

## NICET – Transportation System Maintenance and Preservation Certification Program Core Competencies Matrix

Domain	Level I	Level II	Level III	Level IV
<b>Written &amp; Verbal Communication</b>	<b>Basic Communications Skills*</b> Basic Record Keeping	Intermediate Communications Skills* Reference Materials	<b>Daily Observations, Reports and Presentations*</b>	Technical Presentations and Reports
<b>Mathematics and Data Entry</b>	<b>Basic Mathematics*</b>	Computer Uses in Highway Maintenance and Construction	<b>Computer Applications in Highway Maintenance &amp; Construction*</b>	Intermediate Mathematics
<b>Surveying, Plans and Specifications</b>	Simple Plans & Specifications* Drainage Installation Layout, Line and Grade Control	Structure Location and Elevation Checks*	Basic Surveying* Intermediate Plans, As-Built Plans and Specifications	
<b>Drainage Pipe Installation and Maintenance</b>	Drainage Pipe Characteristics Inspection of Prefabricated Drainage Components	Pipe Bedding & Trench Backfill Inspection*	<b>Pipe Handling &amp; Installation*</b>	
<b>Worksite and Public Safety</b>	<b>Basic Individual Safety Practices and First Aid Procedures*</b> <b>Maintenance Worksite Protection and Traffic Regulation</b>	<b>Recognize &amp; Report Unsafe Worksite Conditions*</b> Hazardous Materials and Probable Consequences. Reflectorized Signs and Markings. Reconstruction Zone Traffic Control	Traffic Control Devices. Hazardous Spills & Other Highway Emergency Situations. <b>Construction Traffic Control Plans*</b> Emergency Medical Preparedness	Safety Assurance Program

**Maintenance and Preservation Program Core Competency Elements are BOLDDED**  
**Construction Inspection Program Core Competency Elements are followed by an ASTERISK(\*)**

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<b>Highway Construction Inspection &amp; Acceptance</b>	Aggregate Surfacing Inspection	Embankment Placement Inspection* Median Barrier and Guiderail Placement Inspection. Rigid Pavements* Flexible Pavements*	<b>Major Paving Project*</b> Concrete and Steel Structure Construction*	External Working Relations
<b>Materials Sampling, Testing &amp; Inspection</b>	Basic Materials Sampling*	<b>Basic Compaction Testing*</b> Basic Soil and Aggregates Testing. Basic Hot Mix Asphalt Materials Testing. Basic PCC Materials Testing.	Compaction of HMA Mixtures* Placement and Curing of Concrete* Pavement Smoothness*	Materials Testing in the Field
<b>Environmental Protection</b>	<b>Basic Erosion Processes &amp; Controls*</b>	<b>Construction Erosion Control Best Management Practices*</b> Wetlands Recognition	Slope Erosion and Repair Stormwater Management Post-Construction Best Management Practices	
<b>Roadway and Shoulder Maintenance</b>	Asphalt Pavements & Surface Treatments <b>Roadway Surface Distress Inspection and Emergency Repair</b>	Crack Sealing and Joint Repair Rigid Pavement Blowups and Jacking HMA Milling Recycling & Overlays*	Seal Treatments (Chip and Fog Seals)* Surface Treatments (Slurry & Microsurfacing)* Roadway and Shoulder Widening* Bituminous Mixing Plant Inspection Pavement Patching	Strategic Pavement Maintenance Program Roadway Condition Inventory and Rehabilitation Techniques
<b>Structure Maintenance</b>	Welding Basics	<b>Bridge Structure Maintenance Inspection.</b> Minor Structure Maintenance and Repair Weld Inspection.	Protective Coatings. Expansion and Contraction Devices. Timber Structure Maintenance.	

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<b>Roadside Maintenance</b>	Guiderail, Barrier and Fencing Installation and Repair. Vegetation Control Surveys.	<b>Landscaping and Slope Protection*</b> Chemical Spraying	Chemical Herbicides	Roadside Maintenance Management
<b>Maintenance Equipment and Materials Management</b>	Maintenance Equipment. Basic Maintenance Materials.	<b>Quantity Estimating/Measurement /Verification*</b> Equipment Repair Inspection	<b>Equipment Selection, Assignment &amp; Maintenance.</b> Materials and Supplies Management.	Property Management Systems. Fleet Management Systems.
<b>Maintenance Operations Management</b>	<b>Public Image/Customer Service / Liability*</b>	<b>Basic Supervision*</b> On-the-Job Training. Tort Investigation.	Labor Relations and Grievance Procedures. Maintenance Responsibilities. Management Techniques. Work Crew Scheduling.	Cost and Performance Management. Strategic Maintenance Management.
<b>Weather Related Maintenance Operations</b>	Fundamentals of Materials and Chemicals Applications. Fundamentals of Snow Plowing and Ice Control.	Storm/Event Operations. Anti-Icing, Prewetting, and Deicing Procedures Using Materials & Chemicals. Relationship between Weather Forecasts and Maintenance Operations.	Pre-storm/event Preparation and Review. Anti-Icing and Deicing Materials Management. Weather Forecast Based Maintenance Operation Decisions.	

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