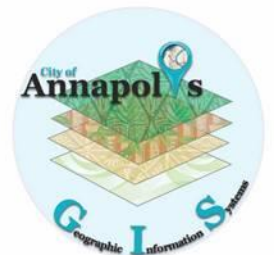


# Tree Canopy City of Annapolis 2005 and 2007

Environmental Matters Committee



---

# A few terms

- IKONOS Imagery
  - LIDAR
  - NAIP
  - Orthophotography
  - Color Infrared Orthophotography
-

# IKONOS



- Satellite Imagery
- Launched 1999
- Not as accurate as images from aircraft

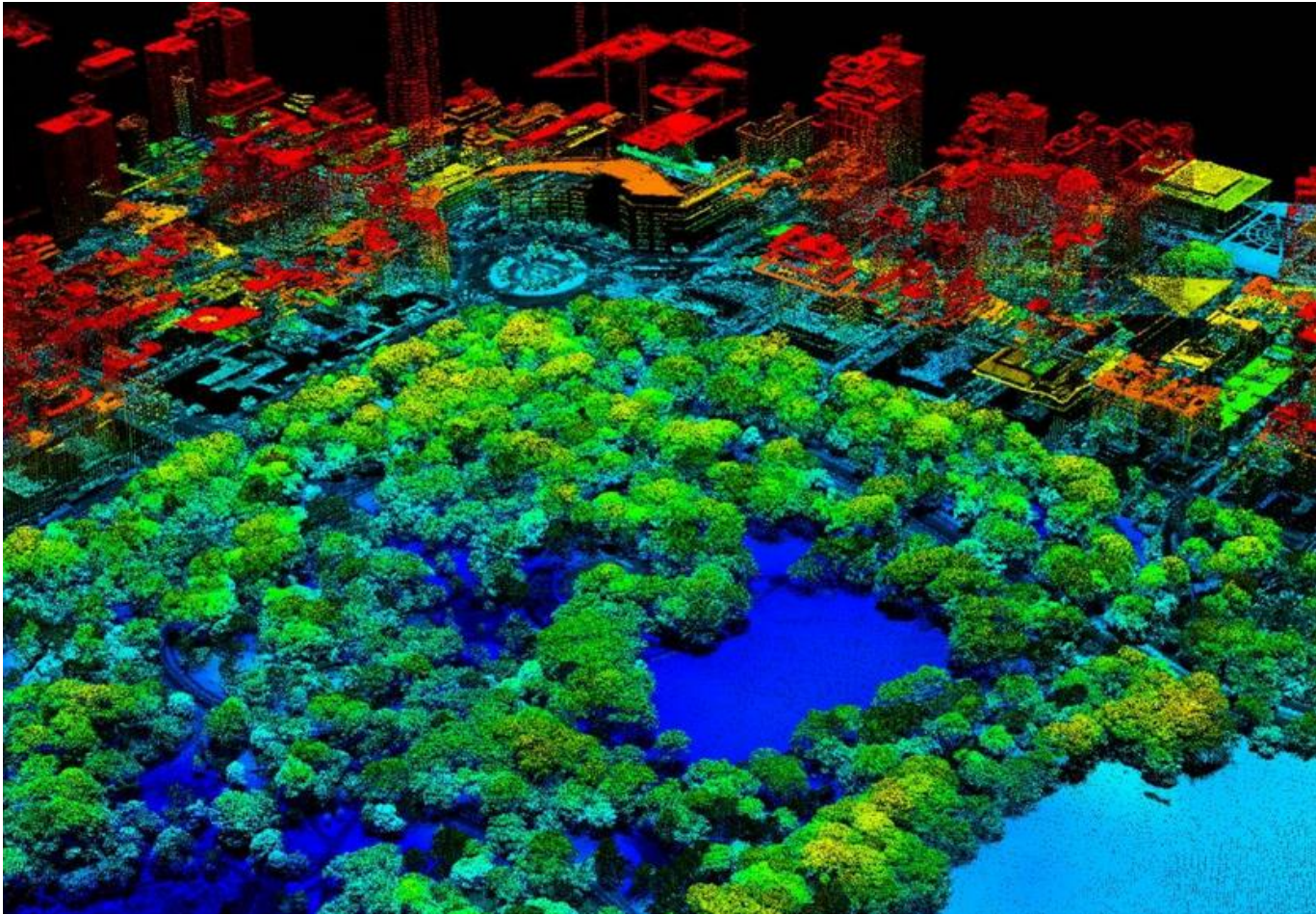


# Light Detection and Ranging- (LIDAR)



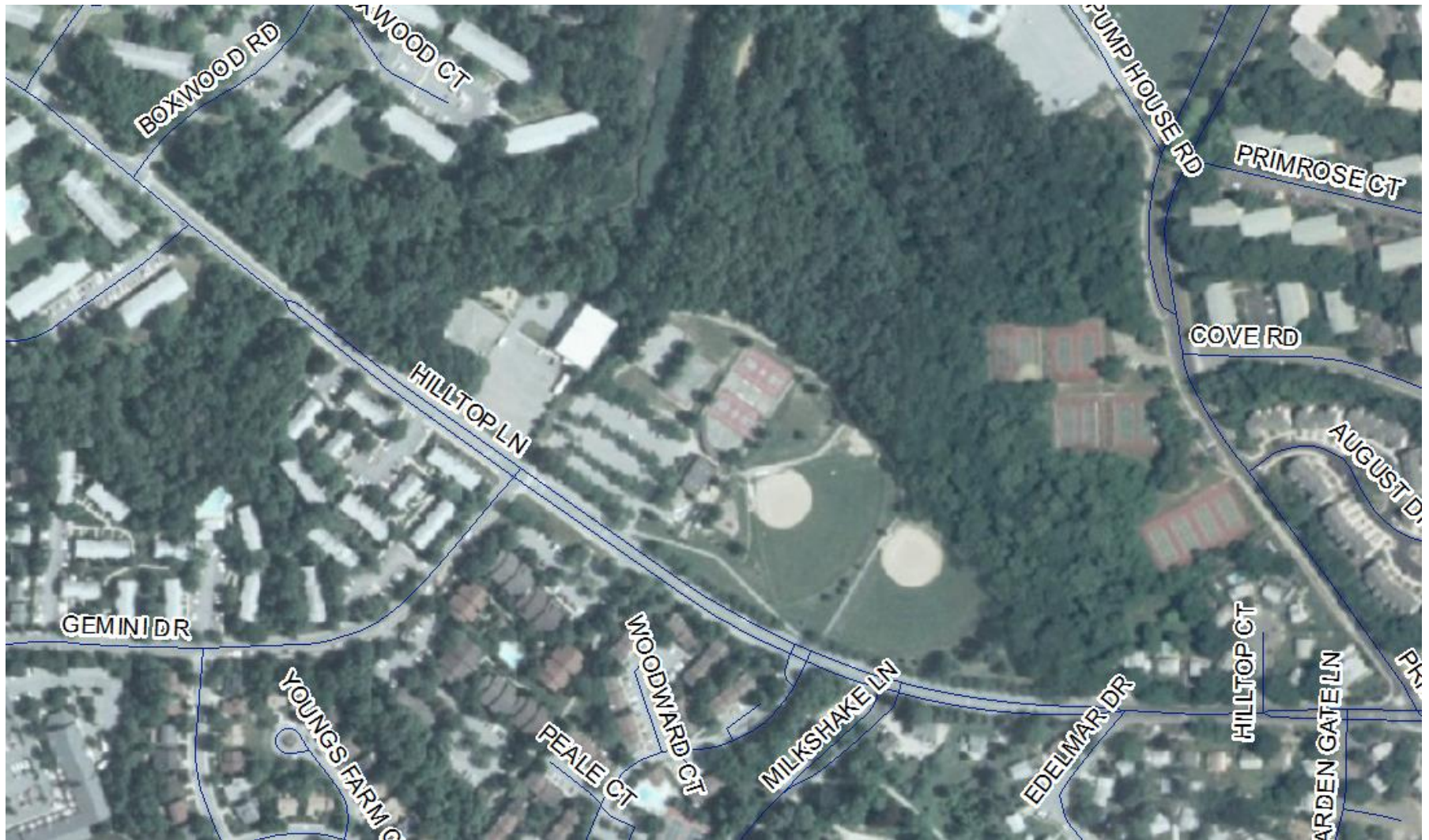


# LIDAR (Continued)





# NATIONAL AGRICULTURE IMAGERY PROGRAM – (NAIP)





# Orthophotography Captured Feb 2014





# Orthophotography 3 inch detail





# Color Infrared Orthophotography



---

# 2005

- Based on 2004 – “Leaf on” IKONOS satellite Imagery
  - Landcover was broken into 3 types:
    - Tree cover,
    - Grass and Other Natural
    - Paved/Buildings
-



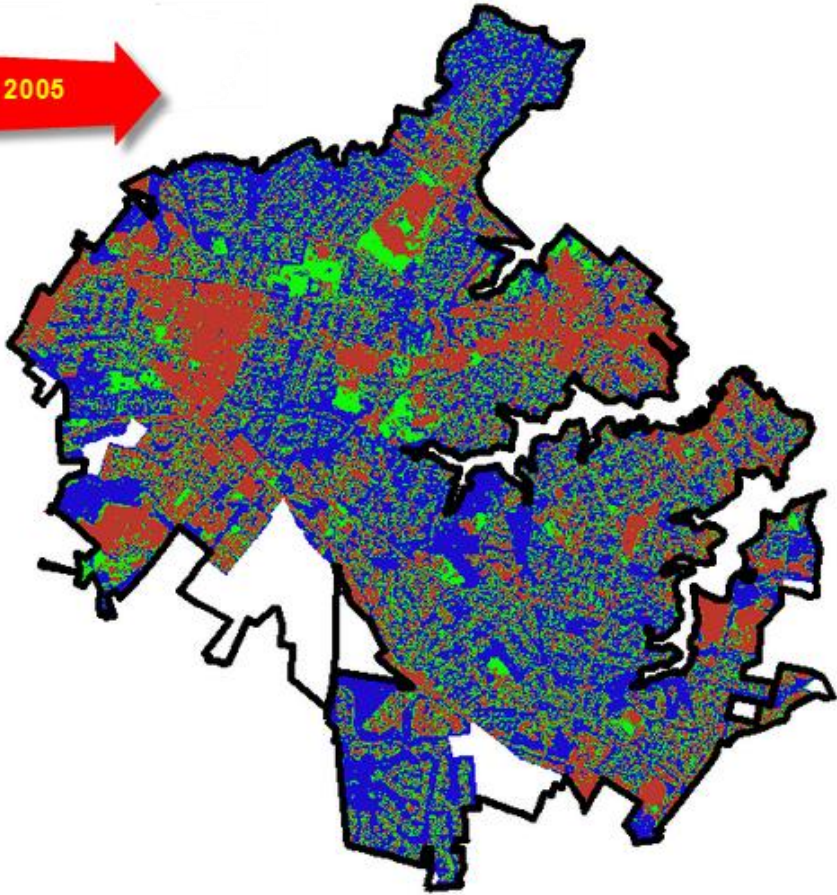
---

# 2007

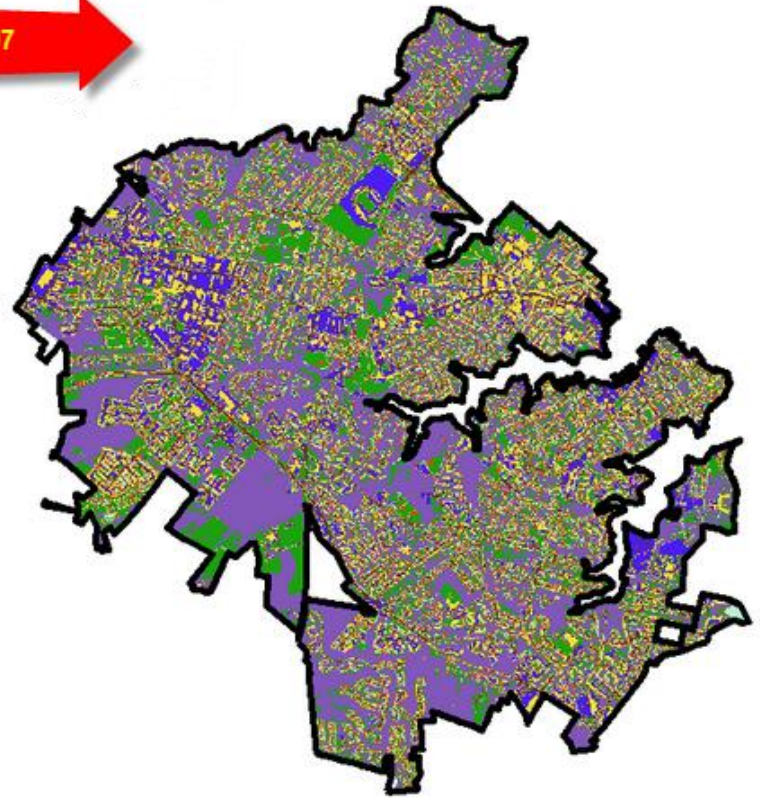
- Used 2004 LIDAR with 2007 NAIP CIR Imagery
  - Higher quality source data
  - Landcover broken down in 7 Categories
    - Tree canopy
    - Grass/Shrub
    - Bare Soil
    - Water
    - Buildings
    - Roads/Railroads
    - Over Paved Surfaces
-

# Datasets

2005



2007





---

# Future Studies

- New 2014 Aerial photos that have Infrared are available
  - LIDAR data from 2011 is also available
  - According to University of Vermont an analysis would cost around \$5,000
  - Would include:
    - Mapping tree canopy/landcover to 2014 conditions
    - Doing change detection to show the difference between 2007 and 2014 outside the margin of error
    - Report on the findings
-