Design, Construction and Implementation of a Statewide Real Time Kinematic GPS Network
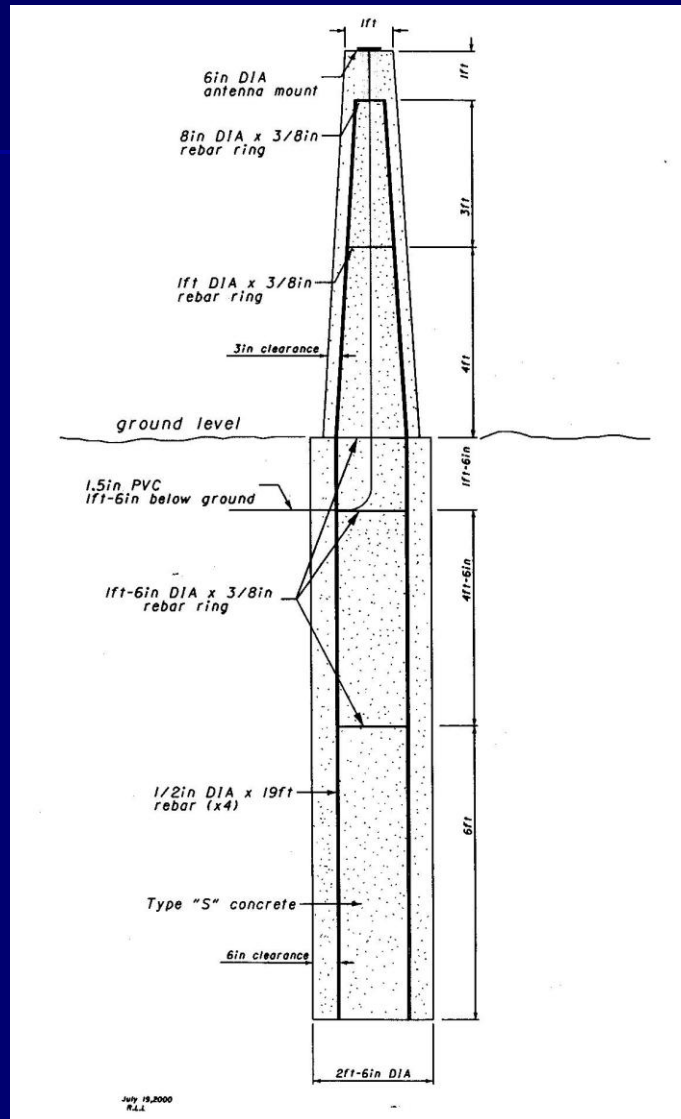
John A. Ray
Administrator
Office of Aerial Engineering
Ohio Department of Transportation
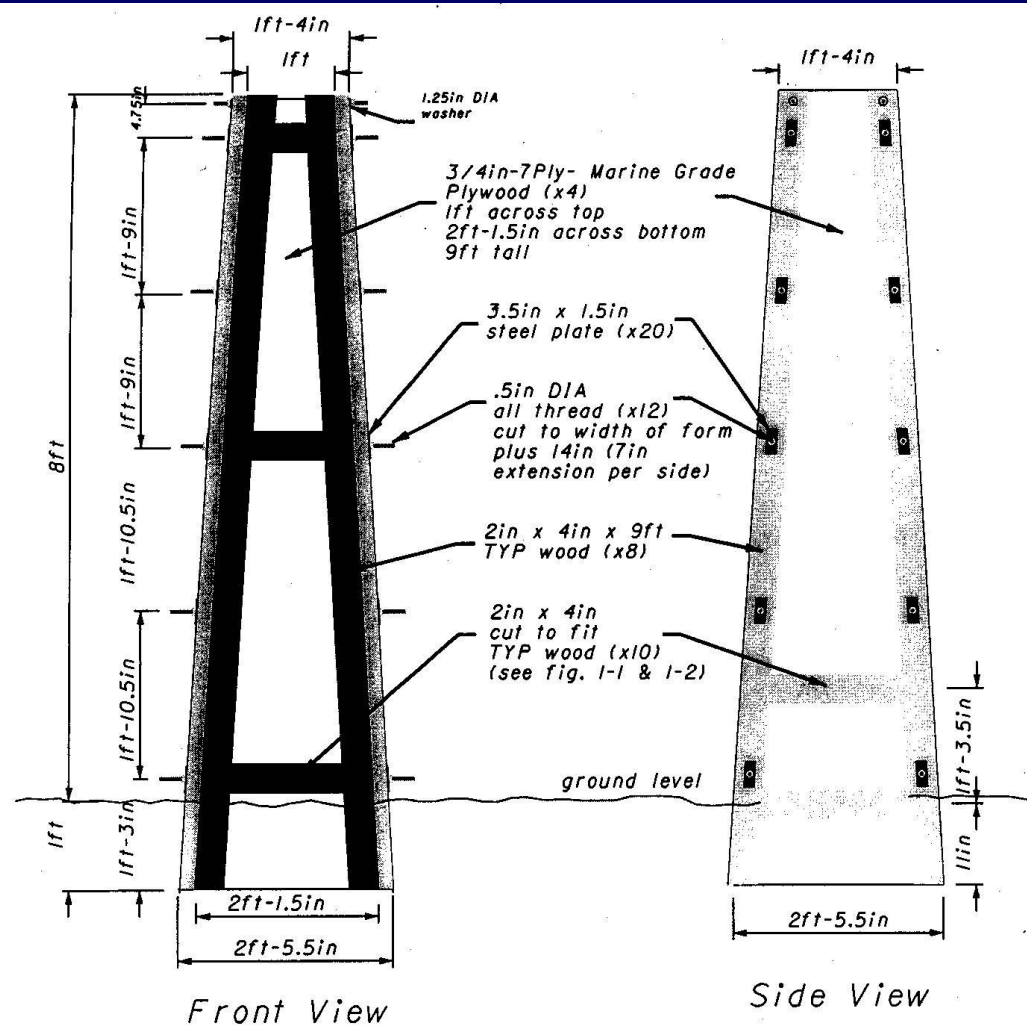
September 21, 2004

Design Considerations

- Monument Stability
- Signal Quality
- Continuous Power
- Lightning Protection
- Vandal Resistant
- Station Locations
- Network Connections
- Single Point Control
- Uniformity
- Connectivity
- Environmental Factors
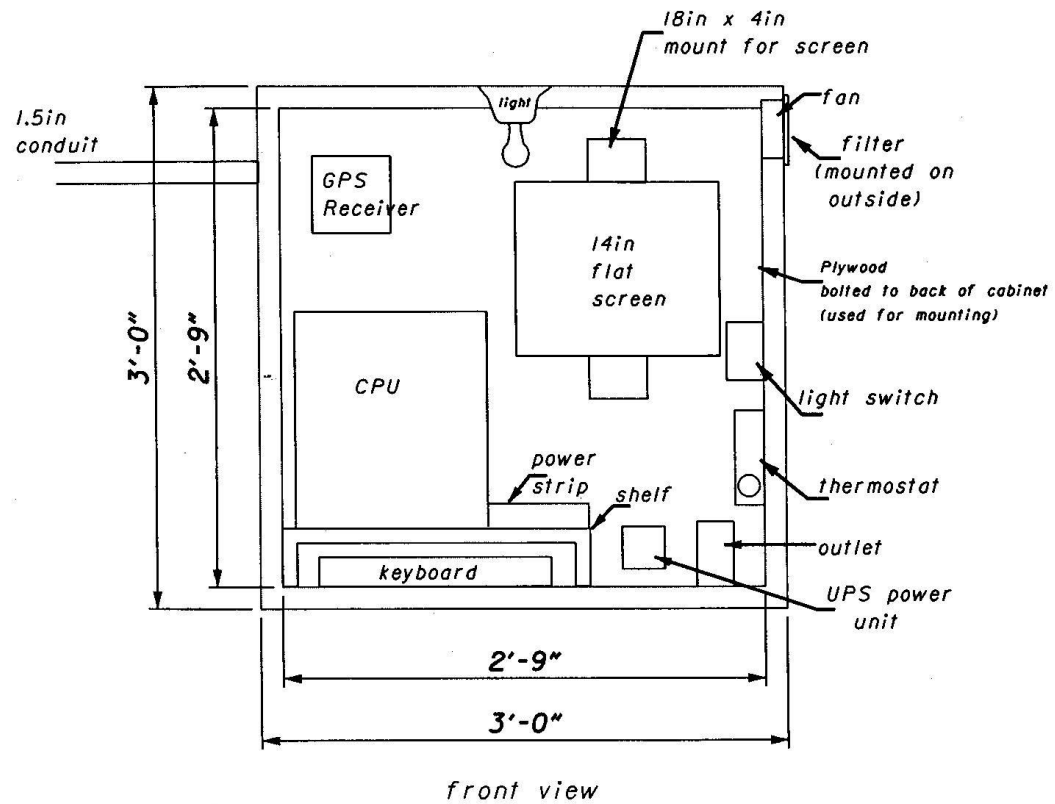- Maintenance
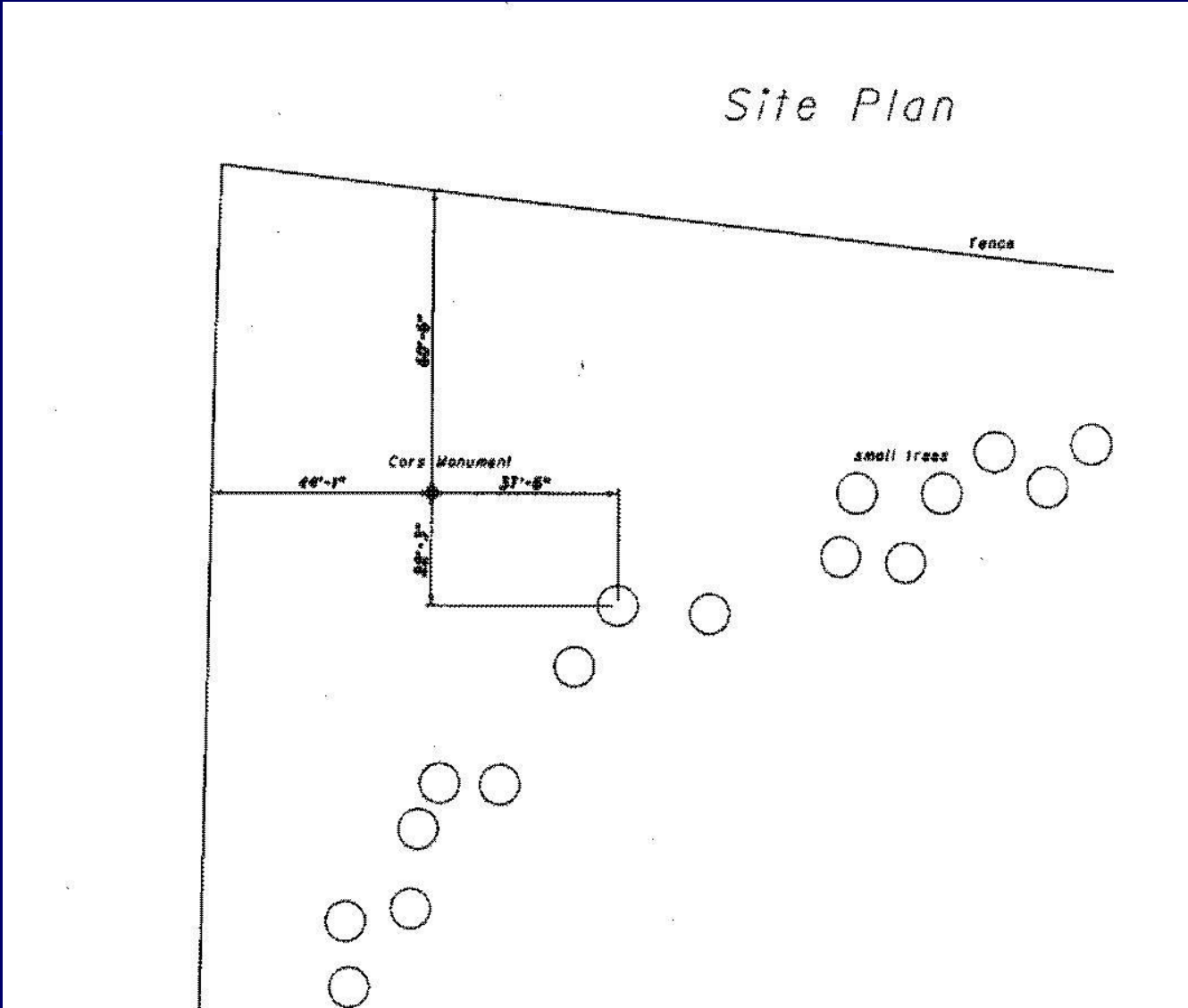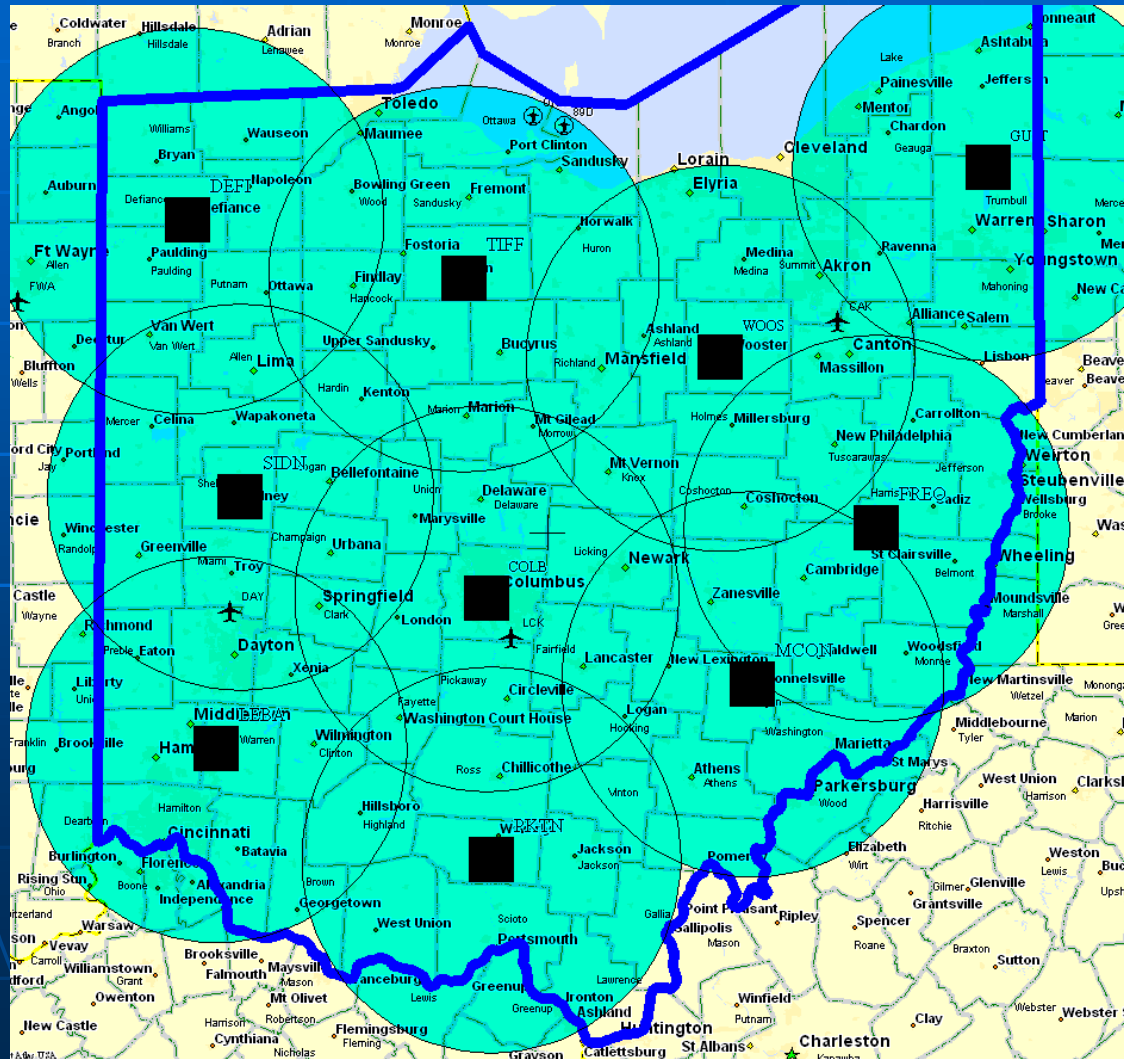
Monument Design

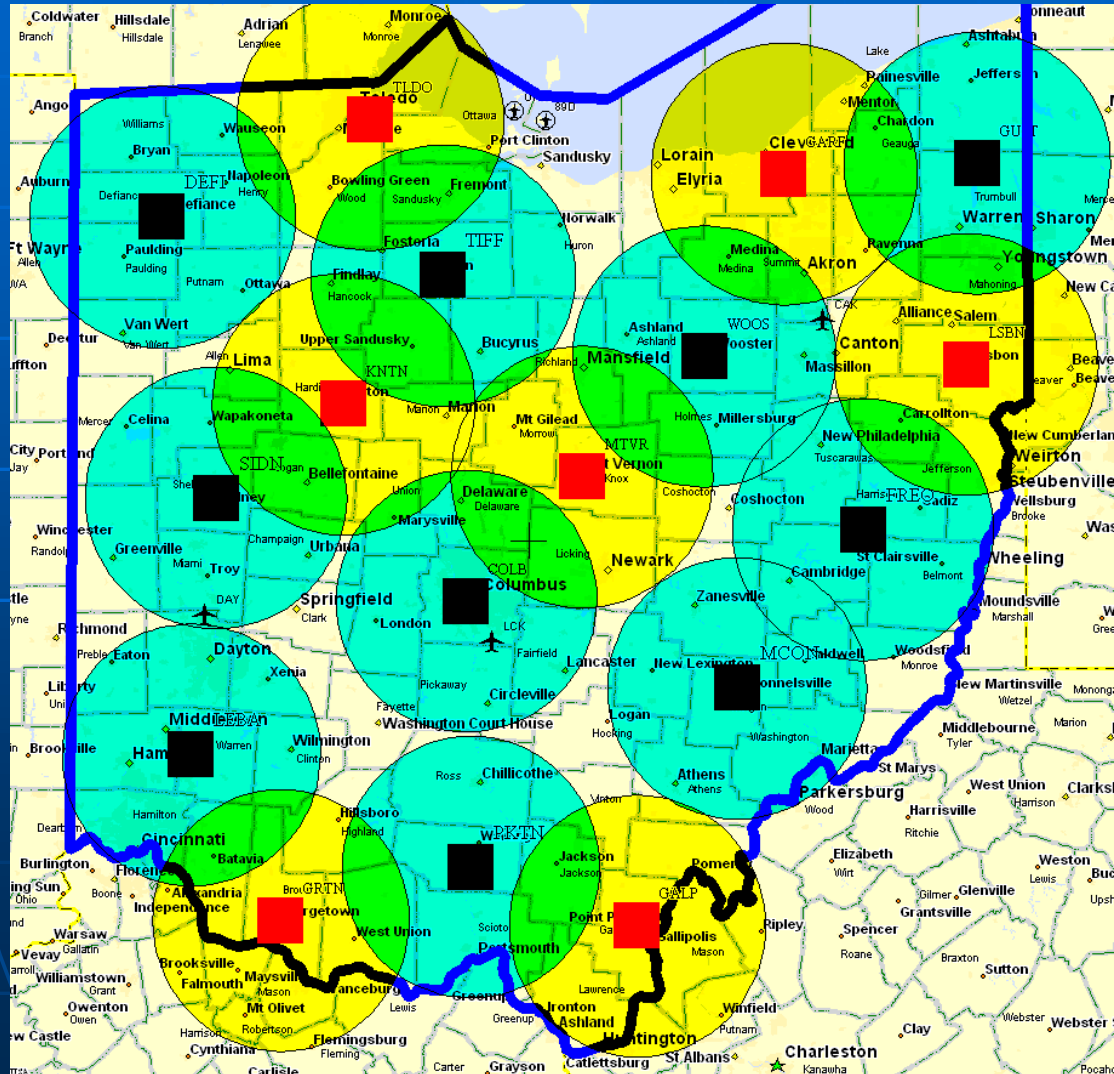# Form Design

Cabinet Design

Site Plan

Location Design
(Phase 1)

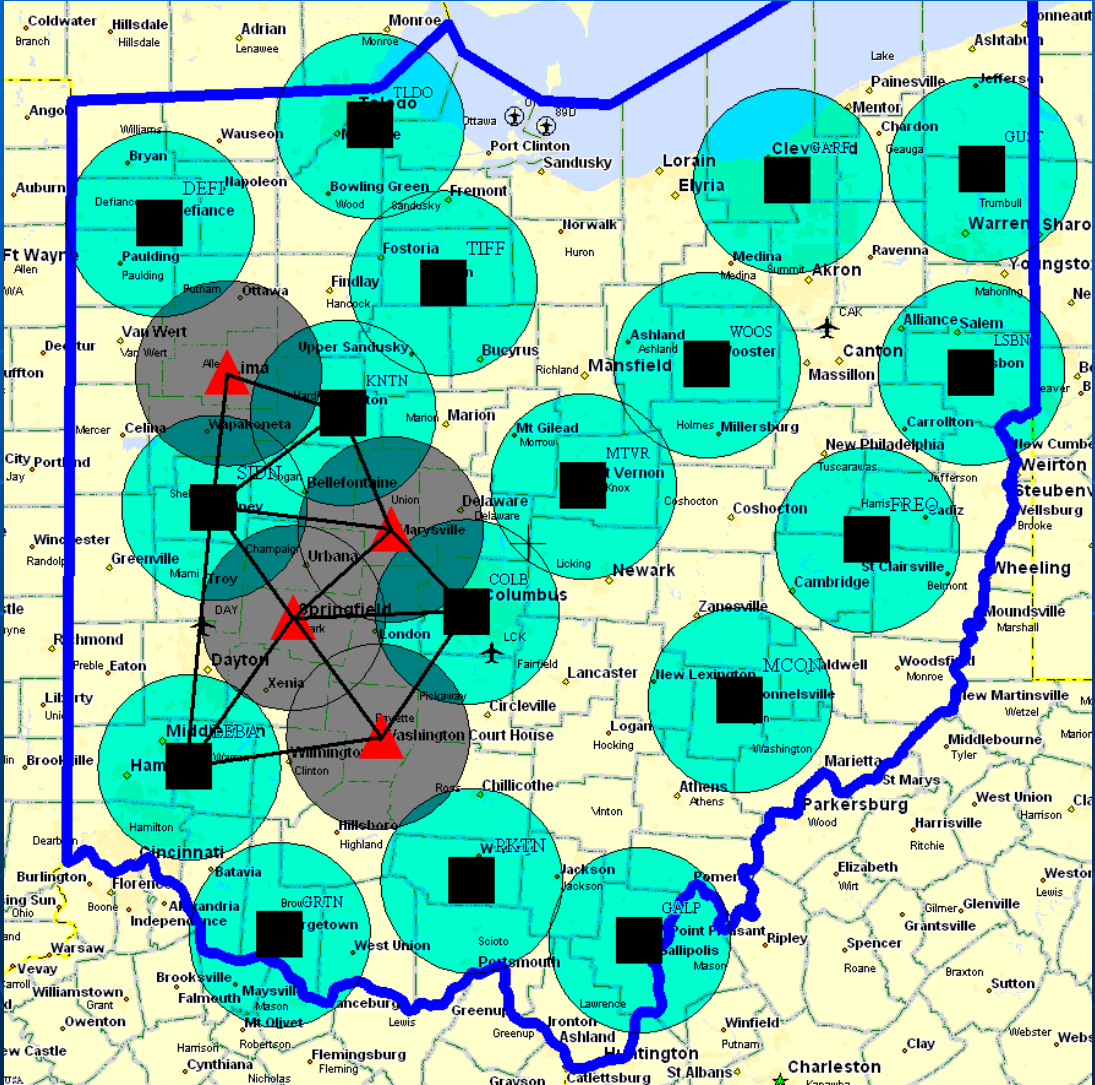# Location Design
(Phase 2)

Location Design (Phase 3)

Location Design (Phase 4)

Construction

We elected to construct the entire system ourselves to ensure quality control, modify the design as needed and have a complete understanding of the system for maintenance activities.

CORS Crew

L to R: Dave Beiter, Tim Burkholder, John Ray, Dave Albrecht, Rick Hentz, Jim Stafa & Greg Gerst

Construction
Testing Location for Data Quality

Construction
Test Hole

Construction
Drilling Hole

Construction
Set Reinforcing Steel

Construction
Ditch

Construction
Electrical Box

Construction
Set Forms

Construction
Pouring Concrete

Construction
Antenna Mount

Construction
Placing Antenna Mount

Construction
Completed Monument (Classic)

Construction
Completed Cabinet (Classic)

Construction
CORS Lite Mount
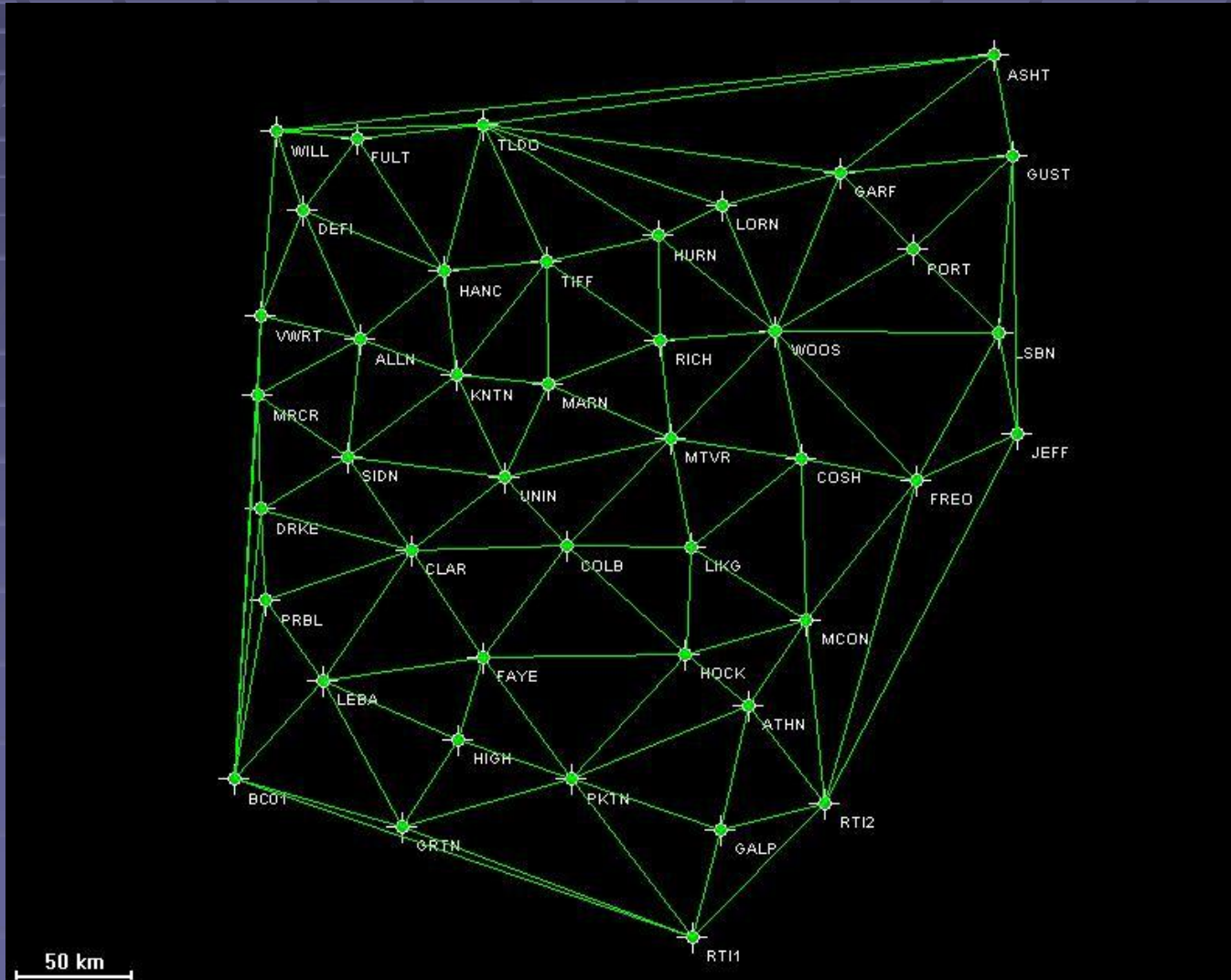
Construction
CORS Lite Cabinet

Implementation
Rover Equipment

Implementation
Telecommunications Solution

Implementation
Network Adjustment

Implementation

- User Agreements Pending!

Implementation
User Access

Each user will be assigned an "IP" address with a unique user log-on and password for authentication.

Implementation
Training / Public Awareness

Numerous training sessions and public presentations are planned to make potential users aware of what is available.

Implementation
System Management

- Daily monitoring
- Website updates
- NGS coordination
- Software Upgrades
- Hardware Upgrades
- Future planning
- Etc.

Implementation
Cooperation with other entities

- University

- City

- Private Company

- County

- County (outside Ohio)

Implementation
Maintenance

Preventative maintenance as well as emergency repairs will be performed to ensure maximum availability.