

### PAVEMENT ROUGHNESS TEST SYSTEM CALIBRATION VERIFICATION LIGHT WEIGHT PROFILING (LWP) SYSTEM



#### **Introduction:**

LWP devices have been acquired by Roadway Inventory and Testing Unit (RITU), Engineering District offices, contractors, and subcontractors for use on Department construction/maintenance projects. The Department wants to be assured that each individual LWP device is operated proficiently and provides accurate and precise results. With this in mind, a program has been developed to verify that all LWP devices are calibrated and operated properly. This program is directed and controlled by RITU, and is described in detail in the Light Weight Profiler Certification Manual & Procedures. (this manual is in PDF format and is updated annually). All LWP devices used by the Department, or by contractor, on Department construction or maintenance projects shall be verified prior to use on such projects each year. Furthermore, all operators of LWP devices shall be certified prior to using the LWP devices on such projects each year.

All LWP devices are required to meet the definitions and requirements of Pennsylvania Test Method (PTM) #428 – Method of Test for Measuring Pavement Profile Using A Light Weight Profiler. The devices and operators shall be capable of providing results accordingly and in the defined formats.

Each year RITU establishes a verification/certification site. RITU will annually determine reference Profile Index (PI) and International Roughness Index (IRI) values for the site's). The reference IRI value is determined for each wheel path with the Walking Profiler. RITU will then make five passes, in each wheel path, with its LWP device. If the IRI value for each pass is within  $\pm 2\%$  of the reference IRI for that wheel path, then the mean PI value for the same five passes will be the reference PI value for that wheel path.

To verify/certify a device and operator, five pavement profiles (passes) shall be taken in each wheel path of the test section. The precision and bias of the test results must meet the following requirements:

**Precision:** The standard deviation of the IRI results of the five passes in each wheel path shall be within  $\pm 3\%$  of the mean IRI value (for that LWP device) for that wheel path. The standard deviation of the PI results of the five passes in each wheel path shall be within  $\pm 3\%$  of the mean PI value (for that LWP device) for that wheel path.

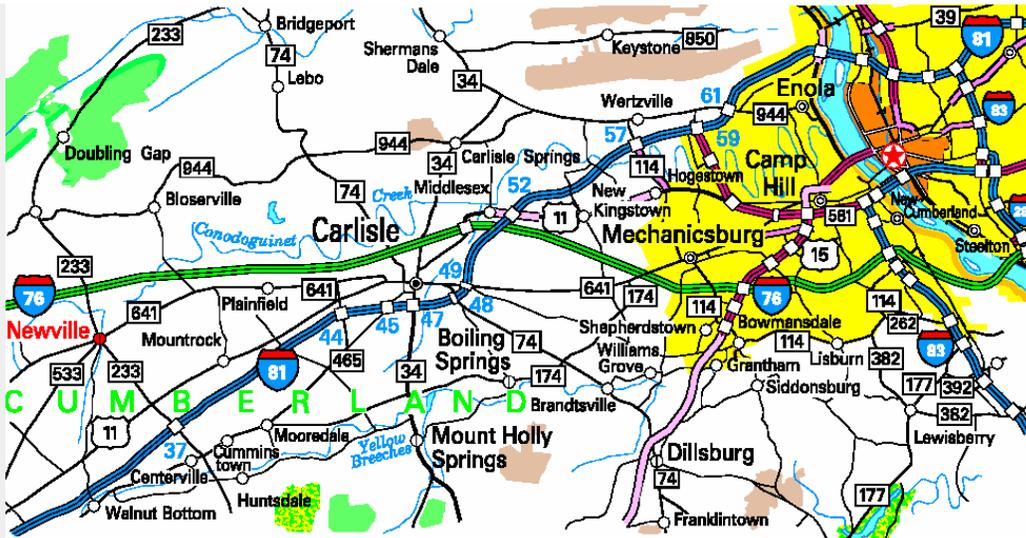
**Bias:** The mean IRI value of each wheel path (based on the five passes) shall be within  $\pm 3\%$  of the reference IRI value for that wheel path. The mean PI value of each wheel path (based on the five passes) shall be within  $\pm 3\%$  of the reference PI value for the same wheel path.

During the calibration verification program, RITU will provide a diskette containing raw profile data which will be used to verify that the LWP device's computer software properly analyzes data and determines accurate PI and/or IRI values by comparing the results to the known values.

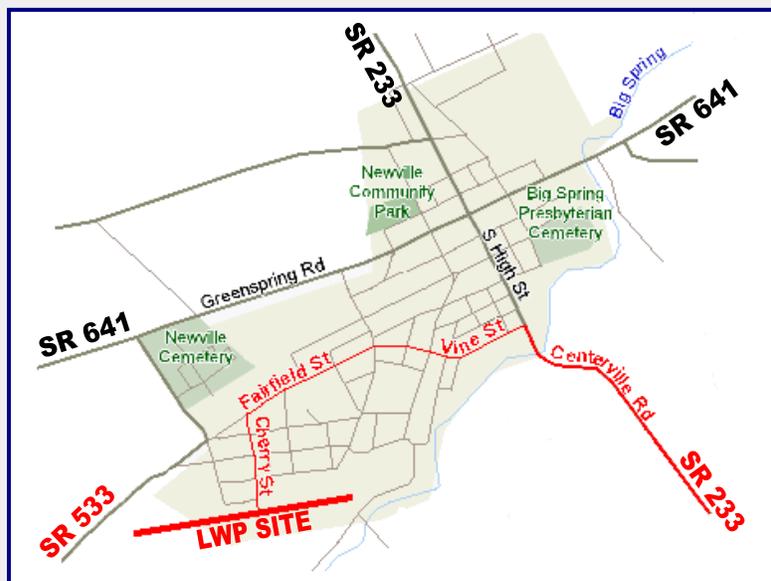
All LWP devices with acceptable test results will be designated with a decal to be applied by RITU, and all certified LWP operators will be provided a certification card.

#### **Directions:**

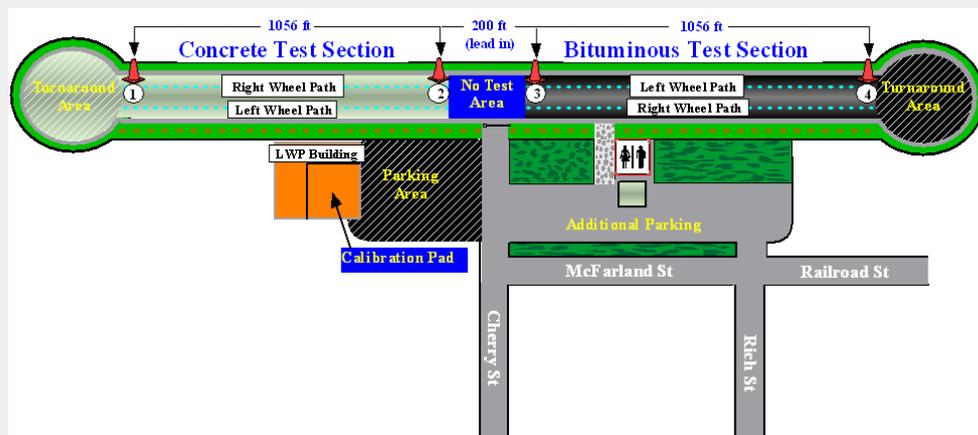
From I-81, Exit 37, follow SR 233 North into Newville. Turn left onto SR 533 West (Vine Street). Turn left on Cherry Street. The parking lot and office for the site are located on the left, at the end of Cherry Street.



**Local Map:**



**Test Area:**



## PENNDOT CONTACTS:

The LWP Calibration Verification and Operator Certification program is directed and controlled by PennDOT's Bureau of Maintenance and Operations (BOMO), Roadway Management Division, Roadway Inventory and Testing Unit (RITU). The following individuals, with RITU, manage the operation:

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If more information is needed regarding this program, please contact Janice Arellano.

## SCHEDULING:

RITU will begin each year's operations of the LWP Calibration Verification and Operator Certification program in the Spring of each year, typically March or April. However, verifications/ certifications may also be performed throughout the Summer and Fall. It is the responsibility of the LWP device owner to contact RITU for scheduling.

Please call Octavio Acevedo at (717) 787-7291 for all scheduling of LWP Certifications.