

Land Cover Project



LOS ANGELES REGION
LAR|@C
imagery acquisition consortium

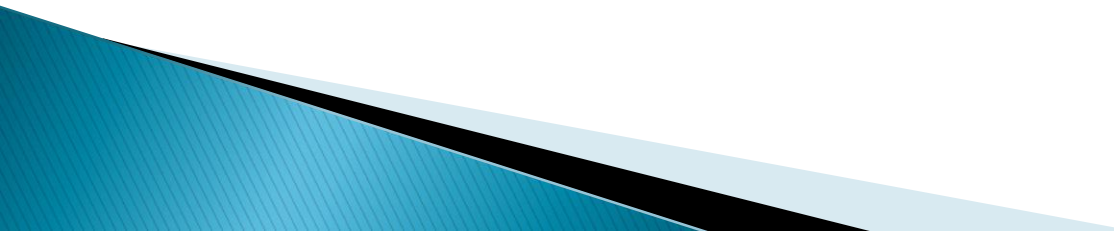


Benjamin H. Houston, P.E., GISP, PMP



GROUNDPOINT
TECHNOLOGIES, LLC

What is Land Cover?

- ▶ *Not* Land Use
 - ▶ *Not* Planimetrics
 - ▶ Top Down look
 - ▶ 7 classes of everything that is on the surface of the earth
- 

Classes

- ▶ *Buildings*
- ▶ *Trees*

Classes

- ▶ *Buildings*
- ▶ *Trees*
- ▶ *Water*
- ▶ *Roads*

Classes

- ▶ *Buildings*
- ▶ *Trees*
- ▶ *Water*
- ▶ *Roads*
- ▶ *Grass*
- ▶ *Bare/exposed soil*
- ▶ *Other Impervious*

Classes

- ▶ *Buildings*
- ▶ *Trees*
- ▶ *Water*
- ▶ *Roads*
- ▶ *Grass*
- ▶ *Bare/exposed soil*
- ▶ *Other Impervious*

- ▶ *Shrub*

How is Land Cover data created?

- ▶ Point Cloud (Filtered and classified points)
- ▶ Raster
 - LiDAR 2014 (DSM, DTM, DEM, Intensity) 2 feet
 - Leaf On NAIP 2014 (4-band) 1 meter
 - Leaf Off Ortho Imagery 2014 (3-band) 4 inch
 - Leaf Off Ortho Imagery 2006 (4-band) 4 inch

How is Land Cover data created?

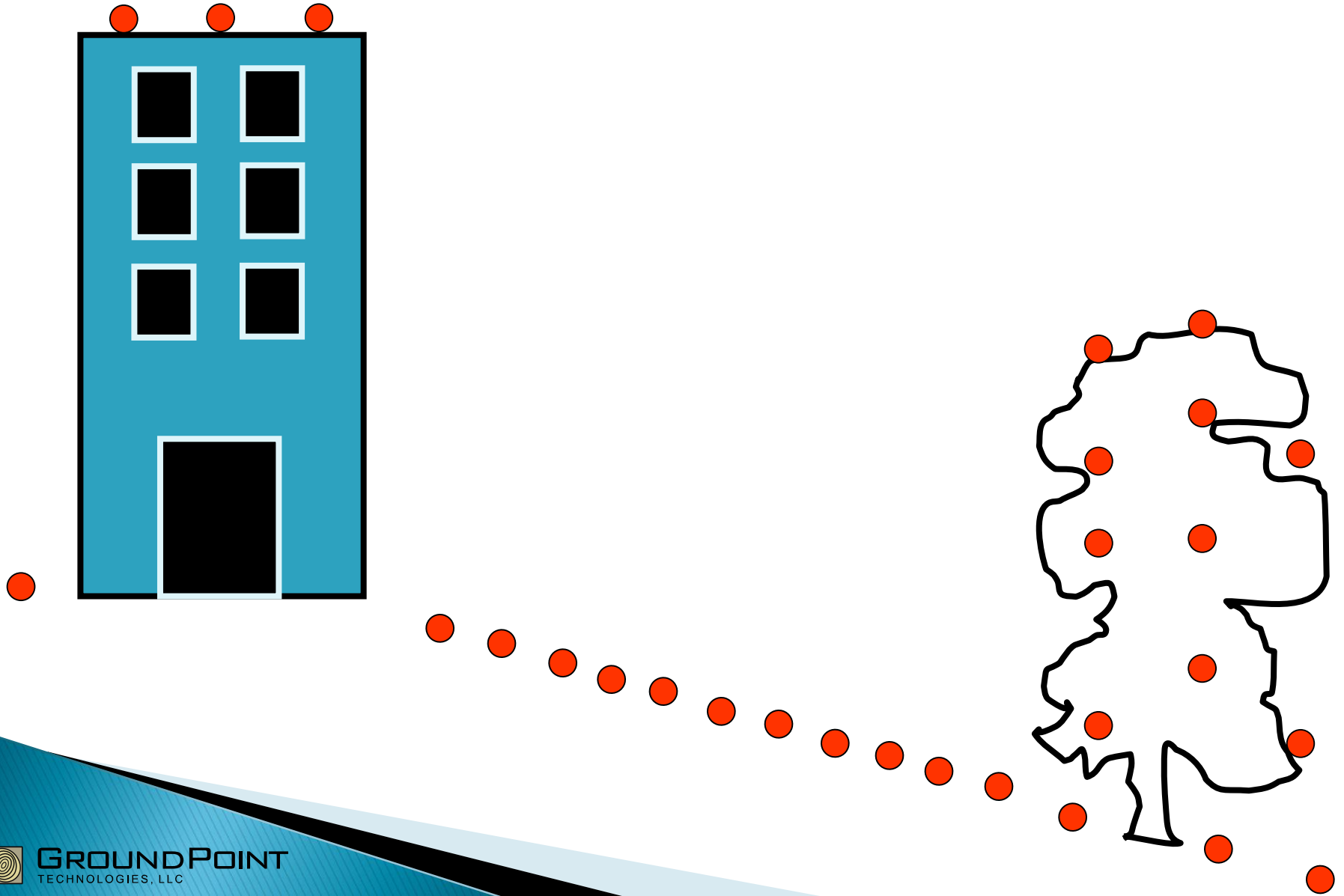
▶ Vector

- County Boundary
- LARIAC Buildings 2014
- LARIAC Parking Lots 2014
- CAMS Road Centerlines (everywhere but Catalina)
- OpenStreetMap Road Centerlines (Catalina)
- NHD Water Polygons
- Land Use (Parcel dataset)

Order of Operations

- ▶ High things first

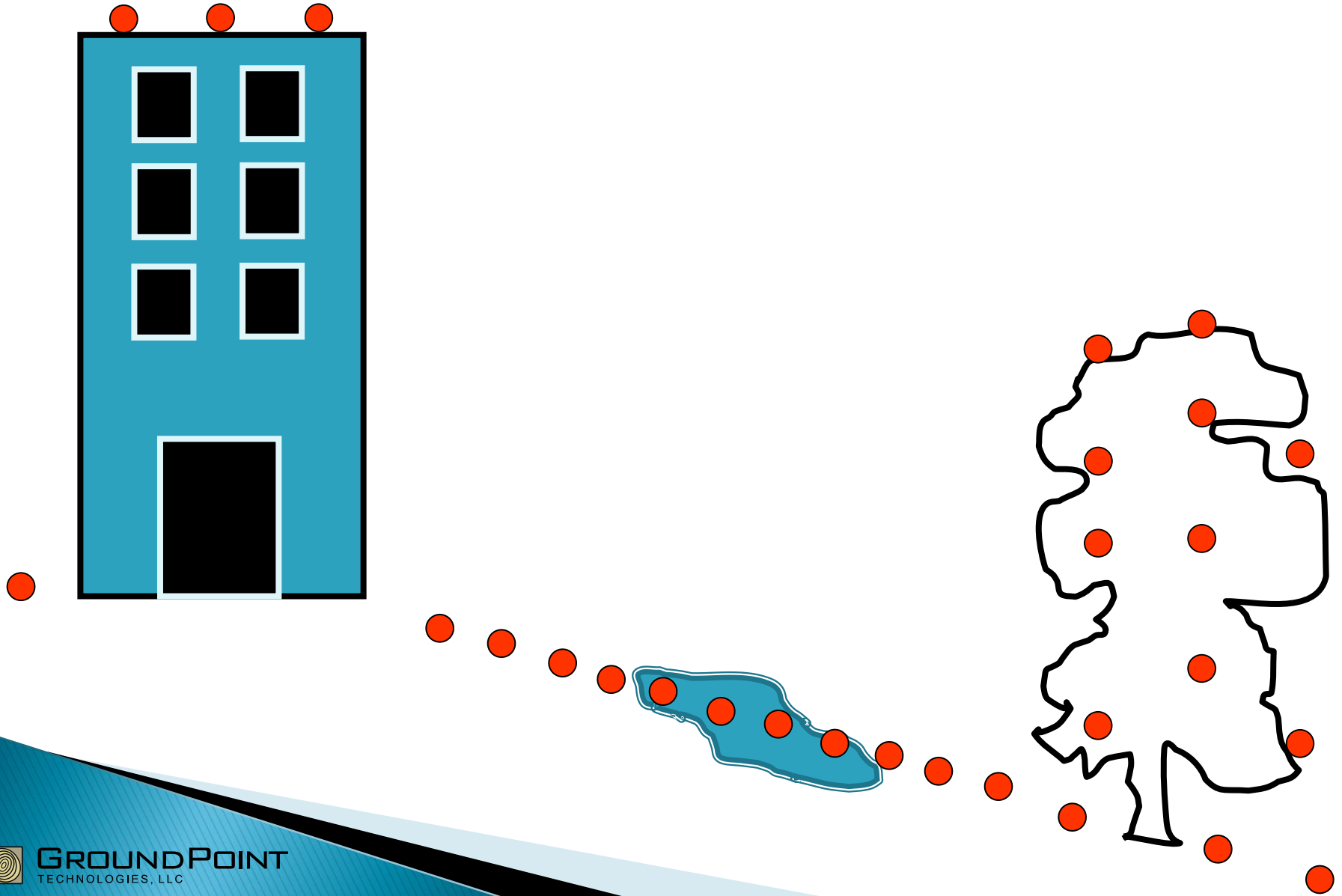
Extracting Information



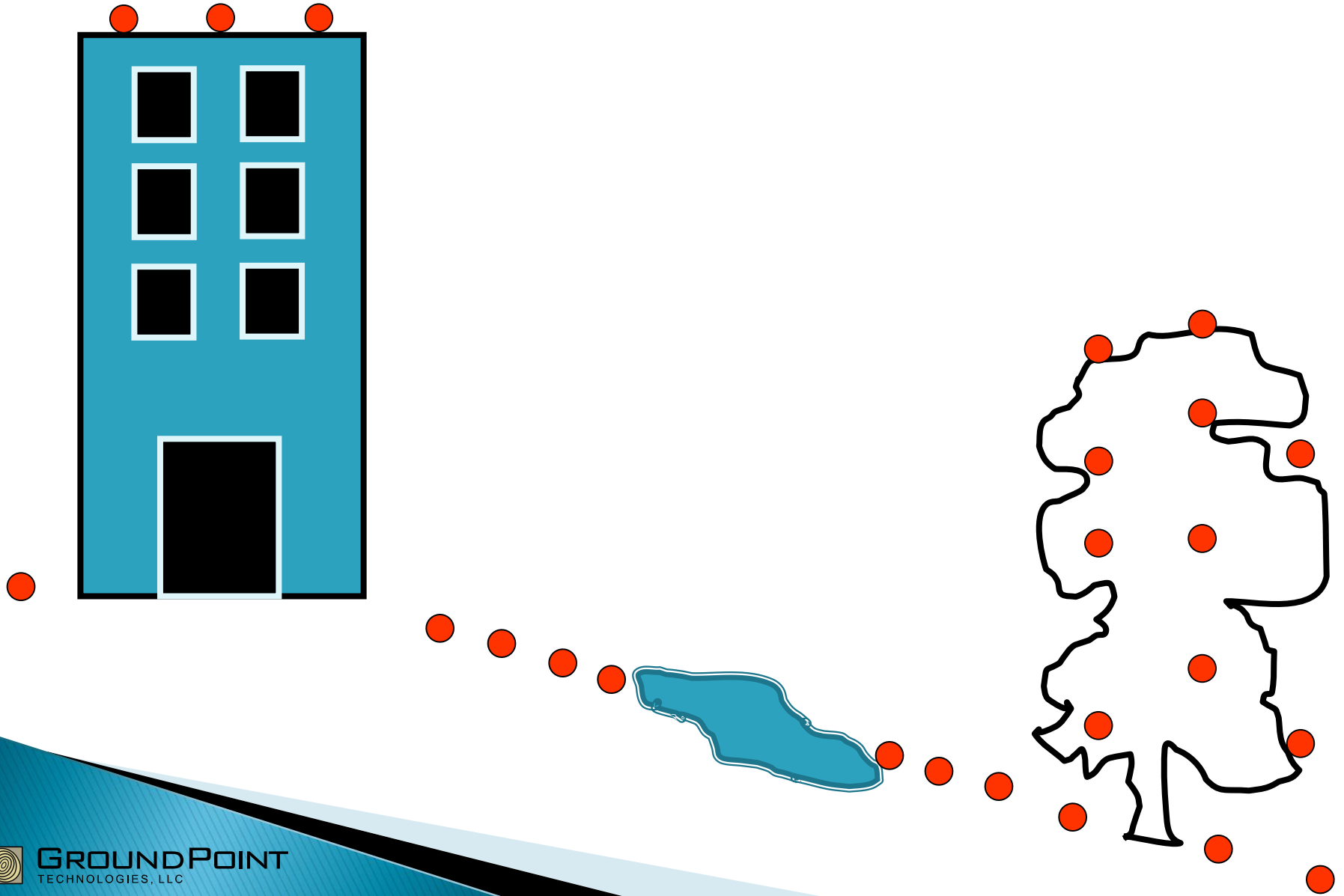
Order of Operations

- ▶ High Things first
 - Buildings and Trees
- ▶ Easy Low Things next
 - Water and Roads

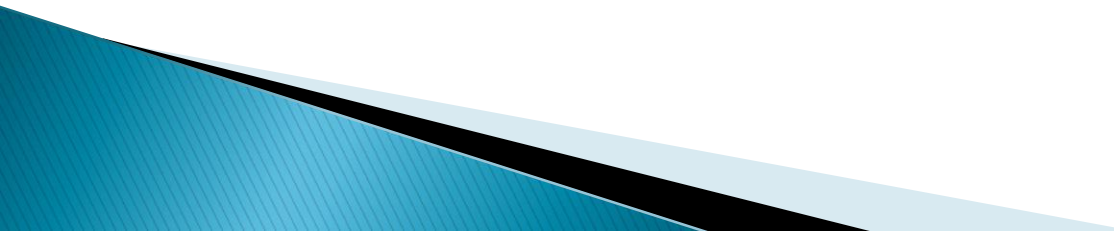
Extracting Information



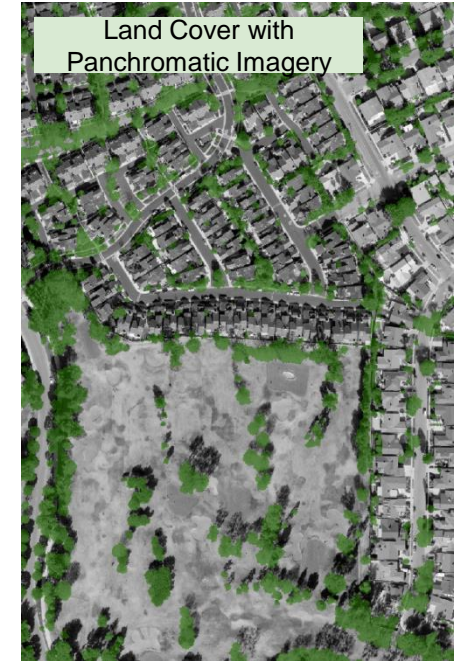
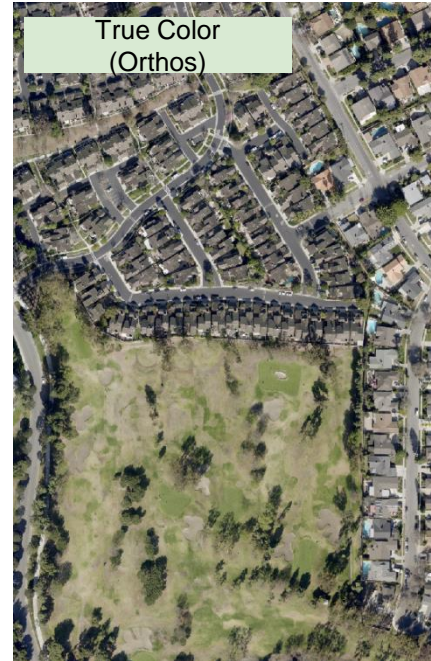
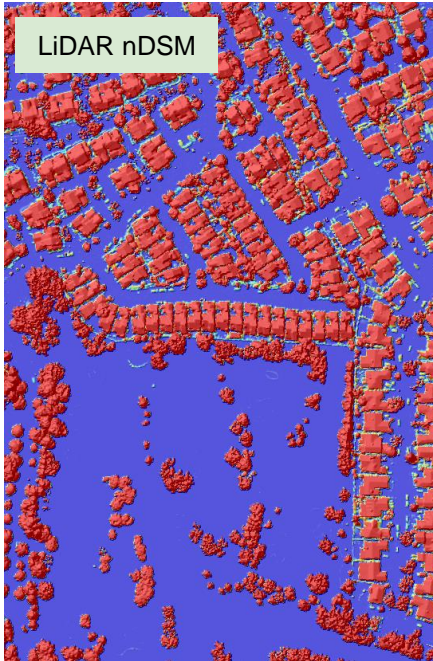
Extracting Information



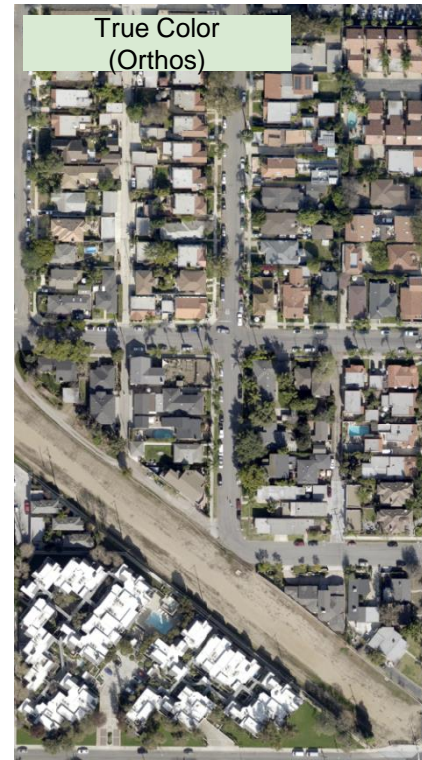
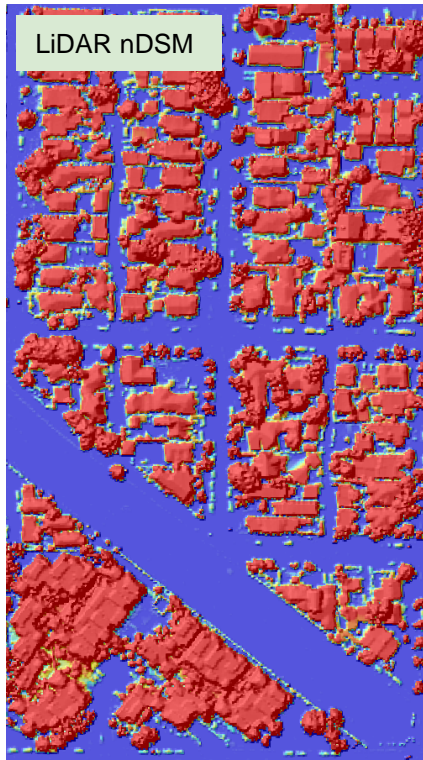
Order of Operations

- ▶ High Things first
 - Buildings and Trees
 - ▶ Easy Low Things next
 - Water and Roads
 - ▶ Then to the Hard Parts
 - Other Paved/Grass/Bare Soil
 - Finally High Shrub based on Urban/non-Urban
- 

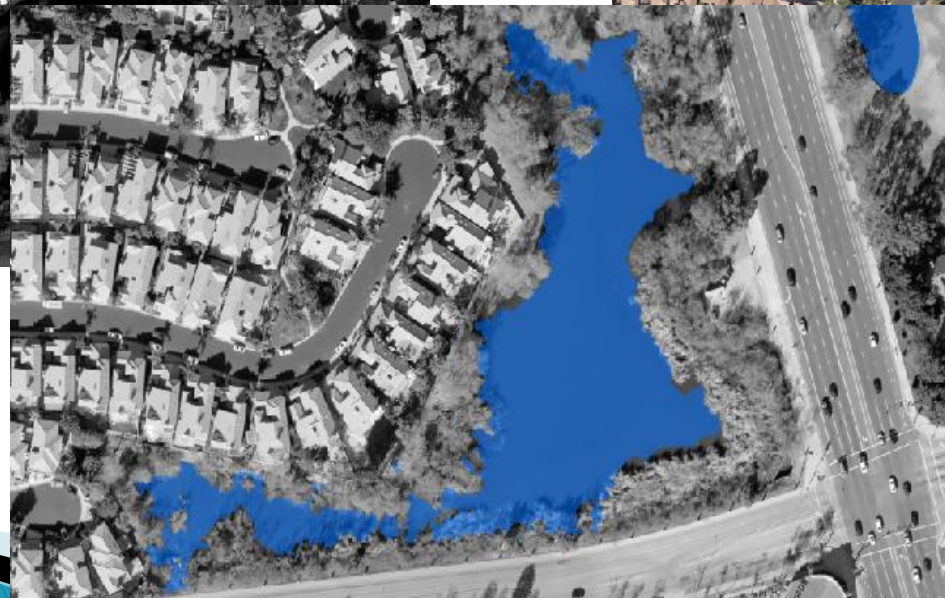
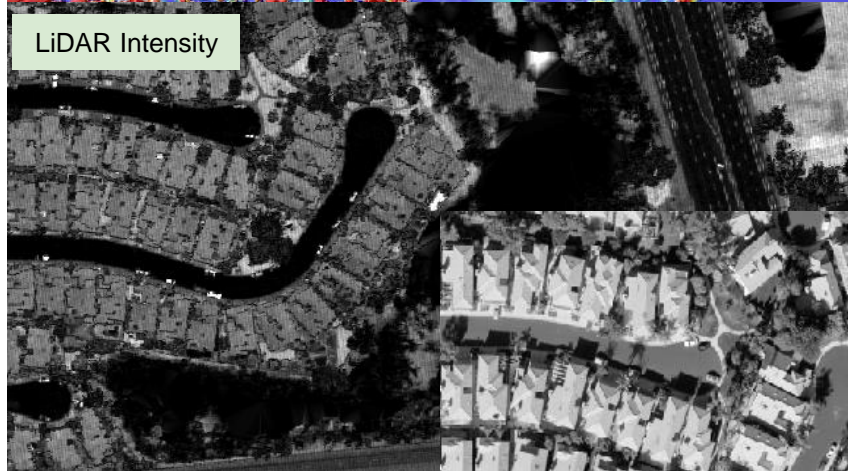
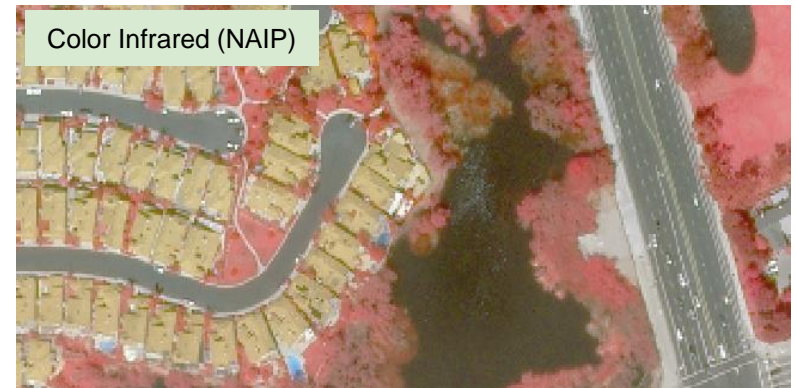
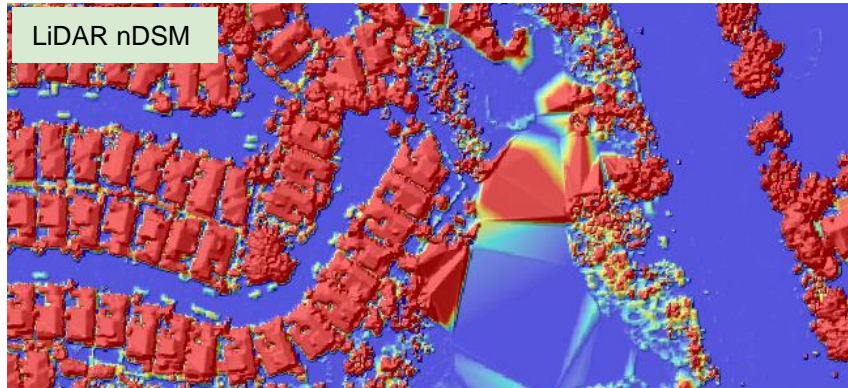
Tree Canopy



Buildings



Water



Road / Railroad

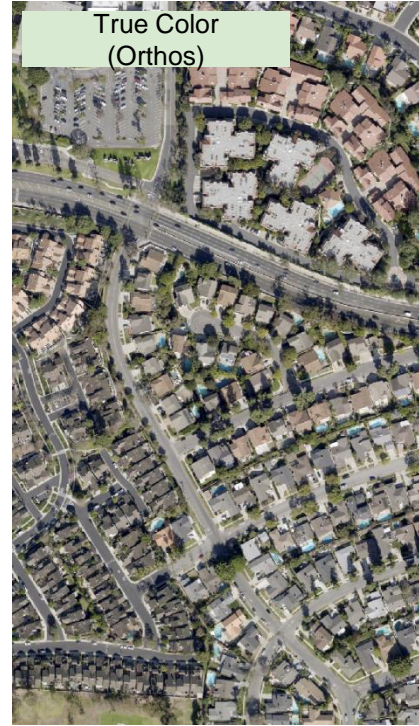
LiDAR Intensity



Color Infrared (NAIP)



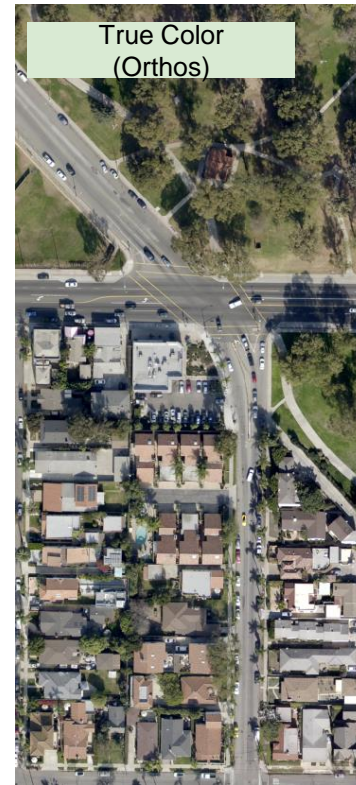
True Color
(Orthos)



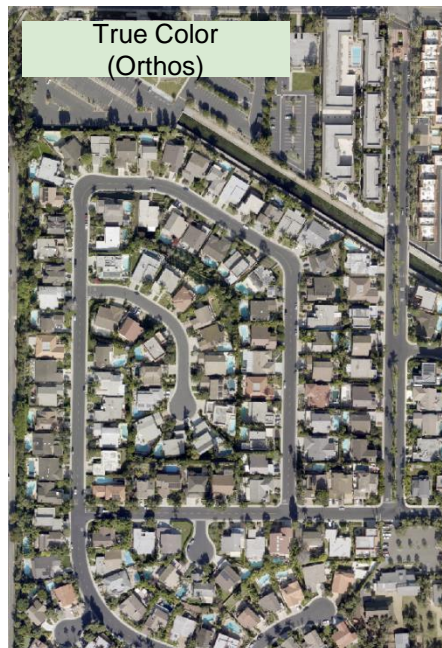
Land Cover with
Panchromatic Imagery



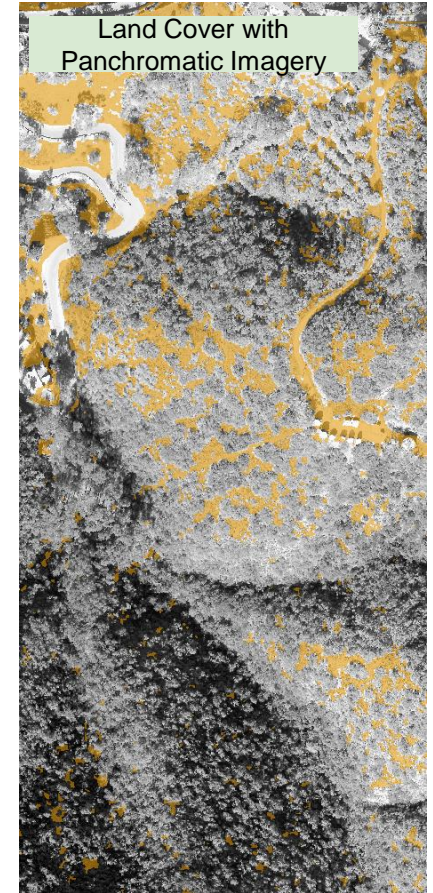
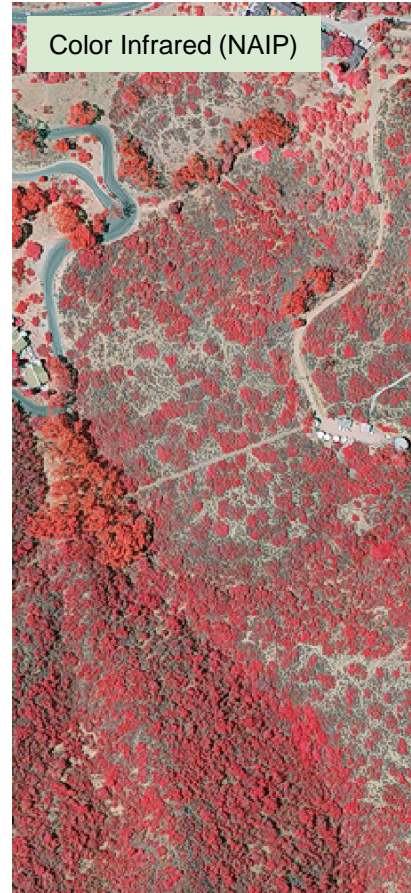
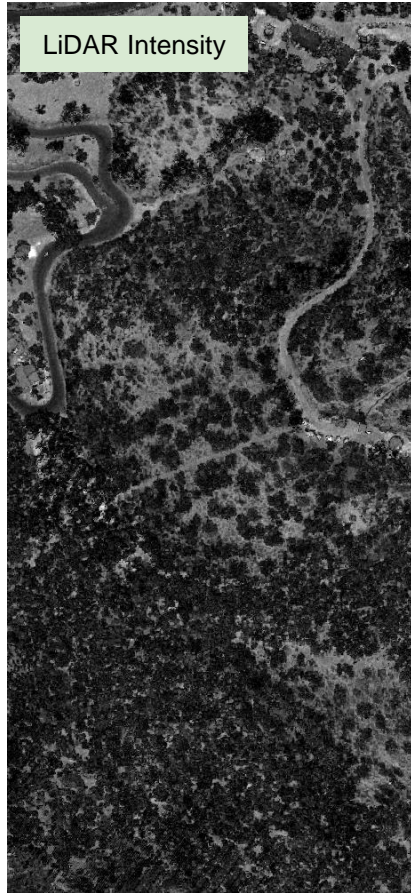
Grass / Shrubs



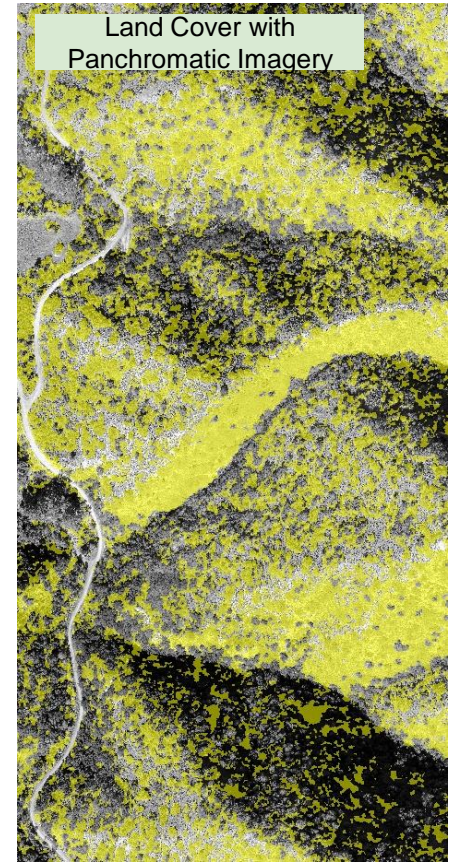
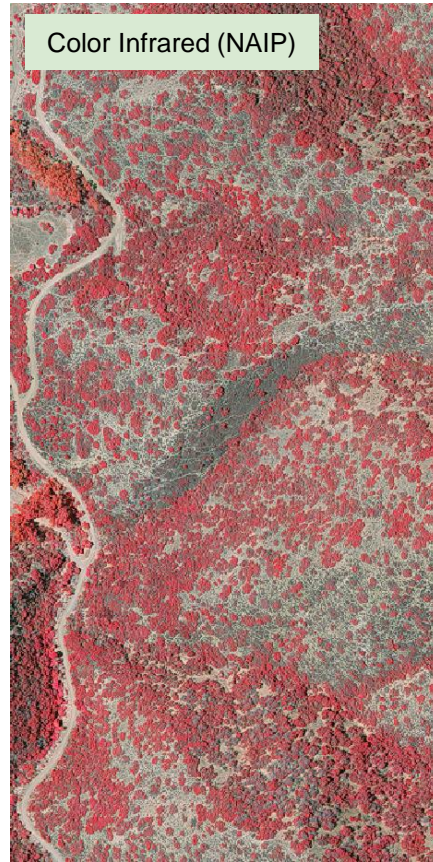
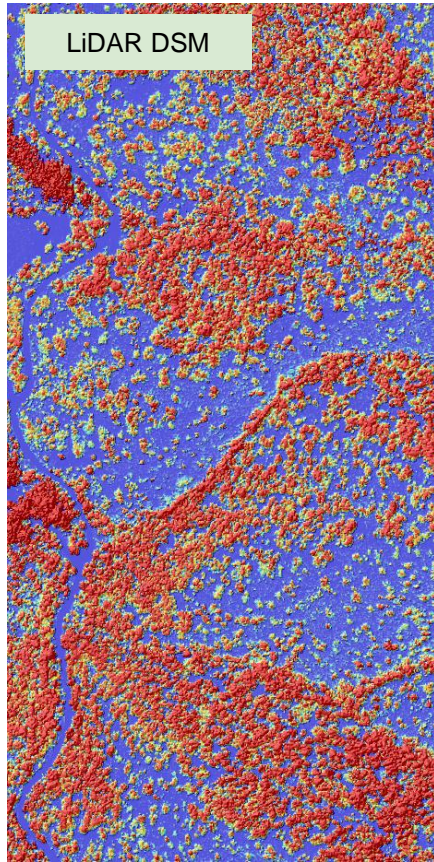
Other Paved Surfaces



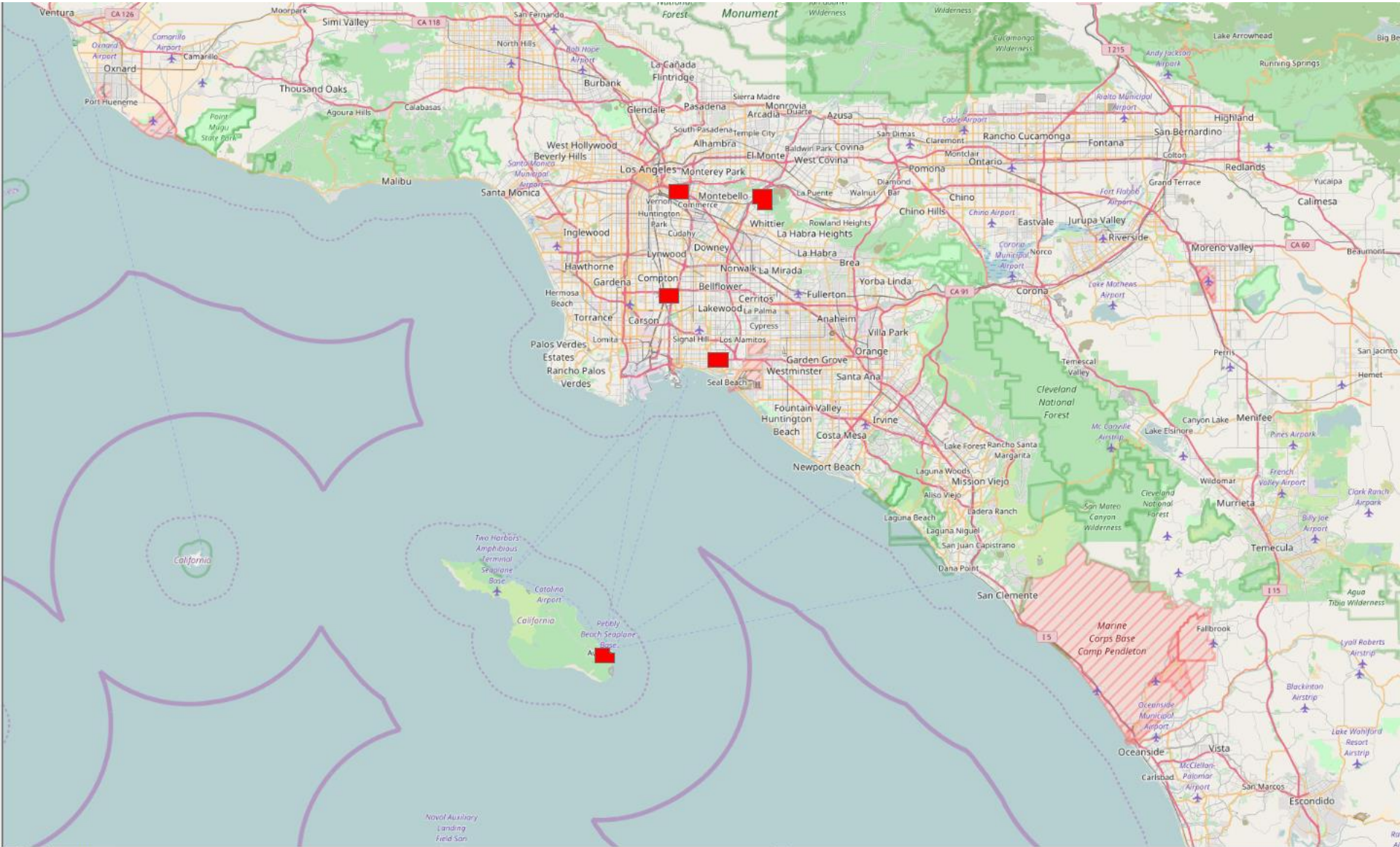
Bare Soil



Tall Shrubs

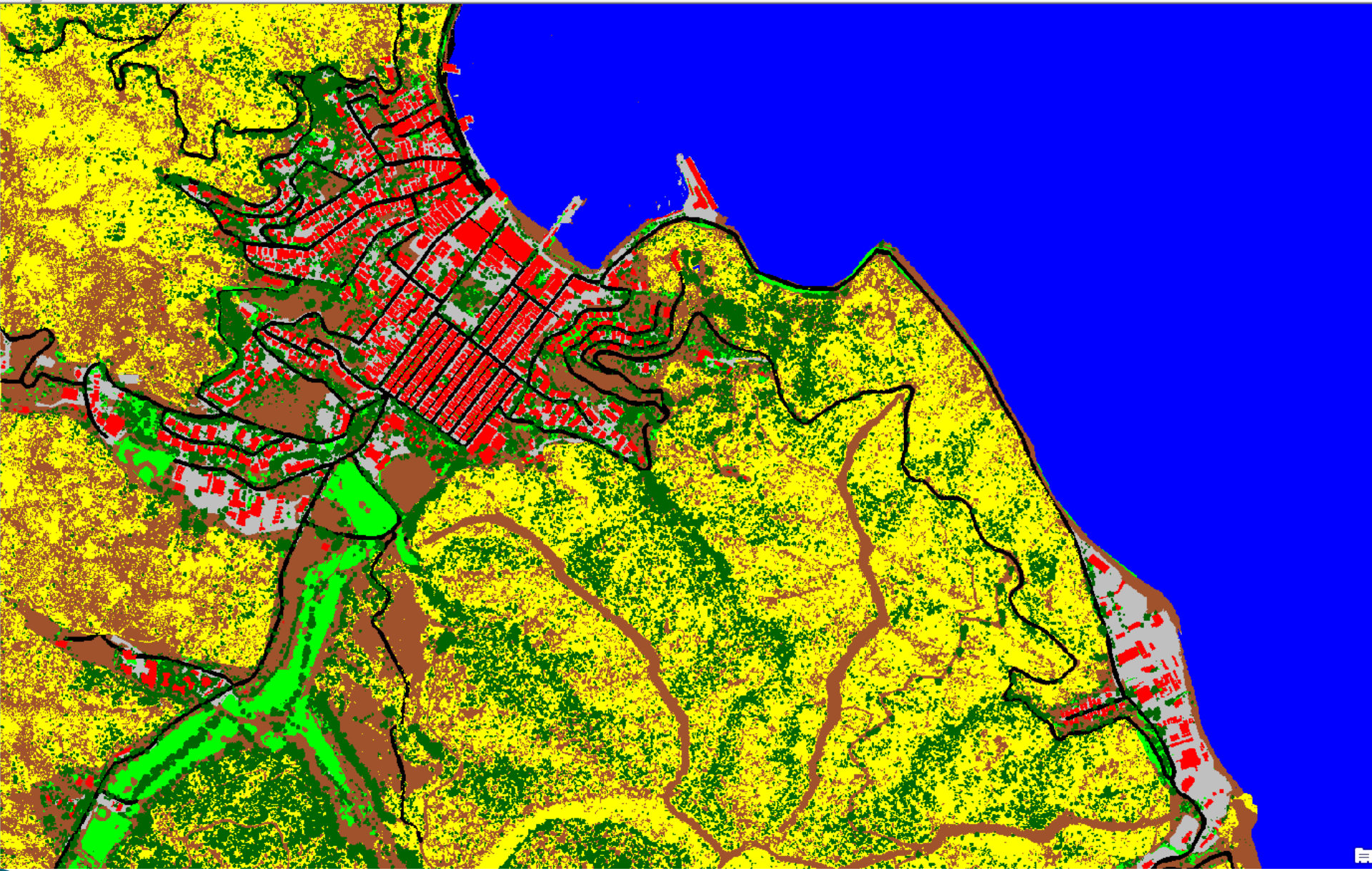


Pilot Areas



Avalon

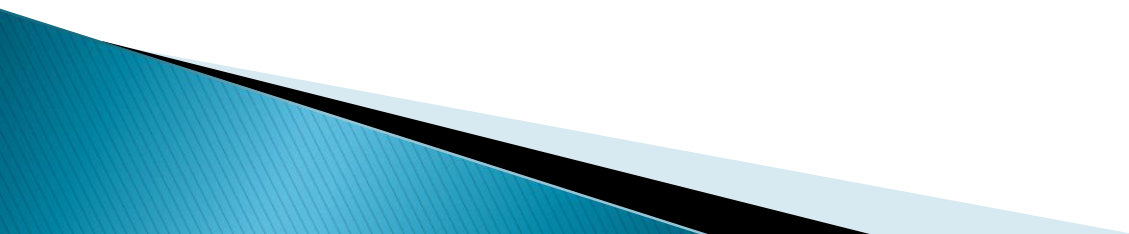


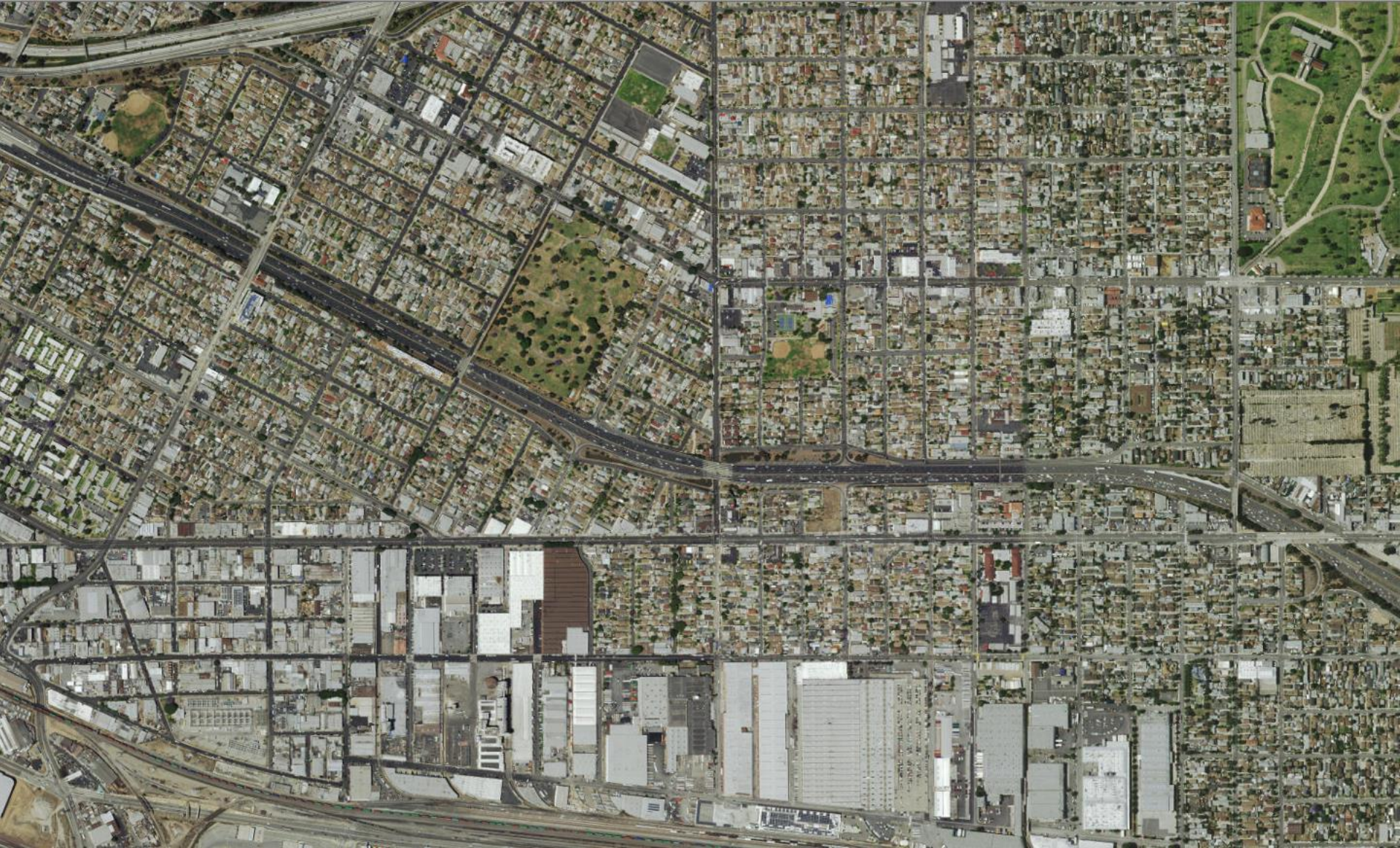


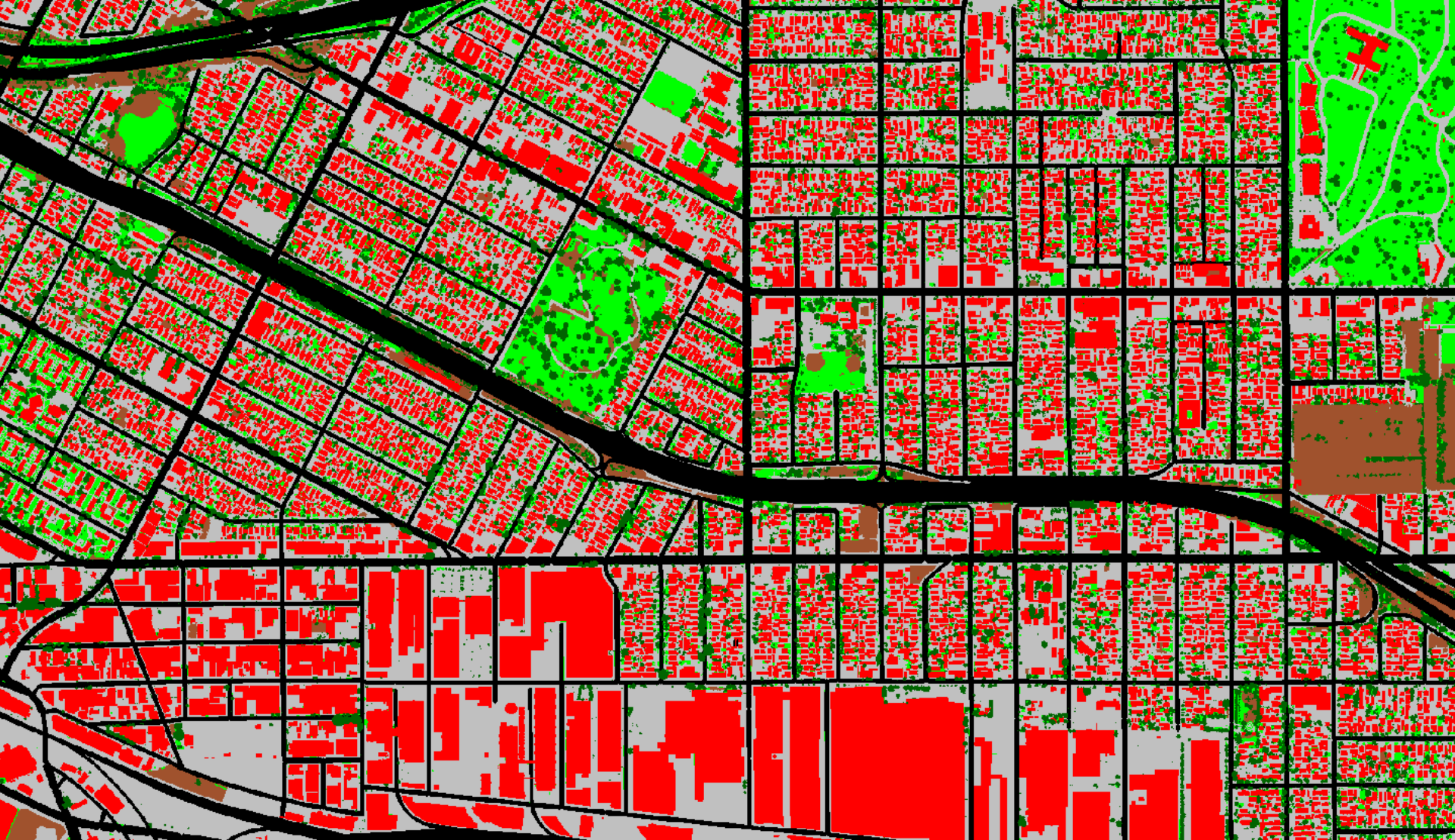


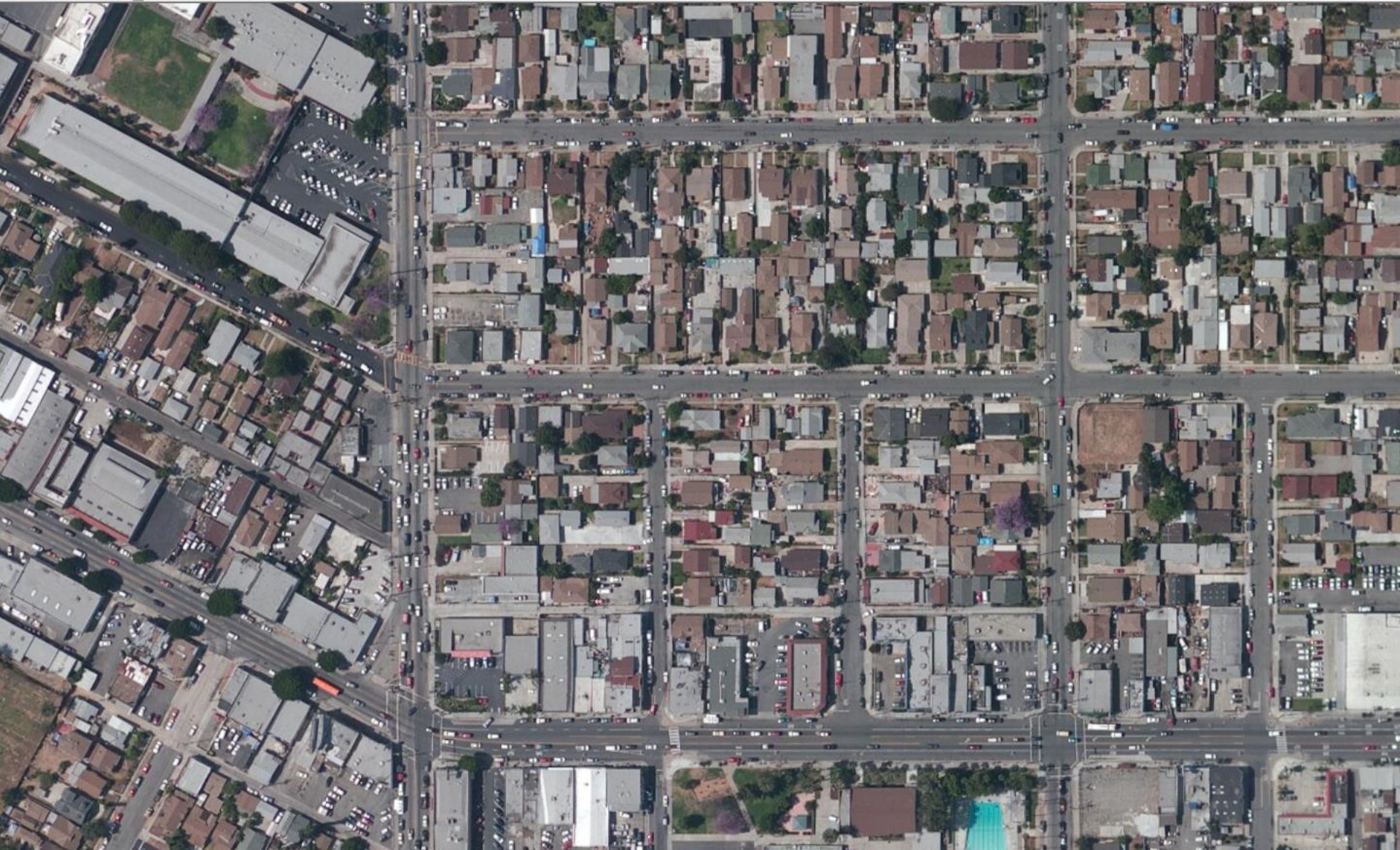


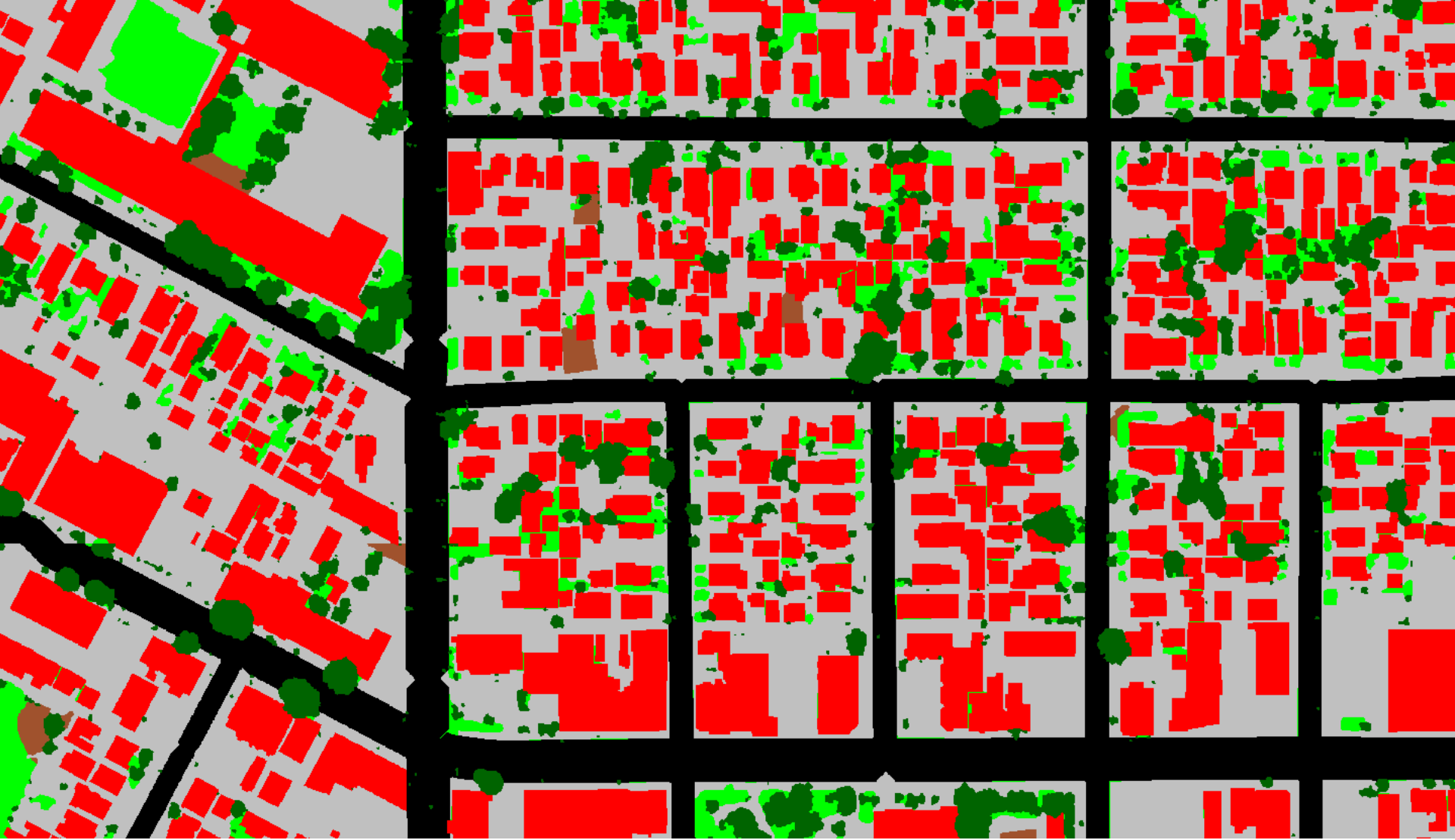


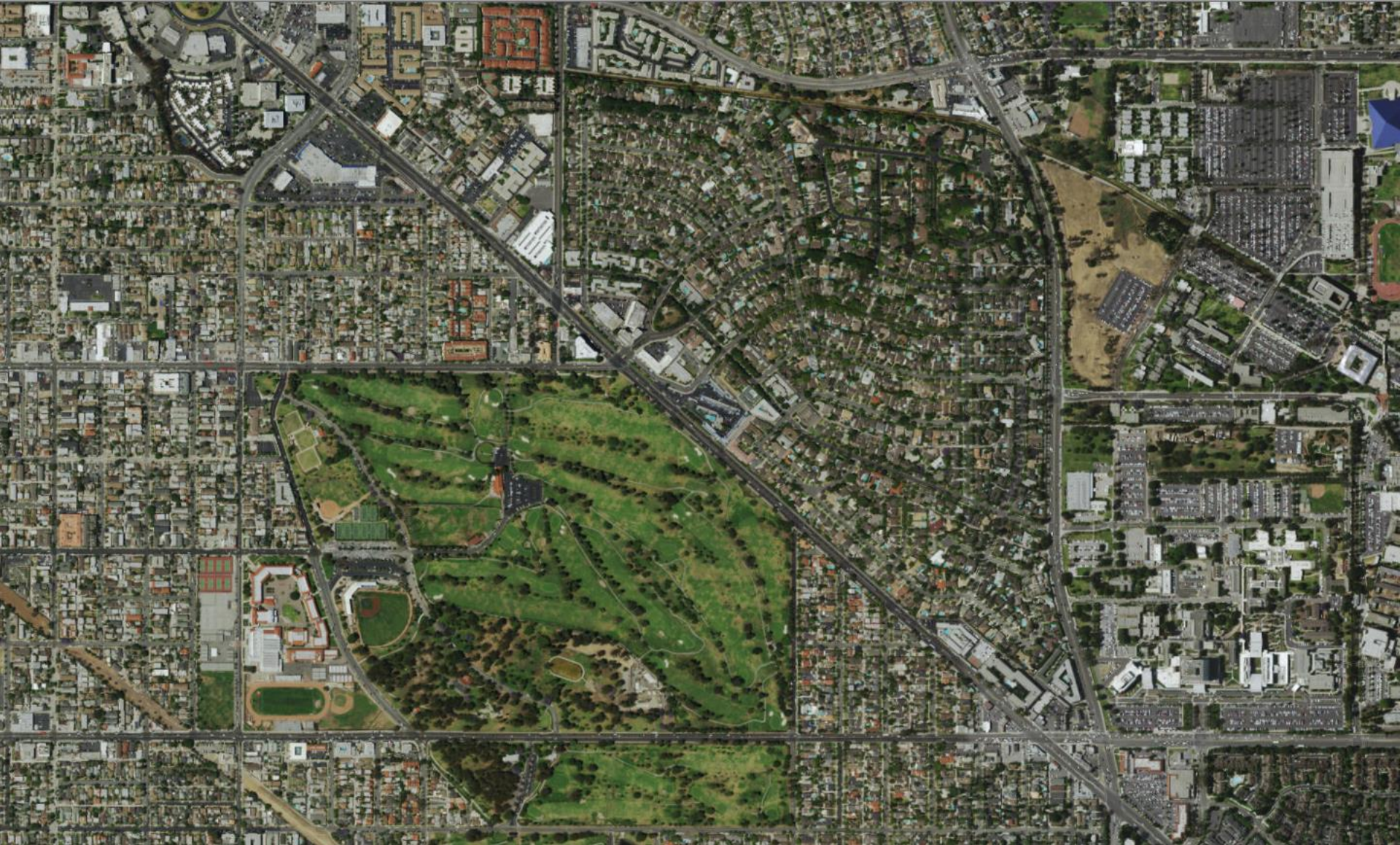










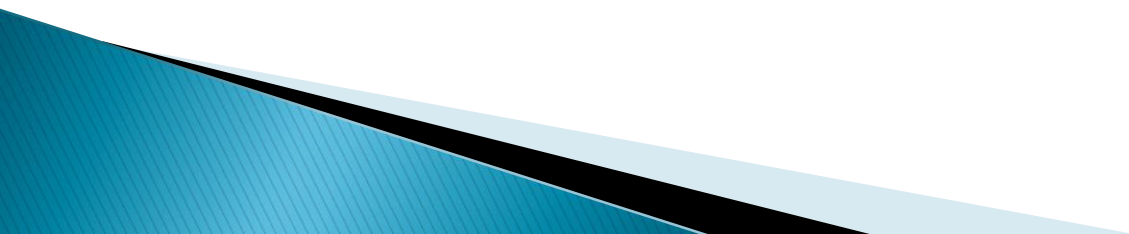
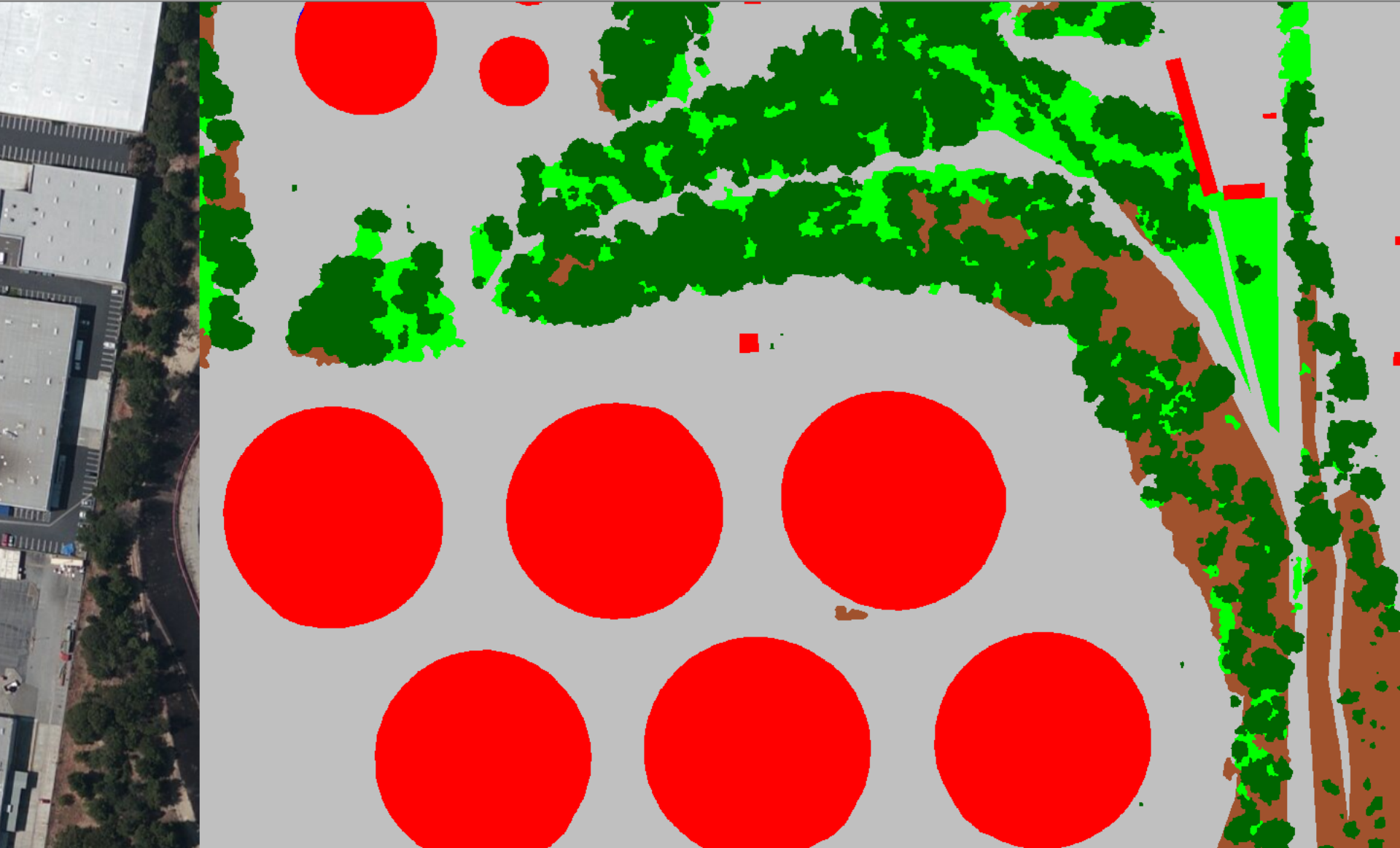






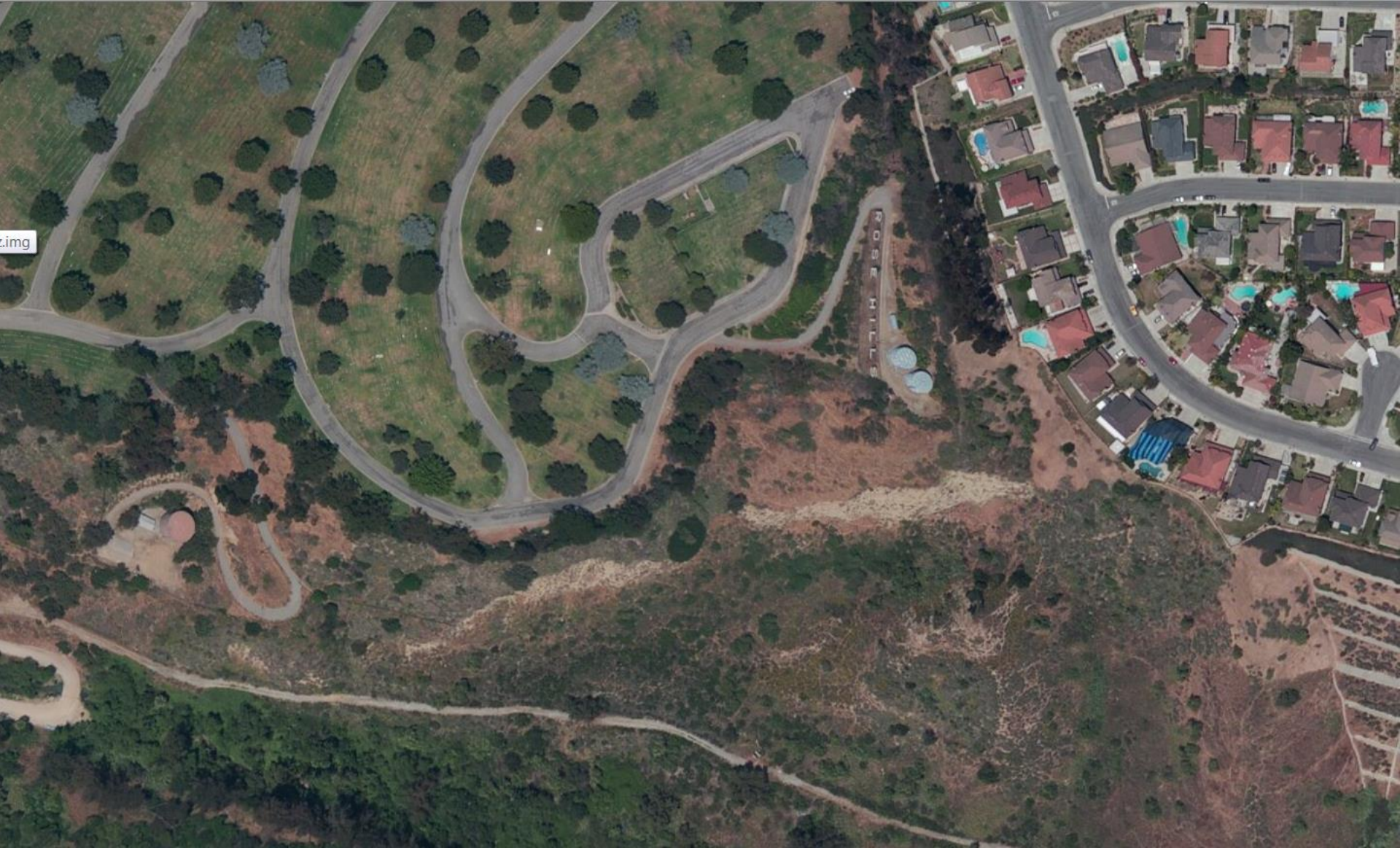




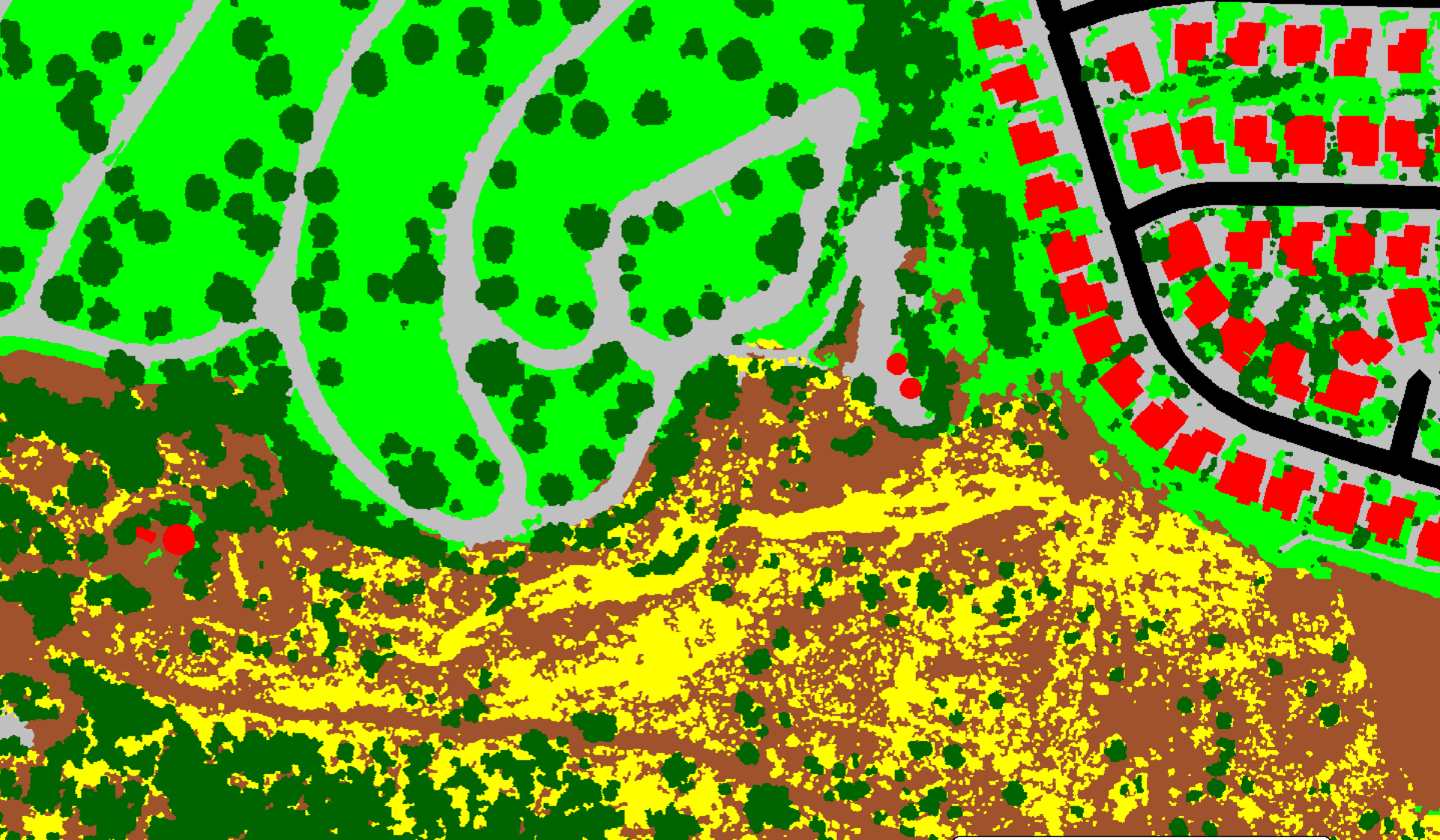








zimg



Land Cover Schedule

- ▶ Pilot Area QC underway now
- ▶ First 2 Blocks next 30 days
- ▶ Rolling deliveries every 2–3 weeks
- ▶ Complete Delivery early Q2
- ▶ Full Accuracy Assessment
- ▶ March 2017 LARIAC Update:

Historic Data and Change Detection



Land Cover Project



LOS ANGELES REGION
LAR|@C
imagery acquisition consortium



Benjamin H. Houston, P.E., GISP, PMP



GROUNDPOINT
TECHNOLOGIES, LLC