

DATA ARCHITECTURE: DATA MODELING

◆ ◆ ◆ *Developing data standards for your business* ◆ ◆ ◆

WHY DATA MODEL?

Data modeling provides the blueprint for database design and a logical organization of your business data.

WHY SET DATA STANDARDS?

Standards provide data integrity, accuracy and consistency, clarify ambiguous meanings, minimize redundant data, and document business rules.

DATA MODELING

- ❖ A logical representation of the business data requirements of an organization
- ❖ Independent of hardware or software constraints
- ❖ What data is required and how it should be organized, rather than what operations will be performed on the data
- ❖ Provides a foundation for data control with specific and accurate data definition

Entities: *the boxes*

- What the business keeps information on (people, places, events, concept)
- Grouping of related information relevant to the business

Attributes: *words in the boxes*

- Each data item that is related to and describes the entity

Relationships: *the lines*

- Rules of how two entities (groups of data) are related

DATABASE DESIGN

- ❖ Modification of the logical model for maximum performance and efficiency by collapsing entities into one entity, moving attributes from one entity to another, or including the same attribute in more than one entity.
- ❖ May be constrained by the Database Management System (DBMS) that is used

Entities: *the tables in the database design*

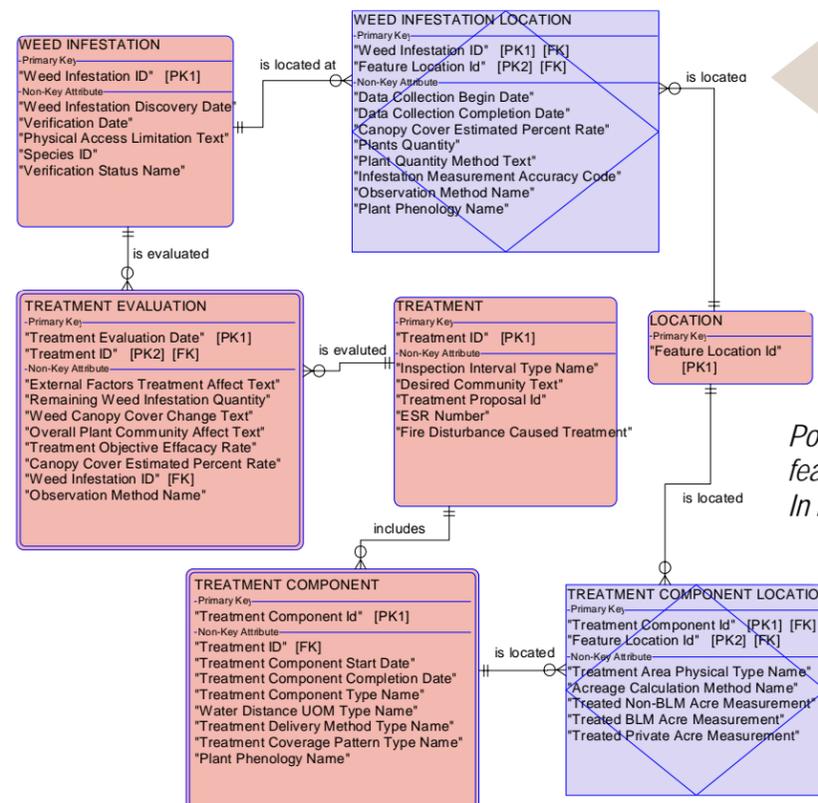
Attributes: *the columns*

- Attributes are now columns or physical data elements in the database
- Naming conventions are constrained by the DBMS

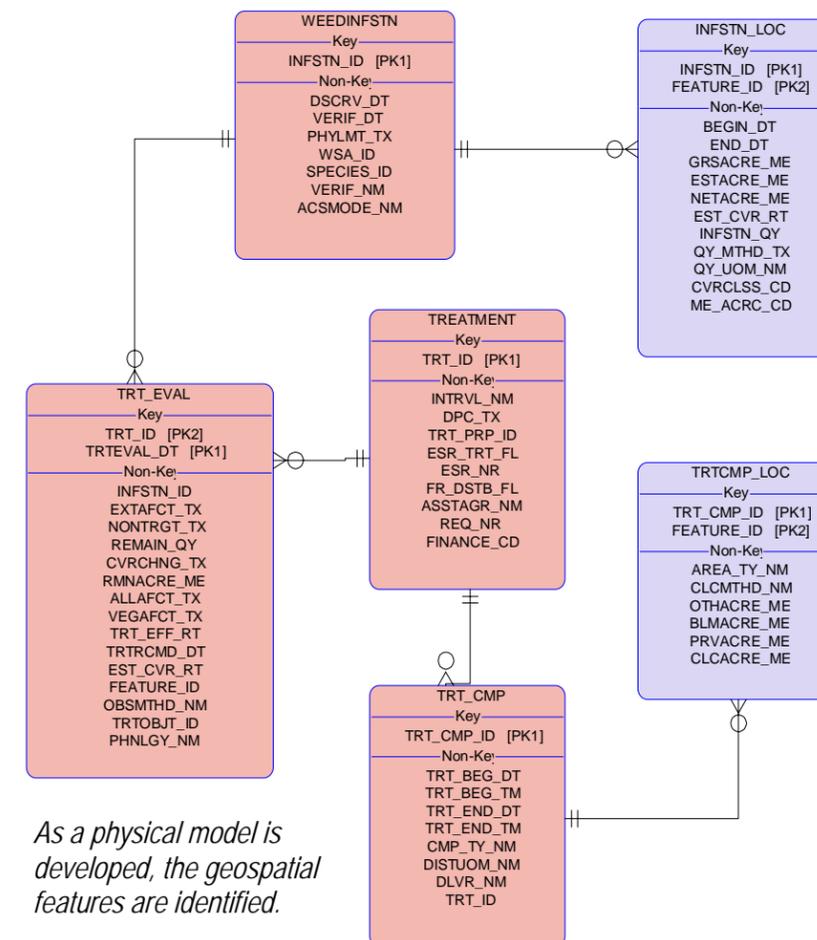
Relationships: *joins*

- Where data in one table relates to data in another table

Example Weeds Logical Model
(Also known as an Entity Relationship Diagram [ERD])



Example Weeds Physical Model
Database Structure



As a physical model is developed, the geospatial features are identified.



CONTACT INFORMATION

Data Modeling
Barb Kett
Barb_Kett@blm.gov
303.236.4025

General Data Management
Melanie Rhinehart
Melanie_Rhinehart@blm.gov
303.236.9940

Learn more:
web.blm.gov/internal/wo-500/Data_Mgt.html