Urban Irrigation Monitoring for South Adams County

SOUTH ADAMS COUNTY WATER & SANITATION DISTRICT

PROJECT SUMMARY

The South Adams County Water & Sanitation District required irrigated acreage estimates for land serviced by their district. Acreage values needed included: grass, trees/shrubs, water, and all other land. Riverside Technology, inc. used high-resolution satellite imagery, advanced image analysis, and Geographic Information Systems (GIS) analysis to deliver irrigated acreage estimates summarized by lawn irrigation return flow plots.

LOCATION
Colorado, U.S.A.

PERIOD
2004 – Present

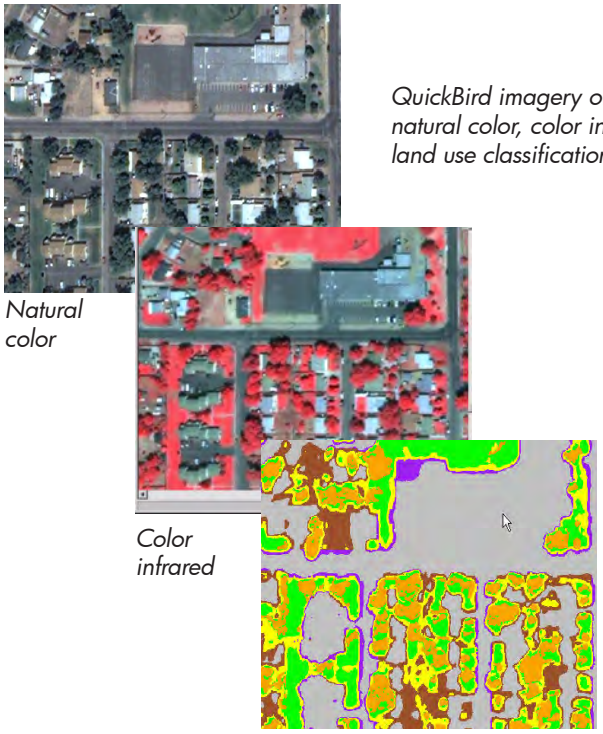
PROJECT DETAILS

South Adams County Water & Sanitation District (SACWSD) contracted Riverside Technology, inc. (Riverside) to determine 2004, 2005, 2006, 2007, 2008, and 2009 urban irrigated acreage to assist in modeling lawn irrigation return flows. Riverside determined irrigated acreage using multi-spectral, multi-temporal QuickBird and GeoEye-1 high-resolution satellite imagery (0.60 m resolution). The imagery was successfully classified into four land cover/land use classes as specified by SACWSD needs.

1. Irrigated lands – primarily residential lawns, parks, golf courses
2. Trees/shrubs – significant and mature trees and groups of shrubs
3. Other – including areas of natural vegetation, areas with no grass, trees or shrubs with bare soil exposed, and impervious surfaces in residential/commercial/industrial areas
4. Water – significant individual water surfaces and rivers/streams

The lawn irrigation return flow is quantified by estimating the amount of acreage, for each cover type listed, that exists on parcels included in and serviced by SACWSD. The high-resolution QuickBird imagery was manually interpreted by Riverside to mark new parcels as serviced (i.e. a new house and lawn was built in an included neighborhood since the previous year's analysis).

The parcels were subset into return flow plots for modeling purposes. Riverside then summarized irrigated acres by return flow plot to allow SACWSD to estimate lawn irrigation return flows.



Natural color

Color infrared

Land cover/ land use

QuickBird imagery of SACWSD area depicting natural color, color infrared, and land cover and land use classification.

RELATED PROJECTS

Colorado's Decision Support Systems

Instream Flow Decision Support System for Colorado

Rio Grande Decision Support System

South Platte Decision Support System

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