

ROADWAY MANAGEMENT

Stark County, North Dakota

TODD MILLER, Crew Leader
STARK COUNTY ROAD
DEPARTMENT

P.O. Box 398

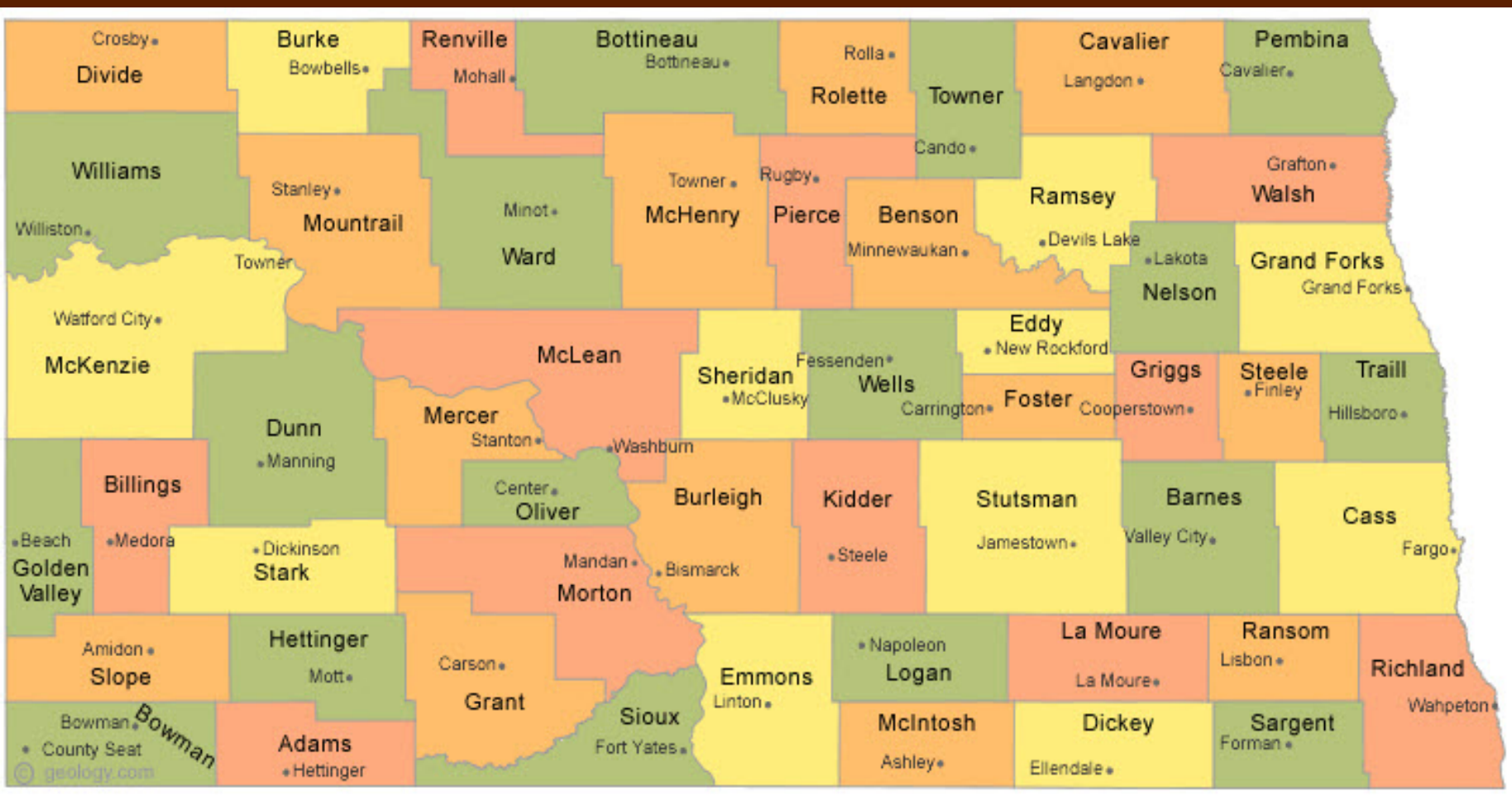
Richardton, ND 58652

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STARK COUNTY



Microcomputer, GPS & GIS DATA MANAGEMENT

- Microcomputer Data Management System
- Global Positioning System
- Geographical Information System



MICROCOMPUTER DATA MANAGEMENT SYSTEM {MDMS}

- IMPLEMENTED IN 2005
- MDMS Prog. Stark Co. (2).lnk



Time Card Front Side

Stark County Road Department

Name: _____

Month _____ Day _____ Year _____ Employee No.: _____

Activity Code	Street Address	Bridge	Employee Hours	Equipment Number	Equip. Hrs.	Miles	Comments

MATERIALS USED

Activity Code	Street Address	Bridge	Gravel Pit and/or Materials Used	Load/Material Count	Project Name

Time Card Back Side

Stark County Road Department Activity Work Codes

001 Approach Building	025 Flood Work	049 Road Inspection
002 Backhoe/Excavator Work	026 Funeral Pay	050 Sanding/Ice Control
003 Blacktop Patching	027 General Labor	051 Scraper Work
004 Blacktop Chip Sealing	028 Gravel Prospecting	052 Servicing Equipment
005 Blade/Spread Gravel	029 Hauling Material	053 Shoulder Discing
006 Blading Roads	030 Hauling Water	054 Sick Leave
007 Bridge Inspection	031 Holiday Pay	055 Signing Inspection
008 Bridge Repair/Maint.	032 Lawn Mowing	056 Signing Installation
009 Brooming/Sweeping	033 Laying/Repair Culverts	057 Signing Repair
010 Building Repair Maint.	034 Loader Work	058 Snow Removal
011 Clean Shop/Yard	035 Mailbox Repair	059 Sod Mulching Work
012 Cleaning Vehicles	036 Mechanical Work	060 Spraying Weeds
013 Computer Work	037 Meeting/Training	061 Survey Work
014 Construction Staking	038 Mix Salt/Sand	062 Travel
015 Courthouse Work	039 Motorgrader Work	063 Tree Trimming
016 Crack Sealing	040 Moving Equipment	064 Vacation Leave
017 Culvert Checking	041 Packer/Roller Work	065 Weed Mowing
018 Culvert Cleaning	042 Snow Equip. Install/Removal	066 Welding
019 Culverts Load/Stack	043 Parts Running	067 Grass Seeding
020 Dead Deer/Garbage	044 Picking Rocks	068 Erosion/Sediment Control
021 Family Leave	045 Pulling Shoulders	069 Drug Testing
022 Fence Work	046 Repair Equipment	070 Durapatching
023 Jury Duty	047 Repair/Change Tires	071 Laying Rock
024 Flagman Work	048 Replace Cutting Edges	GPS Global Positioning System

WHAT CAN WE DO WITH MDMS?

- EMPLOYEES
- ACTIVITIES
- PROJECTS
- REPORTS
- Snow Declaration (FEMA)



USING GPS & GIS MANAGEMENT

3 Phases:

- STARTED AND COMPLETED PHASE 1 IN 2008 (SIGN INVENTORY)
- COMPLETED PHASE 2 IN 2009 (BRIDGE INVENTORY)
- START PHASE 3 IN 2010 (CULVERT INVENTORY)



GOALS & OBJECTIVES

- **MEET GASB-34**

The mission of the Governmental Accounting Standards Board is to establish and improve standards of state and local governmental accounting and financial reporting that will result in useful information for users of financial reports and guide and educate the public, including issuers, auditors, and users of those financial reports.

- PHASE 1 – SIGN INVENTORY
- PHASE 2 – BRIDGE INVENTORY
- PHASE 3 – CULVERT INVENTORY
- GPS INVENTORY
- USE OF EXISTING GIS
- ASSET INVENTORY MANAGEMENT



PHASE 1 GPS SIGNS



1,802 Signs Inventoried
Accuracy = Submeter
with post processing

PAGE: 1
DATE: 10/13/2008

Djt_Sum.Rpt

STARK COUNTY ROAD DEPT

DAILY JOB DATABASE SUMMARY REPORT (EQUIPMENT & LABOR)

Searching for the following information:

First Date : 1/ 1/2008 Last Date : 10/15/2008

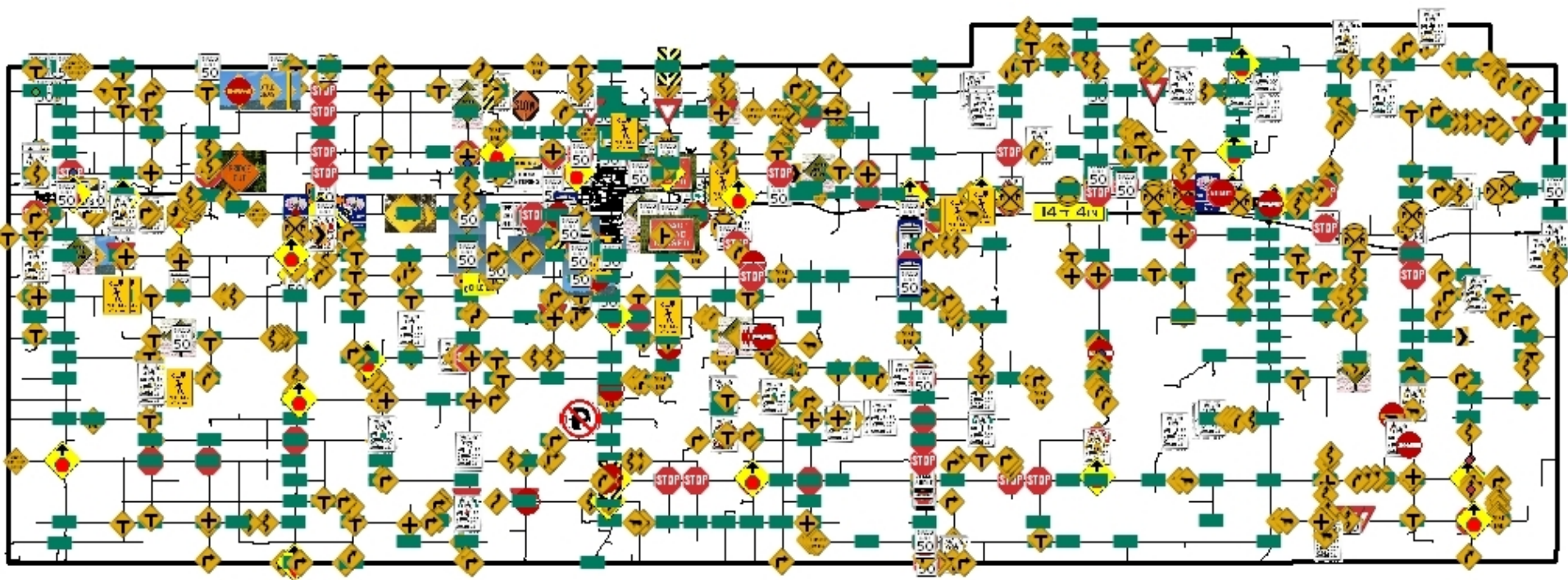
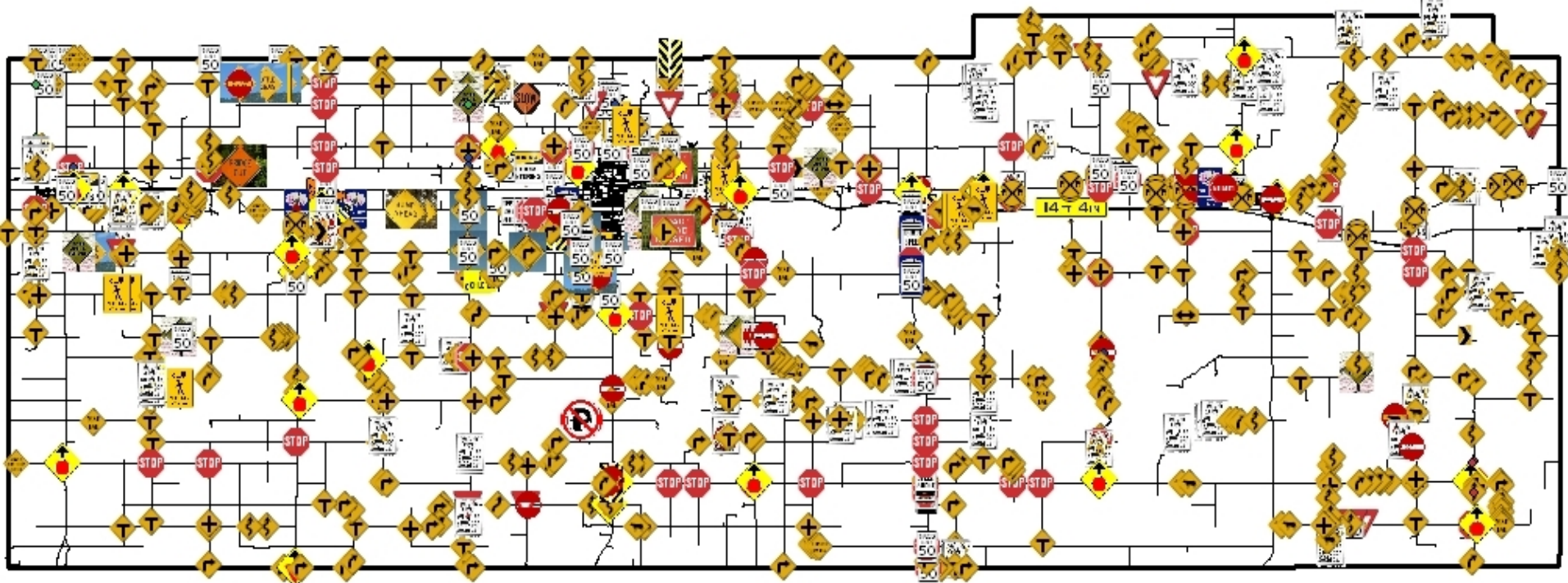
Employee Code & Name	: All Emp	*	*	*	*
Equipment Code & Description	: All Units	*	*	*	*
Road Code & Description	: All Roads	*	*	*	*
Surface Type & Description	: All Surfs	*	*	*	*
Activity Code & Description	: GPS	*	*	*	*
Material Code & Description	: All Matrls	*	*	*	*
Project Code	:				
Dept. Code & Description	: All Depts	-			
District Code & Description	: All Dists	-			

- Project Code Not Found

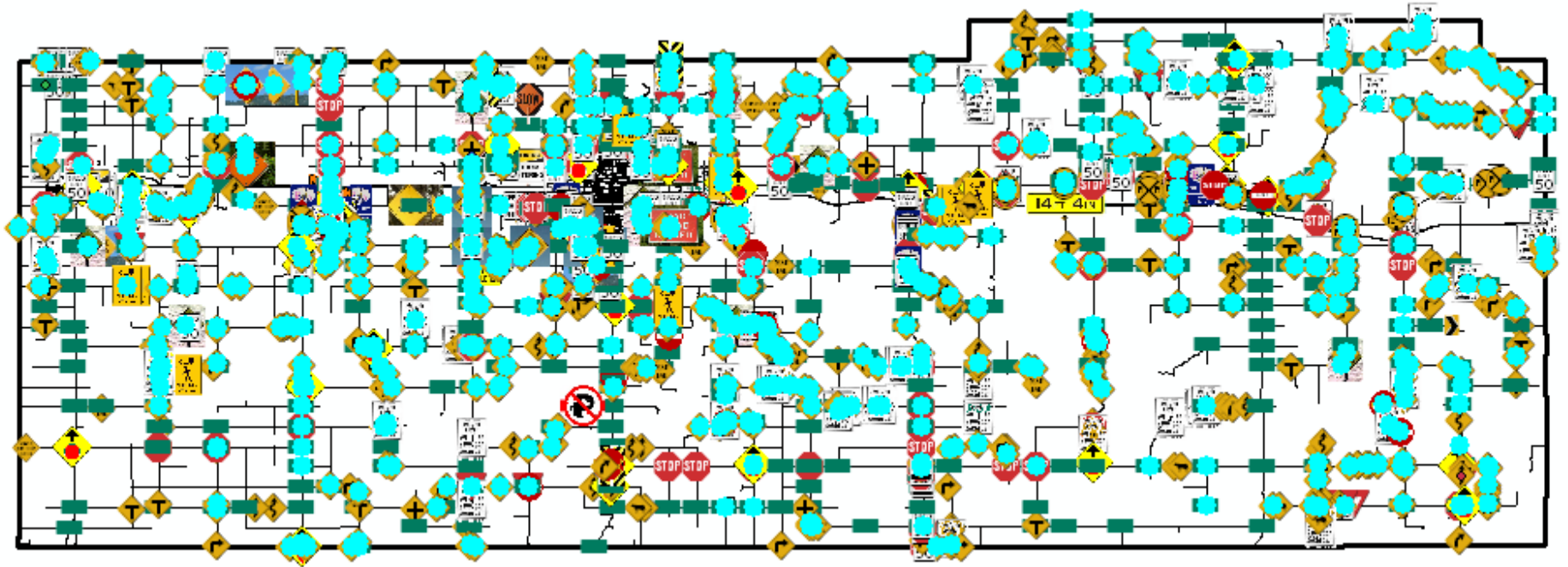
REPORT SUMMARY

Regular Hours	=	108.00
Over Time Hours	=	0.00
Equipment Miles/Hours	=	108.00
Rdwy. Length (Miles)	=	0.00
* Material Quantity	=	0.00
Labor Cost (Regular Time)	=	\$2,557.44
Labor Cost (Overtime)	=	\$0.00
Labor Cost (Total)	=	\$2,557.44
Equipment Cost	=	\$1,620.00
Material Cost	=	\$0.00
Total Cost	=	\$4,177.44

* Material quantities are meaningful only if the report is limited to a single material type.



DISTRIBUTION OF SIGNS WITH BULLET HOLES



PHASE 2

GPS BRIDGE, BOX CULVERTS, CATTLE PASSES AND GUARDS



BRIDGE INVENTORY

Identification

- 45 – STATE INVENTORY
- SC – STARK COUNTY (Bridges less than 20 Feet in Length)
- SCBX – Stark County Box Culverts
- SCCG – Stark County Cattle Guards
- SCLW – Stark County Low Water Crossings
- SCCP – Stark County Cattle Passes



STARK COUNTY STRUCTURES

- 45 = 84 State Inventory
- SC = 46
- SCBX = 33
- SCCG = 48
- SCCP = 14
- SCLW = 16
- TOTAL BRIDGES = 130
- TOTAL STRUCTURES = 241



SUMMARY REPORT

PAGE: 1
DATE: 8/ 5/2009

Dj4_Sum.Rpt

STARK COUNTY ROAD DEPT

DAILY JOB DATABASE SUMMARY REPORT (EQUIPMENT & LABOR)

Searching for the following information:

First Date : 6/ 1/2009 Last Date : 7/28/2009

Employee Code & Name	: 132	*	*	*	*
Equipment Code & Description	: All Units	*	*	*	*
Road Code & Description	: All Roads	*	*	*	*
Surface Type & Description	: All Surfs	*	*	*	*
Activity Code & Description	: GPS	*	*	*	*
Material Code & Description	: All Matrls	*	*	*	*
Project Code	: GPSB				
Dept. Code & Description	: All Depts	-			
District Code & Description	: All Dists	-			

- GLOBAL POSITIONING BRIDGE STRUCTURES

REPORT SUMMARY

Regular Hours	=	81.00
Over Time Hours	=	0.00
Equipment Miles/Hours	=	81.00
Rdwy. Length (Miles)	=	0.00
* Material Quantity	=	0.00
Labor Cost (Regular Time)	=	\$2,013.66
Labor Cost (Overtime)	=	\$0.00
Labor Cost (Total)	=	\$1,963.94
Equipment Cost	=	\$1,215.00
Material Cost	=	\$0.00
Total Cost	=	\$3,178.94

* Material quantities are meaningful only if the report is limited to a single material type.

GPS & GIS IN ACTION

- [ArcMap.Ink](#)



PHASE 3

- CULVERT INVENTORY
- GPS LOCATION (INLET & OUTLET)
- LINEAR FEET OF PIPE
- CONCRETE – STEEL- PLASTIC
- CONDITION
- HISTORICAL & REPLACEMENT COSTS



HIGHLIGHTS

- COOPERATION BETWEEN DEPARTMENTS
- SAVED \$ BY PROGRAMING GPS UNIT AND DATA COLLECTION OURSELVES
- 108 HOURS TO COLLECT SIGN DATA
- OVER 1800 GPS SIGN LOCATIONS
- 81 HOURS TO COLLECT BRIDGE DATA
- GPS 240 STRUCTURE LOCATIONS
- 191 HOURS TOTAL TO COLLECT 2040 GPS LOCATIONS
- ANALYSIS OF COST & ASSET INVENTORY MANAGEMENT



BRIDGE MARKERS FOR SECONDARY ROADS



QUESTIONS?



