



# Level VIII Inspection Forum Summary Report

May 25, 2023

## General Information

The Level VIII Inspection Forum was planned and hosted by CVSA on March 28-29, 2023, in Omaha, NE. The forum brought together industry, enforcement, technology developers and federal regulators to focus on how an electronic inspection might be implemented. There are many questions as to how an inspection without a human inspector can be generated, based on the current roadside program. The event was a mix of panel discussions, roundtable sessions and presentations. The structure was established to create a natural flow to the event, from reviewing what we currently have, to evaluating possible changes, to a visionary future of adding vehicle components to the inspection. The sessions were structured to keep attendees engaged but also allowed them time to digest known data and receive information about more technical aspects of the inspection.

The event was planned to host 150 people, with the final registrations at 148 attendees. The mix of attendees was: 42 associate members, 26 federal members, nine non-members, three trial members, 63 state enforcement members, and five CVSA staff. The event space was set up with 25 crescent tables, with six people to a table. There were tabletop easels and markers provided at each table to allow participants at the tables to keep notes during the roundtable sessions. A total of 258 easel pages of notes were created and collected for post event evaluation. These easel pages, in addition to notes taken during discussions throughout the meeting were all used to complete this summary document.

Seating assignments were completed prior to the event with communication to the attendees through the CVSA app and on easels as you entered the room. Attendees were assigned to tables to achieve a mix of ideas during the roundtable sessions. The general mix at most of the tables were: one carrier/industry representative, one technology developer or background in technology, one federal member, and three state members. This mix proved to be a good way to facilitate all points of views during the discussions.

## Current State and Vision of Level VIII Electronic Inspections

This was the event kick-off session and was conducted as a panel discussion. The purpose of the session was to establish a baseline for all attendee's knowledge of the electronic inspection and provide insights of what the benefits would be in implementing such an inspection. The panel provided different stakeholder's point of view and vision of what an electronic inspection could be. Keeping the Level VIII inspection as currently defined could limit participation in the program. If the idea is to be able to scale the program by adding such things as vehicle components, the foundation of the program should be built to allow it and not try to retrofit after the program has already been implemented. The session started off with a history of where the program started and the timeline and discussions that brought the electronic inspection from an issue request to the creation of the enforcement and industry modernization committee, to the adoption of the Level VIII Electronic Inspection definition. Questions posed to the panel and discussion was as follows:



# Level VIII Inspection Forum

## Summary Report

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### 1. What do you feel is the purpose of implementing a Level VIII inspection program?

- The need to get better at what we do. Every industry is faced with technological advances to improve processes, efficiency, and productivity. When we look across our daily lives, there are very few things that we do the same now that we did even 10 years ago. We need to advance and adapt to new ways of getting the job done.
- Implementing automation requires us to do an in-depth analysis of what we currently do to understand how we may be able to do it differently. This analysis could lead us to solutions that will improve current processes while also identifying a path to the future.
- From an enforcement perspective, it allows resources to focus on carriers that are not being inspected, in one way or another, and helps to better identify the carriers that may need further intervention.
- All stakeholders are in a unique position with the Level VIII inspection. Each stakeholder has the opportunity to be part of developing a solution that benefits all parties involved. This is a chance to be proactive rather than reactive. Federal regulators are looking to enable the Level VIII inspection, allowing other stakeholders the ability to develop a mutually beneficial solution.
- There is the opportunity to increase compliance and safety, find a solution to resource issues with all stakeholders while also reducing the inefficiencies of the current inspection program.
- As a solution to implementation is evaluated, we must keep in mind the goal of everyone involved is to save lives. Compliance is a factor in saving lives but should not be the goal of the program because compliance does not necessarily correlate to lives saved.

### 2. What are the benefits to implementing a Level VIII inspection program?

- Results in an efficient gathering of additional data to improve the effectiveness of all stakeholders.
- Enforcement will get more data with the same number of resources. This enables the resources to be strategically placed to gain the greatest benefit. This would include better identification of carriers that need further intervention.
- Industry saves time, fuel, and emissions by having a way to get an inspection without the need to stop. Carriers implementing the technology want to be better and the Level VIII inspection will allow them to demonstrate they are safe, improving safety scores through the ability to obtain clean inspections. Safety Management System (SMS) must be part of the conversation to ensure the program is not just beneficial to one party and the benefits of implementation outweigh the costs.
- The Level VIII inspection is meant to enhance roadside inspectors, not replace them. Technology can be leveraged to obtain more data to not only facilitate safety management programs but provide real-time data to assist with policy decisions.



# Level VIII Inspection Forum Summary Report

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### 3. Should the Level VIII inspection program be voluntary or required for all carriers?

- The program would need to be voluntary, at least during the development and initial implementation stages. There are many unknowns, and the stakeholders need to work together to identify the best solution before making anything mandatory. In a voluntary program, the benefits always need to outweigh the costs, which can be evaluated during the testing phases. The program could become mandatory once acceptance is known, and results of the operational test demonstrate whether the theoretical results are proven correct. The test phase can also identify the feasibility of mandatory implementation and any hurdles associated with backward compatibility of technology into older vehicles.

### 4. What do you see as the lifecycle of the inspection?

- The driver would log into the system at the beginning of the day, activating the communication method to monitor for geofenced inspection locations.
- A vehicle passes a geofenced marker of an inspection location, the data transfer will be triggered, allowing the software to analyze the required fields and populate an inspection report.
- The inspection will be transferred to the inspection record of the carrier with a notification/copy of the report going to the carrier, informing them the inspection occurred.
- This will provide real-time feedback to carriers.

### 5. Do you feel the current definition of the Level VIII inspection is adequate, or do you feel there are modifications necessary?

- The current definition, with the addition of checking the driver in the Drug and Alcohol Clearinghouse, is adequate for the development stages, but thought should be given to whether it should be expanded in the future, as more information becomes available electronically. The operational test will help give more insight into the data that is available and whether additions or subtractions are needed on the inspection report.

### 6. Additional thoughts?

- The number of carriers today that could potentially participate in the program can be obtained by looking at the current bypass programs. PrePass has 80,000 carriers with 800,000 hits while Drivewyze is available in one out of every four interstate vehicles (25% of current vehicles). The Federal Motor Carrier Safety Administration (FMCSA) has approximately 600,000 carriers registered for interstate commerce. These numbers indicate that, even at current levels, the amount of data that could be provided through the implementation of a Level VIII inspection would be substantial.



# Level VIII Inspection Forum Summary Report

## Documentation for Level VIII Electronic Inspections

Attendees closed the first session with a question on whether the current definition is adequate or if modifications are needed to the definition. This session expanded on that thought to see if participants felt the Level VIII inspection should be scalable, so that additional information, and possibly additional carriers, could take advantage of the electronic inspection. In reference to the current NAS inspection program and how FMCSA's SMS system accepts the inspections and counts them in related basics, could Level VIII inspections have similar effects on the basics. For example, a Level III inspection is not counted in the vehicle maintenance basic, just like a Level V inspection does not count in any basic other than vehicle maintenance. If a Level VIII inspection did not have hours of service evaluated, due to the carrier running an exemption like 150 air-mile driver (short haul), could that driver still have an inspection created due to the evaluation of the driver fitness regulation compliance and have that provide data for that basic? The same would hold true if vehicle components could be identified as defective due to vehicle sensors.

If this is the direction sought to get the most usage by carriers and best overall impact of implementation, the Level VIII inspection may require sub-types, or new levels of inspection for each of these cases, created to allow FMCSA to accept the inspections into their system. The software that is receiving the data, verifying the data, and completing the inspection would need to assign the sub-type, based on the data evaluated, before uploading into FMCSA's systems. The requirements for how this software would be required to work would need to be defined somewhere to create a uniform development by third party technology providers. The two logical locations would be either within the definition of the Level VIII Inspection in Operational Policy 5, or a new policy that would be created containing the software requirements.

### 1. What edits do you see as necessary to the definition?

- The Drug and Alcohol Clearinghouse should be checked to ensure the driver is not operating in a prohibited status.
- There were several considerations for other fields to be added to the current definition. These included: IRP, IFTA status, trailer registration, VIN of power unit and trailer, shipping information/commodity transported, state specific permits, origin/destination of load, insurance information, GVWR of power unit and trailer, co-driver information, periodic inspection, HM Safety Permit and PHMSA registration.
  - Shipping information would be needed for hazardous materials loads but could also cover the origin/destination. The origin/destination is obtained from the driver and shipping information to help map the trip. This information is used during an audit and would be able to be obtained from the shipping document number, if not identified on the inspection report. The shipping paper could also help determine the need for a HM endorsement for the driver.
  - Trailer license and/or information is important but does pose problems since they are registered by states. The registrations are not standardized with type of license or length of registration. A centralized system for trailer registrations would help with both verifications on Level VIII inspections and current NAS inspections.



# Level VIII Inspection Forum Summary Report

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- Insurance is something that is checked on other levels of inspection because it is a state law that is being enforced. This violation would be recorded on the inspection as a 392.2 violation with no SMS points associated with it. Would it need to be part of a Level VIII inspection that analyses compliance with the safety regulations?
- Periodic inspection might not be necessary on the Level VIII inspection since it does fall into a vehicle defect but may be a consideration in the future. The periodic inspection could possibly be maintained in the enhanced inspection database for reference during the inspection. The inclusion of vehicle components in the Level VIII inspection, in the future, could incorporate the enhanced inspection program, as well as the need to reference the database.
- GVWR would help determine the class of license necessary but does have data accuracy issues. The VIN will indicate a range on a power unit but would not indicate GVWR on most trailers. There is no way to validate information that would be entered by the carrier.
- Rules for participation may solve many of the data validation issues, at least during the operational test stages, and until verification methods become available for problematic data elements. The ability to determine if/when endorsements are required for a specific vehicle could be solved by requiring vehicles involved in the Level VIII program to operate without the need for endorsements. The rules could also exclude vehicles not requiring a CDL until a method is available to verify non-CDL license and medical certificates for those non-CDL drivers. Drivers utilizing hours of service exemptions would also fit into this category. Fewer problems to solve can help get the program into the testing phases, then bring in additional vehicles and vehicles when validation issues have been resolved.
- A standard around GPS location to identify where the inspection was conducted would be helpful. The descriptive location should be defined so all involved know exactly what is to be expected when the location is reported.
- Operating authority would be able to be obtained from FMCSA databases but determining if it is needed might be problematic. Data validation would be difficult with no database to reference. This is another violation that does not have a direct link to safety so would it need to be checked? The Level VIII inspection does not need to contain everything other levels do since it is defined separately and could focus only on safety violations.
- Leasing information should be already captured with the USDOT number that is communicated to complete the inspection. If it is a short-term lease, an ELD would still be required beyond eight days, with less than eight days covered under the rules of construction.
- Oversize/Overweight permits would be another field that could be added later but covered under the rules of participation until development can be completed to interface with state permitting systems.
- The Level VIII inspection should only be applied to carriers in interstate commerce to avoid intrastate issues and differences. This may be as simple as adding a flag, or identifier for now, but will allow the pilot testing to proceed.



# Level VIII Inspection Forum Summary Report

## Next Steps

- Add Drug and Alcohol Clearinghouse check to current definition.
- Analyze other suggested edits for addition to current definition.
- Determine if 392.2 violations, that don't have SMS values, should be included in the Level VIII inspection as it is meant to leverage data into the federal SMS, not enforce state laws that do not affect the carrier's score. This may solve many data validation problems if the inspection only evaluates federal violations and does not try to do everything an enforcement officer would do. The Level VIII inspection is not replacing normal inspections, just leveraging technology to get more data into the system for safety purposes.
- Define all data fields in the definition that will be used in the operational test.

## 2. Should consideration be made to develop different types of Level VIII inspections, and if so, should it be done all at once or implemented in stages?

**Example: A Level VIII inspection could be a driver qualification inspection if hours-of-service were not available to be passed. A Level VIII inspection could be similar to the current Level III inspection, based on the current definition. A Level VIII inspection could have vehicle components added to the current definition based on sensor availability. A Level VIII inspection could be only vehicle component monitoring if the vehicle is an autonomous vehicle (AV) without a driver.**

- The possibility of different levels will be driven by the purpose of the data obtained. If the intended purpose is to gather data for evaluation of carriers through the SMS, the different levels would be needed to provide the best benefit of implementation. If the intended purpose is as an enforcement tool, the different levels may not be possible due to the need of human action at the tail end of the inspection.
- The more data that is collected, and more regulations checked, the more complex the process becomes. The more complex the process becomes, the more difficult it becomes to maintain a high level of data quality. The more decisions a computer needs to make, the more the quality drops, so it may be a good idea to keep a narrow scope to maintain data quality. This decrease in quality, by the addition of more features, may be overcome by implementing in stages, building on top of a proven product while continually learning how to better overcome data quality challenges.
- The best way may be to start with what we currently have in the Level VIII inspection definition. As technology develops, there could be vehicle components added, which may allow the integration of vehicles equipped with automated driving systems. The addition of vehicle sensors does pose some challenges. Vehicle sensors identify potential issues with a component but could also simply be identifying that the sensor has failed. Due to this challenge, a way to incorporate the vehicle components may be through the incorporation of CVSA's Enhanced Inspection program. A vehicle being inspected by a CVSA trained and certified inspector at the point of dispatch, coupled with no sensors indicating a fault, could possibly be considered a valid inspection of the vehicle as it passes an inspection location.



# Level VIII Inspection Forum Summary Report

- An alternative in the phased approach may be to implement a smaller set of data fields, such as USDOT number, registration for power unit and trailer, IFTA, CDL and medical certification, to allow for establishing the development of the inspection with a smaller data set. This could allow for rapid development of the Level VIII inspection concept without solving the hurdles associated with hours-of-service verification, including potential violations being identified by eRODS, and no current ability to check a record of duty status (RODS) for falsifications. Vehicle sensors could follow in the next step to incorporate a more complete picture of the safe operation of the driver and vehicle.
- The implementation of the Level VIII inspection could also have a completely different look. A Level VIII inspection could be a verification of the required elements of the inspection with only a pass, fail, or incomplete returned as the result. The pass would be the result of all elements being verified and no violation was detected. The inspection would result in a fail if the data verification returned a violation for one of the required elements. The incomplete would be the result if there was a missing data element or a connectivity failure during the data transmission. This is a simpler approach, and much different than other inspections, since violations would not be listed on the inspection report, including OOS violations. Although simpler, it does pose questions as to how this concept would be imported and how the data would be used in the current FMCSA databases.
- The implementation of the Level VIII inspection could also be part of the screening process, but could potentially create an inspection in a bypass situation, with the current verifications that can be done as the vehicle approaches an inspection location. As a vehicle approaches the inspection location, the vehicle could have different systems verified depending on the technology used at that facility. The vehicle could be screened by a weigh-in-motion, a tire anomaly system, license plate readers (LPR) or DOT reader. If the vehicle passes these checks, the Level VIII inspection elements are passed and verified. If a data element indicates an OOS violation, the vehicle would be automatically given a pull-in by the bypass system. The data would pre-populate an inspection report to be used by the human inspector to verify the violation and take appropriate action. If the data verification for the Level VIII inspection did not indicate an OOS violation, the bypass system would then determine, based on the pull in percentage set by the enforcement jurisdiction, whether the vehicle receives a bypass. A vehicle with a bypass would have a Level VIII inspection created and populated with any violations discovered. A vehicle pulled in based on the bypass screening percentage, would pre-populate a regular roadside inspection for an inspector at the inspection location. This theory would only create Level VIII inspections on drivers/vehicles that have passed all screening solutions used at the inspection location and did not contain any OOS violations. This process would also build confidence in the Level VIII inspection process as the vehicle would still always be subject to a random pull in, which could be changed by the enforcement jurisdiction, guaranteeing the driver will never know if they will be pulled in or allowed to bypass. This creates a likelihood of getting discovered if a driver was to enter fraudulent information into the device to be used to complete a Level VIII inspection. This is where the new OOS violation mentioned earlier for a driver for fraudulently entering information into the device would be detected roadside. This example only allows for the Level VIII inspection to be completed while enforcement is monitoring the process but does solve problems



# Level VIII Inspection Forum Summary Report

associated with OOS violations and data integrity. As far as having all carriers able to use the Level VIII inspection, the availability would be no different than current inspection programs. If a carrier does not receive any roadside inspections under the current program, due to their operational area, they may be less likely to have the advantages of the Level VIII inspection. This does open up availability to use more mobile sites, since a true physical site is not needed if an inspector is able to monitor and allow completion of Level VIII inspection or conversion to a different level. This would make the Level VIII inspection more available to carriers than the current roadside inspection program.

## Next Steps

- Determine the purpose of the Level VIII inspection. Is it to gather data or is it for enforcement purposes? This will help refine the fields necessary and data sources needed to validate inspection data.
- Determine what fields the initial Level VIII inspection will include for the operational test and if the plans are to expand later. Determine if it should be a phased approach or should it just be implemented as one type of inspection and be done.
- Determine if the Level VIII inspection will determine violations, documenting them on the inspection report, or will it be a pass/fail/incomplete result.
- Determine if the Level VIII inspection should be incorporated into the bypass screening program or if it is a stand-alone system that simply uses the bypass program, or some other communication method, to transfer data.

### 3. **Building on the previous question, how and where should the different data elements for each type of Level VIII inspection be defined? In the definition in Operational Policy 5, in a new Operational Policy, or in a different technical document?**

- The Level VIII inspection data elements should have a basic definition in Operational Policy 5, but a new operational policy should be created to contain the technical rules. The policy should be maintained by a third party such as National Institute of Standards and Technology (NIST), American National Standards Institute (ANSI) or CVSA. This would make the technical rules easily adaptable to emerging technologies and create a centralized document that all technology developers could use for development purposes. The centralized document will create uniformity with all stakeholders. The operational policy should define: the data elements for the different types of inspections, how regulation exceptions and special conditions are to be handled, data elements needed for different conditions, error handling, and smart logic requirements. When it is determined a change is needed in the policy, developers would then need to bring software into compliance with new requirements. The policy would identify each element, outcomes that can happen, and what the result of each of those outcomes would be for the development of algorithms.
- The new operational policy would need to be accessible so that membership would not be required to obtain access to build a software program. Allowing open access makes sense but other organizations that hold standards require membership for access to their documents. A software developer should be a member of any third-party organization that is maintaining the technical standard and should be involved in the discussion for any edits or changes to





# Level VIII Inspection Forum Summary Report

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the document. This would be important to make sure edits were possible within their software and ensure the developer is aware of necessary changes. The certification of the software to conduct the Level VIII inspections should not be a self-certification process like the ELDs.

- The Level VIII inspection could be left as it currently is defined in Operational Policy 5. The definition already defines the required data elements and consideration should be given to just implementing what we have. If the Level VIII inspection grows, it could be separated out. Once implemented, data would be available to know whether expansion to include additional information is warranted. This would keep everyone from expending too many resources until there is data to prove the hypothesis that more inspections will lead to greater safety on the roadways.

## Next Steps

- Determine if a new operational policy will contain the technical rules and who will create and maintain that policy. This will be dependent on discussions of the previous question on whether different types of Level VIII inspections should be considered.
- Determine the certification requirements that should be imposed on software developers that create the software that conducts the inspection.

## 4. When a CDL is checked, do you feel the entire record should be returned or just the status?

- The status should be returned. Approximately half the attendees felt this would suffice, but the rules of participation would then need to limit the availability to a driver without restrictions, who is operating a vehicle that does not require endorsements. A valid CDL does not indicate if the license is appropriate for the vehicle being operated.
- A full record would not be necessary to meet the verification required for the vehicle operated. The system would need the name, status, date of birth, class, endorsements, restrictions, medical certificate information, waiver or skills performance evaluation forms. Past violations would not be necessary, as well as warrant checks. The inspection is verifying compliance with the safety regulations, not conducting jurisdictional law enforcement. The use of CDLIS as the official record, which is the record that should be used when conducting driver status for roadside inspections, simplifies the CDL verification and eliminates the data being returned that would not be necessary when verifying the qualifications of the driver to operate the CMV.
- The use of CDLIS as the verification record does pose a problem to verify the drivers operating vehicles that do not require CDLs. The rules of participation could solve the problem, at least until a proper solution can be determined, by not including non-CDL drivers/vehicles in the Level VIII inspection program. FMCSA could add non-CDL's to CDLIS to resolve this problem. A driver with a non-CDL that self-certifies their medical status as interstate and uploads the medical certificate would be reported to CDLIS by the states. This would simplify regulation for medical certificates to have one standard that all CMV drivers have medical information attached to the driving record and available in CDLIS.



# Level VIII Inspection Forum Summary Report

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## Next Steps

- Determine if entire CDL record needs to be returned or just the status. This would include where the authoritative source is for the validation of CDL requirements (CDLIS, CVIEW or State system).
- Determine how non-CDL driver records are verified, including medical certificate, or will it be part of rules of participation that only CDL vehicles participate. Investigate whether non-CDL licenses, including medical certificates, could be added to CDLIS to simplify rules between CDL and non-CDL vehicles.

## Potential Impacts of Level VIII Implementation

During this session, attendees began to evaluate questions associated with the implementation of a Level VIII inspection. The session was a roundtable discussion that began by revisiting the pros and cons of implementation and the barriers that may exist for the different stakeholders. Another area that was further discussed was the environmental benefits that would be associated with the implementation of a Level VIII inspection.

The rest of the questions posed during this session were operational considerations. One area that gets questioned often is out of service violations. When they are discovered on the Level VIII inspection, there are several different options, but the question is which one works the best for all stakeholders. The out of service question also poses due process concerns. Level VIII inspections could create a violation on an inspection report, but would jurisdictions need to issue a traffic citation for violations? Traffic citations are handled within the local jurisdiction, and may not be possible in many jurisdictions, based on the need for a traffic citation to be issued by an enforcement officer to the violator. Whether a traffic citation is issued or not, there would still be the need to challenge violations written on the inspection, just as there is today with inspector generated inspections. The inspection will also need to be transmitted to the motor carrier at the completion of the inspection. The inspection could be transferred at the completion of each inspection, or at some other frequency, depending on Level VIII operational requirements.

The last item discussed was what impacts the Level VIII inspection could have on FMCSA systems. The SMS, inspection selection system (ISS) and the pre-employment screening program (PSP) are examples of these systems that could be affected by the Level VIII inspection. There is also the question as to whether carriers that participate in the Level VIII inspection should be compared to carriers that do not participate in the program. Should there be some carriers that are required to participate in the Level VIII inspection, such as new entrants or carriers on safety improvement plans.

This session posed many common questions associated with Level VIII discussions and allowed the attendees the chance to debate the different solutions to find the common ground necessary to identify the path forward.



# Level VIII Inspection Forum Summary Report

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**1. What are the potential benefits/drawbacks of Level VIII inspections for motor carriers, safety officials, and technology providers? What are the indicators of a successful test? What are the barriers to implementing a successful test and what can be done to address these barriers?**

- The implementation of the Level VIII inspection allows more data collection for both carriers and enforcement. The additional data, even though many will be good inspections, helps carriers demonstrate the correction of deficiencies and enforcement to better prioritize carriers for inspection and/or further intervention. This improved data also increases the interactions with drivers, which have been shown to be the primary risk factor in most crashes, while also improving those drivers' experience by reducing delays, affecting the delivery of their cargo.
- The Level VIII inspection can also help alleviate congestion, and crashes, at weigh/inspection locations. The congestion would include the merging of trucks in and out of mainline traffic, the congestion while traveling through the inspection location, and the potential backups of traffic due to the congestion within the location.
- The increased data has benefits, but also brings concerns. Whenever there is more data being transmitted, there are always increased opportunities for fraud within the system, leading to data quality concerns. The current requirements of drivers to accurately record required fields on both electronic and paper logs, possibly the source of data fields necessary to complete the inspection, highlights data accuracy concerns for fields that cannot be verified to source data. A large increase of data on participating carriers could also negatively affect the accuracy of carrier performance when compared to carriers that are not participating in the program. Improved data is beneficial, but does it become problematic if too much data is gathered on some carriers but not others?
- The implementation of any new system has costs involved for both industry and enforcement. These costs range from hardware, software, and communication system costs and training for those that use the system. There is a large investment by all stakeholders in testing the hypothesis that more inspections will equate to safer roads.
- Technology poses additional concerns. The connectivity of vehicles with the inspection locations can be problematic depending on the medium used, as well as uniformity issues when multiple private vendors build solutions to conduct the Level VIII inspection. Technology is also always advancing and can become obsolete if the program is not built with flexibility to adapt over time.
- Availability of the Level VIII inspection would be comparable to the current roadside inspections conducted by enforcement officers. There will be carriers that may not pass through inspection locations but those are the same carriers that are not currently being inspected. Whether the location is fixed or mobile, it could be adapted to the Level VIII inspection program. This does identify opportunities and concerns. There may be the opportunity for enforcement to identify more mobile locations to equip them for the Level VIII inspection that are not traditionally used due to accommodations necessary to conduct a roadside inspection. Small to medium sized carriers may be concerned as to whether they would receive the benefit necessary to overcome costs.



# Level VIII Inspection Forum Summary Report

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- The human interaction would not be available for interdiction activities and driver impairment during a Level VIII inspection, but regular roadside inspections would still be conducted, allowing for the same level of enforcement of these activities as are conducted today.

## Next Steps

- Identify data elements that cannot be verified to authoritative sources and determine if there is a secondary means of confirming accuracy.
- Use Phase I data to evaluate the number of inspections that may be generated and the effect these inspections could have on carriers when compared to carriers that are not part of the operational test.
- Determine whether a centralized source of software functionality will be developed and whether software developers will be required to follow that functionality. Is there a certification of the software to the specifications and how will that certification be achieved and enforced.

## 2. What are the potential environmental benefits to motor carriers and states? What data should we collect to assess the environmental impacts? For motor carriers, does your fleet collect any environmental/emissions data already?

- The environmental benefits, at first glance may be negligible, but may increase as technology evolves. The vehicles will save fuel from not having to enter inspection locations, but these vehicles would have likely received a bypass anyway if inspector conducted inspections stay the same. The result is the same number of Level I to III's inspections would be conducted with the Level VIII inspections just adding additional data into the system. There may be an overall benefit due to the same amount of cargo being moved in less time by not having to stop.
- Information as to the reduction in emissions may be able to be determined from old or existing studies of the benefits of current bypass programs.

## Next Steps

- Review current studies on bypass programs to gather information on the reduction of emissions in vehicles that are not required to pull into inspection locations.

## 3. How often can a single driver or vehicle be inspected with a Level VIII inspection per day/week?

- There are several different factors that need to be taken into consideration when determining how many inspections should be counted. In the current definition framework, a driver would be required to pass their RODS, so this would always be subject to verification at any point during the day. This driver could, however, go through multiple inspections in one state or could receive multiple inspections across several states in one day. Drivers who operate through locations utilizing the Level VIII inspection could accrue a significant number of inspections in any time frame selected.
- The inspections could be conducted and recorded each time the vehicle passes an inspection location but only one inspection per day, or one inspection every so many miles is used for SMS purposes. The inspection that is used could be the first of the day, last of the day or



# Level VIII Inspection Forum Summary Report

random. At first glance, a carrier may want every clean inspection they can get but what happens when there is a violation on the inspection. That violation could have a significant negative impact when counting all the inspections. Using the ideology of allowing a maximum number of points on an inspection, and the policy to not cite a violation if the inspector is aware the violation has been cited on a previous inspection, sets a precedent that limits both negative and positive impacts on a carrier evaluation. With this thought process, a random, or any inspection with a violation, might be a better option as a driver who knows they will get multiple Level VIII inspections in a day won't know which one is being used for the carrier evaluation. Another thought might be to count the first one generated each day and assign an electronic CVSA decal, allowing for the collection of data on subsequent inspections, but not used in the carrier evaluation. The documenting of additional inspections would still be available during a safety investigation if a violation did occur.

## Next Steps

- Determine the number of Level VIII inspections that should be allowed each day, without regard to whether they count in the carrier score, to provide feedback to FMCSA.
  - Evaluate the different options of including Level VIII inspections in a carrier safety score to provide feedback to FMCSA.
4. **What elements should be a potential OOS violation that are not already in the OOS criteria? If a driver is flagged for a potential OOS violation, are they automatically pulled in for a different level of inspection? What other violations would prompt a pull-in (other than OOS)? What if there are not enough resources to conduct the inspection? How would enforcement follow up (e.g., motor carrier may be from another State)?**
- A new OOS violation that would need to be considered would be improper authentication by entering fraudulent information to be passed on a Level VIII inspection. This could fall into Part I or Part IV of the OOS criteria. This violation would not be found during a Level VIII inspection but would allow a Level VIII inspection to be converted to a different level, or a future inspection conducted by a roadside officer, to identify, cite and take appropriate action on a driver who is obtaining Level VIII inspections through inaccurate data. Any fraudulent entry to facilitate a Level VIII inspection should also receive an acute violation during a safety investigation for providing fraudulent records.
  - The identification of an out-of-service violation on an inspection report could receive a flag and have the vehicle flagged as not able to bypass at the next inspection location. This would likely not allow any enforcement but would allow the tracking within the carrier profile. There could also be a threshold set on the number of flags allowed before a safety investigation is triggered. There is law enforcement concern as to liability of the enforcement agency for not taking proper enforcement action on an OOS violation. An inspection review audit program (IRAP) could be a separate program or part of the current investigation program. It could allow the investigation of the violation instead of a full investigation of the carrier. Enforcement could still be conducted in a civil manner versus a traffic citation.



# Level VIII Inspection Forum Summary Report

- Jurisdictional and due process considerations can come into play with OOS violations. If a driver is not placed OOS by an enforcement officer, has that driver been placed OOS for the purposes of enforcement for operating after being placed out of service. This would be relevant whether it is a roadside enforcement officer or a safety investigator. The problem with requiring enforcement officer interaction is when an inspector is not available to convert the inspection to a different level of inspection or the facility is closed in the event inspections run continuously.

## Next Steps

- Determine the appropriate course of action when a driver or carrier is providing inaccurate data for the completion of a Level VIII inspection.
- Determine the process when an out of service violation is identified during a Level VIII inspection.

## 5. How, and how often, should motor carriers be notified of their Level VIII inspection results (e.g., web/email)?

- The inspection report should be emailed to the carrier upon completion of the inspection. This may be through the email identified on the MCS-150, or a different email field added to the carrier registration. There was discussion as to texting the safety director or having clean inspections sent once a day while inspections with violations should be sent immediately. The easiest, and simplest, would be to send them upon completion to an email box identified by the carrier. The safety director could have notification upon each new email that came to that address, so texting the information would be duplicate effort complicating the process. The inspection report sent should be the original, not the summarized information available within MCMIS.

## Next Steps

- Determine when an inspection report will be transmitted to the carrier and the process for that communication.

## 6. How can Level VIII inspection results be challenged/reviewed? Should Level VIII inspection results be eligible for DataQs? Should the Level VIII inspection follow a different process? If so, does this depend on whether or not the data gets used in the SMS or other programs? If we share test data with motor carriers, will they let us know which potential violations they disagree with (even without SMS impacts)?

- There is a need for a way to challenge violations listed on Level VIII inspections but there are different ways to implement this with some answers depending on how the Level VIII inspection is conducted. If the Level VIII inspection is only conducted on vehicles that have already received a bypass, the inspections may all be clean or may contain only non-OOS violations. In this case, any OOS violation would change the bypass to pull in and could be converted to a different level of inspection. This may be the most practical as it solves the OOS issues and won't overload the inspection location by sending all drivers with potential violations in to have the inspections converted and verified.



# Level VIII Inspection Forum Summary Report

- Inspections that have non-OOS violations could be completed, transmitted to the carrier, and uploaded to FMCSA systems. The inspections could go into a new holding database for 30 days, allowing the carrier time to challenge any violations, or proposed violations. This may solve some of the problems with eRODS only indicating potential violations. The potential violations could be challenged in that database for 30 days, before rolling over into the normal inspection database. When a hours-of-service violation is challenged, the submitter would need to upload the RODS for that day and the previous 7 days to eRODS, to allow the reviewer the ability to inspect the RODS just as they would on a normal roadside inspection. The RODS would be held in the eRODS system until the challenge is resolved, just as RODS are held during a safety investigation. Any violations noted on the Level VIII inspection could be challenged and reviewed that way. The jurisdiction could give limited access to the DataQ review system to only review challenges submitted into the new database. The resources for a jurisdiction to review the inspection reports would increase, but also could be assigned to a roadside inspector, rather than the normal DataQ officer. This would also assign an inspector to the inspection report for the regular DataQ officer to contact, if the inspection is challenged like an inspection report today.
- The process could also be like the system previously listed, but not require the carrier to challenge the inspection. Any clean inspection would automatically be uploaded but an inspection with a violation would require an inspector to confirm the violation before it is uploaded to FMCSA databases. This would require assigning an inspector to every inspection with a violation to ensure that potential violations are always verified.

## Next Steps

- Determine when inspections will occur during the bypass event and what type of violations may be cited on the inspection report.
  - Determine the process for inspector verification or carrier challenge of violations identified on an inspection report.
7. **What are your concerns with using Level VIII inspection data in other FMCSA safety programs and systems such as SMS, ISS, PSP, etc.? In SMS, should motor carriers that participate in the Level VIII inspections be compared to those that do not (could be a separate BASIC)? What data would you need to see during the operational test to gain confidence that the results could be used in SMS (or other FMCSA systems)? Data collected through Level VIII inspections could be used to monitor new entrant motor carriers or those with less inspection data or motor carriers with corrective action plans. Do you have other ideas for using this data to improve safety?**
- There are no benefits to enforcement or industry unless it has an impact on SMS. The carrier would have no way to improve the carrier score and the enforcement could not use the data to better identify which carriers should be inspected or which needed further intervention. The system would be the same as today except that more statistical data would be generated, which would not justify establishing the program.



# Level VIII Inspection Forum Summary Report

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- The same holds true for creating a separate BASIC. If the inspections go into a new basic and carriers are only compared to other carriers that have implemented the technology, there would still be no benefit to carriers or enforcement. The system would identify the same information as it does today, just more statistical data gathered for reporting.
- New entrants or carriers on a safety improvement plan seem logical but would no longer be an optional program. It makes sense to get more data for new carriers and provide a way to monitor carriers on action plans but does add difficulty to the implementation of the Level VIII inspection program. Data validity is a concern and carriers required to participate might not be the best partners to assist with building enforcement's confidence in the program.
- The effect the Level VIII inspections have on the overall SMS could be sizeable for the carriers that are involved in the program and is also one of the concerns. The carrier would need to invest in the hardware and software to allow the inspections, which can be seen as a pay-to-play program that caters to carriers that can afford the technology. The impacts on SMS could be alleviated by the value given for the Level VIII inspections, or even require a certain number of Level VIII inspections before they are included in the carrier SMS calculations. There is also no direct impact to a carrier that chooses not to install the technology. Indirectly they would likely get fewer inspections on the carrier profile, but they would also not be penalized for not taking part in the program. This also goes back to whether the inspection should run continuously or only when monitored. If a carrier runs in off-peak times, will they have the same opportunity to take advantage of the program as a carrier that operates during peak travel times.
- In a voluntary program, a non-successful data transfer could be treated the same as a carrier that was not participating in the program. The voluntary nature makes it easier to implement as data validity may not be as significant a problem. The carrier would be investing in the program, so it does not make sense to then submit false data into a program that they were not required to participate in. Cybersecurity and malicious behavior are always a concern with data validity and the potential effects they could have on a carrier profile.

## Next Steps

- Discuss whether inspections should be included in SMS and provide feedback to FMCSA.
- Discuss whether a new BASIC should be created and provide feedback to FMCSA.
- Discuss if the program should be mandatory for new entrant carriers or carriers on safety improvement plans and provide feedback to FMCSA.
- Discuss what the results of the inspection should be when all data elements are not communicated or when a data transfer fails. Feedback provided to FMCSA.





# Level VIII Inspection Forum

## Summary Report

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### Inspection Software Integration

This session brought inspection software developers into a panel to discuss the data flows of inspection reports. The current inspection report requires the manual data entry by an inspector, who also does the data verification to authoritative sources. The Level VIII inspection would require software to automate the role of the inspector within the inspection process. The panel discussed if the different elements identified in the definition of the Level VIII inspection were available and what sources could be used to verify the accuracy of the electronically communicated data. The panel also discussed the API's that would be necessary and if automation was available that could make the Level VIII inspection a reality.

#### General

- The Level VIII inspection will transfer the required data elements to populate an inspection report. Software will then need to analyze and validate the transferred data to determine if violations exist. The violations would then get populated in the inspection report and transmitted to FMCSA databases.
- The data to populate the inspection report will likely come from the ELD as it is already available within the device. The descriptive location, operator information, RODS, USDOT or NSC number, and power unit identification can be transferred and made available for verification to data sources. The verification to data sources can then provide additional information that is needed to meet the data elements of the Level VIII inspection definition.
  - The operator license can be verified through CDLIS, which will provide the name, status, class, restrictions, endorsements, medical certification and waiver or SPE information. A data quality check that could be performed here is to validate the name returned on the CDLIS record to the name on the ELD. The CDLIS record would also provide whether the driver was in a prohibited status of the Drug and Alcohol Clearinghouse.
  - The RODS would not be transferred to the inspection report but would be sent to FMCSA through webservice. The inspection software would then need to access the RODS through eRODS and conduct a review for potential hours of service violations. eRODS does not indicate potential falsifications of the RODS but software conducting the inspection could be developed to look for odometer or location jumps or excessive use of personal conveyance. If any of these are identified, the vehicle could either be directed to pull in for conversion of inspection to a different level or flagged for review by an enforcement officer before completion of the inspection. This could be a remote inspection review employee rather than using enforcement resources. A possible consideration would be a civilian administrative employee or a contract new entrant auditor type position. This could utilize a retired employee of the jurisdiction to function in a reviewer capacity as a contract employee. This same employee could be the reviewer of DataQ challenges for other hours of service violations cited as potential violations, as discussed during the due process discussion in the previous session.
  - The VIN of the power unit would be available in the ELD, passed to the inspection software, and verified through registration databases or state CVIEW systems. The license number for the unit would be available on the license record.
  - The USDOT number could be verified against FMCSA databases/state CVIEW which would also return operating authority, UCR registration, and federal OOS orders.



# Level VIII Inspection Forum Summary Report

- Software would need to be developed to conduct the inspection activities while application programming interfaces (API's) would be necessary to allow access to the data sources for verification of transferred data and review of the records of duty status in eRODS. That software would also identify violations based on the verification of transferred data to the data sources. Traditional inspection software could then be populated with all data fields and violations before being transmitted to FMCSA databases.

## Next Steps

- Identify software developers to build software to conduct the role of the inspector.
- Determine the authoritative sources that will be used to verify inspection data elements and determine if access is available to these sources. Are API's available for the software to communicate?
- Determine if data elements that are not available within the ELD can be obtained and returned through the API's to populate the inspection report.
- Determine different ways to check RODS for falsification and work with software developers to determine feasibility of implementation.

## Level VIII Electronic Inspection Operational Considerations

This session was a roundtable discussion on the different options for verifying data that would be passed during the Level VIII inspection. The prior discussions at the forum focused on what data elements should be included in the Level VIII inspection and what sources could be used for verification of those data elements, to determine if violations exist. This process assumes the data elements that would be passed to the inspection software are correct for the driver and vehicle. The data accuracy, and confidence in the validity of the inspection, are predicated on the quality of data being transmitted. To achieve a high level of confidence in the data, there needs to be a robust security system to ensure the driver is truly the driver and the vehicle is truly the vehicle. The discussion analyzed and reviewed different options to ensure the data transmitted to complete the Level VIII inspection would be accurate for the driver and vehicle being inspected.

- 1. The vehicle, carrier information, IFTA credentials, etc. can be transmitted, but how do we ensure the information is validated? What are some methods that could be used to verify data accuracy for the vehicle, carrier, and similar credentials?**
  - Establish rules of participation to allow only carriers that fit within the parameters of the program to utilize the Level VIII inspection. Carriers that are determined to have committed fraudulent activity should face severe penalties, up to and including, expulsion from the program. The program is being implemented to obtain data on those carriers that are already receiving a bypass and want to be safe and efficient. The screening for bypass should take into consideration the integrity and safety practices of the carrier seeking the bypass event. The intent of the program should stay with data gathering rather than leaning towards electronic enforcement initiatives. The use of the Level VIII inspection to catch carriers/drivers that do not want to comply with the regulations may keep the Level VIII inspection from being implemented. Those carriers and drivers who do not want to comply with the regulations will



# Level VIII Inspection Forum Summary Report

always find a way to evade data accuracy and validation that does not include involvement of an enforcement officer.

- The success of the Level VIII inspection will still require human intervention from time to time. The driver and vehicle will still need to have the occasional roadside inspection completed to create a baseline of that driver operating that vehicle or driving for that carrier. There could be a limitation on the number of Level VIII inspections that could be obtained by a driver before they would be required to get a traditional roadside inspection. The audit function will also still play an important role to ensure the data integrity of the driver, vehicle, and carrier. This will be particularly important during the testing phase to identify potential solutions to inaccurate data.
- The driver is the largest concern when it comes to data accuracy and validation. The rest of the data fields can be checked to authoritative sources either through FMCSA databases or state CVIEW programs. A jurisdiction may not be able to participate if they are not Innovative Technology Deployment Program (ITD) compliant and have a CVIEW to integrate with. The vehicle VIN can be verified through the PRISM files to the USDOT number. A mobile driver's license may help with driver credentials and accuracy. Could an electromagnetic signature of a truck create a fingerprint that could be used as an identifier used against authoritative sources?
- One important factor is to determine the line where there can be confidence in the data accuracy without creating prohibitive costs that no longer create a positive return on investment for stakeholders.

## Next Steps

- Determine if rules for participation are appropriate and, if so, determine what those rules might be.
- Determine intent of the program. Is the program's purpose to gather data for evaluation or is the intent to catch those bad actors for enforcement?
- Determine if there should be a limit to the number of Level VIII inspections a driver/vehicle could obtain before being required to receive an inspection under the normal roadside program.
- Determine authoritative sources used during the Level VIII inspection to identify whether a CVIEW program would be required for participation by a jurisdiction.
- Consider the costs of systems to verify data accuracy as different solutions are contemplated throughout the development process.

## 2. What are some ways to verify accuracy of driver information provided to the electronic inspection?

- The system in the truck could have multi-factor authentication, like a VPN, including using thumb and facial recognition, like smartphone access, at the time the driver logs into the ELD. The device could continually monitor and require driver authentication each time the RODS is placed into the driving category, ensuring the driver is always the driver, just as security on a smartphone requires authentication each time an attempt to open occurs. Failing to properly authenticate the login would prohibit a Level VIII inspection from being completed



# Level VIII Inspection Forum Summary Report

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and a simple bypass event would result in no inspection being completed. Comparison of the facial recognition to the picture on the driver's record could be accomplished but would require verification to the state driver's license record database, in addition, to the CDLIS record. This could be problematic in some jurisdictions due to personal identifiable information (PII) concerns. Additional types of verification of the driver could include voice recognition or driver camera systems. The key is to build confidence in the login and have trust in the system established. A driver and carrier that does not want to follow the regulations is not going to go through the trouble of establishing the ability to do Level VIII inspections. Accounting for every possible scenario of fraudulent activity, that a non-compliant carrier may try, could make it cost prohibitive based on scenarios that are unlikely to occur.

- There are several other ways to have a secure login including: Public Key Infrastructure (PKI), digital driver license linked into ELD, a CDL/Real ID swipe or scan, ID badge plugged into the ELD, fingerprint scanner, QR code ID for each driver, chip reader for login or Personal Identity Verification (PIV) card. The key is to begin with proper ELD certificates with a secure login. This type of system will help build data integrity with the Level VIII inspection but may also help with the use of a ghost driver to conduct RODS falsification.

## Next Steps

- Evaluate the different options to authenticate the driver information and determine which option provides the highest level of confidence in the data accuracy without prohibitive costs.
  - Determine if verification of the picture on license is necessary in a program that has robust user validation.
- 3. What PII concerns are there and what would be the obstacles to implementation? How can enforcement trust, but verify? Would evidence for a driver violation withstands judge scrutiny?**
- Are there really PII concerns. The driver is sharing data with an enforcement agency and the motor carrier, both of whom would have authorization to see personal information on the driving record. The driver and carrier are also volunteering to be part of the Level VIII inspection program.
  - The purpose of the Level VIII inspection will help determine the PII issues. If the inspection is kept as an inspection of compliance with the federal regulations, verifying the necessary information, there are less concerns. If the inspection is used as an enforcement tool, there become obstacles with the issuance of citations by a computer, rather than an enforcement officer. There are many jurisdictions that do not currently allow this and are unlikely to change anytime soon. Whether or not the judicial system accepts this type of enforcement will require legal opinions from the jurisdictions, potentially causing a lack of uniformity if some jurisdictions issue citations and others do not.
  - The ability of the Level VIII inspection program to have a successful implementation is for all stakeholders to have faith in the system. The data elements must have an authoritative source, that can be trusted, to verify the information included in the inspection. There also needs to be credibility built into the front-end login to the system. If these are met, coupled



# Level VIII Inspection Forum Summary Report

with the rules of participation and accountability of carriers implementing the Level VIII inspection, all stakeholders should be able to establish an acceptable level of confidence in the data included in the inspection.

- Whenever an API exists for the transfer of data, cybersecurity becomes an important part of the discussions. The protection of all stakeholders from data security breaches and malicious attacks must be at the forefront of all conversations.

## Next Steps

- Determine if PII issues exist and whether there needs to be a solution when comprised with consenting parties.
- Ensure cybersecurity is evaluated in each phase of the development so it is built into the program versus trying to add it in after the program has been established.

## Cybersecurity (High Level) IT Security

**Ben Gardiner, National Motor Freight Traffic Association, Inc.**

- Cybersecurity is always a concern with any electronic communications and needs to be part of the discussion from the beginning. Good quality cybersecurity cannot be built later and needs to be part of the foundational planning. The use of the ELD to pass the required data elements requires the ELD to have a high level of cybersecurity. The ELD port can open the vehicle up to hackers. Enforcement credentials should never be used or saved within the telematics system as it opens those credentials up to hackers and the use of those credentials for wrongdoing.
- There have been proven attacks on vehicles through the J1939, J1708, J1587, and J2497 networks. The attacks usually involve disrupting the communication from a sensor to the ECU which interprets the communication as a need to put the vehicle into limp mode. There have also been proven attacks that have allowed the writing to the networks causing the vehicle to take an action, such as chuffing the brakes. Additional sensors to monitor vehicle components in a Level VIII inspection could further expose the vehicle to hackers.
- Hackers may attack trucks for several reasons. The vehicle could be held for ransom due to the interruption of the sensor data causing the ECU to go into limp mode. The capture of data or theft of cargo due to the disabling of a vehicle. Political or geo-political interruption of the transportation system in congested or other targeted locations that can severely impact the flow of the supply chain.
- Hackers gain access through a partner breach, enterprise system breach, diagnostic laptop, proximity wireless communications (Bluetooth or WiFi), or through the telematics system in the vehicle.



# Level VIII Inspection Forum

## Summary Report

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### Vehicle Sensors

#### Tim Boyle, Whiparound

- Vehicle sensors produce a diagnostic trouble code (DTC) that indicates a potential problem with one of the vehicle parts. The DTC provides information on the part of the vehicle as well as the system. Sensors also identify whether the fault is currently present and what should be done to rectify the DTC. The main consideration with the use of sensors is that whenever a fault code is sent, it is unknown whether the component or the sensor is defective. This makes the incorporation of sensor faults into the inspection report as a violation problematic since it is only indicating a potential defect and could simply be a defective sensor.
- The availability of sensor data will continue to grow but there are sensors to monitor components in most of the areas included in the roadside inspection, such as: seatbelt, brakes, frames, coupling devices, exhaust, fuel systems, lights, steering, suspension, tires, wheels/rims/hubs, windshield, emergency equipment, electrical battery, and cargo securement. Some areas have more than others, but there are some sensors available for all areas.
- Sensors in the brake system include brake pad thickness, brake fluid levels for leak detection, air brake pressure sensors for air leak detection, temperature sensors to monitor brake lining integrity, ABS speed sensors, and brake stroke sensors to indicate excessive movement.
- Sensors in the lighting system include light status as on or off, bulb failures, turn signal operational, stop lamp operational, headlight alignment, functionality of diodes, and luminosity.
- Tire pressure monitoring systems and tire pressure management systems can keep the tires properly inflated, monitor for low tire pressure or pressure loss, and monitor temperature. There are also advanced systems available that can predict tire wear and measure tread depth. Tread depth is monitored at the start or end of the day by driving over equipment.
- The availability of sensor information will only continue to grow, but additional sensors will come at a cost. In the Level VIII inspection, how much, and what kind of sensor data is necessary to be verified during an inspection and is there a point where the sensor data is available, but costs become prohibitive. The other issue, mentioned earlier, is that sensor data only indicates a potential problem with a component, as the fault could be a result of sensor failure.
- Due to the sensor identifying a potential violation, could the CVSA Enhanced inspection be utilized in combination with sensor data verification to complete a vehicle inspection at the time of the Level VIII inspection. The CVSA Enhanced inspection could be completed at the time of dispatch and then sensor data passed at the time of Level VIII inspection, to confirm the vehicle components do not contain any violations. There are several questions that would still need to be answered with regards to what is passed to enforcement. Sensor data may be passed or just a pass/fail of the vehicle components. The failure notification may require a pull in, or it could just be a communication to the carrier that the Level VIII inspection was attempted but could not be completed due to a sensor failure. There may not be enforcement, but safety information would still be communicated to the carrier to allow proper attention.



# Level VIII Inspection Forum Summary Report

## Smart Trailers

### Ross Froat, Executive Director of FleetPulse

- Smart trailers allow for cellular and satellite tracking through a telematics device. The device does allow onboard charging with solar power and connectivity through edge computing, Info2Cloud, and connected area networks (CAN). There is power line communication (PLC) and connected area network (CAN) communication through the ABS intelligence to track fault codes and external system monitoring. They also offer light-out detection, tire and wheel-end sensors, and auxiliary system monitoring through the electrical system.
- Additional sensors available that were not mentioned in the vehicle sensor section include: axle weight monitoring, cargo sensors, lift gate sensors, virtual tractor pairing, remote door lock, reefer system monitoring and remote gladhand access.

## Commonalities of Level VIII Electronic Inspection and Current ADS Vehicle Monitoring

### Brett Fabbri, Kodiak Robotics and Clint Kneip, Waymo

- Automated driving system (ADS) developers worked with the CVSA ADS workgroup to develop the CVSA enhanced inspection program. The program allows ADS equipped vehicles to bypass an inspection location if the vehicle has passed a defect free point of origin inspection and a data message set is passed to inspectors during the bypass event. The inspection is a defect free point of origin inspection, conducted by a CVSA-trained and certified inspector, requiring the vehicle to be defect free of the CVSA Enhanced Inspection Standard. The data message set is still in development but could include such data elements as: enhanced inspection date and time, inspector identification, carrier information, and current ADS operational status. ADS vehicles do have the ability to communicate vehicle sensor data, as described earlier, and could be part of the Level VIII program if vehicle inspections were incorporated into the program.

## Gap Assessment Activity and Next Steps

This session was a recap of the two-day event and sought feedback from attendees on any additional questions or concerns that may have developed during conversation at the forum. One of the primary objectives of the session was to identify participants to be involved in an operational test of the Level VIII inspection. There is the need for participation from all stakeholders, including state enforcement agencies, carriers, and technology developers. The operational test will be conducted in phases to allow an incremental approach to the implementation.

- FMCSA is committed to the development of the Level VIII inspection and is looking for participants to be involved with an operational test. The operational test will need involvement from enforcement, industry, and technology developers. There is funding available for states through the MCSAP ITD notice of funding opportunity (NOFO) to be part of the operation test. Eventually, once the program is rolled out, it would roll into the regular MCSAP activities. The maintenance of ITD activities would still be an ITD eligible expense.



# Level VIII Inspection Forum Summary Report

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Guiding principles for states would need to be developed as well as mapping out a national strategy.

- Phase one operational tested is slated for 2023. The phase one activities would be proving the ability to communicate the necessary data. There would only be data collection activities happening during this phase. Phase two would then start verifying the data to authoritative sources. The infrastructure is in place in many states, with the current bypass programs, and the technology is available, it just needs to be developed. A document needs to be developed to define what it means for states and carriers to participate in the program. FMCSA will begin the development of this document.
- The question of how the inspection will impact SMS for carriers is always at the forefront of discussions. A definitive value cannot be given until more information is available and a good understanding of what data is able to be obtained and how that data impacts the evaluation program. The hope is to make the Level VIII inspection program work, it would affect safety scores, ISS algorithms, and states pull-in policies. The Level VIII inspection program is not intended to replace the current inspection program but rather leverage the use of technology to allow state and federal resources to focus on changing the behaviors of drivers and carriers that do not want to comply with the safety regulations.
- Carrier participation in the operational test is necessary but without any SMS value, there needs to be an incentive for participation. The Beyond Compliance program may offer an opportunity for value but will require conversation to determine what that opportunity may be. There is a need for everyone to work together to make this happen so if there are any ideas the carriers may have that will provide the incentive necessary to be part of the operational test, it is welcome.

## Next Steps

- Identify participants from enforcement agencies, industry, and technology developers to allow phase one of the operational test to begin.
- Evaluate available incentives for operational test participation.
- Determine if the Beyond Compliance program has a place within the Level VIII inspection program and provide any suggestions or ideas to FMCSA for consideration.