

**Part 2:**  
**Pavement Marking Specifications**  
**Concerning Mobile Retroreflectivity**  
(20–25 minutes)



This portion of the presentation covers the specifications that call for and control the mobile retroreflectivity data collection. There is a lot of text in this part of the guidance presentation since specific material in each specification is covered.

## Specifications Outline

- Item 666—Retroreflectorized Pavement Markings, Special Provision 666-007, Approved in February 2018
- SS 6291—Mobile Retroreflectivity Data Collection for Pavement Markings, Approved in February 2018
- January 28, 2015—Memorandum requiring all non-profile longitudinal pavement markings to meet retroreflectivity requirements

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Item 666 was updated in February 2018 by Special Provision 007. The main areas of change included in the special provision related to the required retroreflectivity measurements.

Special Specification 6291 was approved to replace the previous Special Specification in February 2018. The areas of change included changes to the measurement notification and inclusion of verification and referee testing.

The memorandum distributed in 2015 was created to obtain uniformity of practice throughout the state.

Parts of these specifications will be discussed in other parts of the guidance presentation. The discussion in this part of the guidance presentation will not look at every part of the specifications, only those relevant to the discussion of mobile retroreflectivity.

It would be useful to have these documents available for reference during the presentation. Both of these specifications are undergoing review and modification. This presentation will be updated as newer versions are approved.

## Related Areas in Item 666-007

- Section 3.1. General Requirements
  - When required to meet minimum retroreflectivity requirements on the plans:
    - Use a mobile retroreflectometer approved by the Materials and Tests Division and **certified** by the Texas A&M Transportation Institute Mobile Retroreflectometer Certification Program.
    - Use a portable retroreflectometer that:
      - uses 30-meter geometry and meets the requirements described in ASTM E1710;
      - has global positioning system (GPS) coordinates with each reading;
      - can record and print the GPS location and retroreflectivity reading for each location where readings are taken.

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Updated specification required on all new jobs starting with May 2018 letting.

Mobile retroreflectometers need to be certified by TTI.

Portable retroreflectometers do not require certification but should be checked for calibration and accuracy. They are to be used to perform checks of the mobile retroreflectivity data and for small pavement marking jobs where retroreflectivity is required but the job size is not large enough to require mobile retroreflectivity. Both mobile and portable retroreflectometers evaluate the markings at the standard 30-meter geometry. They just evaluate at a different scale. When both measurements are properly conducted, the results should be very similar.

Previously, the retroreflectometers were approved by the Construction Division; the specifications are being updated to reflect the change to the Materials and Tests Division (MTD).

## Related Areas in Item 666-007

- Section 4.4. Retroreflectivity Requirements
  - **Contracts totaling more than 20,000 ft. of pavement markings.**
  - All longitudinal edgeline, centerline or no passing barrier-line, and lane line markings must meet requirements.
  - Measured any time after **3 days, but not later than 10 days after application.**
    - **White markings: 250 mcd/m<sup>2</sup>/lx**
    - **Yellow markings: 175 mcd/m<sup>2</sup>/lx**
  - Retroreflectivity requirements for Type I markings are not required for Contracts with less than 20,000 ft. of pavement markings or Contracts with callout work, unless otherwise shown on the plans.

Section 4.4. was completely modified in Special Provision 007.

Bold and underline were added to call out specific areas of interest.

Markings must meet retroreflectivity requirements for all contracts with over 20,000 ft (total) of markings. Contracts with less than 20,000 ft of markings do not need to be evaluated for retroreflectivity unless shown on plans. Callout work does not have retroreflectivity requirements. Markings that do not have retroreflectivity requirements must still be retroreflective, but the retroreflectivity level is not evaluated.

The retroreflectivity values are for dry retroreflectivity. There are special specifications that have wet retroreflectivity requirements for pavement markings.

## Related Areas in Item 666-007

- Section 4.5. Retroreflectivity Measurements
  - Use a **mobile retroreflectometer to measure retroreflectivity for Contracts totaling more than 50,000 ft. of pavement markings.**
  - **For Contracts with less than 50,000 ft. of pavement markings, mobile or portable retroreflectometers may be used** at the Provider's discretion.
  - Coordinate with and obtain authorization from the Engineer before starting any retroreflectivity data collection.

Section 4.5. was completely modified in Special Provision 007.

Bold and underline were added to call out specific areas of interest.

Mobile measurements must be used for all contracts with over 50,000 ft of markings. Contracts with less than 50,000 ft of markings may be evaluated with either mobile or portable retroreflectometers. Remember that contracts with less than 20,000 ft of markings do not have retroreflectivity requirements that must be met, but the markings must still be retroreflective.

Providers are supposed to obtain authorization from the Engineer before starting any retroreflectivity data collection.

## Related Areas in Item 666-007

- Section 4.5.1. Mobile Retroreflectometer Measurements
  - Provide **mobile measurements averages for every 0.1 miles** unless otherwise specified or approved.
  - **Take measurements on each section of roadway for each series of markings** (i.e., edgeline, center skip line, each line of a double line, etc.) and **for each direction of traffic flow**. Measure each line in both directions for centerlines on two-way roadways (i.e., measure both double solid lines in both directions and measure all center skip lines in both directions).
  - **Furnish measurements in compliance with Special Specification, “Mobile Retroreflectivity Data Collection for Pavement Markings”**
  - Inform the Engineer at least 24 hr. before taking any measurements.

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Bold and underline were added to call out specific areas of interest.

All longitudinal markings must be evaluated. The typical averaging distance is 0.1 miles. The mobile retroreflectometer collects a continuous stream of data and is averaged at the user-specified interval distance. Yellow centerline markings on two-way roadways must be evaluated in both directions. For double yellow and broken/solid marking configurations, each marking must be evaluated separately. This means each edge line and lane line will each have a single set of data along its length. Yellow centerline data will have two sets of data, one for each direction of travel. Within these sets of data, there need to be separate sets of data for the right and left yellow markings.

Item 666 references the Special Specification “Mobile Retroreflectivity Data Collection for Pavement Markings.”

Providers must notify the engineer 24 hours prior to taking measurements. The special specification requires that TTI be notified as well (for verification testing purposes—described in Part 3 of the presentation).

## Related Areas in Item 666-007

- Section 4.5.1. Mobile Retroreflectometer Measurements, cont.
  - A marking meets the retroreflectivity requirements if:
    - the combined average retroreflectivity measurement for a one-mile segment meets the minimum retroreflectivity values specified, and
    - no more than 30% of the retroreflectivity measurement values are below the minimum retroreflectivity requirements value within the one-mile segment.
  - The Engineer may accept failing one-mile segments if no more than 20% of the retroreflectivity measurements within that mile segment are below the minimum retroreflectivity requirement value.
  - The one-mile segment will start from the beginning of the data collection and end after a mile worth of measurements have been taken; each subsequent mile of measurements will be a new segment. Centerlines with 2 stripes (either solid or broken) will result in 2 miles of data for each mile segment. Each centerline stripe must be tested for compliance as a stand-alone stripe.

Analysis requirements are provided in this section of the specification. Data are to be analyzed in 1-mile segments. The average over the mile needs to exceed the required values (250 white, 175 yellow), and no more than three of the ten 0.1-mile segments can be below the required value.

There is an exception; an overall 1-mile average that is below the required value may be accepted if only two, 0.1-mile segments are failing. This is to allow some leeway for short areas where the marking has possibly worn due to increased traffic, such as access points or near turning areas. Yellow centerline markings need to meet or exceed the retroreflectivity requirements for both directions of travel.

Information on restriping failed sections is provided in the specification (not provided in this portion of the guidance presentation). Those paragraphs are described later in the presentation, Part 5, during the Next Steps discussion.

## Related Areas in Item 666-007

- Section 4.5.2. Portable Retroreflector Requirements
  - **Provide portable measurement averages for every 1.0 mile** unless otherwise specified or approved.
  - **Take a minimum of 20 measurements for each 1-mi. section of roadway for each series of markings** (e.g., edgeline, center skip line, each line of a double line) and **direction of traffic flow** when using a portable reflectometer. Measure each line in both directions for centerlines on two-way roadways (i.e., measure both double solid lines in both directions and measure all center skip lines in both directions).
  - The **spacing between each measurement must be at least 100 ft.** The Engineer may decrease the mileage frequency for measurements if the previous measurements provide satisfactory results. The Engineer may require the original number of measurements if concerns arise.

Section 4.5.2. was completely modified in Special Provision 007.

Like the mobile measurements, all markings need to be evaluated. The portable measurements will result in much less data than can be gathered with a mobile unit. The portable measurements are time consuming and may require additional traffic control, unlike mobile measurements. Yellow centerline markings are again evaluated in both directions and evaluated separately. Unless the job is really small, most providers will use mobile measurements when there is an option between the two methods.

Information on restriping failed sections is provided in the specification (not provided in this portion of the guidance presentation). That information is described later in the presentation, Part 5, during the Next Steps discussion.



## Related Areas in Item 666-007

- Section 4.6. Performance Period
  - **All longitudinal markings must meet the minimum retroreflectivity requirements within the time frame specified.** All markings must meet all other performance requirements of this specification for at least 30 calendar days after installation. Unless otherwise directed, remove pavement markings that fail to meet requirements, and replace at the Provider's expense. Replace failing markings within 30 days of notification. All replacement markings must also meet all requirements of this Item for a minimum of 30 calendar days after installation.

The first sentence of Section 4.6. was modified in Special Provision 007.

The time frame for the retroreflectivity requirements is 3–10 days.

If markings fail for any reason, the reapplied markings must meet all requirements, including retroreflectivity.

This covers the information in Item 666 that pertains to the retroreflectivity evaluation of the pavement markings.

## **TxDOT Special Specification 6291: Mobile Retroreflectivity Data Collection for Pavement Markings**

- Item 666-007 Section 4.5.1. Mobile Retroreflectometer Measurements
  - **Furnish measurements in compliance with Special Specification, “Mobile Retroreflectivity Data Collection for Pavement Markings,”** unless otherwise approved.
- Special Specification 6291 covers the following:
  - Equipment and Personnel
  - Mobile Retroreflectivity Data Collection Documentation
    - Data File, Map, Video
    - Field Checks
    - Measurement Notification
    - Verification Testing
    - Referee Testing

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The Special Specification “Mobile Retroreflectivity Data Collection for Pavement Markings” is called out in Item 666.

The special specification covers the data collection requirements and what data are required to be submitted.

The updated special specification (6291) is required starting with May 2018 letting.

Each of the items described in the special specification will be discussed in this section.

## Special Specification 6291

- Section 2. Equipment and Personnel
  - 2.1. **Mobile Retroreflectometer. Certified by the TTI Mobile Retroreflectometer Certification Program.**
  - 2.3. **Operating Personnel for Mobile Retroreflectometer.** Ensure MRDC system **operator has a current certification from the TTI Mobile Retroreflectometer Certification Program** to conduct MRDC with the certified mobile retroreflectometer provided.
  - List of certified providers, operators, and equipment.  
<https://groups.tti.tamu.edu/visibility/programs-and-guidance/mobile-retro-certification/certified-providers/>

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MRDC = mobile retroreflectivity data collection.

Equipment and personnel must be certified by TTI.

During the certification process, TTI will check any available portable retroreflectometers for accuracy at no additional charge.

TTI maintains the list of certified providers on the mobile certification website. The website is updated when changes to the list are required. In the past, physical certificates were distributed. Physical certificates are no longer distributed. Please contact the Program Coordinator (Adam Pike) if there are questions about the status of a provider, operator, or equipment.

<https://groups.tti.tamu.edu/visibility/programs-and-guidance/mobile-retro-certification/certified-providers/>

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## Special Specification 6291

- Section 3. MRDC Documentation
  - Document all MRDC by county and roadway or as directed by the Engineer. **Submit all data to the Department and to the TTI Mobile Retroreflectometer Certification Program no later than 3 working days after the day the data is collected.** *Submit all raw data collected in addition to all other data submitted.* Provide data files in Microsoft Excel format or a format approved by the Engineer. Provide a high-quality DVD showing the markings as they are measured.
  - 3.1. **Preliminary Documentation Sample.** *Submit a sample data file, video, and map of MRDC data in the required format 10 working days prior to beginning any work.* The format must meet specification and be approved by the Engineer before any work may begin.
  - 3.2. **Initial Documentation Review and Approval.** *The Department will review documentation submitted for the first day of MRDC, and if it does not meet specification requirements, will not allow further MRDC until deficiencies are corrected. The Department will inform the Provider no later than 3 working days after submittal if the first day of MRDC does not meet specification requirements.* Time charges will continue unless otherwise directed by the Engineer.

Section 3 of the special specification describes the data requirements. Parts 4 and 5 of this guidance presentation look at the data output from the systems, data the providers are required to turn in, and how to analyze the data.

It is necessary to receive the data from the provider within 3 days so that retroreflectivity values can be verified if needed. If the provider delays submitting the data, there will be a longer time span between provider-collected data and verification/referee testing. This longer time span may result in changes to the retroreflectivity and may increase the difference between the data sets.

Section 3.1—Providers often do not submit the preliminary data, and districts are not requesting preliminary documentation. This is not a new addition to the specification. Districts should request this information to make sure the providers are going to submit data in the proper format. Not all districts request all information contained in this specification, and providers may assume they do not need to deliver it all when working with a new district.

Section 3.1—Districts need to review the initial documentation submission to make sure it fits their needs. If it does not, the provider needs to be notified as soon as possible so that they can modify the documentation as needed.

# Special Specification 6291

- **Section 3.3 Data File.** Provide data files with the following:
  - date;
  - district number;
  - county;
  - name of mobile retroreflector operator;
  - route number with reference markers or other reference information provided by the Engineer to indicate the location of beginning and end data collection points on that roadway;
  - cardinal direction;
  - line type (single solid, single broken, double solid, etc.);
  - line color;
  - file name corresponding to video;
  - data for each centerline listed separately;
  - average reading taken for each 0.1-mi. interval (or interval designated by the Engineer);
  - accurate GPS coordinates (within 20 ft.) for each interval;
  - color-coding for each interval indicating passing or failing, unless otherwise directed by the Engineer (passing and failing thresholds provided by the Engineer);
  - graphical representation of the MRDC (y-axis showing retroreflectivity and x-axis showing intervals) corresponding with each data file;
  - distance in miles driven while measuring the pavement markings;
  - event codes (pre-approved by the Engineer) indicating problems with measurement;
  - portable retroreflector field check average reading and corresponding mobile average reading for that interval when applicable; and
  - upper validation threshold (may be included separately with the raw data but must be clearly identified with the data collected using that threshold).

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Each of these items should be provided on the summary data file. Examples of data files are provided in Parts 4 and 5 of this guidance presentation.

Providers format their data files in different ways. There is not a standard format that providers must follow. The files should contain the information listed unless not required by the district.

There are some differences between mobile retroreflectometers, their software, and their output data that may affect some of the above required items. These differences are described in Parts 4 and 5 of the presentation.

As noted in Section 3 of the special specification, the raw data should be submitted in addition to the required summary data as described in Section 3.3. The summary data provide a good overview of the information collected and if the markings pass or fail the retroreflectivity requirements. Looking at the summary data, an observer can sometimes judge the quality of the data. If the accuracy of the data looks questionable, the raw data can be reviewed to see if there may be some issues with the data.

## Special Specification 6291

- **Section 3.4. Map.** Provide a map in an electronic format approved by the Engineer with each MRDC submission that includes the following information:
  - date;
  - district number;
  - county;
  - color-coded 1-mi. intervals (or interval length designated by the Engineer) for passing and failing retroreflectivity values or retroreflectivity threshold values provided by the Engineer; and
  - percentage of passing and failing intervals, if required by the Engineer.

Each of these items should be provided on the map file. Examples of map files are provided in Parts 4 and 5 of this guidance presentation.

Providers format their map files in different ways. There is not a standard format that providers must follow. The files should contain the information listed unless not required by the district.

There are some differences between mobile retroreflectometers, their software, and their output data that may affect some of the above required items. Most of the providers are submitting map files generated directly by the software provided with their mobile retroreflectometer. There is not much room to change these files. TTI has worked with the equipment manufacture's to try to get the data in alignment with the specifications. Most map files have the data color-coded by the length of the data acquisition interval (i.e. typically 0.1-mile segments). Percent intervals passing or failing is not necessarily needed on the map files, since it is part of the data file. Google Earth files should be requested from the providers.

The map files are useful to get a visual representation of the retroreflectivity values along the length of the section. Multiple files can be combined and layered to show a broader overview of the retroreflectivity quality of the markings. Using a satellite image can help identify why there may be drops in retroreflectivity along certain parts of a roadway (access points/turning movements).

## Special Specification 6291

- **Section 3.5. Video.** Provide a high-quality DVD with the following information:
  - date and corresponding data file name on label;
  - district number;
  - county;
  - route number with reference markers or other designated reference information to indicate the location of beginning and end collection points on that roadway; and
  - retroreflectivity values presented on the same screen with the following information:
    - date;
    - location;
    - starting and ending mileage;
    - total miles;
    - retroreflectivity readings; and
    - upper validation thresholds (may be included separately with the raw data but must be clearly identified with the data collected using that threshold).

Each of these items should be provided on the video file. The specification indicates a DVD, but electronic files are preferred. A pending update to the special specification has modified this to indicate an electronic file. The new equipment provides electronic files that are simple to transfer and of good video quality. Examples of video files are provided in Parts 4 and 5 of this guidance presentation.

Providers format their video files in different ways. There is not a standard format that providers must follow. The files should contain the information listed unless not required by the district.

There are some differences between mobile retroreflectometers, their software, and their output data that may affect some of the above required items. Most of the providers are submitting video files generated directly by the software provided with their mobile retroreflectometer. There is not much room to change these files. TTI has worked with the equipment manufacture's to try to get the data in alignment with the specifications.

## Special Specification 6291

- **Section 3.6. Field Comparison Checks with a Portable Retroreflector.**
  - Take a set of field comparison readings with the portable retroreflector at least once every 4 hours while conducting MRDC or at the frequency designated by the Engineer. Take a minimum of 20 readings, spread out over the interval measured. List the average portable retroreflector reading next to the mobile average reading for that interval with the reported MRDC data. Request approval from the Engineer to take field comparison readings on a separate roadway, when measuring a roadway where portable retroreflector readings are difficult to take. Take the off-location field comparison readings at no additional cost. *Submit the portable retroreflector printout of all the readings taken for the field comparison check with the corresponding MRDC data submitted. The mobile average reading must be within  $\pm 15\%$  of the portable average reading.* The Engineer may require new MRDC for some or all of the pavement markings measured in a 4-hour interval prior to a field comparison check not meeting the  $\pm 15\%$  range. Provide the new MRDC at no extra cost to the Department. *The Engineer may take readings with a Department portable retroreflector to ensure accuracy at any time. The Department's Materials and Tests Division (MTD) will take comparison readings and serve as the referee if there is a significant difference between the Engineer's portable readings and the Provider's mobile and handheld readings. For best results, take field comparison readings on a fairly flat and straight roadway when possible.*

Most providers are not submitting these field comparison checks, and most districts are not requesting these measurements be taken. This is not a new addition to the specification.

Periodic comparison of the mobile data to a portable system will help ensure accurate readings are being collected. Providers do not want to do this because it takes time and is a safety issue. Safety is important, and these portable readings should not be requested on high-volume roads. Early in a contract, an unfamiliar provider, or past experience, should dictate the rate at which portable comparisons are required/requested. The district should try to check readings as often as possible to make sure accurate data are being collected until they are comfortable with the provider. Spot retroreflectivity readings can help give an idea as to the quality of the marking for quality assurance purposes.

Twenty readings over a tenth of a mile section is a sufficient number to be confident in the average value collected. Twenty readings will provide more than 95% confidence that the average value is within one half of a standard deviation of the data set. i.e. if the 20 readings average 350 with a standard deviation of 40, you can be 95% confident that the average value is  $350 \pm 20$ .



## Special Specification 6291

- **Section 3.7. Periodic Field Checks at Pre-Measured Locations.**
  - When requested by the Engineer, measure with the mobile unit and report to the Engineer immediately after measurement the average retroreflectivity values for a designated pre-measured test location. The Engineer will have taken measurements at the test location within 10 days of the test. The test location will not include pavement markings less than 30 days old. If the measured averages do not fall within  $\pm 15\%$  of the pre-measured averages, further calibration and comparison measurements may be required before any further MRDC. Submit the results of the field check with the MRDC report for that day.

This is an old method some districts had used to make sure operators were collecting accurate retroreflectivity data. It is a good method but requires effort from the district to establish these comparison test areas. It also requires the provider to possibly go out of its way to evaluate these specific field check locations.

This type of field check is more useful when a provider is reading many roads in a relatively small area (i.e., seal coat striping, restriping, or maintenance-level readings).

This type of field check may be useful for new providers or providers who have previously submitted questionable or inaccurate data.

## Special Specification 6291

- **Section 3.8. Measurement Notification.**
  - Provide notification via email to Mobileretro@tamu.edu a minimum of 24 hours prior to mobile retroreflectivity data collection to allow for scheduling verification testing when needed.

Item 666 requires that the engineer be notified at least 24 hours in advance; Special Specification 6291 requires that TTI be notified as well. Notification of TTI is a new addition to the specification. TTI needs to be notified for all projects.

Districts are also welcome to notify TTI if they are having issues or would like a provider checked.

**From TTI's perspective, it would be ideal if providers submitted weekly work plans on Monday instead of daily plans every day. This weekly work plan would indicate which roads they are planning to read, what job those readings are part of, and when those roads were striped. There is an understanding that these plans may change some due to delays or weather. The 3–10 day window still needs to be met; any delays beyond that are on the provider and cannot be used as an excuse for failing readings.**

Many providers are currently providing adequate notification to TTI, but some are not. Those who do not provide adequate notification will be removed from the certified providers list until they come into compliance with the notification requirements.

## Special Specification 6291

- **Section 3.9. Verification Testing.**
  - The Engineer or a third party may perform retroreflectivity **verification testing within 7 days** of the Provider's retroreflectivity readings. The Provider-submitted retroreflectivity data will be compared to the verification test data to determine acceptability of the Provider's mobile retroreflectometer data. Comparison of the data will result in one of the two scenarios below:
    - Provider's Data is Validated – If the difference between provider's and Engineer/third party data is 20% or less, then the provider's data is validated. The provider's data will be used for acceptance.
    - Provider's Data is not Validated – If the difference between provider's and Engineer/third party data is more than 20%, then the provider's data is not validated. The Engineer/third party data will be used for acceptance and the provider will be required to take corrective action prior to additional provider data collection and may require re-certification of the mobile retroreflectometer. If the Engineer determines that the provider's data might be correct then, Referee Testing may be requested by the Engineer.

TTI or the district can perform verification testing on the provider. The TTI verification testing program will be described in Part 3 of this guidance presentation.

The goal of the verification testing is to collect an accurate set of data in as close a time frame as possible to when the provider collected its data. These two data sets are compared to check the quality of the provider's data.

Providers whose data are less than 20% different from the verification data will be notified of the validated results.

Providers whose data exceed 20% difference from the verification data set will be provided with the results and information concerning corrective actions to improve future data collection. Repeated non-validation of data will result in loss of certification, described in Part 3 of this presentation.

If the data are not verified and both data sets indicate data that exceed the minimum retroreflectivity requirements, then the engineer can accept the job. If there is conflict between the data sets, where one indicates passing markings and the other does not, the engineer can request referee testing.

## Special Specification 6291

- **Section 3.10. Referee Testing.**
  - **MTD will perform referee testing using portable retroreflectometers** to determine if the markings need to be restriped to meet the required retroreflectivity level. The referee test results will be final. *Referee testing will be conducted on the verification test section(s) using the method for portable retroreflectometers specified in Item 666, "Reflectorized Pavement Markings."*

TxDOT MTD will perform the referee testing. Referee testing should occur as soon as possible after conflicting measurements are found and cannot be resolved. Delays in performing referee testing may result in data that are not as easy to compare due to the impact of time on the degradation of marking retroreflectivity.

Referee testing can occur with or without TTI verification testing. If the district checks the provider's work and the provider disputes the results, referee testing can be conducted to resolve the dispute.

## Special Specification 6291

- **Section 4. FINAL REPORT**

- Submit a final report in the format specified by the Engineer to the Department's Traffic Engineering representative within 1 calendar week after the service is complete. The final report must contain a list of all problems encountered (pre-approved event codes) and the locations where problems occurred during MRDC.

If a final report is to be submitted, it must be submitted within 1 week after the service is complete.

The final report is in addition to the individual data (Excel, map, video) submissions. TTI is not aware of final reports being regularly submitted by the providers or the frequency of use by TxDOT.

## Summary

- Pavement Marking Specifications Concerning Mobile Retroreflectivity
  - Item 666
  - Special Specification 6291

The pavement marking retroreflectivity requirements, especially the mobile retroreflectivity requirements, from these two specifications were described. Each specification outlines certain criteria and requirements that need to be followed. The providers and TxDOT need to understand and follow the specifications to make sure markings are meeting the minimum initial retroreflectivity requirements.

This concludes the discussion of the specifications concerning mobile pavement marking retroreflectivity.