ITS Applications on Rural Highways

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McLeod County ITS Applications

• Installed 3 systems in 2011
• Intended to increase awareness of cross traffic
• TAPCO provided and installed the systems
• Funded primarily by Federal Highway Safety Improvement Funds (HSIP)
  – Approximately $20k per intersection
ITS System 1 & 2

- McLeod CSAH 3 Corridor
- Two way stop condition
- Minor sight distance obstructions
ITS System 1 & 2 ADT

- 1,300 2009 ADT CSAH 3
- 1,500 2009 ADT CSAH 15
- 1,000 2009 ADT CSAH 2
ITS System 1 & 2 Function

• Radar unit mounted on cross road sign (W2-1) to detect crossing uncontrolled traffic
• Edge LED flash stop signs activate when cross traffic is detected
• Draws extra attention to stopping drivers
• Solar powered system
ITS System 1 & 2 Details

NOTES:
1. ALTERNATIVE INSTALLATION CONFIGURATIONS MAY BE APPROVED BY THE ENGINEER PROVIDED THEY PERFORM THE FUNCTIONS INTENDED OF THE INTERSECTION WARNING SYSTEM.
2. SHOP DRAWINGS MUST BE SUBMITTED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
3. ALL SIGNS SHALL BE 36" IN SIZE AND SHEETING SHALL BE DD OR APPROVED EQUAL.
4. CONTRACTOR SHALL ENSURE THAT ALL (E.G., SIGN PANELS AND RADAR UNITS ARE ALIGNED PROPERLY TO FUNCTION IN ACCORDANCE WITH THE APPROACHING TRAFFIC, ANY MISALIGNMENT SHALL BE CORRECTED TO THE ENGINEER'S SATISFACTION.
5. ALL SIGN STRUCTURES SHALL BY TYPE 2U-1A WITH KNEE BRACE.
6. EXACT SIGN LOCATIONS TO BE STAKED BY THE ENGINEER IN THE FIELD.
System 1 Stop Sign
System 1 Detection Sign
System 1 Radar & Control Box
ITS System 3

- New CSAH 115 SW Hutchinson ring road
- Traffic control change with project
- Two way stop condition
ITS System 3 ADT

- 1,000 2009 ADT CSAH 115 (pre-construction)
- 3,150 ADT CSAH 115 projected (post-construction)
- 1,700 2009 ADT CSAH 7

- Dominant movement changed after bypass construction
- Stop direction changed as a result
- Some vehicles ran the stop sign or failed to yield
- Constant flash LED edge lit stop signs were installed
ITS System 3 Function

- Radar unit mounted on stop ahead sign to detect approaching stopping traffic
- Edge LED flash cross traffic signs (W2-1) activate when cross traffic approaches
- Additional awareness to look at stopping vehicles in case they fail to stop and yield
- Solar powered system
ITS System 3 Details

NOTES:
1. ALTERNATIVE INSTALLATION CONFIGURATIONS MAY BE APPROVED BY THE ENGINEER PROVIDED THEY PERFORM THE FUNCTIONS INTENDED OF THE INTERSECTION WARNING SYSTEM.
2. SHOP DRAWINGS MUST BE SUBMITTED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
3. ALL SIGNS SHALL BE 16" IN SIZE AND SHIELTING SHALL BE GG3 OR APPROVED EQUAL.
4. CONTRACTOR SHALL ENSURE THAT ALL L.E.D. SIGN PANELS AND RADAR UNITS ARE ALIGNED PROPERLY TO FUNCTION IN ACCORDANCE WITH THE APPROACHING TRAFFIC. ANY MISALIGNMENT SHALL BE CORRECTED TO THE ENGINEER'S SATISFACTION.
5. ALL SIGN STRUCTURES SHALL BY TYP 2U-1A WITH KNEE BRACE.
6. EXACT SIGN LOCATIONS TO BE STAKED BY THE ENGINEER IN THE FIELD.
System 3 Cross Road Sign
System 3 Detection Sign
System Brains and Battery
Fault Notification

- TAPCO provided an online monitoring system
- We requested an on-site notification system
- TAPCO came up with the LED green light
- If the light goes out the system is in fault
- Requires observation by county staff
Fault Notification (LED green light)
Thank You!