2025 SMA Questions for State Directors

These questions will be asked at each of the four regional Weights and Measures Meetings in 2025. State replies will be collated and published without attribution on the SMA website to enable participants to compare their positions on these issues with those in their region and in other regions.

1. An existing vehicle scale which has been in service for many years is equipped with hydraulic compression load cells and accompanying transducers. The type evaluation certificate for the scale identifies that the scale was evaluated with hydraulic compression load cells and does not mention any other kind of load cell.

Can the hydraulic compression load cells be replaced with digital compression load cells and comply with the existing CC?

Alabama	No response.
Alaska	No response.
Arizona	No response.
Arkansas	No
California	Generally the transducers associated with hydraulic load cells are a part of the sealing provision for the weighbridge. Although digital compression load cells may have the same force introduction and may be able to meet vmin equation requirements for instance: this becomes a question about the sealing of the device(s). If the sealing provision identified on the type evaluation for the weighing element cannot be satisfied, the device does not match the type evaluation. Additionally, the brackets necessary to mount to load cells may need to be replaced on the weighbridge; something that was not originally evaluated if not listed on the type evaluation certificate. In general, this would likely not be appropriate unless the new load cells have a separate “conversion kit” evaluation (see also question 2B); however, this may need to be assessed on a case-by-case basis. This is supported by Publication 14 (Weighing Devices) Digital Electronic Scales, Technical Policy Section D. Substitution of Load Cells subsection 6 and Section E. Modification of Type. [Note: The depth of knowledge needed to determine what an “acceptable” vs. an “unacceptable” modification to the load cell mounting element(s) is, is not reasonable to expect of an inspector.]

Colorado	The initial question becomes whether or not the modification is significant to the NTEP certification. - If there is no restrictive language (generally newer devices) in the certificate for what type of load cell (hydraulic vs digital compression) but clearly outlines the requirements of everything else (vMin, nMax, temp, etc), the modification would be allowed. - If the NTEP certification specifically identifies the type of load cell (hydraulic compression), the modification would not be allowed.
Connecticut	The device needs to be reevaluated. Some sort of Validation. Mfg. input as well.
Delaware	No, because the scale was approved for only the hydraulic load cells. The owner/submitter of the original Certificate of Conformance would need to have the new digital compression load cells tested by NTEP and added to the Certificate to be used for this application. If the digital load cells were found installed without being listed on the Certificate of Conformance, the scale would be rejected.
Florida	NTEP state – must be stated on cert to be valid in FL
Georgia	No, review cert.
Hawaii	No Representative at WWMA
Idaho	No Representative at WWMA
Illinois	No, not without additional evaluation or a new CoC
Indiana	No Representative at CWMA
Iowa	Global answer No, However, Iowa team would be willing to work with the scale manufacture and load cell manufacture to make sure the scale complies, this would a tentative certification as the manufacture is updating or new COC / mostly need to replace the hydraulic load cell
Kansas	NO: violates NTEP policy on replacement parts
Kentucky	Depends, will follow the NTEP cert, for a system, it's a NO.
Louisiana	We've actually had this come up recently. Initially, we thought the digital load cells were considered metrologically equivalent to the hydraulic ones, because of a marketing document from Mettler that said they were. I asked the question to NTEP, and they said the two are NOT metrologically equivalent. Their Pub 14 guidance seems to outline the possibility of a conversion where input/output type is the same, and all load cells are changed from one type to the other. The explanation I was given is that, in this case (hydraulic to digital) since the input/output changes from hydraulic lines to a wiring harness, this would need to be re-evaluated by NTEP and

	could not operate under the same Certificate of Conformance. That's how I understood the explanation from Jeff anyway, and it made sense to me as he explained it. I think he said that even a change from a 4 wire harness to a 6 wire harness would require re-evaluation.
Maine	No responses. Brad will e-mail his responses to the SMA.
Maryland	Follow the cert and check with expert / NTEP admin, anything not covered, make amendment to correct the approval.
Massachusetts	No comment
Michigan	Require a Variances Application to be completed and the scale would need to pass Acceptance Tolerances before allowing to be put back into service
Minnesota	Agreed with the steps Iowa presented
Mississippi	Yes, as long as replacement components meet Pub 14.
Missouri	Representatives are not equipped with proper answer/will get answers back to us asap
Montana	HB44 defines tare vs. zero. Unclear where GIPSA comes from.
Nebraska	Representatives are not equipped with proper answer/will get answers back to us asap
Nevada	Not present for response.
New Hampshire	Not present for response.
New Jersey	Similar to CT – would like to see this on the NTEP Cert. before being used.
New Mexico	Yes, hydraulic compression load cells can generally be replaced with digital compression load cells and still comply with existing codes, provided the digital cells have the proper certifications and the overall system is recalibrated and certified. Many manufacturers offer conversion kits specifically for this purpose. The key is ensuring the new digital system meets the same legal-for-trade performance standards as the old hydraulic one. Compliance and legal considerations For applications such as commercial scales, replacing load cells and maintaining code compliance ("CC") depends on meeting specific certification standards. The National Type Evaluation Program (NTEP) in the U.S. and the International Organization of Legal Metrology (OIML) in Europe are common standards bodies.

	Certification: The new digital load cells must display certification markings from the relevant regulatory body, such as NTEP. Performance standards: Both hydraulic and digital load cells for high-capacity applications (Class IIIL) must comply with performance standards like those found in the U.S. National Institute of Standards and Technology (NIST) Handbook 44. Documentation and calibration: You will need to provide documentation showing that the new system is compliant. A professional installation and calibration service will perform the necessary tests to meet standard tolerances and will issue a new calibration certificate.
New York	Yes as long as it is an NTEP evaluated load cell that meets the Vmin requirements.
North Carolina	They have allowed in the past as long as the LCs are NTEP approved.
North Dakota	No Representative at CWMA
Ohio	If the scale design is not altered or changed to install the replace load cells, Ohio would allow the changes (as long as the load cells are NTEP COC) If scales design is going to be altered or changed then NO but would take the same steps as Iowa and Minnesota.
Oklahoma	No response.
Oregon	No response.
Pennsylvania	Yes if load cells are NTEP approved for that scale
Puerto Rico	No response.
Rhode Island	No repsonse.
South Carolina	Same as NC and is suitable for the application.
South Dakota	If the scale design is not altered or changed to install the replace load cells, Ohio would allow the changes (as long as the load cells are NTEP COC) If scales design is going to be altered or changed then NO but would take the same steps as Iowa and Minnesota t
Tennessee	Follow NC, work with the scale companies, verify in field.
Texas	Similar to NC, SC, TN

Utah	No repsonse.
Vermont	Similar to NY – Yes if load cells are NTEP approved and the device works properly
Virginia	Similar to NC, SC, TN
Washington	No repsonse.
West Virginia	If the cert specifically mentions hydraulic component, they would not allow.
Wisconsin	Representatives are not equipped with proper answer/will get answers back to us asap
Wyoming	No but device owner can request a waiver, and state may look at it and determine if everything required by WY is met.
District of Columbia	No response.
Virgin Islands	No response.

2. The device owner of a mechanical weighbeam-type vehicle scale would like to have the scale converted to have a digital indication:

    A. Can the scale be converted by inserting an “S” type load cell into the steelyard rod?

    B. Can the scale be converted by inserting load cells (e.g. compression or shear beam) under the weighbridge?

Alabama	No response
Alaska	No response
Arizona	No response
Arkansas	A. No B. No
California	A.Yes, this would likely be acceptable so long as the load cell and indicating element are separately evaluated and appropriate for the installation. This is supported by Publication 14 (Weighing Devices) Digital Electronic Scales, Technical Policy Section E. Modification of Type, subsection 2 which states: “The placement of a load cell in the steelyard rod to change from a mechanical to an electronic indicator is an acceptable modification of type

	that does not require evaluation for an existing Certificate of Conformance (CC) to apply." B.Not unless there is a type evaluation for a conversion kit. This alteration would change fundamental characteristics of the weighbridge and would require its own type evaluation. An example of an appropriate type evaluation for this purpose is NTEP CC 16-099. This is also supported by Publication 14 (Weighing Devices) Digital Electronic Scales, Technical Policy Section E. Modification of Type, subsection 1 which states: "Replacement or modification of any levers in a mechanical scale for the purpose of installing load cells is a modification of type that is not covered by the original."
Colorado	The question to first ask for both scenarios - can the load cell(s) meet all requirements for vMin, nMax to the total device capacity and CLC? A. Can an "S" Type load cell be inserted in the steelyard rod? Can the indicator parameters be set to the allowable divisions and total capacity to the load cell? If all of this can be met while offering safe operation of the scale, the modification would be allowed. B. Can the scale be converted to compression or shear beam load cells? Would there be modification to supports, pivots/bearings, weighbeam, etc that would be outside the scope of the NTEP certification and device installation requirements. Would there be any adjustments with a potentiometer ("J" Box)? If the relationship of the load cell(s) to the scale indicator is within parameters, any combination of load cells is within requirements, and all other specifications can be made without significant modification to the design, installation, and function of the scale, the modification would be allowed.
Connecticut	A and B – It is not our job to verify the conversion. We rely on satisfactory work from scale companies.
Delaware	No. Even if the S type load cell is "Legal for Trade", it would still need to be applied to a scale that has a Certificate of Conformance allowing the application. Using a load cell that is too small and overloading it or using one that is well in excess of the measurement range can affect scale reading accuracy. Also improperly aligned or loose cells can also affect accuracy. In order for a scale to be "reconditioned", it must meet current NTEP Certification Requirements. "Grandfathering" a scale does not apply when

	modifying it using new technology. This also applies if adding load cells to the weighbridge.
Florida	Review cert and would not allow if the cert does not specify it.
Georgia	Allow as long as it does not violate cert, investigate further with manufacturer.
Hawaii	No response.
Idaho	No response.
Illinois	Changing from hydraulic to digital compression load cells is a significant modification. • Hydraulic and digital load cells operate using fundamentally different principles. • Digital cells may require different indicators, communication protocols, and power requirements, which can affect how the device functions
Indiana	No Representative at CWMA
Iowa	A. Can demonstrate and have documentation of the manufacturing/would like to see COC type evaluations completed and would encourage/otherwise would not allow and B. Most of the time would be determine of how much time and efforts
Kansas	A. Yes, we allowed/should never be allowed without type evaluations B. No need type evaluation
Kentucky	Before 2003 YES, otherwise NO.
Louisiana	A. We allow this as long as the conversion "kit" or equipment is NTEP approved and designed for that specific scale type and use. My understanding is that the input type is the same whether using the steelyard rod for weighbeam or "s" load cell, so the conversion to digital at that point on the scale is acceptable. You're capturing the mechanical weighment "signal", not changing the method of weighing of the load receiving element. B. No, we would not allow the scale to be converted from mechanical weighing to load cells. This would change the weighing method or input type and void the NTEP Certificate.
Maine	No response.
Maryland	Follow the cert as written. May need to contact the NTEP Administrator depending on the situation.
Massachusetts	Laws don't have enough regulations.

Michigan	A Variance application would need to be submitted, and the scale would have to pass acceptance tolerance before being placed back into service.
Minnesota	A. S type would be allowed and would test digital scale and indicator as individual scale and weighbeam as a separate/would also check load cell for the correct Vmin to allow installed B. Would allow the changing of the load
Mississippi	Would allow modification, depends on the specific situation, possible request a new NTEP evaluation.
Missouri	Representatives are not equipped with proper answer/will get answers back to us asap
Montana	A. Does allow “S” type cell conversion. B. Same as California.
Nebraska	Representatives are not equipped with proper answer/will get answers back to us asap
Nevada	No repsonse.
New Hampshire	Not present for response.
New Jersey	A)Yes B)No – this fundamentally changes the workings of the scale design
New Mexico	A. Yes, a mechanical weighbeam-type vehicle scale can be converted to digital indication by inserting an "S" type load cell into the steelyard rod. This is a common and relatively low-cost method for converting mechanical scales. How the conversion works The process uses the existing lever system of the mechanical scale, which reduces the total force of the load to a much smaller, measurable pull on the steelyard rod. Installing the load cell: An "S"-shaped load cell, so named for its shape, is placed in-line with the steelyard rod that is connected to the scale's weighing levers. This load cell is specifically designed for this purpose and can accurately measure both tension and compression. Measuring the force: The load cell measures the tensile force (pulling) exerted on the rod by the lever system. Because the levers have already reduced the total weight from the vehicle, a relatively small, high-precision load cell can be used.

	Converting the signal: The load cell contains strain gauges that generate an electrical signal proportional to the force applied. Displaying the weight: This electrical signal is sent to a digital weight indicator, which processes the signal and displays the final weight reading. Advantages of this method Cost-effective: This method is significantly less expensive than completely replacing the scale and its pit. Minimizes downtime: The conversion can often be completed quickly, sometimes in a single day, which reduces the operational downtime for the business. Retains existing structure: The existing scale platform and pit can be reused, avoiding the major civil engineering costs associated with building a new scale foundation. Backup system: The scale can sometimes still be used mechanically if the digital indicator fails. Increased functionality: The digital indicator provides many modern benefits over a manual weighbeam, including easier reading, faster weighing, and the ability to connect to computers for automated ticket printing and data management. B. Yes, a scale can be converted by inserting load cells under the weighbridge, which is a common and established practice. This process upgrades older mechanical or hydraulic scales to a modern, fully electronic weighing system. Conversion kits are widely available for this purpose and are designed to minimize installation time and disruption. The conversion process The process involves replacing the existing mechanical lever system with load cells and other electronic components to create a hybrid or fully electronic scale. Preparation: The weighbridge platform is lifted or suspended to allow access to the supporting foundation.

	Mounting hardware: Mounting plates are attached to the foundation. These plates anchor the weigh modules, which provide mechanical stability and proper alignment for the load cells. Load cell placement: Compression load cells, often with a "rocker pin" design, are placed into the mounting assemblies. This design allows for slight movement to prevent binding and accommodates thermal expansion. Connecting the electronics: The load cells are wired to a junction box and then to a digital weight indicator. The indicator converts the electrical signals from the load cells into a readable weight measurement. Calibration: The scale is calibrated using certified weights to ensure accurate and repeatable measurements. Common types of load cells for weighbridges Compression load cells: These are common for truck scales and other high-capacity applications. They are designed to measure a compressive load, such as the weight of a truck pushing down on the platform. Some advanced versions feature a "rocker pin" design to allow for a small amount of movement, which improves accuracy. Shear beam load cells: These are secured at one or both ends and measure the shear stress (bending) on a beam. Double-ended shear beams are often used in truck scales, while single-ended shear beams are more common for lower-capacity platform scales. Benefits of converting Converting to an electronic system using load cells offers several advantages over traditional mechanical scales: • Higher accuracy: Electronic systems with digital load cells offer improved accuracy and repeatability compared to older systems. • Lower maintenance: Eliminating the complex mechanical lever system and other moving parts reduces long-term maintenance costs and potential for wear and tear.

	• Greater reliability: Digital load cell systems can feature enhanced protection against environmental factors like moisture and lightning strikes, which can be a common point of failure for older systems. • Advanced features: Electronic systems enable modern features like real-time data logging, computer integration, and diagnostic capabilities.
New York	A)Yes B)No -Concur with NJ comments
North Carolina	Would consider it, mechanical parts could be worn out and may not be ideal.
North Dakota	No Representative at CWMA
Ohio	A.Yes, if load COC and Indicator B. Would be yes if COC as well
Oklahoma	Yes
Oregon	No repsonse.
Pennsylvania	A)Yes – if conversion has been evaluated B)Yes – if conversion has been evaluated
Puerto Rico	N/A
Rhode Island	N/A
South Carolina	Yes, would allow it if the parts are not worn out and are NTEP approved, depends on the specific application.
South Dakota	No Representative at CWMA
Tennessee	Same as SC.
Texas	Same as SC & TN.
Utah	No response.
Vermont	A. No unless NTEP approved B. No unless the device is accurate, correct
Virginia	Sames as SC, TN, & TX
Washington	A.No answer B.No answer
West Virginia	A. They don't like doing this was allowed at times.

	B. NO
Wisconsin	Apply for variance application is first thought, but the Representatives wasn't sure on answer and would have to come back to have an answer.
Wyoming	A. Yes B. No, unless an exception is requested and reviewed and found to be ok.
District of Columbia	No response.
Virgin Islands	No response.

3. Section 36.10 of Publication 14 states tare capability is not permitted on a livestock scale. However, some GIPSA situations seem to require tare. Is a livestock scale still legal for trade with a tare function?

Alabama	No response.
Alaska	Inactive – Can across this issue – if they have a CC they allow it.
Arizona	No response.
Arkansas	Arkansas is not aware of any requirement preventing tare on a livestock scale in NIST Handbook 44.
California	Publication 14 cites G-S.5.1. (appropriate design of indicating element) & G-S.2. (facilitation of fraud) as the reason tare capability is not permitted on a livestock scale. The gates and enclosure on these scales are considered part of the platform (when directly connected to it), the scale should be zeroed before the livestock are moved onto the scale. Could you please point out the GIPSA requirement for tare? [**Note:** If this inquiry is regarding 9 CFR 201.49; tare applies to poultry and feed but not livestock – some of the literature from USDA may be leading to confusion regarding weighing of livestock vs. weighing of feed: https://www.ams.usda.gov/sites/default/files/media/PSDLivestockScales.pdf]
Colorado	The only device allowed for tare is monorails (static/dynamic) to account for the trolleys.
Connecticut	Yes – if NTEP approved with that function.
Delaware	I will need to see exactly what 36.10 of Publication 14 states to form an opinion. Currently, I do not have access to that particular publication. However, without seeing the Publication, in order for a scale to be used commercially in the State of Delaware, it would need to be an "NTEP, Legal for Trade" scale. If the Certificate of Conformance specifically states that a device is not approved to be used for weighing "Livestock" then the scale would not be certified for that use.

Florida	Depends on the specific application.
Georgia	Yes, based on no restrictions in HB44.
Hawaii	No response.
Idaho	No response.
Illinois	No
Indiana	No Representative at CWMA
Iowa	Not sure how tare would be used in livestock situation/ so going to say yes but questions many come up and scales may be rejected.
Kansas	Code states fraud/should be brought up to weighing sector because Pub 14 doesn't agree with HB 44
Kentucky	Same as GA, would check with NTEP Administrator / evaluation.
Louisiana	We've never rejected a livestock scale simply for having a tare function, and haven't really thought much about it before. If NTEP doesn't allow it, we likely don't see very many livestock scales with it. We do require autozero functions to be turned off, but allow operators to zero the scale out between weighments to account for an operator or animal waste left on the scale.
Maine	No response.
Maryland	Pub 14 would be used and then would revert back to HB44. Pub 14 should align with HB 44, they use HB 44 to confirm (something to bring up at SMA).
Massachusetts	No comments
Michigan	No
Minnesota	Can't tell if inspectors have checked for tare in the past, if the scale tare works or not/weighbeam is the only application
Mississippi	Tare is not necessary for livestock scales. Look at specific circumstances if needed.
Missouri	Representatives are not equipped with proper answer/will get answers back to us asap
Montana	No response.
Nebraska	Representatives are not equipped with proper answer/will get answers back to us asap
Nevada	Would allow installation but track down why CC is inactive.
New Hampshire	Not present for response.
New Jersey	No comments

New Mexico	No, a livestock scale with a tare function is not permitted for trade and is not considered "Legal for Trade" in commercial livestock transactions. The tare function, which deducts the weight of a container to show only the net weight of a product, is explicitly prohibited for weighing livestock for purchase, sale, or payment under U.S. Department of Agriculture (USDA) regulations. The apparent discrepancy between regulations comes from the specific contexts in which weighing occurs: Livestock weighing for trade: The Packers and Stockyards (P&S) Act, enforced by the USDA's Agricultural Marketing Service (formerly GIPSA), prohibits using tare functions on scales weighing animals for commercial transactions. The total gross weight is the official value for payment settlement. Feed weighing for trade: The P&S Act does permit the use of a tare function when weighing feed, since the payment to growers is based on the net weight of the feed. This is particularly relevant for poultry and swine contractors. Animal weighing in non-trade situations: Scales with a tare function may be used in non-commercial or agricultural settings where the weight is not for official trade settlement. For example, a veterinary clinic might use a tare function to weigh a small animal while it is in a carrier. Distinctions between tare and zero It is important to differentiate between the tare and zero functions on a scale, as the regulations treat them differently. Tare: Used when there is an intentional load on the scale, such as a container, whose weight needs to be subtracted to determine the net weight of the contents. This is not permitted for official livestock weighing. Zero: Used to reset the scale to zero when no load is on the platform. It corrects for minor debris accumulation or a slight imbalance to ensure an accurate zero point before weighing begins. A zero function is permitted, but it has limits on how much weight can be zeroed out.
New York	Agrees with CT – Yes, if it is NTEP approved with that function

North Carolina	They follow HB 44 and would allow since there are no restrictions.
North Dakota	No Representative at CWMA
Ohio	Whatever is in HB 44/wouldn't look for it if not in HB 44
Oklahoma	Yes
Oregon	In practice they would allow it. They would have looked into it though to ensure it was covered. Regardless of inactive.
Pennsylvania	Agrees with CT and NY
Puerto Rico	No response
Rhode Island	No response
South Carolina	They work with P&S to see what they require.
South Dakota	No Representative at CWMA
Tennessee	Same as NC.
Texas	Same as NC & TN.
Utah	No response
Vermont	Agrees with NY. Not to familiar with this. As long as there is no potential for fraud. Would probably make a judgement accordingly.
Virginia	Same as NC, TN, & TX and would also have some discussions.
Washington	No response.
West Virginia	Since 1990, followed P&S publication, otherwise, they fall back to HB 44.
Wisconsin	Representatives are not equipped with proper answer/will get answers back to us asap
Wyoming	Has not run into this situation but would probably allow it.
District of Columbia	No response
Virgin Islands	N/A