

Pima County's Address and Sub-Address Data Model



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AGIC

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Addressing Needs are Changing

- Its no longer just about the mail
- Addresses drive tele-communication, business systems, navigation, emergency response, and daily commerce



- The method by which we create addresses in GIS are dynamic in order to distribute accurate addresses in near real time
- Its takes dedicated addressing staff and the support of many end-users to maintain and QC addresses

Address & Sub-Address Components

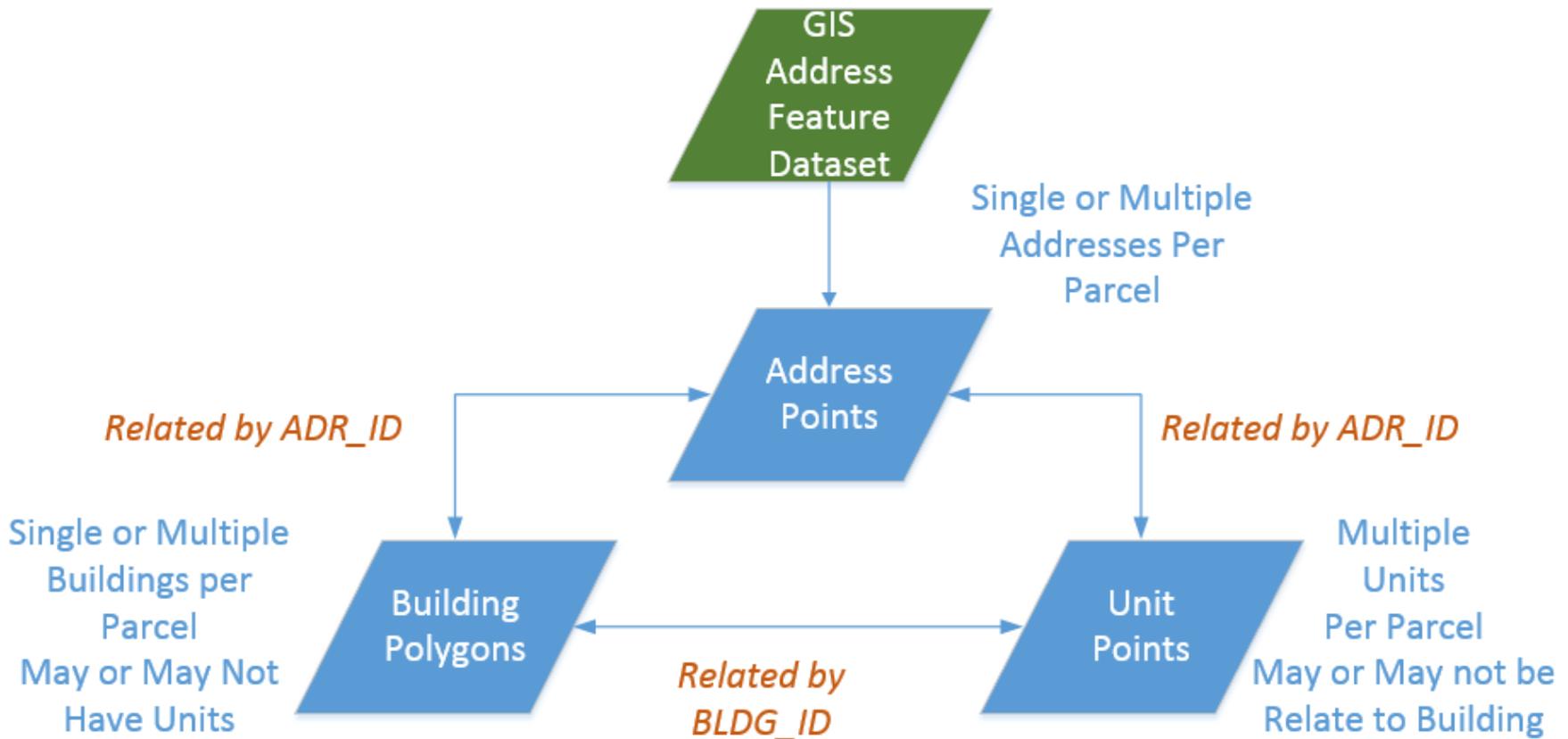
- Address Features
 - Points
- Building Features
 - Polygons
- Unit Features
 - Points
- Relationship Classes

The screenshot shows a GIS 'Identify' window. The 'Identify from:' dropdown is set to 'Address'. The tree view on the left is as follows:

- Address
 - 7050 E SUNRISE DR
 - Units
 - Building
 - 12
 - 3
 - 4
 - Units
 - 4104
 - 4105
 - 4204
 - 4206
 - 4205
 - 4202
 - 4101
 - 4103
 - 4203
 - 4201
 - 4102
 - 4106

- 17
- 20

The map view on the right shows an aerial photograph of a residential building complex. A cyan rectangle highlights a specific section of the building. Within this section, a yellow box contains the number '4', which corresponds to the 'Building' feature identified in the tree. Purple diamond markers are scattered throughout the building's footprint, representing individual units. A cyan circle highlights a specific unit, which corresponds to the 'Units' feature identified in the tree.



1. Relationships Between Addresses, Buildings, and Units is Maintained Using Feature ID's

2. Feature ID's Are Generated in Database using Triggers to Maintain their Uniqueness

	ADR_ID	BLD_ID	UNIT_ID	BU_ADR_ID	PARCEL	ADDRESS	BLD_NO	UNIT_NO	ZIPCITY	ZIPCODE	U_PARCEL
150	303753	9366	105863	303753B9366U105863	114158680	7050 E SUNRISE DR	3	3204	TUCSON	85750	114156690
151	303753	9365	105870	303753B9365U105870	114158680	7050 E SUNRISE DR	4	4102	TUCSON	85750	114156710
152	303753	9365	105871	303753B9365U105871	114158680	7050 E SUNRISE DR	4	4203	TUCSON	85750	114156788

Non Spatial Building and Units

- Building and Units Source Tables (9,500 & 124,00)

	ELEMENT_KEY	CITY_ID	STREET_...	STREET_DIR...	STREET_NA...	DATA_STAT...	UNIT_ID	BLD_ID	COMP_TY...	DESCRIPTION
33	A000135040	PC	7050	E	SUNRISE DR	ACTIVE	#4101	04	UNIT	UNIT 29 / 114-15-6700
34	A000135040	PC	7050	E	SUNRISE DR	ACTIVE	#4102	04	UNIT	UNIT 30 / 114-15-6710
35	A000135040	PC	7050	E	SUNRISE DR	ACTIVE	#4103	04	UNIT	UNIT 31 / 114-15-6720
36	A000135040	PC	7050	E	SUNRISE DR	ACTIVE	#4104	04	UNIT	UNIT 32 / 114-15-6730

- Join Buildings \ Units to GIS Address points

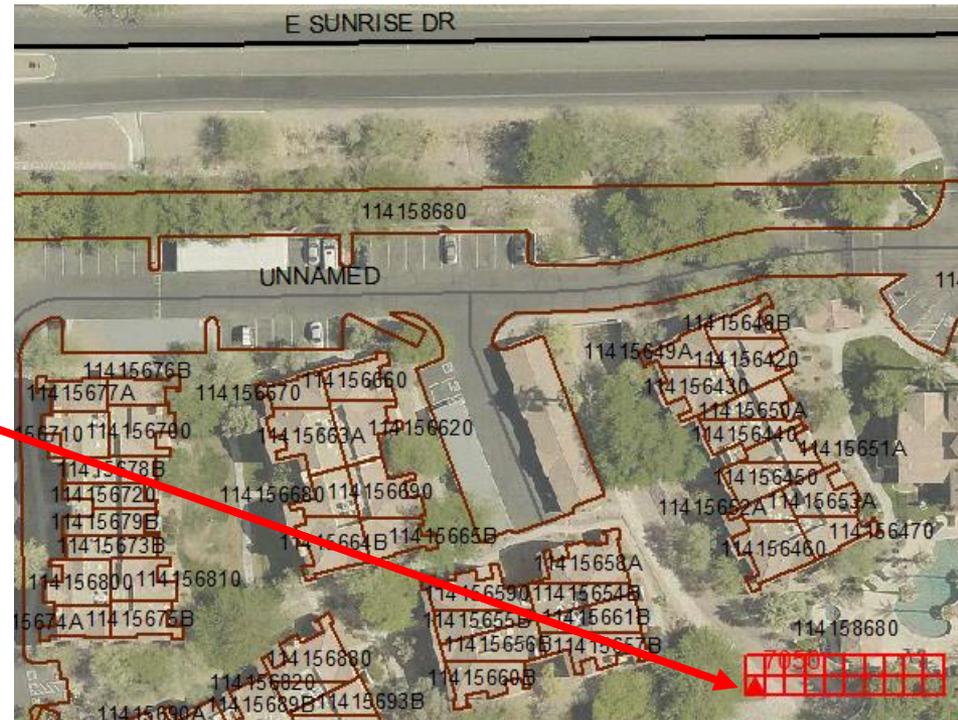
	OBJECTID	CODE	ADR_ID	STREET_...	STREET_...	AD_STREET	AD_SUFFIX	SUFFIX_DIR	AD_FRAC	PARCEL	ZIPCODE
6	303753	0	303753	7050	E	SUNRISE	DR	NULL	NULL	114158680	85750

- Calculate over the Unique ADR_ID to Buildings and Units Tables

	ADR_ID	BLD_ID	BLD_NO	BLD_USE	BLDG_FLOORS	DESCRIPTION	PARCEL	EDITOR_NAME	EDIT_DATE
15	303753	9365	4	RESIDENCE	2	BLDG 04	114158680	CENTRAL\U131445 - "CENTRAL\U131445"	2015-04-28 1
16	303753	9355	5	RESIDENCE	2	BLDG 05	114158680	CENTRAL\U131445 - "CENTRAL\U131445"	2015-04-28 1
17	303753	9354	6	RESIDENCE	2	BLDG 06	114158680	CENTRAL\U131445 - "CENTRAL\U131445"	2015-04-28 1

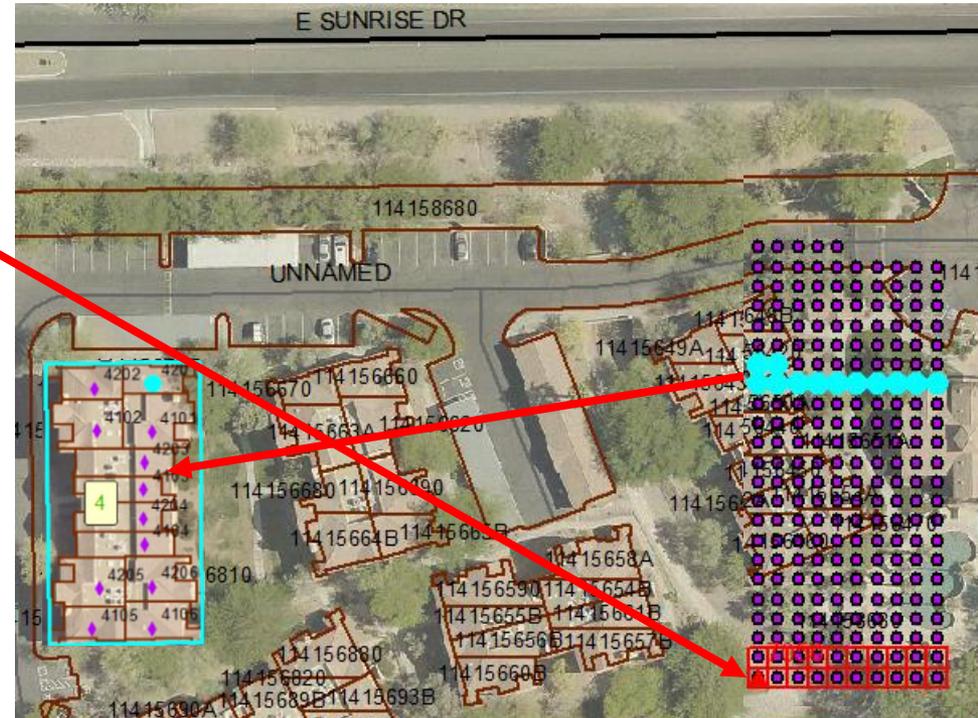
Creating Buildings Feature Class

- Python Script creates Building Points clustered near the Address Point
- Buffer points using Buffer Rectangle Tool
- gisnuts.com



Create Units Feature Class

- Python Script creates Unit Points clustered near the Address Point
- Units are Selected according to Build # and Placed within the Building using a Site Plan



```
-- Description: Works with update trigger to maintain unique BLD_ID
-- This BLD_ID is used to maintain relationship with ADR_ID in ADR_PIMA and Accela
-- =====
```

ature ID's

```
ALTER TRIGGER [gisdata].[a1139Insert]
ON [gdbmaint].[gisdata].[a1139]
INSTEAD OF INSERT
```

```
AS
BEGIN
```

```
INSERT INTO [gdbmaint].[gisdata].[a1139]
([OBJECTID]
, [ADR_ID]
, [BLD_ID]
, [BLD_NO]
, [BLD_USE]
, [BLDG_FLOORS]
, [DESCRIPTION]
, [PARCEL]
, [EDITOR_NAME]
, [EDIT_DATE]
, [GlobalID]
, [Shape]
, [SDE_STATE_ID])
```

```
SELECT INSERTED.OBJECTID,
INSERTED.ADR_ID,
ISNULL(INSERTED.BLD_ID, INSERTED.OBJECTID)
INSERTED.BLD_NO,
INSERTED.BLD_USE,
INSERTED.BLDG_FLOORS,
INSERTED.DESCRPTION,
INSERTED.PARCEL,
INSERTED.EDITOR_NAME,
INSERTED.EDIT_DATE,
INSERTED.GlobalID,
INSERTED.Shape,
INSERTED.SDE_STATE_ID
FROM INSERTED
```

```
-- Description: Works with update trigger to maintain unique BLD_ID
-- for the inserted record
-- =====
```

```
ALTER TRIGGER [gisdata].[a1139Update]
ON [gdbmaint].[gisdata].[a1139]
AFTER UPDATE AS
```

```
IF @@ROWCOUNT = 0
RETURN
```

```
IF UPDATE(BLD_ID)
BEGIN
```

```
UPDATE [GISData].[a1139]
SET [GISData].[a1139].BLD_ID = ISNULL(i.BLD_ID, i.OBJECTID)
FROM [GISData].[a1139] a
INNER JOIN inserted i
ON a.objectid = i.objectid and a.SDE_STATE_ID = i.SDE_STATE_ID
```

```
END
```

- gisdata.a1139
 - Columns
 - Keys
 - Constraints
 - Triggers
 - a1139Insert
 - a1139Update

Relationship Classes

- Address to Buildings
- Address to Units
- Buildings to Units

Identify

Identify from:  Address

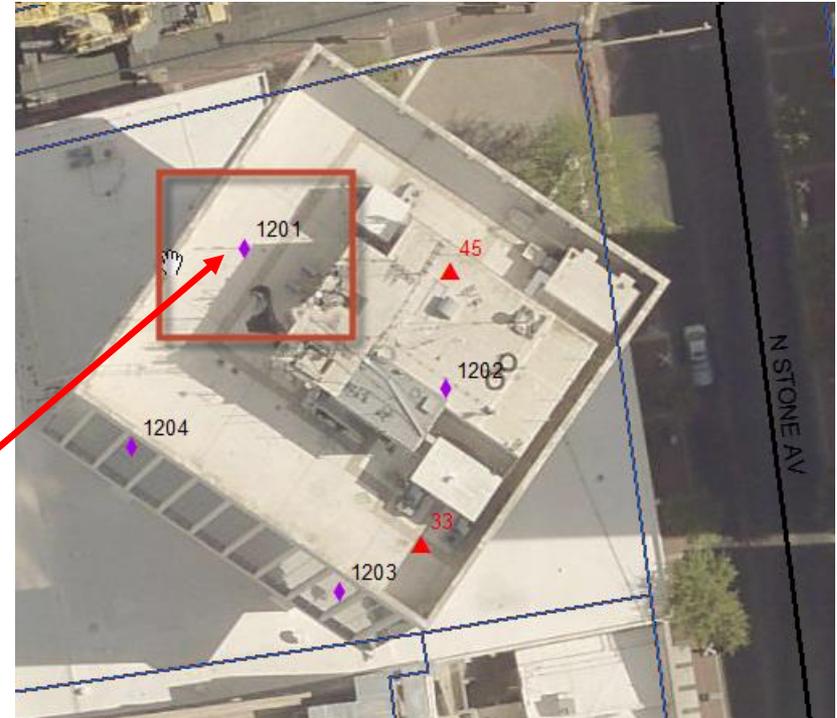
Address

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Multi Story Buildings

- Assigning units according to floor allows for placement in three dimensions.
- Use of Definition Query to Isolate units by floor.



BUILDING_ID *	UNIT_ID *	UNIT_NO	UNIT_TYPE	FLOOR_NUMBER
6786	14067	1201	SUITE	12
6786	14068	1202	SUITE	12
6786	14069	1203	SUITE	12
6786	14070	1204	SUITE	12

Layer Properties

General Source Selection Display Symbology Fields Definition Query Labels J

Definition Query:

UNIT_FLOOR = 12

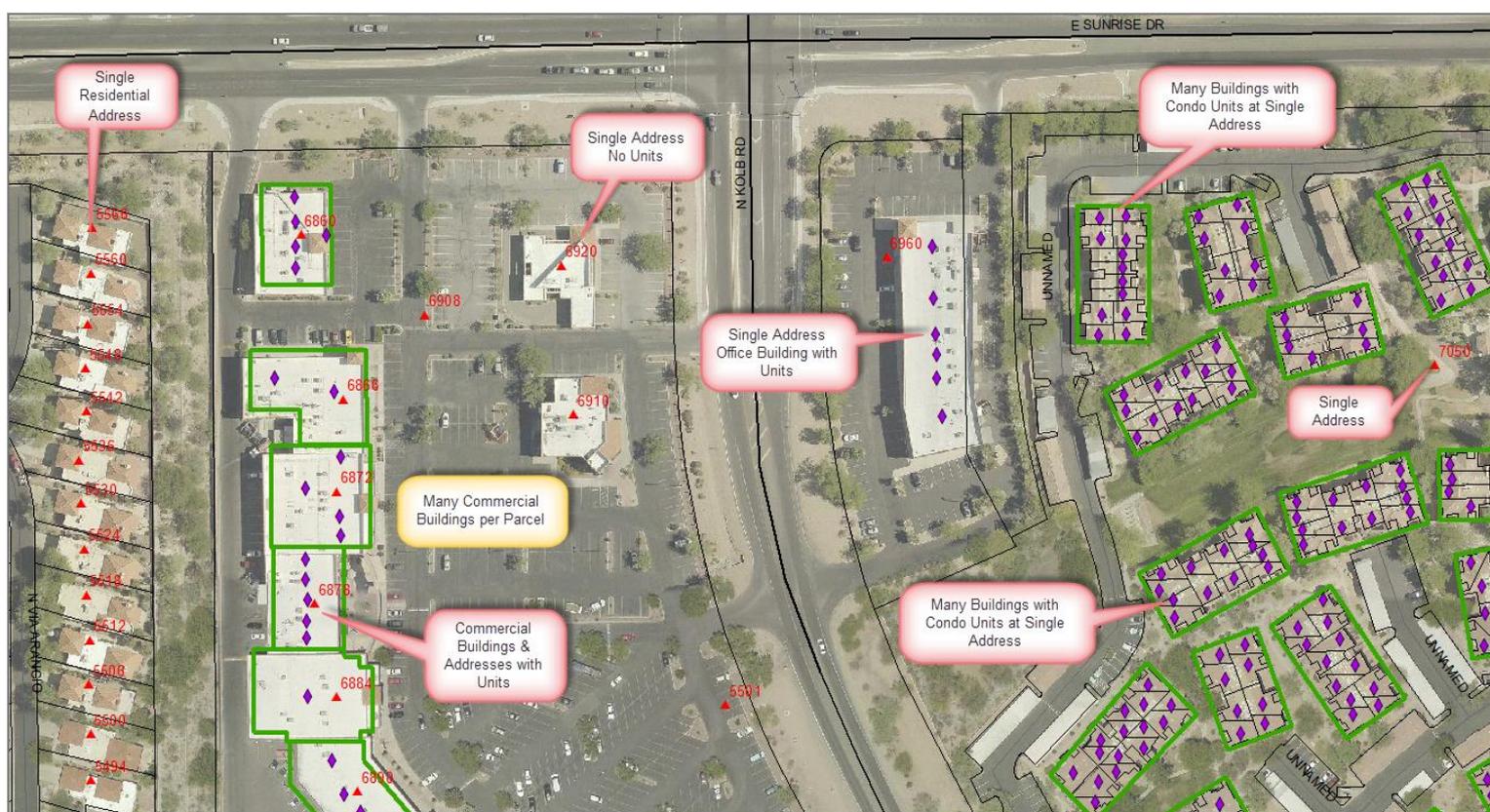
Benefits of Sub-Address

- Identification of specific Building and Unit locations in large complex's
 - Having a completed address for Buildings and Units
 - Improves 911 Emergency Response
 - Meets Permitting Activity Requirements
 - Improves Package Delivery
- We now have Complete Address for Parcel Based Condominiums

Parent

Unit

ADR_ID	BLD_ID	UNIT_ID	BU_ADR_ID	PARCEL	ADDRESS	BLD_NO	UNIT_NO	ZIPCITY	ZIPCODE	U_PARCEL	
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Questions?

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