

Why Does the Zoological Society of San Diego Use G.I.S.?

Author: Jeannine Carlin



Abstract

Since the inception of the San Diego Zoo 90 years ago and subsequently the Wild Animal Park, there have been continual changes to their infrastructures from utilities to animal enclosures. This dynamic environment has been recorded for the most part either by memories or outdated maps and documents. With approximately 1,000 acres combined of the Zoo and Wild Animal Park there was a need to know where all of their features were and to be able to use that data for planning, analysis, and conservation efforts. G.I.S. technology and GPS field data collection was employed as a means to bring the Zoological Society of San Diego (ZSSD) up-to-date. Over the past few years, many features have been mapped comprising of basemap, plant, utilities and various other databases. G.I.S. data has been an important part in planning, and an essential source for geographic data and will continue to be a cost-saving solution for the ZSSD.

Purpose

- Wild Animal Park - Sewage Treatment Plant
 - Map potable vs. grey water
- AAM Accreditation (1993) - Living Museums
 - Map plant and garden collections: Zoo (9) WAP (6)
- Infrastructure
 - Things are old. Things move.
 - Systems built on top of each other
 - People get old. People move.
 - Information based on memories

Methods

People

- 5-year ESRI software grant (2001) for Association of Zoo Horticulture (AZH)
 - → "North American Zoos, Aquariums and Botanical Gardens"
- Consultant, 2 Interns, ZSSD personnel
 - → 2 full-time GIS Specialists

Methods

Data

- Integration

- Codes

- CAD

- Topo

- Hand-written notes (cardboard, napkins, guest maps)

- Old maps

- As Builts

- 6" ortho → 3"

- LIDAR – building heights, terrain analysis



Methods

Data

● Collection

● GPS

- ProXR → ProXH
- Laser Range Finder

● Challenges

- Heavy tree coverage
- Staff coordination
- Guest Issues (Ex: irrigation mapping, laser)

Methods

Data

- Collection
- Challenges (cont'd)
 - Animal Issues



Results

● Geodatabases

● Botanical

- Collection plants and gardens

● Utilities

- Water, Gas, Electrical...

● IMS (Zoo intranet)



ArcGIS Server

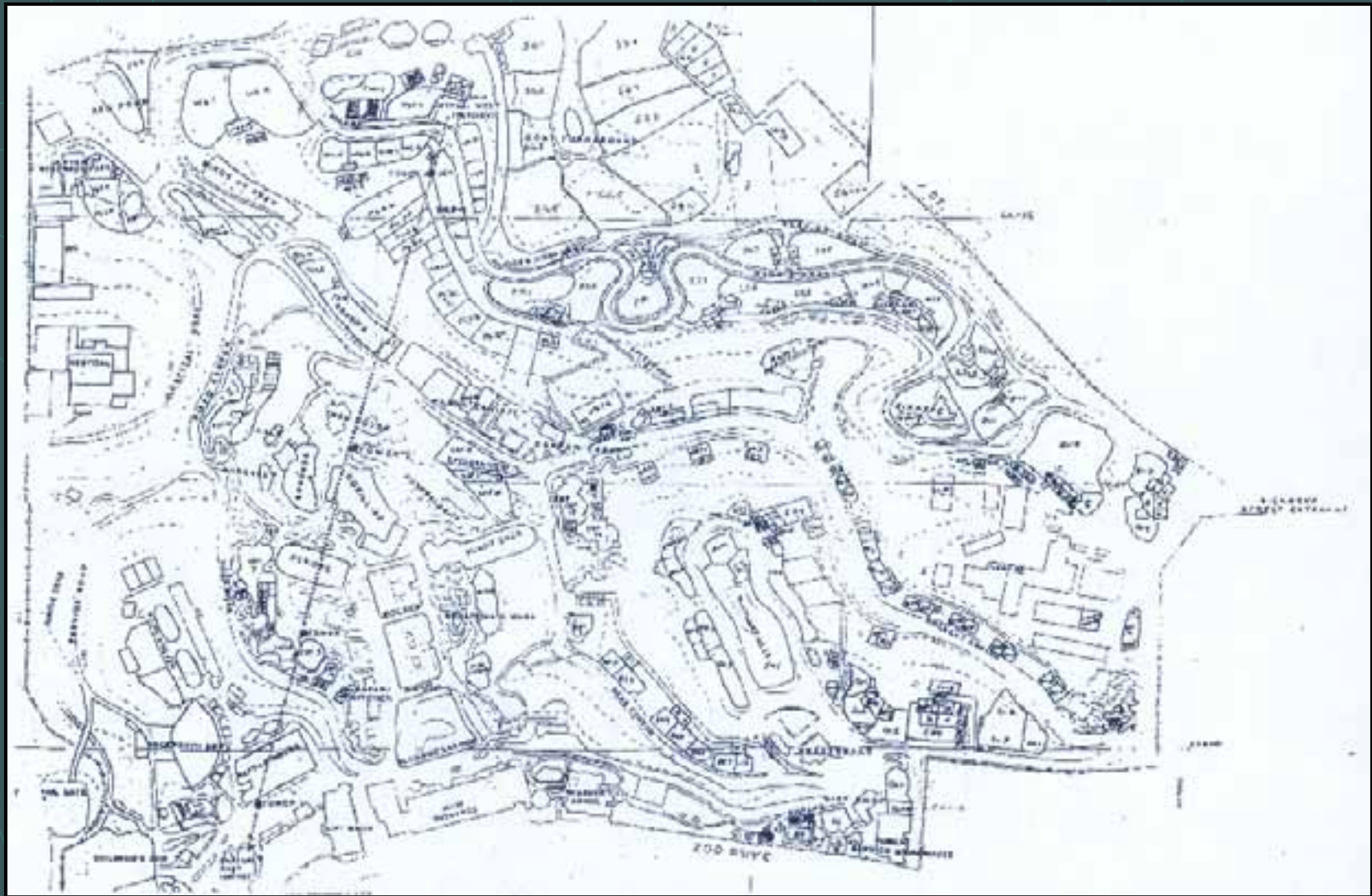
● Irrigation

- Valves, Clocks, Zones

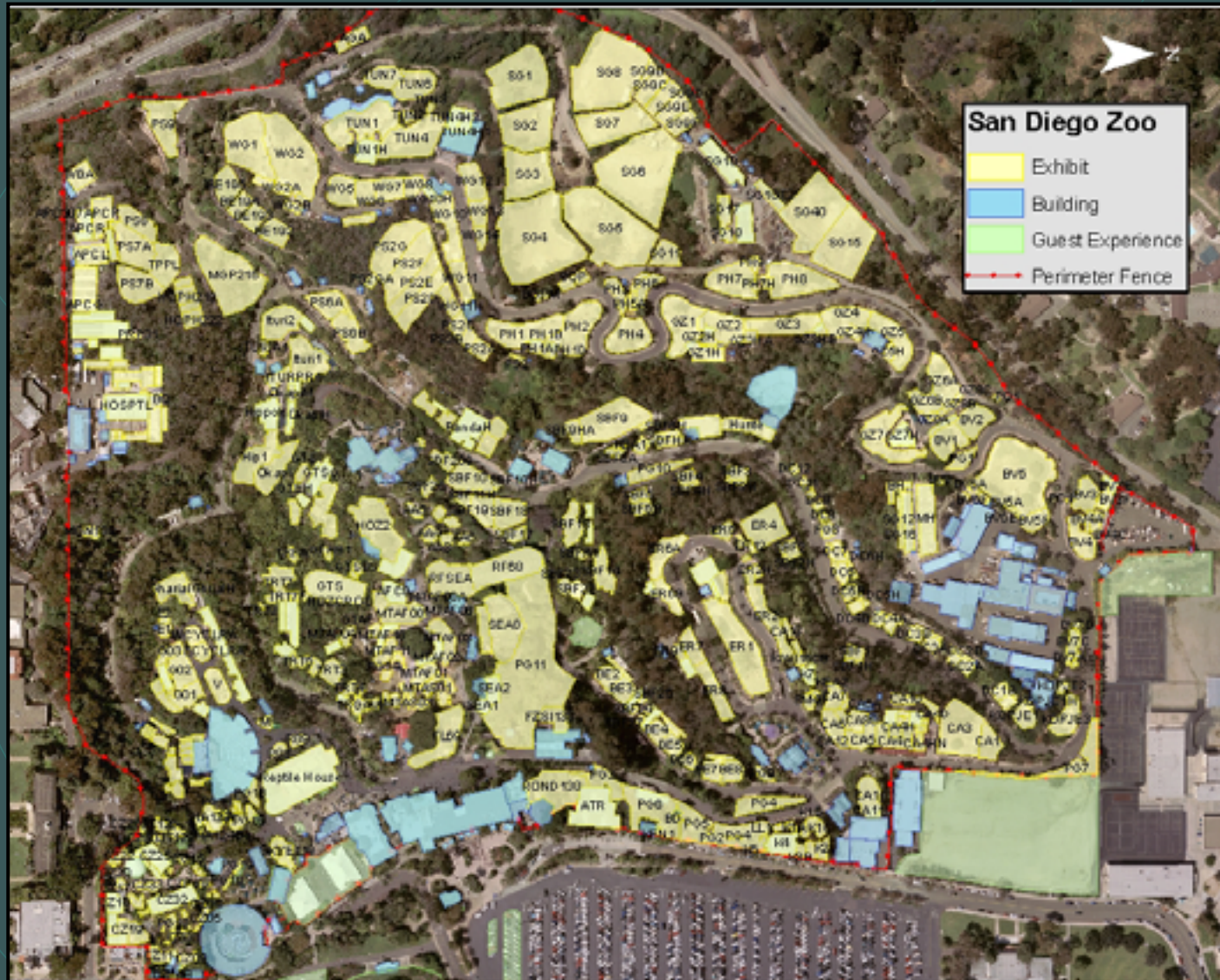
● Basemap

- Grid, Buildings, Exhibits, Guest Experiences, Roads, Perimeter Fence...

Old Map with Codes



New G.I.S. Basemap



Water Mapbook (Wild Animal Park)



Uses

● Planning

- New exhibits
- Bus routes
- Special events

● Maintenance

- Map construction zones
- Valve replacement & relocation



Uses

Emergency

- Roads
- Fire Hydrants
- Perimeter Access

Conservation (CRES)

- Rattlesnakes - CA
- TCI Iguanas - Caribbean
- CA Condors - CA
- Tuatara - New Zealand
- Black Rhino - South Africa
- White Rhino - South Africa

Uses

Departments

● Horticulture

- Inventory
- Tour maps

● Animal

- Exhibit area
- Enclosure codes

● Construction & Maintenance

- Infrastructure mapping
- Planning



Uses

Departments

- Development
 - Donor plaques
- Architecture
 - Basemap, utilities data
- Buildings & Grounds
 - Trash cans



Benefits

- Safety and health of guest and animals
 - Sewer vs. storm water lines
 - Treated vs. potable water
 - Emergency planning



A vertical strip on the left side of the slide shows a topographic map with contour lines, roads, and a river. The background of the slide is dark teal with light teal wavy lines.

Benefits

● Time

- Locating a feature in the event of an emergency (ex: shutoff valve for water line break)
- Labor saved for other projects

● Cost

- In-house mapping vs. hiring outside surveyors
- Digital data eliminates outsourced printing
- Data sharing (ArcServer) reduces duplication for different departments

Future

- ArcZoo Data Model
- Internet
 - 3-D fly-throughs
 - Interactive maps
- Kiosks
 - Custom tour maps
- Work order system
 - Construction & Maintenance



Future

- Conservation projects
 - Bird disease tracking
 - Seed Bank
 - (Vegetation, seed collection mapping)
 - Andean (Bornean Sun) Bear



Acknowledgements

- ZSSD Departments
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Author Information

Jeannine Carlin

G.I.S. Specialist

San Diego Zoo

P.O. Box 120551

San Diego, CA 92112

JCarlin@sandiegozoo.org