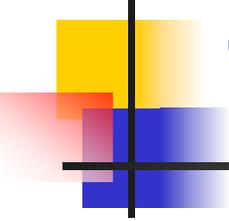


# Traffic Data Quality Control Procedures for Volume, Classification and WIM Data

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**Ohio DOT**  
**Traffic Monitoring Section**  
**Steven Jessberger**



# Traffic Keeper – Ohio (TKO)

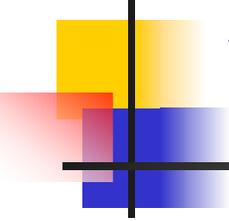
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- Date of inception - June 2000
- Database – Sybase IQ
- Written in house using JAVA
- System will be used for Permanent, Portable, ITS and Manual traffic data
- TKO references historical, FHWA S-card information, and the configuration file

# Configuration File Settings

Volume	Length	Classification	Weight
Maximum daily volume			12000
Minimum daily volume			1200
Max. per hour per lane volume			2350
Boundary zero value check			50
Consecutive zero values check			4
Number of weeks for averages			6
Bound value			200
Vehicle variance if under bound value			25
% variance if over bound value			10
Max. hourly directional default up (1 or 3)			800
Max. hourly directional default dn (5 or 7)			800
Default allowable variance			10
Sunday rolling average default up			4500

- Volume
- Axle Length
- Axle Class
- Weight



# Volume Alarms

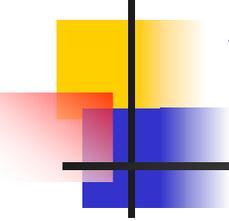
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- Extreme checks
  - Maximum number of vehicles per day
  - Minimum number of vehicles per day
  - Max. number of vehicles per hour (2500)
- Zero's check
  - No zero's - data passes this check
  - 1-3 zero's - boundaries of each zero are checked
  - 4 or more zero's - data fails the zero check

# Volume Zero Alarm

## Boundary set to 50 vehicles

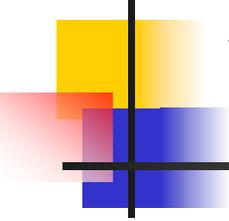
	Hr 1	Hr 2	Hr 3	Hr 4	Hr 5	Hr 6	Hr 7	Hr 8
Fail	25	12	20	35	45	0	89	135
Pass	14	8	0	0	17	45	76	178
Fail	0	17	25	38	95	0	158	325
Fail	302	148	0	0	0	0	0	655
Pass	0	0	0	34	68	165	260	317



# Volume Alarms - continued

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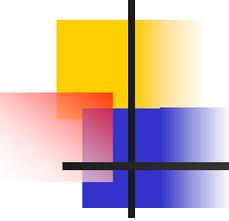
- Rolling Average check using database (DB)
  - Insufficient data in database - default values used from the configuration file
  - Database has enough weeks of data



# Volume Alarms - continued

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- Insufficient data in DB - defaults
  - Daily by direction check against the range in the configuration file
  - By lane by direction check for each hour against the maximum in the configuration file

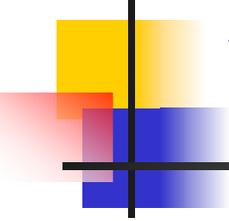


# Volume Alarms – continued

## Rolling average using DB

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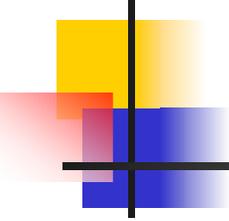
- Rolling AVG using N weeks  
by site - by lane - by hour
  - Hourly count (DB avg.) is below threshold - use number of vehicles
  - Hourly count (DB avg.) is above threshold – use % variance



## Volume Alarms - continued

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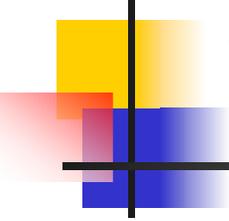
- Monthly check by previous month MADT and previous year MADT
- Splits check using directional distribution - allowable variance is typically 5 %



# Classification Alarms

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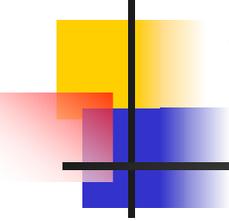
- All of the Volume Alarms
- Classification by Day of Week (DOW)
  - System sums all hours and all lanes - obtain the % for the given classification
  - Does the configuration file % by DOW value match the class card data %



# Weigh in Motion Alarms

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- Class check for FHWA classes 4 - 15
- Maximum gross vehicle weight by class
- Front steering axle weight range
- Any single axle weight range
- Axle spacing range
- Tridem weight range



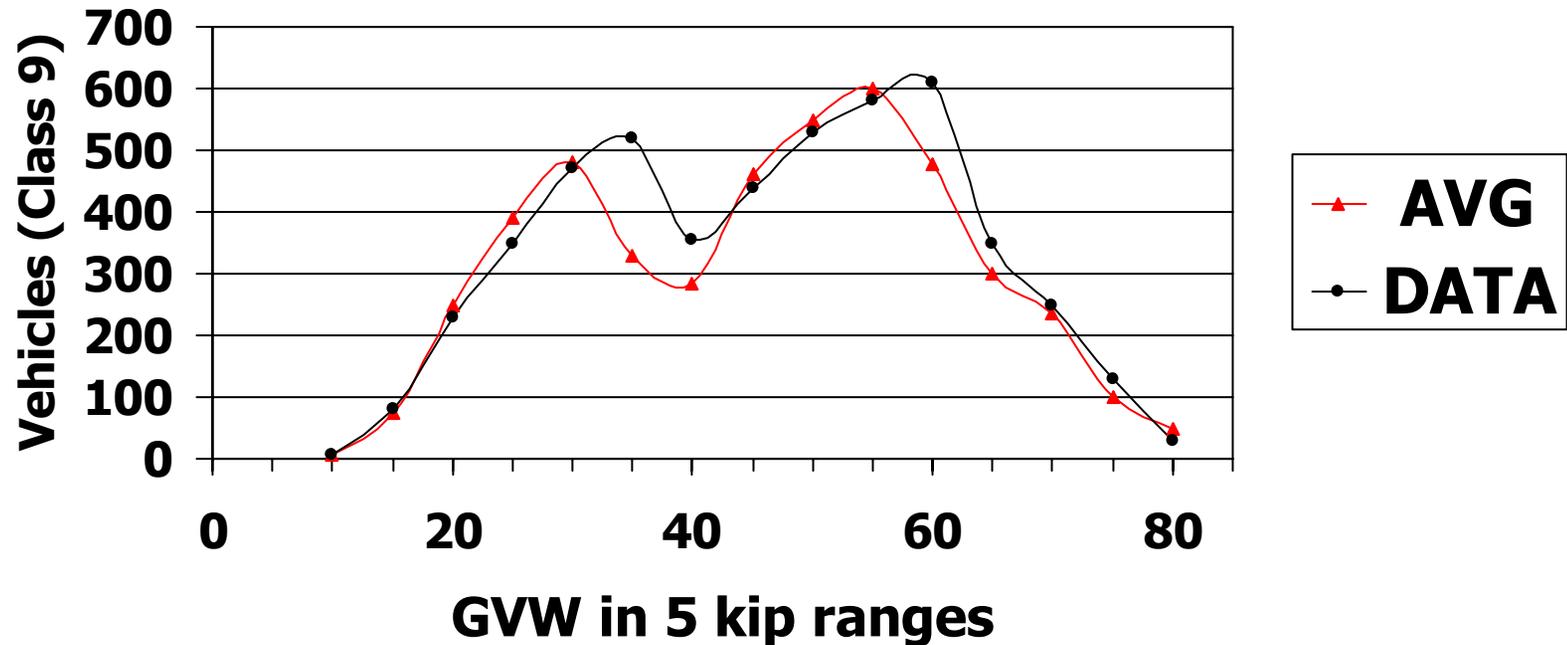
# WIM Alarms - continued

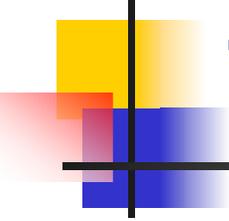
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- Number of axles vs number of axle weights vs number of axle spacings +1
- Gross Vehicle Weight vs Sum of all axle weights
- 5 Point Historical Weight Distribution done by lane using Wednesday's (FHWA class 9 vehicles only)

# WIM Alarms - continued

## Historical GVW Distribution Alarm





# Traffic Keeper - Ohio Results

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- Common data quality from all sources
- All data available in one data base
- Automated Data Quality checks
- Improved Analysis of all data types

# TKO – Knock Out Bad Data

- For further information contact:

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Go Bucks!!

