



Smart Roadside Initiative (SRI)

Smart Roadside Initiative CVSA

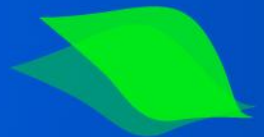
Ron Schaefer
September 2011





Agenda

- SRI Overview
- Technical Approach
- High-Level Project Schedule
- Assessment of Deployed Systems
- CVSA Workshop Summary
- SRI Concept of Operations





SRI Vision and Goals

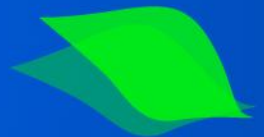
- Vision:
 - *Commercial vehicles, motor carriers, enforcement resources, highway facilities, intermodal facilities, toll facilities, and other nodes on the transportation system collect data for their own purposes and **share the data seamlessly with the relevant parties, in order to improve motor carrier safety, security, operational efficiency, and freight mobility.***
- Goals:
 - *Build, install and test prototype of Smart Roadside Application(s)*
 - Enable data exchange between vehicle and roadside infrastructures which connect to authoritative databases for information and relevant data.



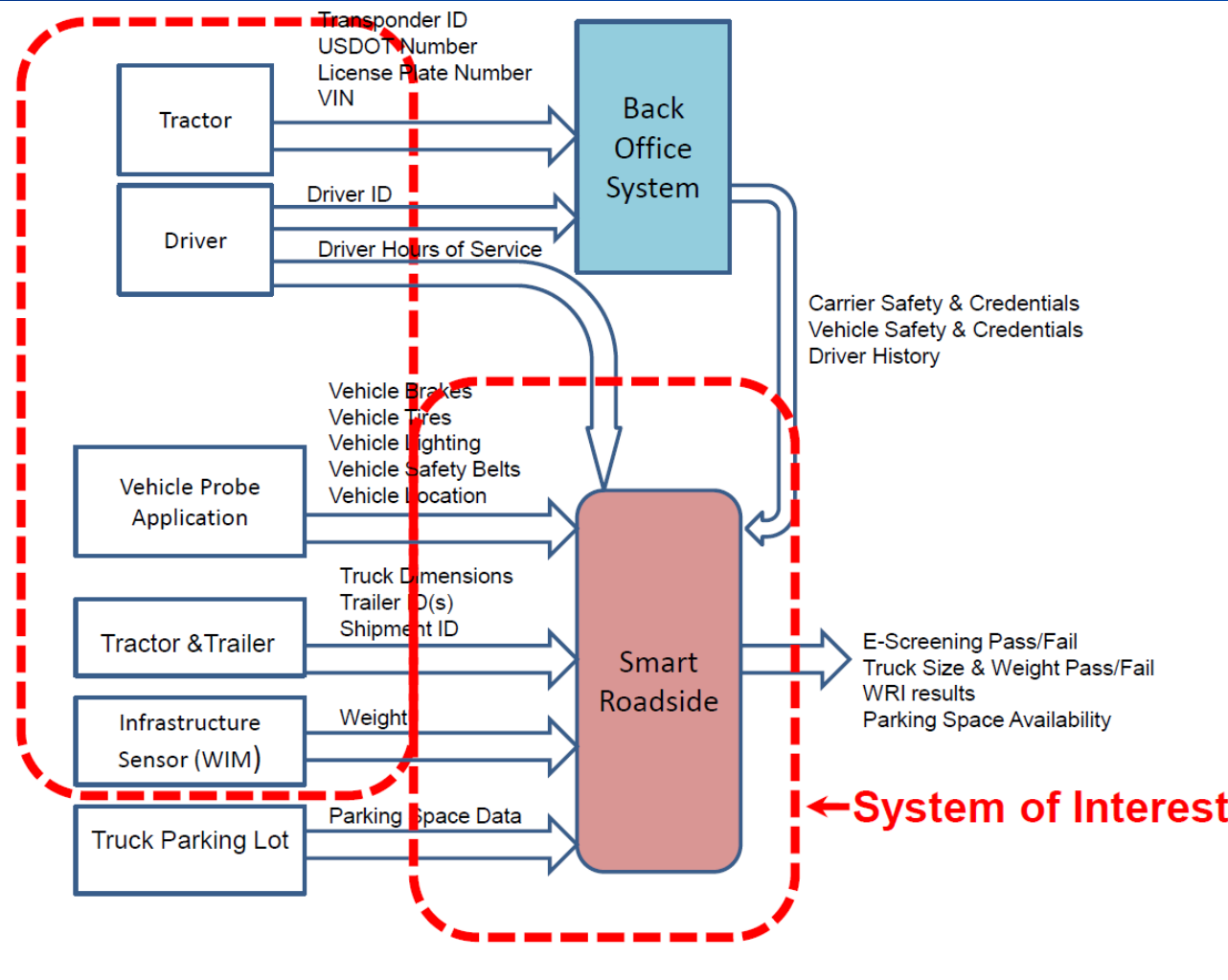


Keys to Success

- Open Architecture
- Leverage
- Connectivity
- Interoperability
- Data Sharing
- Partnerships



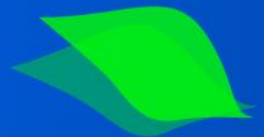
SRI Concept



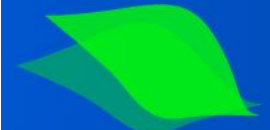
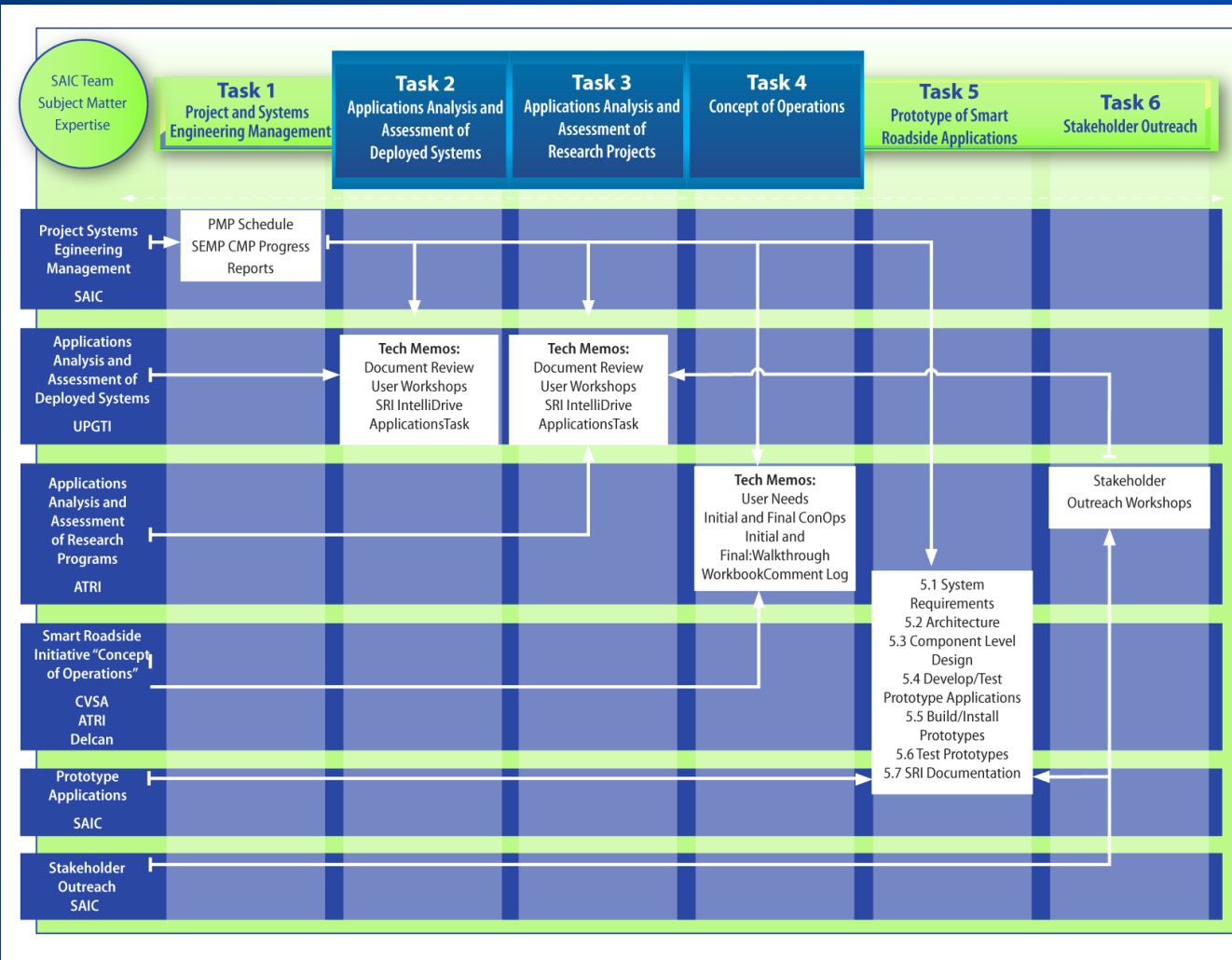


Project Team

- SAIC
 - Prime Contractor
 - Leading: project management, systems engineering, and prototype design, development, build, install and test
- North Dakota State's Upper Great Plains Transportation Institute (UGPTI)
 - Leading applications analysis of deployed systems
- American Transportation Research Institute (ATRI)
 - Leading applications analysis of research projects
 - Technical advisor to project team representing the trucking industry
- Delcan Corporation
 - Leading the development of the SRI Concept of Operations
- Commercial Vehicle Safety Alliance (CVSA)
 - Technical advisor to project team representing the commercial vehicle enforcement community

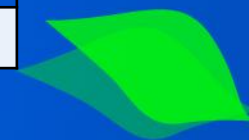


Technical Approach Overview



Project Schedule

Activity	Completion Date
Project and Systems Engineering Management	Ongoing
Stakeholder Outreach	Ongoing
Applications Assessment of Deployed Systems	September 2011
Applications Assessment of Research Projects	September 2011
SRI Concept of Operations	November 2011
SRI System Requirements	February 2012
SRI System Architecture	April 2012
SRI Component-Level Design	June 2012
SRI Development and Testing	August 2012
SRI Build and Install	September 2012
SRI Prototype Testing	October 2012
SRI Final Documentation	November 2012



Assessment of Deployed Systems

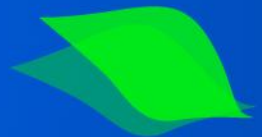
Brenda Lantz

September, 2011



Analysis of Deployed Systems

- Assess state / federal systems that have already been deployed that may contribute to SRI
 - How the systems are used and if they could potentially support SRI?
 - What data exists in the system and how is it exchanged / captured / stored?
 - Are there any “lessons learned” from the deployment
 - What worked or didn’t work?
 - What functionality is missing from the systems deployed, or could be improved?





Analysis of Deployed Systems (cont.)

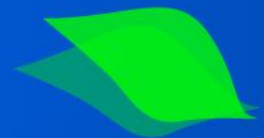
- Safety Information Exchange Systems
 - Aspen, SAFER, CVIEW, Query Central
 - Focus resources, share information
- Electronic Screening / WIMs
 - Identify and assess CMVs while in motion
 - No nationwide standard to determine bypass
 - Some states report too many alerts / need to prioritize





Spring CVSA Workshop - Objectives

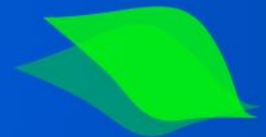
- Discuss enforcement users' daily activities – data, information, technology uses / needs
- Identify specific problems/challenges tied to current enforcement activities
- Discuss current and potential applications





Spring CVSA Workshop - Findings

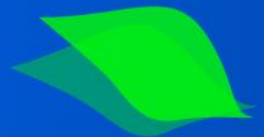
- How select for inspection?
 - Obvious violation, weight, random, ISS
- What systems used? What checked?
 - QC, ISS, Portal, CVIEW, NCIC, NLETS
 - Primarily - verify the DOT number, UCR information, insurance, operating authority, and vehicle registration
 - Majority use Aspen and inter-related systems





Spring CVSA Workshop – Findings (cont.)

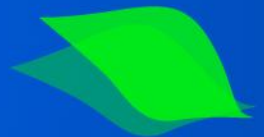
- What is working well and what needed / problems?
 - Availability of wireless access has much improved access to information
 - Want expanded industry participation in electronic screening (“high risk” least likely to participate)
 - Two key issues – timeliness and accuracy of data
 - System usability – log-in processes and timing out
 - Improved access to driver information beyond CDL
 - Need to develop way to “screen” drivers





Spring CVSA Workshop – Findings (cont.)

- Potential issues for SRI?
 - States have limited staff / budget to support new deployments; training must be provided
 - Data quality / availability is critical
 - Can read license plate, but no good vehicle data system to screen against
 - Consider State IT and Security policies



Concept of Operations

Paul Belella

September, 2011





Agenda

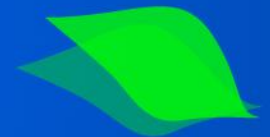
- SRI Concept Background
- Key SRI Capabilities
- Draft SRI User Needs
- SRI Concept
- Draft SRI Operational Policies
- SRI Concept Development Questions
- Opportunities to Provide Input
- Next Steps





SRI Concept Background

- Key SRI Concept Goals are to Improve Motor Carrier:
 - Safety;
 - Security;
 - Operational efficiency; and
 - Freight mobility.
- Fundamental SRI Concept Objectives
 - *Apply interoperable technologies* and information sharing between in-vehicle, on-the-road, and freight facility systems
 - *Leverage stakeholders' current technology investments* in order to augment existing programs and support new activities.
 - *Promote seamless data sharing* among relevant parties





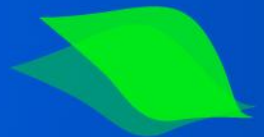
SRI Concept Background

At its core, the SRI Concept is about:

- *Getting better, more complete data;*
- *Into the hands of decision makers more quickly;*
- *Whether they are in the truck, at the roadside, or in the back office;*
- *So better decisions can be made;*
- *About safety and operations.*

SRI will accomplish this by:

- Defining information exchanges, without prescribing technologies
- Defining processes, without prescribing procedures
- Promoting standardization, without restricting creativity

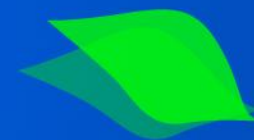




Key SRI Capabilities

The SRI Concept is intended to provide users the ability to:

- capture detailed information about a vehicle, it's owner, and its operator while the vehicle travels at speed on a mainline roadway;
- rapidly access, without manual intervention, additional information about the vehicle, carrier and driver regarding the status of their *operating credentials* and key information regarding their safety performance;
- execute certain automated inspection actions without requiring the vehicle to come to a stop;
- access authoritative information sources to ensure that all relevant information necessary to conduct actions is reliable and up-to-date; and
- locate and use information related to the availability of facilities adequate to ensure a driver can obtain needed rest.

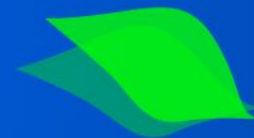




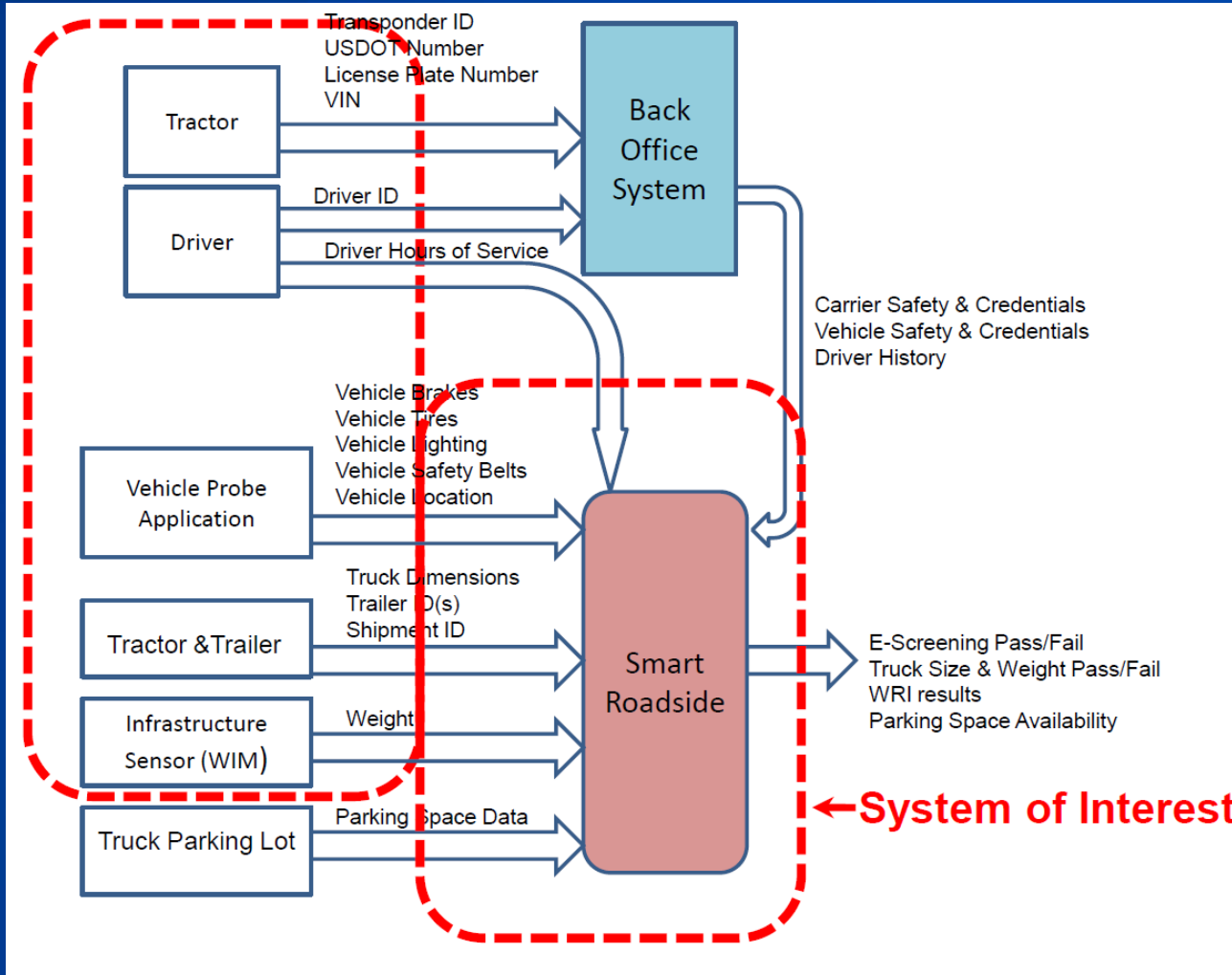
Key SRI Capabilities

SRI will serve as the enabling framework for a wide variety of applications, but the Concept must support 4 functions:

- Universal Truck Identification – unique identification of individual vehicles at mainline speeds
- Electronic Screening/Virtual Weigh Station – conduct of a variety of processes to determine whether manual intervention is necessary
- Wireless Roadside Inspection – examination of key safety indicators and verification of compliance
- Truck Parking – delivery of information regarding available parking spaces suitable to the needs of the vehicle and driver



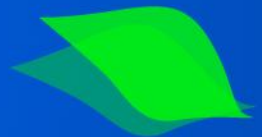
SRI Concept





Draft SRI User Needs

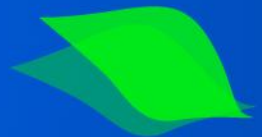
ID #	User Need
UN01	The system must be able to identify commercial vehicle (CV) power units uniquely
UN02	The system must support the exchange of data between the CV and the roadside without requiring the vehicle to stop
UN03	The system able must provide the ability to pass data collected from CV to external systems
UN04	The system must provide the ability to receive data from external systems
UN05	The system must provide the ability to pass data to local users at the roadside or in the CV





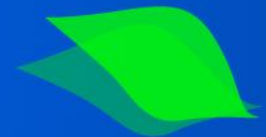
Draft SRI User Needs

ID #	User Need
UN06	The system must provide protection to all data exchanged to ensure privacy from all non-authorized entities
UN07	The system must allow a CV driver to interact with it in a safe manner during vehicle operation
UN08	The system must be capable of integrating with new ITS devices deployed in the field
UN09	The system must provide the ability to integrate data received from roadside devices with data received from in vehicle systems and make that data available to external systems, and vice versa

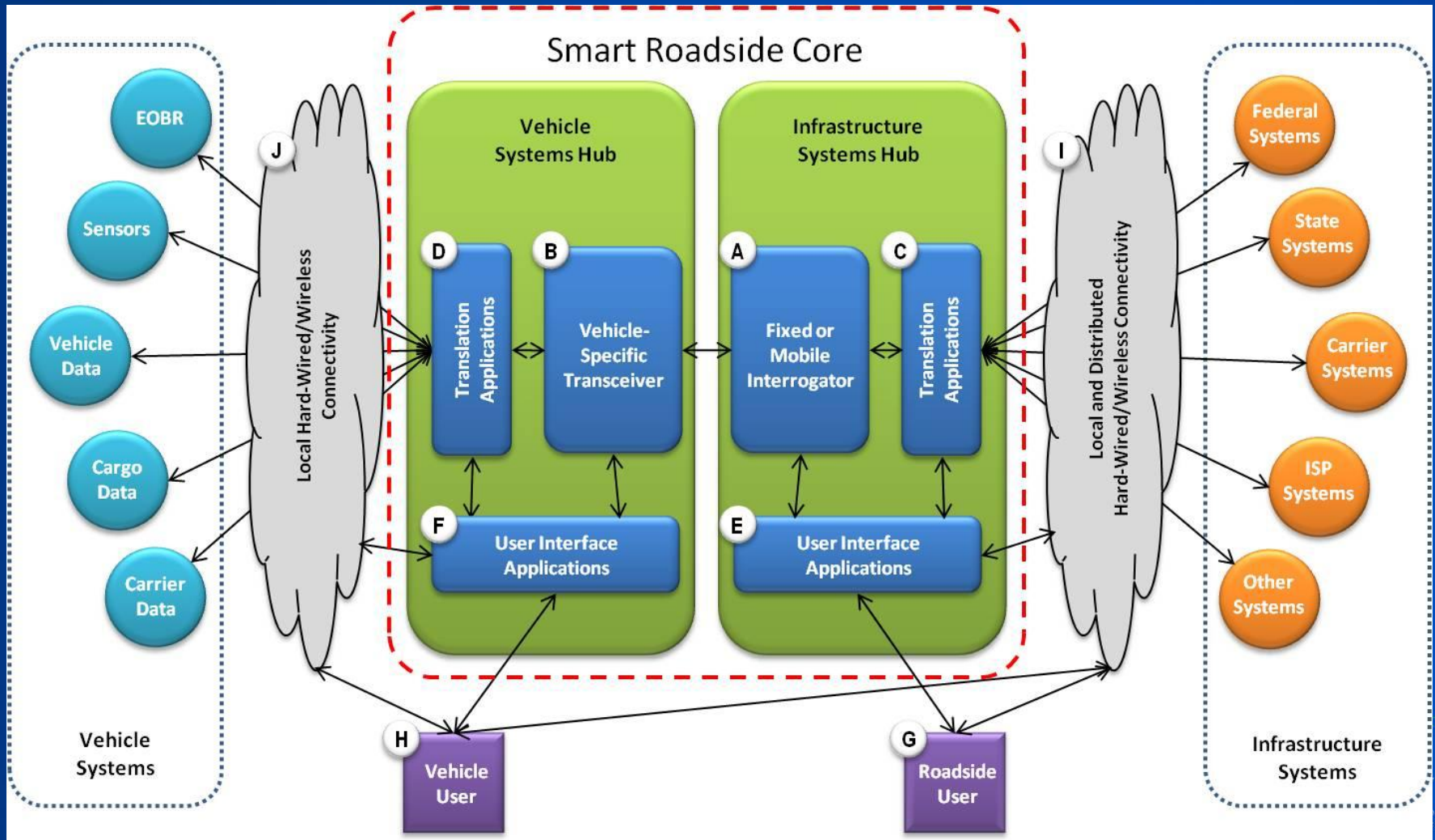


Draft SRI User Needs

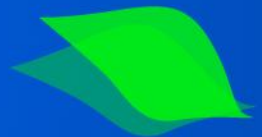
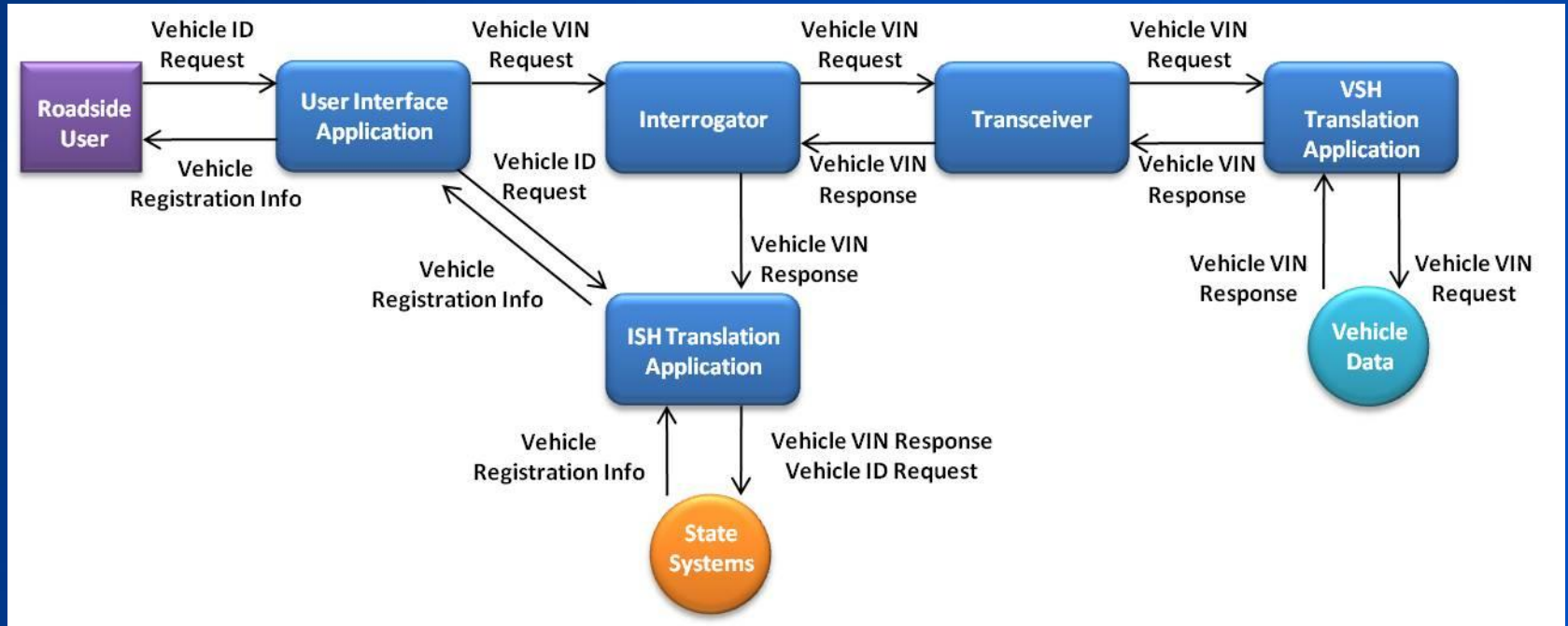
ID #	User Need
UN010	The system must enable applications that can be used to meet specific needs such as Truck Parking, traffic information, enforcement applications, work zone locations, etc.
UN011	The system must provide applications data in sufficient time to support decision making at the roadside
UN012	The system should be able to support the identification of commercial vehicle drivers
UN013	The system should be able to support the identification of trailers pulled by uniquely identifiable (CV) power units



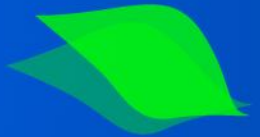
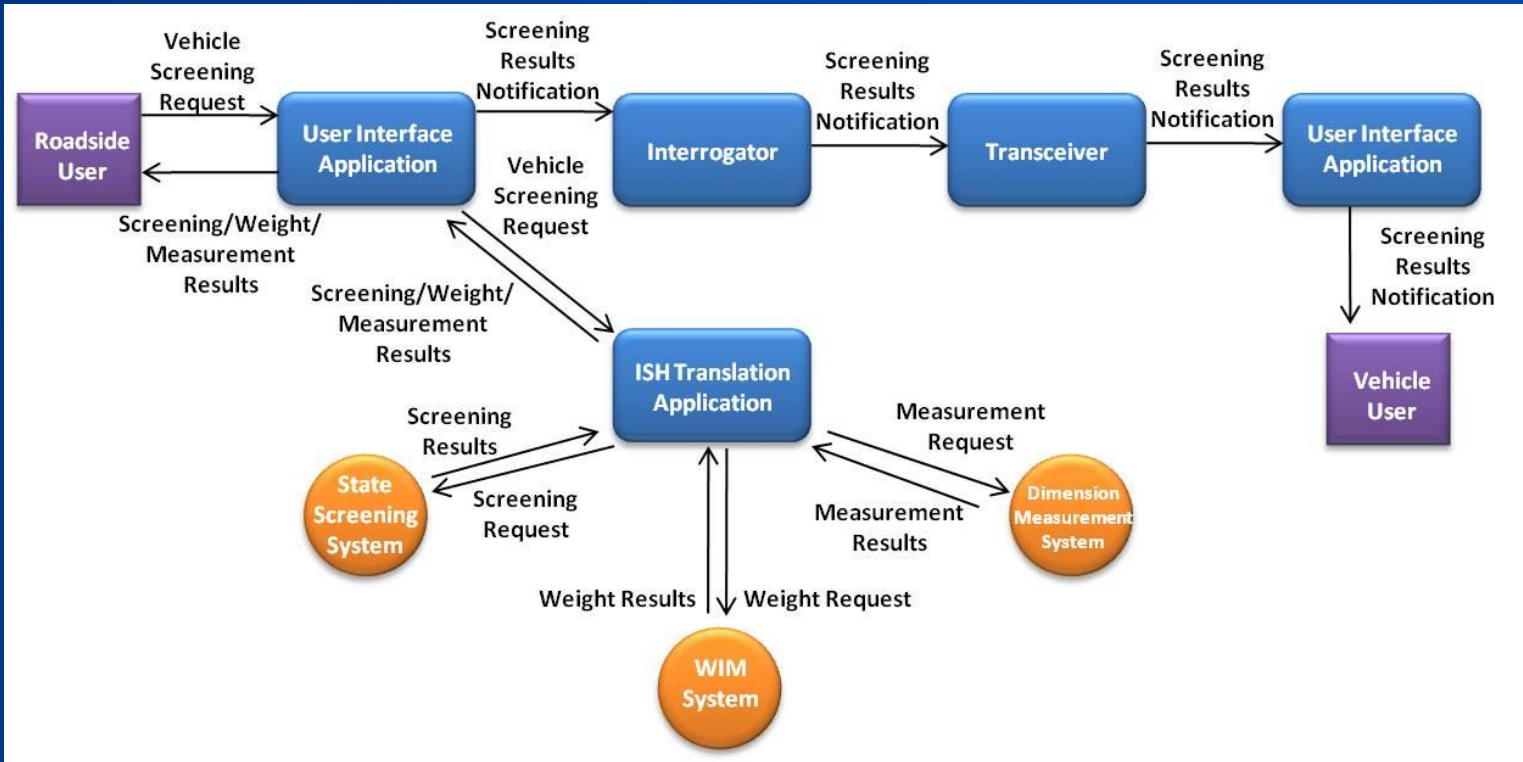
SRI Concept



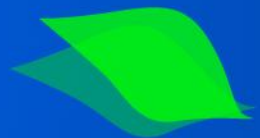
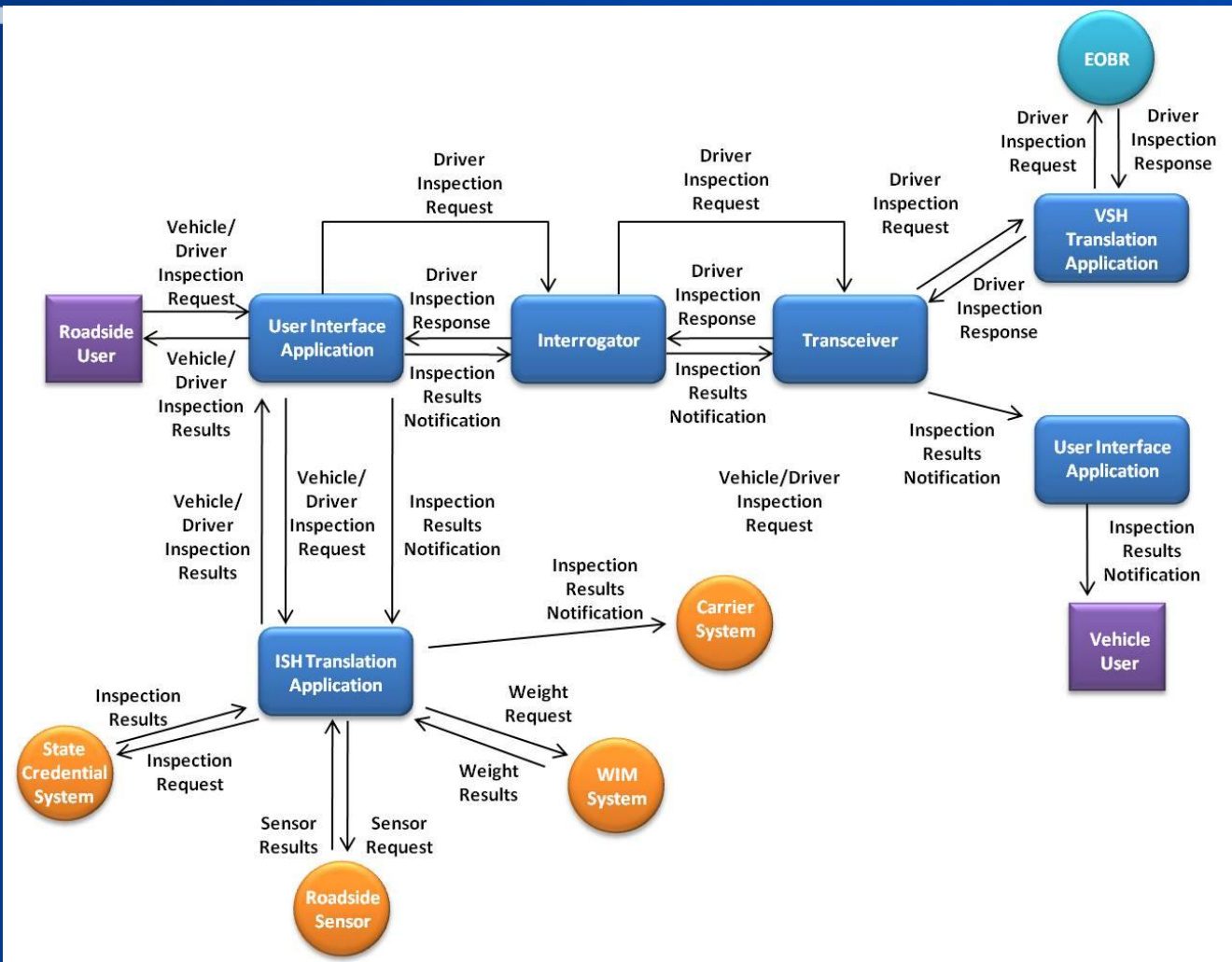
SRI Concept: Universal Truck ID



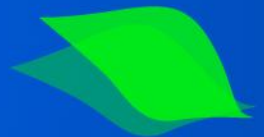
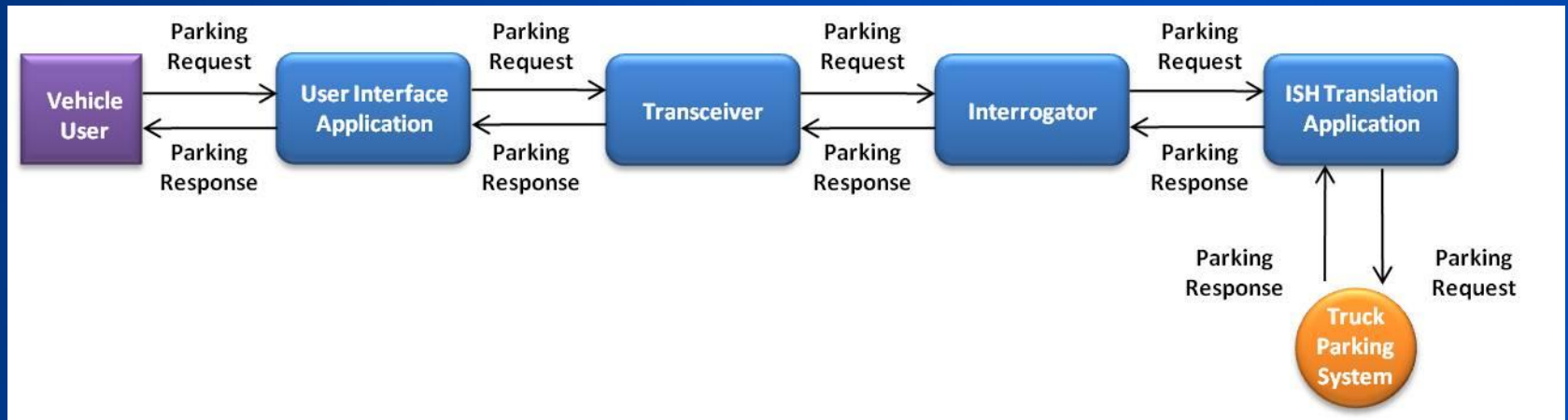
SRI Concept: ES/VWS



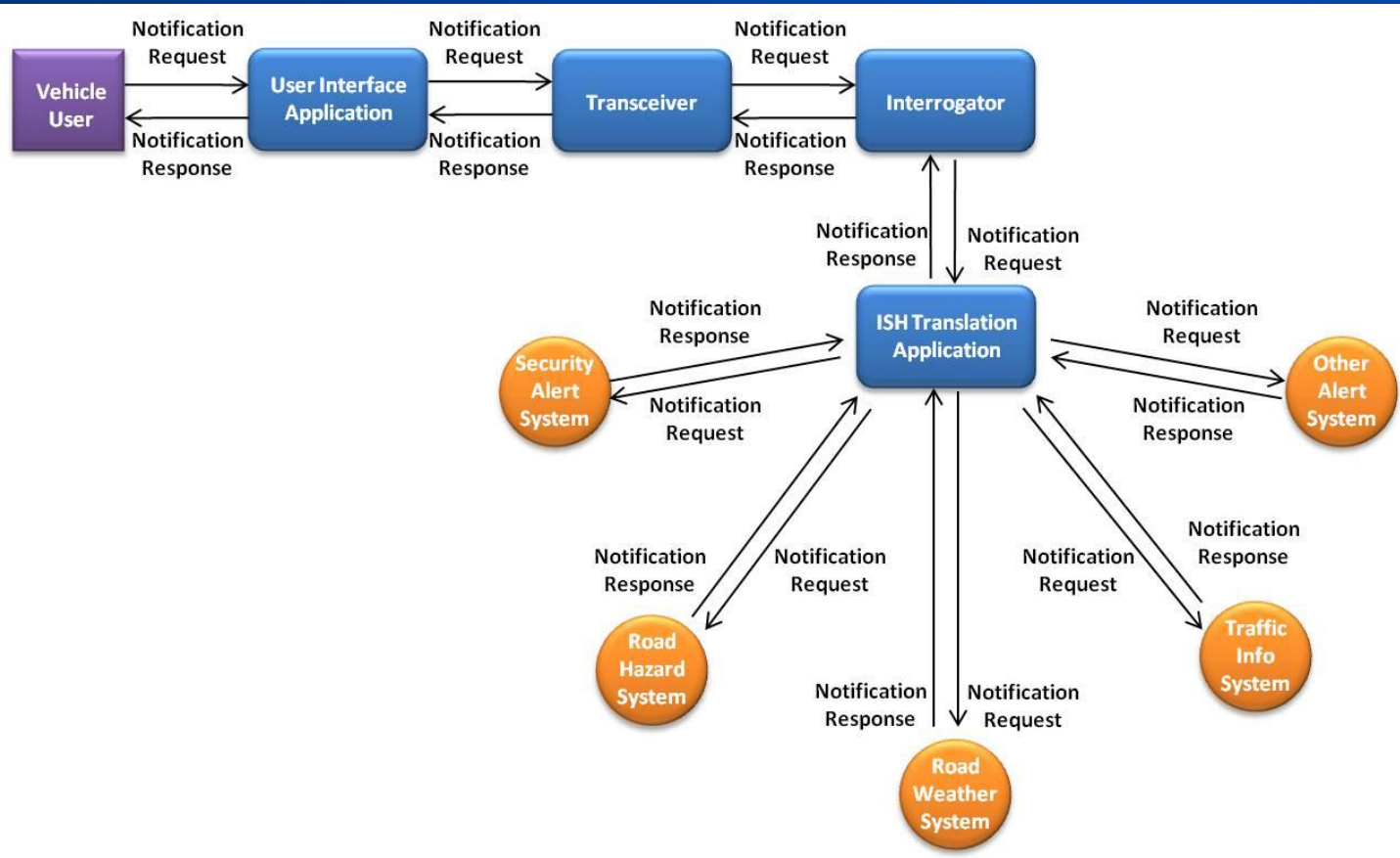
SRI Concept: WRI



SRI Concept: Truck Parking



SRI Concept: Other Opportunities



Draft SRI Operational Policies

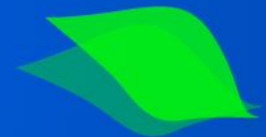
ID #	Operational Policy
DOP01	An electronic exchange of information to verify compliance with selected regulations should constitute a “compliance event” that should be included in the calculation of a motor carrier’s CSA score.
DOP02	Users and solution providers should avoid implementing operational procedures and methods that would necessitate the deployment of technologies that are not consistent with nationwide interoperability standards.
DOP03	Applications deployed and used under SRI should promote the efficient movement safe and legal commerce as well as facilitate more timely and comprehensive safety enforcement. As such, screening and inspection actions should occur frequently enough to ensure regulatory compliance while minimizing disruptions to safe and legal motor carrier transportation.
DOP04	Policies regarding user access provisions and restrictions should be defined at a general level rather than at the level of each SRI-support application.





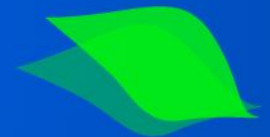
Draft SRI Operational Policies

ID #	Operational Policy
DOP05	Information capture and management procedures must permit the transparent access to all data used for identification, WRI and screening purposes and all results of these activities by all parties to such transactions.
DOP06	Operational policies and methods must not preclude safety enforcement entities from customizing WRI and screening analysis methods to meet jurisdiction-specific requirements, provided that they are clearly communicated, do not require customized or unique data capture or communications mechanisms, and comply with acknowledged and accepted practices.
DOP07	Only identifiers that have legal standing established by Federal or State statute or regulation may be considered for use by SRI, and must be usable in any jurisdiction within which a vehicle may operate.



Draft SRI Operational Policies

ID #	Operational Policy
DOP08	To promote responsiveness, operational procedures should emphasize vehicle-to-roadside information exchanges and system-to-system information exchanges that favor the transmittal of the minimum possible amount of data necessary to facilitate the delivery of capabilities.
DOP09	Operational methods should be defined in a manner that maximizes the number of vehicles, drivers and motor carriers that can participate in the delivery of services in each of the four functional areas, and should be scalable to support all size segments within the motor carrier industry.
DOP10	Motor carrier-provided data used for screening and inspection activities should demonstrate a data pedigree or secure chain of custody in order to ensure validity.



Draft SRI Operational Policies

ID #	Operational Policy
DOP11	Enforcement should be equitable by the resulting systems, staff and procedures (see The Commercial Vehicle Safety Alliance (CVSA) has developed Operational Policy 1, Recommended Minimum Safety Standards for Electronic Systems, dated June 15, 2007), and methods used should be defined in a manner that maximizes the number of motor carrier safety enforcement agencies, and other State and Federal agencies with motor freight transportation-related functions that can participate in the delivery of services in each of the four functional areas.
DOP12	Common naming conventions and open-standards should be used to reference data in all resulting systems and procedures.
DOP13	Motor carriers may choose to participate voluntarily in non-compulsory actions or events.
DOP14	Regulatory and enforcement entities should validate and corroborate the data before using it as a basis for an enforcement action.



Draft SRI Operational Policies

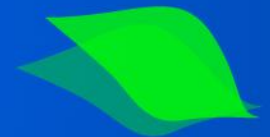
ID #	Operational Policy
DOP15	The SRI ConOps needs to be defined in a manner that minimizes barriers to entry for all users, and particularly for both motor carriers and safety enforcement entities. These barriers include: implementation costs; operations and maintenance costs; and risks of participation.
DOP16	Any data upon which a WRI or screening action is conducted must be verifiable as being sourced from an authoritative system, or system of record. This includes: identity of vehicle, driver and carrier; current safety status of any individual vehicle system; current safety status of the driver; and current safety status of the carrier (or vehicle owner)
DOP17	Any application executed to complete a WRI or screening action must be verifiable as being sourced from an authoritative system, or system of record. This includes: identity of vehicle, driver and carrier; current safety status of any individual vehicle system; current safety status of the driver; and current safety status of the carrier (or vehicle owner).





SRI Concept Development Questions

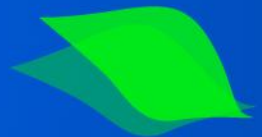
- Is what we are trying to build clear and understandable?
- Are the capabilities listed important for your organization?
- Do our user needs reflect your needs? Did we miss any? Would you change any?
- Does anything appear to be missing from the concept?
- Are the information exchanges logical, and do they appear to support delivery of key capabilities?





SRI Concept Development Questions

- Do our draft operational policies reflect important considerations for your organization?
- Are there any policies missing? Are there any that you would change?
- Is there anything else about what we have so far about which you have questions or concerns?
- Can you see how this concept can benefit you and your colleagues?
- Are you willing to be a part of the concept validation process?



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