



2006 GIS-T Symposium Columbus Ohio

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**Developing a GIS based Asset/Pavement Management
Foundation for the Ohio Department of Natural
Resources**





Purpose of Project

- ④ Create a foundation for a state-wide Asset Management System

Pavement Management System as one of first components



Four Primary Objectives

- ④ Develop base maps and accurate data
- ④ Develop six year pavement management program
- ④ Develop infrastructure inventory application
- ④ Provide recommendations for implementation



Base Map Development

- ④ First Step – obtain list of ODNR properties
- ④ Second Step – compile existing data
- ④ Third Step – collect information from managers
- ④ Final Step – develop new shape files



Base Map Development



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Base Map Development

Ⓢ Assembling Inventory Data

Reliable sources employed (DOQQ's, plats, brochures, etc.)

Digitized features (center lines, parking, buildings, boat ramps, etc.)

QA/QC against manager's mark up maps



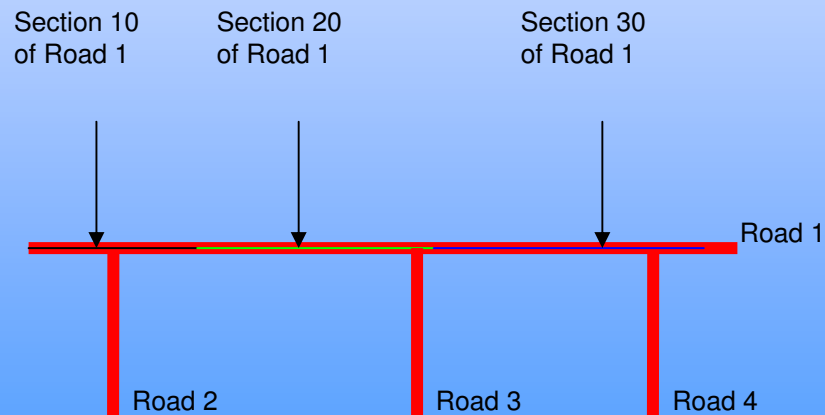
Pavement Management Program

- ④ Road inventory performed by field crews and aspects of road recorded in MicroPaver
- ④ *Goal:* Seamless integration between digitized roads and MicroPaver
- ④ Three basic steps for integration...



Pavement Management Program

- ④ First: Center line of roads broken in to sections and assigned unique ID to coincide with field data





Pavement Management Program

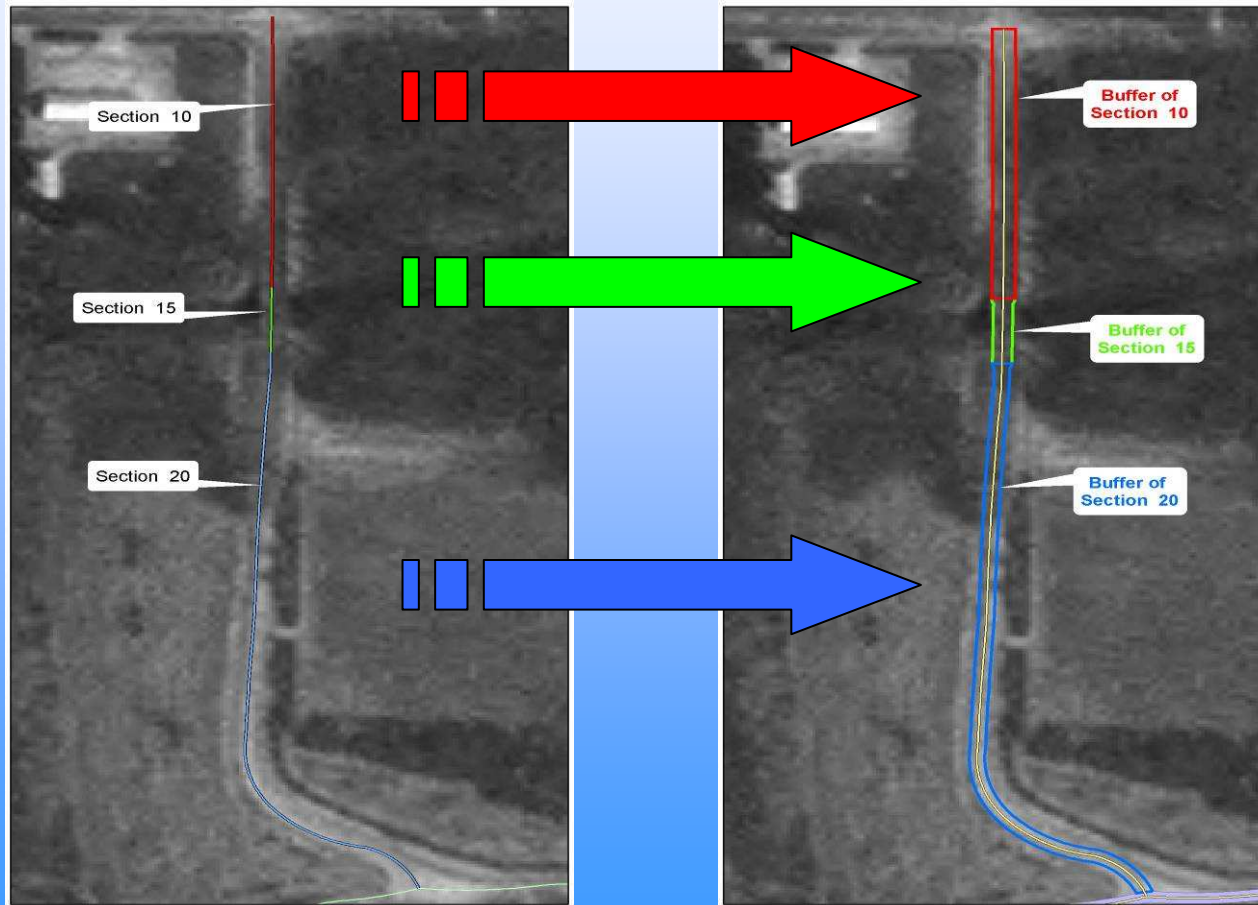
- ④ Next: Center line sections, linked with inventory data from MicroPaver, used to create polygons of each road section

Utilized *Create Buffers* tool in ArcView

Buffers based upon road's width data collected in field



Pavement Management Program



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Pavement Management Program

- ④ *Final Result:* road characteristics recorded in MicroPaver data set can be viewed in a spatial context

Road polygons assume attributes of the actual road via the inventory data collected in the field (material, condition, width, length, etc.)



Pavement Management Program



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Asset Inventory Application

- ④ *Purpose:* Collect information on ODNR assets within 20' of roadway
- ④ Developed using ArcPad
- ④ GPS based



Asset Inventory Application

Gates [X]

Feature Information [L] [R]

Gate ID:

Feature Description:

Condition:

Immediate Maintenance Needed

OK Cancel

Gates [X]

Location [L] Attributes [R]

Facility Name:

County:

Prefix

Road Name: Name

Sfx

Comments:

OK Cancel

Signs [X]

Sign Information [L] Post [R]

Sign ID:

Class:

Description:

Direction Facing: N [up] S [down]

Illuminated

Immediate Maintenance Needed

OK Cancel

Signs [X]

Post Information [L] Location [R]

Number of Posts:

Number of Signs on Post:

Post/Support Type: Wood [up] Steel [down]

OK Cancel



Asset Inventory Application

Drainage & Culverts [X]

Feature Information [B] [L] [R]

ID [1]

Material []

Design Type []

Condition []

Inlet End Treatment []

Outlet End Treatment []

Immediate Maintenance Needed

OK Cancel

Drainage & Culverts [X]

Measurements [B] [L] [R] Attribute [L] [R]

Length (ft) [0]

Width (ft)/Diameter (ft) [0]

Height (ft) [0]

OK Cancel

Bridges [X]

Feature Information [B] [L] [R]

ID [12] Structure Number [0]

Feature Intersected [Stream
River
Lake]

Get Bridge's Center

Immediate Maintenance Needed

OK Cancel

Bridges [X]

Measurements [B] [L] [R] Attribute [L] [R]

Structure Width (ft) [0]

Structure Length (ft) [0]

OK Cancel



Asset Inventory Application

Above Ground Utilities [X]

Feature Information [B] [L] [R]

Utility ID

Feature Description

Feature Class

Immediate Maintenance Needed

OK Cancel

Guardrails [X]

Feature Information [B] [L] [R]

Guardrail ID

Location on Road

Post Type

Guardrail Type

Roadway Delineator

Delineator Material

Immediate Maintenance Needed

OK Cancel

Roads [X]

Road Info [B] [L] [R] Attributes [B] [L] [R]

SUNIQUEID

OK Cancel

Parking Areas [X]

Parking Areas [B] [L] [R] Attributes [B] [L] [R]

ID

Facility Name

Feature Description

Comments

Immediate Maintenance Needed

OK Cancel



Recommendations

④ Asset Management System ~ Four Major Reasons:

Means of inventorying other assets and the necessary tools for managing those assets

Can assist in prioritizing of future projects

GIS allows for centralization of data

Information can be disseminated more efficiently and quickly



Recommendations

Ⓢ Data dissemination methods

ArcIMS

- Most highly recommended

Static Web

- Middle of the road

Non-web based

- Least recommended