



VISION STATEMENT

The Illinois Certification and Research Track (ICART) was designed and constructed to provide a closed facility to support pavement surface properties research, evaluate non-destructive testing (NDT) equipment and materials for highway construction, and to certify equipment according to established standards. ICART is a multi-purpose facility that will further our understanding and capabilities in accurately characterizing pavement surface properties and identifying how those properties interact with vehicles and effect passengers.

ICART SERVICE FEES

Traditional Profiler / surface	\$750.00
Zero Speed Profiler / Surface	\$900.00
DCV	\$2,500.00
Transverse Profiler (Rutting & Faulting)	\$750.00
Skid Correlations	\$5,000.00
General Use Daily Rental	\$6,000.00
General Use Half Day Rental	\$3,000.00



SCHEDULING TIME ON THE TRACK

The main purpose of the facility was to support IDOT's NDT equipment and certification program. The vision for the facility has grown to become a regional certification center that will support other agencies as well as contractors that wish to certify equipment for use in multiple states. The facility will also be host to research projects and is available to support equipment development. It is our intent to offer time at ICART for developers and equipment manufacturers that would like to test new designs and concepts.

IDOT is currently using <https://icart.setmore.com/> to schedule time at the facility, and we are currently assessing a fee schedule.

CURRENT TESTING SUPPORTED, FUTURE PLANS

ICART currently supports certification of inertial profile systems (IPS) and data collection vehicles (DCV). The 10 different skid pads allow for a range of friction values that aid in correlating friction testing devices. During construction 22 - 2-ftx2-ft copper plates were buried in the pavement structure to aid in the verification of ground penetrating radar.

The Illinois Department of Transportation is currently in the development phase of adding a building to the facility to support the testing, research, and certification efforts. The current design for the building is approximately 7,100 square feet of space that will include offices, locked-wheel skid tester calibration pit, service bay for IPS and DCV, and falling weight deflectometer calibration bay.

PHYSICAL DESCRIPTION OF THE TRACK

The overall length of the facility is approximately 0.83 mile with 0.75 mile of continuous pavement for testing and research. The main cross-section of the pavement consists of three 12-ft lanes. The facility is aligned in an east-west layout with the northern lane of 8.5-in. continuously reinforced concrete pavement (CRCP), middle lane of 11.5-in. full-depth hot-mix asphalt (HMA) pavement, and southern lane of 8.5-in. jointed plain concrete pavement (JPCP) with a 12-ft joint spacing.

The 0.75-mile testing facility is split into seven sections that contain 11 unique surface textures. ICART features seven different concrete textures and four different HMA textures.

Concrete textures include:

- Smooth concrete (float finish, no additional texturing)
- Smooth finish with diamond grooving
- Turf drag
- Turf drag with diamond grooving
- Diamond grooving
- Longitudinal tining
- Transverse tining

HMA textures include:

- 12.5 mm NMAS Stone Matrix Asphalt
- 9.5 mm NMAS Dense Graded Asphalt
- Type II Micro surfacing with 30% Calcined Bauxite and 70% Air-Cooled Blast Furnace (ACBF) slag
- CA 15 Single chip seal with fog seal



Illinois Department of Transportation

CURRENT RESEARCH PROJECTS

IDOT is currently working on a few research projects that will use some time at the facility.

FHWA Benchmark Profiler (BP) comparison with Urban Low-Speed Profiler (ULSP): This project will refresh and update both the BP and the ULSP. Upon completion of the upgrades the ULSP will be tested against the BP to determine if the ULSP can indeed function as a reference device or even a benchmark device.

Friction and Texture Measurement Relationship:

This project is taking a deeper dive into the relationship between friction and texture. IDOT and Applied Research Associates, Inc. (ARA) are completing measurements with a wide variety of devices to investigate the impact of texture on friction.

R27-247 Automated and Contactless Identification of Asphalt Pavement Surface Friction Based on Computer Vision Image-based 3D Reconstruction and Machine Learning Techniques:

Researchers will utilize the latest technology to develop a new standardized test that will allow IDOT to continuously measure and calculate the skid resistance available on its roadways. Developing a quicker test will help IDOT detect roads that need attention before problems occur, which will make roads safer by providing adequate friction for the given speed and geometry of the roadway.

