

## **DEFINITIONS**

**Alligator Cracking:** Interconnected cracks in asphalt pavement forming small pieces ranging in size from one inch to approximately six inches. They tend to be irregular in shape. Alligator cracks are caused by repeated traffic loadings and are generally located in traffic areas such as the wheel paths.

**Arterials:** A designation of a roadway from the National Functional Classification. Arterials are divided into subcategories of ***principal*** and ***minor***. Principal arterials are at the top of the hierarchy. They generally carry long-distance, through travel movements. They also provide access to important traffic generators such as major airports or regional shopping centers. Examples of principal arterials include freeways, major U. S. routes, state trunk lines between large cities, and important streets in large cities.

Minor arterials are similar in function to principal arterials, except they carry trips of a shorter distance and to lesser traffic generators. Examples include state routes between smaller cities, surface streets of medium importance in large cities, and important surface streets in large and small cities.

Principal Arterials are designated in the Framework as NFC routes by the following numbers:

- 1 – Rural Interstate
- 2 – Rural Other Principal Arterial
- 5 – Rural Other Freeway
- 11 – Urban Interstate
- 12 – Urban Other Freeway
- 14 – Urban Other Principal Arterial

Minor arterials are designated in the Framework as NFC routes by the following numbers:

- 6 – Rural Minor Arterial
- 16 – Urban Minor Arterial

**Asphalt Pavement:** Pavement consisting of fine and coarse aggregates held together by bituminous cement. Also referred to as a flexible pavement.

**Block Cracking:** Block cracking divides the pavement surface into rectangular shaped pieces with cracks that intersect at about 90 degrees. This type of distress differs from alligator cracking in that alligator cracks form smaller, irregular shaped pieces with sharp angles. Block cracking is caused principally by shrinkage of the pavement and daily temperature cycling.

**Bridge:** A structure, including supports, built over a depression, watercourse, highway, railroad or other obstruction, with a clear span of more than 20 feet measured along the center of the roadway.

**Bridge Rehabilitation:** Activities that improve element integrity including overlays; superstructure or substructure repairs; and substructure replacement.

**Bridge Replacement:** Activities that replace elements including deck replacement, superstructure replacement; and complete bridge replacement.

**Capital Preventive Maintenance:** Capital preventive maintenance is a planned set of cost effective treatments to an existing roadway system and its appurtenances that preserves, retards future deterioration and maintains or improves the functional

condition of the system without (significantly) increasing structural capacity. The purpose of capital preventive maintenance fixes is to protect the pavement structure, slow the rate of pavement deterioration and/or correct pavement surface deficiencies. Surface treatments are targeted at pavement surface defects primarily caused by the environment and by pavement material deficiencies. Examples of CPM treatments include:

- Non-structural bituminous overlay (One inch or less)
- Surface milling and non-structural bituminous overlay
- Chip seals
- Micro-surfacing
- Overband crack filling
- Bituminous shoulder ribbons
- Full-depth concrete pavement repairs
- Joint resealing
- Joint and surface spall repair
- Diamond grinding
- Dowel bar retrofit
- Open-graded underdrain outlet clean out and repair
- Crack repair (clean and seal, saw and seal, rout and seal)
- Seal coating (fog seal, pavement rejuvenator, sand seal, slurry seal)
- Patching

“These fixes mitigate or delay deterioration while the pavement subgrade is in good condition. CPM is intended to address pavement problems before the structural integrity of the pavement has been impacted.” (“Status of Pavement Management Systems [PMS] in Southeast Michigan,” SEMCOG, May 2003, p. 18) Capital preventive maintenance is applied to pavements having a remaining service life of 3 years or more. This category applies to roads with PASER ratings of 5, 6, or 7.

**Collectors:** A designation of a roadway from the National Functional Classification. Collectors tend to provide more access to property than do arterials. Collectors also funnel traffic from residential or rural areas to arterials. Examples of collector roads include county, farm-to-market roads, and various connecting streets in large and small cities. Collectors are designated in the Framework as NFC routes by the following numbers:

- 7 - Rural Major Collector
- 8 - Rural Minor Collector
- 17 - Urban Collector

**Composite Pavement:** Pavement consisting of asphalt overlaying a concrete base.

**Concrete Pavement:** Pavement consisting of Portland cement, fine and coarse aggregates, and perhaps steel-reinforcing rods. Also referred to as a rigid pavement.

**Crack Sealing:** Process where cracks in a pavement are filled in with material to prevent the infiltration of water.

**Culvert:** A structure, including supports, built over a depression, watercourse, highway, railroad or other obstruction, with a clear span of less than 20 feet measured along the center of roadway.

**Deflection:** A load induced, downward movement of a pavement section.

**Design Service Life:** Expected lifespan of a road based on pavement type, base and subbase, thickness, drainage, and traffic.

**Deterioration:** The breaking up of pavement due to traffic or weathering.

**Distortion:** Movement of a pavement away from its initial position.

**Federal-Aid Eligible:** Any public road or bridge that is eligible for federal aid to be spent for the construction, repair, or maintenance of that road or bridge. These roads and bridges are identified using the national functional classification and exclude local roads such as neighborhood streets.

**Fracture:** Fatigue cracking and thermal cracking distresses suffered by pavement.

**Friction:** The ability of a pavement surface to resist skidding.

**Grade Separation:** A structure that provides for highway traffic, pedestrian traffic, or utilities to pass over or under another highway or the tracks of a railway.

**Highway:** A general term denoting a public way for purposes of vehicular travel, including the entire area within the right of way.

**Joint Efficiency:** The ability of a concrete pavement to transfer loads from one slab to the next.

**Maintenance/Bridges:** Activities that sustain a bridge condition and restore element integrity. Typical work activities include clean/repair drainage systems; spot painting; joint gland repair/replace; concrete patching, sealing, crack sealing; joint replacement; pins & hanger replacement; painting; and thin overlays.

**Median:** The portion of a divided highway separating the traveled ways.

**Overlay:** Process where a new course of asphalt or concrete is put on top of the existing pavement.

**PASER (Pavement Surface Evaluation and Rating):** A visual method used to rate pavement condition. Often referred to as a "windshield" survey.

**Pavement Structure:** All combinations of subbase, base course, and surface course, including shoulders, placed on a subgrade.

**Project:** A specific section of the highway or property on which the construction operation is to be performed as described in the contract.

**Project Limits:** The physical limits given in the contract showing the points of beginning and ending of the work included in the project.

**Raveling:** Progressive loss of pavement material from the surface downward.

**Reactive Maintenance:** Reactive maintenance is an activity that must be done in response to events beyond the control of the agency. Reactive maintenance cannot be scheduled because events occur without warning and often must be immediately addressed. Examples of reactive maintenance activities include:

- Snow plowing
- Pothole patching
- Removing and patching pavement blowups

**Remaining Service Life:** Estimated time, in years, before a pavement will fail.

**Right-of-Way:** A general term denoting land, property or interest therein acquired for or devoted to a highway, as shown on the plans.

**Roadbed:** The portion of the roadway between the outside edges of finished shoulders, or the outside edges of berm immediately back of curbs or gutters, when constructed.

**Roadside:** The portion of the right-of-way outside of the roadway.

**Roadway:** The portion of the right-of-way required for construction, limited by the outside edges of slopes and including ditches, channels, and all structures pertaining to the work.

**Roughness:** Irregularities in the pavement surface that adversely affects ride quality, safety, and vehicle maintenance costs.

**Routine Maintenance:** Routine maintenance is the day-to-day maintenance activities that are scheduled. Examples of routine maintenance activities include: street sweeping, drainage clearing, shoulder gravel grading, and sealing cracks to prevent standing water and water penetration. This category applies to roads with PASER ratings of 8, 9, or 10.

**Rutting:** Displacement of material, creating channels in the pavement along the wheel paths.

**Sealcoat:** A Sealcoat surfaced road is a gravel road that has been treated with an asphalt sealcoat in order to maintain the ride, weather-proof the surface, and eliminate dust problems. The service life is generally about 5 years.

**Shoulder:** The portion of the roadway adjacent to the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

**Sidewalk:** That portion of the roadway primarily constructed for pedestrian use.

**Structural Improvements:** This category includes work typical identified as rehabilitation and reconstruction which address the structural integrity of a road. This category applies to PASER ratings of 1, 2, 3, and 4.

Rehabilitation: Any fix that has an estimated design or fix life of ten to twenty years. Rehabilitation fixes include:

- Two or three course bituminous overlays
- Concrete patching and diamond grinding
- Crush and shape with bituminous overlay
- Rubblize and multiple course bituminous overlay
- Unbonded concrete overlays
- Longitudinal and transverse joint repairs

Reconstruction: Any fix that typically removes and replaces the entire pavement structure. Reconstruction fixes have a design life of twenty years or more.

**Subbase:** The layer of specified material placed on the subgrade as a part of the pavement structure.

**Subgrade:** The portion of the earth grade upon which the pavement structure is placed.

**Substructure:** All of the structure below the bearings of simple and continuous spans, the skewbacks of arches, and the tops of footings of rigid frames, including backwalls, wing walls, and wing protection railings; except backwalls designed integrally with the superstructure.

**Superstructure:** All of a structure not classified as substructure.

**Surface Course:** The top layer of a pavement structure.

**Total Dollars Awarded:** The cost of a project as indicated in the agency's formal execution of the contract.

**Traffic Control Devices:** Signs, signals, lighting devices, barricades, delineators, pavement markings, traffic regulators and all other equipment for protecting and regulating traffic in accordance with the MMUTCD, unless otherwise specified in the contract.

**Traffic Lane:** The portion of the traveled way used for the movement of a single line of vehicles.

**Traveled Way:** The portion of the roadway designated for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

**Treatment:** A mitigating measure used to repair a pavement.

**Utility:** Properties of railway, telegraph, telephone, water, sewer, electric, gas, petroleum, cable television and similar companies.

**Work:** The furnishing of all labor, materials, equipment, and other items necessary to complete the project according to the contract.

**Work Order:** A written order by the engineer requiring performance by the contractor.

These definitions have been culled from the following sources:

“Alternate Bid Study M-6 South Beltline,” Michigan Department of Transportation, October 4, 2000

“2003 Standard Specifications for Construction,” Michigan Department of Transportation, February 2003

“Status of Pavement Management Systems (PMS) in Southeast Michigan,” SEMCOG, May 2003

PASER Manuals, Transportation Information Center, University of Wisconsin-Madison