

# Mathematics and GIS On The West Valley Campus



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A vertical strip on the left side of the slide shows a topographic map of a coastline. It features contour lines, a river or stream, and a road. The map is in grayscale with some color highlights in yellow and blue.

# Contents

Goals & Objectives

Alaska Standards

Data

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Conclusions

A vertical strip on the left side of the slide showing a topographic map with contour lines and a yellow line.

# Can GIS be used as a Tool to teach Mathematical concepts in High School?

- Map school footprint using various techniques
- Determine the Sun's position via aerial photo shadows
- Create a Land Use Map of the school campus

# Standards

## ● Problem-Solving

- Recognize and formulate mathematics problems.
- Apply multi-step, integrated strategies.
- Use alternative strategies

## • Measurement

- Use appropriate systems, units, tools of measurement.
- Estimate and convert between different systems.
- Use indirect methods to find missing dimensions.

## ● Technology

## ● Employability



# Data

- FNSB Quick Bird aerial photo
- FNSB Parcels
- USGS Section grid
- GPS field data

# Methods

ArcView GIS 3.2a

Import FNSB files

Convert coordinate systems

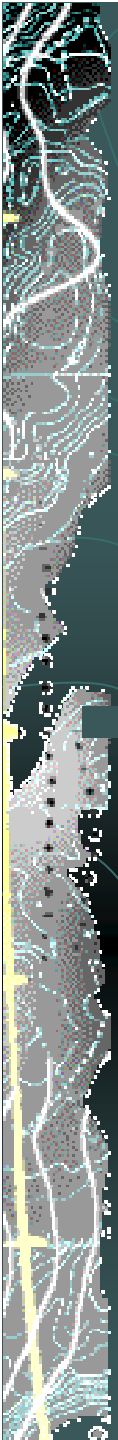
Create Land use themes

Collect GPS site data

Excel spreadsheet

Map results

Calculations

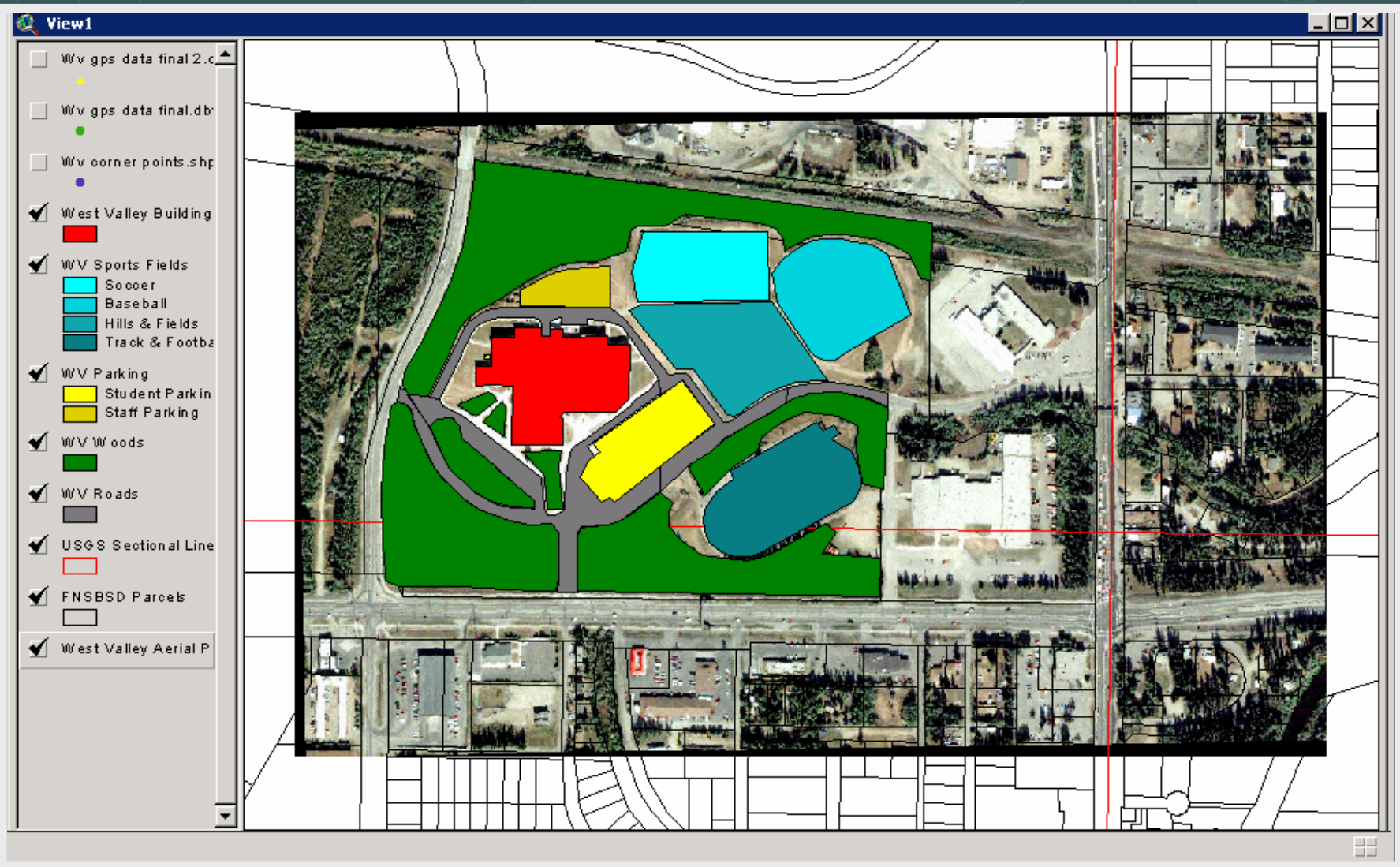




# Quick Bird aerial photo and FNSB parcel boundaries

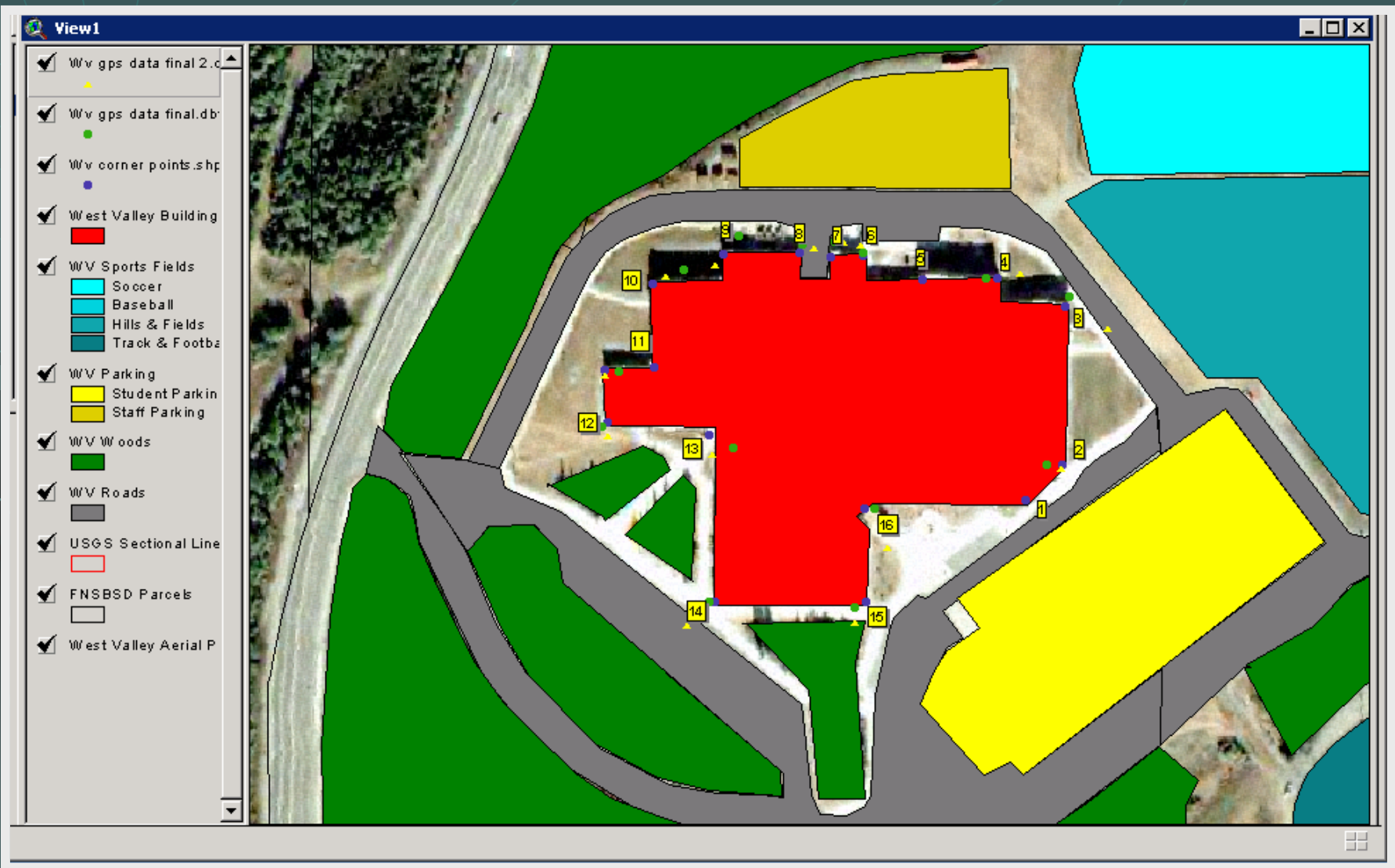


# Land Use Themes



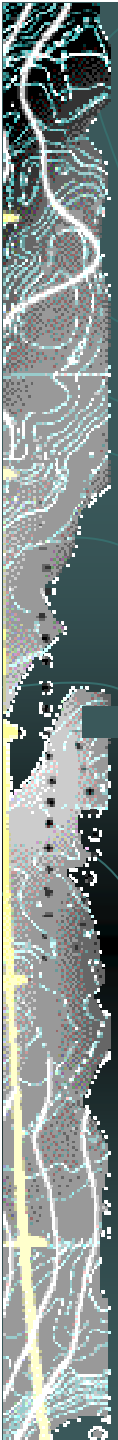


# Imported GPS Data



# Conclusions

- GIS can be used as a Math teaching tool
- Care required working with multiple coordinate systems GPS and ArcView
- Initial activities need to have a cookbook approach





## Future Directions

- Analyze land use on the WV campus
- ORIENT project / game
- Develop a West Valley map with Hot Links
- Community based math projects
- Investigate coordinate systems
- Partnership with UAF

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