

# Town of Chichester

## **2019 Report of the Road Advisory Committee**



Webster Mills Road after reconstruction in summer of 2019

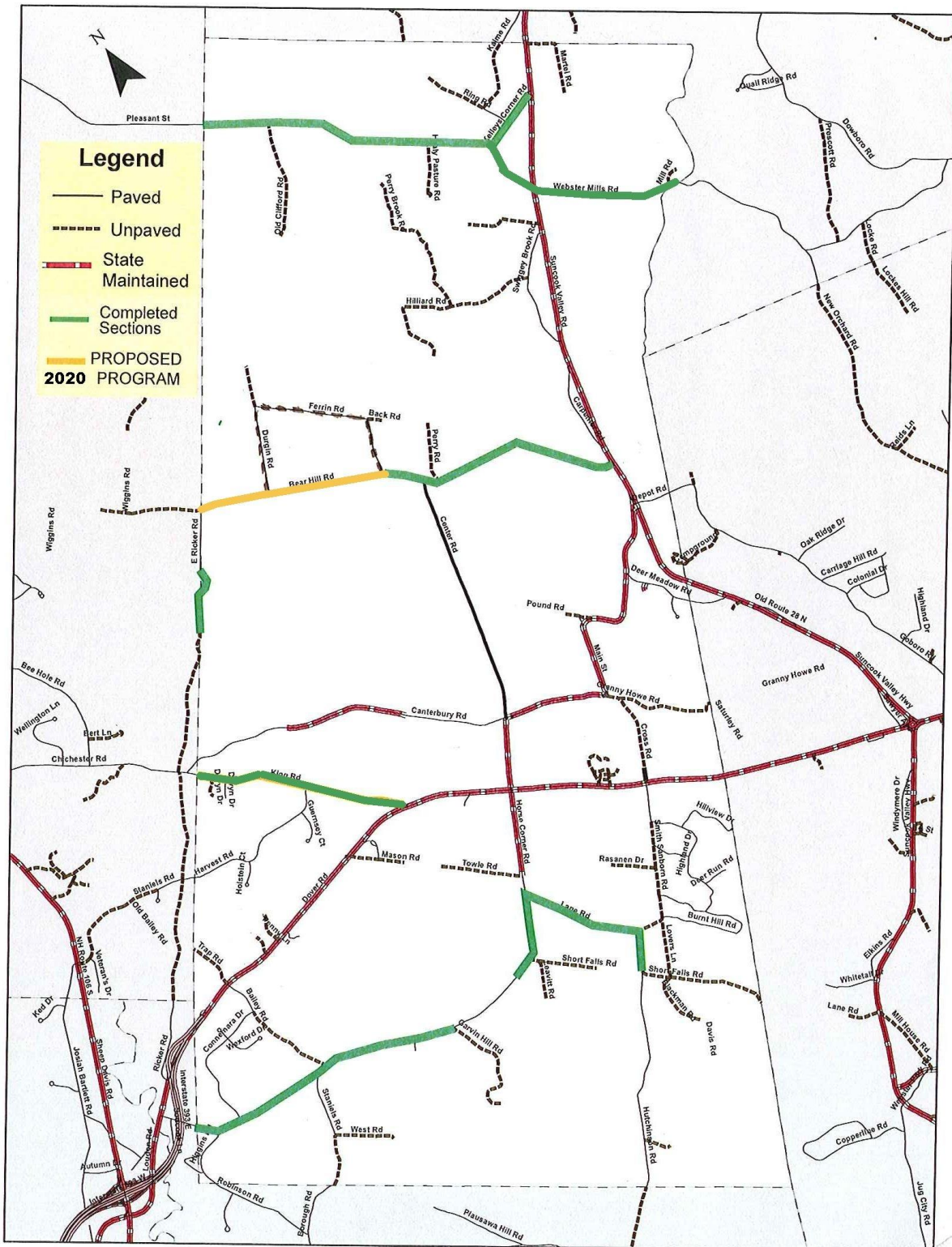
**November 11, 2019**

### **Road Advisory Committee**

Douglas Hall (Chairman), Brian Eldredge, Russ Blaney  
Jason Weir (Selectman ex-officio), Jim Plunkett (Road Agent)

# Chichester Road Network

(Showing road reconstruction done 2013-2019 and planned for 2020)



## **Table of Contents**

Executive Summary.....	2
1. Introduction .....	4
1.A: Legal Basis .....	4
1.B: Mission of the Committee .....	4
1.C: Committee Membership .....	4
2. Road Surface Management System.....	5
2.A: Establishment of Road Segments .....	5
2.B: Inventory of Roads .....	5
2.C: Road Conditions .....	8
2.D: Lifespan of a Road and its Maintenance.....	10
3. Traffic on Chichester Roads.....	10
4. Reconstruction Projects Completed 2013-2018.....	13
5. The Planning Process .....	14
6: Recommended Project for 2019 .....	15
7: Projects for 2020 .....	16
8. Projects for 2021-2032 .....	16
9. Paving Gravel Roads .....	17
10. Volunteer to Become a Committee Member.....	17

## **Executive Summary**

The Chichester Road Advisory Committee has continued its work on a comprehensive Road Management Plan for the town.

The committee's charter currently states that its primary responsibility "shall be to develop a written Road Management Plan, or update (annually) any existing Road Management Plan, for the Town of Chichester. The Road Management Plan shall include short-term and long-term repair goals, and shall also identify, develop "best estimate" project costs, prioritize, and establish a schedule for any future roadway reconstruction projects or major repair/upgrading projects."

The committee consisted of only five members this year and is currently seeking at least two additional members. If you are interested in becoming part of this process please inform the Board of Selectmen.

The committee has met often and has worked with the Road Agent assessing road conditions throughout town. The Road Agent has maintained information in the Road Surface Management System (RSMS), which allowed the Committee to further assess the immediate and long-term needs for road repair.

The town is responsible for maintaining 38.948 miles of roads in Chichester. There are 68 paved road segments totaling 24.350 miles and there are 31 gravel road segments totaling 14.598 miles.

Maintaining paved roads is a complicated process. With an estimated average life of a paved road being 20 years, the town needs to reconstruct 1.2 miles per year to maintain existing conditions on average. Prior to 2013 the town unfortunately had been doing much less. Existing paved roads had been on a 60-70 year repaving cycle. The result was that our paved roads had deteriorated badly. In each year beginning in 2013 the town's voters agreed with this committee and committed significant tax dollars to improve the many paved roads in Chichester that had fallen into disrepair. This report contains our recommendation for continuing this process.

The goal of this Committee's plan is to bring all the roads in town to a good or better condition and keep them in this condition for the average 20 year life span. To do this the town will need to significantly improve approximately 1.2 miles of paved roads every year. When a road deteriorates beyond needing preventative maintenance during a 20 year life span, it becomes more costly to restore it to good condition.

At current costs, the committee estimates that the work to reconstruct and pave 1.2 miles per year is approximately \$360,000. However this can vary significantly, primarily because of fluctuating asphalt costs, but also special issues like ledge or significant wet areas.

The committee and Road Agent use a detailed inventory of roads, road segments, their conditions, importance, and traffic counts. The Road Agent uses a computer database (RSMS) to maintain this information. The committee has prepared a plan to maintain and improve the conditions of our paved roads that includes reconstruction of the highest priority segments during the next 2 years.

**2020:** The committee recommends a single project to complete the remaining segments of Bear Hill road (#5, 6, &7). Work will start at the Ferrin Road intersection and will end at the Loudon town line. The section of roadway will be approximately 5,363 feet long and 22 feet wide. The project will consist of the grinding of the existing pavement, adding geo textiles (Tenstar 140) to the base to improve the sub base tensile strength, the replacement of 80' feet of retaining wall, the replacement and installation of three cross culverts and the adding of gravels to the sub-base. The road will be paved with 2" of base and 1.5 inches of top coat asphalt.

**2021:** The committee lists four possible projects but does not make a final recommendation at this time. Possible projects include East Ricker Road segment #1 (0.270 miles), Horse Corner Road segments #4 and #6 (0.670 miles), Ring Road segment #1 (0.168 miles), and Kaime Road (0.094 miles). The committee will again assess the condition of these roads in 2018 and will make a recommendation in next year's report for segments that total about 1.2 miles in length.

**2022 to 2032:** The committee recommends that 1.2 miles of paved road reconstruction be completed in each of the subsequent years of the 20 year plan. The committee will make recommendations for specific segments only after completing surveys of road conditions within 12 months of the time work is to be done. Costs in future years will be dependent primarily on the cost of asphalt which can fluctuate considerably. We suggest that our cost estimate of \$360,000 for 1.2 miles be adjusted by 3% annually to make long-term projections.

It is now up to the citizens of Chichester to decide. Will the town continue to implement our 20 year plan as it has for the past six years? With guidance from this committee, the Budget Committee, and the Board of Selectmen, ultimately the voters at town meeting will be asked to decide how much money will be invested in our paved roads. The Road Advisory Committee urges all voters to understand the tradeoff we face between deteriorating road conditions and a willingness to pay for system-wide repair and upgrading.

Details can be found in the following sections of this report.

# **1. Introduction**

## **1.A: Legal Basis**

The Road Advisory Committee was originally established by a vote of the townspeople at the Chichester Town Meeting held on March 19, 2005. Subsequently, the Committee's Charter was amended in February, 2011, and April, 2019, by the Board of Selectmen.

## **1.B: Mission of the Committee**

This is the Committee's mission as described in its Charter.

The Committee's primary responsibility shall be to develop a written Road Management Plan, or update (annually) any existing Road Management Plan, for the Town of Chichester. The Road Management Plan shall include short-term and long-term repair goals, and shall also identify, develop "best estimate" project costs, prioritize, and establish a schedule for any future roadway reconstruction projects or major repair/upgrading projects.

The Committee is established to cooperatively promote better road repairs by assisting the Road Agent, Selectmen, and Budget Committee with the evaluation, planning and scheduling of road work.

The Committee's Annual Road Management Plan shall be presented, by the Road Agent, to the Board of Selectmen, and Budget Committee prior to the start of the budget process so as to be available for the Town's budget preparation for the upcoming year.

## **1.C: Committee Membership**

The Committee's Charter establishes its membership as consisting of "a total of seven (7) members, consisting of five (5) appointed members, the option for two (2) Alternate Members, the Road Agent and one Selectman who shall serve as ex-officio members of the Committee. The five appointed members of the Committee shall be residents of the Town of Chichester. It is expected that at least one of the appointed members would have either engineering experience in roadway design/construction or field experience in roadway construction and/or project management. No member of this committee shall be allowed to bid, negotiate, or offer input into any road project that may have any direct or indirect financial interest with said project. Further the Board of Selectmen reserves the right to not appoint any person they feel may have a professional/ business conflict of interest to this Charter

The current members of the Committee are: Douglas Hall (Chairman), Brian Eldredge, Russ Blaney, Jason Weir (Selectman ex-officio), and Jim Plunkett (Road Agent). Allen Mayville, Jr. served as Chairman during part of the year and Guy Goodwin and Tom Jameson were members during the year. There are currently two vacant positions for which volunteers are sought. If you are interested in becoming part of this process please inform the Board of Selectmen.

## **2. Road Surface Management System**

### **2.A: Establishment of Road Segments**

For evaluation and planning purposes, longer roads have been divided into segments based on road condition and/or logical locations. This is necessary to ensure that conditions and needs of one segment of road are not implied to be the same over the entire length of that road. Endpoints of segments may be shifted in one direction or another as conditions change. Longer segments may be further subdivided. Short adjoining segments with similar conditions may be combined. These changes may be made during the year as required.

### **2.B: Inventory of Roads**

Table 1 on the following pages contains the inventory of town-maintained road segments in Chichester as of October 21, 2019. This inventory shows a total length of 38.948 miles, broken into 99 town maintained road segments.

68 segments are paved and total 24.350 miles while 31 segments are gravel and total 14.598 miles.

This inventory does not include roads in Chichester that are privately owned and maintained or owned and maintained by the state.

This table contains important information about each road segment. Each segment has an importance ranking from low to high and also has a traffic ranking from low to high. Based on field inspection of actual roadway conditions, a computation in the RSMS software suggests the type of work required to correct deficiencies in that segment's surface.

Each entry in the Surface and Drainage columns of Table 2 also contains a number from 2 through 10. This number represents a calculated combination of the "Traffic" and "Importance" characteristics. A "-10" designates a road segment that is most urgent because it has high traffic and importance ratings. On the other hand, a "-2" designates a road segment with the lowest possible traffic and importance ratings. Numbers 3 through 9 are intermediate.

Segments are not fixed for all time. From year to year they may be combined or divided depending on conditions. The Highway Department made some changes to the data in RSMS this year. Segments are used to identify logical units for evaluation, consideration in priority setting, and work planning.

Table 1

Inventory of Chichester Maintained Road Segments									10/21/2019	
GRAVEL ROAD SEGMENTS										
Road Name	Sec	From	To	Surf	Length	Import	Traffic	Division	Surface	Drainage
Back Rd	1	Ferrin Rd	Mailbox#15	Gravel	0.140	low	low	1	Routine-2	Good-2
Bailey Rd	2	Connemara Dr	Horse Corner Rd	Gravel	0.550	medium	low	2	Routine-4	Good-4
Blackman Rd	1	Short Falls Rd	To end of roadway	Gravel	0.400	low	low	3	Routine-2	Good-2
Chichester Ln	1	US Route 4	End Chichester Ln	Gravel	0.094	low	low	4	Routine-2	Poor-2
Cross Rd	2	House #50	Granny Howe Rd	Gravel	0.550	medium	medium	3	Routine-6	Good-6
Deer Run Rd	1	Highland Dr	End of Deer Run Rd	Gravel	0.155	low	low	3	Routine-2	Good-2
Devyn Dr	1	King Rd	End Devyn Dr	Gravel	0.060	low	low	2	Routine-2	Poor-2
Durgin Rd	1	Bear Hill Rd	End of Durgin Rd	Gravel	0.780	medium	low	2	Routine-4	Good-4
Ferrin Rd	1	Durgin Rd	Bear Hill Rd	Gravel	1.050	low-med	low-med	2	Routine-4	Good-4
Garvin Hill Rd	1	Horse Corner Rd	End Garvin Hill Rd	Gravel	0.720	low	low	4	Routine-2	Poor-2
Granny Howe Rd	1	Main St	Epsom TL	Gravel	0.700	low	low	2	Routine-2	Good-2
Hilliard Rd	1	Swiggey Brook Rd	End of Hilliard Rd	Gravel	1.190	low	low-med	1	Routine-3	Good-3
Hutchinson Rd	3	House #91	Pembroke TL	Gravel	0.468	med-high	low-med	1	Reconstruct-6	Good-6
Hutchinson Rd	1	Short Falls Rd	House #48	Gravel	0.490	med-high	medium	1	Reconstruct-7	Good-7
Kaime Rd	1	Ring Rd	Pittsfield TL	Gravel	0.570	low	low	3	Reconstruct-2	Good-2
Leavitt Rd	1	Horse Corner Rd	End of Leavitt Rd	Gravel	0.284	low	low	1	Routine-2	Good-2
Lovers Ln	1	Short Falls Rd	Smith Sanborn Rd	Gravel	0.350	low-med	low	1	Routine-3	Good-3
Martel Rd	1	Route 28	End of Martel Rd	Gravel	0.492	low	low	3	Routine-2	Good-2
Mill Rd	1	Webster Mills Rd	End of Mill Rd	Gravel	0.130	low	low	3	Routine-2	Good-2
Paradise Ln	1	Hutchinson Rd	End of Paradise	Gravel	0.230	low	low	1	Routine-2	Good-2
Perry Brook Rd	1	Hilliard Rd	End of Perry Brook	Gravel	0.470	low	low	3	Routine-2	Good-2
Perry Rd	1	Bear Hill Rd	End of Perry Rd	Gravel	0.470	low	low	2	Routine-2	Good-2
Pound Rd	1	Main St	End non-maintained	Gravel	0.190	low	low	2	Routine-2	Good-2
Ring Rd	2	Kaime Rd	End of Ring Rd	Gravel	0.357	low	low	3	Routine-2	Good-2
Short Falls Rd	2	Lane Rd	Epsom TL	Gravel	0.790	low-med	low	1	Reconstruct-3	Good-3
Short Falls Rd	1	Leavitt Rd	House #66	Gravel	0.620	low	low	1	Routine-2	Good-2
Smith Sanborn Rd	1	Lane Rd Int	Highland Dr	Gravel	0.764	medium	medium	1	Reconstruct-6	Good-6
Staniels Rd	2	West Rd	Pembroke TL	Gravel	0.320	med-high	low-med	1	Routine-6	Good-6
Towle Rd		Horse Corner Rd	End Towle Rd	Gravel	0.510	low	low	3	Routine-2	Good-2
Trap Rd	1	US Route 4	Loudon TL	Gravel	0.314	low	low	1	Routine-2	Good-2
West Rd	1	Staniels Rd	End West Rd	Gravel	0.390	low	low	4	Routine-2	Good-2
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PAVED ROAD SEGMENTS										
Road Name	Sec	From	To	Surf	Length	Import	Traffic	Division	Surface	Drainage
Bailey Rd	1	US Route 4	Connemara Dr	Paved	0.290	medium	low-med	2	Routine-5	Good-5
Bear Hill Rd	1	NH Route 28	West PL # 66	Paved	0.686	high	med-high	1	No Maint-9	Good-9
Bear Hill Rd	2	#66 Bear Hill	Ferrin Road	Paved	0.789	high	med-high	1	No Maint-9	Good-9
Bear Hill Rd	3	Ferrin Rd	Brown cemetery	Paved	0.388	med-high	medium	2	Rehabilitate-7	Good-7
Bear Hill Rd	4	Brown cemetery	#255 Bear hill	Paved	0.450	med-high	medium	2	Rehabilitate-7	Good-7
Bear Hill Rd	5	#255 Bear hill	Loudon Town Line	Paved	0.208	med-high	medium	2	Rehabilitate-7	Good-7
Burnt Hill Rd	1	Lovers Ln	# 68 Burnt Hill	Paved	0.430	medium	low-med	3	Rehabilitate-5	Good-5
Burnt Hill Rd	2	#68 Burnt hill	Highland Drive	Paved	0.330	medium	low-med	3	Routine-5	Good-5
Burnt Hill Rd	3	Highland Dr	Smith Sanborn Rd	Paved	0.310	medium	low-med	3	No Maint-5	Good-5
Canterbury Rd	1	Main St	House # 66	Paved	0.635	high	medium	2	No Maint-8	Good-8
Canterbury Rd	3	House # 142	Loudon TL	Paved	0.580	high	high	3	Preventive-10	Good-10
Carpenter Rd	1	Route 28	#49 Carpenter rd	Paved	0.290	low	low	1	Preventive-2	Good-2
Carpenter Rd	2	#49 Carpenter rd	Route 28	Paved	0.260	low	low	1	Preventive-2	Good-2
Center Rd	1	Bear Hill Rd	Canterbury Rd	Paved	1.520	high	medium	2	Preventive-8	Good-8
Connemara Dr	1	Bailey Rd	#40 Connamara	Paved	0.220	low-med	low	2	No Maint-3	Good-3
Connemara Dr	2	#40 Connamara	Horse Corner Rd	Paved	0.378	low-med	medium	2	No Maint-5	Good-5



Table 1 (continued)

PAVED ROAD SEGMENTS										
Road Name	Sec	From	To	Surf	Length	Import	Traffic	Division	Surface	Drainage
Cross Rd	1	US Route 4	House #50	Paved	0.085	medium	low	3	No Maint-4	Good-4
Deer Meadow Rd	1	Main St	Epsom TL	Paved	0.448	medium	low-med	1	Rehabilitate-5	Good-5
Depot St	1	Route 28	Epsom TL	Paved	0.214	low-med	high	1	Preventive-7	Good-7
East Ricker Rd	1	Bear Hill Rd	#256	Paved	0.270	med-high	medium		Rehabilitate-7	Good-7
East Ricker Rd	2	House #256	Loudon TL	Paved	0.430	med-high	medium		No Maint-7	Good-7
Fred Wood Dr	1	Highland Dr	Smith Sanbord Rd	Paved	0.230	low	low	1	Reconstruct-2	Good-2
Guernsey Ct	1	Harvest Rd	End Guernsey Ct	Paved	0.243	low	low	2	Preventive-2	Good-2
Harvest Rd	1	King Rd	Guernsey Ct	Paved	0.170	low-med	med-high	2	Preventive-6	Good-6
Harvest Rd	2	Guernsey Ct	Holstein Ct	Paved	0.450	low-med	med-high	2	Preventive-6	Good-6
Harvest Rd	3	Holstein Ct	Loudon TL	Paved	0.340	low-med	med-high	2	Preventive-6	Good-6
Healy Pasture Rd	1	Pleasant Rd	End of Healy Past.	Paved	0.380	low	low	3	No Maint-2	Good-2
Higgins Rd	1	Horse Corner Rd	Pembroke TL	Paved	0.389	medium	medium	2	No Maint-6	Good-6
Highland Dr	1	Smith Sanbord Rd	Fredwood drive	Paved	0.432	medium	medium	3	Preventive-6	Good-6
Highland Dr	2	Fredwood drive	Burnt Hill Rd	Paved	0.426	medium	medium	3	No Maint-6	Good-6
Hillview Dr	1	Smith Sanborn Rd	Epsom TL	Paved	0.419	low	low	1	Routine-2	Good-2
Holstein Ct	1	Harvest Rd	End Holstein Ct	Paved	0.142	low	low	1	Preventive-2	Good-2
Horse Corner Rd	1	Higgins Road	Pembroke town Line	Paved	0.140	low	low	1	Preventive-2	Good-2
Horse Corner Rd	2	Higgins Rd	Dame Farm Road	Paved	1.341	high	high	1	No Maint-10	Good-10
Horse Corner Rd	3	Dame Rd	Garvin Hill Rd	Paved	0.252	high	high	1	No Maint-10	Good-10
Horse Corner Rd	4	#125 Horse Corner	Garvin Hill Rd	Paved	0.450	high	high	1	Reconstruct-10	Good-10
Horse Corner Rd	5	#79 Horse corner	#125 Horse Corner	Paved	0.463	high	high	2	No Maint-10	Good-10
Horse Corner Rd	6	#79 Horse corner	Towle Rd	Paved	0.220	high	high	1	Rehabilitate-10	Good-10
Hutchinson Rd	2	House #48	House #91	Paved	0.368	med-high	med-high	1	No Maint-8	Good-8
Kara Dr	1	Deer Meadow Rd	End of Kara Dr	Paved	0.094	low	low	2	No Maint-2	Good-2
Kellys Corner Rd	1	NH Route 28	House #13	Paved	0.220	medium	medium	3	No Maint-6	Good-6
Kellys Corner Rd	2	House #13	Pleasant St	Paved	0.133	medium	medium	3	No Maint-6	Good-6
Kellys Corner Rd	3	Pleasant St	Ring Rd	Paved	0.160	medium	medium	3	No Maint-6	Good-6
Kellys Corner Rd	4	Ring Rd	NH Route 28	Paved	0.241	medium	medium	3	No Maint-6	Good-6
King Rd	1	Loudon TL	House #114	Paved	0.270	high	high	2	No Maint-10	Good-10
King Rd	2	House #114	Harvest Rd	Paved	0.440	high	high	2	No Maint-10	Good-10
King Rd	4	#26 culvert	Route 4	Paved	0.200	high	high	2	No Maint-10	Good-10
King Road	3	Harvest Rd	Culvert at#26	Paved	0.404	high	high	2	No Maint-10	Good-10
Lane Rd	1	Horse Corner Rd	House #32	Paved	0.300	medium	high	1	No Maint-8	Good-8
Lane Rd	2	House #32	Smith sanborn Rd	Paved	0.400	medium	med-high	1	No Maint-7	Good-7
Lane Rd	3	Smith Sanborn Rd	Hutchinson Rd	Paved	0.250	med-high	low-med	1	No Maint-6	Good-6
Limerick Dr	1	Connemara Dr	End of Limerick Dr	Paved	0.120	low	low	1	No Maint-2	Good-2
Mason Rd	1	US Route 4	End of Mason Rd	Paved	0.420	low	low	1	No Maint-2	Good-2
Meeting House Rd	1	Main St	Pound Rd	Paved	0.060	low	low	4	No Maint-2	Good-2
Pleasant St	1	Kellys Corner Rd	Healy Pasture Rd	Paved	0.440	high	med-high	3	No Maint-9	Good-9
Pleasant St	2	Healy Pasture Rd	Berry Rd	Paved	0.450	high	med-high	2	No Maint-9	Good-9
Pleasant St	3	Berry Rd	#117 Trailer Park	Paved	0.240	high	med-high	2	No Maint-9	Good-9
Pleasant St	4	#117 Trailer Park	#161 Pleasant St	Paved	0.400	high	med-high	2	No Maint-9	Good-9
Pleasant St	5	#161 Pleasant St	Loudon TL	Paved	0.250	high	med-high	2	No Maint-9	Good-9
Ring Rd	1	Kellys Corner Rd	Kaime Rd	Paved	0.168	low	low	3	Reconstruct-2	Poor-2
Robinson Rd	1	US Route 4	End of Robinson Rd	Paved	0.094	low	low	4	Routine-2	Good-2
Smith Sanborn Rd	2	Highland Dr	US Route 4	Paved	0.230	medium	medium	1	No Maint-6	Good-6
Staniels Rd	1	Horse Corner Rd	West Rd	Paved	0.370	med-high	low-med	1	No Maint-6	Good-6
Swiggy Brook Rd	1	South of Stream	NH Route 28	Paved	0.330	medium	low-med	3	Routine-5	Good-5
Swiggy Brook Rd	2	North of Stream	NH Route 28	Paved	0.420	medium	low-med	3	No Maint-5	Good-5
Webster Mills Rd	1	NH Route 28	House # 131	Paved	0.280	medium	med-high	3	No Maint-7	Good-7
Webster Mills Rd	2	House #131	Pittsfield TL	Paved	0.610	medium	med-high	3	No Maint-7	Good-7
Wexford Dr	1	Connemara Dr	End Wexford Dr	Paved	0.290	low	low	1	No Maint-2	Good-2
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## **2.C: Road Conditions**

There are seven types of conditions that may be observed during onsite inspection: (1) rutting, (2) potholes and patching (3) roughness, (4) alligator cracking, (5) edge cracking, (6) transverse and longitudinal cracking, and (7) roadside drainage. If any condition exists at all it is then rated for both its severity and its extent. Severity can be rated low, medium, or high. Extent is also rated low, medium, or high.

The RSMS software has a built-in computation that combines all of the information on observable conditions and produces two recommendations for consideration. One is a simple statement of roadside drainage as either “poor” or “good.” The more complicated recommendation is the type of maintenance or repair that would most benefit the road segment. There are five such categories.

### **1. No Maintenance:**

No action required. The road segment is in very good condition.

### **2. Routine Maintenance:**

For paved roads, sealing cracks and patching potholes for specific small areas. For unpaved roads, filling small areas and grading the roadway. For all roads routine maintenance includes cleaning ditches and culverts. Crack sealing, patching, spot re-graveling, ditch and culvert cleaning, and mowing of shoulders and adjacent areas are essential to get the intended service life from a section of pavement.

### **3. Preventive Maintenance:**

For paved roads, shimming and or coating of the surface and chip seals of thin (1½ inch) overlays are used to prevent or slow further deterioration. For unpaved roads this includes shaping and grading the road surface, as well as adding minor amounts of material as necessary.

### **4. Rehabilitation:**

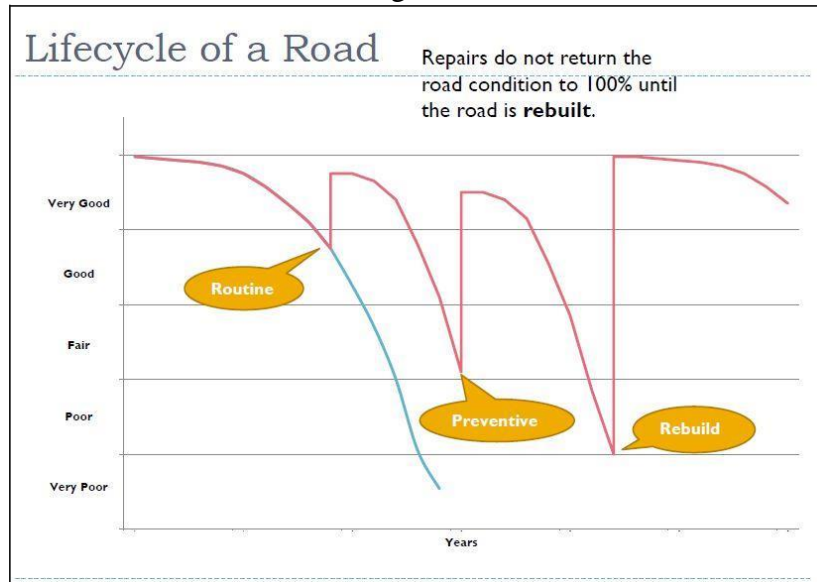
Major repairs of the road surface: usually an asphalt overlay after surface preparation for a paved road, adding major amounts of gravel to unpaved roads, or regrading, reshaping, and compacting them.

### **5. Reconstruction:**

Excavation of the road base, the replacement and often the addition of aggregate, and new paved surface or new wearing surface gravel. The road including its sub base has deteriorated to such an extent that the base must be replaced or stabilized. Such conditions are usually caused by too long a period of inadequate maintenance, and by poor subsurface drainage. In the latter conditions, appropriate repair and/or new construction of ditches and culverts should be included in the project.

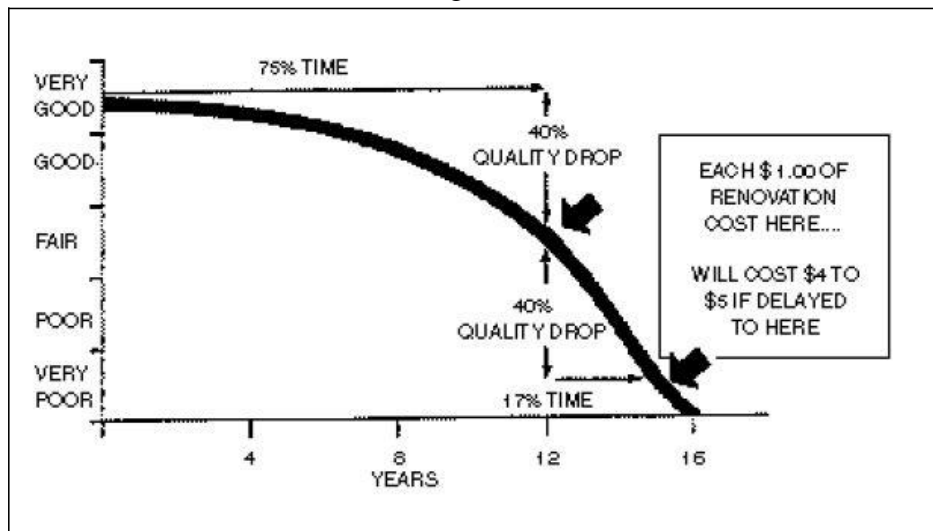
It is important to understand the life cycle of a road surface. When a paved road has been well designed and constructed it has a life of approximately 20-25 years. Figures 1 and 2 show the deterioration of a theoretical road segment over time.

Figure 1



Source: *Road Management Using PWS RSMS Software*,  
Bob Strobel, University of New Hampshire Technology Transfer Center, December 2011

Figure 2



Source: *Road Surface Management System Workshop Notebook and Reference*  
University of New Hampshire Technology Transfer Center

If the original construction of a road segment did not include adequate sub-base work, removal of ledge and rocks, crushed stone base, provision for adequate drainage including culverts and crown, then the life may be much shorter. Many of Chichester's oldest paved roads were created by simply laying asphalt on top of old dirt and gravel surfaces. For this reason, many miles of roads show considerable deterioration after only a few years.

For each of the town's road segments, Table 1 displays the suggested need for maintenance or repair as determined by the RSMS computation. This is based on surface observations only and does not take into consideration knowledge of what lies below the surface. The Committee then considered these results, traffic volume, segment importance to the town, and knowledge of subsurface conditions to prioritize which road segments most needed attention and what kind of work should be done.

## **2.D: Lifespan of a Road and Its Maintenance**

The Committee estimates that the average life span of a paved road in Chichester is 20 years. This estimate is based on input from the Maine Local Roads Center, the developer of the Road Surface Management System (RSMS), and other sources, including committee members own experiences. Factors used in developing the average life span included traffic volume, types of traffic, drainage of water, and structure of the road. The lifespan of some paved roads may exceed 20 years while others may be less depending on these characteristics. The Committee emphasizes that 20 years is the average, not a prediction of the lifespan of any given road.

In order for a road to attain the average 20 year lifespan, there is a need for regular maintenance and repair. This will include crack sealing, pothole patching, culvert replacement, repaving of limited sections, and other work. Without this regular maintenance, the average lifespan may be much less than 20 years. Figures 1 and 2 show how the condition of a road deteriorates over time and how early intervention and rehabilitation can cost less and extend the life of a road. The Committee supports the strategy of annual maintenance on the paved roads. However, maintenance activities are outside the purview of the Committee. Unfortunately, some paved roads in Chichester are already beyond the state where simple maintenance will be cost effective.

The goal of this Committee is to bring all the roads in town to an average or better condition and keep them in this condition for the average 20 year life span. To do this the town will need to reconstruct 1.2 miles of paved roads every year.

## **3. Traffic on Chichester Roads**

Traffic is an important consideration in planning and prioritizing major highway projects. During 2019 traffic counters were placed at several locations in town by the Central New Hampshire Regional Planning Commission at the request of the committee and the Road Agent..

Average daily traffic volume is an important measure for understanding how a road segment is being used. Simple counts have been collected for many years. Those allow the Committee to understand whether volume has been generally increasing, decreasing, or remaining constant. Table 2 displays the recent history of average daily traffic volume at different locations in town.

It is important to realize that counts can vary greatly from day to day and from season to season. The Committee has asked that counters be in place for a full 24 hours/7 days and that an average daily count be calculated. Even this averaging can be affected by singular events such as a major road race at Loudon Speedway, diversion of Route 4 traffic onto Horse Corner Road, and temporary problems on feeder roads. For this reason, sometimes a full understanding of conditions during the count period leads one to ignore a particular count.

Table 2

**History of traffic counts on Chichester road segments**

All counts on this sheet are average vehicles per day

Road Name	Location of counter	2011	2012	2013	2014	2015	2016	2017	2018	2019
Bailey Road	Horse Corner intersection			165						99
Bailey Rd	Route 4 intersection			209	298					
Bailey Rd	At # 28 Bailey rd		58							
Bear Hill Rd	Loudon town line	454	650	458	411	418				485
Bear Hill Rd	Route 28 intersection		797		645					
Burnt Hill Road	East of Lovers Lane			76					61	
Canterbury Rd	Loudon town line	529		525		480				
Canterbury Rd	Main St intersection		1,262	614			654			
Canterbury Rd	East of Center Rd	442								
Center Rd	Bear Hill Rd intersection	433			396	479				
Center Rd	North of Main St		638						572	
Connemara Dr	Bailey Rd intersection		197							
Cross Rd	Route 4 intersection		146	215			199			206
Deer Meadow Road				367						
Depot St	At the bridge		993		480					
East Ricker Rd	Loudon town line							586		
Fredwood Dr	Smith Sanborn Rd intersection		64							
Fredwood Dr	Highland Dr intersection		19							
Harvest Road	Loudon town line			168				348		
Hilliard Rd	East of Perry Brook Rd								143	
Hilliard Rd	West of Swiggy Brook Rd						208	184		209
Horse Corner Rd	Route 4 intersection	1,329	1,189							
Horse Corner Rd	East of Staniels Rd							717		
Horse Corner Rd	Lane Rd intersection		1,060							
Horse Corner Rd	Above Lane Rd		592	906				634		
Horse Corner Rd	East of Bailey Road		955			616				
Horse Corner Rd	Pembroke town line	1,130	1,212	1,126	1,146	1,447				1,341
Hutchinson Rd	Pembroke town line		238		220	252				284
Hutchinson Rd	Lane Rd Intersection	407								
Hutchinson Rd	South of Short Falls Rd						296			292
Kelly's Corner Rd	Over Sanborn Brook			458						
Kelly's Corner Rd	Southerly NH 28 intersection							720		
King Rd	Loudon town line	1,165	1,072			1,467	961			
King Rd	Route 4 intersection		1,164			1,210	1,327	1,332		
King Rd	At # 26 King Rd	1,231								
Lane Rd	Horse Corner Rd intersection		1,350		480					565
Perry Brook Rd	South of Healy Pasture Rd						37			
Pleasant St.	Loudon town line			567		559				594
Pleasant St	Kelly's Corner Rd intersection	833	756	882	771					913
Smith Sanborn Rd	Route 4 intersection	434	267		450		406			
Smith Sanborn Rd	Lane Rd Intersection	407								
Staniels Rd	Pembroke town line	262					191			
Staniels Rd	Horse Corner Rd intersection	241	603	209						
Swiggy Brook Rd	Over Perry Brook				210					
Webster Mills Rd	Route 28 Intersection	669		691				716		
Webster Mills Rd	Over Suncook River	676		560		619				507

Table 2 (continued)

<b>History of traffic counts on Chichester road segments</b>										
All counts on this sheet are average vehicles per day										
Road Name	Location of counter	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>Counts in Chichester (made by NH Department of Transportation)</b>										
<a href="http://nhdot.ms2soft.com/tcds/tsearch.asp?loc=Nhdot&amp;mod=">http://nhdot.ms2soft.com/tcds/tsearch.asp?loc=Nhdot&amp;mod=</a>										
NH Route 28	North of Bear Hill Rd	13,307	13,137	13,180	13,291	13,412	13,797		13,784	
NH Route 28	Epsom town line									
NH Route 28	Pittsfield town line									
NH Route 28	South of Main St									
NH Route 28	North of Main St	26,096								
US Route 4	East of Chichester Rd	16,792	16,509	16,695	16,721	16,965	16,947			
US Route 4	Pembroke town line	15,000		14,000						18,671
US Route 4	Weathervane restaurant				14,000	14,737	17,308	17,654		
US Route 4	Mason Rd intersection									
US Route 4	Traffic light @ Main Street								16,756	
Main St	East of Canterbury Rd			6,700	6,847	7,052	6,965	7,104		8,171
Main St	At Sander's Brook	6,500		6,000	6,132	6,316	6,272	6,397		7,626
Main St	US Route 4 intersection	8,569								
Depot Road	At bridge			480	491	506	398	406		612
Swiggey Brook Rd	South of Hilliard Rd			210	215	221	196	200		333
Webster Mills Rd	At bridge			560	572	589	570	581		
Kelleys Corner Rd	At bridge			400	409	421	484	494		672
Canterbury Road	In State segment								1,554	

The Committee has used five categories for summarizing traffic counts in RSMS.

Table 3

Traffic Category in RSMS	Average daily vehicle count
Low	0-199
Low-Medium	200-399
Medium	400-599
Medium-High	600-799
High	800 or more

Chichester has 4.6 miles of high traffic road segments, 5.7 miles of medium-high, 6.7 of medium, 7.0 of medium-low, and 14.5 of low traffic road segments.

Table 4 shows the number of segments and mileage by most recent traffic and surface type.

Table 4

Traffic	Gravel		Paved	
	Segments	Miles	Segments	Miles
Low	25	9.9	20	4.6
Low-Med	5	3.5	10	3.5
Medium	1	0.8	19	5.9
Med-High	0	0	9	5.7
High	0	0	10	4.6
Total	31 <sup>12</sup>	14.2	68	24.3

These summary tables are provided only as examples. The raw data includes a count for each hour of each day by type, speed, and direction.



Webster Mills Road after reconstruction in summer of 2019

#### **4. Reconstruction Projects Completed 2013-2018**

The town began the 20 year plan to reconstruct paved roads that this committee first proposed in 2013. Table 5 contains the road segments that have been completed in the first seven years of this plan.

Table 5

2013		2017	
Segment	Length (miles)	Segment	Length (miles)
Kelly's Corner Rd 3 & 4	0.401	Pleasant Street #5	0.250
Pleasant Street #2	0.450	Bear Hill Road #2	0.789
Pleasant Street #4	0.400		<b>1.039</b>
	<b>1.251</b>	<b>2018</b>	
2014		Segment	Length (miles)
Horse Corner Road #6	0.251	King Road #1, 2, 3, & 4	1.341
Horse Corner Road #9	0.463		<b>1.341</b>
	<b>0.714</b>	<b>2019</b>	
2015		Segment	Length (miles)
Bear Hill Road #1	0.686	Kelley's Corner Rd #1 & 2	0.453
Pleasant Street #3	0.240	Webster Mills Rd #1 & 2	0.890
	<b>0.926</b>		<b>1.343</b>
2016			
Horse Corner Road #2	1.341		
	<b>1.341</b>		
		<b>TOTAL</b>	<b>7.955</b>

## 5. The Planning Process

To determine which of the 68 paved road segments in Chichester are most in need of reconstruction and major repair, the committee has taken three general factors into consideration in setting priorities among road segments (1) observable conditions, (2) road importance, and (3) traffic. Traffic includes not just a measure of average daily traffic volume, but also an understanding of the type of vehicles using the segment. Importance includes whether the road connects to other towns and whether poor conditions could impact public safety vehicles.

Combining the various factors is a mixture of science and art. Not everyone will agree with how to weigh traffic against current conditions, etc. Different people viewing the same information will create different sets of suggested priorities. That is why the committee believes it is important for a group of townspeople to review current information and recommend priorities. Eight individuals participated in the Committee's process this year. The members represent different experiences and skills. Some have technical qualifications related to highway work or construction. As a group, committee members have discussed many road segments and have come to the conclusion presented here.

If you are interested in becoming a part of this process, please inform the Board of Selectmen.





Work on King Road in summer of 2018

## **6: Recommended Project for 2020**

The committee recommends the remainder of Bear Hill Road be reconstructed in 2020. There are three segments that will be done as a single project. These three segments of roadway total approx. 1.046 miles (of the towns 24.3 miles of paved road surface)

Table 6

2020		
Segment	Length (miles)	Estimated Cost
Bear Hill Road #5, 6, &7	1.046	\$351,810

This year's project will consist of the remaining segments of Bear Hill road (#5, 6, &7). Work will start at the Ferrin Road intersection and will end at the Loudon town line. The section of roadway will be approximately 5,363 feet long and 22 feet wide. The project will consist of the grinding of the existing pavement, adding geo textiles (Tenstar 140) to the base to improve the sub base tensile strength, the replacement of 80' feet of retaining wall, the replacement and installation of three cross culverts and the

adding of gravels to the sub-base. The road will be paved with 2” of base and 1.5 inches of top coat asphalt.

## **7: Projects for 2021**

In assessing our projects for 2020, the committee has also looked at the other road segments and has begun to give each consideration for 2021 and beyond. The committee always reevaluates the segments and or roads each summer to recommend one or more projects for the next year.

The table below displays the next 4 projects that the committee believes are priorities. This list is not prioritized in any order. During the next year we will reevaluate these as well as others. To continue the towns plan to reconstruct about 1.2 miles per year, we may propose multiple projects to achieve this goal.

Table 7

2021	
Segments	Length (miles)
East Ricker Road #1	0.180
Horse Corner Road #8 & #10	0.670
Ring Road #1	0.168
Kaime Road (paved portion)	0.094

### **1. East Ricker Road - Segment 1**

The second segment of this road is in dire need of repair. The committee was intending to piggyback this project with the Bear Hill road Project saving costs. Total length of this project is 1,000 feet (0.18miles)

### **2. Horse Corner Road – Segments 4 & 6**

These are the two segments of Horse Corner Road that have not yet been reconstructed. This includes the segment from Garvin Hill Road to #125 and the segment from Towle Road to #79. These two have been considered but again the committee wanted to undertake them as a unit a total of 3,670 feet (0.69miles)

### **3. Ring Road – Segment #1**

This portion of Ring Road was improved and paved years ago and is need of redesign and upgrades to the base and drainage. This segment ties in with the segment of Kaime Road which would piggyback on this reconstruction.

### **4. Kaime Road**

As noted above, a short portion of this road was paved when part of Ring Road was improved and paved. Kaime Road was also improved but needs a redesign of drainage and slope. This road should be piggybacked on Ring Road. The portion needing reconstruction is 500 feet long (0.094 miles).

## **8: Projects for 2022-2032**

The committee does not yet propose any specific road segments for these later years. The road agent and the committee will use the scientific criteria of RSMS and on site evaluation to identify the roads that need major improvements to keep them in average or better condition over their 20 year average life span. Regardless of which remaining segments are assessed to be most in need of work beginning in

2022, the principle remains that an average of 1.2 miles must be reconstructed per year in order to continue to improve the condition of all paved roads in Chichester

We are now nearly half way through the rebuilding phase of our plan which we started back in 2010. As we move ahead the Road Advisory Committee will now be looking into the maintenance end of the equation. We have begun this with the crack sealing and some of the shim work that has been performed. The next few years we will see an increase in the maintenance lines for these projects that we completed 10 -12 years ago.

## **9. Paving Gravel Roads**

The RAC does not recommend paving any gravel roads at this time. Recommendations for paving gravel roads will be considered when maintenance costs (time, money, personnel) exceed the cost of paving.

There was discussion at the 2016 Town Meeting about possibly paving one of the town’s gravel roads. A proposal to do so was rejected by the voters. The role of the Road Advisory Committee in regard to such proposals was discussed. The mission of the RAC includes making recommendations regarding *“any future roadway reconstruction projects or major repair/upgrading projects.”* Certainly, the paving of a gravel road is a major upgrading project. Thus, the RAC should make its recommendations known in this regard. The fact is that since its creation twelve years ago, the RAC has never recommended that a town gravel road be paved. There are two reasons: (1) our existing paved roads had been allowed to fall into considerable disrepair and needed urgent attention; (2) our gravel roads tend to be lower traffic roads than many of our existing paved town roads.

Because of the interest in the possibility of such paving, the RAC decided to measure traffic on four of the existing gravel roads in 2016: Hutchinson Road, Smith-Sanborn Road, Cross Road, and Hilliard Road. Table 8 shows average daily traffic measured over a full 7 days.

Table 8

<b>Traffic measurement location</b>	<b>Vehicles/day</b>
Hutchinson Road (at intersection with Short Falls Rod)	296
Smith-Sanborn Road (at intersection with Route 4)	406
Cross Road (at intersection with Route 4)	199
Hilliard Road (at intersection with Swiggy Brook Road)	208

## **10. Volunteer to Become a Committee Member**

If you are interested in becoming a member of the Road Advisory Committee, please contact the Selectmen’s Office. 603-798-5050