

Effectiveness of Driver Speed Awareness Signs in Suburban Speed Transition Zones

ITE District IV Meeting
Rochester, MN
June 14-16

Ted Schoenecker, P.E. – Washington County
Kristi Sebastian, P.E. – Dakota County
Dan Soler, P.E. – Ramsey County

The Problem

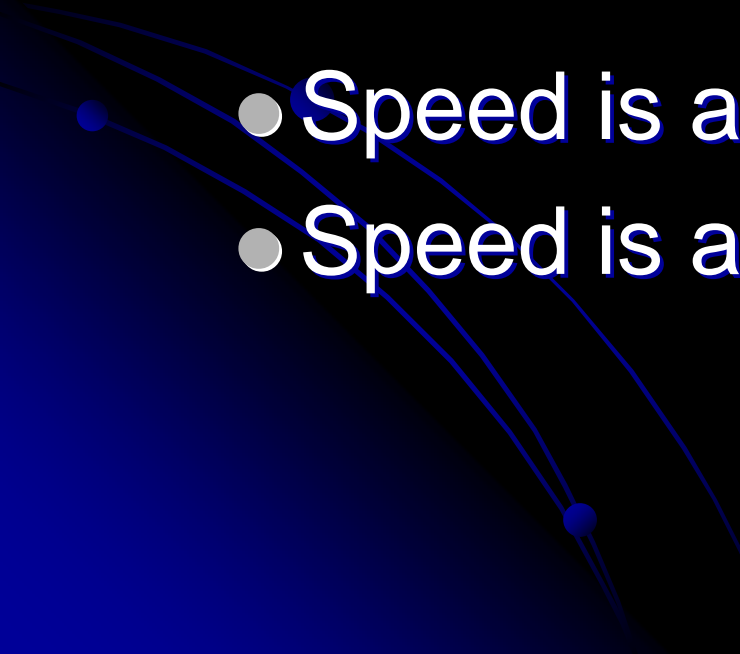
- Speeding a top concern – transition zones
- Enforcement Difficult
- Portable Trailer Mounts – Short Term Effectiveness
- Toolbox limited
- **But – WHY do we need to manage traffic?**



Not Effective Long Term



The Real Reason(s)

- Speed is a regular complaint
 - Speeding is a safety issue
 - Speed is a contributing factor to crashes
 - Speed is a factor in the severity
- 

The Real Reason(s)

- Safest speed is speed that majority of drivers drive
- 85% speed as the important factor.

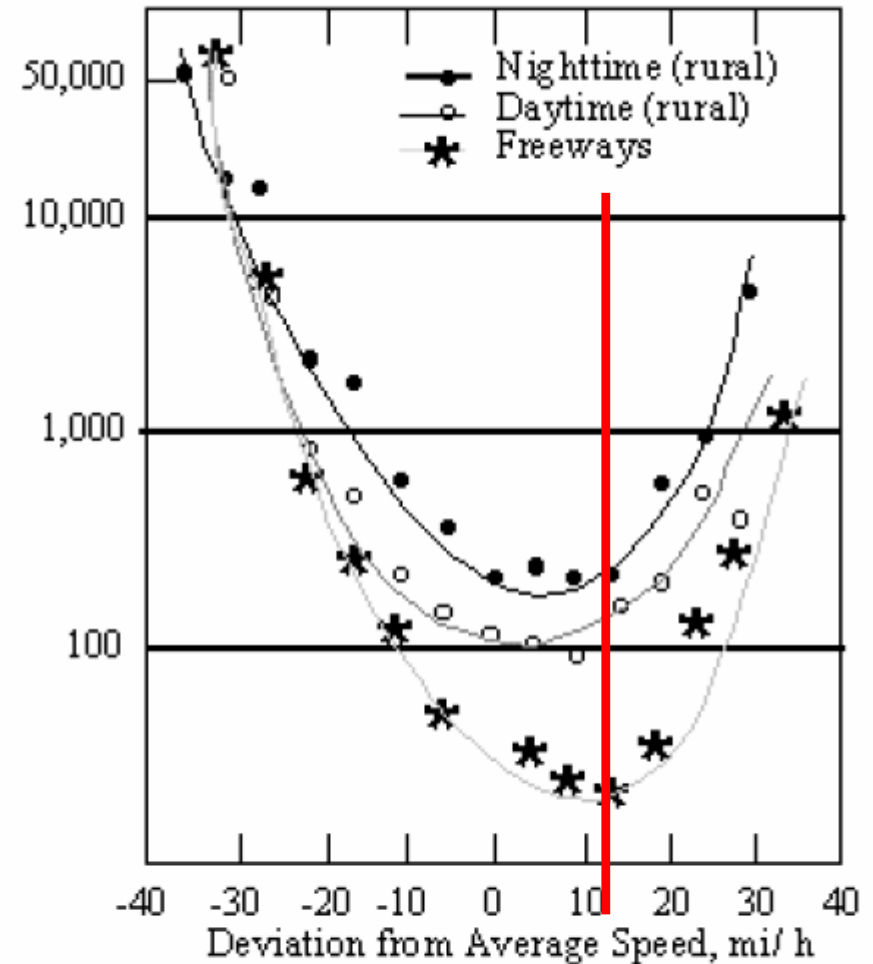


Figure 1. Crash involvement rate by deviation from average travel speed (from Solomon, 1964, and Cirillo, 1968).

The Technology

Below
Regulatory
Sign

Flashes if
Over Limit

Permanently
Mounted



Lakeland Location – 50 mph to 45 mph

Display
Actual Speed

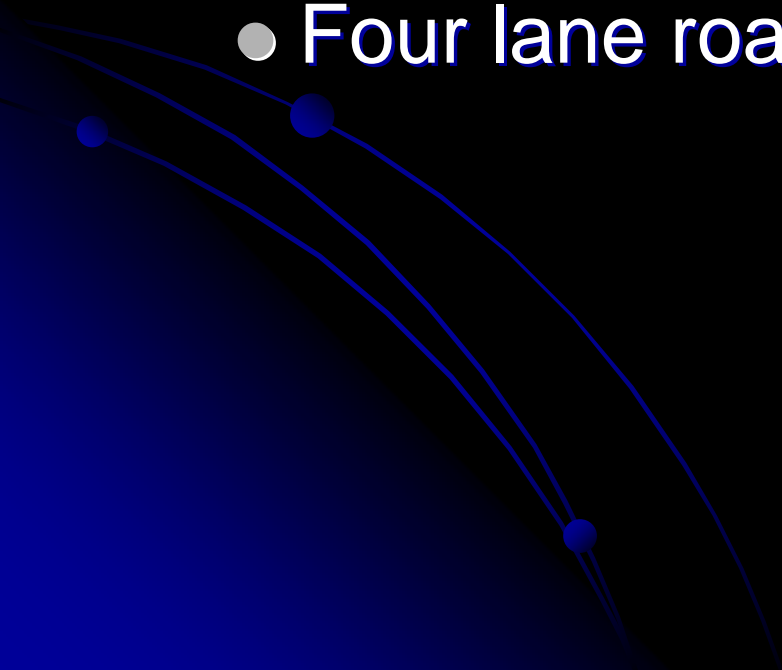
Driver Speed
Awareness
Sign

The Study



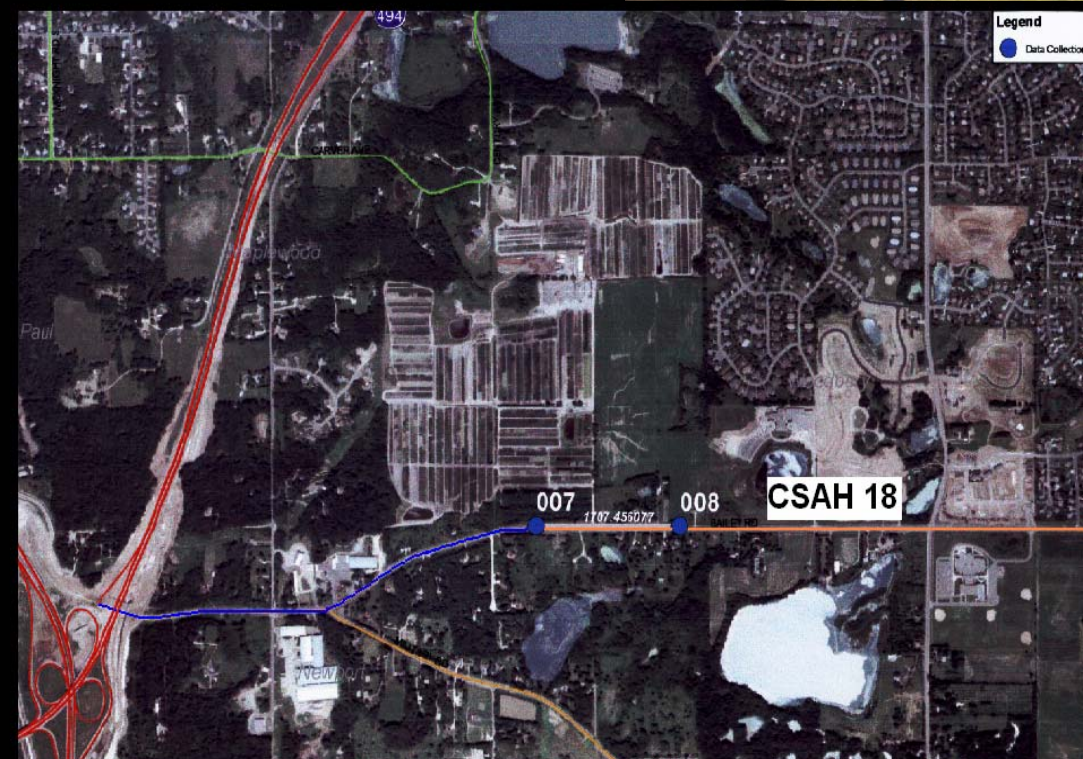
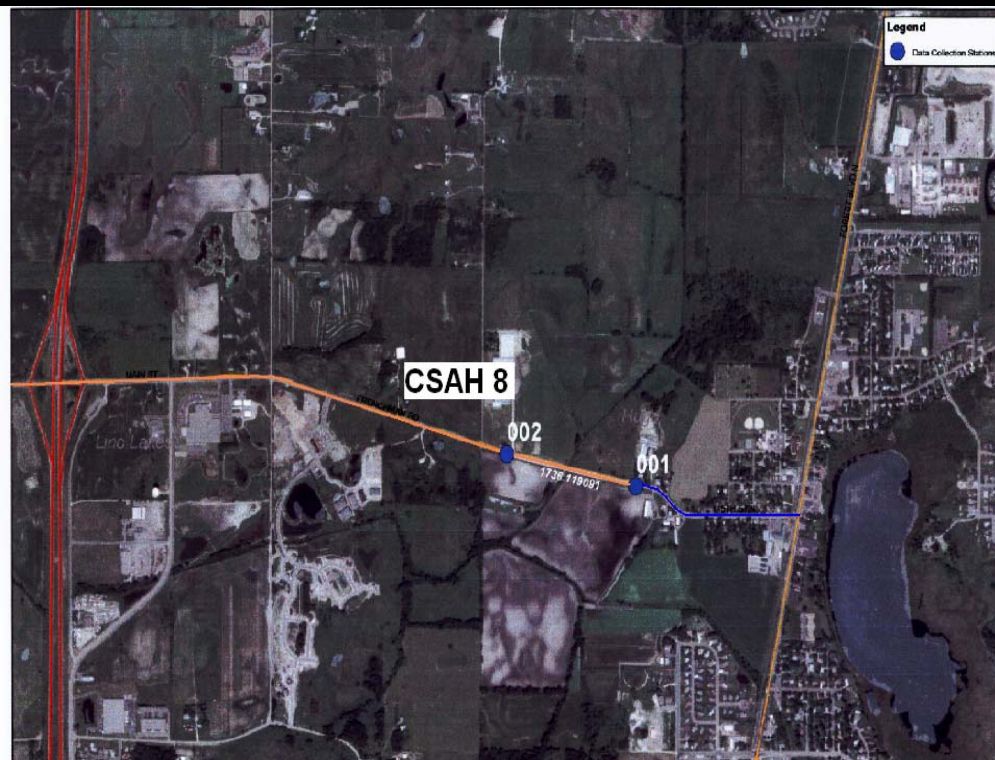
Type of Locations Studied

- Speed transition zones
 - Study of two lane roads into a city
 - Four lane road in a school zone



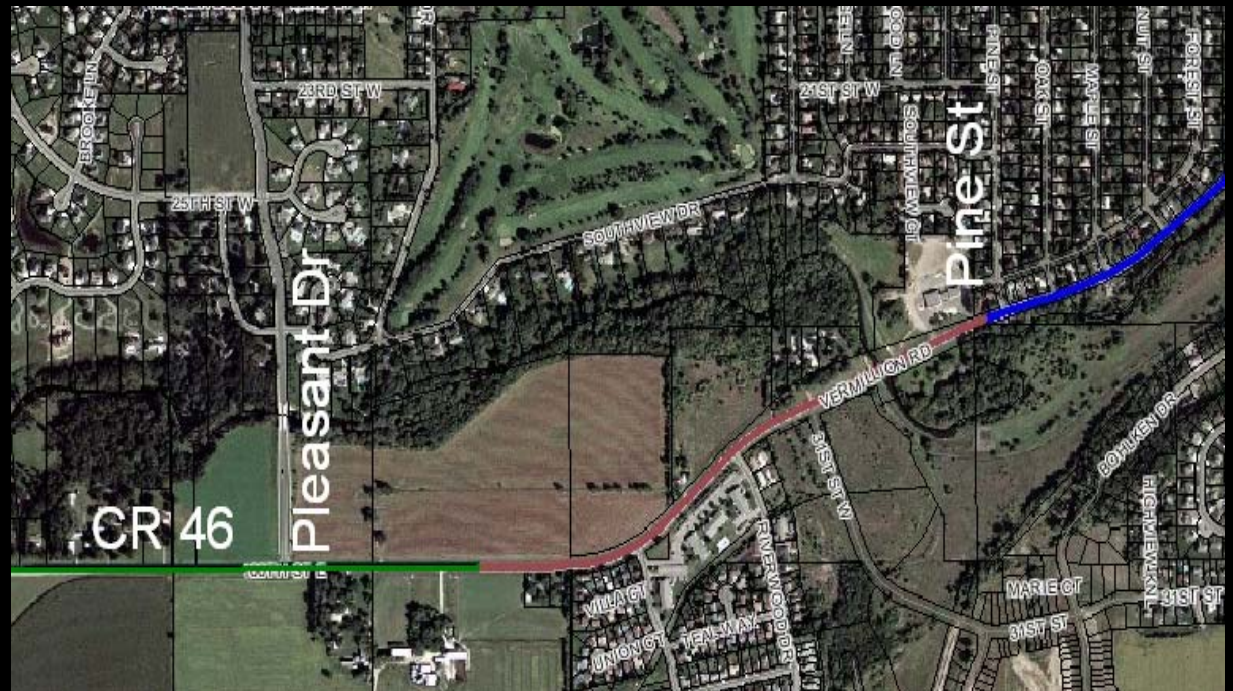
Washington County

- CSAH 8 from 50 mph to 30 mph
- CSAH 18 from 55 mph to 40 mph



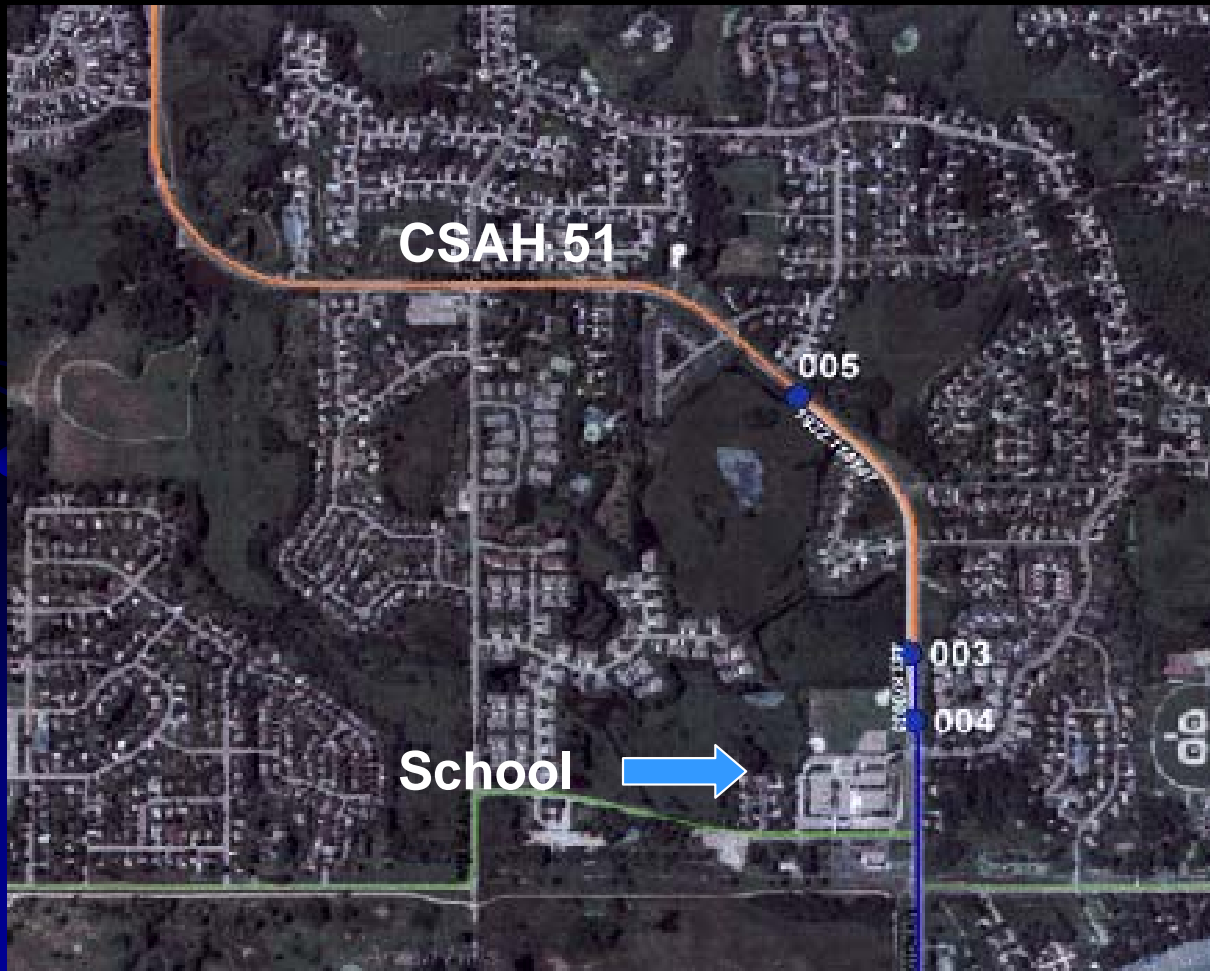
Dakota County

- Located in a high speed area into the city of Hastings
- 2 Tiered Transition Zone




Ramsey County

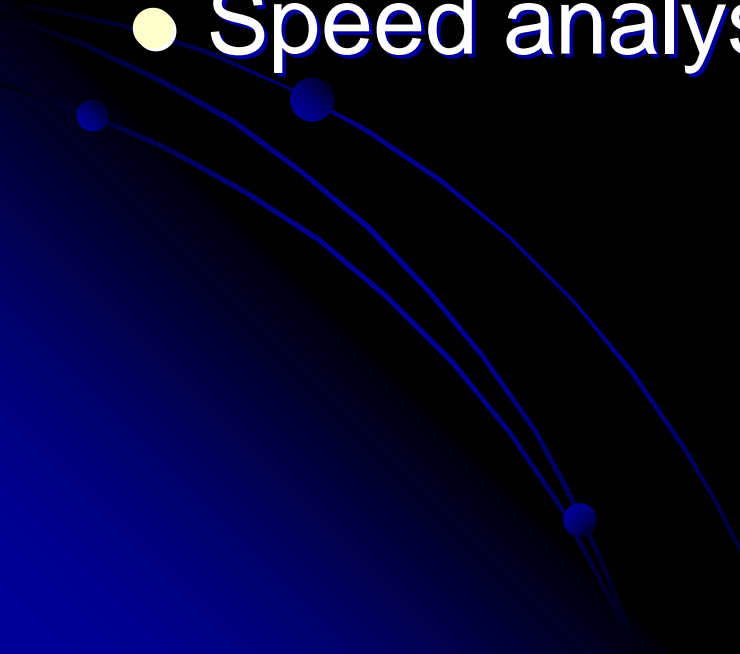
- Elementary School Speed Zone 45 mph to 30 mph
- Lexington Ave in the city of Shoreview



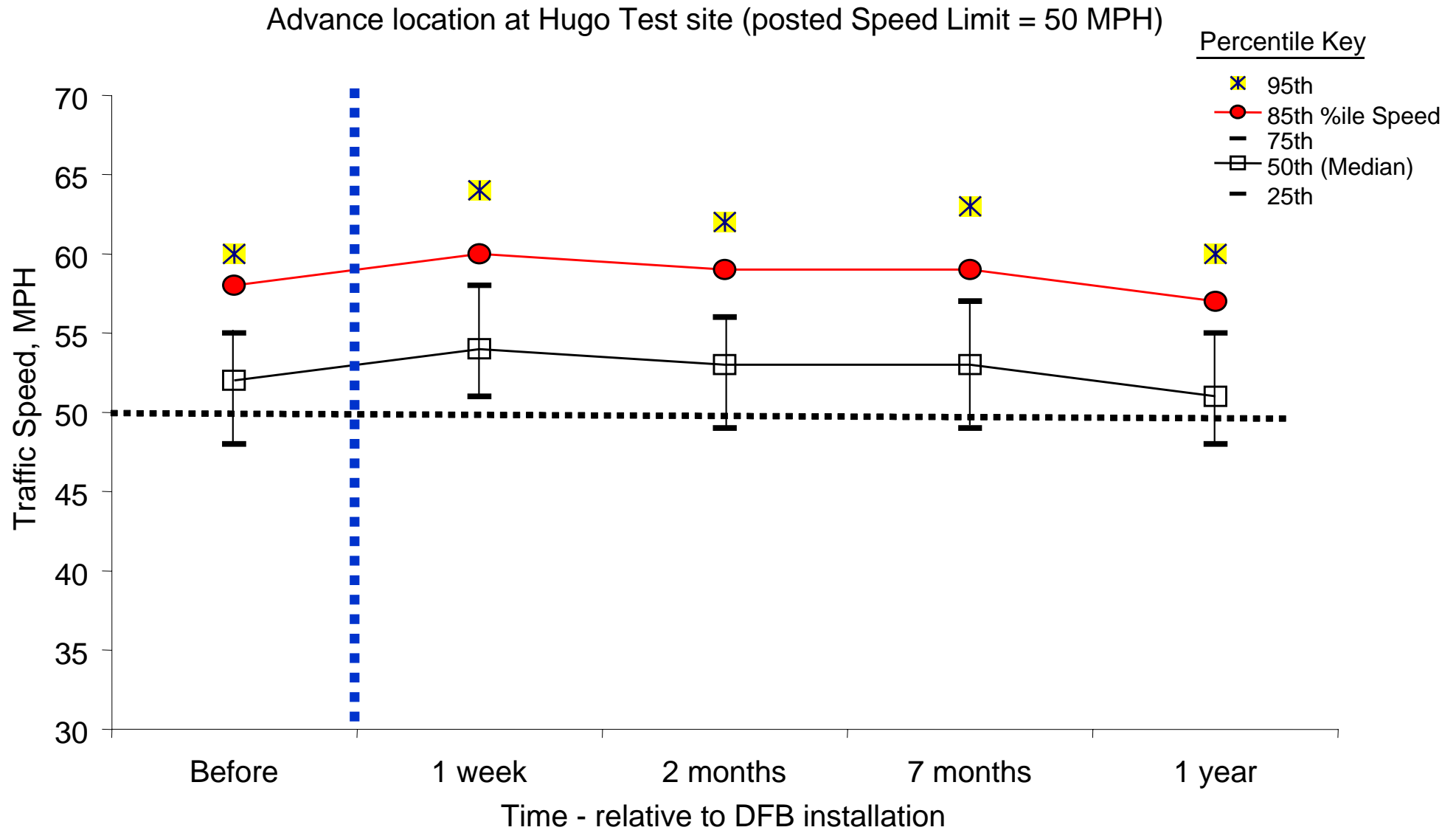
Why conduct a study?

- Approval to do study
 - Lack of long term studies
 - Ensure effectiveness
 - Develop guidelines
- 

Study Results

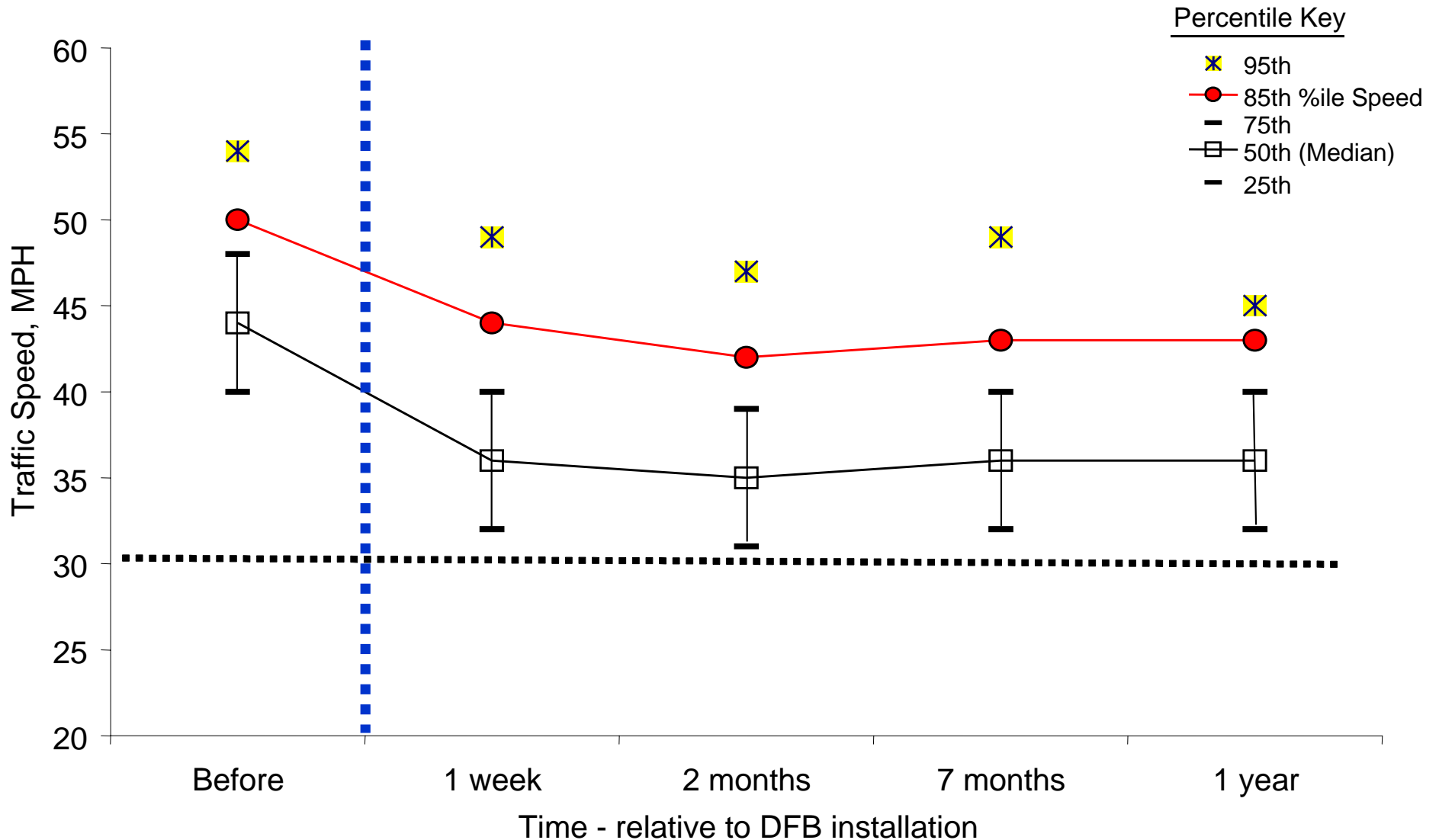
- Data collected before and after installation
 - Monitor a control site
 - Speed analysis over 24 hours
- 

Hugo Results – Advance Location



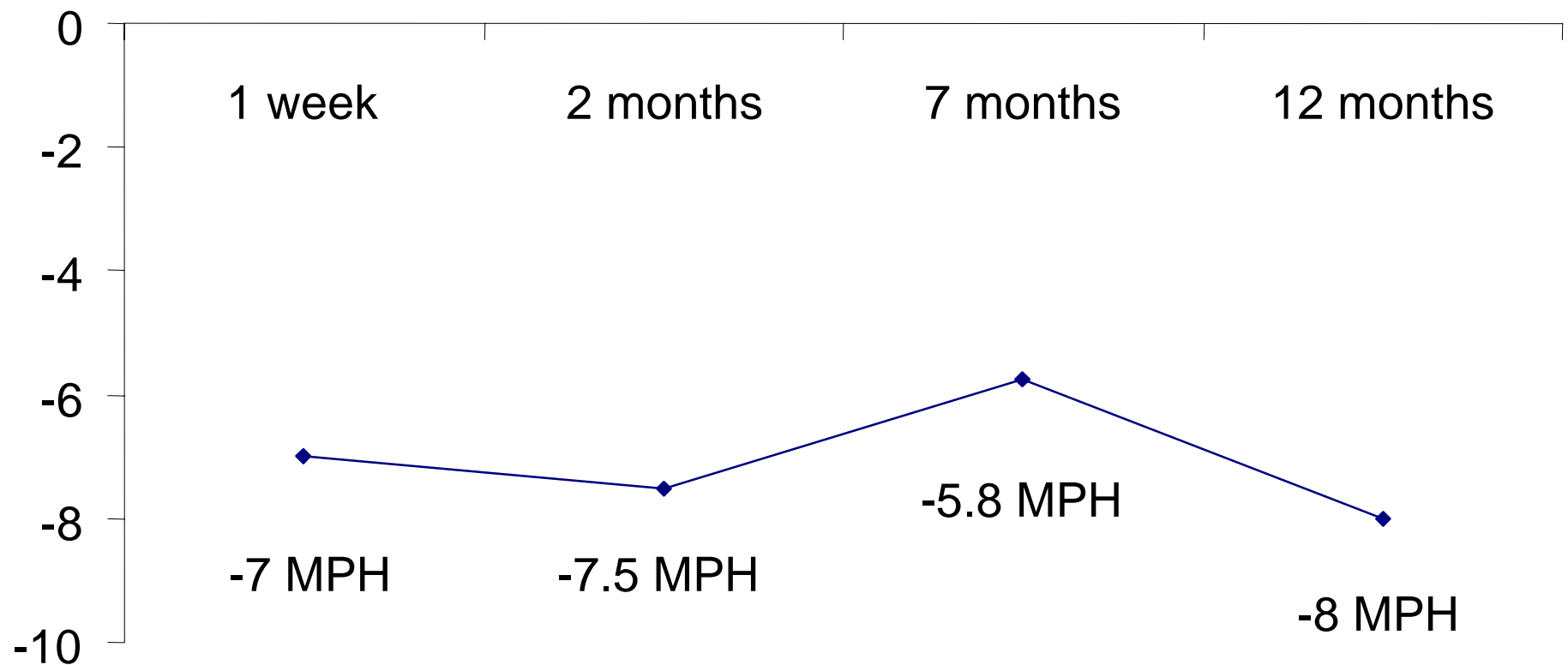
Hugo Results – At Sign

DFB location at Hugo Test site (posted Speed Limit = 30 MPH)



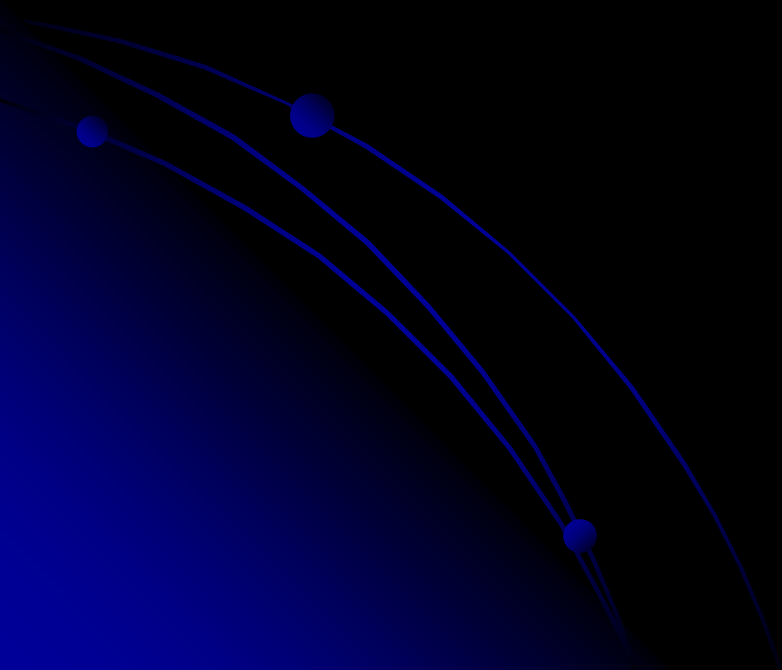
Study Results – Summary of Four Locations

Average Change in 85%ile Speed After Installation




Signs Seem to Have a Positive Impact

- What is involved in installing one?



Installation Factors


- Installation Procedure – “Hard Wired” sign
 - Identify Location
 - Coordination with local agencies
 - Power Source
 - May need new power drop
 - May need underground conduit
 - Solar/Battery Power
- 

Installation Factors

- Screw Pole Base
- Pedestal Pole Mount
- Requires Licensed Electrician
- Sign Mounted on Pole – “Aiming”

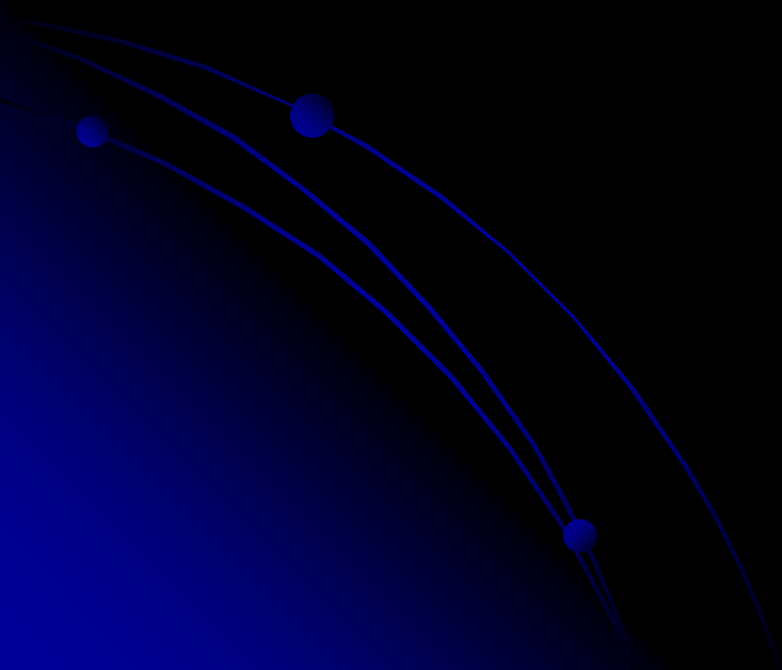


Timelines

- Total time for installation dependent on electrical source – 1 week to several months
 - Actual time to install sign – 1 day
 - Several days to aim and adjust
- 

Maintenance

- Aiming
- Twisting
- Electrical Cost – Nominal
- Vandalism

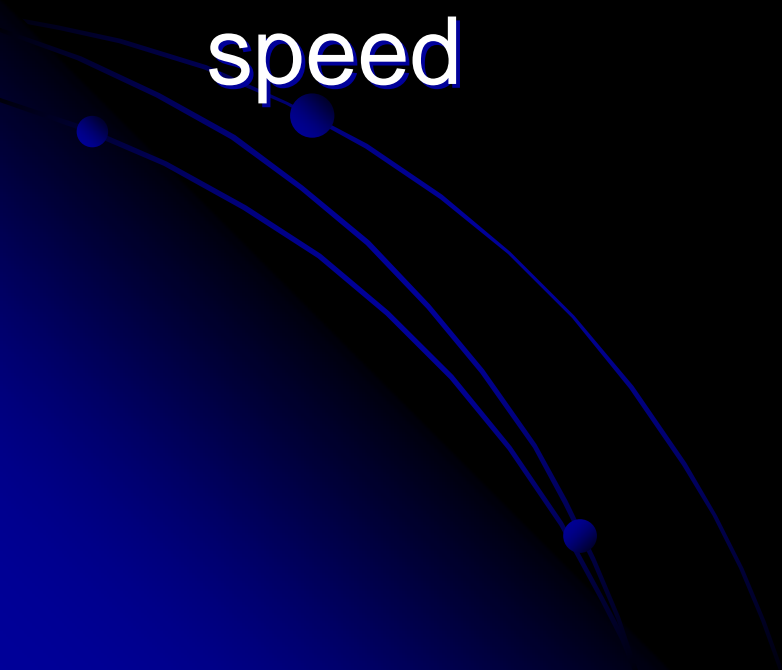


Costs

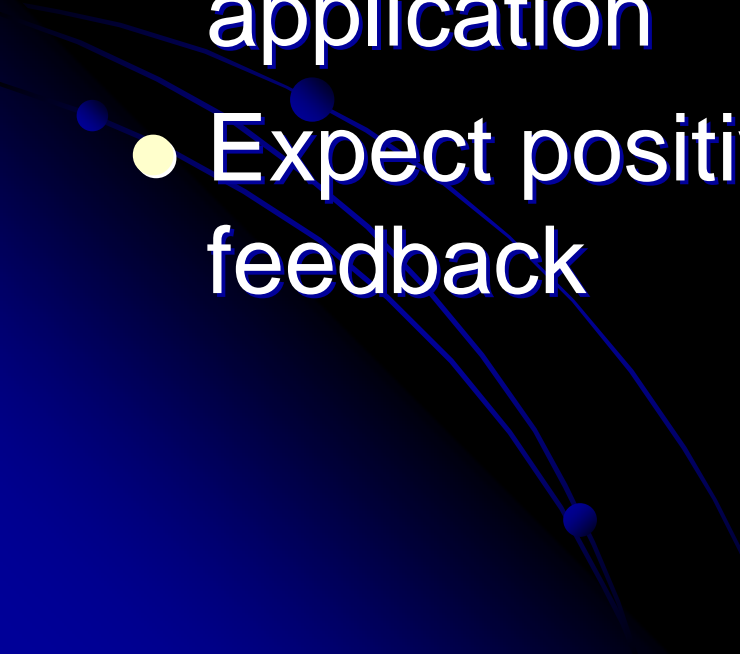
- Sign – \$5,500
- Installation Parts - \$1,200
- Installation Labor - \$2,300
- Power Supply – varies – assume \$2000
- Electrical Cost - \$10.00 per month
- Maintenance Cost – Variable/minimal
- **TOTAL - \$11,000 per sign**
- NOTE – Solar / Battery Tech may change this

Study Summary

- Speeding is a concern
- Toolbox is limited
- Focused on transition zones
- Signs are effective long-term in reducing speed



Study Conclusions

- Expect a reduction in overall speeds and better conformance with posted speeds
 - Effective solution to speeding with proper application
 - Expect positive public/elected official feedback
- 



THE END