

Advance Traffic Markings

ATM Installation Road Surface Guide





Introduction

This Road Surface Guide is to help determine the suitability of pavements for the application of ATM Marking Tapes. It describes a wide variety of pavement conditions from newly treated to severely distressed and a recommendation for application of ATM Marking Tapes.

Further Information

For more information or road conditions not covered in this guide, please contact Advance Traffic Markings, **252-536-2574**.

How to Use This Guide

The first part of this guide describes common surfaces and gives application recommendations for them. The remaining pages describe distressed surfaces with visual examples. This guide also addresses applications over oil drip zones and existing markings.

The distress pages are formatted as follows:

Type of Distress – The name or type of distress as it is commonly known.

Description – A brief description of the distress and its most common physical appearance.

Application Recommendations – Recommendations for the application of Advance Traffic Markings Pavement Marking Tapes. This is the recommendations for the distressed or affected portion of the road. A more complete examination of the entire roadway and types of other distresses should also be considered when using this guide.

Asphalt Surfaces

There are different types and textures of asphalt surfaces in which markings are applied. They vary greatly from one place to another. This is mainly due to the fact that some states have different standards than others and sometimes rely on what is locally available. The environment and traffic flow may also factor into the design of the asphalt.

Asphalt is comprised of aggregate and asphalt cement. Aggregate is made from a mixture of stone and sand, which is then mixed with hot asphalt cement prior to application to the surface. Additives are some times added to change the properties of the mixture, depending on application.

Surfaces may range from coarse to fine with most being in the middle. Coarse surfaces have a lot of large irregular stones with large gaps between the exposed stones. Fine surfaces are made mostly of small stone with tight gaps between them to produce an almost smooth surface.

Surface Treatments

Surface treatments are sometimes applied to an existing surface in order to extend the life of the surface or for maintenance purposes.

Fog Seal: A diluted asphalt emulsion applied to reduce aggregate loss.

Chip Seal: An asphalt emulsion that is applied and then covered with small aggregate. Some aggregate may remain loose and is removed by traffic exposure.

Slurry Seal: A mixture of asphalt emulsion and fine aggregate used when loose aggregate is unacceptable as with chip seal.

Thin Overlay: A thin overlay of standard hot-mix asphalt.

***ATM Pavement Marking Tapes can be applied to all surface treatment types as long as they have had ample time to fully cure and all loose aggregate has been removed. Cure time is determined by emulsion manufacturer.**



Fine Asphalt



Coarse Asphalt

Concrete (PCC) Surface Treatments

Curing Compounds

Curing compound is a spray coating applied to fresh moist concrete. Curing compound forms a barrier to prevent concrete from drying out too rapidly during the curing process. It is common practice to apply curing compound to the surface when damp curing is not possible.

Removal of the curing compound by water-blasting or sandblasting must be done prior to tape application on roadways open to traffic less than 90 days. In cases of water-blasting removals the roadway must be allowed to completely dry after removal. This typically requires a minimum of 24 hrs. prior to tape application.

Surface Textures

Tined Concrete: Often the road surface is grooved (tined) to have small lines going across the roadway. This allows water to more easily run off to the side of the roadway. After road surface preparation is complete, ATM Pavement Marking Tapes may be applied to tined surfaces.

Grooved Concrete: In states or areas that have considerable snowplowing, they may cut a groove into the surface prior to tape application. This allows the marking to be placed level or beneath the surface of the roadway to avoid damage from plowing. ATM Pavement Marking Tapes are able to be placed in clean grooved surfaces.



Smooth Concrete



Tined Concrete

Surface Contaminates

Markings should not be placed over contaminated surfaces. Contaminates can include, but are not limited to: dirt, debris, gravel, sand, mud, and oil drippings. Roadways must be cleaned of contaminates prior to marking application. This can range from simply sweeping or blowing with compressed air to sandblasting or grinding, depending on the contaminate.

Heavy oil accumulations are unable to be removed from asphalt surfaces and such areas are inapplicable for Advance Traffic Markings Pavement Marking Tapes



Extreme Dirt



Oil Drip Zone

Existing Markings

In the case of applying over existing markings, a minimum of 80% of the underlying surface of the existing marking must be exposed. If 80% is not exposed, the surface must be first sandblasted or ground prior to marking application. A 90% minimum is required for transverse and symbol markings.

***ATM 280 Hide-A-Line may be placed over markings in good condition and good adhesion to the roadway.**



Able to Mark



Unable to Mark

Pavement Seams

Application Recommendations

Markings should be placed a minimum of 4 inches from both asphalt and concrete seams.



Pavement Seam

Alligator Cracking

Alligator cracks are cracks that interconnect as a group of multiple cracks. These types of cracks are commonly found in wheel paths and do not occur across the entire roadway.

Severity

Low to Medium: Fine longitudinal cracks to light networks of alligator cracks.

High: Large patterns of cracking that form well-defined pieces. Pattern covers most of the wheel path.

Application Recommendations

Application is acceptable at low to medium severity. Markings must be placed a minimum of 2 inches from the crack. Do not apply the marking if it must continuously cross over the crack. On transverse markings, the marking must be cut on both sides of the crack at least 1 inch away from the crack. Markings should not be placed on areas with high severity of alligator cracking.



Medium Severity



High Severity

Longitudinal Cracking

Longitudinal cracks run parallel to the roadway's edgeline. They may be anywhere on the roadway. They are most typical in the wheel path or at a joint or seam.

Application Recommendations

Markings may not be placed directly over a longitudinal crack. They must be placed a minimum of 2 inches from the crack. This does not apply to hairline cracks. Tape may be applied over hairline cracks.



Longitudinal Crack at Edgeline

Transverse Cracking

This type of cracking involves cracks that run across the roadway, usually perpendicular to the edgeline.

Application Recommendations

Advance Traffic Markings Pavement Marking Tapes may be placed over transverse cracks with the exception of transverse markings. Markings placed over the crack must be cut at least 1 inch away from the crack on both sides. Transverse markings must be placed 2 inches away from the crack. This does not apply to hairline cracks.



Transverse Crack

Asphalt Degradation

This is when the asphalt is deteriorating or getting worn away. This is caused by the pavement materials (binder and aggregate) being lost due to hardened binder, poor mix quality, or tire abrasion.

Severity

Low: Either the binder or smaller aggregate is beginning to be worn away. The larger aggregate is beginning to be exposed and some pitting beginning to form.

Medium to High: Further exposure of aggregate and increasing in severity of pitting occurs. The surface will be rough to very rough with at least 40% of the aggregate exposed and in some cases the aggregate will become dislodged.

Application Recommendation

Advance Traffic Markings Pavement Marking Tapes should only be applied to surfaces showing low severity of degradation. Markings should not be applied to medium and high severity surfaces.



Low Severity



High Severity

Potholes

Potholes are generally areas of roadway where the surface has come apart to form a hole or bowl shape.

Application Recommendations

Markings should never be placed over a pothole.



Asphalt Pothole



Concrete Pothole

Patches

Patches are areas of roadway that have had new material applied to cover or repair the affected area. This is generally done to fill potholes or replace removed sections of pavement as with a utility repair.

Temporary patch: This is a patch that has had material thrown in as if to fill a pothole. This is done with a hot or cold mix. The patch is usually irregular and not flush with the surface.

Permanent patch: These patches are usually done when surface material is removed and then replaced. The patch will be symmetrical and normally flush with the adjoining original pavement.

Application Recommendations

Markings may be placed over patches as long as the patch is in good shape and not coming up from the surface. If markings are placed over a temporary patch, the marking should be cut 1 inch away on both sides of the patch.



Able to Mark



Unable to Mark

Scaling

Scaling is the degradation of the top section of concrete causing the underlying aggregate to become exposed. This usually results in a very rough deteriorating surface.

Application Recommendations

Advance Traffic Markings Pavement Marking Tapes should not be placed on concrete surfaces showing signs of scaling.



Concrete Scaling



Concrete Scaling