Town of Chichester

2011 Report of the Road Advisory Committee

January 9, 2012

Road Advisory Committee
Doug Hall (Chairman) John Amsden, Stan Brehm, Richard DeBold (Selectman ex-officio),
Dave Dobson, Tom Jameson, Alan Mayville, Jr., Terry McCormack, Jim Plunkett (Road Agent)

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Acknowledgment

The Road Advisory Committee would like to thank Jim Plunkett (Chichester Road Agent) for his continuing support of the Committee. The Committee also extends a special thanks to the Central New Hampshire Regional Planning Commission for the information, software, and on-the-ground assistance that they were able to provide.

I. Introduction

A. Legal Basis

The Road Advisory Committee (RAC) was originally established by a vote of the townspeople at the Chichester Town Meeting held on March 19, 2005. The original warrant article read as follows; "To see if the town will vote to direct the Selectmen to establish a committee of not less than 7 citizens plus the road agent to prepare a written long term proposal for roads to be delivered to the Selectmen at a public meeting no later than the last week in October 2005".

By virtue of the specific language of the warrant article, the article did not call for an annual report or for a continuing committee.

Subsequently, the original RAC's Charter was amended and updated on February 15, 2011, under the authority of the Board of Selectmen. The changes made to the original RAC Charter were; 1) to make the RAC a permanent 'standing' committee, 2) minor changes in the membership structure of the RAC, 3) to require an annual 'Road Management Plan', and 4) updating the Mission Statement of the original Charter to more accurately define the RAC's responsibilities so as to work more in concert with the Town's Capital Improvement Committee.

B. Mission of the Committee

The Committee's Charter 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 (three years) and long-term (ten years) maintenance and 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 maintenance and repairs by assisting the Road Agent, Selectmen, Budget Committee, and Capital Improvement Program Committee (CIP) with evaluation, planning, and scheduling of road work."

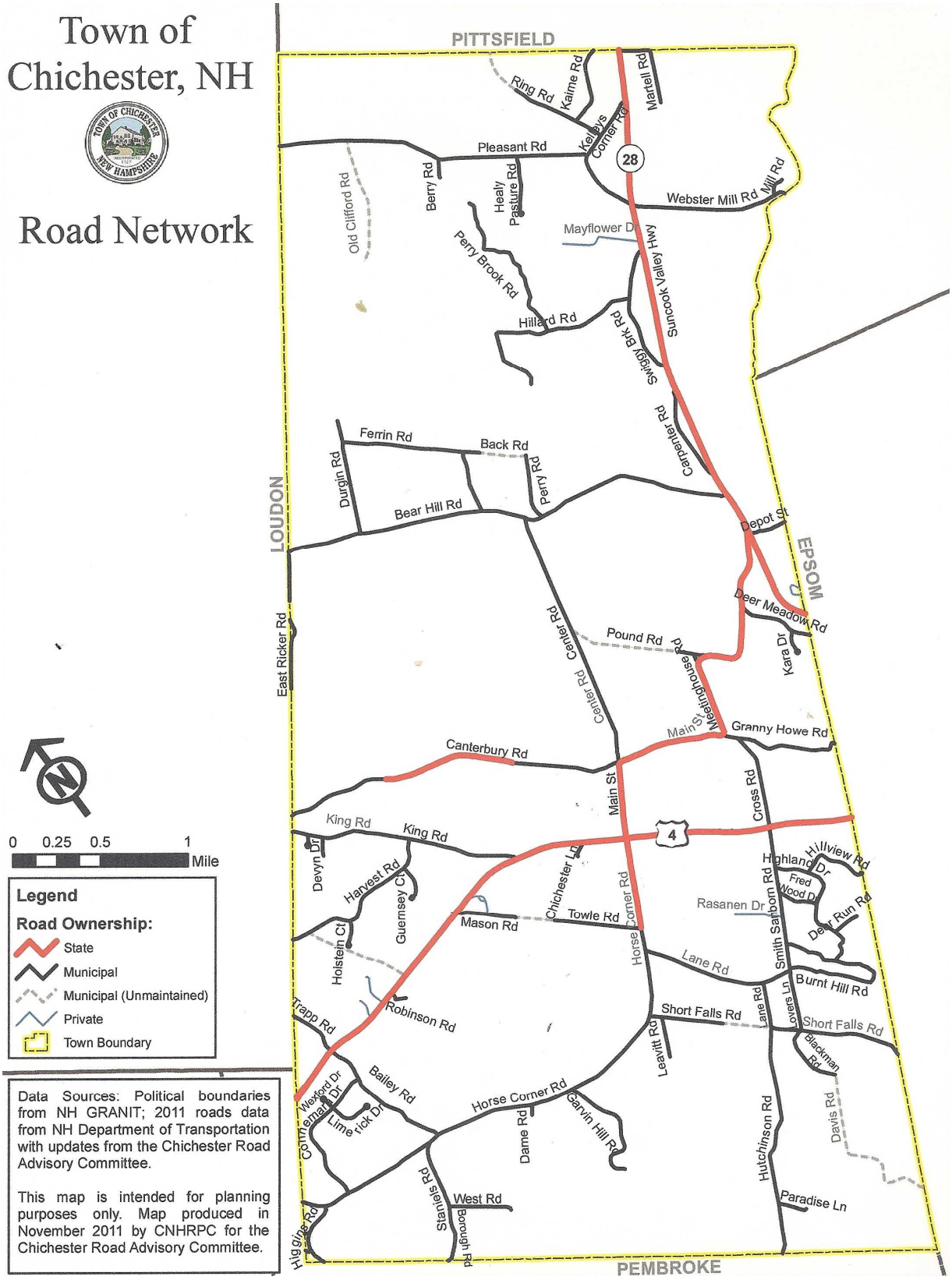
C. Committee Membership

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 RAC are: Richard DeBold (Selectman Ex-Officio); Doug Hall (Chairman); Stan Brehm; David Dobson; Tom Jameson; John Amsden; Terry McCormack; Allen Mayville; Jim Plunkett (Road Agent).

Town of Chichester, NH

Road Network



0 0.25 0.5 1 Mile

Legend

Road Ownership:

- State
- Municipal
- Municipal (Unmaintained)
- Private
- Town Boundary

Data Sources: Political boundaries from NH GRANIT; 2011 roads data from NH Department of Transportation with updates from the Chichester Road Advisory Committee.

This map is intended for planning purposes only. Map produced in November 2011 by CNHRPC for the Chichester Road Advisory Committee.

II. Road Surface Management System (RSMS)

A. Established with help of CNHRPC

This year the town arranged to receive assistance from the Central New Hampshire Regional Planning Commission (CNHRPC). Their assistance during the summer and fall included conducting some traffic counts, measuring road widths and lengths, and assessing surface conditions of each town road.

The CNHRPC also provided the Highway Department specialized software at no cost to the town which will be important for the future of road maintenance in Chichester. The Road Surface Management System is a product of the Maine Local Roads Center and is used by many other small towns in Maine and New Hampshire. The purpose of this software is "to assist town managers, road commissioners, public works directors, road committees, and budget committees develop a maintenance plan for their paved and gravel road network."

Data on Chichester's town road network was entered into RSMS by Jim Plunkett and Ruairi O'Mahony. Jim has begun to use it to determine needs, plan and prioritize projects, and record expenditures by project.

The importance of this software will only be fully realized in future years as the Road Agent and the RAC use the software and accumulate data.

B. Inventory of roads

Table 1 on the following pages contains the current inventory of town-maintained road segments in Chichester. Longer roads are divided into segments based on condition or logical locations. This is necessary to ensure that conditions and needs of one section of road are not implied to be the same over the entire length of the road. While this inventory currently has 92 road segments, we anticipate that some of the longer segments will be further subdivided in coming months as we fine-tune the use of the RSMS software.

There are 39.2 miles of town maintained roads. Of these, 58 segments totaling 24.8 miles are paved and 34 segments totaling 14.4 miles are gravel surface.

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

Table 1

Inventory of Chichester Maintained Road Segments from RSMS					11/30/2011
Road Name	**Segment**	**From**	**To**	**Surface**	**Length (mile)**
Back Rd	1	Ferrin Rd	Mailbox#15	Gravel	0.14
Bailey Rd	1	US Route 4	Connemara Dr	Paved	0.23
Bailey Rd	2	Connemara Dr	Horse Corner Rd	Gravel	0.52
Bear Hill Rd	1	NH Route 28	House #76	Paved	0.70
Bear Hill Rd	2	House #76	Ferrin Rd	Paved	0.76
Bear Hill Rd	3	Ferrin Rd	House #253	Paved	0.94
Bear Hill Rd	4	House #253	Loudon TL	Paved	0.23
Berry Rd		Pleasant Rd	End of Berry	Gravel	0.06
Blackman Rd		Short Falls Rd	To end of roadway	Gravel	0.40
Burnt Hill Rd		Lovers Ln	Smith Sanbord Rd	Paved	1.08
Canterbury Rd	1	Main St	House # 66	Paved	0.61
Canterbury Rd	3	House # 142	Loudon TL	Paved	0.58
Carpenter Rd		Route 28	Route 28	Paved	0.52
Center Rd		Bear Hill Rd	Canterbury Rd	Paved	1.52
Chichester Ln		US Route 4	End Chichester Ln	Gravel	0.09
Connemara Dr		Bailey Rd	Horse Corner Rd	Paved	0.84
Cross Rd	1	US Route 4	House #50	Paved	0.09
Cross Rd	2	House #50	Granny Howe Rd	Gravel	0.47
Dame Rd		Horse Corner Rd	End Dame Rd	Paved	0.06
Deer Meadow Rd		Main St	Epsom TL	Paved	0.43
Deer Run Rd		Highland Dr	End of Deer Run Rd	Gravel	0.15
Depot St		Route 28	Epsom TL	Paved	0.21
Devyn Dr		King Rd	End Devyn Dr	Gravel	0.14
Durgin Rd		Bear Hill Rd	End of Durgin Rd	Gravel	0.76
East Ricker Rd	1	Bear Hill Rd	#256	Paved	0.41
East Ricker Rd	2	House #256	Loudon Town Line	Paved	0.27
Ferrin Rd		Durgin Rd	Bear Hill Rd	Gravel	1.05
Fred Wood Dr		Highland Dr	Smith Sanbord Rd	Paved	0.23
Garvin Hill Rd		Horse Corner Rd	End Garvin Hill Rd	Gravel	0.72
Granny Howe Rd		Main St	Epsom TL	Gravel	0.69
Guernsey Ct		Harvest Rd	End Guernsey Ct	Paved	0.24
Harvest Rd		King Rd	Loudon TL	Paved	0.99
Healy Pasture Rd		Pleasant Rd	End of Healy Past.	Paved	0.38
Higgins Rd		Horse Corner Rd	Concord TL	Paved	0.39
Highland Dr	1	Smith Sanbord Rd	Burnt Hill Rd	Paved	0.87
Hilliard Rd		Swiggey Brook Rd	End of Hilliard Rd	Gravel	1.21
Hillview Dr	1	Smith Sanborn Rd	Epsom TL	Paved	0.42
Holstein Ct		Harvest Rd	End Holstein Ct	Paved	0.19
Horse Corner Rd	1	Pembroke TL	Connemara Dr	Paved	0.28
Horse Corner Rd	2	Connemara Dr	Bailey Rd	Paved	0.70
Horse Corner Rd	3	Bailey Rd	Dame Rd	Paved	0.55
Horse Corner Rd	4	Dame Rd	Garvin Hill Rd	Paved	0.28
Horse Corner Rd	5	Garvin Hill Rd	Leavitt Rd	Paved	0.60
Horse Corner Rd	6	Leavitt Rd	House #82	Paved	0.29
Horse Corner Rd	7	House #82	Towle Rd	Paved	0.23
Hutchinson Rd	1	Short Falls Rd	House #48	Gravel	0.49
Hutchinson Rd	2	House #48	House #91	Paved	0.37
Hutchinson Rd	3	House #91	Pembroke TL	Gravel	0.47

Table 1 (continued)

Inventory of Chichester Maintained Road Segments from RSMS					11/30/2011
Road Name	**Segment**	**From**	**To**	**Surface**	**Length (mile)**
Kaime Rd		Ring Rd	Pittsfield TL	Gravel	0.57
Kara Dr		Deer Meadow Rd	End of Kara Dr	Paved	0.17
Kellys Corner Rd	1	NH Route 28	House #13	Paved	0.22
Kellys Corner Rd	2	House #13	Pleasant St	Paved	0.13
Kellys Corner Rd	3	Pleasant St	Ring Rd	Paved	0.09
Kellys Corner Rd	4	Ring Rd	NH Route 28	Paved	0.35
King Rd	1	Loudon TL	House #114	Paved	0.25
King Rd	2	House #114	Harvest Rd	Paved	0.44
King Road	3	Harvest Rd	US Route 4	Paved	0.64
Lane Rd	1	Horse Corner Rd	House #32	Paved	0.30
Lane Rd	2	House #32	Smith sanborn Rd	Paved	0.49
Lane Rd	3	Smith Sanborn Rd	Hutchinson Rd	Paved	0.25
Leavitt Rd		Horse Corner Rd	End of Leavitt Rd	Gravel	0.30
Limerick Dr		Connemara Dr	End of Limerick Dr	Paved	0.10
Lovers Ln		Short Falls Rd	Smith Sanborn Rd	Gravel	0.35
Martel Rd		Route 28	End of Martel Rd	Gravel	0.48
Mason Rd		US Route 4	End of Mason Rd	Paved	0.34
Mayflower Rd		Route 28	End Mayflower Rd	Gravel	0.17
Meeting House Rd		Main St	Pound Rd	Paved	0.06
Mill Rd		Webster Mills Rd	End of Mill Rd	Gravel	0.10
Pardise Ln		Hutchinson Rd	End of Paradise	Gravel	0.17
Perry Brook Rd		Hillard Rd	End of Perry Brook	Gravel	0.43
Perry Rd		Bear Hill Rd	End of Perry Rd	Gravel	0.34
Pleasant St	1	Kellys Corner Rd	Healy Pasture Rd	Paved	0.40
Pleasant St	2	Healy Pasture Rd	Loudon TL	Paved	1.39
Pound Rd		Main St	End non-maintained	Gravel	0.22
Ring Rd	1	Kellys Corner Rd	Kaime Rd	Paved	0.17
Ring Rd	2	Kaime Rd	End of Ring Rd	Gravel	0.66
Robinson Rd		US Route 4	End of Robinson Rd	Paved	0.10
Short Falls Rd	1	Leavitt Rd	House #61	Gravel	0.35
Short Falls Rd	2	Lane Rd	Epsom TL	Gravel	0.77
Smith Sanborn Rd	1	Lane Rd Int	Highland Dr	Gravel	0.67
Smith Sanborn Rd	2	Highland Dr	US Route 4	Paved	0.23
Staniels Rd	1	Horse Corner Rd	West Rd	Paved	0.37
Staniels Rd	2	West Rd	Pembroke TL	Gravel	0.32
Swiggy Brook Rd	1	South of Stream	NH Route 28	Paved	0.33
Swiggy Brook Rd	2	North of Stream	NH Route 28	Paved	0.33
Towle Rd		Horse Corner Rd	End Towle Rd	Gravel	0.45
Trap Rd		US Route 4	Loudon TL	Gravel	0.31
Webster Mills Rd	1	NH Route 28	House # 131	Paved	0.61
Webster Mills Rd	2	House #131	Pittsfield TL	Paved	0.30
West Rd		Staniels Rd	End West Rd	Gravel	0.35
Wexford Dr		Connemara Dr	End Wexford Dr	Paved	0.29
TOTAL TOWN MAINTAINED ROADS					39.19

C. Road conditions

RSMS provides a means to categorize each road segment according to its importance, traffic volume, drainage and various surface conditions. RSMS combines all of the characteristics of the road and recommend what may need to be done to best maintain the road. The general categories are: No surface maintenance, Routine surface maintenance, Preventive work, Rehabilitate, Reconstruct. Those are also be further subdivided by degree.

The University of New Hampshire's Technology Transfer Center has created this definition of these five major categories:

1. No Maintenance: No action required. The road section 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 both road surface types, routine maintenance should include 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.

Routine maintenance therefore has the highest value in the RSMS priority setting procedure. Routine maintenance can usually be performed by the town's road crew, and should be included in the town's annual budget. Roads requiring routine maintenance are slowly but surely deteriorating. Adequate funds should be made available consistently across annual budgets to ensure that roads in good condition remain so.

3. Preventive Maintenance: For paved roads, coating of the surface and chip seals of thin (1 ½ 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.

Preventative maintenance is performed on roads that are in sufficiently good condition and require inexpensive repair to extend road life. In the RSMS priority setting procedure, preventive maintenance has the second highest value and should receive a high priority in annual funding of highway budgets. Much of the work is within the highway department's capability with the exception of chip seals that are usually performed by contractors. The town should plan to accomplish all preventive maintenance within annual operations budgets.

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.

Rehabilitation is more expensive than routine or preventive maintenance, but less expensive than reconstruction. For paved roads, contractors usually perform rehabilitation repairs.

Municipalities should fund them through a Capital Improvements Program (CIP). Large amounts of gravel required for unpaved roads may also be funded though a CIP. Before town officials attempt to fund these out of annual budgets, they should consider the impact on routine and preventive maintenance. It is much less expensive in the long run to keep good roads in good condition than to let them deteriorate to where they need rehabilitation. On the other hand, roads needing rehabilitation are rapidly deteriorating and will become much worse quickly without adequate funding.

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 subbase 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.

Reconstruction is so costly that it can absorb a large portion, if not all, of a municipality's annual budget, and therefore allow too small a budget for routine and preventative maintenance. Their accomplishment, therefore, will also best be funded with a CIP.

Road conditions for each road segment are recorded based on field inspections. The seven conditions for paved roads that are recorded are:

- Alligator cracking;
- Longitudinal/Trans Cracking;
- Edge Cracking;
- Patches/Potholes;
- Roughness;
- Rutting;
- Roadside Drainage.

For each condition, the severity is rated as none, low, medium, or high and the extent is rated as none, low, medium, or high.

Figure 1 is an example of the field survey form used during the inspection and assessment process.

Figure 1

Road Survey Form

Name: Bailey Rd **Sec:** 1
From: US Route 4 **MP:** 0.00
To: Connemara Dr **MP:** 0.23

Surface: Paved **Importance (1-5):** 3
Length : 0.23mi. **Traffic (1-5):** 3
Width: 12.00ft. **Speed:** 25
Shoulder: Natural
Sh Width: 2.00ft.
Jurisdiction: Townway

Alligator Cracking

Extent

Severity	<10%	10-30%	>30%
none			
low	X		
med			
high			

Long/Tran Cracking

Extent

Severity	<10%	10-30%	>30%
none			
low	X		
med			
high			

Edge Cracking

Extent

Severity	<10%	10-30%	>30%
none			
low	X		
med			
high			

Patches/Potholes

Extent

Severity	<10%	10-30%	>30%
none	X		
low			
med			
high			

Roughness

Extent

Severity	<10%	10-30%	>30%
none	X		
low			
med			
high			

Rutting

Extent

Severity	<10%	10-30%	>30%
none	X		
low			
med			
high			

Roadside Drainage

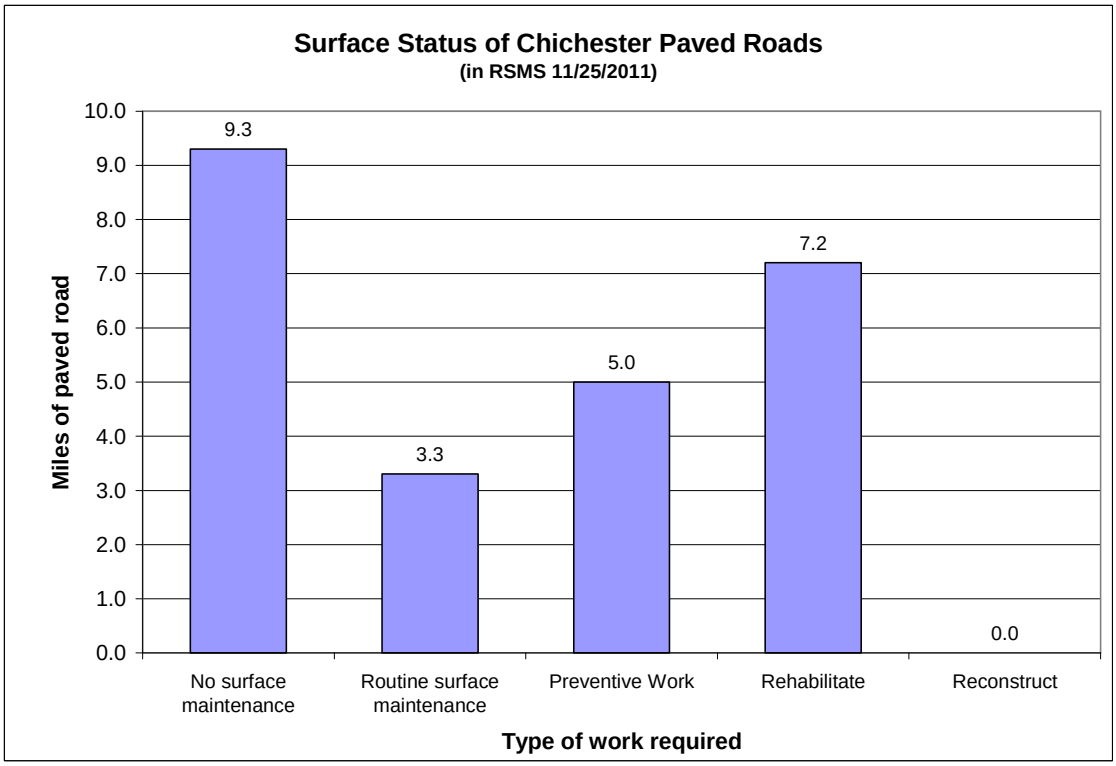
Extent

Severity	<10%	10-30%	>30%
none			
low	X		
med			
high			

The RSMS then uses this information to suggest the type of work that may be required. Figure 2 provides a summary of Chichester's paved road mileage by category.

Note: The road condition data entered into Chichester's new RSMS software was collected in the summer/fall of 2011 by CNHRPC staff. CNHRPC staff were trained as to what to look for when surveying the town's road network. While the RSMS survey forms are comprised of a standardized set of variables, some of the interpretations as to the road surface condition are at the discretion of the surveyor. Therefore, the RSMS program in Chichester will be improved after RAC members verify data each year and continue to complete a regularly scheduled inventory of the town's road network. The individual road segments can be manipulated into smaller or larger sized segments in the future if need be. This is at the discretion of the RAC, and along with a regular inventory of the road network, the RAC will be able to tailor the RSMS program and develop a town specific process that will help prioritize both regular maintenance and any necessary rehabilitation of all town maintained roads.

Figure 2



Note that this is the data for paved roads only. The goal of the Road Agent and the RAC is to develop a plan that will reduce the number of miles in the "Rehabilitate" and "Reconstruct" categories and keep as many miles as possible in the "No surface maintenance" and "Routine surface maintenance" categories.

D. Future use for budgeting and reporting

The Road Agent has begun learning how to use these features of the RSMS software. It is expected that the RAC's report next year will include budgeting and cost information that is supported by RSMS.

III. Highway Projects and Maintenance Completed in 2011

The Chichester Highway Department (CHD) had a very productive year in 2011. The CHD has completed many projects and has continued to stay on top of road maintenance throughout the town. The following is work that was completed during the year.

A. Road Rehabilitation

Rehabilitated West Road
Rebuilt Pleasant Street from Kelly's Corner Road to Healy Pasture Road
Rebuilt 2,200 ft. of Lane Road section 2 and installed 1,800 ft. of underdrain

B. Road repairs

Washed and sealed three bridges
Swept all roads and bridges
Repaired head walls on Center Road box culvert
Fixed Ring Road at #44
Finished head walls at #17 King Road
Fixed ponding at Smith Sanborn and Burnt Hill Roads
Replaced 800+/- ft of underdrain on Kelly Corner Road
Widened Hilliard Road at end just before hill: replaced culvert, raised roadway
Installed catch basin on Garvin's Hill Road
Crack sealed and sand sealed Connamara Drive
Removed trees in ditch line and fixed ditch line along Center Road
Fixed pavement and crack sealed Center Road
Installed catch basin and culvert pipes at #17 Ring Road
Regraded and widened Lover's Lane
Widened Durgin Road from Bear Hill Road to Ferrin Road
Ditched Higgins Road
Started to ditch south side of town.
Added shoulder gravel to Lane Road section 1
Installed 600 ft. underdrain on Hutchinson Road at town line
Raised Bailey Road profile

C. Culvert work

Cleaned culverts out
Installed culverts at #67 Swiggey Brook Road
Installed catch basin and culvert at # 21 King Road
Installed culvert pipe, catch basin on and 500+/- feet of underdrain Pleasant Street
Installed 2 culvert pipes at #17 Pleasant Street

Replaced 4 culvert pipes on Horse Corner Road
Installed culvert at #53 Carpenter road
Replaced culvert Webster Mill Road
Installed culvert and underdrain at Bailey and Horse Corner Roads
Replaced driveway culvert Granny Howe Road and Main Street
Replaced culvert at West and Staniels Roads
Flushed culvert near #105 King Road
Replaced undersized culvert King Road #76
Replaced culvert on Lovers Lane

D. Tree removal

Oak tree on Horse corner just east of Garvin's Hill Road
Birches on Staniels Road
2 dead trees at 86 Horse Corner Road
Multiple trees between #103 and #126 Horse Corner Road
Multiple trees on Center Road between #77 and #106
Multiple pine trees at #8 Smith Sanborn Road
Ash and maple at 65 Smith Sanborn Road
Multiple trees on Short Falls Road
2 clumps of trees near #27 Lovers Lane
10 maples on Canterbury Road

E. Other Work

In addition to completing the above listed projects the Chichester Highway Department was busy with other tasks.

Winter plowing/maintenance
General brush cutting along rights of way
Road Sign replacement and repair
Wrote grants (Perry Brook Rd, Hilliard Rd for example)
Wrote F.E.M.A Reimbursement reports
Budget development/cost management
Facility management and repair
Equipment repair/maintenance
Issued driveway permits
Conducted traffic counts
Supported RAC meetings and efforts

IV. Traffic on Chichester Roads

A road's condition is affected by the presence of water, freezing and thawing, and normal aging of materials. The volume and type of traffic on a road also has a major impact on its condition. Conducting traffic counts gives the RAC this information and also enables the RAC to determine trends in road usage and monitor changes that are caused by specific future developments.

The Road Agent and the Committee continue to gather data on traffic volumes on town roads.

Table 2 below shows the history of traffic counts on roads in town. Each number is the average number of vehicles per day that travel that road location. Readers will note that there were no traffic counts performed on town maintained roads in 2008 and 2009 and few done during 2003 and 2004.

Some of our roads carry many more than 1,000 cars per day while others have fewer than 100. These differences are important when we consider which roads are high priority for maintenance and repair.

Figure 3 is an example of the traffic count reports that this Committee received from counters placed on town roads by the CNHRPC at the request of this Committee. Note that it includes counts by hour and by day. We expect that next year we will also have counts by speed and vehicle type on some town roads.

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	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Back Road											
Bailey Rd	Horse Corner intersection										
Bailey Rd	Route 4 intersection	191			1,105		570				
Bailey Rd	At # 28 Bailey rd										58
Bear Hill Rd	Loudon town line					539					454
Bear Hill Rd	Route 28 intersection				643	685	593				
Berry Road											
Blackman Rd											
Burnt Hill Rd											
Canterbury Rd	Loudon town line	627				520					529
Canterbury Rd	Main St intersection									809	1,262
Canterbury Rd	East of Center Rd										442
Carpenter Rd											
Center Rd	Bear Hill Rd intersection										433
Center Rd	Main St intersection	544	1,046		431	445					
Chichester Ln											
Connemara Dr	Bailey Rd intersection										197
Cross Rd	Route 4 intersection	149					165				146
Cross Rd	Main St intersection										
Dame Rd											
Deer Meadow Rd											
Deer Run Rd											
Depot St	At the bridge	462		590			420			501	993
Devyn Dr											
Durgin Rd											
East Ricker Rd											
Ferrin Rd											
Fredwood Dr	Smith Sanborn Rd intersection										65
Fredwood Dr	Highland Dr intersection										19
Garvin Hill Rd											
Granny Howe Rd											
Guernsey Ct											
Harvest Rd											
Healy Pasture Rd											
Higgins Rd											
Highland Dr											
Hillard Rd											
Hillview Dr											
Holstein Ct											
Horse Corner Rd	Route 4 intersection	1,170				1,076				703	1,329
Horse Corner Rd	Lane Rd intersection	937									1,060
Horse Corner Rd	Staniels Rd intersection										
Horse Corner Rd	Pembroke town line	784				937				1,230	1,130
Hutchinson Rd	Pembroke town line										238
Hutchinson Rd	Lane Rd Intersection	268					238				407
Kaime Rd											
Kara Dr											
Kelly's Corner Rd	Over Sanborn Brook	629		620			521			488	
King Rd	Loudon town line										1,165
King Rd	Route 4 intersection	1,140				531	978				
King Rd	At # 26 King Rd										1,231
Lane Rd	Horse Corner Rd intersection										1,350
Lane Rd	Hutchinson Rd intersection										407
Leavitt Rd											
Limerick Dr											
Lovers Ln											

Table 2 (continued)

History of traffic counts on Chichester road segments											
All counts on this sheet are average vehicles per day											
Road Name	**Location of counter**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Martel Rd											
Mason Rd											
Mayflower Rd											
Meeting House Rd											
Mill Rd											
Paridise Ln											
Perry Brook Rd											
Perry Rd											
Pleasant St	Loudon town line										
Pleasant St	Kelly's Corner Rd intersecti	786			454	824	734				833
Pound Rd											
Ring Rd											
Robinson Rd											
Short Falls Rd											
Smith Sanborn Rd	Route 4 intersection		466		441	496	373				434
Smith Sanborn Rd	Lane Rd Intersection		261								407
Staniels Rd	Pembroke town line										262
Staniels Rd	Horse Corner Rd intersection										241
Swiggy Brook Rd	Over Perry Brook		200	240			240			237	
Towle Rd											
Trap Rd											
Webster Mills Rd	Route 28 Intersection				595		619				669
Webster Mills Rd	Over Suncook River	520		550			600			606	676
West Rd											
Wexford Dr											
State maintained roads in Chichester											
NH Route 28	North of Bear Hill Rd	13,564	13,845	13,695	14,000	13,975	13,800	13,269	13,263	13,678	
NH Route 28	Epsom town line			7,414							
NH Route 28	Pittsfield town line			26,233							
NH Route 28	South of Main St	9,725									
NH Route 28	North of Main St	16,106									26,096
US Route 4	East of Chichester Rd	17,832	18,000	17,717	17,605	17,775	17,000	16,776	17,251	17,325	
US Route 4	Pembroke town line			24,000			22,000			17,954	
US Route 4	Weathervane restaurant		13,351								
US Route 4	Mason Rd intersection		13,175								
Main St	East of Canterbury Rd	6,400		7,000			7,100			8,111	
Main St	At Sander's Brook	6,200		6,600			9,000			7,422	
Main St	US Route 4 intersection		7,581								8,569

Central NH Regional Planning Commission
28 Commercial Street
Concord, NH 03301
(603) 226-6020

Site Code: 000000000000
Station ID:
Webster Mills Road

Latitude: 0' 0.000 Undefined

Start Time	Mon 17-Oct-11	Tue 18-Oct-11	Wed 19-Oct-11	Thu 20-Oct-11	Fri 21-Oct-11	Average Day	Sat 22-Oct-11	Sun 23-Oct-11	Week Average
12:00 AM	2	4	4	2	5	3	1	5	3
01:00	2	1	1	1	1	1	3	4	2
02:00	0	0	0	0	1	0	3	1	1
03:00	3	4	4	5	4	4	4	1	4
04:00	11	6	5	6	9	7	1	2	6
05:00	22	23	14	21	17	19	5	5	15
06:00	42	34	37	40	34	37	12	9	30
07:00	**55**	**58**	**65**	**59**	**56**	**59**	27	22	**49**
08:00	52	52	55	40	38	47	47	27	44
09:00	36	31	27	33	19	29	45	43	33
10:00	31	31	22	38	36	32	**73**	**52**	40
11:00	26	36	36	38	33	34	55	45	38
12:00 PM	35	28	36	34	36	34	52	46	38
01:00	32	46	42	36	57	43	57	38	44
02:00	37	41	52	49	41	44	43	46	44
03:00	**65**	53	50	**70**	56	**59**	54	**47**	**56**
04:00	60	46	**65**	62	51	57	**59**	39	55
05:00	52	**62**	53	42	**76**	57	55	47	55
06:00	35	38	33	48	48	40	30	34	38
07:00	23	28	23	26	27	25	28	29	26
08:00	14	27	18	11	16	17	24	23	19
09:00	15	16	8	13	19	14	19	7	14
10:00	3	2	6	8	14	7	13	7	8
11:00	4	10	6	8	8	7	9	6	7
Day Total	657	677	662	690	702	676	719	585	669
% Avg. WkDay	97.2%	100.1%	97.9%	102.1%	103.8%				
% Avg. Week	98.2%	101.2%	99.0%	103.1%	104.9%	101.0%	107.5%	87.4%	
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00	10:00	10:00	07:00
Vol.	55	58	65	59	56	59	73	52	49
PM Peak	15:00	17:00	16:00	15:00	17:00	15:00	16:00	15:00	15:00
Vol.	65	62	65	70	76	59	59	47	56
Grand Total	657	677	662	690	702	676	719	585	669

ADT ADT 670 AADT 670

Figure 3

V. Three Year Plan: Recommended Major Capital Projects

The Road Advisory Committee is charged with working with the Road Agent to propose short (3 year) and long term (10 year) road maintenance and repair goals for the town. This year the RAC was able to review and recommend possible repair projects for the coming three years. We list here four capital projects for 2012, 2013, and 2014 that the Committee recommends at this time. This is just a short term plan and, as such, is subject to review and possible revision each year.

A. East Ricker Road - 2012

(Loudon/Chichester town line to Loudon town line – 3,785 feet)

Most of East Ricker Road is in very poor condition. The remainder is in poor condition. A short section was shimmed in 2007 but even that section is starting to deteriorate. Potholes have been numerous and two sections of the road have threatened to break up completely in the spring and under wet conditions. One section of the road has water seeping from it in all but the driest conditions. The pictures below indicate (1) very extensive alligator cracking, (2) a small boulder protruding from below (3) edge deterioration and a short-term patch (4) another section which has been patched and shows sinking of the roadbed.

Base and finish pavement will be applied. There are nine gravel driveways and five paved driveways. Considerable underdrain and shoulder leveling work will be required

(1)

(2)

(3)

(4)

The Committee recommends a warrant article in 2012 of $128,389 for this project.

B. Perry Brook Road - 2012

(Perry Brook culvert and 100 feet on either side on Perry Brook Road – 200 feet)

Perry Brook flooded onto the road in 1996 (twice), 1998, 2005, 2006, and 2007. The pictures below indicate (1) deterioration of the surface above the culvert which further narrows the one lane bridge. (2) the older construction of the culverts. (3) an additional culvert put in place as a short term fix to partially mitigate the flooding. (4) The left side of the bridge indicating the need for guardrails

A culvert system will be installed which will prevent future flooding. In addition the road will be widened so as to allow two vehicles to pass.


(1)


(2)


(3)


(4)

Seventy Five percent of the $180,000 cost for the culvert, gravel, ditching and guardrails will be born by a FEMA grant. FEMA accepted the town's grant application in March 2011 and funding was recently approved. It is required that the town fund twenty five percent ($45,000) of the total cost ($180,000) in order to receive the $135,000 grant. The $45,000 requirement can and will be reduced by town expenditures which include labor, use of town vehicles, etc. Also included in the project cost is the preliminary plan engineered by CLD Engineering in 2009 (wetland study, runoff water shed study, heritage study, and right-of-way survey) which has already been paid for by the town. This set of expenditures amounts to $22.800 which leaves $22,200 additional to be raised by the town.

The town must complete the project by December 31, 2013, or it will lose the federal funds,

Note - an application has also been made to fund the reconstruction of the culvert system at Perry Brook on Hilliard Road. This Hilliard road application has been accepted and approved by FEMA but not yet funded. It is likely that a warrant for the Town's portion of this FEMA grant will appear for the 2013 town meeting

C. King Road Section 2 - 2013

(Starting at Harvest Road and going west 2,250 feet to 114 King Road)

The road settles and ledge outcropping appears in the spring which has caused a series of resident complaints. Springtime also brings several areas that seep water. This road was last sealed in 2008. The pictures below indicate (1) alligator cracking, (2) edge deterioration, (3) edge deterioration and sinking of the roadway and (4) edge deterioration.

Blasting will be required. The base will be reclaimed, graded, and compacted and a top coat added. Underdrain work will be required due to water being present. Shoulder leveling will also be required. There are eight gravel drives and five paved drives.

(1)

(2)

(3)

(4)

The Committee recommends a warrant article in 2014 of $107,301 for this project.

D. Horse Corner Road Section 2 - 2014

(From Connemara Drive to Staniels Road - 2,820 feet)

The pictures below indicate (1) extensive alligator cracking and (2) edge deterioration and sinking of the roadway.

The pavement will be reclaimed, graded, and compacted. A base and top coat will be added. Approximately 850 feet of underdrain work is required due to water being present. Shoulder leveling is also required along almost the entire length. There are four gravel drives and fourteen paved drives.

(1)

(2)

The Committee recommends a warrant article in 2014 of $98,461 for this project.

VI. Project Budget Calculations

This year and last year the Road Agent has been using an Excel spreadsheet to develop budgets for major road repair projects. The spreadsheet template was created by members of Chichester's Capital Improvement Program (CIP) Committee for the Road Agent. This spreadsheet has been used in developing the cost projections for the capital projects that we recommend for years 2012, 2013, and 2014.

Table 3 is the spreadsheet used to develop the cost estimate for repaving East Ricker Road

Table 3

Detail Cost Breakdown for CIP					
Road Name:	East Ricker Road				
Current Condition:	Fair / Poor				
RE:					
Status in Highway Plan:	2011				
Project starting point:	Bear Hill Road Intersection				
Project ending poing:	Loudon Town Line				
Work Last Done:	Paved	Shim	Seal	Other	(Circle one)
If 'Other', describe:					
Year work was done:					
Length to be repaired, upgraded or		ft.	3,785		
Width of road base		ft.	20		
Estimated project duration (8 hour		Days	12		
Thickness of base pavement:		in.	2.00		
Thickness of finish pavement:		in.	1.00		
Tons of pavement (Base):			946.25		
Tons of pavement (Finish):			473.125		
Asphalt Cost per ton (Base):			$ 75.00		
Asphalt Cost per ton (Finish):			$ 75.00		
			Total Cost for paving:		$ 106,453.13
			Qty	Cost Per	Total Cost
Number of intersections:			1		$0.00
Number of gravel drives:			9	$100.00	$900.00
Number of paved drives:			5	$550.00	$2,750.00
Grind/replace sub-base:		sq yds	8411.11	$1.50	$12,616.67
	Culverts				$0.00
	Driveway:	ft.			$0.00
	Road:	ft.	40	$20.00	$800.00
Tree Work / Ditching:		ft.			$0.00
Ditch re-seeding:		ft.			$0.00
Shoulder leveling:		ft.	7500	$0.35	$2,625.00
Underdrain:			650	$2.20	$1,430.00
Gravel for road upgrades:		ton	20	$5.70	$114.00
Gravel for driveways:		ton		$5.70	$0.00
Comspans:		per			$0.00
Box Culverts:		ft.			$0.00
Guard rails:		ft.			$0.00
Equipment rental:		per wk.	1		$700.00
Town equipment usage:		per wk.			
Town labor:		per hr.			
			Total Project Cost (Today)		$ 128,388.79
			Annual Projected Cost Escalation		3.0%

VII. Long Range Planning

Long range planning for town roads should provide a means by which reasonable progress on needed major repairs can be made as well as provide for annual maintenance on the roads not in need of major work. A continual effort needs to be made each annual budget session to provide funding for one or more major rebuilding projects. Ongoing maintenance is an annual expense that should not be neglected; bigger projects need to be spaced and planned as to be as acceptable as possible to taxpayers.

Because the RAC was only re-established and began its work in May, the Committee has not had sufficient time to prepare a long term (10 year) plan. Over the next 12 months the RAC will be able to utilize the new RSMS data system, more traffic counts, and actual onsite inspections of road conditions to present a full 10 year plan in our 2012 report.

We know that there are some town maintained roads that have a heavy burden of traffic, connect to major state highways, and/or carry through traffic to and from neighboring towns. The conditions of these roads, in particular, will need to be monitored closely. It will be important to plan for their maintenance and future repair.

Ultimately, which major road projects in Chichester will be completed is determined by the will of the voters and the scheduling proposed by the town's Capital Improvement Program (CIP) Committee. This Committee believes, however, that the town will need to invest more than it has in recent years if we are to avoid a slow and prolonged deterioration of our nearly 40 miles of town maintained roads.