FOCUS on FACILITIES
Diocese of Cleveland Facilities Services Corporation

Parking Lots—Repair, Replace, and New

By Howard McKew, P.E., C.P.E.

INTRODUCTION

After reading this month's *Focus on Facilities* column on preventive maintenance of parking lots there will come a time that these lots will need to be repaired, replaced, or expanded. So, let's start the discussion by identifying the various types of parking lot materials which are concrete, bituminous, and gravel with our focus briefly noting the gravel and concrete, and going into more detail discussing bituminous surface.

Concrete: A labor intensive surface to repair, and/or add. Concrete repair work and replacing or adding new will be more expensive than the use of bituminous.

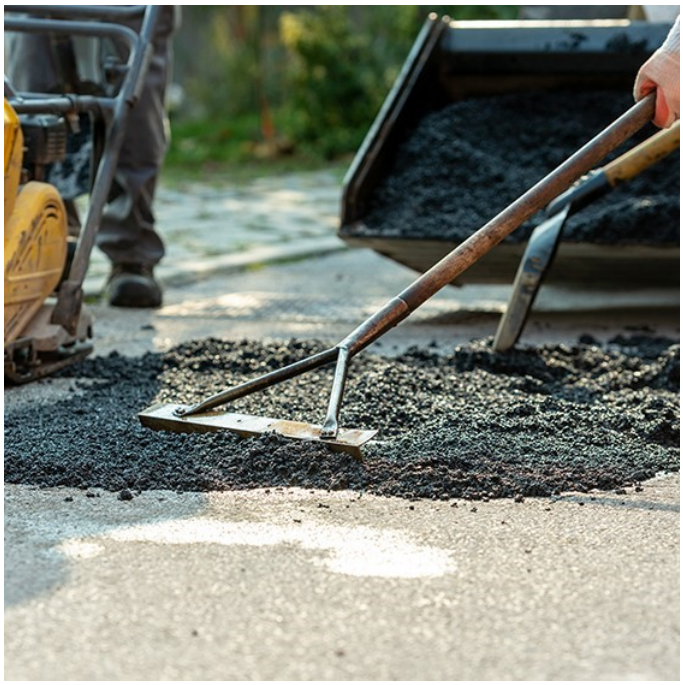
Gravel: A relatively inexpensive material to furnish and install but it's use would be limited to 1, 2, or 3 parking spaces because of the annual upkeep. Maintaining a level surface, weed control over the entire loose surface, and the damage that occurs from snow plowing make large parking lots a maintenance nuisance. It should be noted that the use of recycled, shredded tires for surface material has some environmental benefit, but it is more often used for playground areas rather than large parking areas.

BITUMINOUS PARKING LOTS

Repair:

Existing parking lot repairs may be completed via a preventive maintenance (PM) work order process implemented by the building maintenance person if one has the experience, materials, and tools to complete the work. But, more often than not a service contractor will be hired to complete the work because these contractors have the personnel, experience, materials, and tools to do a better job than someone trying a "do it yourself" job.

Repairing this type of work should always be a PM priority to save money, preserve the quality of the surface, and to prolong the life of the pavement maximizing the useful service life of these areas. The downside of not being proactive with preserving the surface can result in the following:



- Cracks in the surface open up the opportunity for weeds to take root and grow, resulting in these cracks expanding and creating further damage.
- Cracks allow water to get into the open surface and be absorbed by the ground below the crack. This wet surface can weaken the bituminous material along the open cracked area, causing further damage to the surface.
- Water and melting snow will leak into bituminous cracks during the winter. When the temperatures drop below freezing this water will freeze and expand, resulting in the parking lot material breaking apart, creating potholes and frost heaves that further damage the lot's surface.

Replace:

Deciding whether you should replace or simply repair damage to the paved parking lot requires an informed decision. When estimating the repair-to-replace cost analysis either by an in-house team or by contracting a licensed bituminous contractor the first option will be that repairs may be less expensive in the short-term. But eventually there will reach a

point where the cost of repairs equates to approximately 29% or higher when compared to a total replacement cost for a new bituminous installation. Note: please refer back to our June 2019 asset management column, "Facility Assessment = Your Building Condition" for a more detailed discussion of managed care versus reactive management and/or crisis management.

Other benchmarks to consider when discussing "repair versus replace", bituminous parking lots should have a 20 to 30 year useful service life and/or significant structural damage to the perimeter of the parking lot surface. If the existing surface is nearing or has passed the 20-year marker then this would be another justification to replace the existing parking lot area. If the perimeter shows continuous breakage of the top, paved surface, moisture will accelerate the bituminous deterioration.

If the decision is made to replace the parking lot or expand an existing parking lot, there are preplanning considerations and costs such as:

1. Revisit the possibility that the parking lot needs some form of drainage configuration to avoid past water pooling at several locations on the parking lot surface.

2. Building permit drawings detailing the extent of the scope of work along with a project specification to protect the building owner and assure that this work will be completed in accordance with good practices and local codes.

3. Development of a temporary parking plan to accommodate those who work in the building and/or visit the facility.

4. Complete base and soil testing to assure the new parking lot will be built on solid, dry lot addressing subgrade existing conditions.

5. Contract for the removal of existing bituminous and arrange possibly for the recycling of this material because it can be recycled and reused several times over, giving this material a longer life span.

6. Proceed with furnishing and installing the new parking lot and/or parking lot addition.

When considering a new parking lot to replace the existing one or to add a new area, preplanning should include "lessons learned" from past parking lot experience as it pertains to:

1. The decision to use bituminous versus concrete which would be a study in itself considering both materials have a 20 to 30 year useful service life when receiving proactive maintenance. Worth noting is that concrete usually takes twice as long to install (and even longer to set and cure). Depending on the season, a bituminous parking lot can be ready for use in only two days, whereas a concrete parking lot can take up to a week to be ready to use.

2. Appearance, landscaping that won't interfere with snow plowing in the winter; and lighting of the lot should not be overlooked.

https://www.johnsonandsonspaving.com/should-you-repair-or-replace-your-beat-up-parking-lot/

SUMMARY

Choosing the optimum parking lot solution—repair, replace, and new for the application, whether the project is an existing lot, addition to an existing lot, or a new stand-alone lot, there are a several factors to consider. Quite often the assessment and material selection are assigned to a consultant or contractor, but the "end-user" should have some input based on their own experience managing and maintaining a parking lot.

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