Geographic Information Systems (GIS) model selected aspects of reality.

Overlay analysis is one of the spatial GIS operations. Overlay analysis integrates spatial data with attribute data. (Attributes are information about each map feature.) Overlay analysis does this by combining information from one GIS layer with another GIS layer to derive or infer an attribute for one of the layers.

At its simplest, overlay analysis can be a visual operation, but analytical operations require one or more data layers to be joined physically. This overlay, or spatial join, can integrate data of different types, such as soils, vegetation, land ownership, jurisdictions, etc. with assessor's parcels.

Results of overlay analysis rely on the spatial accuracy of the GIS layers. If the layers don't line up well, then the attributes inferred by the overlay may be incorrect. That is, the results are only as good as the GIS data used for the analysis. Our disclaimer lists potential sources for errors that could affect data derived by overlay analysis.

We use overlay analysis to gather attributes displayed on this web site. These include:

- **Parcel attributes** - We overlay parcels with many GIS polygon (area) layers. Our Parcel "detail" information page shows parcel attributes derived from many overlaid GIS layers. For instance, overlaying parcels with:
  - Zoning returns the parcel's **zoning code**.
  - Supervisor Districts returns the **district number** and **supervisor name**.
  - Subdivisions returns the parcel's **subdivision name**, if any.
  - School Districts returns the parcel's **school district name**.

These are all examples of "polygon-on-polygon" overlay analysis. Learn more about Parcel GIS Overlay Analysis available on our parcel "detail" information pages.
• **Parcel addresses** - Pima County Development Services maintains a GIS layer of addresses that shows the location of each address. Examples of "point-in-polygon" overlay analysis include:
  o We overlay parcels over address points to add the **parcel code** for each address to the address layer. When we display parcel detail information, we look up the parcel code in the address layer to display the address(es) for that parcel. These addresses came from the Development Services address layer, not Assessor parcel records.
  o We overlay a GIS ZIP code layer over address points to add the **Postal City** and **ZIP Code** attributes to the parcel suits addresses.

In addition to overlay analysis, other spatial GIS operations include:

• Query and Analysis, i.e. Retrieval/classification/measurement functions
• Answering analytical questions (distance, location, what's there, etc.)
• Continuity analysis
• Buffering
• Proximity analysis