

Weather Responsive Traffic Management (WRTM) & *Clarus* Data

C. Y. David Yang, Ph.D.
Office of Operations R&D
Federal Highway Administration

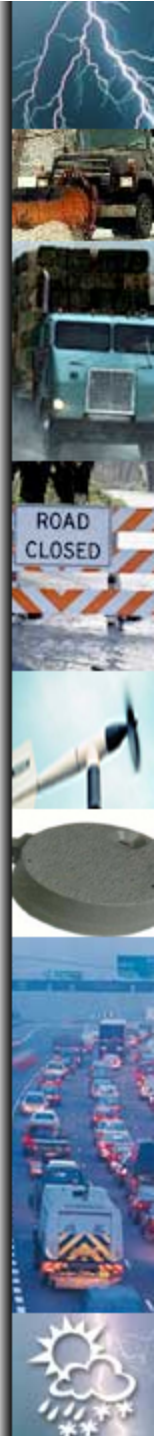
Roemer Alfelor, Ph.D.
Office of Operations
Federal Highway Administration

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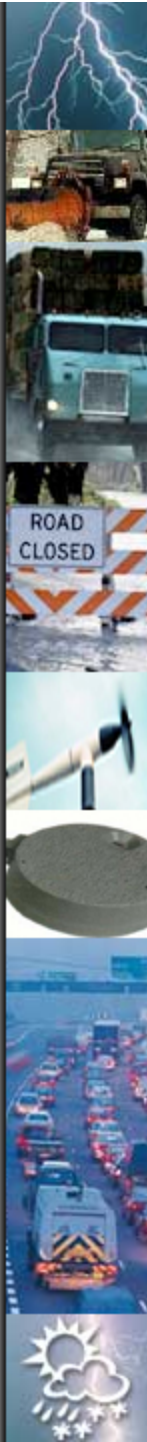
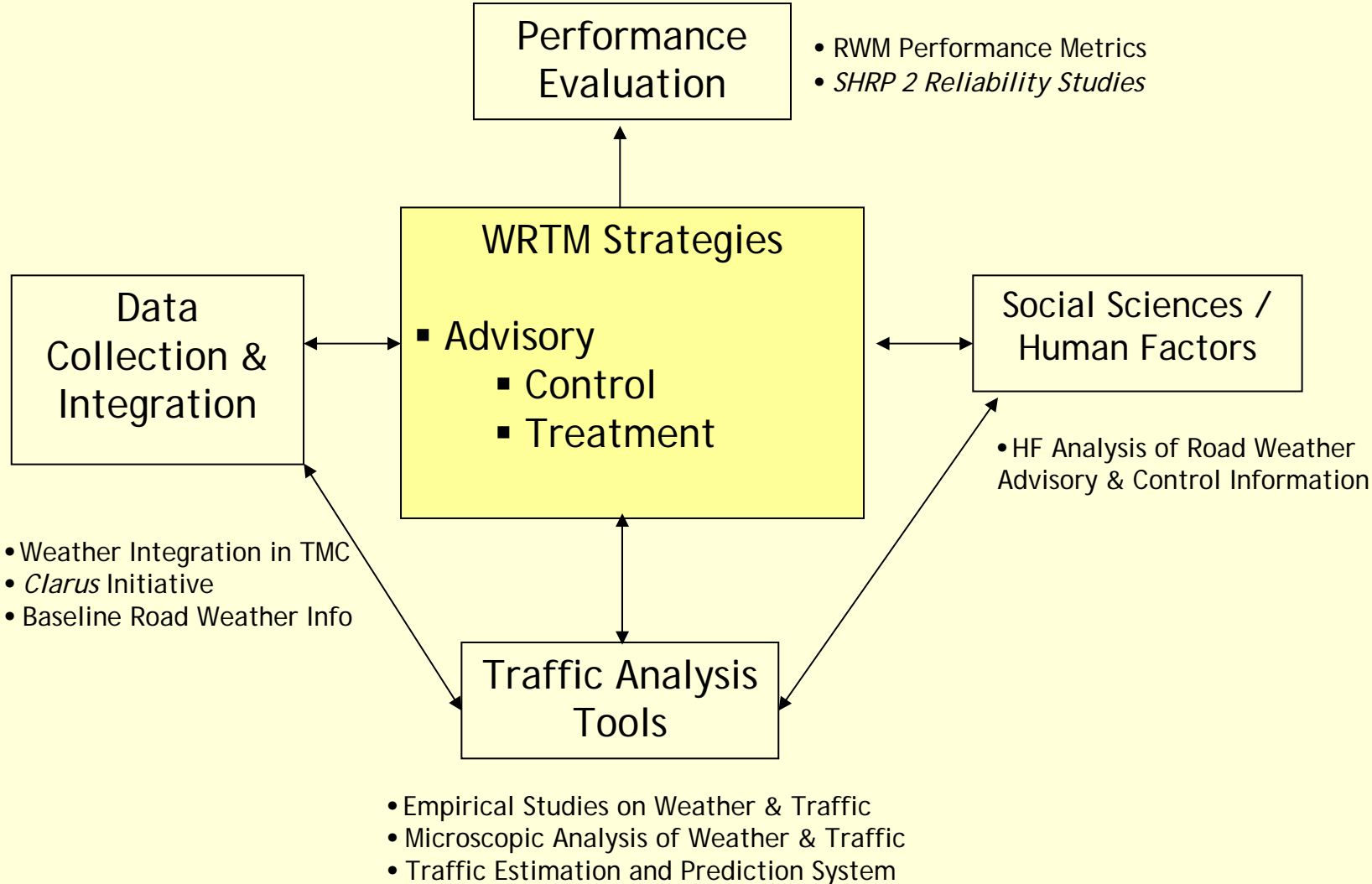


FHWA WRTM Program Area

- Develop strategies and tools to help agencies effectively manage traffic and highway operations during inclement weather
- Activities
 - Weather Response System (WRS) for Transportation Management
 - Integration of Weather in TMC/TOC
 - Weather & Traffic Flow Studies

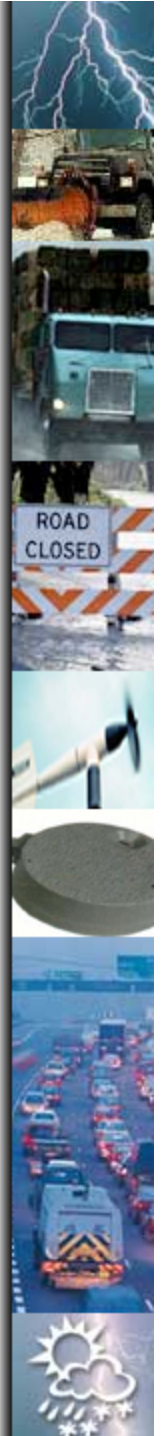


FHWA WRTM Framework



Weather and Traffic Flow Studies

- GOALS
 - Analyze and quantify how various weather events impact traffic flow (macro & micro levels)
 - Improve existing knowledge and practices on managing traffic flow under adverse weather conditions



Incorporating Weather Impacts in TrEPS

- Traffic Estimation and Prediction Systems (TrEPS)
- Goal: Update existing dynamic traffic assignment models (real-time & off-line) to account for weather effects
- Project Status: Completed in 2009
- Key Accomplishment:
 - This study developed weather-sensitive traffic prediction and estimation models and incorporating them in TrEPS tools intended for online operation in traffic management centers (TMC) as well as for offline evaluation of contemplated measures
 - Final project report is available, EDL #14497



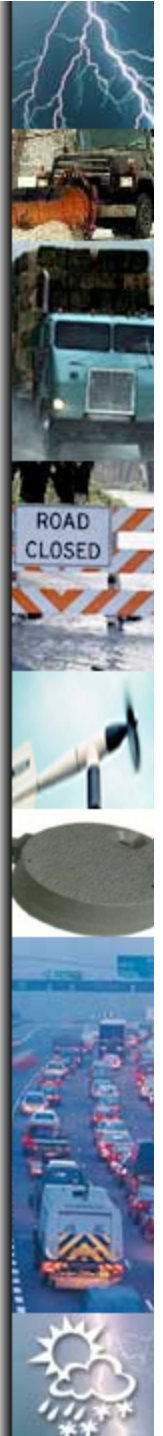
Microscopic Analysis of Weather and Traffic

- Goals: Analyze car following, lane changing and gap acceptance behavior during inclement weather and develop models to incorporate in existing micro-simulation tools
- Project Status: Phase I Completed; Phase II On-Going
- Results & Progress:
 - Car-following models can be adjusted to capture inclement weather conditions; some traffic simulation software allow for the adjustment of the speed-at-capacity for inclement weather conditions
 - Increasing rain intensity contribute to increases in the critical gap as well as follow-up time
 - Utilizing car-following data from Hokkaido University in Japan to characterize driver deceleration, acceleration, and car-following behavior under icy conditions



Developments in WRTM Strategies

- Goals: Review the state of the practice in WRTM, develop concepts of operations and requirements documents for new WRTM strategies, and develop procedures for evaluating the benefits of new strategies
- Project Status: Started in 2009
- Progress:
 - Reviewing literature and documenting the state of the practice in WRTM
 - Will identify WRTM strategies that can be improved using available road weather and traffic information, traffic analysis models, ...
 - Will develop concepts of operations to describe what weather events & parameters are being addressed, what resources are being used, and how the strategy will be implemented



Data Mining & Gap Analysis for WRTM Studies

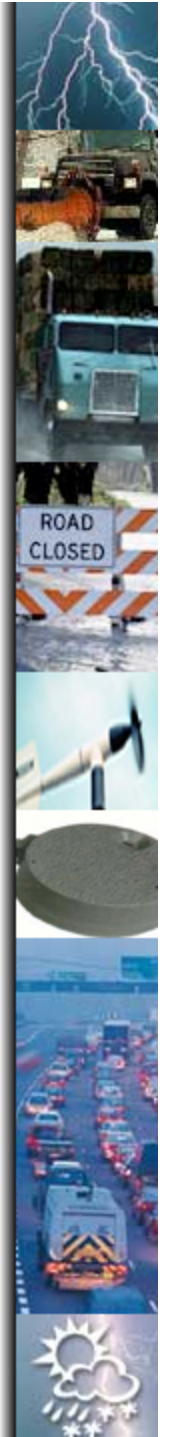
- Goals: Search, analyze, and gather traffic and weather data in the US and abroad that could be used for WRTM studies
- Project Status: Started in 2009
- Progress:
 - Completed literature review and identified data sources that can be useful for WRTM research
 - Contacting organizations with suitable traffic data and implementing procedures to obtain and analyze data
 - Will compare 'what data are available' vs. 'what data are required' to effectively support WRTM studies



Role of *Clarus* Data in WRTM Studies

Clarus data has the potential to:

- Serve as a key data source for future projects in developing WRTM strategies
- Fulfill “gaps” of other weather & traffic data to supplement future research in the WRTM area
- Continue to expand and be “mined” by researchers who are studying the impact of weather on transportation operations



Contact Information

Roemer Alfelor

FHWA Office of Operations

(202) 366-9242

roemer.alfelor@dot.gov

C. Y. David Yang

FHWA Office of Operations R&D

(202) 493-3284

david.yang@dot.gov

<http://ops.fhwa.dot.gov/Weather/index.asp>

