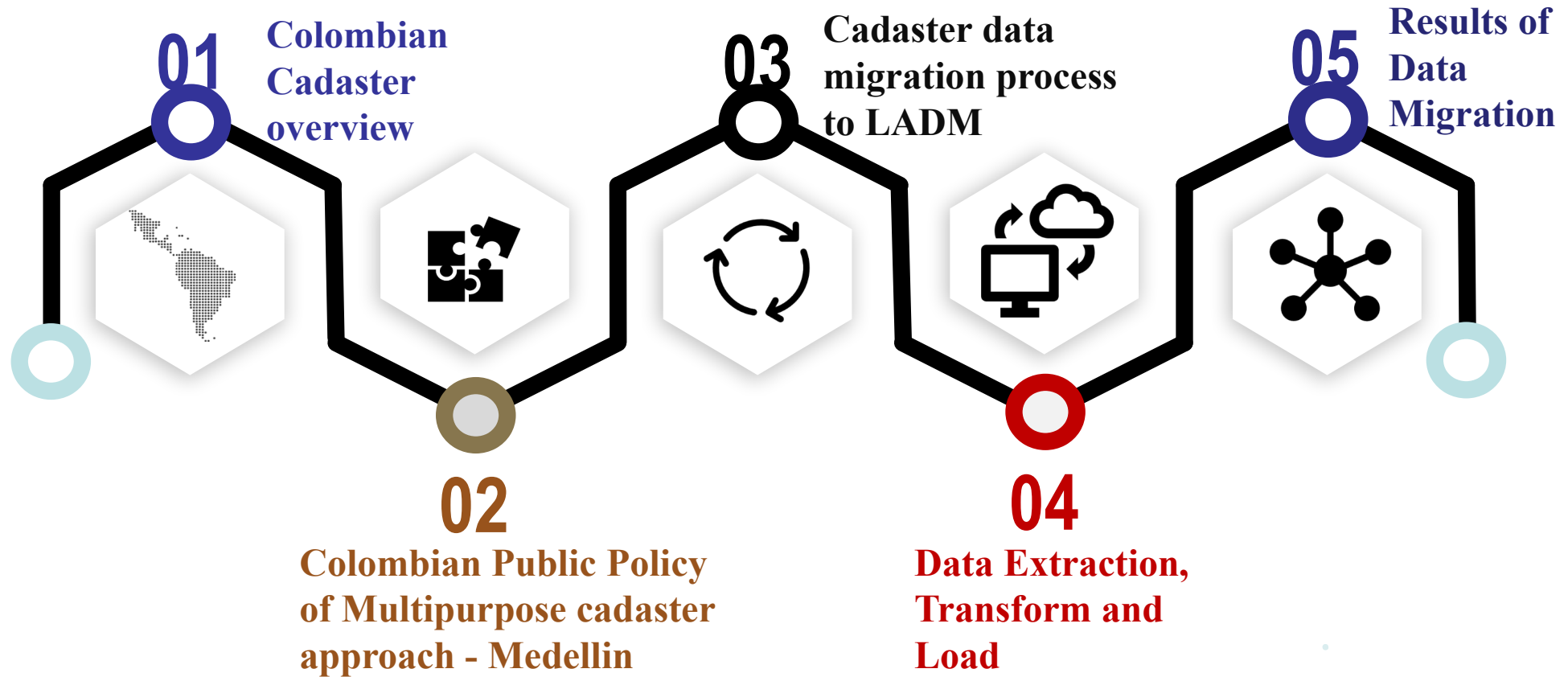


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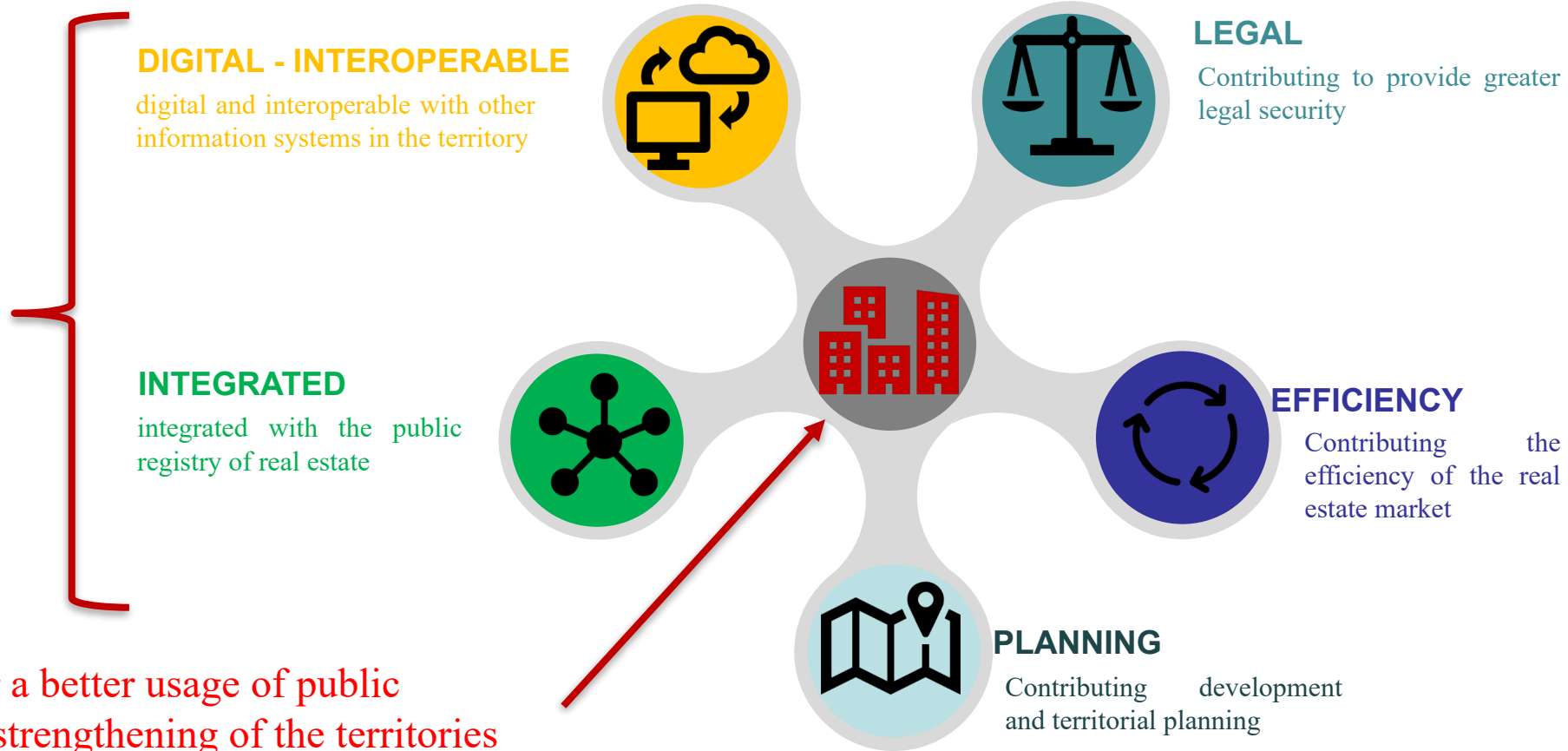
Cadastral Data Migration Process to LADM-COL model.



Colombian Multipurpose Cadastre Challenges...

CMP

The information generated must serve as an input for the formulation and implementation of various public policies:



Provides instruments for a better usage of public resources and the fiscal strengthening of the territories

Medellin Cadastral Office

COLOMBIA, SOUTH AMERICA:

Medellín is today the second largest city, after the capital, Bogotá



PARCELS AMOUNT:

Medellín has about one million of cadaster parcels



FIRST CADASTRAL OFFICE 1926

Its mission was drawing up the city's cadastre under the premise that it would be *"free of unfounded or arbitrary calculations."*

WORLDWIDE EXAMPLE OF RESILIENCE:

Because it moved from being one of the most dangerous cities of the world in the 80s to be a city that nowadays attracts countless tourists wanting to presence the social transformations.

Data migration processes



PREPARE DATA

Analysis of the existing information, its purification and classification so that it could be taken to the data structure established in the LADM model.



EXTRACT DATA

Once the information was identified, refined and classified, it was extracted from the transactional repositories



TRANSFORM DATA

It is the most important step for migration since this is the moment where the data is effectively adapted to the new structure of the model



LOAD DATA

The final step is the loading of the transformed data complying with the structure of the LADM model.

Prepare data.

Alphanumeric information verification



Duplicate data

Special features

Code structure

Value ranges and domains

Missing data or outliers

Geographic information verification



Topological errors

Geometry standardization

Required fields

Domain homologation

Coordinate system

Prepare data.

Topological errors

The geographic information may have topological errors that must be corrected to generate a valid XTF file

Duplicate nodes must be removed

Intercepting nodes must be corrected

Dangling nodes must be corrected

Spatial overlapping of the same class of objects must be corrected

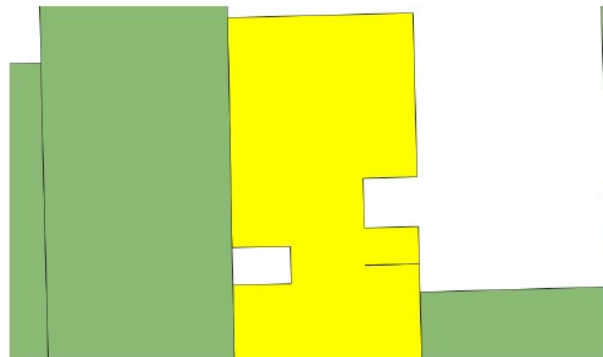


Illustration 3. Topological errors.

Geometry Standardization

GIS software has various ways to verify the geometry. However, the leading geometry modeling standard for GIS software is the OGC Simple Features Interface Standard (SFS). To facilitate the integration of the information, the geometry is converted to the OGC standard.



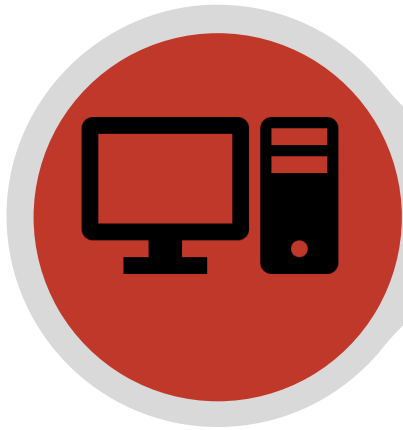
Illustration 4. Standardization of the geometry representation.

ETL: Transform and Load Data.

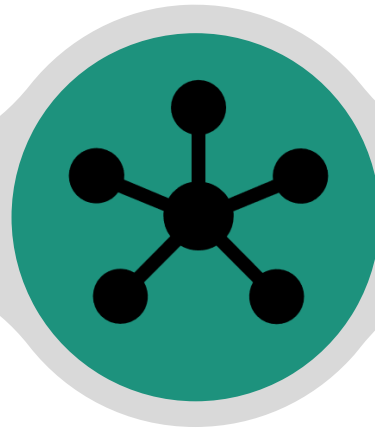
EXTRACT

TRANSFORM

LOAD



Existing data in
Medellin Cadastre



- Relationship
- Domains
- Field
- Class



Administrative package migration

Party package migration

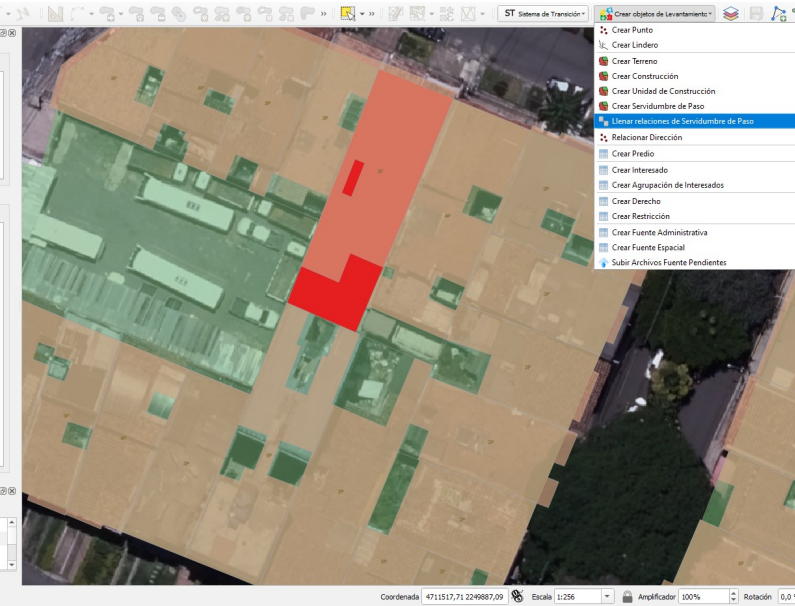
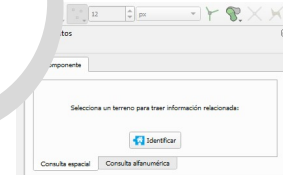
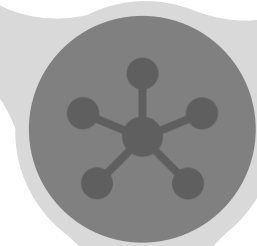
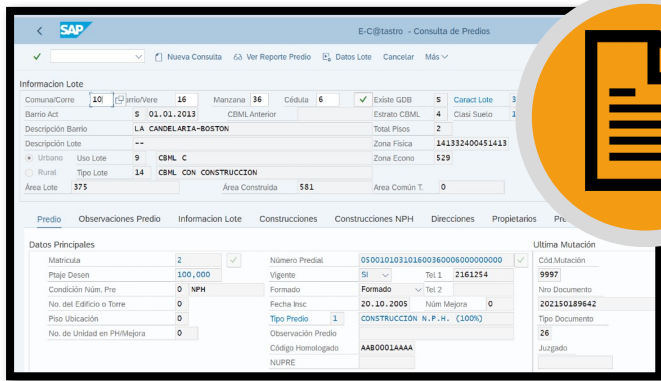
Migration sources

Spatial units package migration

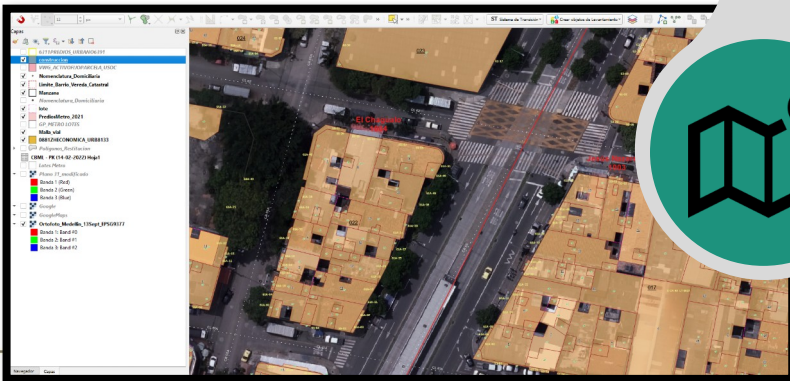
Topography and rendering package migration

Results ALPHANUMERIC

DATA MIGRATED – LADM COL



NOT - INTEGRATED



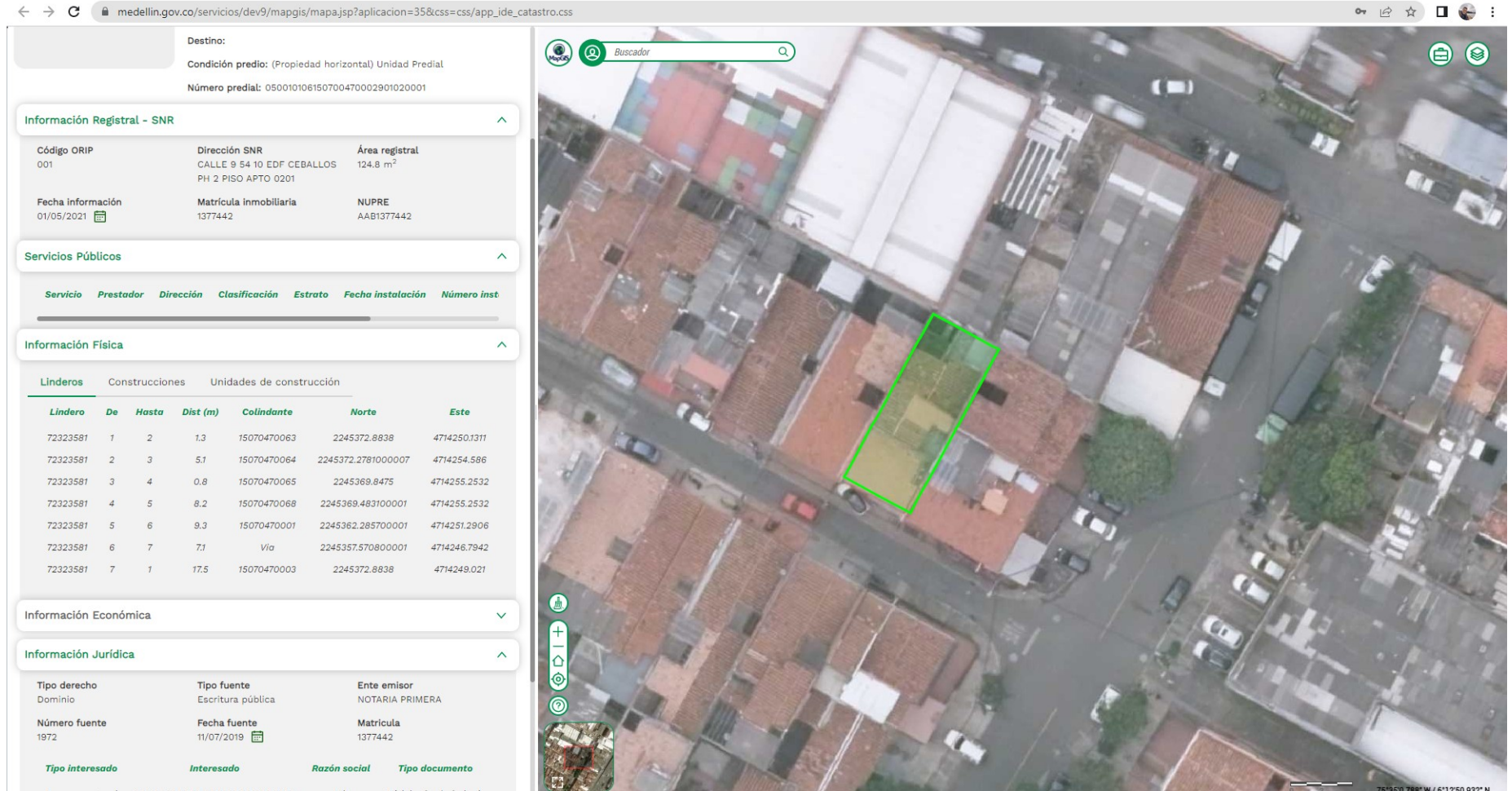
INTEGRATED: ALPHANUMERIC – GEOGRAPHIC

STANDARD LANGUAGE

GEOGRAPHIC

Share data result

Citizens are able to access the data through the platform provided by the institutions to look up geographical and alphanumeric information. This information is available due to an open approach that allows access to as much information as possible without violating individuals' privacy.



medellin.gov.co/servicios/dev9/mapgis/mapa.jsp?aplicacion=35&css=css/app_ide_catastro.css

Destino:
Condición predio: (Propiedad horizontal) Unidad Predial
Número predial: 050010108150700470002901020001

Información Registral - SNR

Código ORIP 001	Dirección SNR CALLE 9 54 10 EDF CEBALLOS PH 2 PISO APTO 0201	Área registral 124.8 m ²
Fecha información 01/05/2021	Matrícula inmobiliaria 1377442	NUPRE AAB1377442

Servicios Públicos

Servicio	Prestador	Dirección	Clasificación	Estrato	Fecha instalación	Número inst

Información Física

Linderos	Construcciones	Unidades de construcción				
Lindero	De	Hasta	Dist (m)	Colindante	Norte	Este
72323581	1	2	1.3	15070470063	2245372.8838	4714250.1311
72323581	2	3	5.1	15070470064	2245372.2781000007	4714254.586
72323581	3	4	0.8	15070470065	2245369.8475	4714255.2532
72323581	4	5	8.2	15070470068	2245369.463100001	4714255.2532
72323581	5	6	9.3	15070470001	2245362.285700001	4714251.2906
72323581	6	7	7.1	Via	2245357.570800001	4714246.7942
72323581	7	1	17.5	15070470003	2245372.8838	4714249.021

Información Económica

Información Jurídica

Tipo derecho Dominio	Tipo fuente Escritura pública	Ente emisor NOTARIA PRIMERA
Número fuente 1972	Fecha fuente 11/07/2019	Matrícula 1377442

Tipo interesado Interesado Razón social Tipo documento

https://www.medellin.gov.co/servicios/dev9/mapgis/mapa.jsp?aplicacion=35&css=css/app_ide_catastro.css

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Thank you!



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