Town of Chichester

2017 Report of the Road Advisory Committee

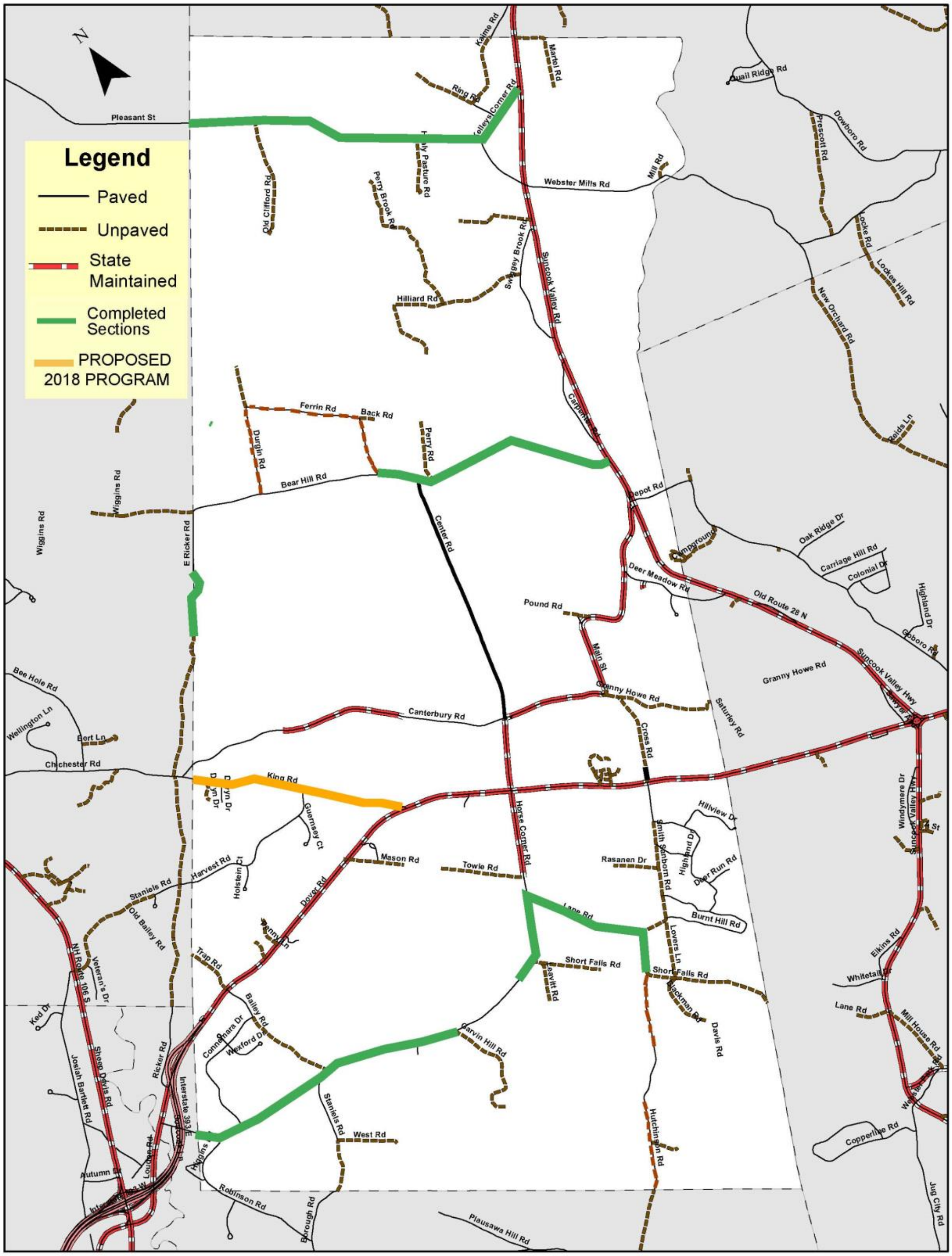
November 24, 2017

Road Advisory Committee

Allen Mayville, Jr. (Chairman), Brian Eldredge, Guy Goodwin, Doug Hall,
Tom Jameson (Selectman ex-officio), Jim Plunkett (Road Agent)

Chichester Road Network

(showing road reconstruction done 2013-2017 and planned for 2018)



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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 six members this year and is currently seeking one additional member. It has met monthly 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 38.9 miles of roads in Chichester. There are 68 paved road segments totaling 24.3 miles and there are 31 gravel road segments totaling 14.6 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.

2018: The committee recommends one road reconstruction project for completion.

- King Road segments 1-4 from the Loudon Town Line to Route 9. Length is 1.3 miles. Bids for this project have been received and the Board of Selectmen selected the bid for $319,575.75,

subject to approval by the voters at March 2018 town meeting. This amount is below what the committee had estimated the project might cost.

2019: The committee lists six possible projects but does not make a final recommendation at this time. Possible projects include Bear Hill Road segments 5, 6, & 7; East Ricker Road segment 1; Kelley's Corner Road segments 1 & 2, Horse Corner Road segments 8 and 10, and Webster's Mills Road segments 1 and 2. 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.

2020 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 five years? With guidance from this committee, the Capital Improvement Program 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 on February 15, 2011, under the authority of the Board of Selectmen. One change made was to update the Mission Statement of the original Charter to more accurately define the Committee's responsibilities so as to work more in concert with the Town's Capital Improvement Committee.

1.B: Mission of the Committee

The mission statement of the Committee 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 is established to cooperatively promote better road repairs by assisting the Road Agent, Selectmen, Budget Committee, and Capital Improvement Program Committee (CIP) with the evaluation, planning, and scheduling of road work."*

It should be noted that the committee's charter does not include the oversight and planning of roadway maintenance work. The Road Agent will be reporting on the yearly maintenance accomplishments in the Road Agent's report which is included in the annual Town Report.

1.C: Committee Membership

The Committee's Charter establishes its membership as consisting of "a minimum of seven (7) members, the Road Agent and one Selectman who shall serve as an ex-officio member of the Committee. The five appointed members shall be appointed by the Board of Selectmen. All 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."

The current members of the Committee are: Allen Mayville, Jr. (Chairman), Brian Eldredge, Guy Goodwin, Doug Hall, Tom Jameson (Selectman ex-officio), Jim Plunkett (Road Agent). There has been one vacant position this year.

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 August 1, 2017. This inventory shows a total length of 38.9 miles, broken into 99 town maintained road segments.

68 segments are paved and total 24.3 miles while 31 segments are gravel and total 14.6 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. Road segment numbers and lengths change from year to year as work proceeds and conditions change. The Highway Department re-measured many segments this year and made some changes to the data in RSMS. Segments are used to identify logical units for evaluation, consideration in priority setting, and work planning. For example, three previously listed segments of Horse Corner Road have been combined into one segment because needed reconstructions work was done on all three as a single project and they are now in similar condition.

Table 1

Inventory of Chichester Maintained Road Segments from RSMS. **11/21/2017**

Gravel Road Segments

Road Name	Seg	From	To	Surface	Miles	Importance	Traffic	Surface	Drainage
Back Rd	1	Ferrin Rd	Mailbox#15	Gravel	0.140	low	low	Routine-2	Good-2
Bailey Rd	2	Connemara Dr	Horse Corner Rd	Gravel	0.550	medium	low	Routine-4	Good-4
Blackman Rd	1	Short Falls Rd	To end of roadway	Gravel	0.400	low	low	Routine-2	Good-2
Chichester Ln	1	US Route 4	End Chichester Ln	Gravel	0.094	low	low	Routine-2	Poor-2
Cross Rd	2	House #50	Granny Howe Rd	Gravel	0.550	medium	medium	Routine-6	Good-6
Deer Run Rd	1	Highland Dr	End of Deer Run Rd	Gravel	0.155	low	low	Routine-2	Good-2
Devyn Dr	1	King Rd	End Devyn Dr	Gravel	0.060	low	low	Routine-2	Poor-2
Durgin Rd	1	Bear Hill Rd	End of Durgin Rd	Gravel	0.780	medium	low	Routine-4	Good-4
Ferrin Rd	1	Durgin Rd	Bear Hill Rd	Gravel	1.050	low-med	low-med	Routine-4	Good-4
Garvin Hill Rd	1	Horse Corner Rd	End Garvin Hill Rd	Gravel	0.720	low	low	Routine-2	Poor-2
Granny Howe Rd	1	Main St	Epsom TL	Gravel	0.700	low	low	Routine-2	Good-2
Hilliard Rd	1	Swiggey Brook Rd	End of Hilliard Rd	Gravel	1.190	low	low-med	Routine-3	Good-3
Hutchinson Rd	1	Short Falls Rd	House #48	Gravel	0.490	med-high	medium	Reconstruct-7	Good-7
Hutchinson Rd	3	House #91	Pembroke TL	Gravel	0.468	med-high	low-med	Reconstruct-6	Good-6
Kaime Rd	1	Ring Rd	Pittsfield TL	Gravel	0.570	low	low	Reconstruct-2	Good-2
Leavitt Rd	1	Horse Corner Rd	End of Leavitt Rd	Gravel	0.284	low	low	Routine-2	Good-2
Lovers Ln	1	Short Falls Rd	Smith Sanborn Rd	Gravel	0.350	low-med	low	Routine-3	Good-3
Martel Rd	1	Route 28	End of Martel Rd	Gravel	0.492	low	low	Routine-2	Good-2
Mill Rd	1	Webster Mills Rd	End of Mill Rd	Gravel	0.130	low	low	Routine-2	Good-2
Pardise Ln	1	Hutchinson Rd	End of Paradise	Gravel	0.230	low	low	Routine-2	Good-2
Perry Brook Rd	1	Hillard Rd	End of Perry Brook	Gravel	0.470	low	low	Routine-2	Good-2
Perry Rd	1	Bear Hill Rd	End of Perry Rd	Gravel	0.470	low	low	Routine-2	Good-2
Pound Rd	1	Main St	End non-maintained	Gravel	0.190	low	low	Routine-2	Good-2
Ring Rd	2	Kaime Rd	End of Ring Rd	Gravel	0.357	low	low	Routine-2	Good-2
Short Falls Rd	1	Leavitt Rd	House #66	Gravel	0.620	low	low	Routine-2	Good-2
Short Falls Rd	2	Lane Rd	Epsom TL	Gravel	0.790	low-med	low	Routine-3	Good-3
Smith Sanborn Rd	1	Lane Rd Int	Highland Dr	Gravel	0.764	medium	medium	Routine-6	Good-6
Staniels Rd	2	West Rd	Pembroke TL	Gravel	0.320	med-high	low-med	Routine-6	Good-6
Towle Rd		Horse Corner Rd	End Towle Rd	Gravel	0.510	low	low	Routine-2	Good-2
Trap Rd	1	US Route 4	Loudon TL	Gravel	0.314	low	low	Routine-2	Good-2
West Rd	1	Staniels Rd	End West Rd	Gravel	0.390	low	low	Routine-2	Good-2
					14.598				

Paved Road Segments

Road Name	Sec	From	To	Surf	Miles	Import	Traffic	Surface	Drainage
Bailey Rd	1	US Route 4	Connemara Dr	Paved	0.290	medium	low-med	Routine-5	Good-5
Bear Hill Rd	1	NH Route 28	West PL # 66	Paved	0.686	high	med-high	No Maint-9	Good-9
Bear Hill Rd	2	#66 Bear Hill	Ferrin Road	Paved	0.789	high	med-high	No Maint-9	Good-9
Bear Hill Rd	5	Ferrin Rd	Brown cemetery	Paved	0.388	med-high	medium	Rehabilitate-7	Good-7
Bear Hill Rd	6	Brown cemetery	#255 Bear hill	Paved	0.450	med-high	medium	Rehabilitate-7	Good-7
Bear Hill Rd	7	#255 Bear hill	Loudon Town Line	Paved	0.208	med-high	medium	Preventive-7	Good-7
Burnt Hill Rd	1	Lovers Ln	# 68 Burnt Hill	Paved	0.430	medium	low-med	No Maint-5	Good-5
Burnt Hill Rd	2	#68 Burnt hill	Highland Drive	Paved	0.330	medium	low-med	No Maint-5	Good-5
Burnt Hill Rd	3	Highland Dr	Smith Sanborn Rd	Paved	0.310	medium	low-med	No Maint-5	Good-5
Canterbury Rd	1	Main St	House # 66	Paved	0.635	high	medium	No Maint-8	Good-8
Canterbury Rd	3	House # 142	Loudon TL	Paved	0.580	high	high	Preventive-10	Good-10
Carpenter Rd	1	Route 28	#49 Carpenter rd	Paved	0.290	low	low	No Maint-2	Good-2
Carpenter Rd	2	#49 Carpenter rd	Route 28	Paved	0.260	low	low	No Maint-2	Good-2
Center Rd	1	Bear Hill Rd	Canterbury Rd	Paved	1.520	high	medium	Preventive-8	Good-8
Connemara Dr	1	Bailey Rd	#40 Connamara	Paved	0.220	low-med	low	No Maint-3	Good-3

Table 1 (continued)

Paved Road Segments									
Road Name	**Sec**	**From**	**To**	**Surf**	**Miles**	**Import**	**Traffic**	**Surface**	**Drainage**
Connemara Dr	2	#40 Connamara	Horse Corner Rd	Paved	0.378	low-med	medium	No Maint-5	Good-5
Cross Rd	1	US Route 4	House #50	Paved	0.085	medium	low	No Maint-4	Good-4
Deer Meadow Rd	1	Main St	Epsom TL	Paved	0.448	medium	low-med	Rehabilitate-5	Good-5
Depot St	1	Route 28	Epsom TL	Paved	0.214	low-med	high	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	Reconstruct-2	Good-2
Guernsey Ct	1	Harvest Rd	End Guernsey Ct	Paved	0.243	low	low	Preventive-2	Good-2
Harvest Rd	1	King Rd	Guernsey Ct	Paved	0.170	low-med	med-high	Preventive-6	Good-6
Harvest Rd	2	Guernsey Ct	Holstein Ct	Paved	0.450	low-med	med-high	Preventive-6	Good-6
Harvest Rd	3	Holstein Ct	Loudon TL	Paved	0.340	low-med	med-high	Preventive-6	Good-6
Healy Pasture Rd	1	Pleasant Rd	End of Healy Past.	Paved	0.380	low	low	No Maint-2	Good-2
Higgins Rd	1	Horse Corner Rd	Pembroke TL	Paved	0.389	medium	medium	No Maint-6	Good-6
Highland Dr	1	Smith Sanbord Rd	Fredwood drive	Paved	0.432	medium	medium	Preventive-6	Good-6
Highland Dr	2	Fredwood drive	Burnt Hill Rd	Paved	0.426	medium	medium	No Maint-6	Good-6
Hillview Dr	1	Smith Sanborn Rd	Epsom TL	Paved	0.419	low	low	Rehabilitate-2	Good-2
Holstein Ct	1	Harvest Rd	End Holstein Ct	Paved	0.142	low	low	Preventive-2	Good-2
Horse Corner Rd	1	Higgins Road	Pembroke town Line	Paved	0.140	low	low	Preventive-2	Good-2
Horse Corner Rd	2	Higgins Rd	Dame Farm Road	Paved	1.341	high	high	No Maint-10	Good-10
Horse Corner Rd	6	Dame Rd	Garvin Hill Rd	Paved	0.251	high	high	No Maint-10	Good-10
Horse Corner Rd	8	#125 Horse Corner	Garvin Hill Rd	Paved	0.450	high	high	Reconstruct-10	Good-10
Horse Corner Rd	9	#79 Horse corner	#125 Horse Corner	Paved	0.463	high	high	No Maint-10	Good-10
Horse Corner Rd	10	#79 Horse corner	Towle Rd	Paved	0.220	high	high	Rehabilitate-10	Good-10
Hutchinson Rd	2	House #48	House #91	Paved	0.368	med-high	med-high	No Maint-8	Good-8
Kara Dr	1	Deer Meadow Rd	End of Kara Dr	Paved	0.094	low	low	No Maint-2	Good-2
Kellys Corner Rd	1	NH Route 28	House #13	Paved	0.220	medium	medium	Rehabilitate-6	Good-6
Kellys Corner Rd	2	House #13	Pleasant St	Paved	0.133	medium	medium	Reconstruct-6	Good-6
Kellys Corner Rd	3	Pleasant St	Ring Rd	Paved	0.160	medium	medium	No Maint-6	Good-6
Kellys Corner Rd	4	Ring Rd	NH Route 28	Paved	0.241	medium	medium	No Maint-6	Good-6
King Rd	1	Loudon TL	House #114	Paved	0.270	high	high	Rehabilitate-10	Good-10
King Rd	2	House #114	Harvest Rd	Paved	0.440	high	high	Rehabilitate-10	Good-10
King Rd	4	#26 culvert	Route 4	Paved	0.200	high	high	Rehabilitate-10	Good-10
King Road	3	Harvest Rd	Culvert at#26	Paved	0.404	high	high	Rehabilitate-10	Good-10
Lane Rd	1	Horse Corner Rd	House #32	Paved	0.300	medium	high	Routine-8	Good-8
Lane Rd	2	House #32	Smith sanborn Rd	Paved	0.400	medium	med-high	Routine-7	Good-7
Lane Rd	3	Smith Sanborn Rd	Hutchinson Rd	Paved	0.250	med-high	low-med	Routine-6	Good-6
Limerick Dr	1	Connemara Dr	End of Limerick Dr	Paved	0.120	low	low	No Maint-2	Good-2
Mason Rd	1	US Route 4	End of Mason Rd	Paved	0.420	low	low	No Maint-2	Good-2
Meeting House Rd	1	Main St	Pound Rd	Paved	0.060	low	low	No Maint-2	Good-2
Pleasant St	1	Kellys Corner Rd	Healy Pasture Rd	Paved	0.440	high	med-high	No Maint-9	Good-9
Pleasant St	2	Healy Pasture Rd	Berry Rd	Paved	0.450	high	med-high	No Maint-9	Good-9
Pleasant St	3	Berry Rd	#117 Trailer Park	Paved	0.240	high	med-high	No Maint-9	Good-9
Pleasant St	4	#117 Trailer Park	#161 Pleasant St	Paved	0.400	high	med-high	No Maint-9	Good-9
Pleasant St	5	#161 Pleasant St	Loudon TL	Paved	0.250	high	med-high	No Maint-9	Good-9
Ring Rd	1	Kellys Corner Rd	Kaime Rd	Paved	0.168	low	low	Rehabilitate-2	Good-2
Robinson Rd	1	US Route 4	End of Robinson Rd	Paved	0.094	low	low	Routine-2	Good-2
Smith Sanborn Rd	2	Highland Dr	US Route 4	Paved	0.230	medium	medium	Preventive-6	Good-6
Staniels Rd	1	Horse Corner Rd	West Rd	Paved	0.370	med-high	low-med	No Maint-6	Good-6
Swiggy Brook Rd	1	South of Stream	NH Route 28	Paved	0.330	medium	low-med	No Maint-5	Good-5
Swiggy Brook Rd	2	North of Stream	NH Route 28	Paved	0.420	medium	low-med	No Maint-5	Good-5
Webster Mills Rd	1	NH Route 28	House # 131	Paved	0.280	medium	med-high	Rehabilitate-7	Good-7
Webster Mills Rd	2	House #131	Pittsfield TL	Paved	0.610	medium	med-high	Rehabilitate-7	Good-7
Wexford Dr	1	Connemara Dr	End Wexford Dr	Paved	0.290	low	low	No Maint-2	Good-2
					24.349				

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

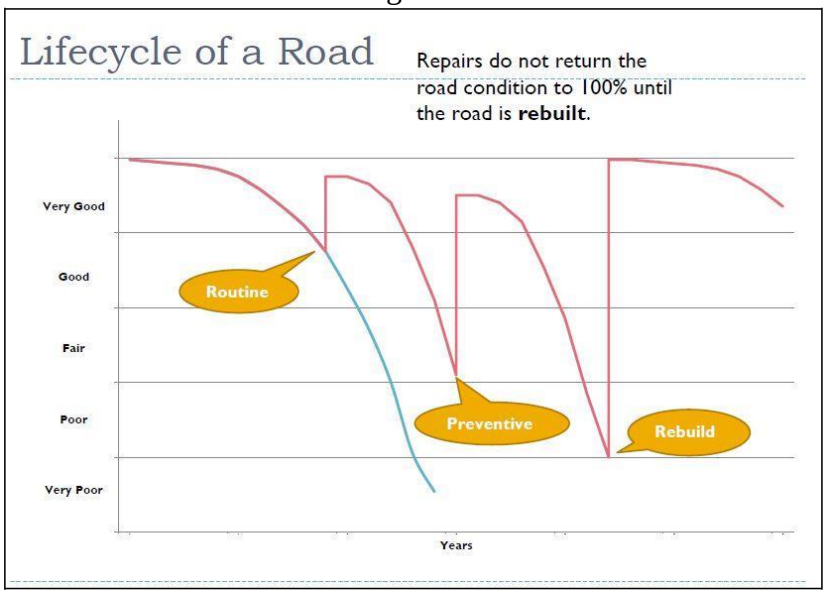
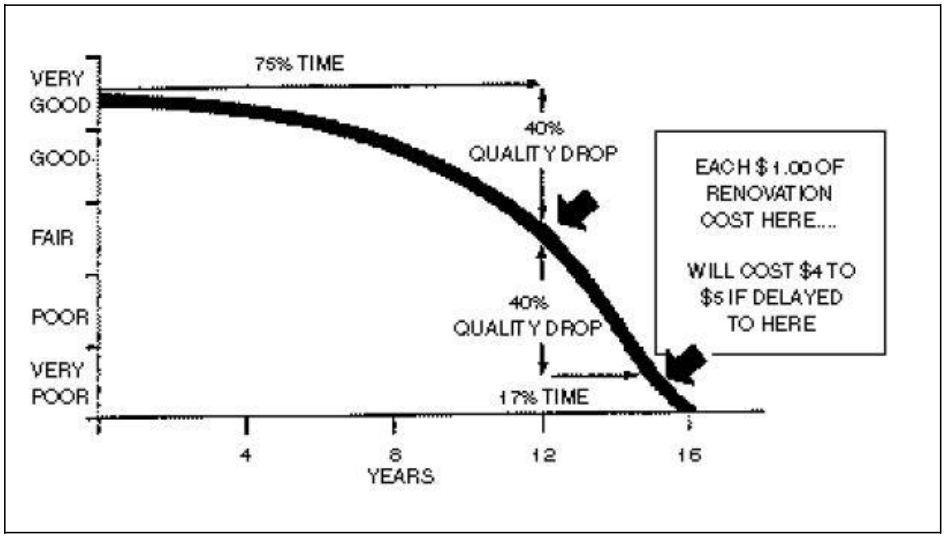


Figure 2



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, many 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 2017 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 subjective understanding 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	2010	2011	2012	2013	2014	2015	2016	2017
Bailey Road	Horse Corner intersection				165				
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		
Bear Hill Rd	Route 28 intersection			797		645			
Burnt Hill Road					76				
Canterbury Rd	Loudon town line		529		525		480		
Canterbury Rd	Main St intersection	809		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					
Connemara Dr	Bailey Rd intersection			197					
Cross Rd	Route 4 intersection			146	215			199	
Deer Meadow Road					367				
Depot St	At the bridge	501		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	West of Swiggy Brook Rd							208	184
Horse Corner Rd	Route 4 intersection	703	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	1,230	1,130	1,212	1,126	1,146	1,447		
Hutchinson Rd	Pembroke town line			238		220	252		
Hutchinson Rd	Lane Rd Intersection		407						
Hutchinson Rd	South of Short Falls Rd							296	
Kelly's Corner Rd	Over Sanborn Brook	488			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			
Perry Brook Rd	South of Healy Pasture Rd							37	
Pleasant St.	Loudon town line				567		559		
Pleasant St	Kelly's Corner Rd intersection		833	756	882	771			
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	237				210			
Webster Mills Rd	Route 28 Intersection		669		691				716
Webster Mills Rd	Over Suncook River	606	676		560		619		
State maintained roads in Chichester (published by NH Department of Transportation https://www.nh.gov/dot/org/operations/traffic/tvr/locations/index.htm									
NH Route 28	North of Bear Hill Rd	13,678	13,307	13,137	13,180	13,291	13,412		
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	17,325	16,792	16,509	16,695	16,721	16,965		
US Route 4	Pembroke town line	17,954	15,000		14,000				
US Route 4	Weathervane restaurant								
US Route 4	Mason Rd intersection								
Main St	East of Canterbury Rd	8,111			6,700	6,499			
Main St	At Sander's Brook	7,422	6,500		6,000				
Main St	US Route 4 intersection		8,569						

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

	Gravel		Paved	
Traffic	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	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.

4. Reconstruction Projects Completed 2013-2017

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 five years of this plan.

Table 5

2013	
Segment	**Length (miles)**
Kelly's Corner Rd 3 & 4	0.401
Pleasant Street #2	0.450
Pleasant Street #4	0.400
	1.251
2014	
Segment	**Length (miles)**
Horse Corner Road #6	0.251
Horse Corner Road #9	0.463
	0.714
2015	
Segment	**Length (miles)**
Bear Hill Road #1	0.686
Pleasant Street #3	0.240
	0.926

2016	
Segment	**Length (miles)**
Horse Corner Road #2	1.341
	1.341
2017	
Segment	**Length (miles)**
Pleasant Street #5	0.250
Bear Hill Road #2	0.789
	1.039
TOTAL	**5.271**

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. Six 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.

6: Recommended Project for 2018

The committee recommends that the four segments of King Road be reconstructed in 2018, the entire length from the Loudon town line to Dover Road. The designated segments total 1.31 miles (of the town's 24.3 miles of paved roads).

King Road segments 1, 2, 3, & 4

King Road is 6, 937 feet in length and is a main artery through Chichester with traffic volume over 1,000 vehicles per day. The road has been failing at multiple spots for years and has become a maintenance nightmare. It provides a critical avenue for our emergency response vehicles from Loudon. The town plans on grinding the entire length of roadway, removing the ledge outcrop at the top of the hill near Williams Automotive, adding underdrain where needed, replacing the three large culverts, adding gravel to raise the road, adding a geotextile at subbase compromised sections and building a concrete headwall at the culvert just down from the Route 4 intersection. Some work will be done by the town crew in 2017 in anticipation of the reconstruction to be done in 2018.

Bids were received and the Board of Selectmen selected the bidder with project cost of $319,575.75, subject to approval by the voters at March 2018 town meeting. This is below what the committee had estimated the cost to be. This compares to the $373,000 that was approved by voters for road reconstruction at Town Meeting in 2013, $373,000 in 2014, $250,000 in 2015, $300,000 in 2016, and $260,000 in 2017.

7: Projects for 2019

The committee is assessing six roads containing ten segments for consideration for reconstruction in 2019. No decision or recommendation is made at this time as to which should be done. During 2018 the committee will again assess the conditions of each road. We will then recommend one or more projects among them that total about 1.2 miles in total length in order to maintain the town's plan to keep our roads on a 20 year cycle.

Table 6 displays the six possible projects that we now believe should receive priority attention. These are listed in no particular order. During 2018 the committee will review the conditions on these segments as well as other paved roads. To continue the town's plan to reconstruct about 1.2 miles per year, the committee may propose multiple projects for 2019.

Table 6

2019	
Segments	**Length (miles)**
Bear Hill Road #5, 6, &7	1.046
East Ricker Road #1	0.430
Horse Corner Road #8	0.450
Horse Corner Road #10	0.220
Webster's Mills Road #1 & #2	0.890
Kelly's Corner Road #1 & #2	0.353

1. Bear Hill Road – Segments 5 , 6, & 7

These are the three segments that remain to be finished on this road. The committee has considered these three road segments for possible reconstruction for a few years. This project would start at Ferrin Road and end at the Loudon town line. Total length is 1.046 miles.

2. East Ricker Road – Segment 1

This short road segment is in dire need of repair. This project would start at the intersection with Bear Hill Road and stop sign and extend to the house at #256. Total length is 0.270 miles.

3. Horse Corner Road – Segment 8

This is one of the two segments of Horse Corner Road that have not been completed yet under our plan. The committee's report has listed this for future consideration for two years. This project would start at the house at #125 and extend to Garvin Hill Road. Total length is 0.450 miles.

4. Horse Corner Road – Segment 10

This is one of the two segments of Horse Corner Road that have not been completed yet under our plan. This project would start at Towle Road and the end of the State maintained segment, includes the intersection with Lane Road, and extends to the house at #79. Total length is 0.220 miles.

5. Webster's Mills Road – Segments 1 & 2

These two road segments run from NH Route 28 to the Pittsfield town line. Total length is 0.890 miles.

6. Kelley's Corner Road – Segments 1 & 2

These two segments remain to be reconstructed on this road. The other two segments were completed in 2013. The committee's report last year listed this as one project for future consideration. This project would start at the intersection with Pleasant Street and the bridge and extend southward to the intersection with Route 28. Total length is 0.353 miles.

8: Projects for 2020-2032

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 onsite 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 2020, 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 the paved roads in Chichester.

9. Paving Gravel Roads

The RAC does not recommend paving any gravel roads at this time. However, we recommend a greater investment in materials for gravel road maintenance.

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 7 shows average daily traffic measured over a full 7 days.

Table 7

Traffic measurement location	Vehicles/day
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