Remedial Priority System

Human Health Layers

Soil Exposure: School / Day Care

March 2012

Human Health Layers

The Human Health Layers developed by the Department are:

- Water Media
  - Private Wells
  - Community Supply Wells
  - Non-Community Supply Wells
  - Surface Water Intakes
  - Surface Water Body (Surface Water Quality Standards)
  - Agricultural
- Soil Media
  - Soil Exposure: Residential,
  - **Soil Exposure: School / Day Care**
- Vapor Media
  - Vapor Exposure: Residential
  - Vapor Exposure: School / Day Care

Soil Exposure: School/Daycare Layer

The Soil Exposure: School / Daycare Layer ➔ derived Layer (a layer created by DEP) based on population and exposure duration.=

- Mode of Exposure: People being exposed (Dermal / Ingestion / inhalation) to contaminated soil at or near the site
- Background:
  - The Residential Soil Exposure Layer only considers exposure to the residential population
  - Schools and Day Care Facilities are excluded from this count
  - A layer has been created specifically to evaluate receptors at Schools and Day Care Facilities
- Source Layer:
  - Schools
  - Day Care Facilities
    - Basis for layers: identifies the schools and Day Care facilities

Soil Exposure: School/Daycare Layer

- Cell Values
  - Population served:
    - The Cells values are based on an average population for a school and day care facility, which is assumed to be 500 and 75 respectfully.
  - Exposure Period:
    - A 5 year exposure period is used to account for a theoretical time to complete the Remedial Investigation phase as outlined by SRRA. For schools, the exposure period is adjusted to 2.5 years because of the 180 day school year (5 years * 180 days divided by 365 days per year).
      - School - The population is multiplied by an exposure period of 2.5 years
      - Day Care - The population is multiplied by an exposure period of 5 years
  - The assigned Cell Values are as follows:

Soil Exposure: School / Daycare Layer	Cell Value
School	1250
Day Care	375

Soil Exposure: School/Daycare Layer

- Calculation Method:
  - Two scores are calculated from the Soil Exposure: School / Day Care Layer
    - ❖Scores are calculated for School and another for Day Care.
      - School: The Soil 200-foot Extent Area is overlain on the Soil Exposure: School / Daycare Layer
        - ❖ If there is a School within the Extent Area, then the score for the Soil Exposure: School Layer is 1250
      - Day Care: The Soil 200-foot Extent Area is overlain on the Soil Exposure: School / Daycare Layer
        - ❖ If there is a Day Care within the Extent Area, then the score for the Soil Exposure: Day Care Layer is 375

Soil Exposure: School/Daycare Layer

- The following is the method used to create the Soil Exposure: School / Daycare GIS layer

Soil Exposure: School/Daycare Layer

Creating the Soil Exposure: School / Day Care Layer

Base Map

Soil Exposure: School/Daycare Layer

Creating the Soil Exposure: School / Day Care Layer

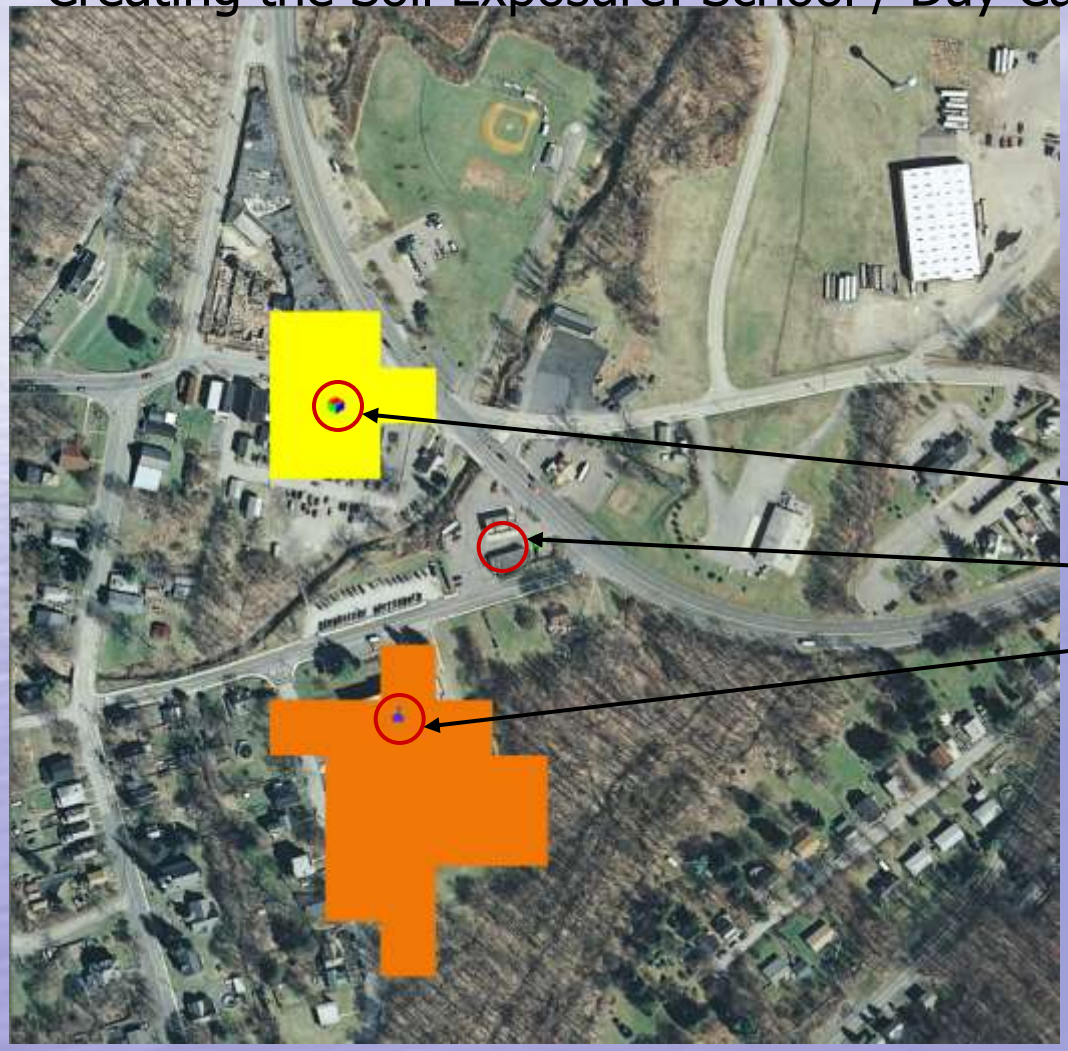
- Start with the School and Daycare layers

  The following table is the used to assigning cell values:

  - School 1250
  - Daycare 375

Soil Exposure: School/Daycare Layer

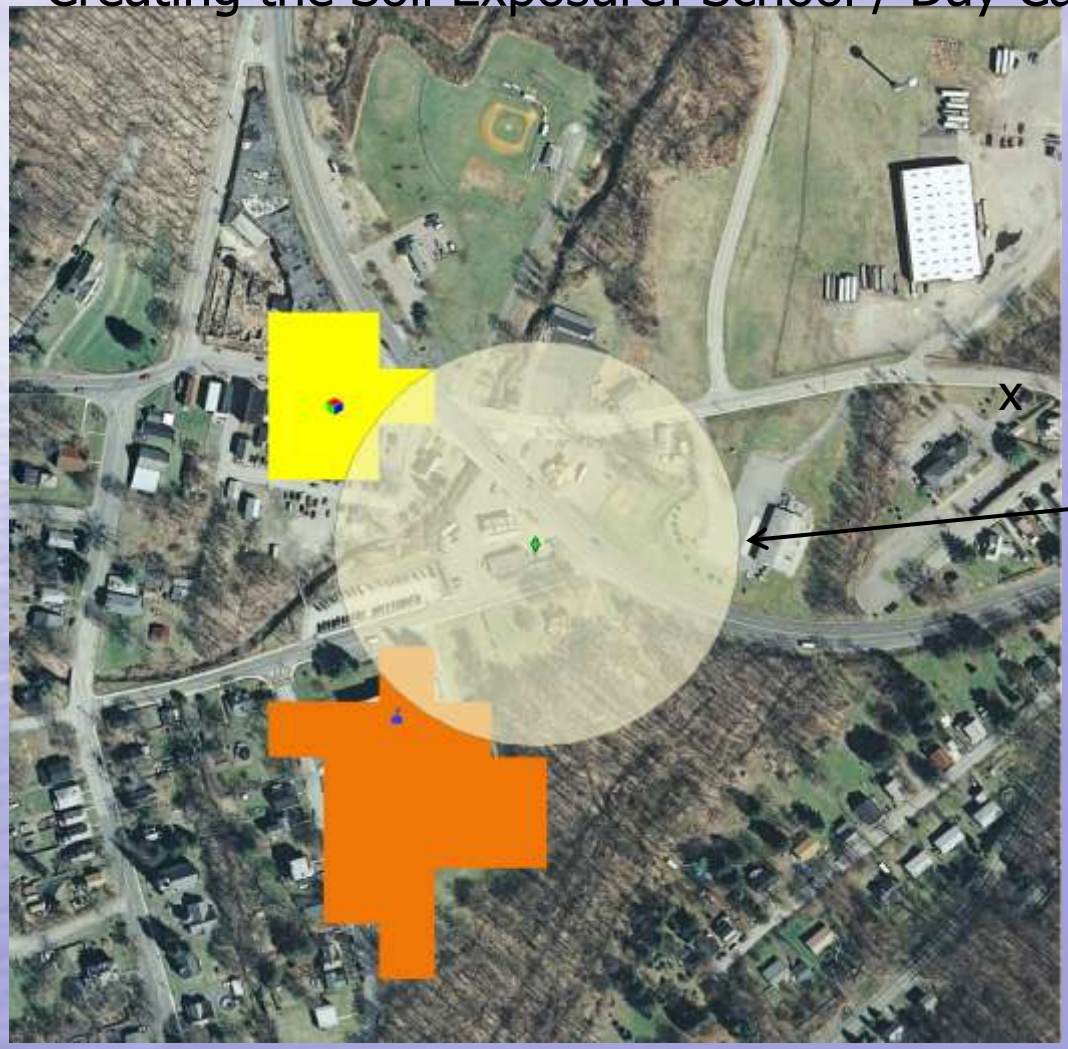
Creating the Soil Exposure: School / Day Care Layer



- Vectors are converted into a Raster file (100 by 100 grid) and assign the appropriate values to each cell

Soil Exposure: School/Daycare Layer

Creating the Soil Exposure: School / Day Care Layer



- Overlay the Soil 200-foot buffer Extent Area
  - If any part of the Cell is within the Extent Area, then the cell is counted

Soil Exposure: School/Daycare Layer

Creating the Soil Exposure: School / Day Care Layer

- To calculate the Score:
  - Zoom in to the Extent Area

<u>School Layer</u>

– Maximum score for schools within the Extent Area

➢cell value = 1250

<u>Day Care Layer</u>

– Maximum score for a Day Cares within the Extent Area

➢cell value = 375

Soil Exposure: School/Daycare Layer

- A Soil Exposure: School / Daycare Layer is created for the entire state

- The following is the layer used to calculate the Soil Exposure: School and the Soil Exposure: Daycare Receptor Layer Scores

Soil Exposure: School/Daycare Layer