TRAFFIC DATA QUALITY (TDQ)

Pooled Fund Study Update - NATMEC 98

Mark Flinner - Minnesota DOT - May 12, 1998

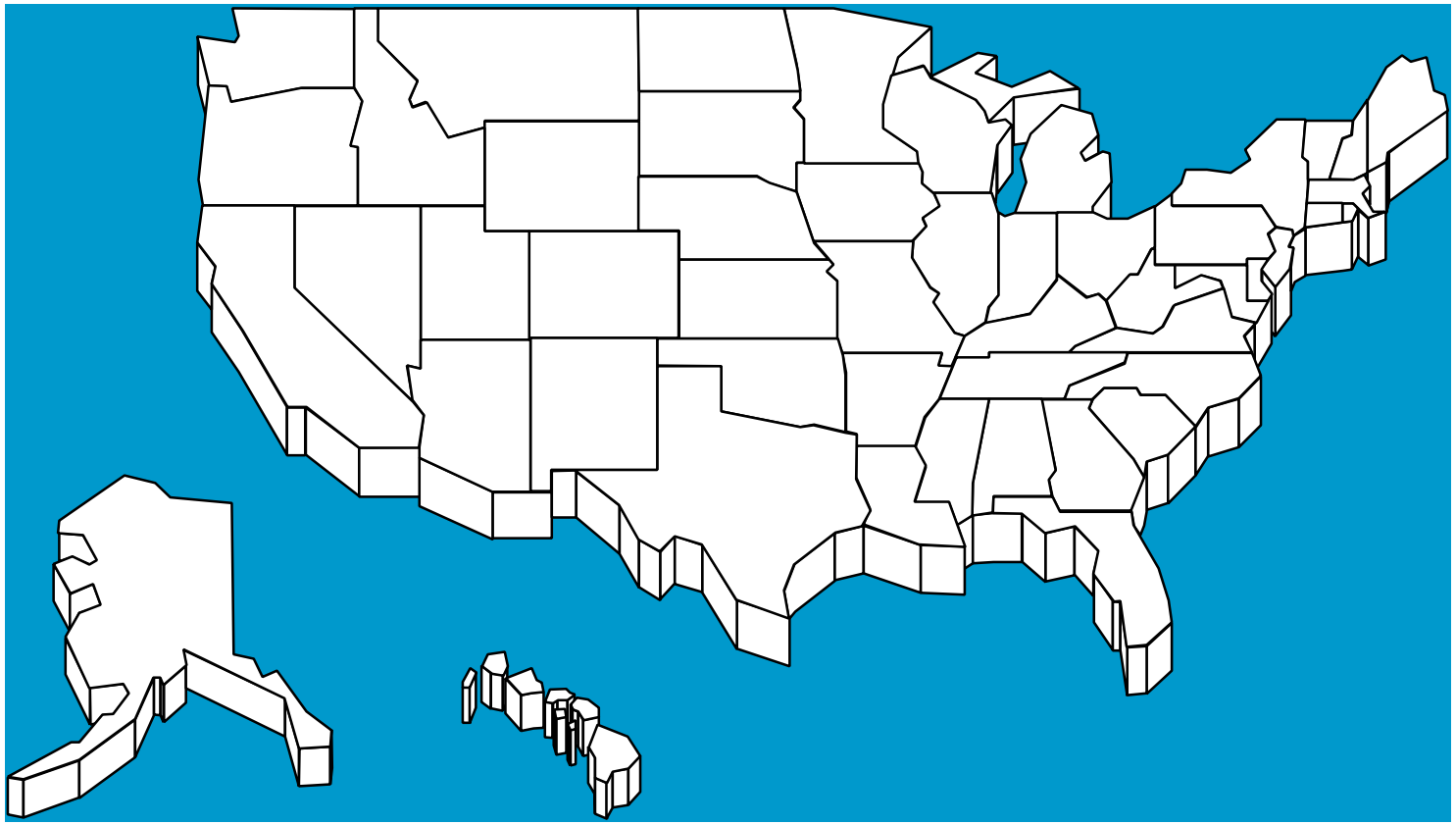
With Assistance From:

FHWA

The Participating States

Intelligent Decision Technologies Ltd.

In Motion Inc.



Fifteen Participating States !

This presentation will describe:

- Project Purpose and Organizational Framework
- Short History and Accomplishments Achieved To Date
- How to Use the Products From This Project

Purpose of TDQ : Collaborate to Improve Our Understanding and to Develop Software Tools

- Learn from each other
- Seek improved traffic data screening methods
- Build software that will be consistent, yet flexible

Some Common Dilemmas

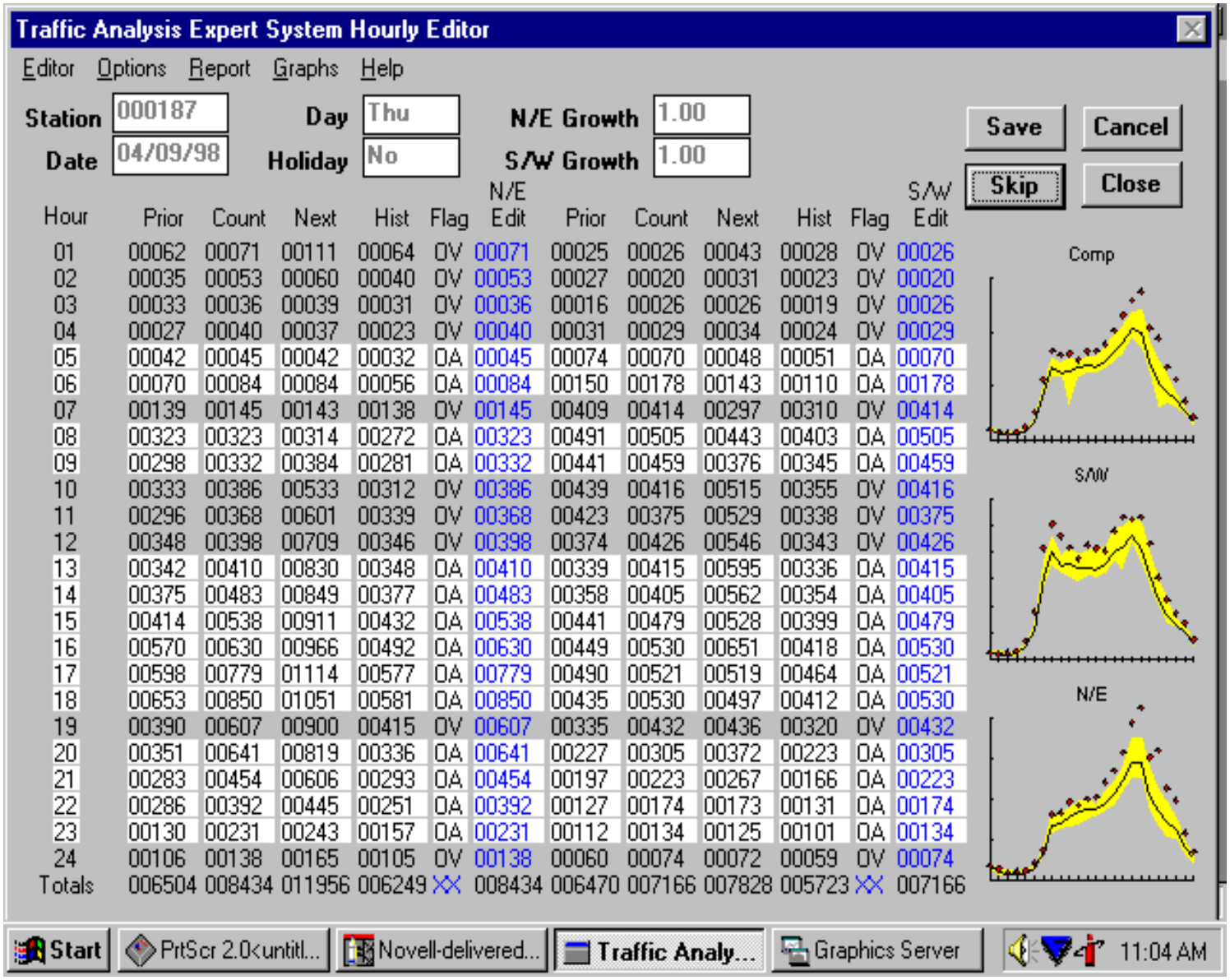
- There are too many ways to do things
- Our equipment doesn't always work right
- We are losing our experts
- There is more and more data coming in and there is no time
- We are getting different types of traffic data
- There is an increased emphasis on precision but at what cost?
- We can't reduce our program at the expense of long term data needs

How can we strike a balance between Accuracy and Timeliness?

- Calibrate and Check System Performance
- **Verify Subsequent Data Against Expectations** *
- Define and Share Measurement Bias with Data Clients

Verify Data Against Expectations

- Constants (example: Average Axle 2-3 Spacing on 3S2's between 4.2 and 4.4 feet)
- Historic Basis (Site, Direction, Lane)
- Calibration Session Data
- Knowledge of Potential Fluctuations (Day of Week, Seasonal, Commodity Related)
- Learn from data that is "real" but unexpected!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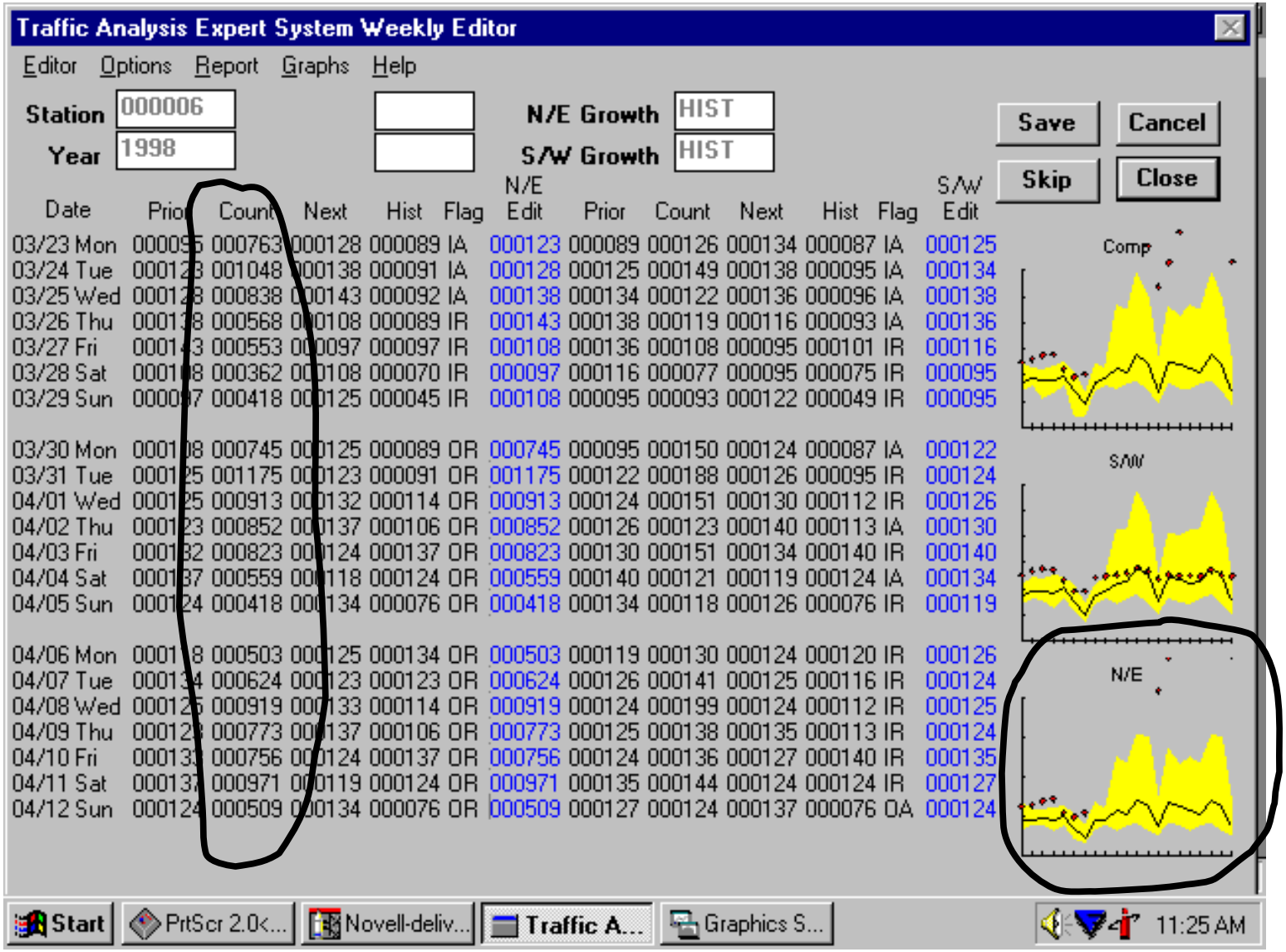
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Examples of Office Software Containing Traffic Data Screening Tools

- Florida Traffic Survey Processing Software (State)
- VTRIS (Federal Sponsor)
- LTPP (Federal)
- ATR Expert System (Federal and State)
- TRADAS (Private)
- Many Custom Applications in Many States

TDQ Project Origins

- State and Federal initiative through a request for sharing Highway Planning and Research Funds (1994 - LTPP Staff Person Kris Gupta, FHWA Staff Person Ralph Gillmann)
- Pooled Fund Study Strategy Adopted, Supports “Grass-roots” Effort
- Minnesota Chosen as Lead State (1995 - RFP written and advertised)
- Proposal Accepted (May 1996)

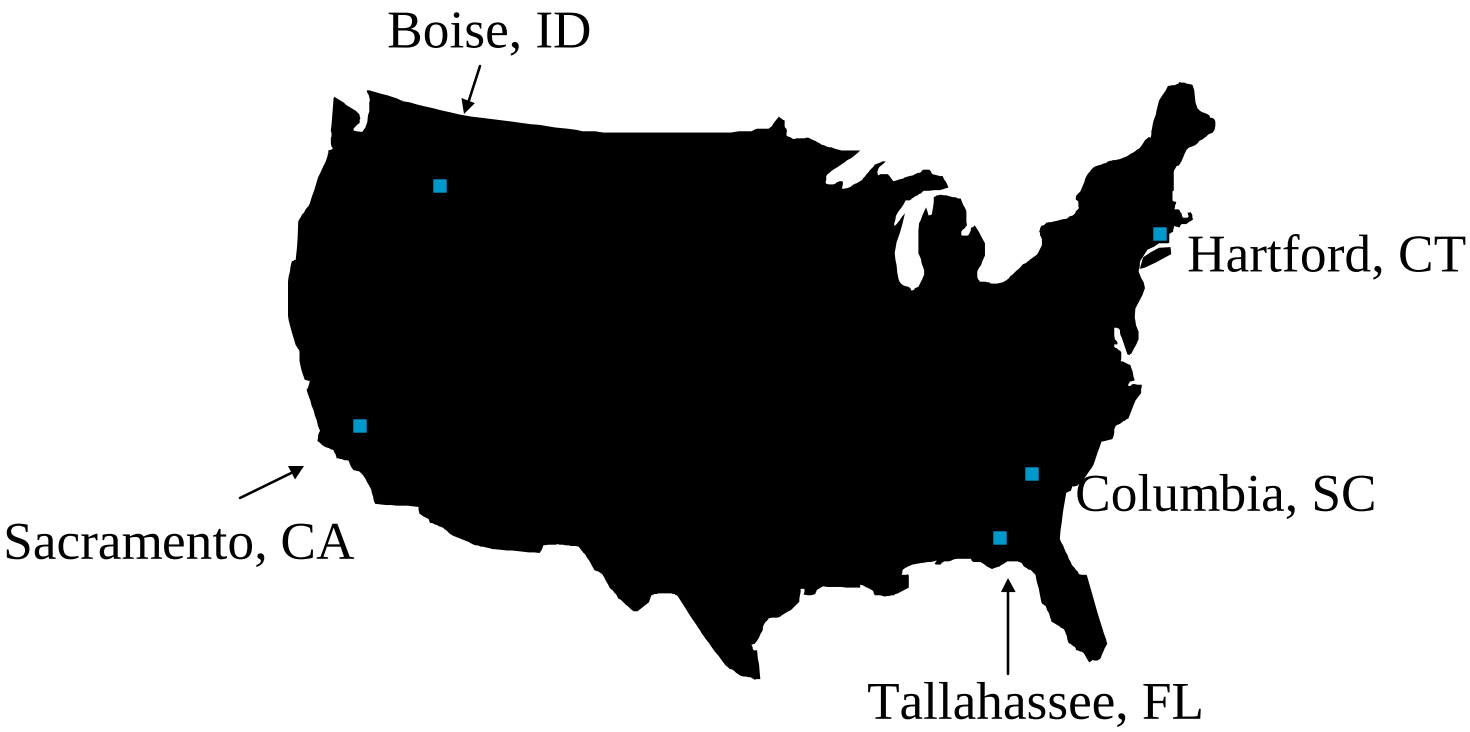
Clear Priorities

- Develop a Shared Knowledge Base from the seeds that are found in every State
- Work within every State's existing or anticipated data flows - "Do not try to replicate everyone's polling systems or reporting systems"
- Develop software that can be integrated between the input and output sides of a state's traffic monitoring program

Project Timeline (Historic)

- 9/96 - Kick-off Meeting - Governance and Roles
- 11/96-2/97 - 5 State Visits for Survey of Tools
- 5/97 - State Visit Findings Report Published (A.2)
- 3/97 - 6/97 - 4 Knowledge Engineering Sessions with State Experts re: WIM, Vehicle Class, Total Volume
- 9/97 - Executive Committee Meeting - “Try testing the Knowledge Base in A.3 Report.”
- 11/97 - Publish Refined Knowledge Base and Pseudo-code (A.3 Report)
- 3/98 - Executive Committee Meeting - “Wait to test the Knowledge Base in conjunction with production in two to four states using ALPHA version software.”

State Visit Locations:

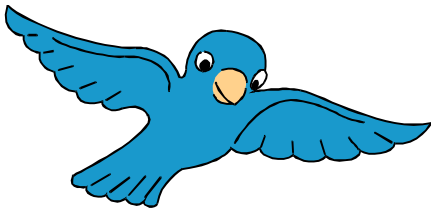


Knowledge Engineering Sessions

- Different experts were involved in each session (Over 50 participants !)
- Each session focused on a specific traffic data types (WIM, Vehicle Classification, Total Volume)
- Both short duration and continuous sampling concerns were accommodated
- Difficult questions were posed and answered regarding consolidating or expanding screening tools
- Consensus (“no objection” style)

Project Timeline (Future)

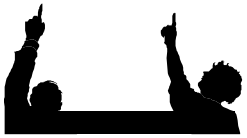
- 5/98 - All TDQ States meet at NATMEC - confer
- Identify ALPHA software test states
- Use results from the TDQ User Requirements Questionnaire to refine system and interface design
- Design a Knowledge Base / ALPHA software evaluation process
- Modify ALPHA Software based on evaluation
- Distribute Beta Software as prototype (free to all States and FHWA - End of 1999)

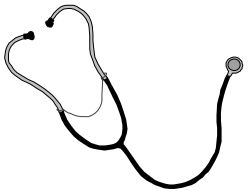


How would you use such a tool?

	Self Rating Score Card
Develop Existing System Interfaces	“B”
Teach the Tool - Expert Based Comparison Parameters	“B”
Verify Suspected Equipment Malfunctions with Field Study	“A to D”
Maintain Realistic Expectations	“B”

Possible Responses





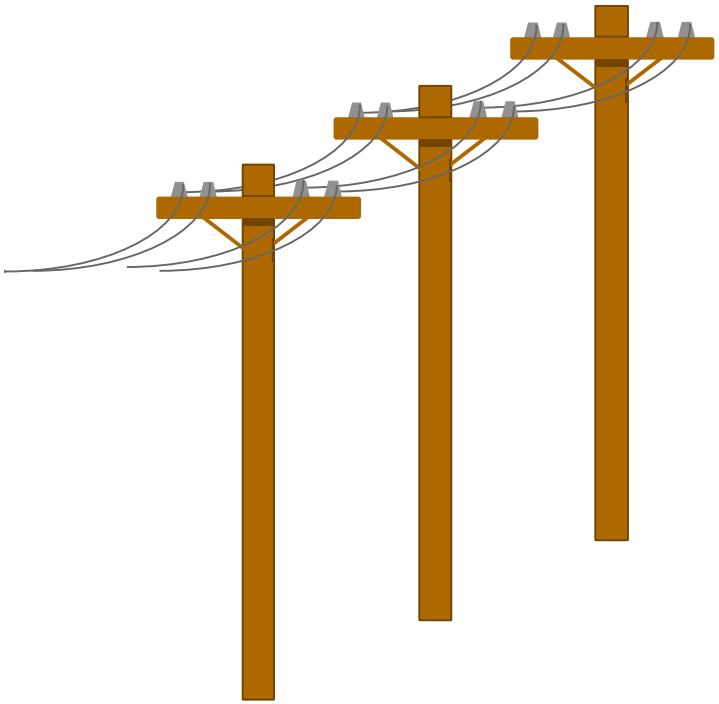
- It’s too difficult.
- We’ll need to quadruple the budget!
- I’ll “fix” the software so everything comes out smelling like roses…
- We’ll use the tool in areas where we feel competent. We’ll experiment with the parameters to minimize the false alarms yet provide accurate screening.

Main Points - TDQ Presentation

We are:

- Learning from each other
- Improving the tools that we use to screen traffic data (thereby improving quality)
- Applying our new knowledge to improve timeliness
- Increasing consistency across states in our use of data screening tools or techniques
- Making the products available without direct cost to the requestor

To Contact Me:



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