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May 24, 2017

Mr. Chris Weiland  
Property Manager  
The Common at Sinnott Farm  
Vision Management, LLC  
P.O. Box 203  
West Simsbury, CT 06092-0203

RE: Pavement Replacement Plan for The Common at Sinnott Farm

Dear Mr. Weiland:

This letter report is intended to summarize our review of the current condition of the pavement at The Common at Sinnott Farm in Bloomfield, Connecticut. It includes a discussion of the pavement conditions and recommendations for remediation. In general most of the complex is in good to poor condition. In order to better understand our recommendation, the following explains some of the types of defects present in the pavement at this complex:

- Alligator cracking is a structural failure that is caused by repetitive load applications that are greater than what the pavement was designed. It can also be caused by excessive earth movement under the pavement and can also be caused or exacerbated by wet base conditions. The failure can be either in the surface, base, or sub-base layers of the pavement system. Cracking usually first begins in the wheel path with small, longitudinal cracking and progresses to an alligator pattern.
- Edge cracking is similar to alligatoring, only it is located within one to two feet from the edge of the pavement. Failure begins at the edge of the road and progresses towards the wheel path. Pavement edge failure will result in worsening of the wheel path condition by allowing moisture intrusion in the subgrade soils and base materials.
- The last type of pavement distress is random block cracks. This type of cracking will divide the pavement into rough rectangular pieces and is usually the result of age-related pavement embrittlement, compounded by water penetration into the subgrade, which causes frost heaves or expansion and contraction of the asphalt in normal weather conditions.

It should be noted that the most prevalent forms of pavement problems at this complex are alligatoring and block cracking. There are significant areas of intermixed block cracking and some, but less, edge cracking is occurring. In addition, there are minor areas of

settlement. The following are the types of repaving most commonly used in a complex such as this:

### Reclaiming

This process, which is often called in-place reclaiming, is where the existing pavement is ground up and mixed with the existing base. This enhances the base stabilization properties and has the net effect of thickening and reinforcing the base. The greatest advantage to this is that both pavement layers are now new and can be expected to have a useful service life of approximately 20 to 25 years. The disadvantage of reclaiming is that this process is much more of a major construction undertaking as the roadways, parking lots and driveways will inevitably be unusable for a longer period of time. It will be necessary to dig approximately six inches outward from the existing curbs during this process, therefore requiring some re-landscaping to return the site to its existing condition. In addition, there will be excess materials from this process that will need to be removed or moved to other areas to maintain some of the existing grades as this process adds 2½ to 3 inches of material overall.

### Patching and Pavement Overlay

Patching and overlay consist of cutting out the worse alligatored areas, the cracks with wide separation, and some of the areas where the existing pavement would not provide a suitable base. These areas are then patched with new asphalt including sealing the edges with tack coat where the cutouts have been done. Then some of the small cracks may be sealed and a shimming process that involves a machine overlay of a thin layer of stickier asphalt is done, where necessary, to correct irregularities in the pavement surface as well as to reinforce some areas that, although damaged, are in relatively good condition. Then an overlay of class 2 bituminous asphalt would be applied on top of the existing pavement, resulting in a new wear surface. We would typically recommend, based on the condition of the pavement, that a two-inch overlay be done as this would be less likely to exhibit what is called reflective cracking, a phenomenon where the existing cracks appear through the new asphalt, which is very difficult to prevent. However, a thicker overlay will reduce but not eliminate this. In addition, the worst damaged areas of curbing are also typically replaced. This process would typically have a useful service life of 12 to 15 years.

There is a range of conditions of the pavement at this complex and also complicated by a couple of streets which have had overlays applied. In general the worse pavement is in the Spring Hill Lane area followed by Arrowwood Lane, and then in similar conditions to each other are Quail Run Lane and Spice Bush Lane. The best conditions are on Timothy Lane. The Spring Hill Lane area has fairly extensive areas of alligatoring, block cracking and some minor wheel rutting, and at this point in time is not suitable for the overlay process as the amount of repairs would be so extensive rendering it not a cost-effective methodology. The appropriate methodology for this street would clearly be reclaiming. Arrowwood Lane is in slightly better condition but like Spring Hill Lane is also not in good enough condition

where an overlay would make sense as the amount of deterioration is although not as extensive as on Spring Hill Lane, still significant. However, unlike Spring Hill Lane this area could be postponed slightly longer.

The condition of the two streets that have had an overlay done, Spice Bush Lane and Quail Run Lane, are starting to show effects of alligatoring and some block cracking, certainly some of this is likely reflective from the prior underlying layer and a fair amount of curb cracking and deterioration, and certainly catch basins which are deteriorating as well.

The Timothy Lane area is in the best condition. There is however starting to be some areas where alligatoring is just starting, albeit certainly not significant at this point but this will grow over time. The catch basins for some reason appear to be in far worse condition than might be expected in pavement of this age.

A general listing of the condition of the different areas follows. Please note the Spice Bush Lane and Quail Run Lane areas we really did not differentiate between them as the minor differences in their condition would likely make sense to undertake these together, and therefore obtain some lower cost due to the economies of scale then doing them as separate, independent projects.

#### Spring Hill Lane

In the Spring Hill area as discussed previously, the appropriate methodology would be an in-place reclaiming and this should include replacement of both curbs and catch basin caps. Additionally, in many of these programs that we have done the individual unit owners may want to participate in the program either as separate agreements with the paving contractor or coordinated through the Association to have their driveways paved as they typically find it is surprising how much lower the cost is as part of a combined project. We recently undertook one where the contractor bid the addition of driveways at \$2.00 per square foot for a full 3-inch repaving process which is far below the cost that you normally expect to pay doing them on a one-by-one basis. There are some benefits to this as grading can be somewhat smoother and simplified where driveways meet the pavement.

The only real limitations on timing with regard to the Spring Hill Lane area is the Association's cosmetic tolerance as the reclaiming process grinds up the existing base the continued alligatoring and cracking has no effect on the process and therefore, this can be scheduled at any time in the near future. What should be understood is that when significant alligatoring in particular starts to occur, it tends to accelerate at a greater rate, i.e. this deterioration of the pavement should not be considered linear as once an increased level of

cracking is occurring in pavement, the stresses are greater around the adjoining pieces of asphalt and are therefore more likely to fail far more rapidly resulting in eventually potholes and other pavement failures.

#### Arrowwood Lane

Arrowwood Lane is in slightly better condition than Spring Hill Lane, however, not as much better as might be assumed from a quick visual look. It also is in a condition where the appropriate methodology is reclaiming. As it likely is only a couple years behind in the deterioration process, consideration may even want to be given to doing it in a joint program with Spring Hill Lane. Although being slightly better in condition the savings associated with a larger project may somewhat offset in a sense what is being done "prematurely". Once again, driveways may want to be included in this program and therefore is really somewhat up to the association whether this might want to be a combined program for both streets or put off for up to two to three years, albeit I suspect not more than that.

#### Spice Bush Lane & Quail Run Lane

These two streets as mentioned previously have had an overlay. They are still in better condition than the Spring Hill Lane and Arrowwood Lane areas. However, they are starting to show a fair amount of reflective cracking which is the transmission of the failures that likely were in the pavement below and has a very similar appearance in most cases to block cracking and also are showing alligating as well, albeit far less. Probably the best approach to these two streets would be to relook at them in two or three years and make a better determination with regard to timing then. At this point in time if needed for planning purposes, I would assume that they probably have a three to five year useful remaining life.

#### Timothy Lane

As mentioned previously Timothy Lane is in the best condition, albeit with a fair amount of catch basin distress. This area, like some previous areas, should be monitored overtime perhaps looking at it in the same two to three year period, albeit I would expect that this area probably has 7 to 10 years of useful remaining life. However, as mentioned numerous times in this report the projection of life is a little bit trickier as it deteriorates more and more. In some cases a pavement that can seem to be in excellent condition for 10 to 15 years all of a sudden appears to deteriorate within a very short time period.



In the areas which would be done relatively soon such as Spring Hill Lane and Arrowwood Lane, I would not bother to continue to do crack sealing as at this point it would be so extensive as to be onerous, and it really won't make a significant difference in the remaining useful life. In the two areas with an overlay the wider cracks may be useful to seal, but trying to seal every small spider crack also doesn't make sense. In the Timothy Lane area I would tend to be more aggressive in crack sealing and in all areas I would make sure if crack sealing is done, care is taken to clean the cracks either with high pressure air or steam as if the edges of the cracks are not open slightly and clean, crack sealing is not very effective.

With regard to the scheduling of this project, it should be understood that at this point as reclaiming is the preferred option, the condition of the existing pavement becomes less relevant; hence, the timing is really a financial/cosmetic issue. Certainly, the alligatored areas are going to deteriorate more rapidly as they age and therefore to maintain the complex in a good cosmetic condition, it would certainly make sense to start the program as soon as possible. Note when pavement starts to deteriorate significantly, the deterioration will progress much more rapidly. I would also not recommend anything other than critical pothole patching in the areas to be done reasonably soon.

The attached photographs are labeled by the street they were taken on and are somewhat self-explanatory. Note that in some cases small spider cracks or alligatoring may not show up well in a photograph. If you have questions on this report, please advise or if you would like us to proceed with preparing specifications for this project.

Sincerely,

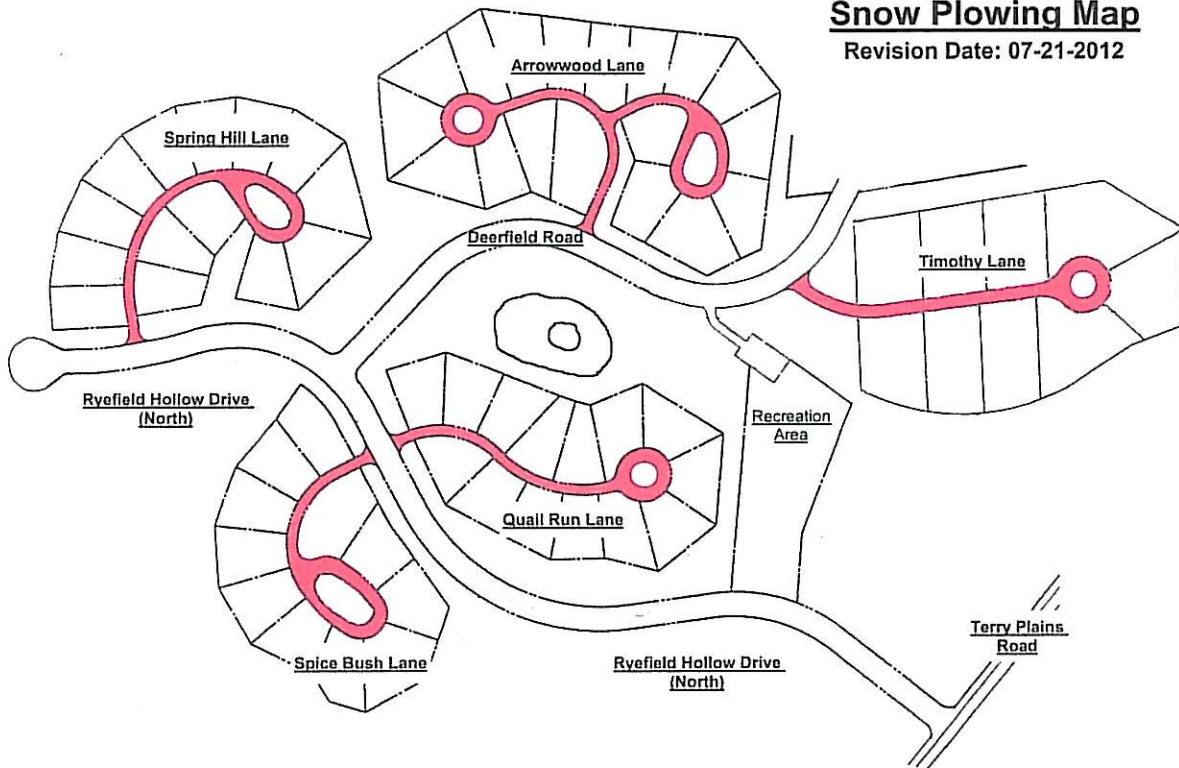
A handwritten signature in blue ink, appearing to read 'Timothy H. Wentzell'.

Timothy H. Wentzell, P.E.  
Connecticut Property Engineering

THW/dr  
Enc.

**The Common at Sinnott Farm**  
**Bloomfield, CT**

**Snow Plowing Map**  
Revision Date: 07-21-2012





QUAIL



QUAIL



QUAIL



SPICE

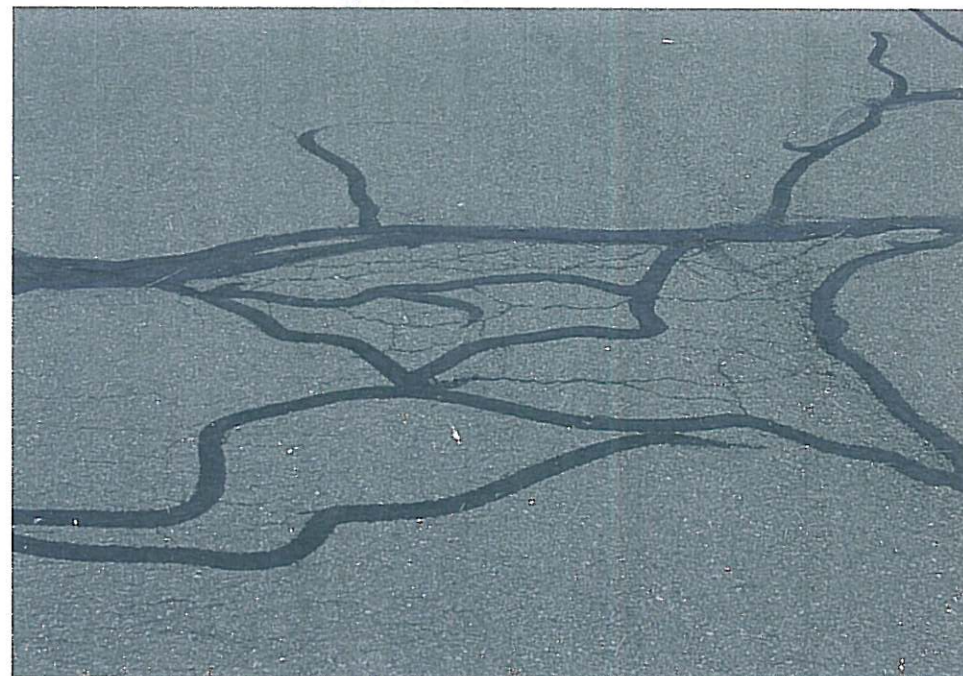




SPICE



SPICE



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SPRING





ARROWWOOD



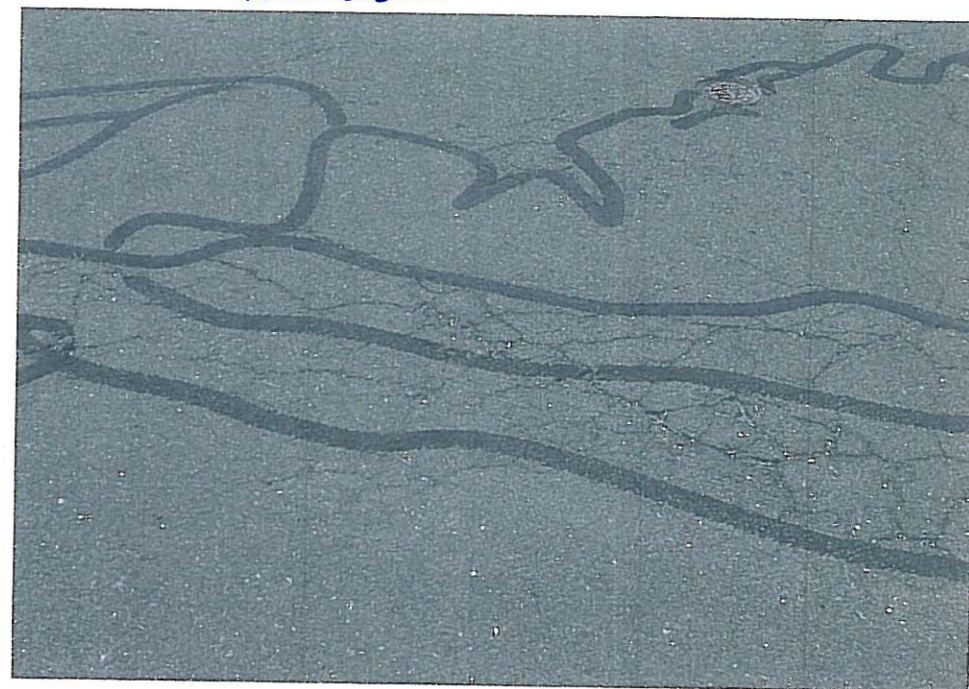
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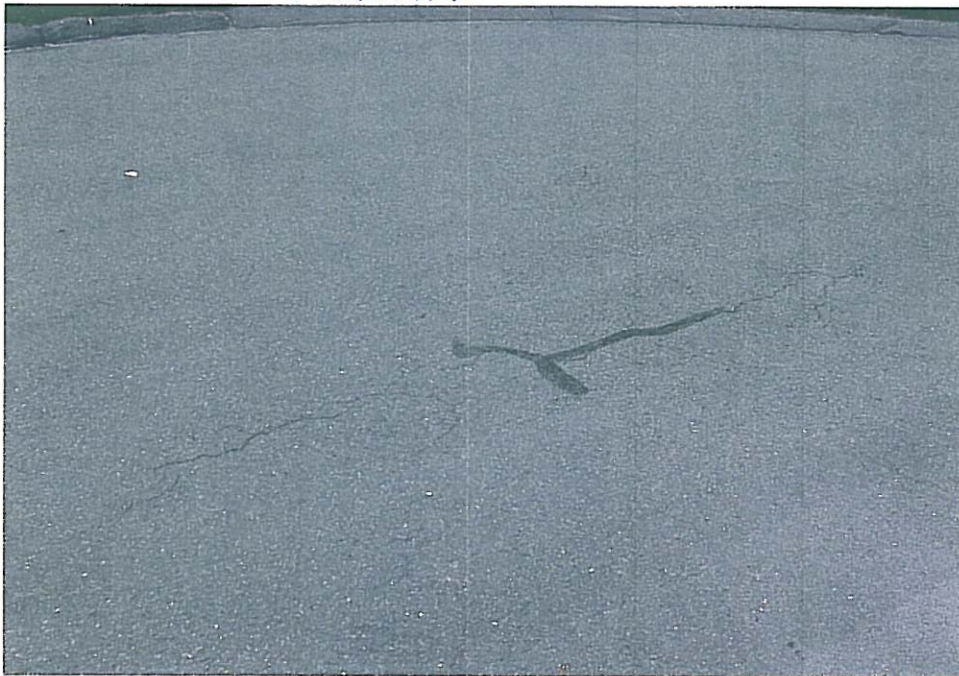


ARROWWOOD





TIMOTHY



TIMOTHY



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