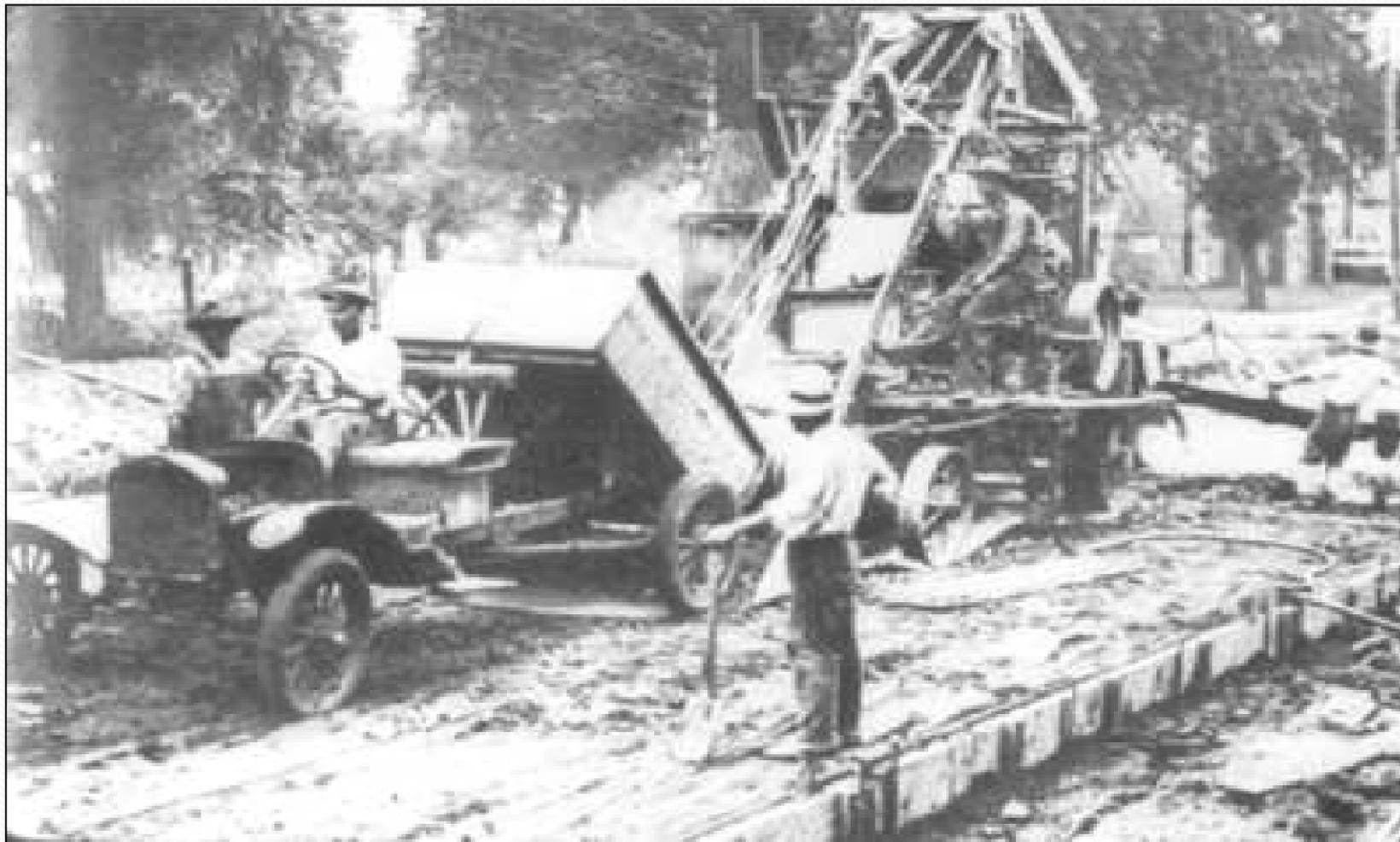


Brasilia Workshop
Governance of Transport Sector
May 8-10, 2012

*USDOT's Federal Highway Administration:
Oversight of Highway Freight in
the United States*

Tom Kearney
Freight Operations Program
Federal Highway Administration

Governance of the Transport Sector in the US





Early “Road Acts”

- 1916 and 1921 Road Acts establish basic characteristics of Federal-aid Highway Program that continue in operation to this day:
 - Highway Program is a “reimbursement” program – states incur eligible costs and are reimbursed through the program;
 - Non-federal share payable is required in most cases;
 - States must have an adequately staffed and equipped Highway Department to receive funds through the Program.



Governance of the Transport Sector in the US

Federal Aid Highway Act of 1944

Congress authorized the designation of the National System of Interstate Highways.

Federal government worked with state highway agencies and the Department of Defense to identify the system.

Federal Aid Highway Act of 1956



Federal Aid Highway Act of 1956

- Signed by President Eisenhower
- Created the Interstate Construction Program
- Created the Highway Trust Fund as a funding source
- Federal government pays 90% of costs
- High design standards

- Established federal authority to regulate truck weights on the Interstate System
- Identified federally legal vehicle dimensions



DOT Act of 1966

- Signed by President Johnson
- Created the Department of Transportation.
- April 1, 1967: DOT opens for business.
- The Bureau of Public Roads becomes the Federal Highway Administration.

DOT Original Agencies

Office of the Secretary



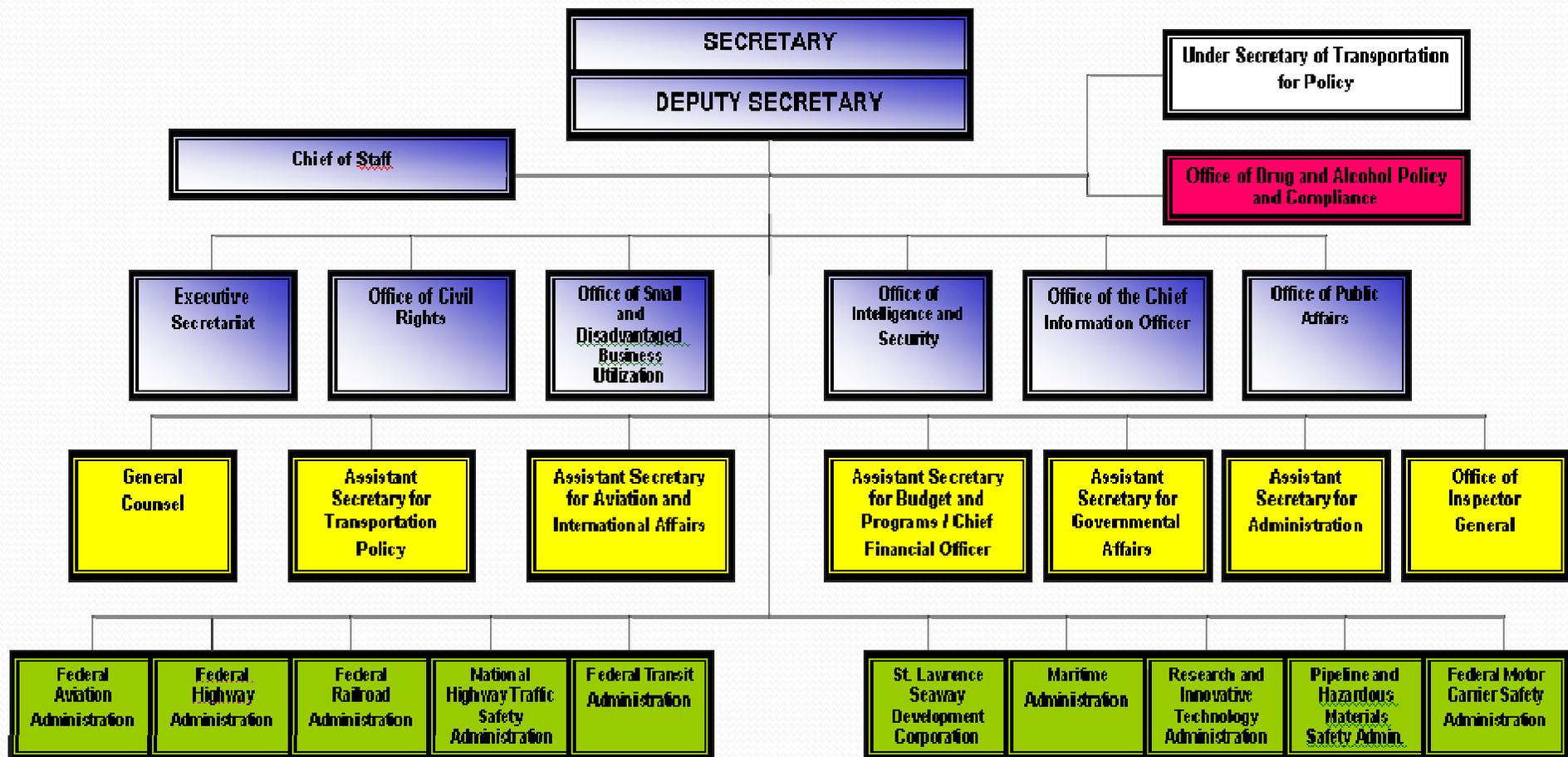
FAA

**Coast
Guard**

FHWA

SLSDC

U. S. DEPARTMENT OF TRANSPORTATION





Governance of the Transport Sector in the US

The Federal Highway Administration (FHWA) is one of the Modal Agencies organized under the United States Department of Transportation.

The primary mission of FHWA is to assist the States in delivery of a \$42 billion highway program each year.

Certain oversight responsibilities are performed by FHWA as identified and enacted by Congress in Highway Act legislation.



Governance of the Transport Sector in the US

- Federal Regulation of Transportation Date Back to mid-1880s (railroads);
- Roadway Weight Limits Date Back to 1913, the First Limits were Imposed by the States;
- 1941 Study by Interstate Commerce Commission Recommended Size & Weight Limits at Federal Level;
- First Federal Truck Size and Weight Limits were enacted with passage of Highway Act of 1956.



Governance of the Transport Sector in the US

- Important Truck Size and Weight Milestones:

- 1956 -- Federal Size and Weight Laws Passed;
- 1974 -- Federal Weight Limits Adjusted, Bridge Formula Enacted;
- 1982 – Federal Vehicle defined, National Truck Network Identified;
- 1991 – Longer Combination Vehicle Weight, Configuration and Legal Network Enacted.

Congress enacts legislation, the President signs into Law; Federal Agencies promulgate regulations, carry same legal force as Law.

Governance of the Transport Sector in the US

- Elements Subject to Federal Regulation:
 - Truck Weight –
 - Axles;
 - Gross Vehicle;
 - “Bridge Formula” (axles and spacing);
 - Truck Length –
 - Trailer Length is Regulated, 48’ minimum for semi-trailers and 28’ for “twin trailer” combinations (STAA vehicles);
 - States have “Grandfathered Length” Limits that vary from 48’ (half of the states) to 59’ 6” (OK);
 - Width Limits –
 - Originally 96” in 1956, increased to 102” in 1982;
- Safety devices are excluded from width and length measurements (ie: side mirrors, handholds, splash suppression devices);
- There is no Federal Limit in Law for Truck Height, Authority is with the States to Regulate, Generally Determined by Infrastructure Tolerances (ie: bridge clearances).

Governance of the Transport Sector in the US

- States are Responsible for Enforcing Federal Size and Weight Laws;
- Enforcement Conducted by State Police in most cases or State Public Safety Agencies;
- States Oversee State Truck Regulations and State Designated Truck Networks as well;
- Failure to Enforce or Comply with Federal Laws Leads to Penalties or Sanctions Applied to State's FAHP –
 - Denial of Access to Interstate System by Trucks of Legal Federal Weight – NHS Funds Withheld;
 - Failure to Certify Enforcement of Federal Laws and Regulations – 10% of Annual FAHP Apportioned Funds.



Governance of the Transport Sector in the US

- State have authority under federal law to permit over dimension and/or over weight loads;
- States issuing permits may restrict the routing of a permitted load based on the physical ability of the routes to safely accommodate the load.
- Permit Authority is based on three types of “grandfathered rights”:
 - 1956 – divisible load and non-divisible load permit rights were established;
 - 1974 – second round of state truck weight limits “grandfathered” and state bridge formulae “grandfathered”;
 - 1991 – LCVs legal operation allowed based on 1991 legal status
- State Highway Agencies or Department of Motor Vehicles issue permits for divisible and non-divisible load movements, restrictions may apply to the permit.



Governance of the Transport Sector in the US

There are four types of equipment primarily employed in the enforcement of commercial vehicle weights:

- Stationary Weigh Stations using Fixed Scale Set Ups;
- Semi Portable Scales requiring two to four persons to operate;
- Portable Scales requiring two persons to operate;
- High Speed Weigh-in-Motion Equipment used currently for screening commercial vehicle weights.



Governance of the Transport Sector in the US

Factors Affecting Enforcement Locations:

- States Attempt to Intercept Overloaded commercial vehicles at a “Point-of-Entry” to Minimize Impacts of Excessive Weight on the Integrity of the Pavements and Bridges;
- States Use Traffic Monitoring Data (traffic volume, vehicle classification, continuous classification and HSWIM) to “Profile” Highway Corridors and Understand Demands on such Corridors;
- Enforcement Community Operational Knowledge of Various Routes and Corridors Influences Decisions in Locating Enforcement Activities.



Governance of the Transport Sector in the US

Personnel involved in Weight Enforcement:

- Numbers Vary by State Depending on the Size of the State, Level of Commercial Vehicle Travel Occurring Within the State and the State's Ability to Fund an Adequate Enforcement Program;
- Large States (California, Texas, Florida, New York, Pennsylvania) Tend to have a substantial number of staff involved in enforcement of weight laws;
- Smaller States (New Hampshire, Vermont, Rhode Island) have less Highway Mileage, Less Truck Travel and thus, fewer staff assigned to weight enforcement.



Governance of the Transport Sector in the US

- Private Sector Plays a Significant Role in Truck Enforcement Operations in the US:
 - “Pre-Pass” Model is based on self-governance where trucking properties “pay” for automated compliance verification and clearance services – operates in 30 States;
 - Vendors continue to develop and advance automated overweight/oversize permitting services;
 - Vendors are advancing “Virtual Weigh Station” packages and tools



Governance of the Transport Sector in the US

- Traditionally, Weigh Stations were widely used to enforce CMV activities;
- Trends in Truck Travel and Freight Demand Rendered This Approach Impractical from Roadway Congestion and Safety Standpoint;
- Forecasts Point Toward Substantial Increases in Truck Travel Over the Next Several Years Underscoring the Critical, Immediate Need for More Effective, Automation Based Approaches to Support Enforcement Programs;
- Automated Enforcement Techniques Tend to More Efficiently Direct Enforcement Activities;
- “e-Permitting” and “Virtual Weigh Stations” are Priority Programs Areas Viewed by FHWA to Support Adequate Levels of Truck Enforcement.



What are Virtual Weigh Stations ?

Perform the full menu of vehicle and driver inspection and compliance enforcement activities, traditionally conducted at “fixed” weigh stations, at highway speeds using advanced roadside automation tools.

- High Speed Weigh-in-Motion (HSWIM) technologies;
- Vehicle dimension scanners;
- Transponder enabled driver and company registration and credentialing and vehicle safety inspection [FMCSA].



What is “e – Permitting”

Advance “roadside technologies” designed to deliver State Oversize/Overweight Permit Program compliance determinations at highway speeds:

- technologies include in-vehicle “on-board units” carrying driver and vehicle information “talking to” roadside receivers that interface with appropriate safety and registration data base systems;
- advanced technologies enable driver credential checks, load credential verification, transport company safety record check, vehicle safety inspection verification and state issued permit verification and compliance checks.
- Important consideration toward e-permitting is to enable maintenance of safe highway operations while conducting truck safety and enforcement activities!



Virtual Weigh Station

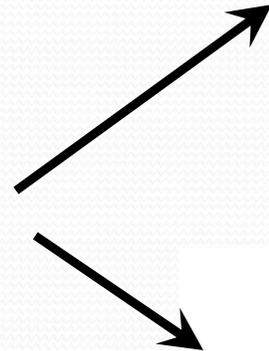
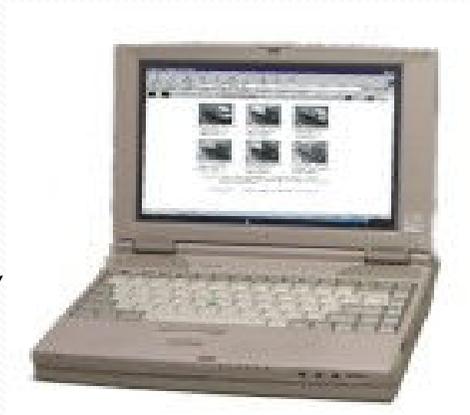


Camera Number 1

```
(6196) LANE RT-LN1 CLASS 10 GVW 43.8 tonnes LENGTH 1686 cm
18-K ESAL 5.142 SPEED 88 kph MAX GVW 36.3 tonnes Tue Sep 10 08:53:10.46 2002
|<===== 14.1m =====>|
* * * * *
8.0 7.9 8.1 7.6 7.6 4.6

AXLE SEPARATION WEIGHT ALLOWABLE
      (cm) (kg) (kg)
1* OVER GVW 4615 5670
2* 402 7620 7711
3* 132 7606 7711
4* 566 8081 5140
5* 153 7915 5140
6* 152 7965 5140

Warning: Overweight
Warning: Over Gvw
```



- **Wireless Access to the data and images allows mobile officers to access and use the system**

Virtual Weigh Station

Vehicle Image Thumbnails - Microsoft Internet Explorer

Address: http://172.16.126.200/cgi-bin/summary_cg?index=9&order=1

ird INTERNATIONAL ROAD DYNAMICS INC. INTELLIGENT TRANSPORTATION SYSTEMS

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Vehicle Image Thumbnails

Click on thumbnail to view full resolution image and detailed vehicle record data

		
10/22/2001 18:20:38 Vehicle Num: 83 Camera Num: 1	10/21/2001 18:36:17 Vehicle Num: 16502 Camera Num: 1	10/21/2001 12:10:10 Vehicle Num: 13724 Camera Num: 1
		
10/20/2001 09:25:24 Vehicle Num: 6570 Camera Num: 1	10/19/2001 18:19:11 Vehicle Num: 15780 Camera Num: 1	10/19/2001 13:13:58 Vehicle Num: 882 Camera Num: 1
		
10/19/2001 13:01:23 Vehicle Num: 784 Camera Num: 1	10/19/2001 12:29:55 Vehicle Num: 566 Camera Num: 3	10/19/2001 12:29:55 Vehicle Num: 566 Camera Num: 2

Detailed Vehicle Data - Microsoft Internet Explorer

Address: http://172.16.126.200/cgi-bin/detail_cg?filename=083279_00566_1.jpg&index=17&order=1

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Detailed Vehicle Data



Camera Number 2

```

(566) LANE CLASS 10 GVW 59.8 kips LENGTH 63 ft
18-K ESAL 0.929 SPEED 52 mph MAX GVW 91.0 kips Fri Oct 19 12:29:55.48 2001
|----- 62.6ft ----->|
  o   o   o           o   o   o
 7.6 8.3 7.8           12.7 13.0   10.5
  
```

AXLE	SEPARATION (ft)	LEFT WT (kips)	RIGHT WT (kips)	TOTAL WT (kips)	ALLOWABLE (kips)
1		5.8	4.7	10.5	20.0
2	18.3	6.5	6.5	13.0	17.0
3	4.4	6.2	6.5	12.7	17.0
4	30.5	3.6	4.1	7.8	15.0
5	4.7	4.2	4.1	8.3	15.0
6	4.7	4.0	3.6	7.6	15.0

Warning: Running Scale
Warning: Speeding

Disconnect Options Clipboard Send Ctrl-Alt-Del

KENTON COUNTY WEIGHT STATION Version 4.4.2

File Data.Alert Zoom Search Input Help Quit



STATION_ID

ST1

YEAR

2001

MONTH

04

DAY

04

HOUR

15

MINUTES

04

SECONDS

58

HOS

20

VEH_SEQ_NUM

29573566

Run

Back [7]

Quit

Start Kenton County W...

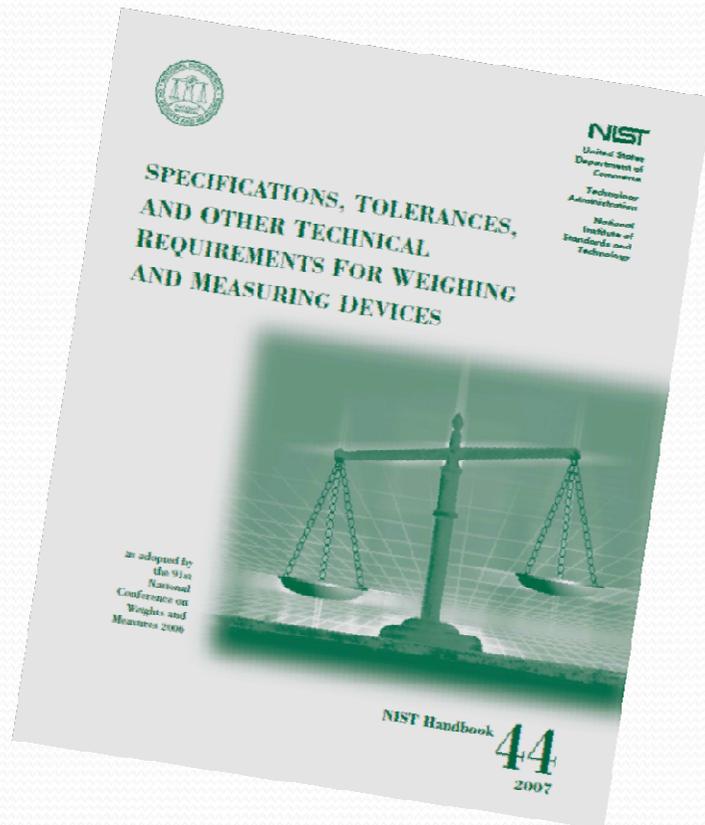
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Governance of the Transport Sector in the US

- Noteworthy Accomplishments –
 - Truck Enforcement Technology Study Completed;
 - Electronic Universal Truck Identifier Evaluation Study Completed;
 - “Virtual Weigh Station” Business Model Completed;
 - “Virtual Weigh Station” Data Model Completed;
 - “Virtual Weigh Station” Architecture Completed;
 - Plans to Construct Two “Virtual Weigh Station” Sites Based on Architecture.

US Weigh-in-Motion Technology Standards Project

Developing a proposed amendment to *NIST Handbook 44* related to WIM technology



“NIST Handbook 44 contains the specifications, tolerances and other technical requirements for weighing and measuring devices.

It describes how devices will be designed, tested, installed and how they will perform.

It includes scales, meters, grain analyzers, measure containers, taxi meters, timing devices, and more.

Every state adopts *NIST Handbook 44* in some form.”

–The National Conference on Weights and Measures

WIM Standards Project

WORKING GROUP REPRESENTATION –

- State departments of transportation (6)
- State law enforcement agencies (4)
- Prosecution agencies (?)
- Equipment manufacturers/vendors (9)
- Private consultants (2)
- Academic researchers (2)
- Weights and measures regulatory officials (3)
- Federal agencies and organizations (3)
- International counterparts (Fr, NL, Brazil, Cz Repub)

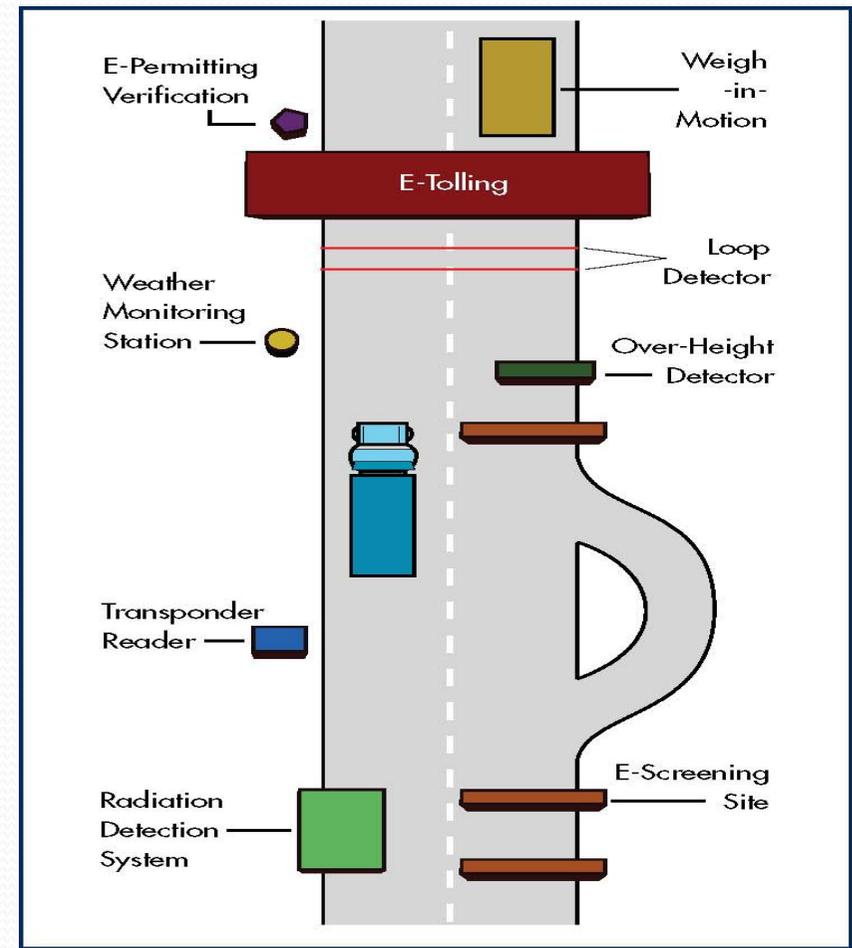


“Smart Roadside” – Key Aspects

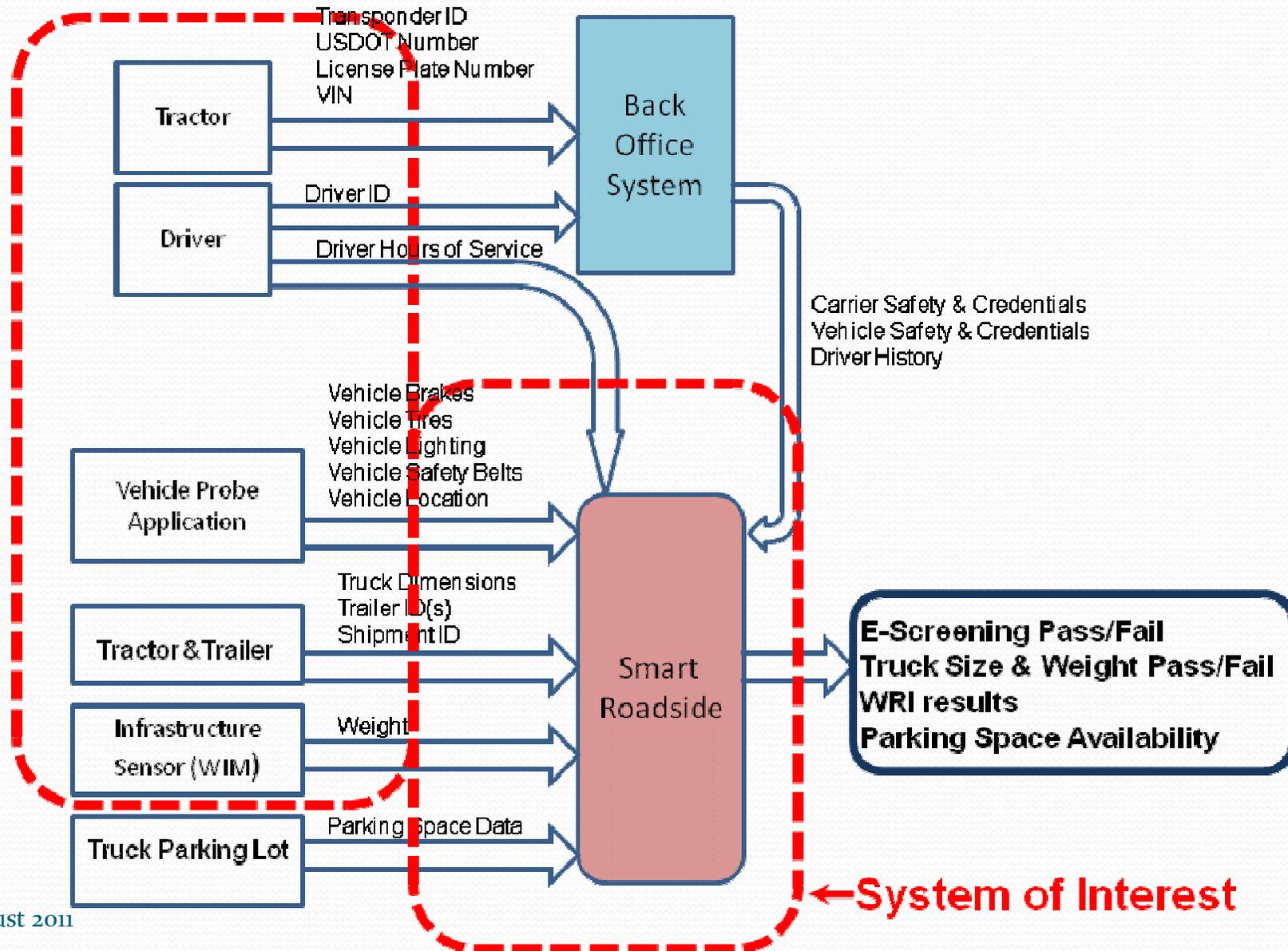
- Electronic Permitting/Virtual Weigh Station – Integrates Key Accomplishments into Program;
- Wireless Roadside Inspection Program – FMCSA’s research initiative to automate driver, vehicle and company compliance determinations;
- USDOT Truck Parking Programs – ITS Based System to Detect Availability and Inform Drivers;
- Electronic Universal Truck Identification functionality included as design element.

“Smart Roadside” – Objectives

- The Smart Roadside Program allows trucks and drivers to be screened using wireless communication between the vehicle and the infrastructure while traveling at highway speeds.
- Regulatory functions can be employed while not interrupting commercial vehicle operations.
- Safety is improved by eliminating stop and go traffic.
- Data can provide fleet managers insights into the “real-time” status of their vehicles and cargo.



“Smart Roadside” – Initial Focus

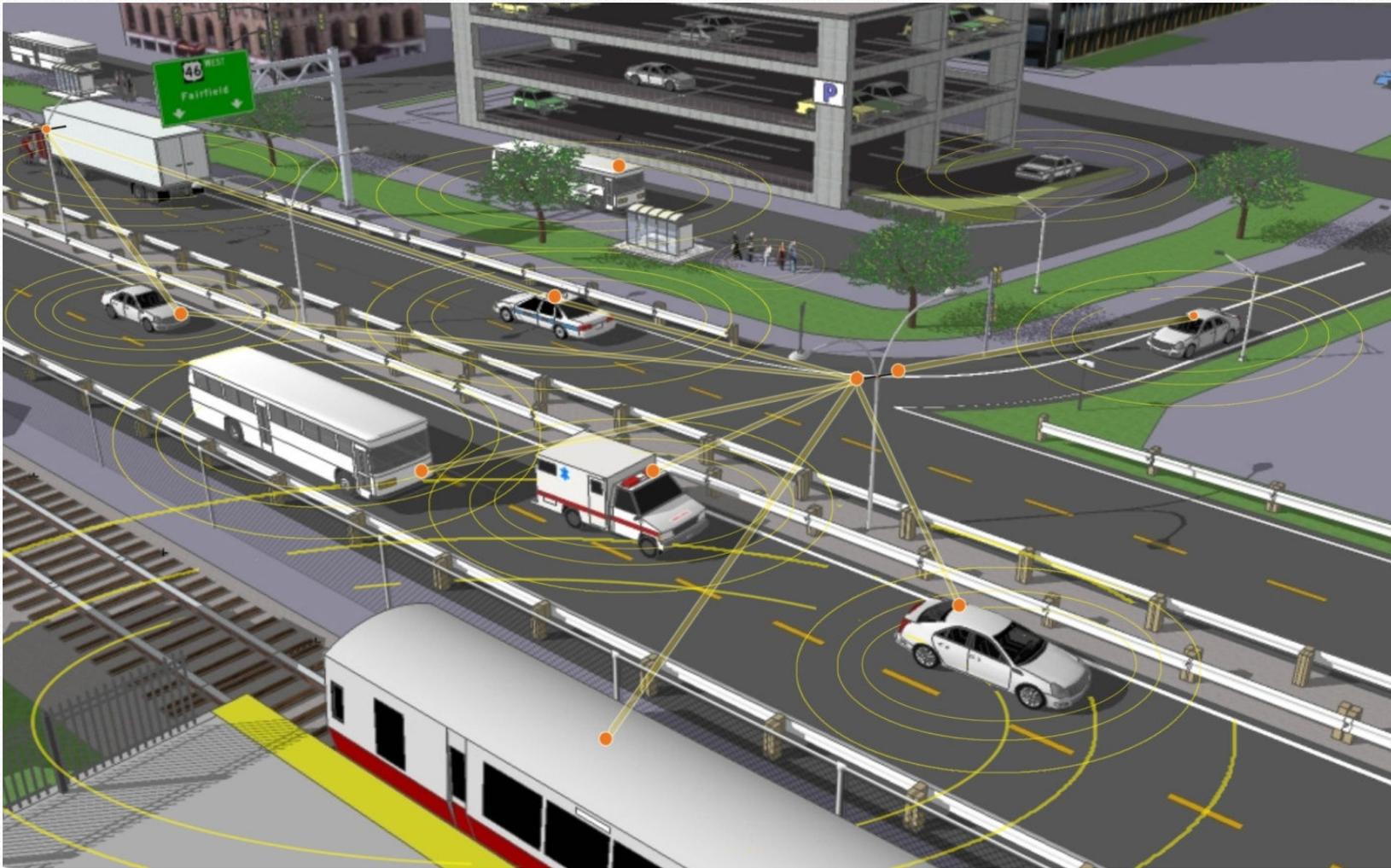




“Smart Roadside” – Current Status

- “Smart Roadside” is identified as a “priority application” in the “ITS Strategic Research Plan: 2010-2014”;
- A multi-year project is supported through the ITS Strategic Plan that will support development of a prototype application;
- “Smart Roadside” is an component of the Vehicle-to-Infrastructure” (V-I) element of the “Connected Vehicle” Research Initiative.

The Connected Vehicle Initiative

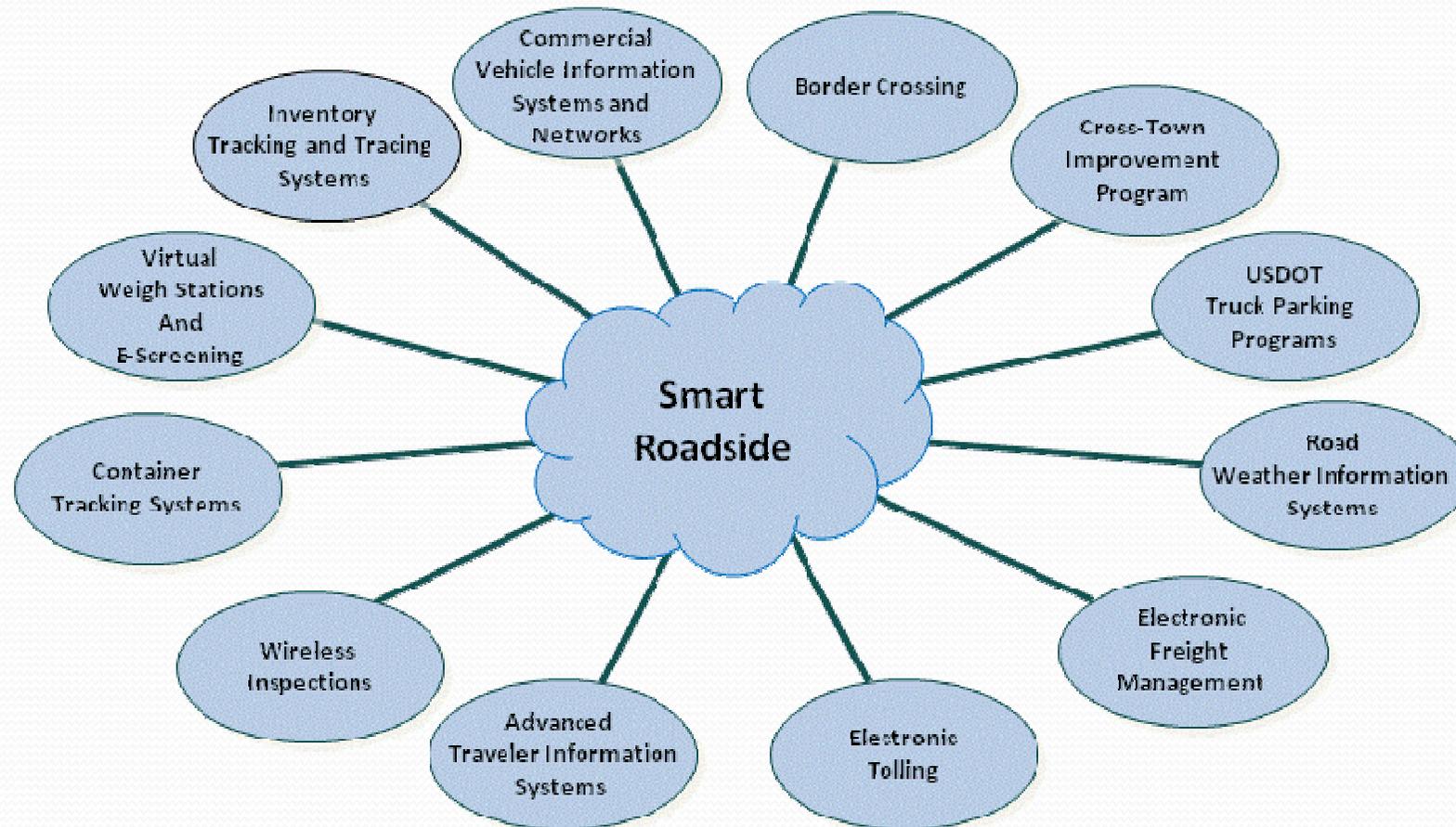




Smart Roadside – Work Products

- Concept of Operations Being Completed;
- Architecture and System Requirements to be Completed by Fall, 2012;
- Prototype Application to be developed by the end of Calendar Year 2012;
- Limited Field Deployment Testing and Benefit Analysis to be Undertaken in CY 2013-14;
- Integration of “Smart Roadside “ Application into Overall “Vehicle-to-Infrastructure” Program

“Smart Roadside” – Future Implementation





“Smart Roadside” – Contact Information

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