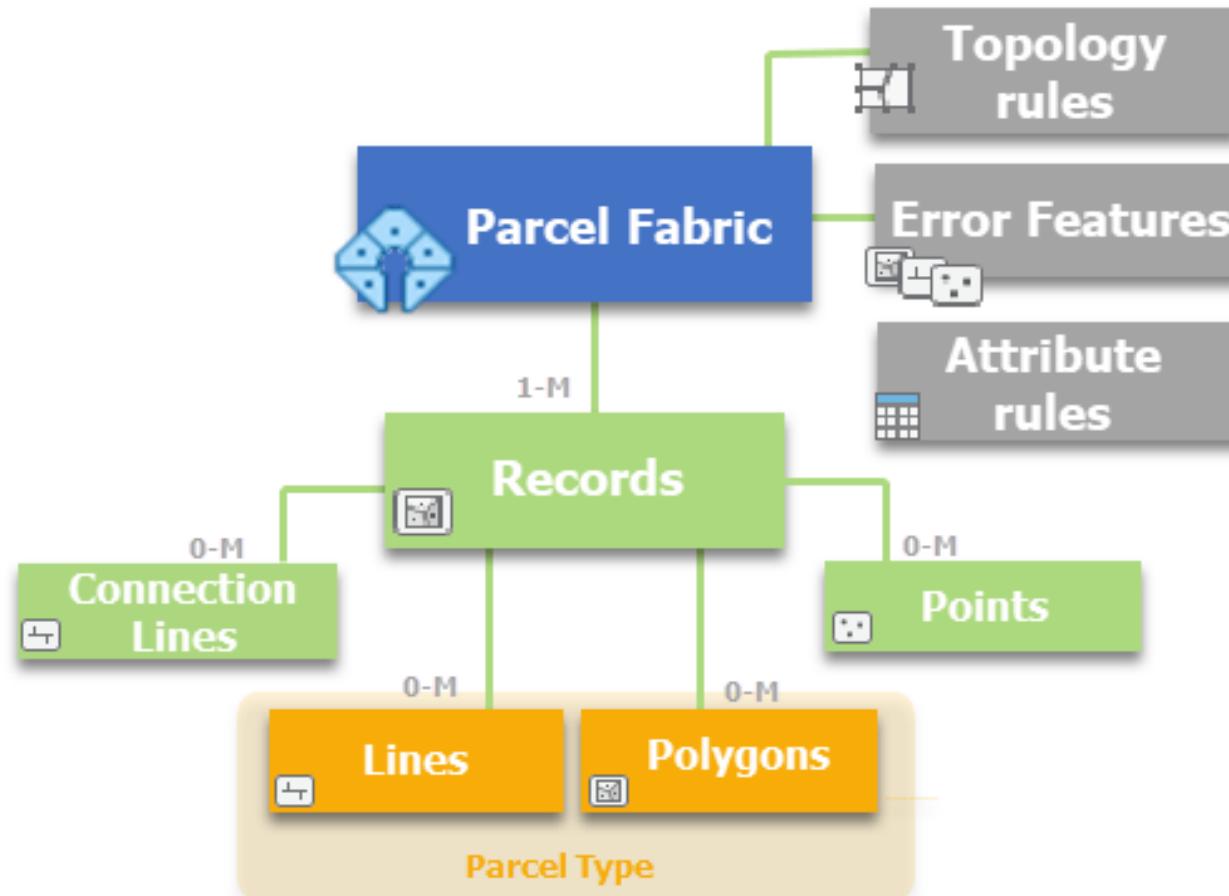


Mapping ArcGIS Parcel Fabric to LADM Commonalities, Gaps and Implementation

Amir Bar-Maor

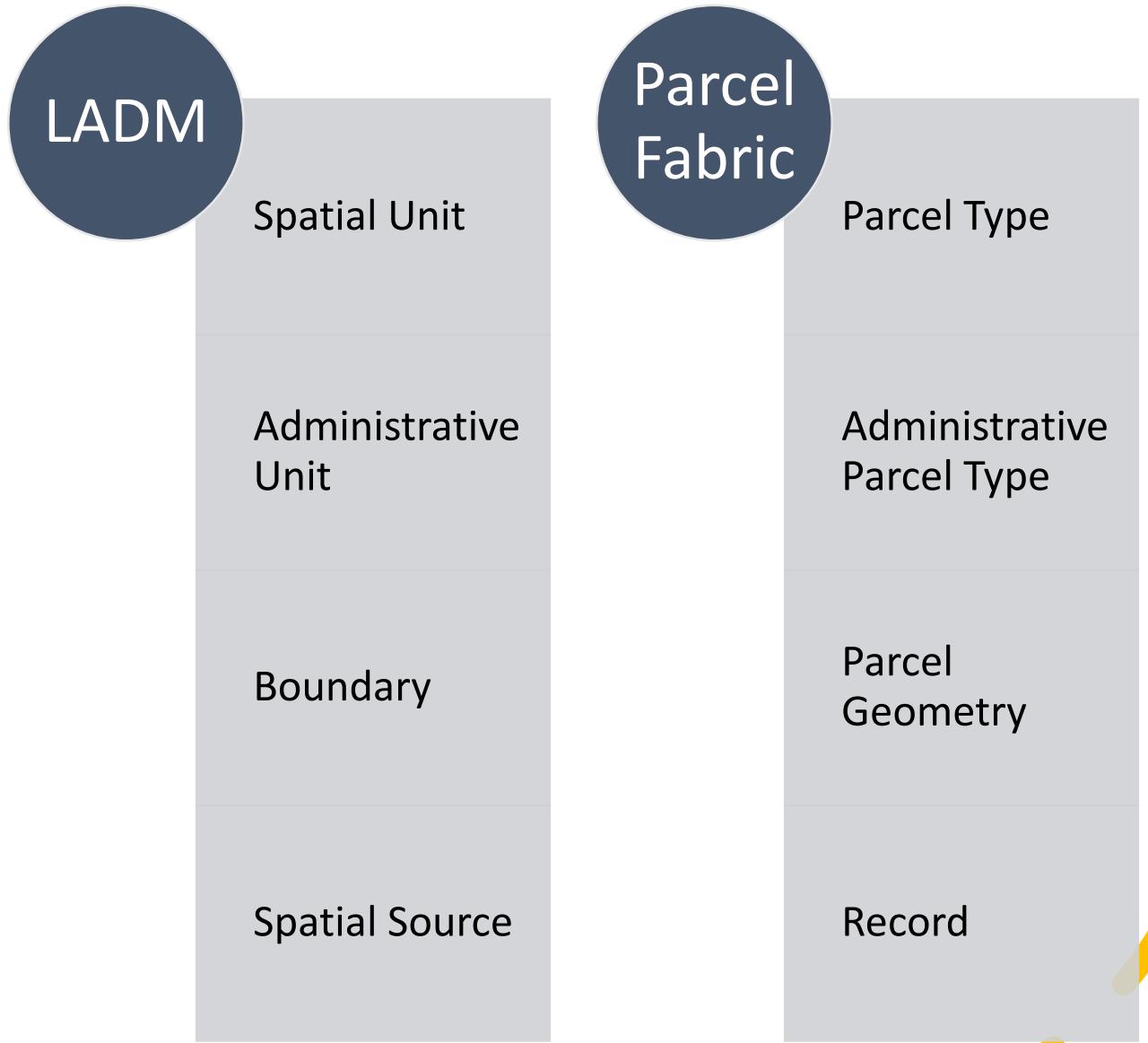
Katherine Smyth

Parcel Fabric Data Model

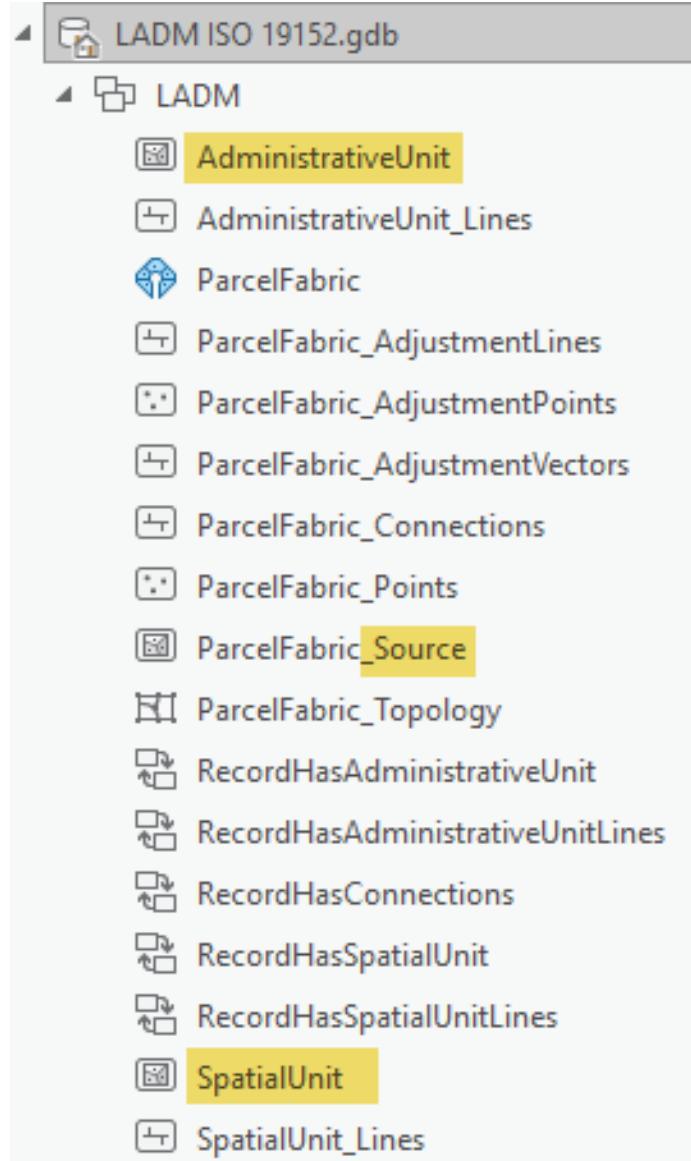


LADM Ontology in Parcel Fabric

Supports Any
Language



LADM in Parcel Fabric: Ready to Use



Parcel Fabric Conforms to LADM

Both LADM and the PF models are:

- flexible and extendable to meet unique business needs ('profiles')
- object oriented
- use relationships between entities
- account for the physical representation and the legal representation.
- support multiple systems of legal descriptions, formal and informal



Extending the Parcel Fabric Data Model

To Extend, One Can Add:

- additional fields as needed
- domains (AKA ‘code list’) to certain fields
- and configure topology rules to model the correct parcel behavior
- and configure attribute rules to model the correct parcel behavior
- other capabilities such as contingent values, subtypes and metadata.

Or Additionally:

- Enable versioning to allow multi-user editing
- Enable replica tracking, editor tracking and add GlobalIDs (UUID) to allow for disconnected editing capabilities.

The base LADM schema can be easily extended

The screenshot shows the ArcGIS Pro interface with a map of a Dutch town. The map displays a grid of streets, water bodies, and a large blue-shaded area representing a spatial feature. The catalog pane on the right lists various LADM schema extensions, including ParcelFabric, ParcelFabric_AdjustmentLines, and GDB_ValidationLineErrors, among others. The title bar indicates the project is 'LADM ISO 19152 - Dutch Kadaster - ArcGIS Pro'.

LADM ISO 19152 - Dutch Kadaster - ArcGIS Pro

Project Map Insert Analysis View

In Beyond <None> Transparency 0.0

Out Beyond <None> Layer Blend

Clear Limits Feature Blend

Visibility Range Effect

Contents

Search

Drawing Order

Dutch Kadaster

Parcels

World Topographic Map

World Hillshade

Dutch Kadaster

Parcels

World Topographic Map

World Hillshade

1:35,929

94,017.47E 438,726.02N m

Selected Features: 0

Command Search (Alt+Q)

Not signed in

Field No fields

Type

Unit

Extrusion

Face Culling

Faces

Catalog

Project Portal Favorites

Search Project

- ParcelFabric
- ParcelFabric_AdjustmentLines
- ParcelFabric_AdjustmentPoints
- ParcelFabric_AdjustmentVectors
- ParcelFabric_Connections
- ParcelFabric_Points
- ParcelFabric_Source
- ParcelFabric_Topology
- SourceHasAdministrativeUnit
- SourceHasAdministrativeUnitLines
- SourceHasConnections
- SourceHasSpatialUnit
- SourceHasSpatialUnitLines
- SpatialUnit
- SpatialUnit_Lines
- GDB_ValidationLineErrors
- GDB_ValidationObjectErrors
- GDB_ValidationPointErrors
- GDB_ValidationPolygonErrors

‘OID’ – the PF uses the DBMS OIDs as well as UUID (GlobalID) for PKs and FKs.
GlobalIDs are necessary for maintaining object uniqueness across replicas
(connected and disconnected workflows).

built-in Quality Rules as part of the schema

built-in Workflows

feature Level metadata

Feature Class metadata

explicit parcel lineage

Parcel
Fabric
Supports

All cadastral features are associated to their source

Parcel Fabric
 Points
 Subs and Condos
 Spatial Unit
 ▾ Historic
 Spatial Unit Lines
 Spatial Unit
 Lots and Units
 Encumbrance
 Connection Lines
 PLSS_Section
 PLSS_Qarter_Section
 PLSS_Township
 World Topographic Map

Feature Layer Parcels Records Quality Shboygan County 29 Iteration... ? - X

Project Map Insert Analysis View Edit Imagery Share Appearance Labeling Data Records Quality Command Search (Alt+Q) Not signed in

Show All
 100% Show Only Active Create Record Select Parcel Features Attributes Clear

Traverse Merge Clip Divide Change Parcel Type

Tools Copy Lines To Create Seeds Build Show Alignment

Save Discard

1.93 80 6 174.5 78.41 9 80.2

211.94 210.19 59030470250 21622 Square Foot US 9 207.64 59030470240 16680 Square Foot US 202.55 203.06 59030470210 32567 Square Foot US 59030470190 29641 Square Foot US

129 19.67 99431132 273.97 79.7 99431132 0.36 Acre 79.99 99431130 R=30
 19.80 32.65
 27.4 44.71
 174.12 82.01

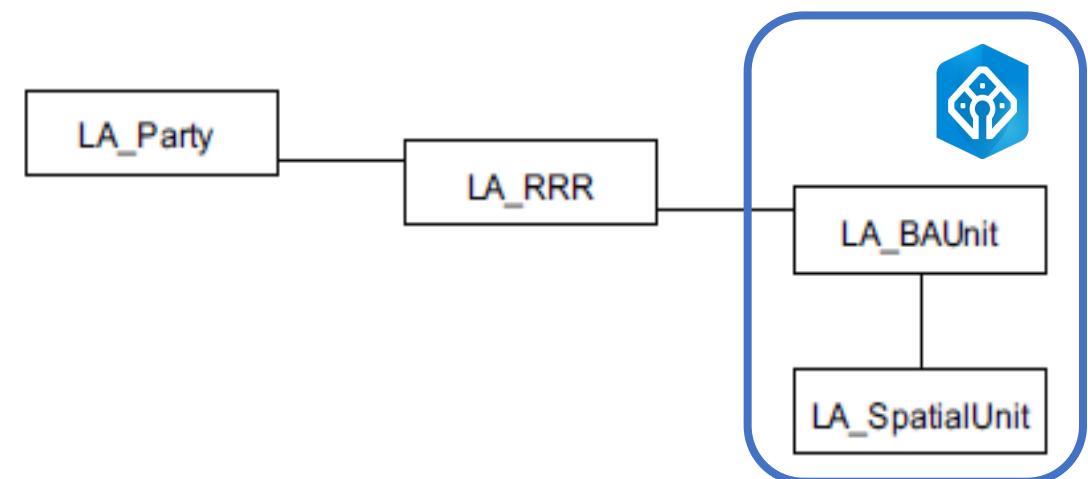
99431133 99431130 4 & 5 209.66 208.35 207.04 1

59030470390 38913 Square Foot US R=437.95
 93.61
 197.79

1:758 220,222.80E 155,083.67N ftUS Selected Features: 0

Parcel Fabric / LADM Gaps

- The parcel fabric does not cover LA_Party or LA_RRR
 - these systems are usually maintained outside of a geographic information system in a registry



LADM Is Implemented Now as Parcel Fabric



Non-US Based Implementations

- Cyprus
pop. 1.2m
- Bonaire
pop. 20k
- Medellin, Colombia

US Based Implementations

- Bureau of Land Management
- Harris County, TX
pop. 4.7m – 1.8m parcels
- Miami Dade County, FL
pop 2.7m

