

Are Addresses Driving you MAD?

Understanding a Master Address Database

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Goals

- Introduce the Idea of a MAD
- Discuss Advantages, Deployment of MAD
- Answer your Questions

Who is Farallon Geographics, Inc.?

Farallon is a leader in GIS strategic planning, implementation, and integration services, enabling GIS to support mission critical business functions.

Our Enterprise GIS development solutions include:

- Strategic Planning and Needs Assessment
- GIS/ IT Systems Integration
- Master Address Database
- Property Notification/Review Web Applications
- Pavement Management System-GIS Integration

Why are Addresses Important?

- Critical link between you and your customers/suppliers/constituents
- Common identifier across departments and business systems

Examples of Uses

- Identify customer/client locations
- Property identification/notification
- Voter registration
- Emergency response
- Permitting
- Property taxation
- Routing and logistics
- Risk assessment
- Many more...

Addresses are Spatial

Situs addresses may be tied to a

- Door
- Building
- Parcel
- Street Centerline

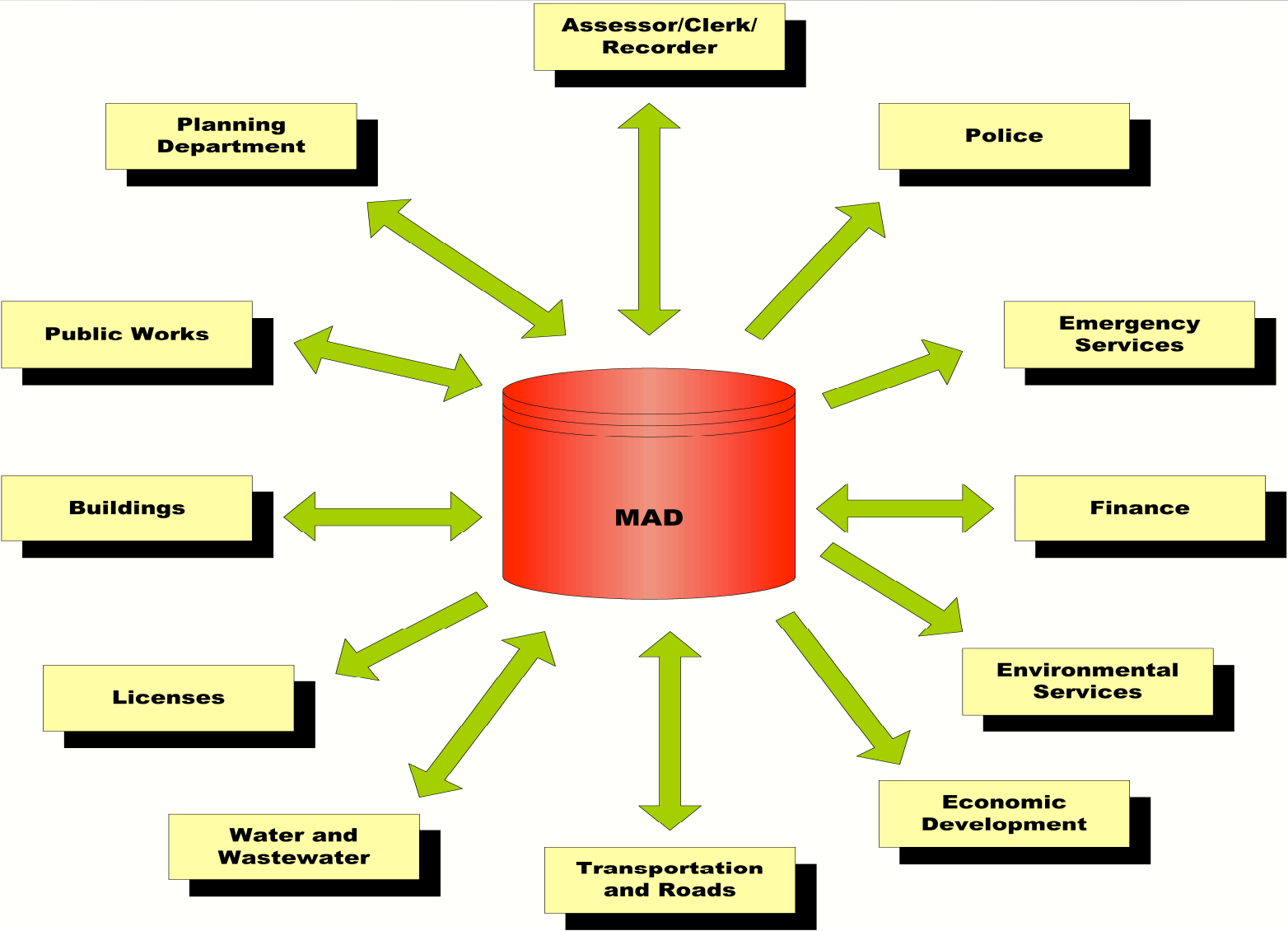
Ok, so why a MAD?

- Avoid redundant data capture, maintenance, storage
- Errors (multiple spellings, ...)
- Spatial accuracy
- Improve inter-departmental collaboration (“the firefighter problem”)

What is a MAD?

- Geodatabase
- Centrally available
- Single-source of addresses for the entire organization
- Tied to a map

Who benefits from a Master Address Database?



Implementation

- Assess needs/resources of enterprise
 - Data
 - Taxable parcel addresses
 - Business addresses
 - Apartments, building permits
 - Situs vs Owner
 - Resources
 - Technology
 - People

Seed Files

- Emergency Response (MSAG)
- USPS database
- Permit database
- County assessor
- Utility meter
- Commercial

Data Model and Standards

- Master Street Name list (1st or First)
- Prefix/Suffix (St vs Str)
- Directions (N, S, SW, etc)
- Numbering
- Aliases (SR6 and Main St)

MAD: Data Model and Standards

Master Address Database

Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
APN	String	Yes					13
ADDRNUM	Number	Yes					
STNAME	String	Yes		DOMAIN_STNAME			50
UNIT	String	Yes					50
ZIP	Number	Yes		DOMAIN_ZIP			
DATASRC	String	Yes					50

ASSESSOR PARCEL NUMBER
 ADDRESS NUMBER
 STREET NAME
 UNIT NUMBER
 ZIP CODE
 DATA SOURCE

MAD Domain Tables

Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
PREC_DIR	String	Yes		DOMAIN_DIR			50
NAME	String	Yes					10
TYPE	String	Yes		DOMAIN_TYPE			50
POSS_DIR	String	Yes		DOMAIN_DIR			10
STNAME	String	Yes					50
STNAME_ASSR	String	Yes					50
STNAME_METROSCAN	String	Yes					50
STNAME_EBMID	String	Yes					50
STNAME_PTS	String	Yes					50
STNAME_COMMERCIAL	String	Yes					50

Direction prefix
 Street name without prefix, suffix, type
 Street type
 Direction suffix
 Full street name
 Full street name as found in the County Assessor data
 Full street name as found in MetroScan
 Full street name as found in EBMID data
 Full street name as found in PTS data
 Full street name as found in Commercial Mapping data

Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
ZIP	Number						

Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
DIR	String						10

Directional prefix,suffix

Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
DATASRC	String	Yes					10
PROVIDER	String	Yes					50
RELEASE_DATE	Date	Yes			0	0	8
COMMENTS	String	Yes					100

Data source
 Data provider

Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
TYPE	String	Yes					50

Street type

City of Oakland, CA: Master Address Database (MAD)

Parcel GIS Geodatabase

Parcel APN Data

Field Name	Data Type	Allow Nulls	Default Value	Domain	Index	Scale	Length
OBJECTID	Object ID						
APN	String	Yes					
PARCEL_ID	String	Yes					
PARCEL_TYPE	String	Yes					
APN_DATE	Date	Yes					
REVISION_DATE	Date	Yes					
REVISION_DATE	Date	Yes					
REVISION_DATE	Date	Yes					
REVISION_DATE	Date	Yes					
REVISION_DATE	Date	Yes					
REVISION_DATE	Date	Yes					

Parcel feature class that defines each parcel's shape and area.

Each APN record is associated with 1 or more parcel polygons.

Field Name	Data Type	Allow Nulls	Default Value	Domain	Index	Scale	Length
OBJECTID	Object ID						
APN	String	Yes					
PARCEL_ID	String	Yes					
APN	String	Yes					
APN	String	Yes					
APN	String	Yes					
APN	String	Yes					
APN	String	Yes					
APN	String	Yes					
APN	String	Yes					
APN	String	Yes					

Assesses Parcel Number (APN) associations with Parcel Polygons.

Field Name	Data Type	Allow Nulls	Default Value	Domain	Index	Scale	Length
OBJECTID	Object ID						
APN	String	Yes					
PARCEL_ID	String	Yes					
APN	String	Yes					
APN	String	Yes					
APN	String	Yes					
APN	String	Yes					
APN	String	Yes					
APN	String	Yes					
APN	String	Yes					

Linear feature class representing boundaries of each parcel.

Topology

Topology	Participating Feature Classes	Rules
PARCELS_TOPOLOGY	PARCELS_POLY PARCELS_BODY	None

Parcel Polygons and Parcel Line boundaries participate in the topology relationship.

Topology	Participating Feature Classes	Rules
PARCELS_TOPOLOGY	PARCELS_POLY PARCELS_BODY	None

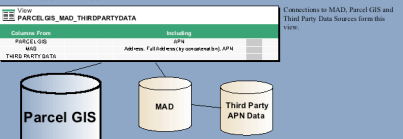
Topology Rules define the type of topology relationships that are enforced.

Views

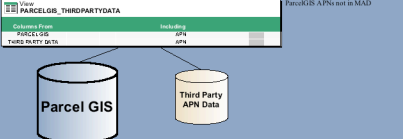
Main View into Master Address Database (MAD) from Parcel GIS



Main View into 3rd Party APN Data from Parcel GIS with standardized MAD situs address



View used only for QC (completeness, auditing) purposes



Domains

Domain Name	Domain Type	Domain Values
PARCEL_ID	String	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
APN	String	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
PARCEL_TYPE	String	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
REVISION_DATE	Date	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
REVISION_DATE	Date	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
REVISION_DATE	Date	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
REVISION_DATE	Date	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
REVISION_DATE	Date	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
REVISION_DATE	Date	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
REVISION_DATE	Date	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
REVISION_DATE	Date	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
REVISION_DATE	Date	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

City of Oakland Master Address Database (MAD)



For a full diagram, refer to the following document: City of Oakland Master Address Database February 9, 2004

MAD APNs are joined to geodatabase APNs to associate standardized MAD addresses (and, optionally, 3rd party data) with GIS parcels.

3rd party APN-based data sources are joined to MAD to add rich content to standardized MAD addresses.

3rd Party APN Data Sources



Alameda County Assessor (tax roll database)



Metroscan (commercial database)



City of Oakland PTS (Permit Tracking System)



Additional unspecified data source(s)

3rd party APN data are joined directly to the GIS geodatabase (APN tables) for the purpose of quality control.

For a full diagram, refer to the following document: City of Oakland Review of Current City Data Models February 12, 2004

Legend

- Non-key constrained relationship
- Foreign key/Primary key relationship
- Data element schematic
- PK Primary Key
- FK Foreign Key
- UK Unique Key
- Database Table
- Domain Table
- View
- Topology

Maintenance

- Distributed vs. Central
- GIS-based
- Automatisation

Thank You

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