

FINAL

LEBANON CITY COUNCIL WORK SESSION MINUTES Wednesday, August 16, 2023, 6:00 p.m. Council Chambers

Remote Via Microsoft Teams: LebanonNH.gov/Live

MEMBERS PRESENT: Mayor Tim McNamara, Assistant Mayor Clifton Below, Erling Heistad, Karen Liot Hill, George Sykes, Douglas Whittlesey, , and Karen Zook

MEMBERS ABSENT: Christian Simon, Devin Wilkie

STAFF PRESENT: City Manager Shaun Mulholland, Deputy City Manager – Public Services Nik Coates, Assistant Director Public Works Jay Cairelli and Alan Hamilton, Highway Maintenance

1. **CALL TO ORDER:** Mayor McNamara called the meeting to order at 6:00 p.m.
2. Presentation on Pavement Management Strategies from the University of New Hampshire (UNH) Technology Transfer Center (Note: Presentation was not included in agenda packet, but most of the slides presented are included below.)

Mr. Bruce Davis and Bobby Betsold introduced themselves before giving and explaining the following informational slides to the Council.

Municipal Road Maintenance City of Lebanon, NH

August 16, 2023
Bruce Davis & Bobby Betsold

Agenda

- Getting to Know Your Roads
- Pavement Management & Strategies
- Treatment Options
- Network Approach & Budgeting
- Next Steps – Putting it All to Work

What role do your roads play?

- Commuting
 - To and from work, school, doctors, stores
- Services
 - Police, fire, ambulance, mail, trash
- Commerce/Shipping
 - Merchandise, natural resources, food
- Tourism
 - Beaches, mountains, skiing, events
- Recreational
 - Walking, cycling



What happens when roads are...

- Snow covered or icy
- Flooded or washed out
- Closed by downed trees or powerlines
- Blocked by accidents
- Over-congested
- Deteriorated to an unsafe level



Your Most Valuable Asset

- Integral part of everyday life
- Largest financial asset in city
- Can have significant impacts (positive and negative) on many aspects of town activities
- Is your network getting the attention it deserves?



Lebanon's Road Network



PRESENT DAY VALUE OF ROAD NETWORK						
MILEAGE:			UNIT COSTS:			
	92	Paved	Pavement	\$75	/ ton	
	8	Gravel	Gravel	\$35	/ ton	
Depth (inches)	PAVED ROADS					
	Material	Cost/SY	Miles	Width (ft)	SY	Cost
4	Pavement	\$ 16.80	92	24	1,295,360	\$ 21,762,048
12	Gravel	\$ 15.84				\$ 20,515,264
TOTAL VALUE PAVED ROADS						\$ 42,277,312
Depth (inches)	GRAVEL ROADS					
	Material	Cost/SY	Miles	Width (ft)	SY	Cost
12	Gravel	\$ 15.84	8	16	75,093	\$ 1,189,291
TOTAL VALUE OF GRAVEL ROADS						\$ 1,189,291
TOTAL VALUE OF THE NETWORK:						\$ 43,466,603
ANNUALIZED DEPRECIATION AT				20	YEAR LIFE	\$ 2,173,330

Road Materials Only...No Ancillary Items!

The Change in Road Maintenance

- Increased traffic volumes
- Increased heavy truck traffic
- Increased material costs
- Level or decreased budgets

*The Perfect Storm
for Road Maintenance*



Pavement Management



The practice of planning for pavement maintenance and rehabilitation with the goal of maximizing the value and life of a pavement network.

- A system to regularly collect roadway condition data
- A database to sort and store the collected data
- An analysis program to evaluate treatments and strategies at a network level
- Can be done internally or contracted out to a consultant / engineering firm based on your needs and resources

Enables you to perform the Right Repair at the Right Time on the Right Road!

What Goes Into Your Projects



- Treatment Options
- Multimodal Infrastructure
- Utilities (public & private)
- Traffic Signals
- Municipal Policies & Programs
- Public Input
- Safety Improvements
- Maintenance Planning



TOWN-OWNED ROADWAYS



PEDESTRIAN & BICYCLE INFRASTRUCTURE



ADA & AAD COMPLIANCE

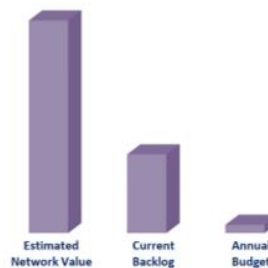


PUBLIC TRANSIT

Evaluate Your Funding

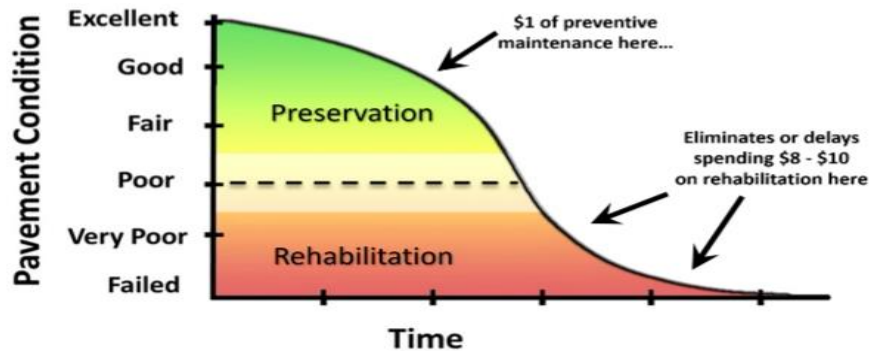


- Estimated Network Value
 - Cost to rehabilitate all roadways
- Current Backlog
 - Cost to complete all maintenance required
 - Snapshot in time based on roadway condition assessments
- Annual Road Budget
 - Combination of state funding with municipal allocation for roads

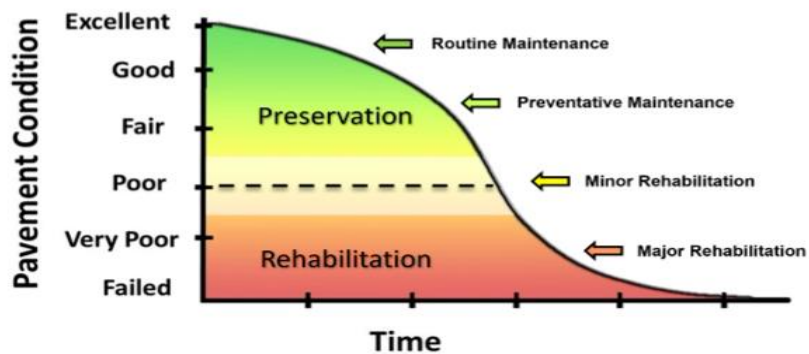


Pictures depicting the various types of pavement distress and what causes pavement distress was reviewed.

Life of Pavement



Life of Pavement



Treatment Options by Category

Routine Maintenance

- Crack Seal
- Fog Seal

Preventative Maintenance

- Conventional Chip Seal
- Asphalt Rubber SAM/Is
- Microsurfacing
- Cape Seal
- Bonded Wearing Course
- HMA Overlay

Minor Rehabilitation

- Shim & Overlay
- Mill and HMA Overlay
- Hot In-Place Recycling
- Cold In-Place Recycling

Major Rehabilitation

- Full Depth Reclamation
- Reconstruction

Surface Seals

- Crack Seal
- Fog Seal
- Chip Seal (Single, Double, Asphalt Rubber)
- Microsurfacing (Single, Double)
- Cape Seals

Surface Seals can only extend the life of roads by 3-7 years.

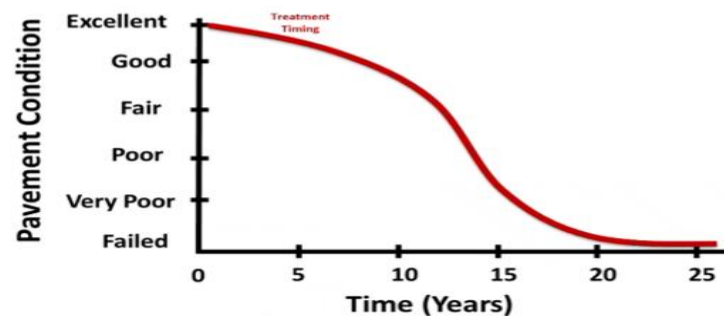
HMA Overlays / Mill & Fills

- Conventional HMA Overlay
- Bonded Wearing Course
- Shim & Overlays
- HMA Mill & Fill

Recycling & Rehabilitation

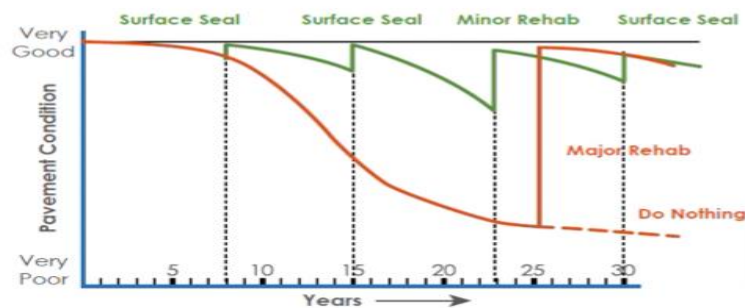
- Hot In-Place Recycling
- Cold In-Place Recycling
- Full Depth Reclamation (with or without stabilization)

Treatment Timing vs. Cost



The case for preventative maintenance should be the same for roads as we do for cars in order to maintain the City's roadway asset.

Strategy Comparison



“Worst First” Not the Best Fiscal Policy



- Fixing the worst roads first means rebuilding, which has the highest cost
- Maintenance on other roads is neglected and their conditions worsen
- Each year adds more miles to the list of “worst” that need rebuilding
- Agencies dig themselves into a deeper financial hole with the “Worst First” strategy.

What Does This Mean for You?



- Like all assets, your roads age (deteriorate) each year
- Your annual work must at least equal the life lost by your network or you lose ground each year
- Every treatment option has...
 - Unit cost
 - Estimated life extension (number of years until the road returns to its prior condition)



Treatment Life Extensions



Treatment	Good Condition (PCI=80)	Fair Condition (PCI=60)	Poor Condition (PCI=40)
Crack Seal	1 - 3	0 - 2	0
Single Seal	4 - 8	3 - 5	0 - 3
Double or High Performance Seal	6 - 12	3 - 8	2 - 4
Thin Overlay or Combo	8 - 14	4 - 10	3 - 6
FDR & HMA	12 - 18	12 - 18	12 - 18

**Applying treatments at the right time
yields the best return on your investment!**

What Does This Mean For Lebanon?



- Two Maintenance Strategies
 - Rehab & Repair
 - Rehab, Repair, and Preserve
- Three Funding Levels
 - \$550,000
 - \$1,000,000
 - \$1,500,000

Remember that your annualized depreciation is ~\$2.1M

\$550,000 Annual Budget



Rehab & Repair Strategy

Item #	Process	Miles	Life Extension	Years Gained	Cost Per Mile	Subtotal
1	Reclaim & Repave	1.00	15	15	\$285,824	\$285,824
2	1.5" Mill & Fill	2.00	10	20	\$125,312	\$250,624
3	Thin Overlay	0.00	10		\$107,712	
4	Single Seal	0.00	8		\$62,656	
5	Crack Seal	0.00	3		\$7,500	
6						
TOTAL		3.00	n/a	35	n/a	\$536,448

Rehab, Repair & Preserve Strategy

Item #	Process	Miles	Life Extension	Years Gained	Cost Per Mile	Subtotal
1	Reclaim & Repave	0.75	15	11	\$285,824	\$214,368
2	1.5" Mill & Fill	1.00	10	10	\$125,312	\$125,312
3	Thin Overlay	0.75	10	8	\$107,712	\$80,784
4	Single Seal	1.50	8	12	\$62,656	\$93,984
5	Crack Seal	4.00	3	12	\$7,500	\$30,000
6						
TOTAL		8.00	n/a	53	n/a	\$544,448

\$1,000,000 Annual Budget



Rehab & Repair Strategy

Item #	Process	Miles	Life Extension	Years Gained	Cost Per Mile	Subtotal
1	Reclaim & Repave	1.75	15	26	\$285,824	\$500,192
2	1.5" Mill & Fill	3.75	10	38	\$125,312	\$469,920
3	Thin Overlay	0.00	10		\$107,712	
4	Single Seal	0.00	8		\$62,656	
5	Crack Seal	0.00	3		\$7,500	
6						
TOTAL		5.50	n/a	64	n/a	\$970,112

Rehab, Repair & Preserve Strategy

Item #	Process	Miles	Life Extension	Years Gained	Cost Per Mile	Subtotal
1	Reclaim & Repave	1.25	15	19	\$285,824	\$357,280
2	1.5" Mill & Fill	1.50	10	15	\$125,312	\$187,968
3	Thin Overlay	1.75	10	18	\$107,712	\$188,496
4	Single Seal	3.00	8	24	\$62,656	\$187,968
5	Crack Seal	8.00	3	24	\$7,500	\$60,000
6						
TOTAL		15.50	n/a	99	n/a	\$981,712

\$1,500,000 Annual Budget



Rehab & Repair Strategy

Item #	Process	Miles	Life Extension	Years Gained	Cost Per Mile	Subtotal
1	Reclaim & Repave	2.50	15	38	\$285,824	\$714,560
2	1.5" Mill & Fill	6.00	10	60	\$125,312	\$751,872
3	Thin Overlay	0.00	10		\$107,712	
4	Single Seal	0.00	8		\$62,656	
5	Crack Seal	0.00	3		\$7,500	
6						
TOTAL		8.50	n/a	98	n/a	\$1,466,432

Rehab, Repair & Preserve Strategy

Item #	Process	Miles	Life Extension	Years Gained	Cost Per Mile	Subtotal
1	Reclaim & Repave	1.75	15	26	\$285,824	\$500,192
2	1.5" Mill & Fill	2.00	10	20	\$125,312	\$250,624
3	Thin Overlay	3.00	10	30	\$107,712	\$323,136
4	Single Seal	5.50	8	44	\$62,656	\$344,608
5	Crack Seal	9.00	3	27	\$7,500	\$67,500
6						
TOTAL		21.25	n/a	147	n/a	\$1,486,060

Lebanon's Network Strategy (92 Miles)



Budget	Strategy	Miles Treated	Total Cost	Years Gained	EAC
\$550K	Rehab & Repair	3.0	\$536,448	35	\$1.09
	Rehab, Repair & Preserve	8.0	\$544,448	53	\$0.73
\$1M	Rehab & Repair	5.5	\$970,112	64	\$1.08
	Rehab, Repair & Preserve	15.5	\$981,712	99	\$0.70
\$1.5M	Rehab & Repair	8.5	\$1,466,432	98	\$1.07
	Rehab, Repair & Preserve	21.25	\$1,486,060	147	\$0.72

Summary & Take-Aways



- The (asset) value and importance of municipal roadways must be considered more closely
- There are numerous treatments available...not all will work on every road and in every community, so finding the best fit is critical
- Only increased funding AND a blended strategy will allow Lebanon to maintain or improve their network

Mr. Jay Cairelli (Assistant Director of Public Works) walked through and explained the pictures of Slayton Hill, Poverty Lane, Old Pine Tree Cemetery Road, Storrs Hill, and Stoney Brook Road, noting the types of repairs these roads need and the potential cost of repairs.

Slayton Hill



Poverty Lane



Old Pine Tree Cemetery Road



Storrs Hill



Stoney Brook Road



Thank You!

Questions or Follow-up?

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Respectfully submitted,
Dona E. Gibson, Recording Secretary