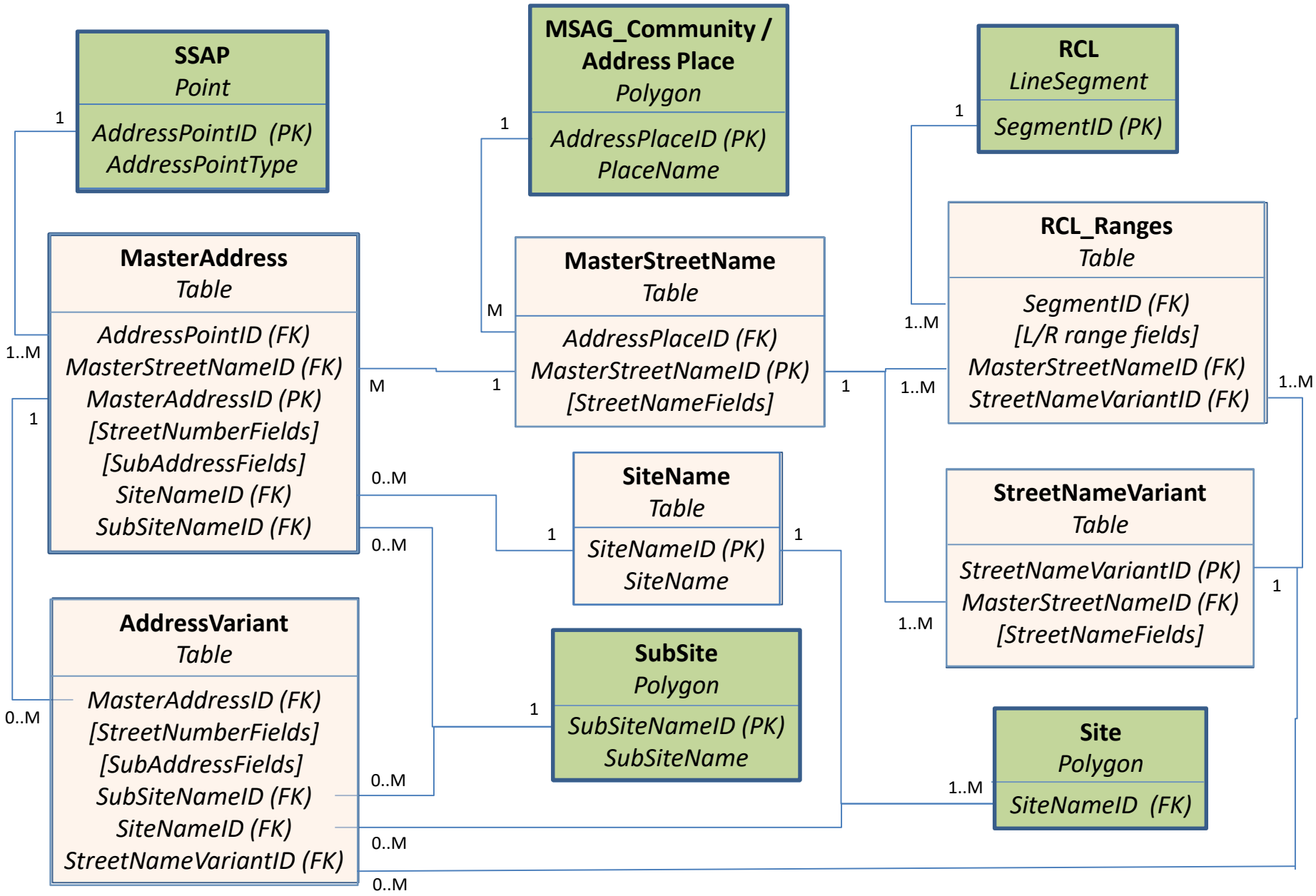
Warning – some of these slides are highly technical

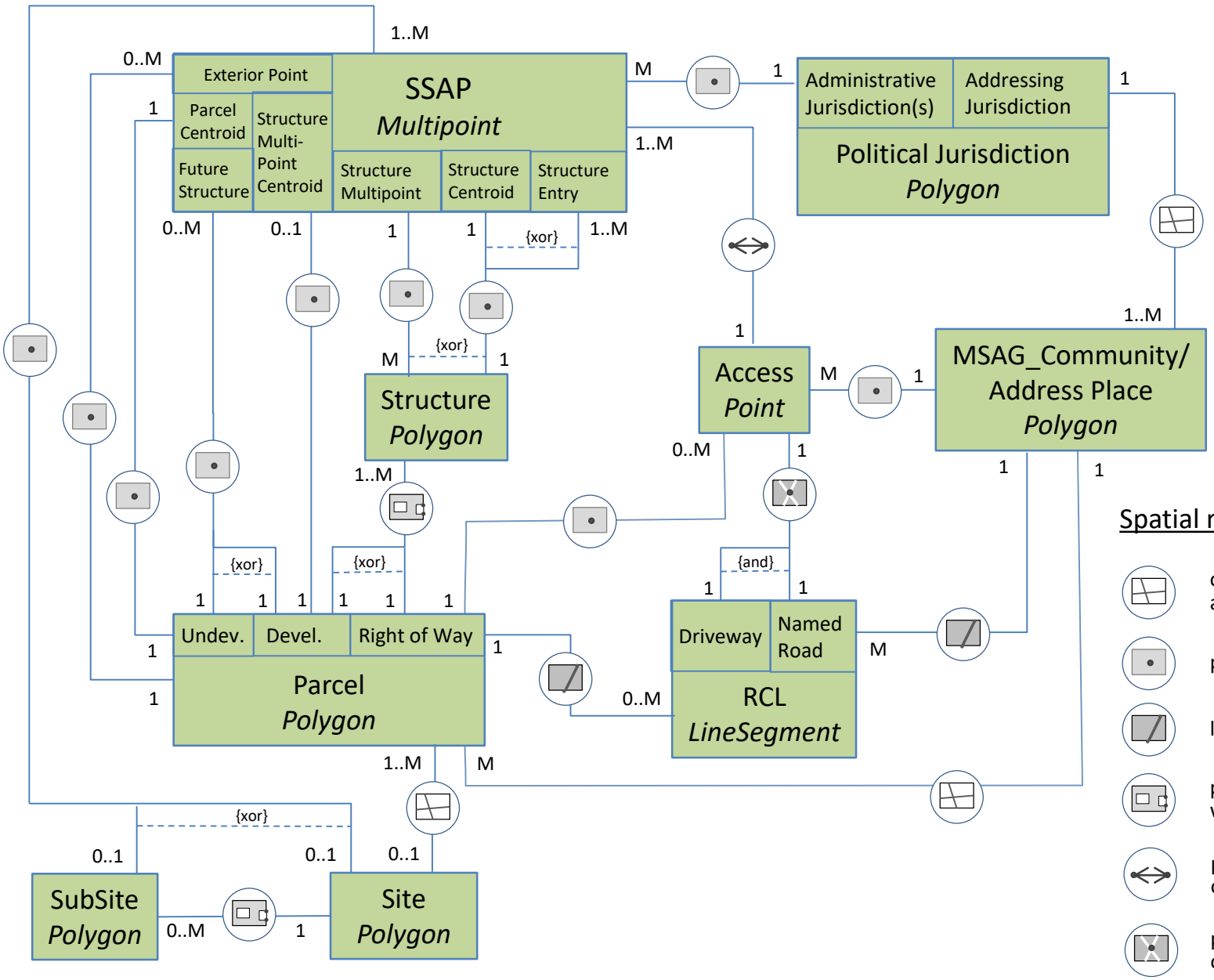
Viewer discretion is advised

Symptoms may include confusion, nausea or anxiety

Extended data model for addressing attributes



Extended data model of geographic relationships for addressing



Spatial relationships

- one polygon layer aggregated from another
- point falls within polygon
- line is within polygon
- polygon features lie within larger polygon
- points visually connected or within defined distance
- points is at intersection of two lines

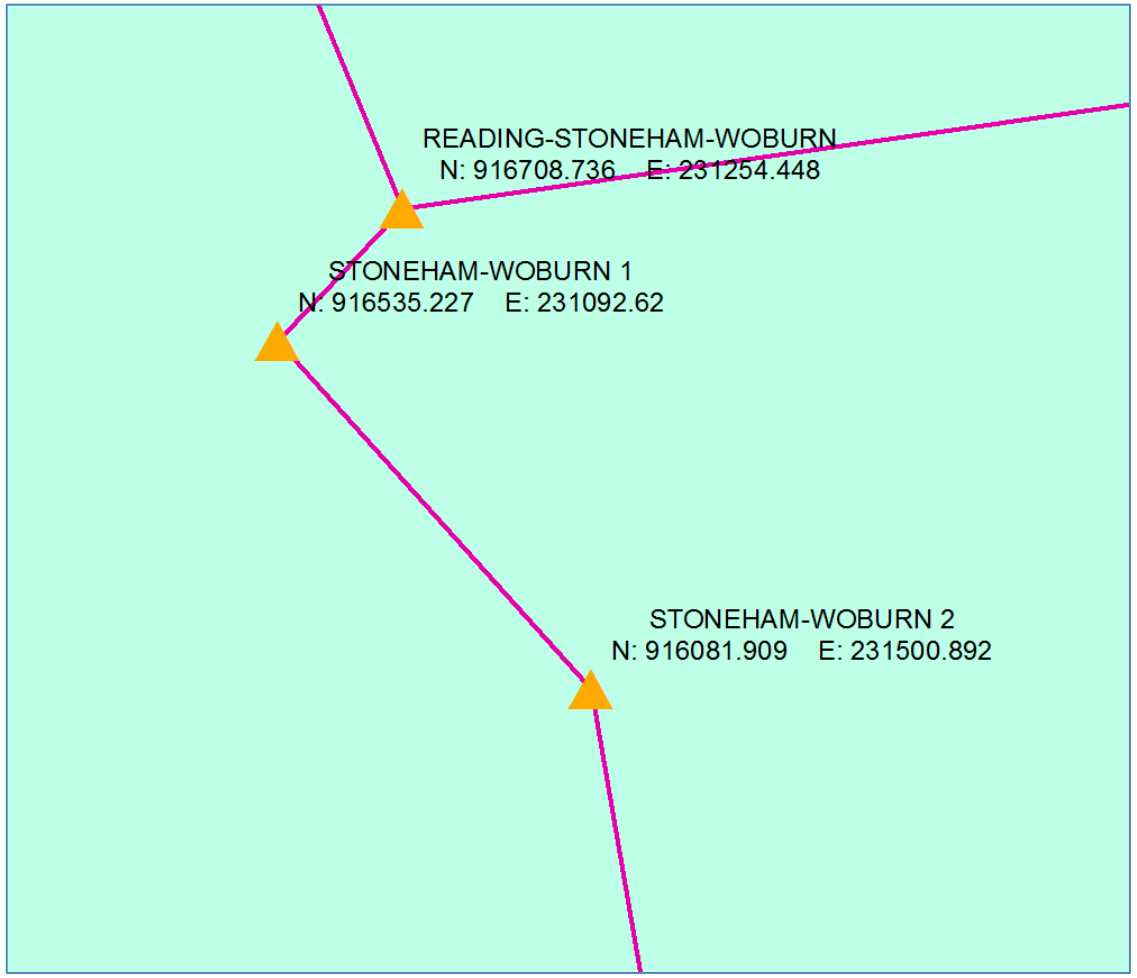
Imagery – everything has to line up

- currently acquiring 2 types of imagery annually statewide
  - Google (licensed), affordable but can't control timing
  - Digital Globe, 4-band leaf-off for change detection
- Used for interpretation of roads, structures and alignment of parcels with visible features

Yellow moved to red - structures now align in correct parcels

Accurate Local Government Boundaries

- Ensure that parcels are seamless & accurate
- Starting point for MSAG comm & PSAP delineation
- In MA, 1 m. accuracy from ~1900 statewide survey atlas series



Parcels

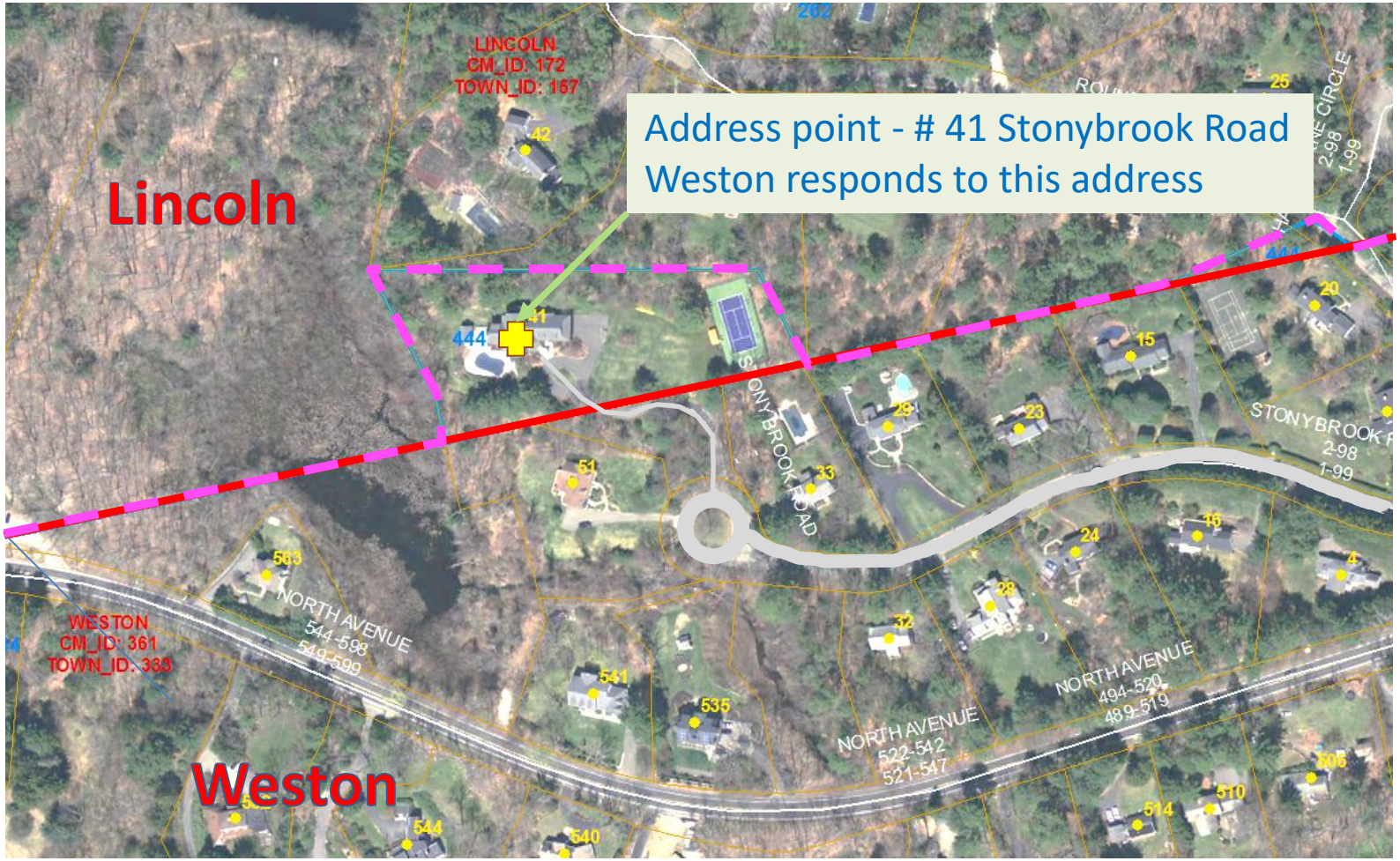
MSAG address communities — **parcels**

- MSAG community polygons internal to municipalities are aggregated from parcels

Parcels and PSAPs

PSAP boundaries — **parcels**

- PSAP polygons based on muncipal boundaries are adjusted by adding or subtracting parcels from town

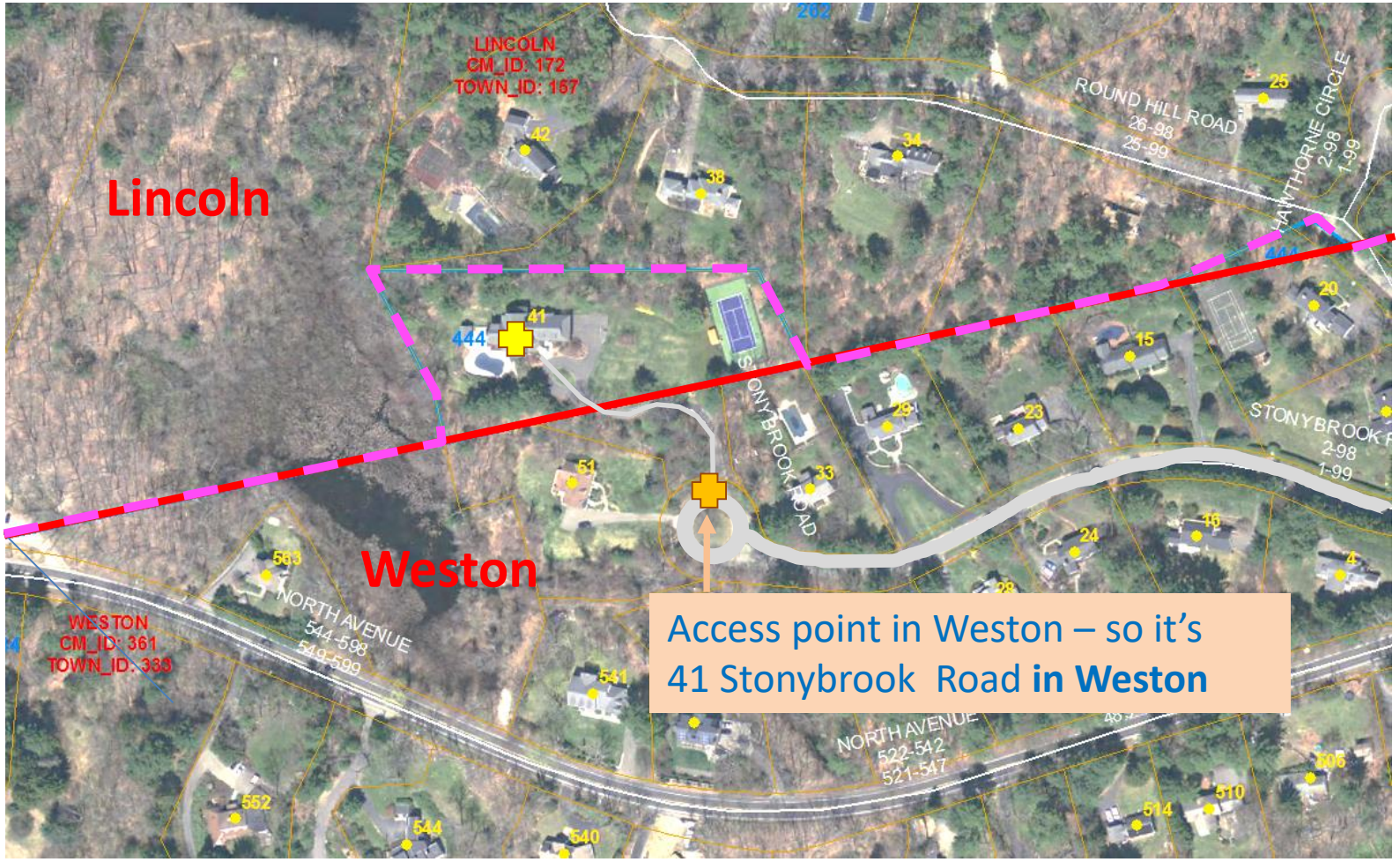


Access Points

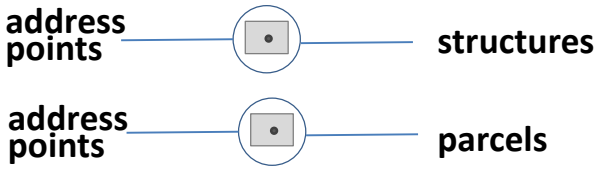
Access point — roads, driveways

Access point — MSAG comm

Access Point determines “place name” i.e. MSAG community name



SSAP sub-types & georelationships



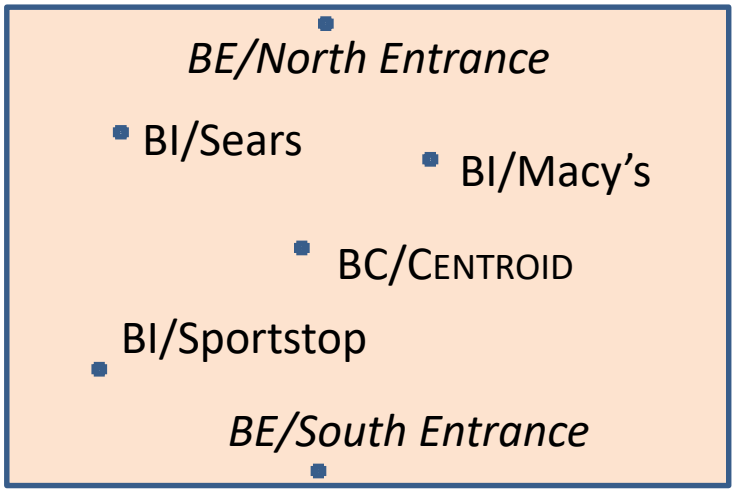
Address points placed inside building footprint

BI = interior

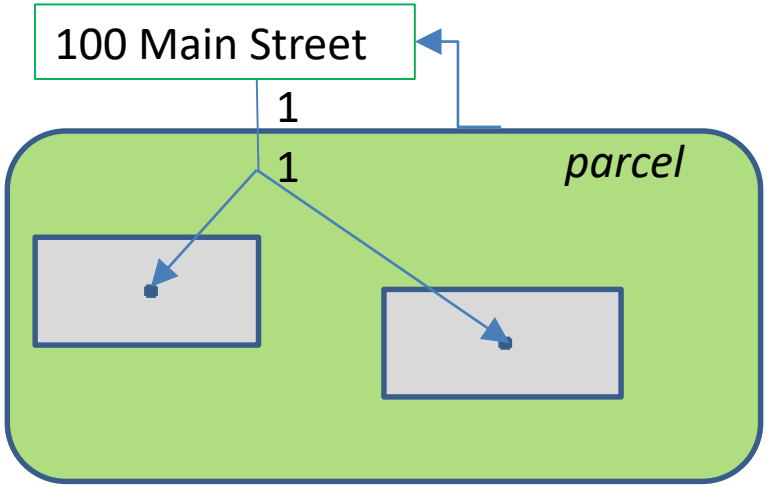
BE = entry

BC = building centroid

also ABC = assumed building centroid



mall building



BMP = building multipoint

multiple structures sharing one address are represented as multi-point

one address record linked to one multi-part feature

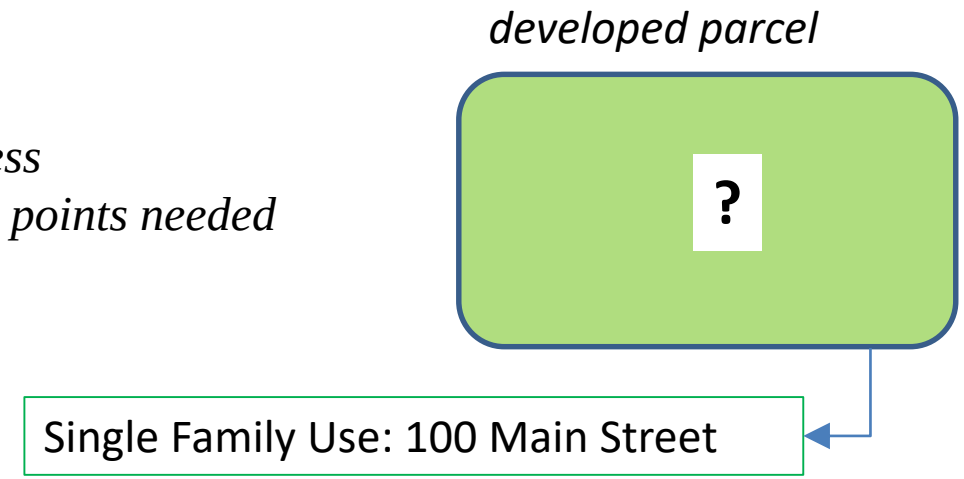
Rules based on geometry and SSAP sub-types

Multiple streams of data from maintenance workflows need to be integrated.

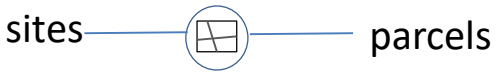
Basic rule is that every master address record must link to an address point and every address point must link to at least one address record.

Examples of how input data align geometrically and via attributes:

parcel polygon links to tax address structure outlines and address points needed



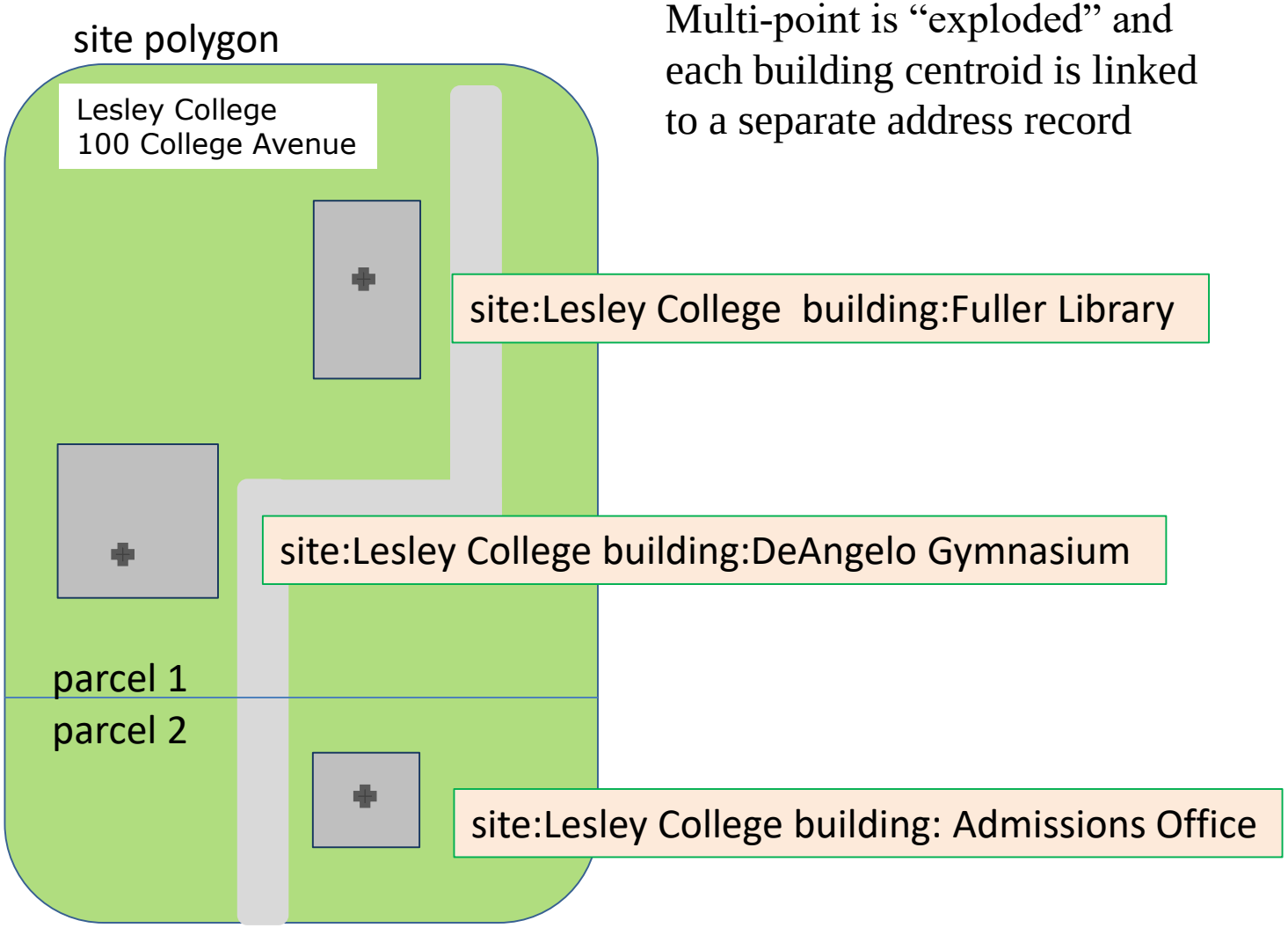
Sites – aggregations of parcels



- developed parcels in common use/ownership with multiple structures where sub-address detail is needed
  - office parks/industrial complexes
  - schools, hospitals, research centers or other institutional campuses
  - shopping malls or similar commercial centers
  - airports or other transportation facilities
  - condominium complexes or apartment complexes
  - trailer parks
  - amusement parks, race tracks, fairgrounds

- also, named recreational, agricultural or conservation areas
  - campgrounds
  - parks or conservation areas
  - playing fields or other recreational areas
  - farms and orchards

Site polygon linked to site attribute in expanded address model



Multi-point is “exploded” and each building centroid is linked to a separate address record

Typical site - large residential complex

after fieldwork

Sites are locations where we have determined that it is necessary to "explode" multi-points and assign individual addresses to each building

Why does it have to be so complicated?

Data quality

The data model and the rules that we have developed work at any scale to ensure data integrity. The benefit in terms of data quality is such that we can't really imagine doing it any other way.

One final point

GIS data are multipurpose, so the cost of the various data layers – imagery, parcels, building footprints – that we used to build our 911 system is shared with other agencies. The extended data model supports the needs of all users.