The Trust for Public Land’s ParkServe™

Automating Large-Scale Data Transformation, QA/QC and Analysis

Emmalee Dolfi
Gabriel Patterson-King
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Our mission

The Trust for Public Land creates parks and protects land for people, ensuring healthy, livable communities for generations to come.

What we do

The Trust for Public Land works to protect the places people care about and to create close-to-home parks.
How we work

• Cutting-edge research and mapping to create parks, protect open space, and deliver community-driven conservation plans.

• Land transactions that create parks and protect land.

• We’ve worked for more than 40 years, protecting more than 3.3 million acres of land for people.

• Campaigns to raise public funding for land conservation and parks. We’ve helped create $68 billion in voter approved funding for parks, land conservation, and restoration.

• Creating parks and playgrounds through community-based design.
Presentation agenda

1. ParkServe Overview
2. A Need For Automation
3. The Process
4. Conclusions: Successes, challenges, Questions
The Trust for Public Land’s ParkScore®
What is ParkServe?

- Focuses on 10-Minute Walk park access metric for all urban areas in the US

ParkServe™
THE TRUST FOR PUBLIC LAND

ParkServe™ is the first national urban parks platform that will include a website, tools and apps powered by a database of publically accessible parks. The Trust for Public Land will calculate how many people living in cities across America have access to a park, playground or publically accessible protected area within a 10-minute walk.
What is ParkServe?

By May 1, 2018 ParkServe aims to map parks and park access for:

- All 3,573 US Census 2010 defined Urban Areas-Urban Clusters
  - 13,931 US Census 2010 cities/towns/communities

ParkServe at 100% would summarize 10 minute walk park access for:

- Over 80% of Americans
- Over 80% of American households earning less than $35,000 per year
- Over 90% of all persons of color

Key Definitions

Urbanized Areas
• Contain 50,000 or more people

Urban Cluster
• Contain at least 2,500 people but fewer than 50,000

Place
• Incorporated places or unincorporated census designated places

Figure 1. Urban areas and places. The pink outline is the Lake Charles, LA urbanized area. The purple outlines represent urban clusters. The beige polygons are places within urban areas, otherwise known as ParkServe Places.
How does ParkServe work?

4 Components for Completion:

1. Data Collection and Creation
2. Data Translation/Loading
3. Draft 10-Minute Walk Modeling and Data Verification
4. Finalizing the 10-Minute Walk

THEIR DATA → OUR DATA → DRAFT RESULTS → FINAL RESULTS
A Need For Automation

The Problem:

- Data collection and modeling for almost 14,000 places and 3,500 urban/urbanized areas
- Iterative process requiring both manual labor and geoprocessing at each step

How to Automate:

- Create custom scripts and toolboxes with systematic parameters
- Ensure systematic recording of progress at place and urban scales
The Process: Initial Steps

- Collect, Create, and Load data into standardized GDBs on a place scale
- Merge all place feature classes in an urban area, to continue the rest of the modeling at the urban area scale
The Process: Quality Control

- Polygon errors: Use of the topology toolset
- Attribute/domain errors: create tables of errors to manually review
The Process: Modeling

- Create 10-minute walk service areas for parks in the urban area
The Process: Verification

- Verify the data with municipal contacts using a custom web application: ParkReviewer™
- Both attribute and spatial review, designed to be used by both GIS and non-GIS users
- Users are given deadline to complete edits
The Process: Verification

- All edits made using ParkReviewer™ are manually reviewed using Data Reviewer extension
The Process: Remodeling of the Data

- Rerun the QA/QC and 10-Minute Walk modeling scripts
  - QA/QC is lighter and focused on the errors likely to have been generated using ParkReviewer™
- Once service areas are final, get park access and statistics and determine park need
…All leading to a Final Product

Link to beta site
Conclusions: Scaling-Up Issues

- Changes to scale
  - Difficulties of having to move between urban and place scales
- Getting the QA/QC mix right
  - Balancing the need for manual QA/QC with automating processes due to time constraints
- Saving space
  - Replace rasters with vector feature classes
Conclusions: Looking Forward

• Updating the data
  – How to replace segments of the dataset without having to rerun analysis for a larger area?
  – Initial scripts created to do so… but challenges still exist

1. Create Table of New Parks and Boundary Updates
2. Post Updates and Create Table of Deleted
3. Post Deleted
   Update Invidual Park Geometry

• Adding customization without losing automation
  – For example, allowing manual editing of access points to improve service area accuracy
Questions?
Thank you!