Developing a Campus-wide Base Map for Planning, Design and Construction

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Presenters

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Agenda

- UCR Campus Background
- Opportunity for a Campus-wide GIS
- Data Development
- Data Distribution
- What’s Next
UCR Campus Background

- 1,112 Acre Campus, located 3-miles east of downtown
- Current enrollment of approx. 17,000 students
- Enrollment expected to increase almost 35% over the next 10 years
- Campus Gross Square Footage (GSF) expected to grow from 5.6 mil to 11 mil.
Opportunity for Campus-wide GIS

- **Opportunity**
  - UCR had minimal GIS data on current assets
  - Existing GIS data did not cover entire campus
  - Existing GIS data did not meet accuracy standards

- **Solution**
  - Produce a campus-wide base map that can be used for planning, design and construction
  - Build the basis for a future campus-wide enterprise GIS system
Project Timeline

- November 2006
- January 2007
- April 2007
- May 2007
- June 2007
- July 2007
- August 2007

- Project Initiation
- Fly Aerial Surveying
- Data Development
- Data Review
- Product Delivery
Data Design Process

- Identify required layers
- Determine attributes for each layer
- Identify required level of accuracy
- Identify data delivery format(s)
- Data collection methods
  - Information from aerial photograph
  - Data collected by surveyor
  - Data collected by GPS
  - Integrate existing data layers
Campus-wide GIS Data Layers

- Administrative:
  - Campus Boundary
  - Parcels
  - Easements

- Infrastructure:
  - Campus Lighting
  - Infrastructure converted from CAD

- Land Cover:
  - Campus Icons
  - Trees
  - 1ft Topography
  - Vegetation

- Reference Data:
  - Survey Monuments

- Structures:
  - Athletic Fields & Facilities
  - Buildings
  - 3D wire frame

- Transportation:
  - Parking Lots
  - Parking Spaces
  - Parking Striping
  - Sidewalks/Walkways
  - Streets (Center lines)
  - Streets (Edge of Pavement)
Infrastructure
Monuments/Parcels

- CA licensed surveyors used to create reference data
- 13 new monuments placed to set control network
- Parcel boundaries delineated
LIDAR Data

- One-foot Contours
- Building Heights
- Trees
- Elevation Grid
Data Analysis with Rasters

- Creating Surfaces
- Interpolating Topography
- Viewshed Analysis
Data Analysis with ArcScene

- View 3D Data
- Create Visual Simulations
- 3D Fly-through
What’s Next

- GIS Data Integration
- UCR GIS End-user Community
- Potential GIS Analysis
- GIS Data Maintenance
Integration of GIS with Existing Facilities Management System (FMS)

- Buildings data layer contains CAAN number that links to the FMS database
- FMS link will allow GIS to link to multiple systems campus wide
- Capability to run cross referenced queries
Groups that can benefit from GIS

- Physical Plant
- Purchasing / Material Management
- Environmental Health & Safety
- Transportation & Parking Services
- Real Estate Services
- Police
- Office of Design & Construction
- Athletics/Recreation
- Technology
Potential GIS Analysis

- 3-D Visualization of Campus Buildings & Structures
- Identification of better or new pathways (handicap)
- Siting of new campus facilities
- Spatial Inventory of Parking Spots and Type
- Identification of new locations for campus lighting
- Tracking maintenance
- Calculation of impacts from new facilities
- Tracking and analysis of crime type and location
- Routing analysis for large campus events
Conclusion

- UCR now has a seamless campus-wide Geodatabase
- Data will be used for Planning, Design and Construction
- UCR will also utilize data as base for enterprise-wide GIS system
- UCR will make data available to all campus groups
Questions

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