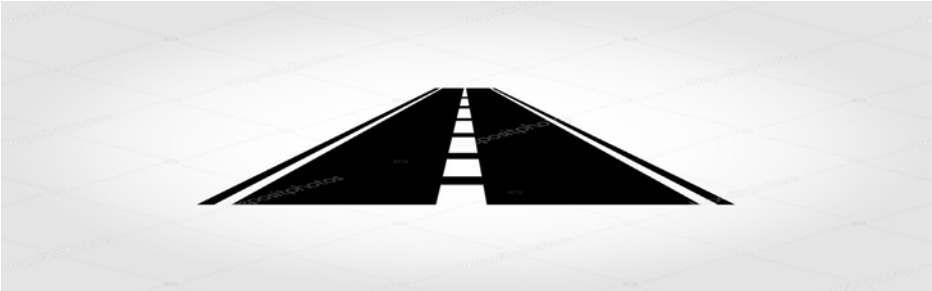

Maintenance Strategy – Roadways and Parking lots

This category covers a broad range of roadway and parking area systems and sub systems. The information contained in this document are general recommendations and guidelines designed to bring attention to the importance and benefits of preventive maintenance strategies supporting quality educational environments. It is important for facility managers and maintenance staff to be aware of the specific systems asset types and maintenance required to effectively maintain the systems functionality and reliability through preventive maintenance requirements. Qualified in-house maintenance combined with certified vendor staff may be necessary to manage systems safely and effectively. Consult manufacturer recommendations on roadway and parking lot system maintenance requirements.

There is one constant in business: change comes in multiple dimensions. Your facilities maintenance needs are no exception. As asphalt surfaces undergo the process of constant use conditions begin to wear and breakdown due to exposure to environmental elements such as water, sunlight, drain run-off, sand, gravel and chemical (oil) spills to name just a few. School parking lots take a beating over time, concrete and asphalt deteriorates and can create hazardous conditions to drivers, pedestrians, students and staff. Vehicular parking areas should be both functionally and aesthetically pleasing. The overall goals of implementing these requirements are to enhance, beautify, provide aesthetic curb appeal with the rest of the campus environment, while providing efficient parking, vehicular flow and safe pedestrian access. As imperfections in concrete or asphalt are one of the biggest causes of accidents in parking areas, paying attention to these conditions through proactive maintenance efforts will reduce risks and hazards.

MAINTENANCE AND REPAIR. As a first line of defense, all pavements require routine cleaning and maintenance. From general cleaning to minor sign repair, they need this attention because high use and stresses producing minor defects are constantly at work. These stresses may be caused by heavy traffic loads, temperature fluctuations, driver accidents and many other factors. Regardless of the cause, the result is the same -- without routine scheduled maintenance the pavement ultimately deteriorates before it is time. Preventive maintenance means the early detection and repair of minor defects, before major reactive action is necessary; it is a proper way to care for a parking lot assets. Parking lots should be routinely reviewed for proper operations to include cleaning to remove routine trash and debris affecting the curb appeal, conducting minor repairs to signage and proper upkeep of landscaping and supporting a safe and functional asset providing for a safe environment. Other factors to consider as to why it is extremely important for your school to maintain its parking areas:

- **Proper parking lot maintenance can protect your investment.** When sand, gravel, oil, and other debris stay on the surface for too long, it will affect the life expectancy of the roadway and parking areas. It will also deteriorate the surface of the parking lot. Over time the residual residue will result in costly repairs.
- There are many variables that go into a parking lot being able to pass an ADA inspection. All parking blocks need to be marked with highly visible paint and securely anchored to the pavement. All parking lot striping and crosswalks need to be easy to see and clearly visible. But the main thing is that there cannot be any potholes or cracked pavement throughout the parking lot(s). To be able to pass a thorough inspection, your parking lot will need to be free of breaks in the surface and free of any potholes or imperfections.
- **Proper Drainage** - For the maintenance of parking lots, moisture and drainage have three implications. First, a properly functioning drainage system can eliminate a number of future maintenance problems. Second, surface repair of a pavement defects caused by poor drainage will merely be a temporary solution, since it treats only the symptom, not the cause. Third, the most important repairs are those that will stop water from getting beneath the pavement surface. These repairs can prevent even larger maintenance expenditures in the future.

Inspection and Evaluation - The key to successful maintenance is careful planning and programming of the work to be done. The first step in planning is a periodic evaluation of all parking areas and access roads in the system. The parking lot should be thoroughly inspected at least twice a year for surface condition, structural strength, and drainage. The inspection should be done on foot rather than from a slow moving vehicle. This enables the inspector to notice very small cracks and defects. Subtle signs of future trouble, such as mud or water on the pavement, can be detected and recorded.

In all cases of pavement distress, it is important to determine the cause(s). This will facilitate repairs that will both correct the defect and prevent its recurrence. Time and money spent for such repairs are well invested, since the same repairs will not have to be repeated in the future. When the inspection has been completed, there should be a record of problem areas, as well as an idea of the general condition of the pavement. When these inspections reveal minor defects they should be repaired immediately, before they deteriorate into pavement failures requiring major maintenance expenditures. Pavements in need of maintenance or repair can exhibit any or all of these conditions:

Raveling. This is the progressive separation of aggregate particles in a pavement from the surface downward. Usually, the fine aggregate comes off first and leaves little "pock marks" in the pavement surface. As the process continues, larger and larger particles are broken free, and the pavement soon has the rough and jagged appearance typical of surface erosion. Raveling can result from lack of compaction during construction, construction during wet or cold weather, dirty or disintegrating aggregate, poor mix design, or extrinsic damage to the pavement.

Alligator Cracks. These are interconnected cracks forming a series of small blocks resembling an alligator's skin or chicken wire. In most cases, alligator cracking is caused by excessive deflection of the surface over unstable sub grade or lower courses of the pavement. The unstable support usually is the result of saturated granular bases or sub grade. The affected areas are usually not large. They can cover entire sections of a pavement, and when this happens, it usually is due to repeated heavy loadings exceeding the strength of the pavement.

Upheaval. Upheaval is the localized upward displacement of a pavement due to swelling of the sub grade or some portion of the pavement structure. Upheaval may also be caused by the swelling effect of moisture on expansive soils.

Pot Holes. These are bowl-shaped holes of various sizes in the pavement, resulting from localized disintegration of the pavement under traffic. Contributory factors can be improper asphalt mix design, insufficient pavement thickness, or poor drainage. Also, potholes may simply be the result of neglecting other types of pavement distress.

Grade Depressions. Depressions are localized low areas of limited size that may or may not be accompanied by cracking. They may be caused by traffic heavier than that for which the pavement was designed, by settlement of the lower pavement layers, or by poor construction methods. A depressed, cracked area frequently denotes a plastic failure in the base or sub grade. A cracked area without permanent deformation often indicates an elastic movement in the pavement structure.

Effects of Tree Roots. This is either an upheaval situation in which the growth of the tree roots pushes the pavement up or a depression due to the trees removing moisture from the soils under the pavement. Treatment of these areas should be coordinated with the Facilities Department.

Maintenance Recommendations: Parking Systems should be in good physical condition with evidence that components are routinely cleaned and maintained. Asphalt/concrete areas should be clear of excessive debris or trash. Directional parking, handicap systems, general striping & signage should be effectively visible & well installed. Trees and other environmental components should be routinely maintained. Graffiti should be removed in a timely manner. Fire lanes should be visible & accessible. Safety, risk hazards or physical property damage should be mitigated to prevent damage or risks.