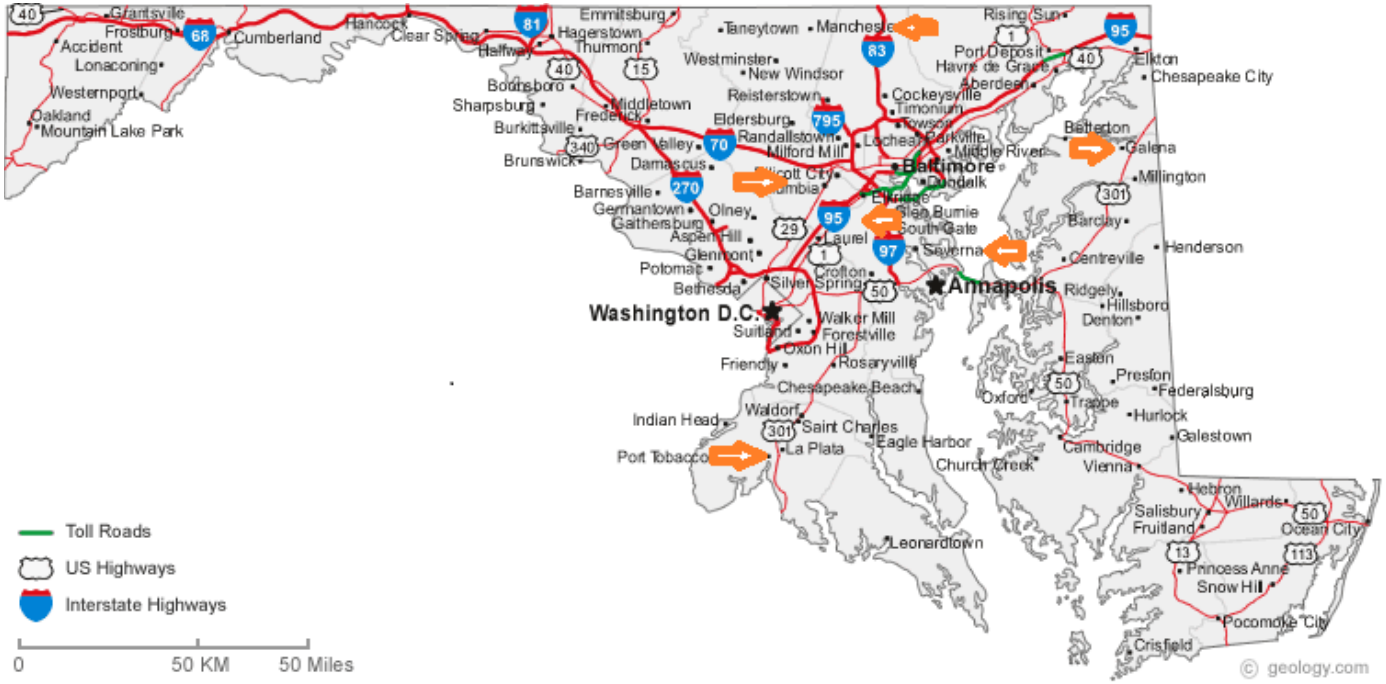
MWCOG
October 2nd 2014

Maryland Virtual Weigh Station Program Update

Maryland VWS Program Update

- Why VWS?
  - Over size and over weight load activity on bypass roads
  - Road damage – grossly over weight loads
  - Over size/over weight load permit fraud – ‘gaming the system’
  - Unpredictable routes based on enforcement behavior
  - Community interest - reduce local heavy vehicular traffic
  - Traffic management on state, county and other road arteries
  - Safety is the major focus, followed by weight enforcement
  - Efficient use of law enforcement personnel
  - Damage prevention on roads and structures (bridges, tunnels, etc)
  - Quick deployment, low capital and operational costs

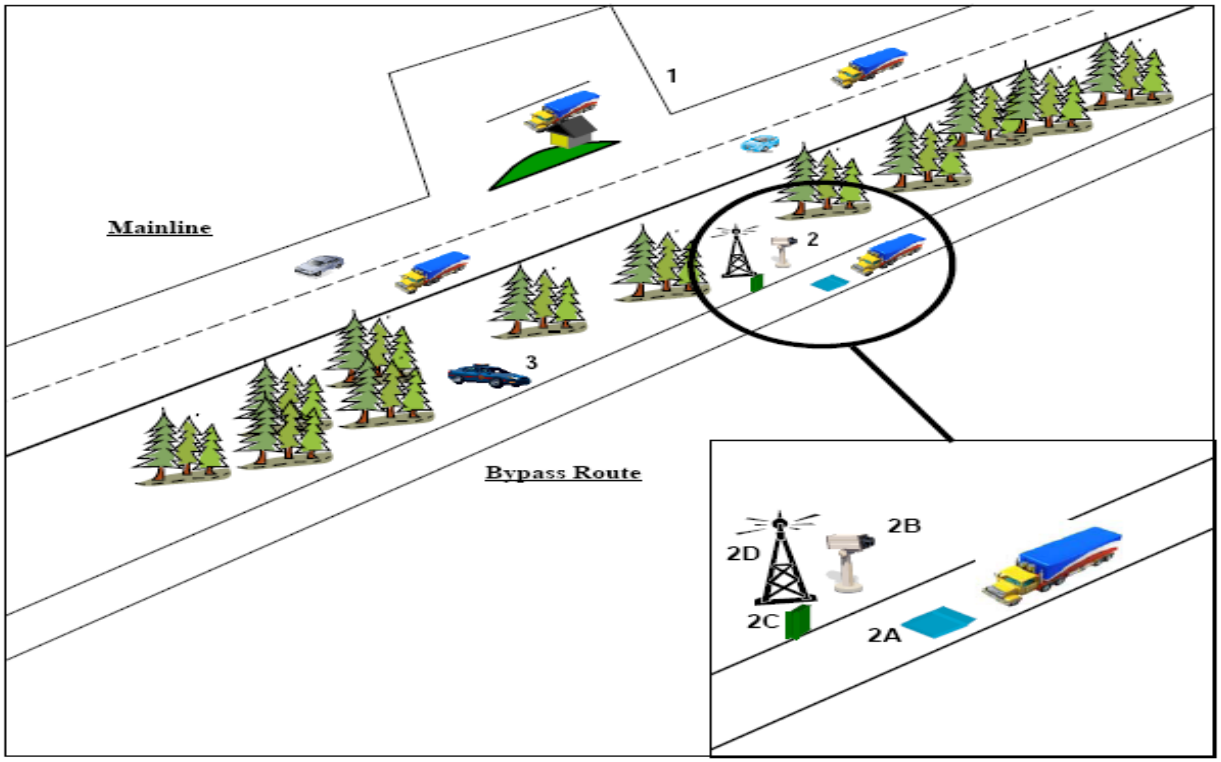
Maryland VWS Program Update



Phase I – Deployed Sites

Maryland VWS Program Update

- Concept of Operations



Legend

1. Fixed weigh station on mainline highway
2. Virtual weigh station deployed on bypass route
   - 2A. WIM scales
   - 2B. Camera system
   - 2C. Screening software
   - 2D. Communication system
3. Mobile enforcement unit deployed "downstream" from VWS

Maryland VWS Program Update

Improving Highway Safety With Technology

Over Height Detector

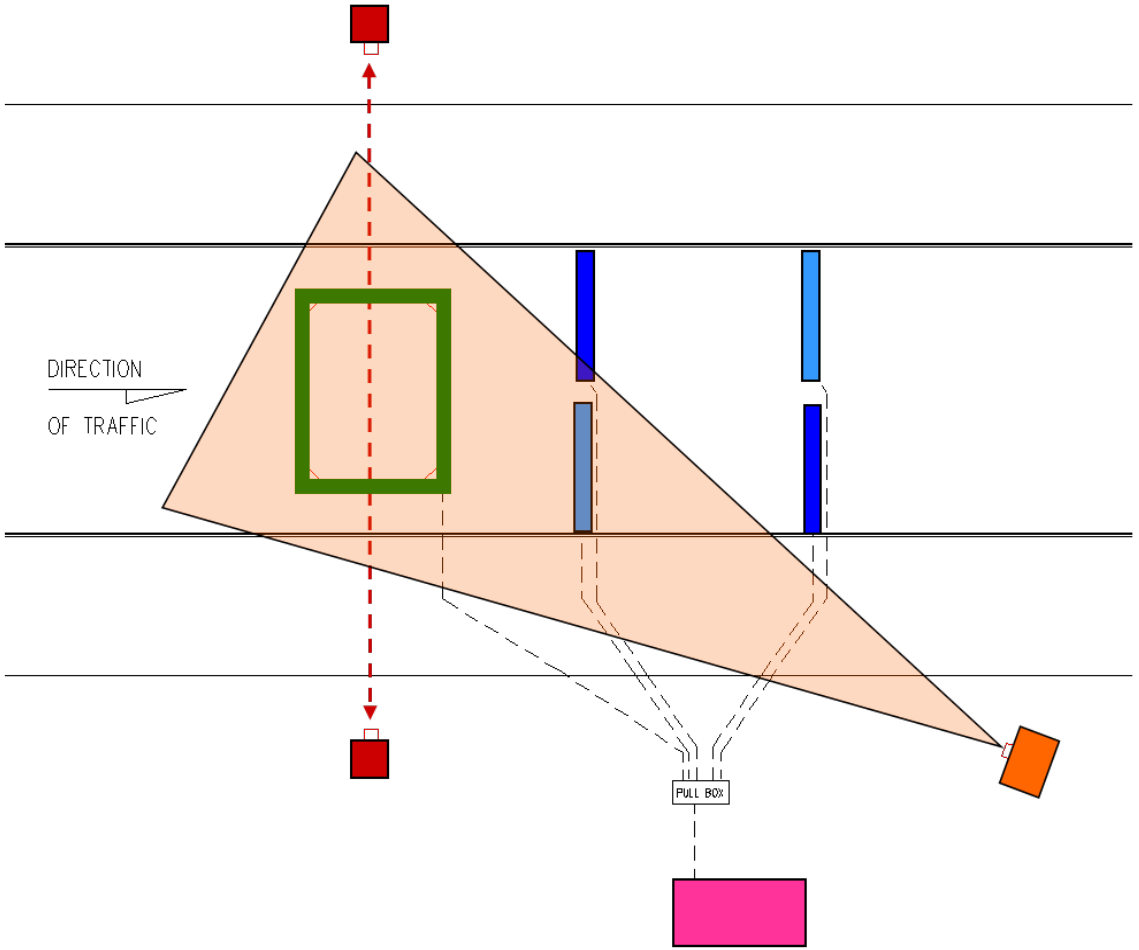
LOOP Detector

Sensor Pair 1

Sensor Pair 2

Camera

Cabinet



Maryland VWS Program Update

Functionality - Route 32 VWS – Pilot Site

Maryland VWS Program Update

Route 32 VWS – Pilot Site

- **QWIM Sensor**
- **Kistler Lineas® Quartz Weigh-In-Motion Sensor Type 9195E**

- **Inductive Loop**

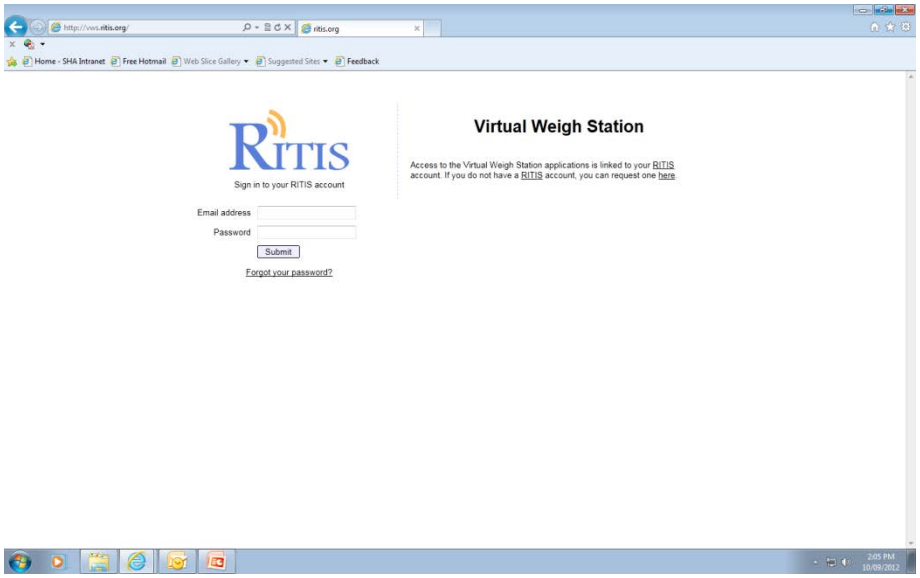
Maryland VWS Program Update

Maryland VWS Program Update

- VWS location selection criteria
  - Joint study with MSP and MDTAP
  - Prioritize sites based on truck volume, enforcement need, and public outreach
  - Road surface conditions and planned resurface schedule
  - Availability of power and cellular service (3G or 4G)
  - Minimal environmental impact
  - No land acquisition cost (within State right-of-way)
  - Availability of local enforcement personnel and vehicles
  - Safe pull-off area for inspections, citations, and Out-Of-Service (OOS)
  - Data importance/availability for traffic engineering and pavement engineering
  - Ability for remote and local diagnostics within 4 hours

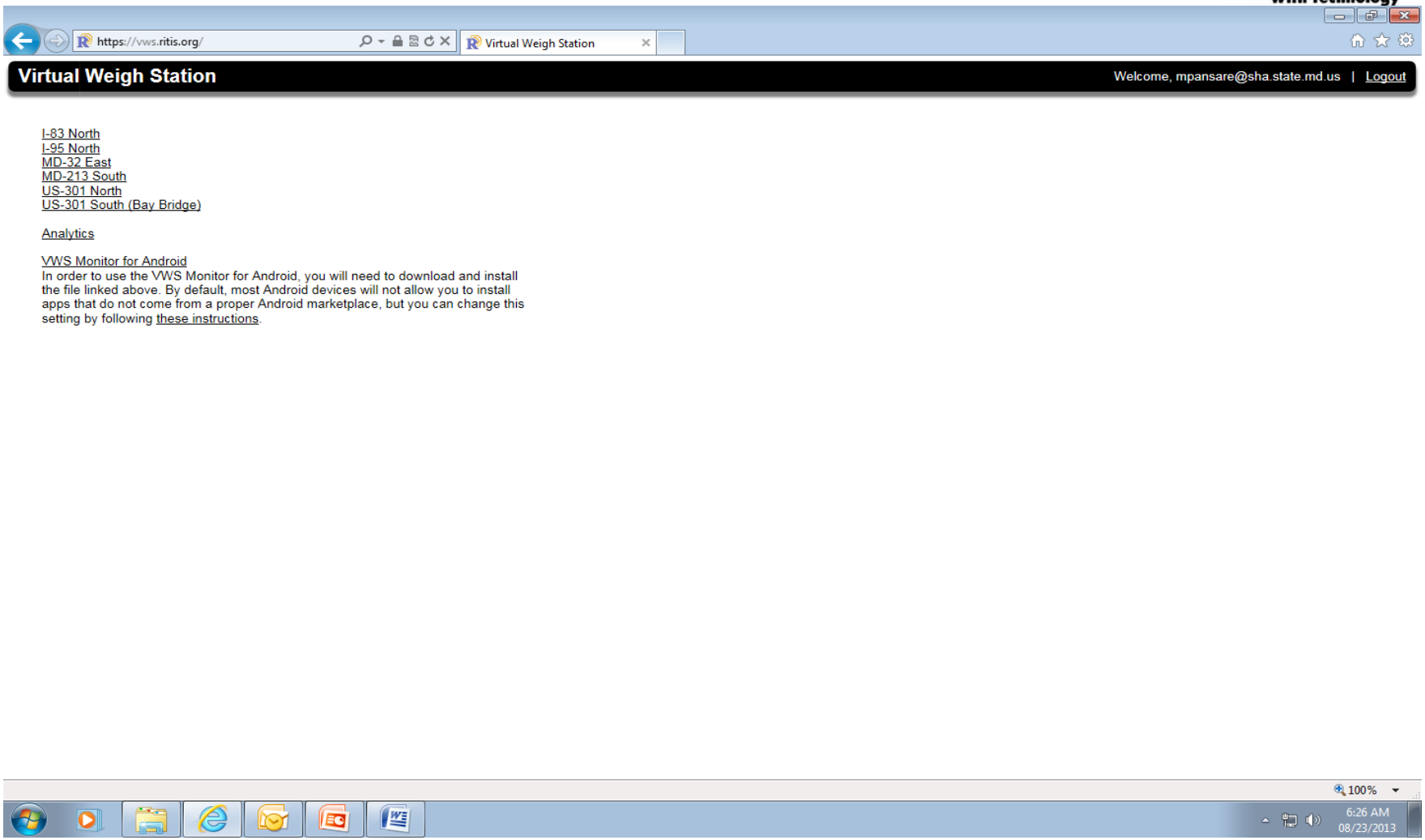
Maryland VWS Program Update

- RITIS Integration – In production September 2012
  - RITIS (Regional Integrated Transportation Information System) Integration
  - Integration of multiple VWS feeds, central location, unlimited archival capability
  - Multiple concurrent logins possible
  - Stream once, redirect anywhere
  - Multiple platforms (PC/Web, Smart phones, Tablets)
  - Enhanced reporting and analytics capabilities



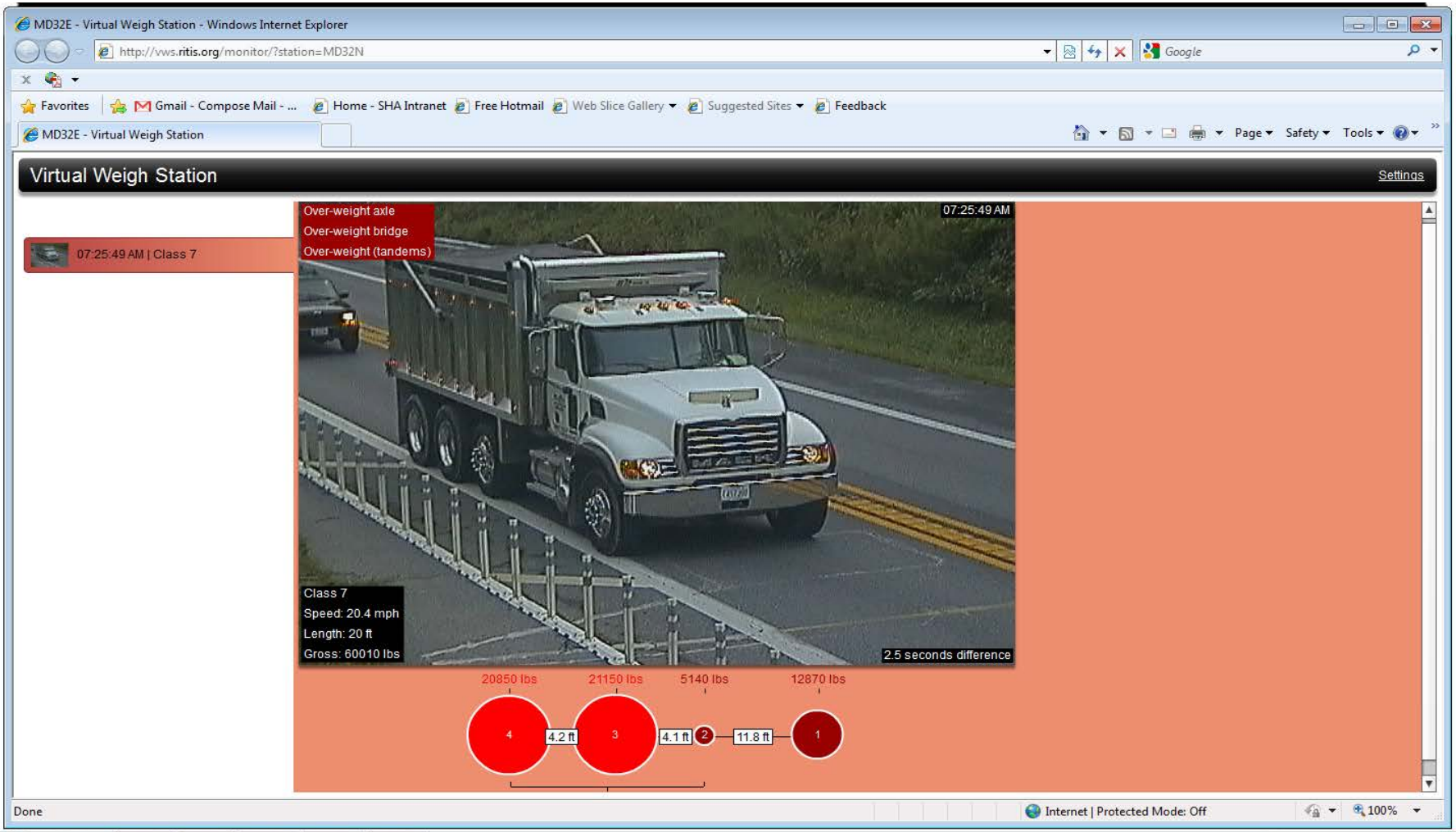
Maryland VWS Program Update

Improving Highway Safety With Technology

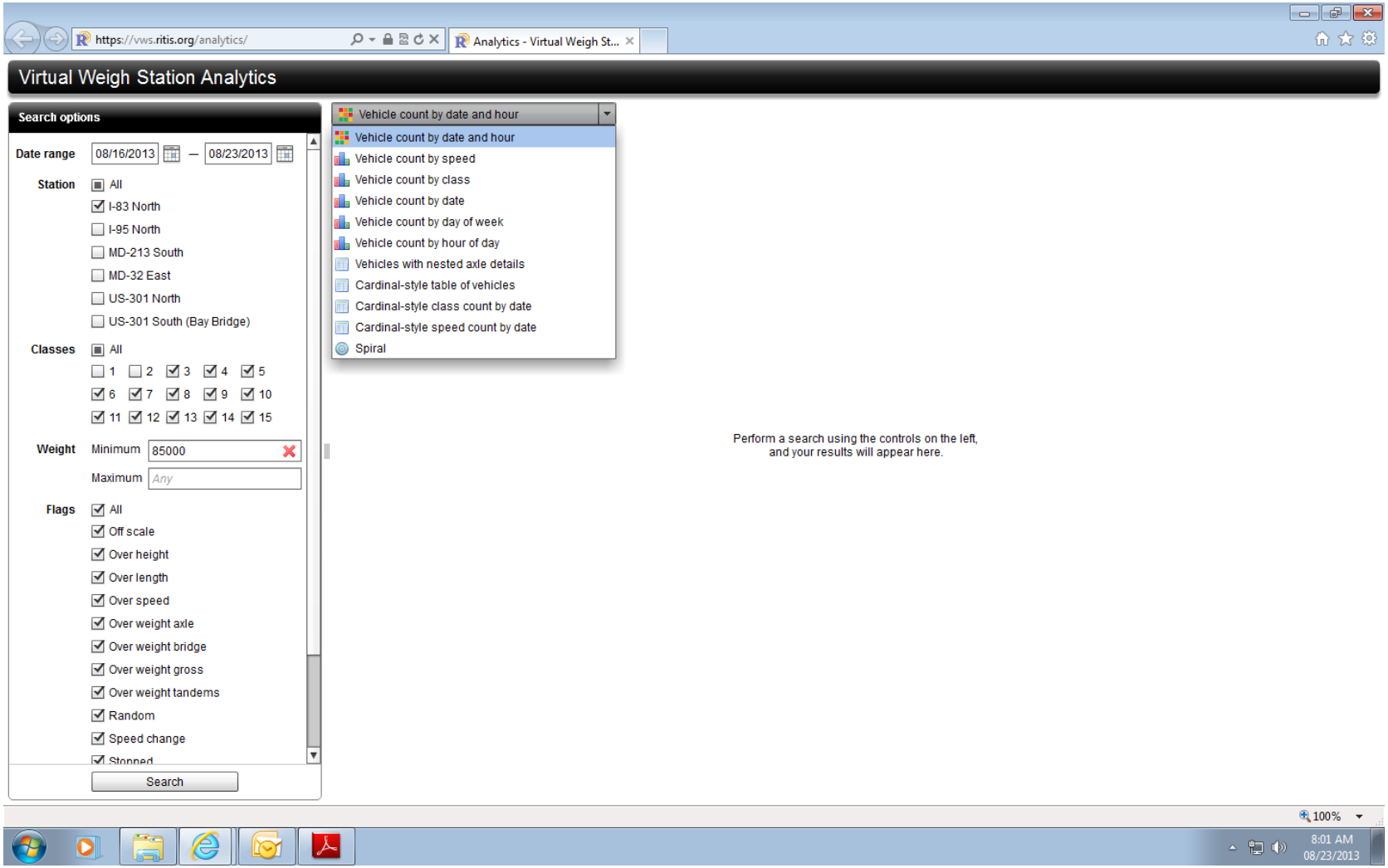


Maryland VWS Program Update

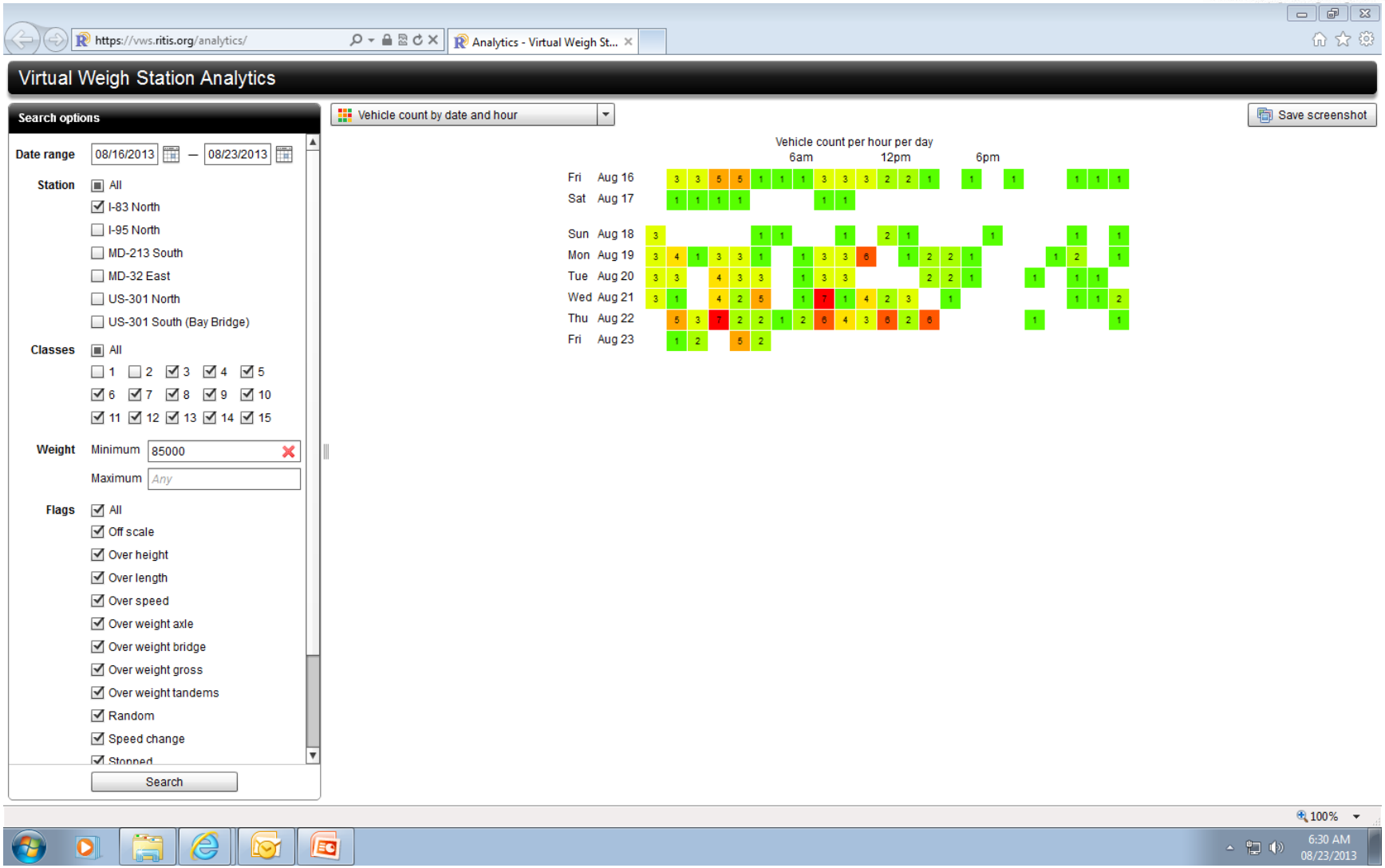
Maryland VWS Program Update



Maryland VWS Program Update



Maryland VWS Program Update



Maryland VWS Program Update

State Highway Administration
Maryland Department of Transportation

Improving Highway Safety With Technology

https://vws.ritis.org/vehicle/?v=20130822140725-1

Virtual Weigh Station

Vehicle ID: 20130822140725-10-151145
Date: 08/22/2013 2:07:25 PM
Weight: 109630 lbs
Speed: 42.5 mph
Length: 67.7 ft
Class: 10
Flags: Over weight gross, over weight bridge, over weight axle, over weight tandems VIOLATION

Spacing:	4.5	4.5		36.1		4.5		18.1	
Axles:	o	o	o			o	o		o
Wt:	16.5	17.1	17.2			24.3	24.1		10.5

Print this page

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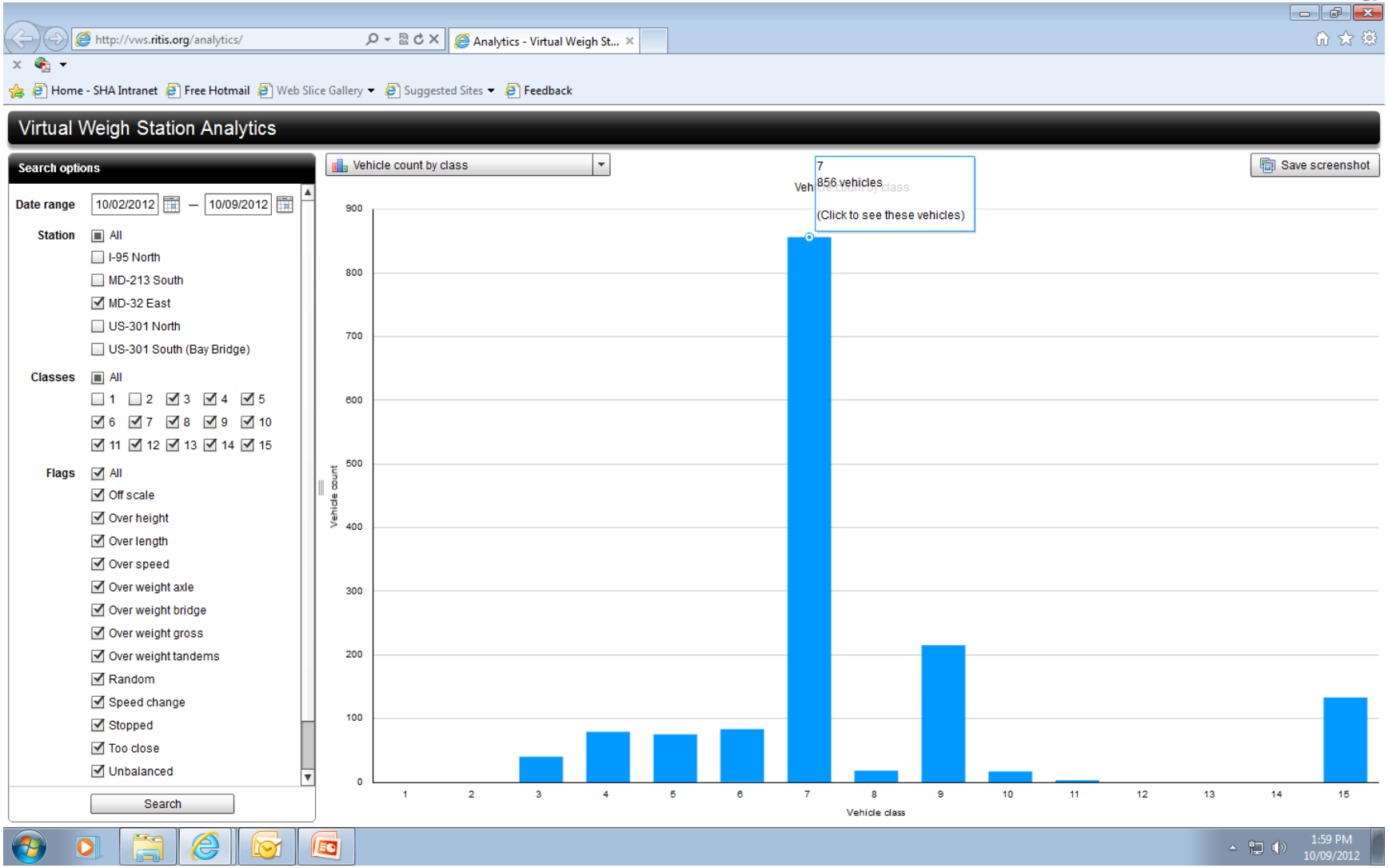
08/23/2013

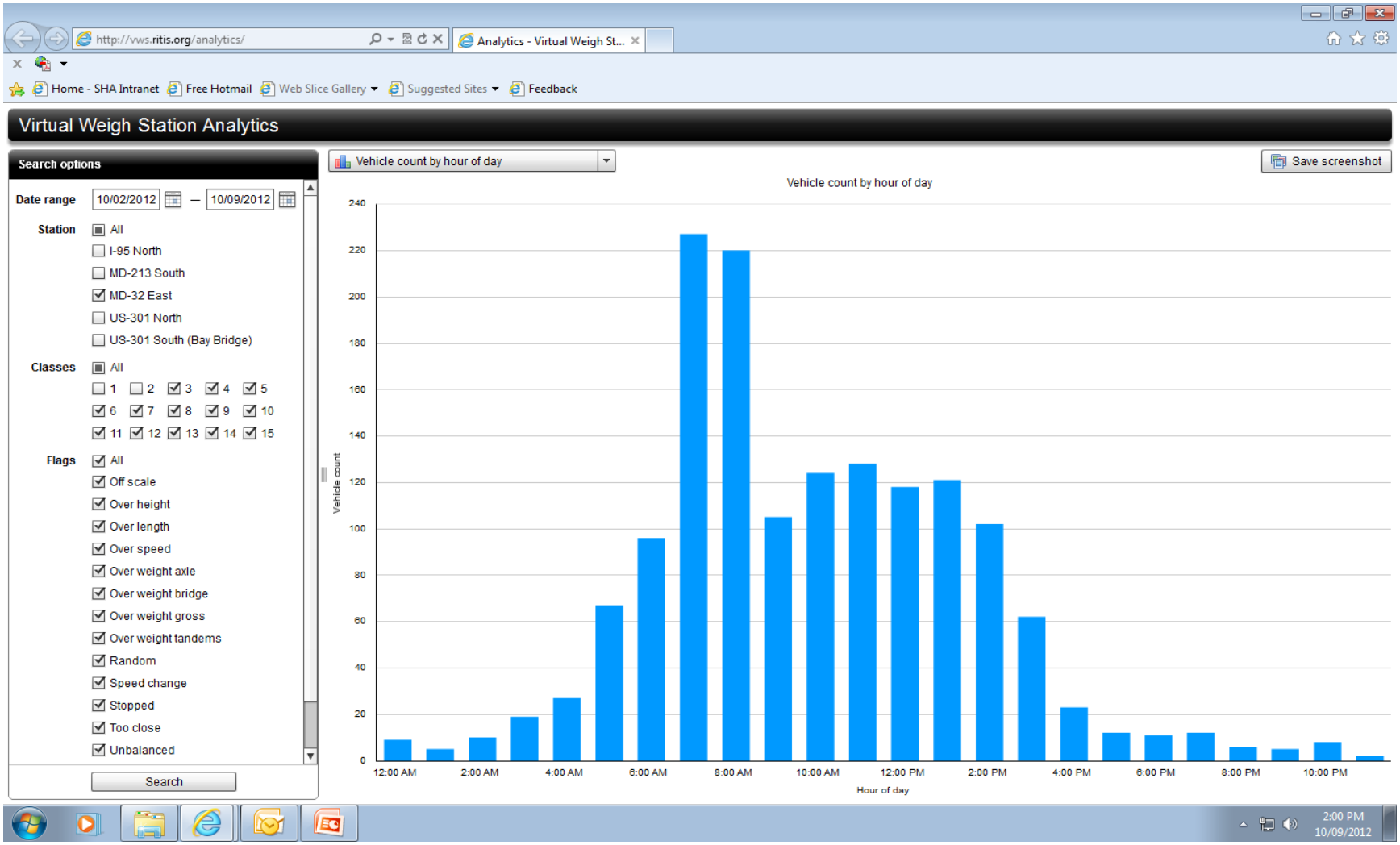
Maryland VWS Program Update

Improving Highway Safety With Technology



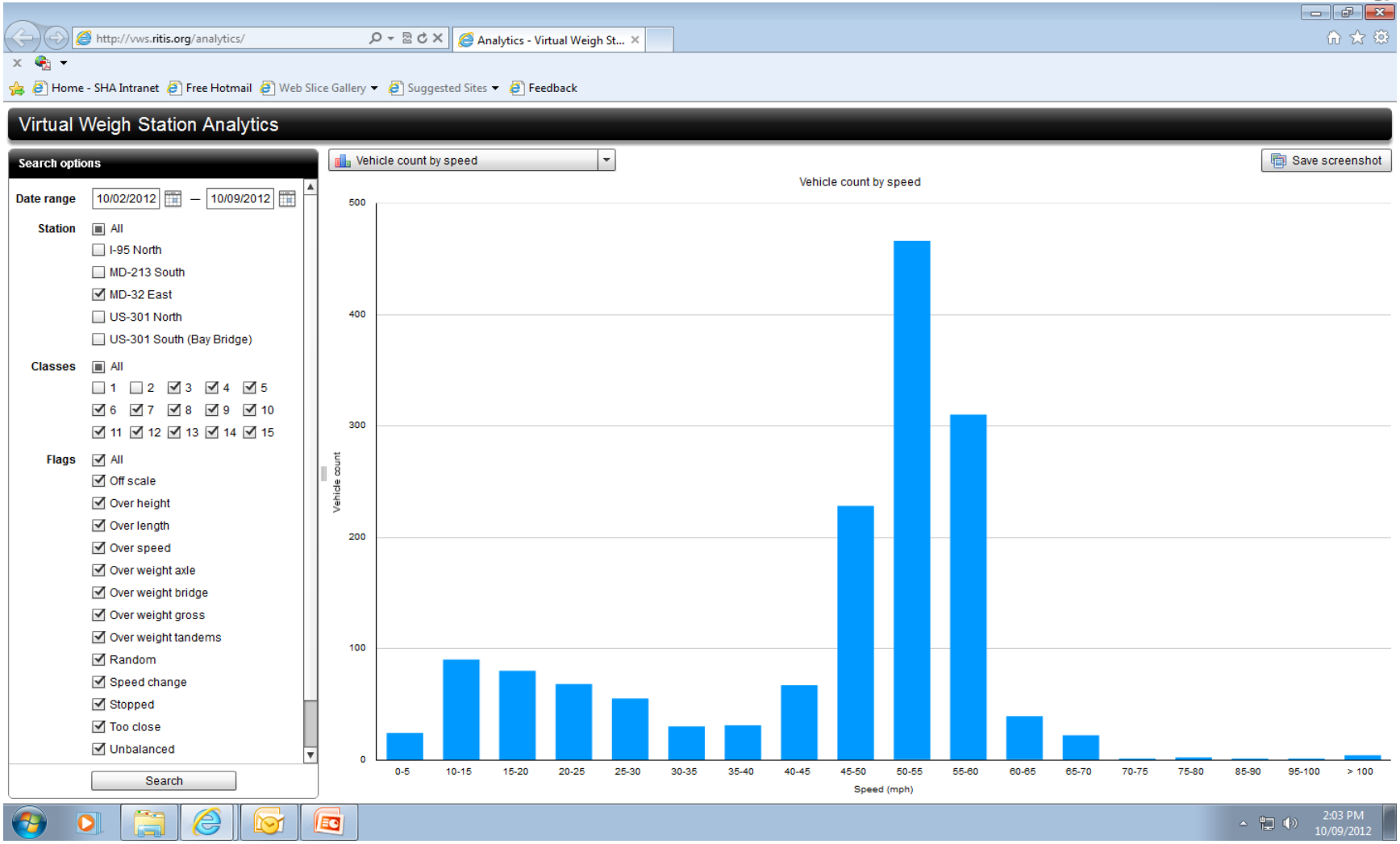
Maryland VWS Program Update

Improving Highway Safety With Technology



Maryland VWS Program Update

Improving Highway Safety With Technology



Maryland VWS Program Update

Enforcement – Rte 32 Pilot site example

Maryland VWS Program Update

- Enforcement example – Pilot and other deployed sites
  - Action based on VWS data – pre-screening tool
  - Gross weight, axle weight, bridge/tandem weights, over height violation
  - Additional Level 2 or Level 1 inspection based on initial observation
  - OOS for safety violations
  - Intentional un-balance (cheating the scale)
  - Mandatory offload >5000 lb over gross
  - Mandatory offload (depending on permit violations or fraud) for oversize loads
  - Arrests for other serious violations (criminal record, DUI, etc)

- Future enforcement actions (post LPR retrofit)
  - LPR information action – poor safety scores, IRP, IFTA, registration violations, stolen vehicle, permit violation

Maryland VWS Program Update

- Current Locations (production)
  - US Rte 32 Southbound (Pilot, Site 1) (MSP)
  - US 301 Northbound near 227 (Site 2) (MSP)
  - US 50 Bay Bridge Westbound (Site 3) (MDTAP)
  - US 213 Southbound (Site 4) (MSP)
  - I-95 Northbound/Caton Ave (Site 5) (MDTAP)
  - I-83 Northbound/Parkton (Site 6, dual lane) (MSP)
  - US 50 Bay Bridge Eastbound (Site 7, dual lane)

- Future locations (2014 – end 2017)
  - 11 additional MDTAP sites (Bridges and high speed toll locations)
  - 4 additional SHA sites

- Battle tested and hurricane proof
  - ‘Blizzard of 2010’ – Rte 32 – no outage under 4+ feet of snow and plough debris
  - ‘Hurricane Sandy’ – All sites 100% functional except isolated power outages

Maryland VWS Program Update

- RITIS Advantages
  - Single data repository for vehicle information from multiple locations
  - Powerful analytics engine assists in CMV violation search
  - Easy to identify habitual offenders and provide opportunity for self-correction
  - Law enforcement advantage for ‘predictive policing’ – deploy resources as needed
  - Easy real time access to traffic volume, type, and speed data for traffic planners
  - Real time analysis of traffic trends
  - Emphasis on CMV safety in immediate vicinity
  - Emphasis on system preservation of highway infrastructure
  - Local pro-active community and industry outreach for traffic issues

Maryland VWS Program Update

Improving Highway Safety with Technology

https://vws.ritis.org/vehicle/notice.cfm?v=201308221 — ritis.org

Motor Carrier Division
7491 Connelley Drive
Hanover, Maryland 21076

FIELD OBSERVATION NOTICE
Virtual Weigh Site Compliance & Education Program

Vehicle ID: 20130822144633-10-152297
Date: 08/22/2013 2:46:33 PM
Weight: 124070 lbs
Speed: 43.2 mph
Length: 67.9 ft
Class: 10
Flags: Over weight gross, over weight bridge, over weight axle, over weight tandems VIOLATION

Spacing:		4.5		4.5		36.3		4.5		18.1	
Axles:											
Wt:	18.7		18.7		18.8		28.5		28.8		10.5

Company Name: _____

DOT Number: _____

Location: _____

THIS IS *NOT* A TRAFFIC CITATION!

This notice is provided from Maryland State Highway Administration, Motor Carrier Division to improve safety awareness.

The vehicle shown may be in violation of state or federal requirements

The Motor Carrier Division is available to discuss information in detail and provide no cost training & education to assist in the prevention of safety violations.

For information or inquiries please contact:

Duane W. Pearce
CVISN Data Manager – Safety, Training/Education & Compliance
Motor Carrier Division, Office of Traffic & Safety
dpearce@sha.state.md.us
410-582-5719

cc: Maryland State Police, Commercial Vehicle Enforcement Division (MSP-CVED)
cc: Maryland Transportation Authority Police, Commercial Vehicle Safety Unit (MDTA-CVSU)

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08/23/2013

Maryland VWS Program Update

- Next Generation – Additional capability (2015 and beyond)
  - License Plate Reader (LPR) pilot
  - CMV ‘Hotlist’ integration
    - CSA, IFTA, IRP, Registration, HAZMAT, NCIC stolen vehicle lists
  - DriveWyse pilot test and Weigh-In-Motion integration for electronic screening

- Upcoming Challenges
  - Accelerated deployment – 5 VWS sites per year
  - System and engineering resources – Maryland
  - LPR integration – OCR recognition of ‘at speed’ CMV license plates
  - Back office expansion and LPR query integration (centralized)

Maryland VWS Program Update

- Enforcement Activities
  - Over weight, over height, unbalanced load pre-screening
  - Safety violations
  - Overload violations
  - Hauling permit violations – off loads
  - HAZMAT violations
  - Analytics based targeted enforcement initiatives

- Legal aspects
  - Maryland – CMVs can be stopped without cause for safety inspection
  - Compliance with county, rural, state and interstate road regulations
  - Effective deterrent for bypass violations
  - Effective traffic management – local routes

Maryland VWS Program Update

- Collaboration
  - FMCSA: Expanded CVISN funding (50-50 federal and state) – 6 initial sites
  - FMCSA: Core CVISN funding (50-50 federal and state) – CVISN personnel salaries, program maintenance
  - FHWA: Collaborative presentations and visits
    - Brazil DNIT/ UFSC LabTrans weigh-in-motion workshop – September 2013
    - Afghanistan Transportation Ministry – July 2012
    - Japan delegation – May 2012
    - Brazil DNIT – May 2012
  - Local, state and national presentations of technology
    - Data sharing with pavement and traffic divisions
    - Data sharing with other states (for VWS near other state jurisdictions – example – PA and DE)

Maryland VWS Program

- Questions and Open Discussion

  - Dave Czorapinski, Division Chief, Motor Carrier Division
    - 410-582-5734, dczorapinski@sha.state.md.us
  - Manoj Pansare, CVISN Program Manager and System Architect
    - 410-582-5730, mpansare@sha.state.md.us
  - Duane Pearce, CVISN Data, Education, and Compliance Manager
    - 410-582-5719, dpearce@sha.state.md.us