

HERS-ST

# Integrating GIS in Highway Economic Requirement Analysis Tools for State (HERS-ST)

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Maks Alam, Battelle, Columbus

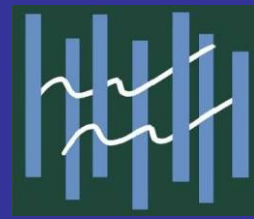
GIS-T Symposium

Columbus, OH

March 27, 2006

# Introduction

## What is HERS-ST?



HERS-ST

- Highway investment analysis software tool
- Performance prediction
- Trade-off analysis
- Compliments a Pavement Management System

# Introduction

## What is HERS-ST?



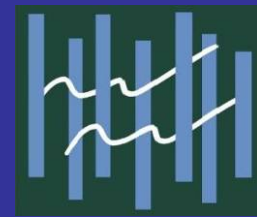
- HERS-ST marries...

Engineering



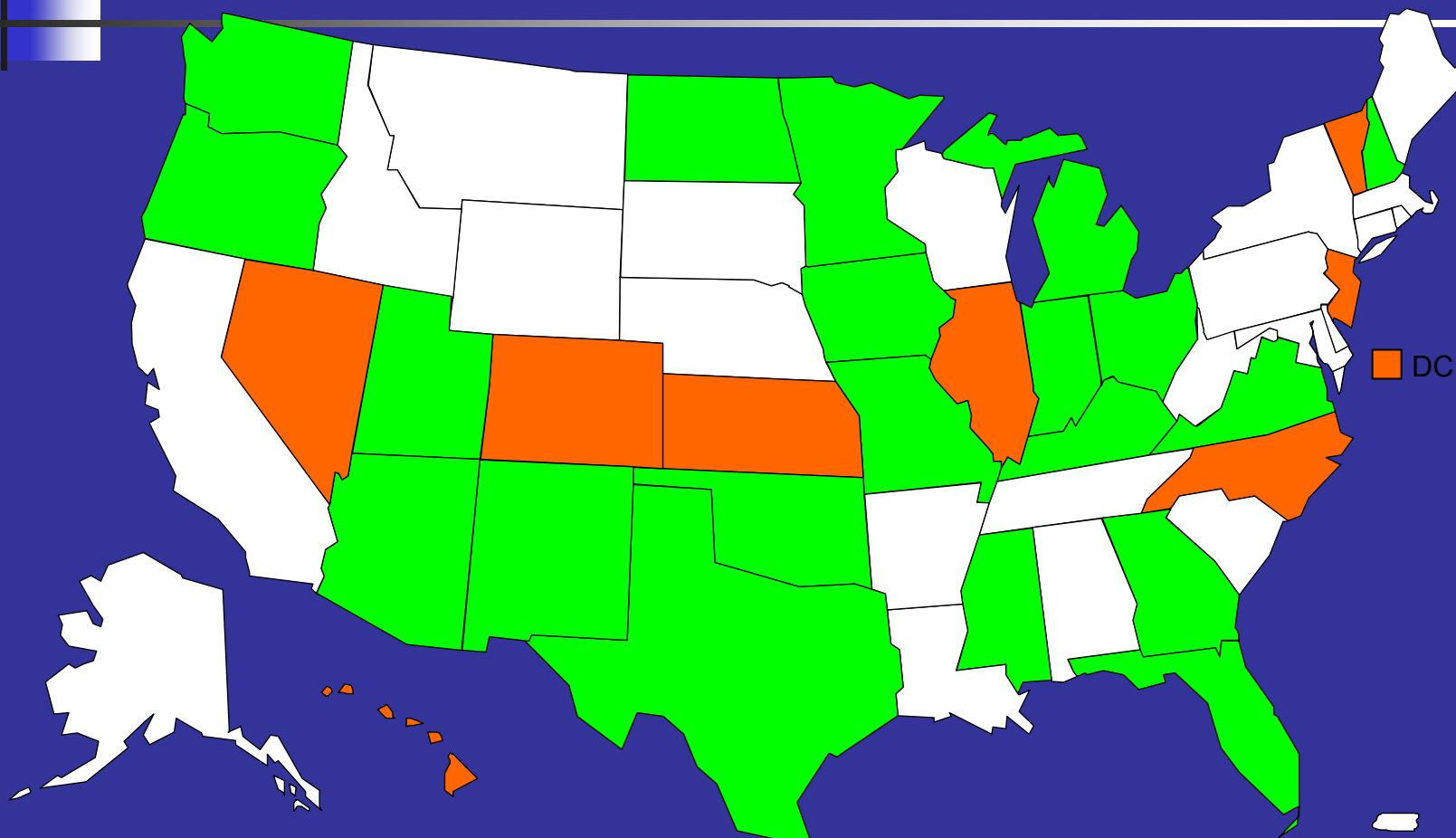
Economics

- Determine deficiencies
- Input to impact calculations
- Calculate benefits
- Evaluate improvements
- Select improvements



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# State Interest in HERS-ST



20  Currently Using HERS-ST  
9  Interested in HERS-ST

Also note that the following Provinces of Canada have expressed interest in HERS-ST:  
**Ontario, Alberta and Québec**

As of 10/5/2005

# Practical Applications

## State Use of HERS-ST

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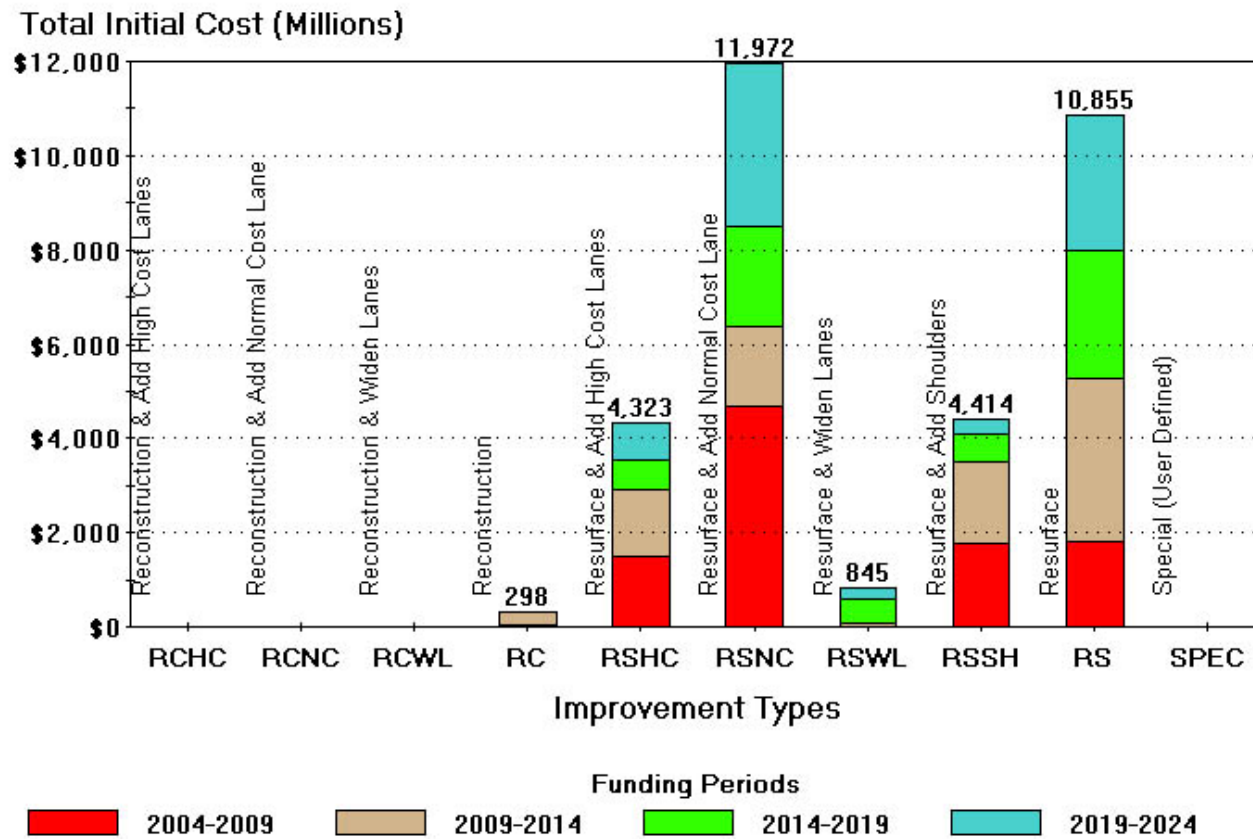


- Long-Range Planning
- Scenario Evaluation
- Corridor Analysis
- Program Evaluation
- Congestion Management

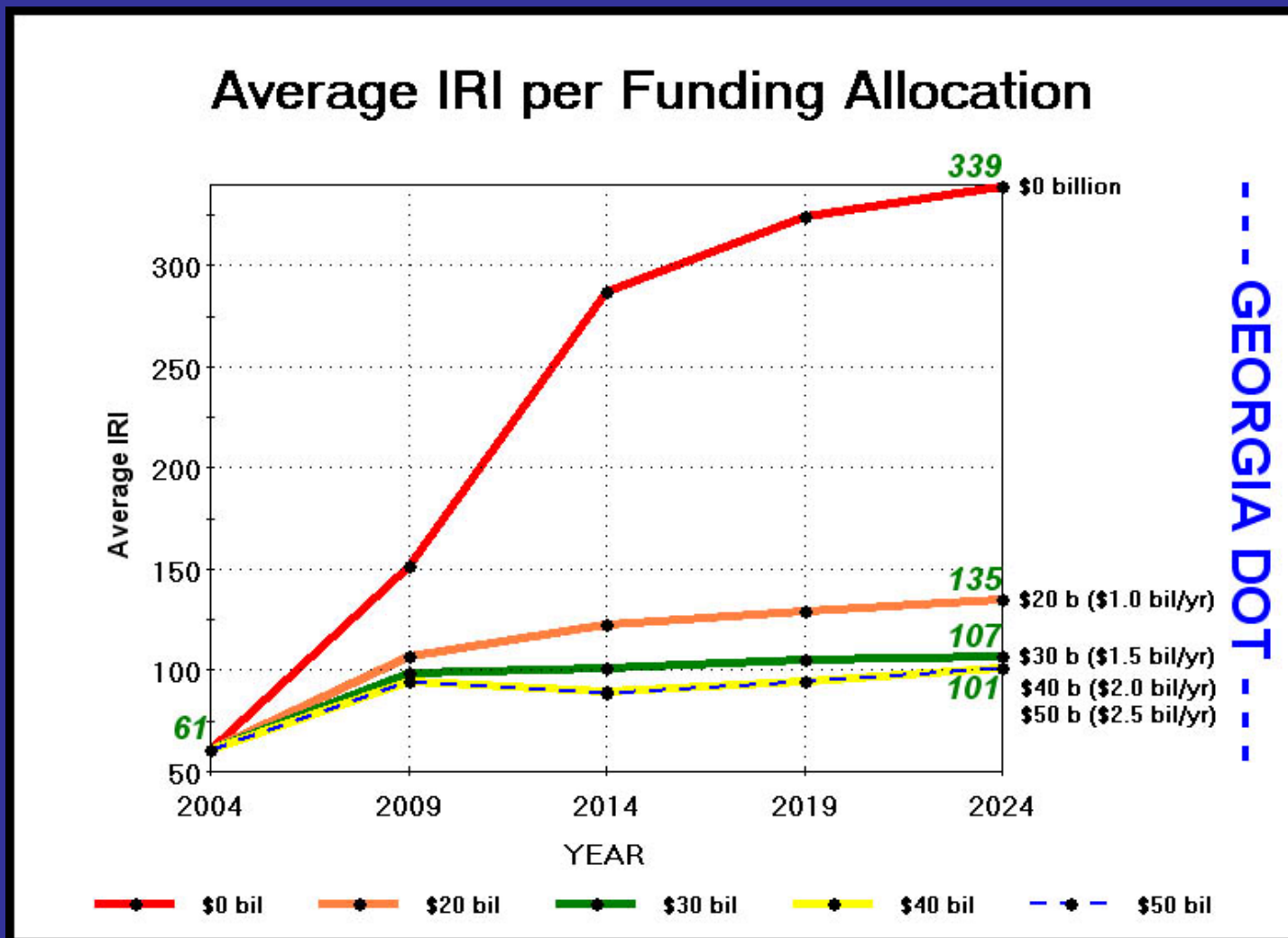
# Practical Applications Long-Range Planning

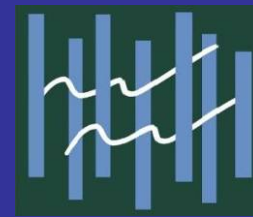


**System-wide Funding Level per Improvement Type  
\$32.7 billion over 20 years to Maintain Current Performance**



# Practical Applications Scenario & Program Evaluation





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# HERS-ST: Pre GUI/GIS

```
C:\Program Files\HERS-ST\Working\HERSST.exe

Examining extraction options

No extraction options requested.

Parameter Initialization Check Requested
Output to file: CHKINIT.TXT

Start Time = 10:29:45

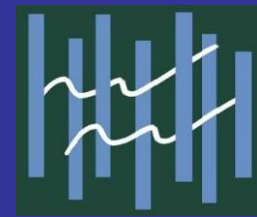
System Conditions data saved in:BASELINE.SS1
System Conditions data saved in:BASELINE.SS2

Distribution file saved as:BASELINE.DST

The file was specified for intermediate year analysis.
However, the file was not found.
Intermediate year analysis is not done.

Maximum BCAP set to      20 years.
Backing up the original input file ...
```

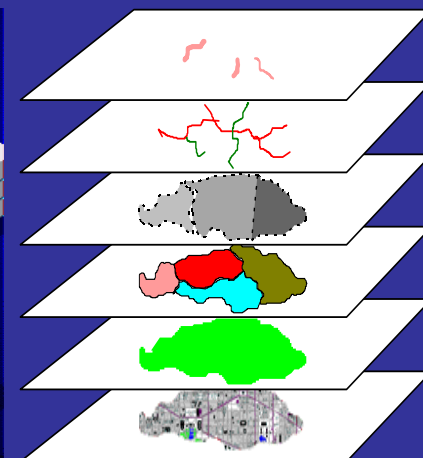
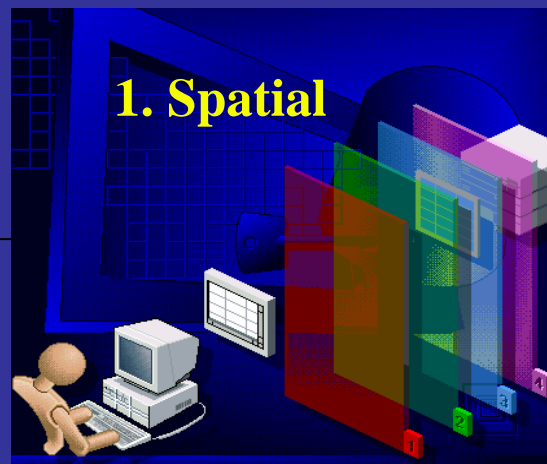




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# HERS-ST: GIS Interface

- Royalty free built-in GIS module
- Results based:
  - Themes
  - Selections
- Multiple layers
- Layout editor
- Database features
- Uses standard shape files
- Can add geospatial data from various formats including U.S. Census Tiger files.



NHPN  
State GIS

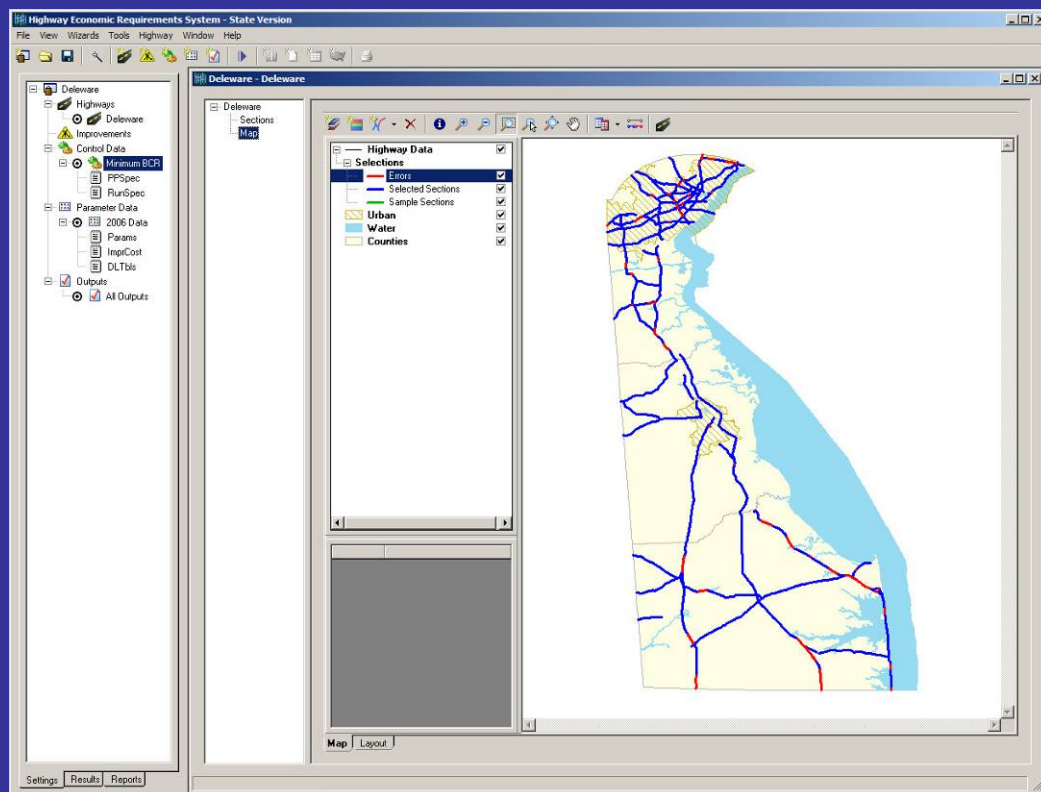


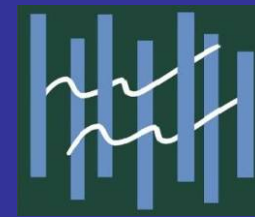
HPMS  
State Data

# HERS-ST: GIS Interface

## Front End-preparing your data

- Visual inspection and edit of input data
- Assembly of highway corridor or sections for analysis
- Dynamic Segmentation



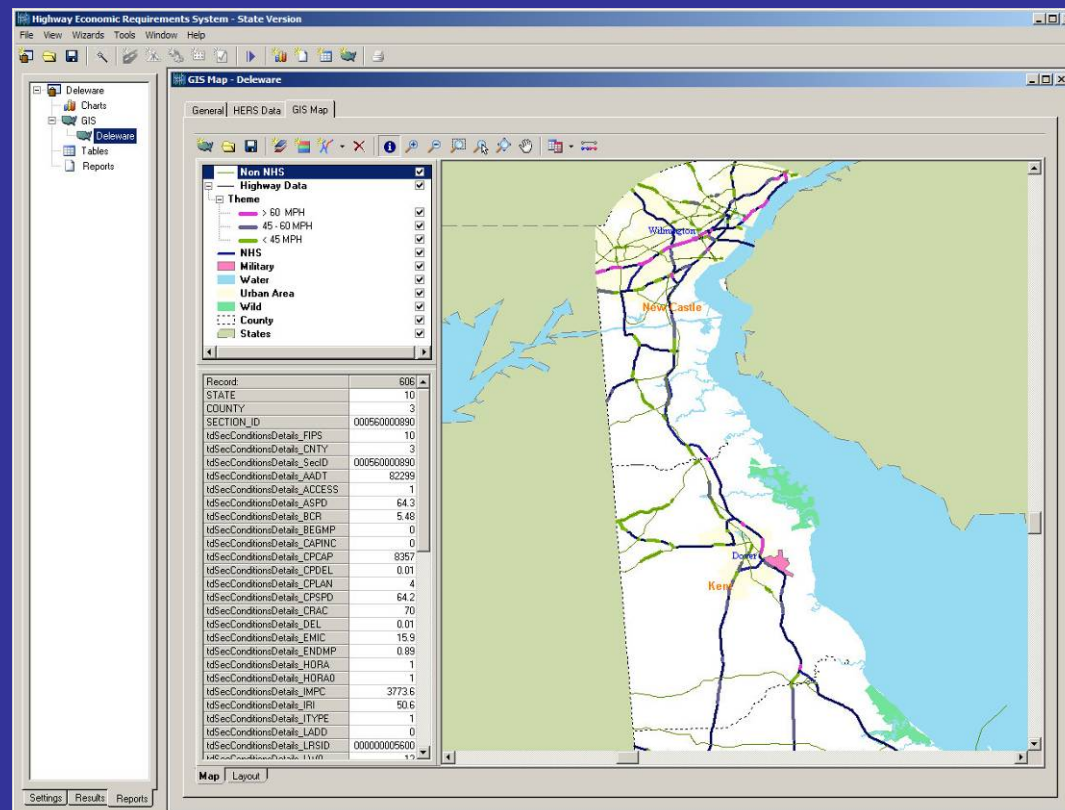


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# HERS-ST: GIS Interface

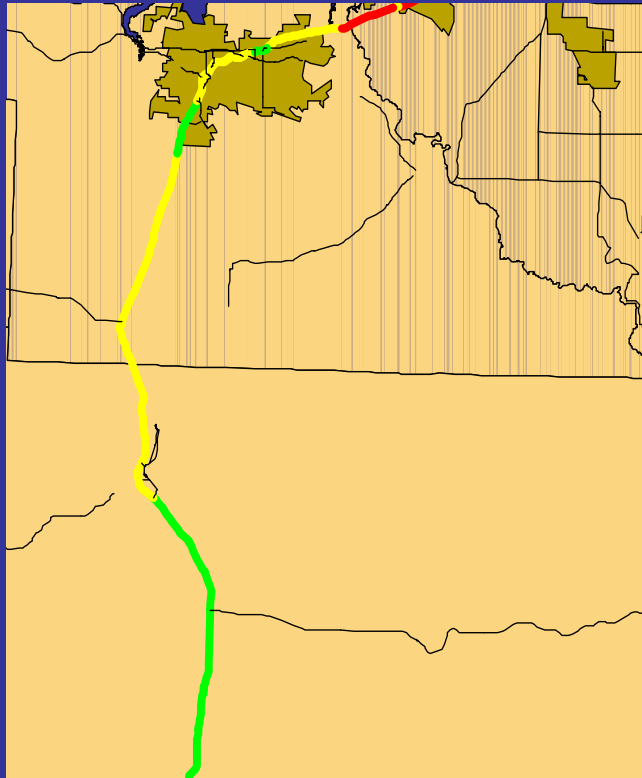
## Backend- Understanding your results

- Thematic mapping using HERS-ST results
- Join and SQL selection
- Map layout for printing and publication
- Geospatial layer management

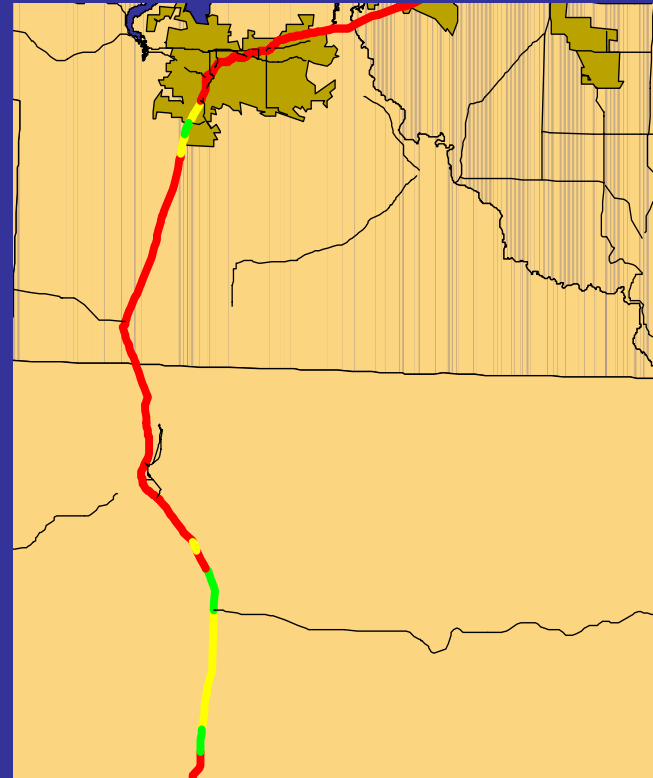


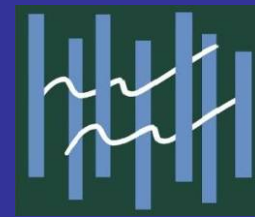
# Understanding Your Results Using GIS

2000 Peak Speed



2020 Peak Speed

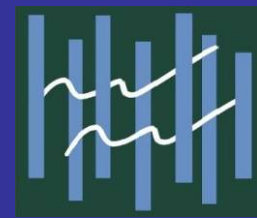




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# Conclusion

- HERS-ST is an informative decision tool
- Strength is in
  - Flexibility
  - Economic component
  - Analytical capabilities
- Great addition to the DOT's Asset Management Tool Box
- ...and it's **FREE!**



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# Conclusion

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- The software is **FREE!**
- The workshops are **FREE!**
- The implementation support is **FREE!**
- The technical support is **FREE!**

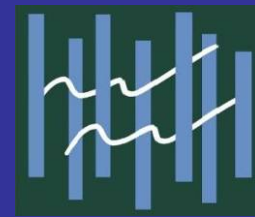


Additionally...

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HERS-ST Conference  
San Antonio, Texas  
May 23-25, 2006



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# For More Information

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**<http://www.fhwa.dot.gov/infrastructure/asstmgmt/hersindex.htm>**