Virtual Weigh Stations
Technology Best Practices—Roy Czinku, IRD
What is a Virtual Weigh Station?

Communication include options: Wi-Fi, Cellular, DSL, T1, Satellite

Site can also include AVI Readers for E-Screening

ALPR Camera

Network Connection

Camera Options:
- Side View Camera,
- USDOT Camera

Electronics Cabinet

Loop

WIM Scale  WIM Scale

Loop

Not to scale
Virtual Weigh Station WIM Site
VWS Real-time in Station
VWS Real-time Remote App

Mobile enforcement requirements
VWS Considerations

• What are the Building Blocks of a Virtual Weigh Station?
1. Location

• Determine the best location for the system
2. Communications

Communications options:

- Phone line modem
- Cellular modem
- IP address cellular
- Network connection
- USB & serial ports
3. Power

• Keep your power options open!
4. Controller

The Virtual Weigh Station (VWS) is built around an electronic controller.

The controller should offer:

- Flexibility
- Expansion capability
Controller - continued

- Hardened electronics - outdoor durability, wide temperature range
- Resistance to lightning/surges
- Accommodate wide variety of WIM Sensors
5. In Road WIM Sensors

Consider accuracy and service life.

Piezoelectric

Bending Plate

Quartz

Single Load Cell
6. Data Output

- Historical
- Reporting
Data Output – continued

• Real-time Access
• Viewing records in real time requires a server and remote access solution.
7. Cameras – Link Image to Data

- Overview
- Side fire
- LPR
- USDOT
8. Vehicle ID options-Data String

Individual vehicle identification may be provided through one or more ID sub-systems:

- Vehicle Side View Photos
- License Plate Images
- Optical Character Recognition
- AVI transponders
- USDOT Number Reading
9. Credential Database Screening

Credential Systems:

- Credential System (e.g. iROC)
- Roadside Electronics (e.g. iSINC)
- Data Storage
- VWS
- Web Browser

Connections: XML, HTTP, CVO Server
Credential Screening - continued
Credential Screening - continued
10. Credential Database Hosting

- Local Database Server:
Credential Database Hosting

• Central Database Server:

Internet

Central Server

User with web browser

Roadside Electronics

Roadside Electronics

Roadside Electronics

Roadside Electronics
Conclusion

• A VWS can be a basic “WIM only” system or be “WIM and Credential” based.

• Always consider the Building Blocks when designing your VWS system

• Always plan for growth and for the future

• Buy only what you need today (but confirm that you can easily upgrade tomorrow)
Thank You!

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