

## **Brookside Village Road Evaluation Prepared for Gerald Herman**

On the morning of 8/30/2021 the Public Services Director, Public Works Manager, and Jason Reynolds from CSR Engineering conducted forensic road observations at Brookside Village based on a study session conducted on August 19<sup>th</sup> at 6:00pm.

Approximately 411 feet of Shore Drive, 302 Feet of Brook Court, and 388 feet of Brookside Lane were inspected.

### **Observed Problems on Brookside Lane: Pot Holes, & Rutting**

As we pulled onto Brookside Lane from Wilkinson Lane there is visible subsurface failure up to the point where the road had just been repaved. There are signs of rutting to depths of 1 inch (25 mm) and greater forming in isolated areas. Core drills will need to be performed for quality control and investigation of existing pavements. Proof Roll is not recommended in order to not further damage the road.

**Pot Holes:** Small, bowl-shaped depressions in the pavement surface that penetrate all the way through the asphalt layer down to the base course. They generally have sharp edges and vertical sides near the top of the hole. Potholes are the result of moisture infiltration and usually the end result of untreated alligator cracking. As alligator cracking becomes severe, the interconnected cracks create small chunks of pavement, which can be dislodged as vehicles drive over them. The remaining hole after the pavement chunk is dislodged is called a pothole.

**FIX:** Full depth replacement patch

**Rutting:** Ruts in asphalt pavements are channelized depressions in the wheel-tracks. Rutting results from consolidation or lateral movement of any of the pavement layers or the subgrade under traffic. It is caused by insufficient pavement thickness; lack of compaction of the asphalt, stone base or soil; weak asphalt mixes; or moisture infiltration.

**FIX:** If rutting is minor or if it has stabilized, the depressions can be filled and overlaid. If the deformations are severe, the rutted area should be removed and replaced with suitable material.



The next four (4) Pictures show Pictures of Brookside Lane:









**Shore Drive** is located at the end of Brookside Lane to the north (left) as one would pull in.

### **Observed Problems on Shore Drive: Alligator Cracking & Shoving**

**Alligator cracking:** Is a load associated structural failure. The failure can be due to weakness in the surface, base or sub grade; a surface or base that is too thin; poor drainage or the combination of all three. It often starts in the wheel path as longitudinal cracking and ends up as alligator cracking after severe distress. The cul-de-sac does meet the turn radius for the fire department.

**FIX:** Because a structural failure is taking place the only possible solution to alligator cracking is to perform a full-depth patch.

**Shoving:** Shoving is the formation of ripples across a pavement. This characteristic shape is why this type of distress is sometimes called wash-boarding. Shoving occurs at locations having severe horizontal stresses, such as intersections. It is typically caused by: excess asphalt; too much fine aggregate; rounded aggregate; too soft an asphalt; or a weak granular base.

**FIX:** Partial or full depth patch

**Grass** – Poorly maintained roads will often have grass growing up through the cracks. Cleaning the cracks should be standard practice before sealing them. Use a heat lance to burn out the crack and/or blow out the cracks depending on the severity of the problem.



The next three (3) pictures visually illustrate Shore Drive









Damage due to moisture in pavements usually initiates at or near the bottom of the asphalt bound layers or at interfaces between layers. Advanced moisture damage in pavements can lead to rutting, shoving, corrugations, fatigue cracking, raveling, flushing, and pot holes.

### **Observed Problems on Brook Court: Recently Paved by a company based out of Bowling Green**

After contacting the paving company and asking a few questions, it was determined that in some places 1 7/8 to 2 inches of asphalt was laid because of the poor uneven road conditions. As per the contractor, the road should last 5 years with no issues. Outside of conducting a road core, it will be impossible to determine the integrity below the new asphalt. We are awaiting the specifications of the asphalt mix used and tonnage to pave Brook Court.



Other observations were noticed: The sidewalks do not meet ADA compliance.



We would need to install ADA Compliant Truncated Dome Mats. Please see photo on right from another development.



In conclusion and sticking only to the observed facts, the roads appear to be in poor shape other than Brook Court which has been recently paved. The roads will need extensive milling, core drilling in several spots to check the subsurface integrity, and top coat to bring the roads up to city standards.

If any additional information is needed, please feel free to reach out to the Public Services Department for additional information.