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Statement of the Problem:

The objective is to create a master plan to generate public interest and funding to promote future park development. Gibson County Park Board will receive 200 total acres of land from Richard and Gwen Hopkins. This land will be converted from agricultural use to a community park.

Background:

- Land has been in the Hopkins' family since 1865
- Family will no longer be farming after this generation
- Hopes to leave a legacy for generations to come, encourage outdoor activities, and foster family engagements
- University of Evansville has designed for 40 of the 200 acres
- Additional 160 acres have been designed by Purdue's team through a master plan

Alternative Solutions & Solution Evaluation:

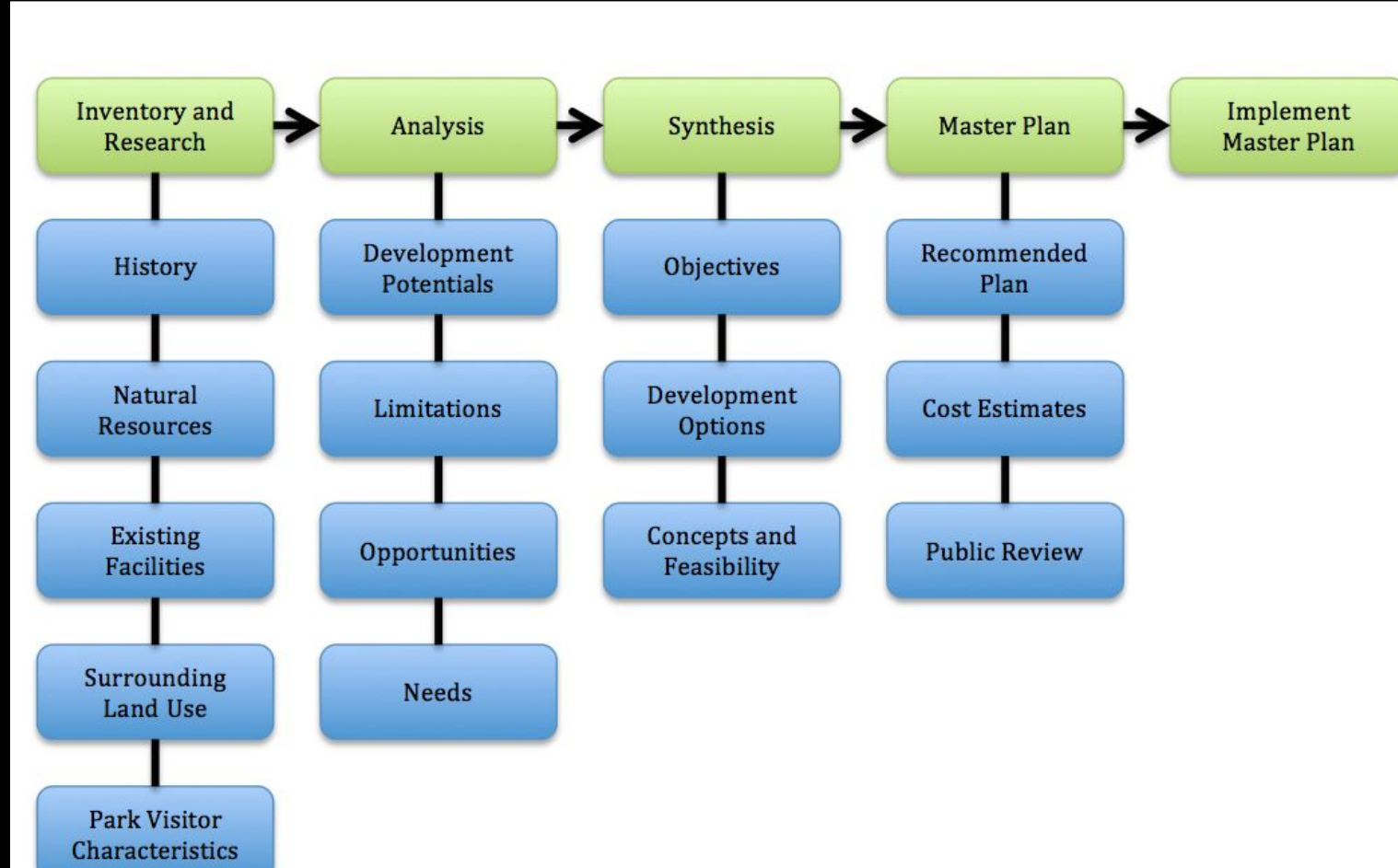


Figure 1. Design process

- Flowchart from Prophetstown State Park was mimicked to guide the master plan creation
- This process was completed from August 2015 to April 2016

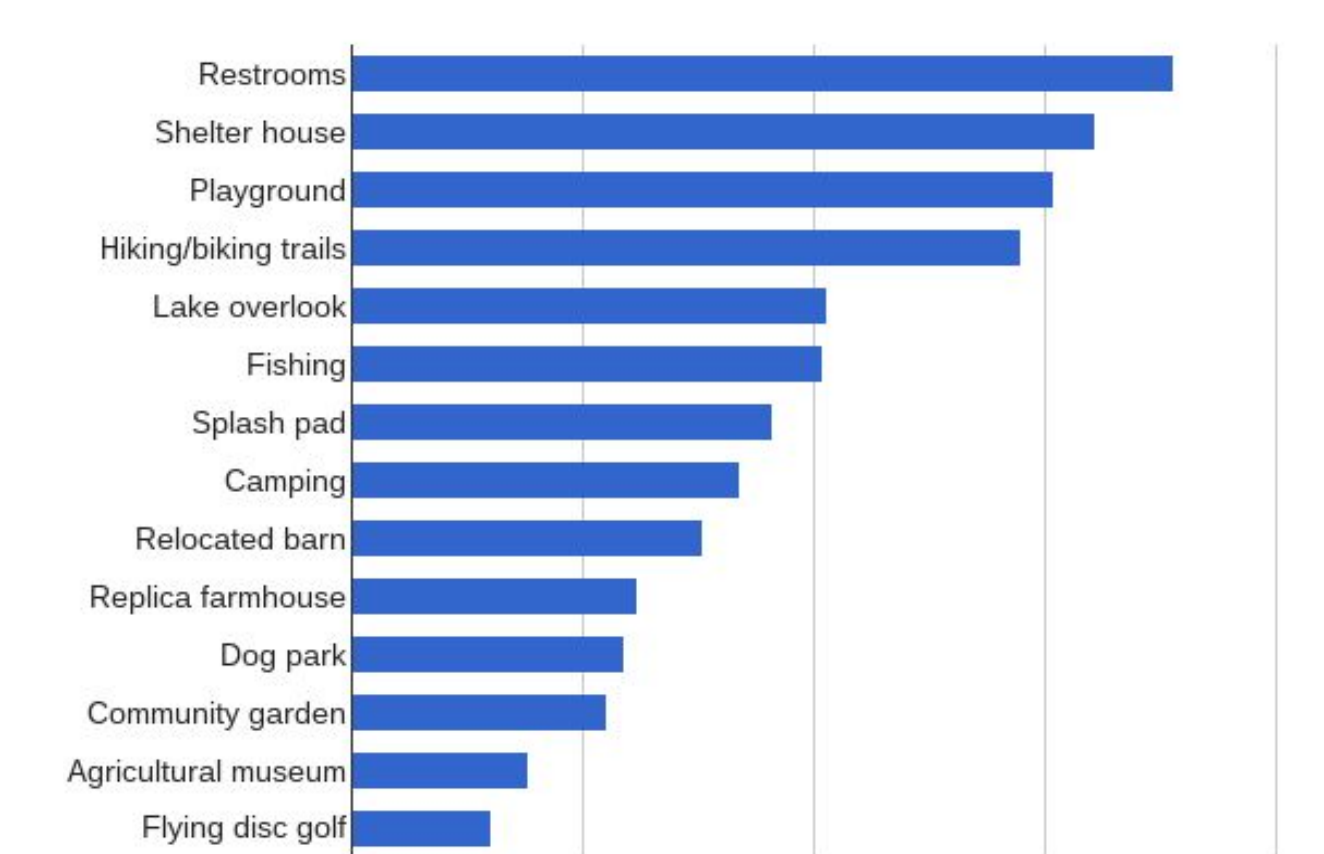


Figure 2. Survey results

- Conducted county survey to collect desired amenities
- Utilized Facebook page, county newspaper, and flyers

Table 1. Parcel evaluation, decision matrix

| Criteria Weight | Soil | Slope | Flooding | Powerlines | Connectiveness | Utilities | Vegetation | |
|-----------------|------|-------|----------|------------|----------------|-----------|------------|----|
| 2E | 4 | 1 | 4 | 3 | | 4 | 4 | 80 |
| 2W | 4 | 4 | 4 | 3 | | 2 | 2 | 76 |
| 3E | 4 | 2 | 5 | 3 | | 4 | 2 | 79 |
| 3W | 4 | 3 | 5 | 3 | | 4 | 2 | 83 |
| 4E | 3 | 3 | 3 | 5 | | 4 | 3 | 81 |
| 4W | 3 | 3 | 3 | 4 | | 4 | 3 | 77 |
| 5E | 2 | 3 | 3 | 5 | | 3 | 3 | 75 |
| 5W | 4 | 3 | 2 | 3 | | 3 | 3 | 68 |
| 6E | 3 | 3 | 2 | 3 | | 3 | 4 | 68 |
| 6W | 2 | 4 | 2 | 3 | | 3 | 4 | 69 |
| 7E | 3 | 3 | 3 | 5 | | 3 | 4 | 83 |
| 7W | 3 | 3 | 2 | 5 | | 3 | 4 | 78 |

- Evaluated park parcels (Figure 3) to determine best locations for placing park amenities

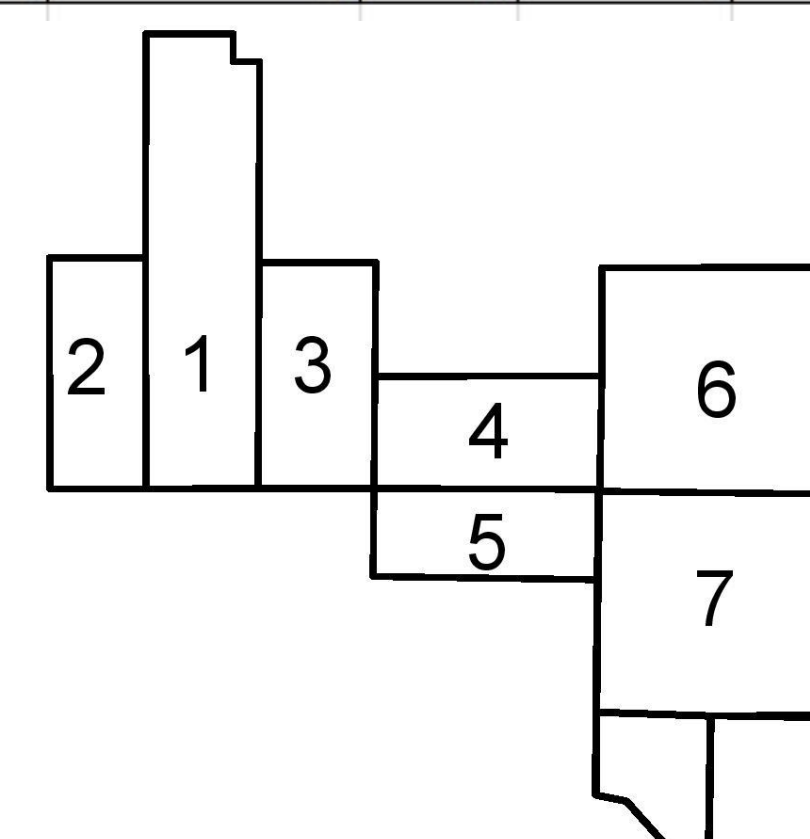


Figure 3: Parcel map

Table 2. Amenity evaluation, decision matrix

| Criteria Weight | Safety | | Natural Factors | | Human Impacts | | Perceived Aesthetics | | Community Interest | | Total Score | |
|----------------------|--------|----------------|-----------------|----------------|---------------|----------------|----------------------|----------------|--------------------|----------------|-------------|----|
| | Rating | Weighted Score | Rating | Weighted Score | Rating | Weighted Score | Rating | Weighted Score | Rating | Weighted Score | | |
| Park Features | | | | | | | | | | | | |
| Shelter house | 5 | 25 | 2 | 8 | 2 | 6 | 3 | 3 | 5 | 15 | 57 | |
| Restrooms | 3 | 15 | 2 | 8 | 3 | 9 | 3 | 3 | 2 | 5 | 43 | |
| Flying disc golf | 3 | 15 | 3 | 12 | 1 | 3 | 3 | 4 | 4 | 1 | 3 | 37 |
| Dog park | 2 | 10 | 2 | 8 | 4 | 12 | 1 | 1 | 1 | 3 | 34 | |
| Playground | 4 | 20 | 4 | 16 | 2 | 6 | 3 | 3 | 3 | 4 | 12 | 57 |
| Splash pad | 5 | 25 | 2 | 8 | 5 | 15 | 3 | 3 | 3 | 4 | 12 | 63 |
| Lake overlook | 4 | 20 | 4 | 16 | 3 | 9 | 5 | 5 | 5 | 3 | 9 | 59 |
| Agricultural museum | 1 | 5 | 1 | 4 | 1 | 3 | 2 | 2 | 2 | 1 | 3 | 17 |
| Hiking/biking trails | 4 | 20 | 5 | 20 | 5 | 15 | 5 | 5 | 5 | 5 | 15 | 75 |
| Fishing | 5 | 25 | 5 | 20 | 3 | 9 | 2 | 2 | 3 | 3 | 9 | 65 |
| Community garden | 2 | 10 | 4 | 16 | 2 | 6 | 5 | 5 | 5 | 2 | 6 | 43 |
| Camping | 4 | 20 | 4 | 16 | 5 | 15 | 4 | 4 | 4 | 4 | 12 | 67 |
| Relocated barn | 1 | 5 | 2 | 8 | 1 | 3 | 4 | 4 | 4 | 2 | 6 | 26 |
| Replica farmhouse | 1 | 5 | 2 | 8 | 1 | 3 | 3 | 4 | 4 | 2 | 6 | 26 |
| Sports fields | 4 | 20 | 3 | 12 | 4 | 12 | 2 | 2 | 4 | 4 | 12 | 58 |
| 50 trees of Indiana | 1 | 5 | 5 | 20 | 1 | 3 | 3 | 5 | 5 | 3 | 9 | 42 |
| Picnic area | 3 | 15 | 3 | 12 | 4 | 12 | 5 | 5 | 4 | 4 | 12 | 56 |
| Powerplant treeline | 4 | 20 | 5 | 20 | 3 | 9 | 5 | 5 | 5 | 4 | 12 | 60 |
| Park entrance | 3 | 15 | 5 | 20 | 1 | 3 | 4 | 4 | 4 | 3 | 9 | 51 |
| Wetland removal | 3 | 15 | 1 | 4 | 3 | 9 | 1 | 1 | 1 | 5 | 15 | 44 |
| Parking lots | 4 | 20 | 2 | 8 | 4 | 12 | 1 | 1 | 5 | 5 | 15 | 56 |

- Evaluated possible park amenities to determine the priority for inclusion and placement

Global/Societal Impact & Sustainability: Final Design:

- Encourages physical activity to promote healthier lifestyles
- Fosters community engagement and unity
- Creates opportunities for jobs through tourism
- Teaches the importance of environmental stewardship
- Introduces wetlands, prairies, and forested areas
- Stores and filters runoff
- Removes urban and agricultural pollutants
- Increases carbon mitigation to reduce greenhouse gas emissions

Constraints:

- There were several constraints to the design that encouraged the use of iteration, engineering skills, and use of outside resources:
- Limited funding for establishing park
 - Distance between Purdue University and site location
 - Integration of designs with another team
 - Implementation of community desires and visitor desires

Budget & Timeline:

Table 3. Estimated design budget

| Task | Cost Estimate | Task | Cost Estimate |
|------------------------------|---------------|------------------------------------|-----------------------|
| 1 Phase 1 | \$529,786.00 | 2 Phase 2 | \$609,950.00 |
| 1.1 Trails | \$382.00 | 2.1 Concession Stands | \$95,000.00 |
| 1.2 Crosswalks (5) | \$1,700.00 | 2.2 Playscape 1 | \$54,000.00 |
| 1.3 Park Entrance Signs | \$1,000.00 | 2.3 Playscape 2 | \$25,000.00 |
| 1.4 Parking Lots | \$57,500.00 | 2.4 Museum/Barn | \$100,000.00 |
| 1.5 Waterless Bathrooms (3) | \$57,720.00 | 2.5 Splash Pad | \$19,500.00 |
| 1.6 Picnic Benches | \$6,000.00 | 2.6 Road Relocation | County Cost |
| 1.7 Trees | \$1,584.00 | 2.7 Bridge | County Cost |
| 1.8 Tree Labels | \$500.00 | 2.8 Amphitheater | \$30,000.00 |
| 1.9 Shelterhouse | \$80,000.00 | 2.9 Bathroom & Shower Facility | \$181,450.00 |
| 1.10 Primitive Camp Sites | \$7,000.00 | 2.10 Adding Utilities To Campsites | \$105,000.00 |
| 1.11 Sand Volleyball | \$8,000.00 | | |
| 1.12 Waste & Recycling Bins | \$3,000.00 | | |
| 1.13 Prairie & Wetland Areas | \$35,550.00 | | |
| 1.14 Seeding Sports Fields | \$850.00 | | |
| 1.15 Grading | \$269,000.00 | | |
| | | Total Cost Estimate | \$1,139,736.00 |

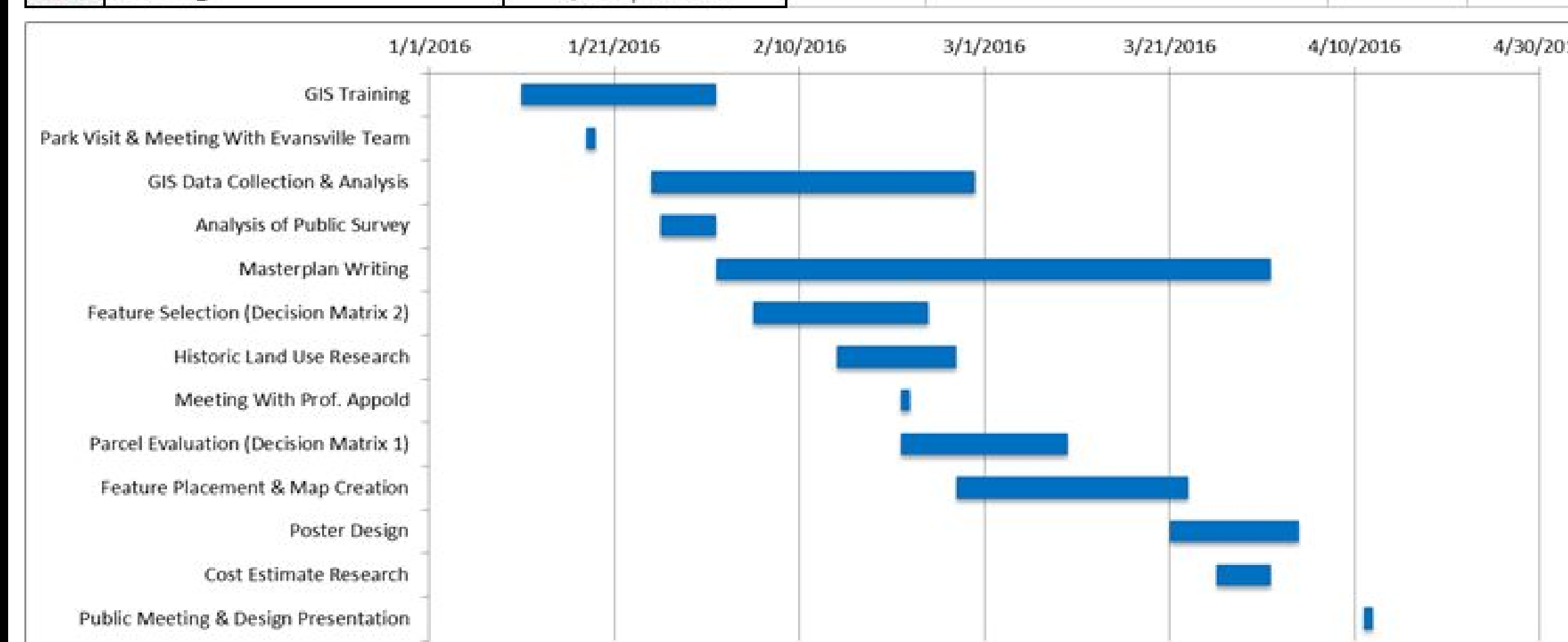


Figure 4. Semester timeline

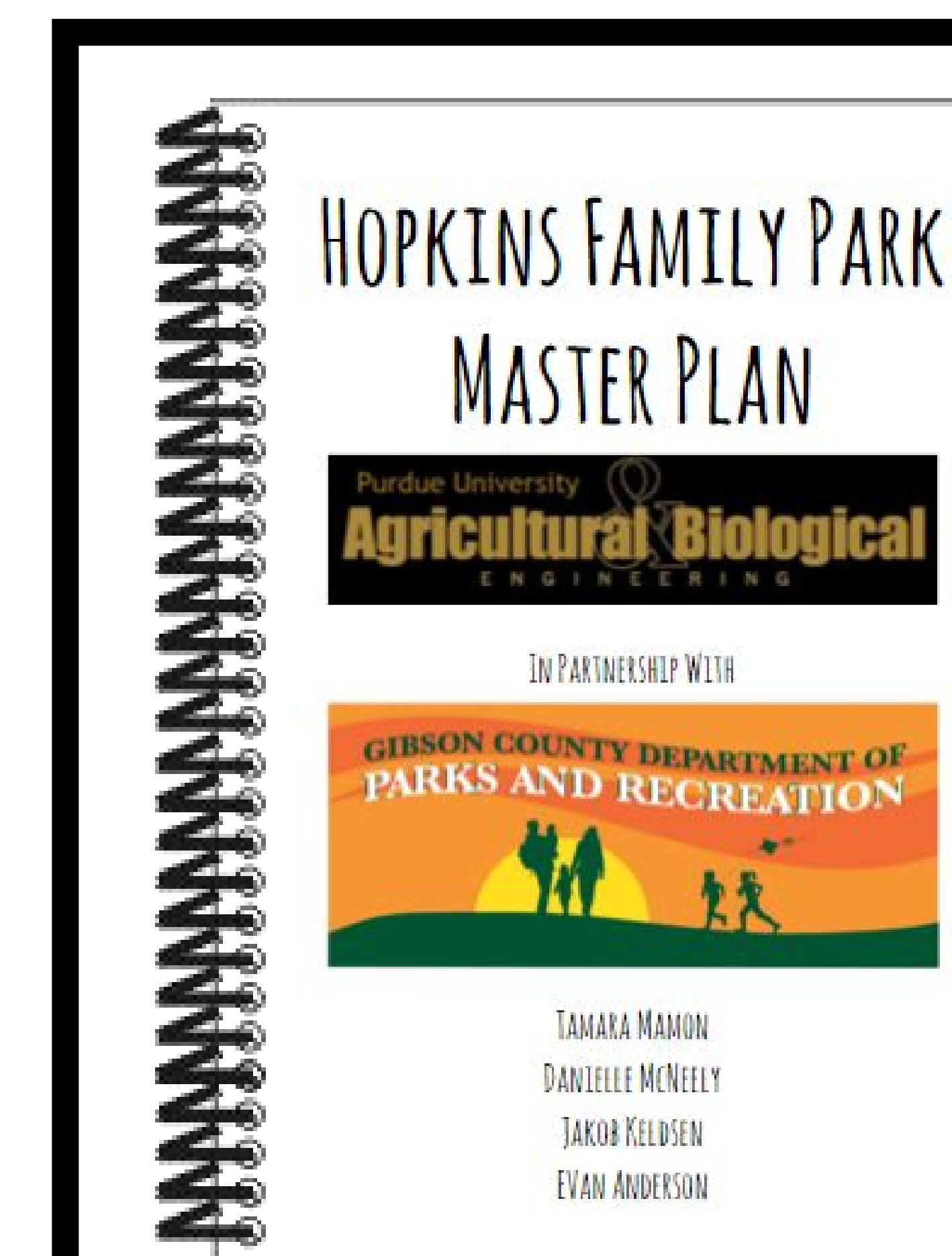


Figure 5. Master plan cover

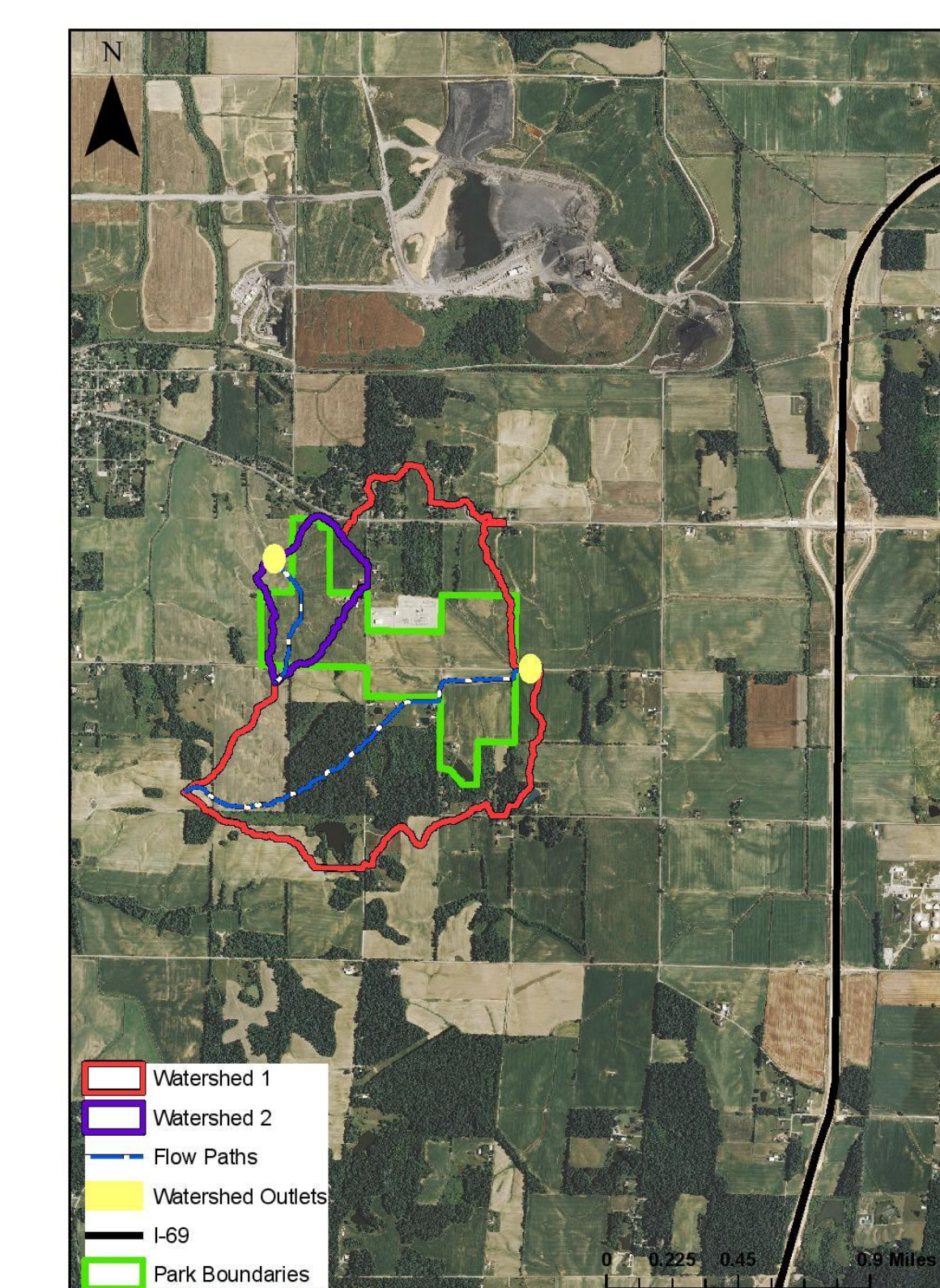


Figure 6. Watershed delineation model

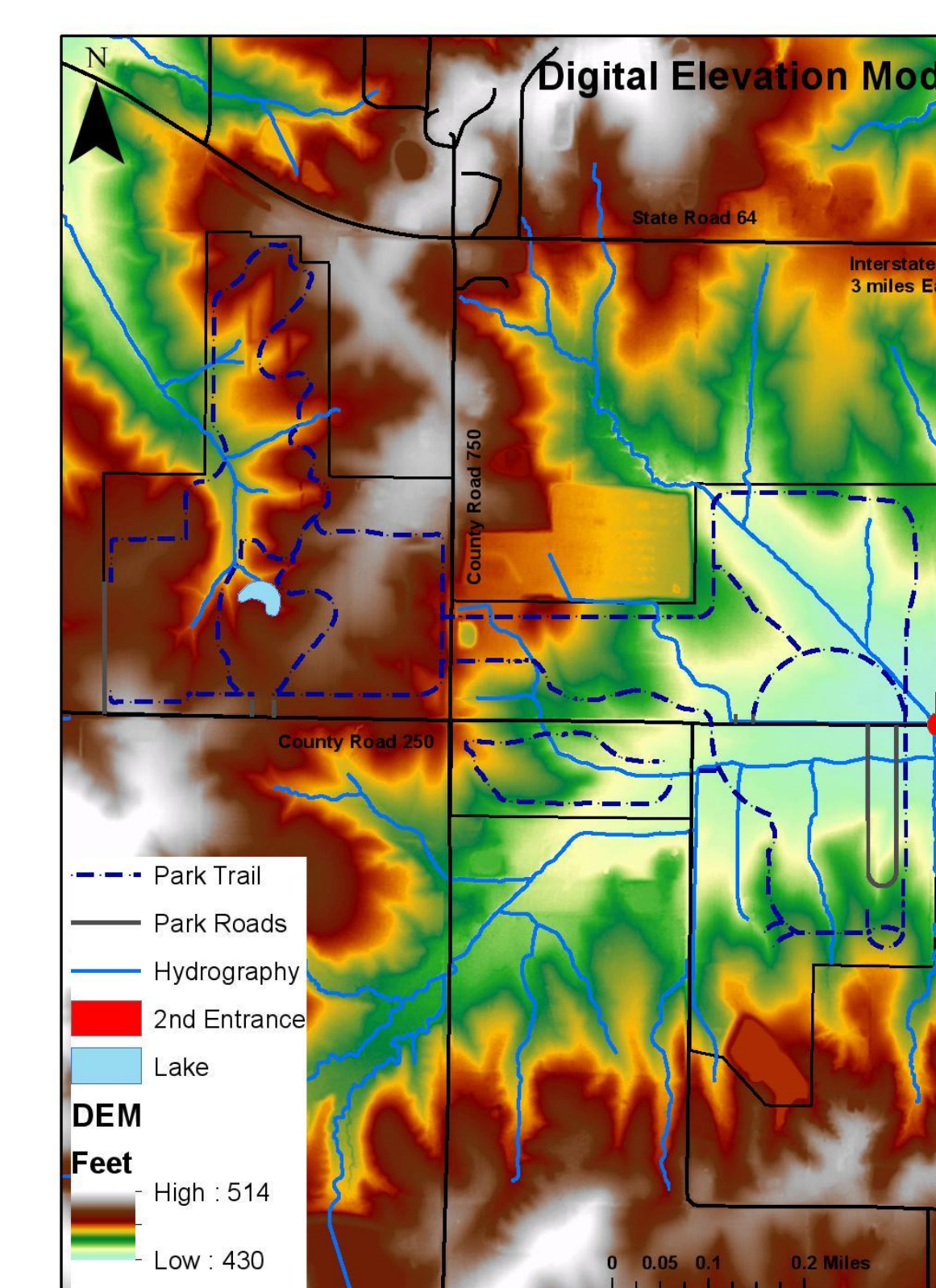


Figure 7. Digital elevation model

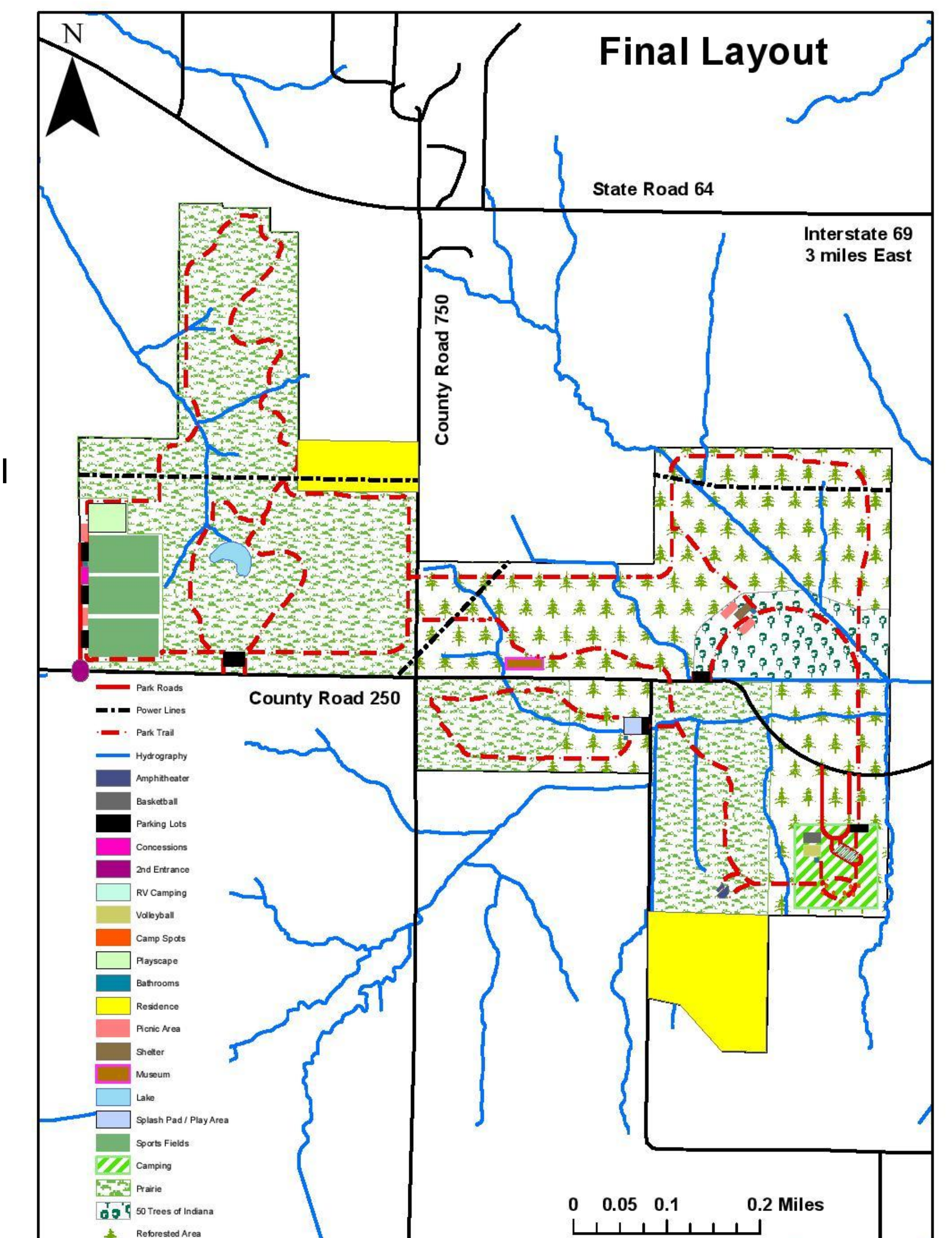


Figure 8. Final layout

Sponsor:
Gibson County Park Board

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Dr. Bernie Engel

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