



Upper Nazareth Township ROAD MAINTENANCE PROGRAM

Data & Statistics
Maintenance Funding & Strategy

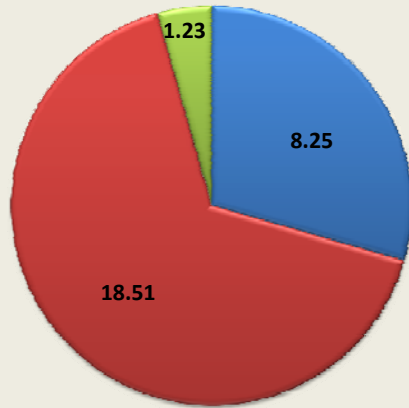


Upper Nazareth Township Road Network Statistics



TOWNSHIP ROAD MILES BY ROAD CLASS

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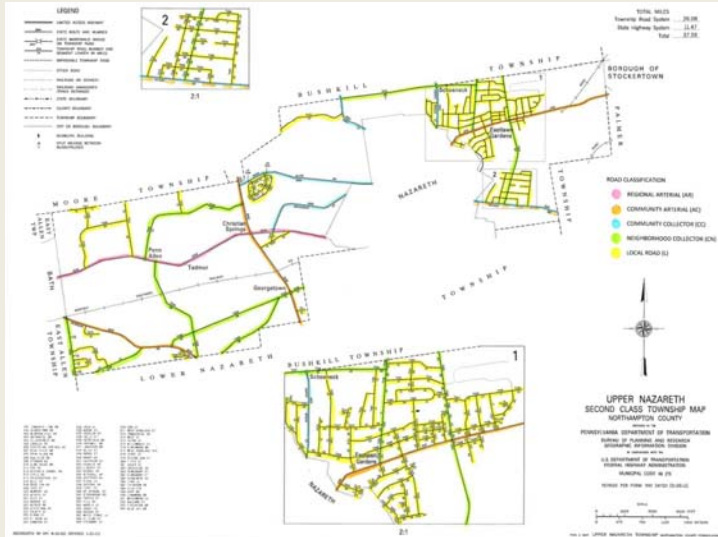
- COLLECTOR
- LOCAL
- ALLEY

27.99 TOTAL MILES OF TOWNSHIP ROADS



ROAD CLASSIFICATION MAP

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ROAD - MAINTENANCE AREA STATISTICS

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MA	ROAD		No. ROADS	No. SEG*	SEG:ROAD RATIO
	MILES	% TOTAL			
1	6.48	23.15%	30.00	79.00	2.63
2	9.53	34.05%	39.00	112.00	2.87
3	2.71	9.68%	9.00	19.00	2.11
4	3.39	12.11%	6.00	10.00	1.67
5	5.88	21.01%	11.00	20.00	1.82
TOTALS	27.99	100.00%	95.00	240.00	2.53

* SEG = road segment, typically intersection-to-intersection

Relating the number of road segments to the number of roads gives an indication of development density in the different Maintenance Areas.



MAINTENANCE AREA DATA

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MAINT. AREA	ROAD TYPE	No. OF ROADS	ROAD MILES	CONDITION
I	Collector	1	0.87	C
	Local	26	4.91	C-
	Alley	3	0.70	E-
	Total	30	6.48	D+
II	Collector	4	1.86	B-
	Local	32	7.27	C
	Alley	3	0.40	F
	Total	39	9.53	C
III	Collector	0	-	-
	Local	8	2.58	C
	Alley	1	0.13	D+
	Total	9	2.71	C-
IV	Collector	1	1.38	C
	Local	5	2.01	C-
	Alley	-	-	-
	Total	6	3.39	C-
V	Collector	5	4.14	D-
	Local	7	1.74	C+
	Alley	-	-	-
	Total	12	5.88	D+



EXPLANATION OF ROAD CONDITION GRADES

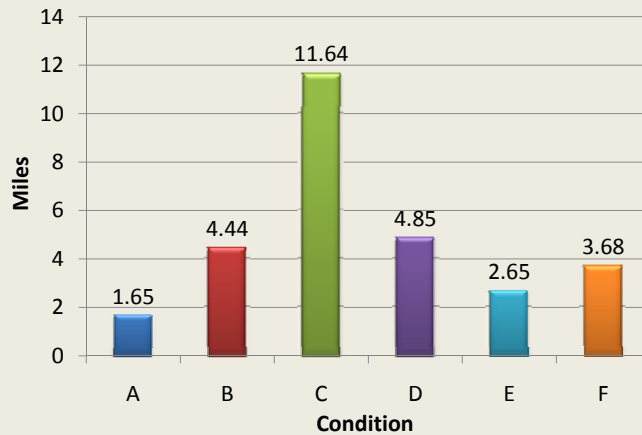
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- A. Excellent No work required for min. three (3) years.
- B. Very Good Requires maintenance, primarily crack sealing.
- C. Good Requires crack repair and surface treatment, but no base reconstruction.
- D. Fair Requires limited to no base reconstruction; Needs extensive crack repair and surface treatment.
- E. Poor Requires extensive but partial base reconstruction, crack repair, and surface treatment.
- F. Failing Requires full reconstruction.



OVERALL ROAD CONDITIONS

01



C- OVERALL ROAD CONDITION IN UNT



ASSESSMENT

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- Borderline Good
- Majority of Roads can be preserved with surface treatments
- Many Road Miles at risk of degrading rapidly
- Approximately six (6) miles need major or full reconstruction at an average cost of \$1.5M dollars per road mile



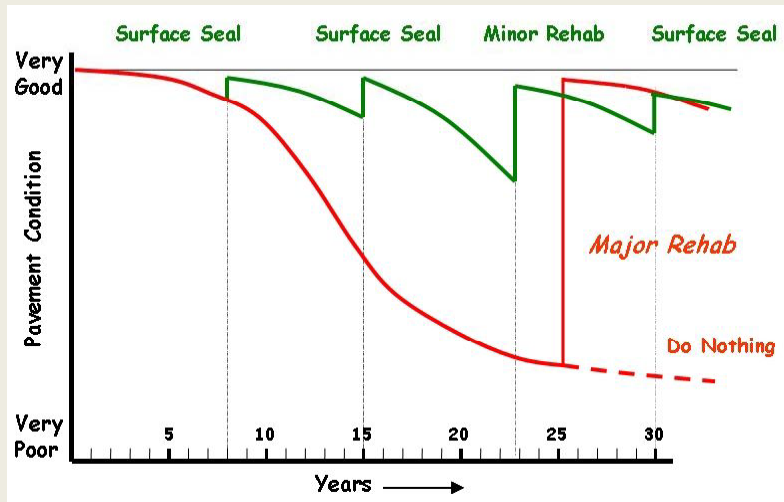
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The Funding Challenge



EXTENDING PAVEMENT LIFE WITH MAINTENANCE

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2/1/2012

UNT ROAD MAINTENANCE PROGRAM

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ESTIMATED COST TO ACHIEVE A 'B' NETWORK

02

ROAD CONDITION	ROAD MILES	REPAIR COST*
A	1.65	\$8,250 @ \$5,000 / road mile
B	4.44	\$53,280 @ \$12,000 / road mile
C	11.64	\$989,400 @ \$85,000 / road mile
D	4.85	\$2,910,000 @ \$600,000 / road mile
E	2.65	\$2,915,000 @ \$1,100,000 / road mile
F	3.68	\$6,256,000 @ \$1,700,000 / road mile
Totals	28.91	\$13,131,530

* rough estimate at current dollars based on 32' wide road

This estimate is for roads only and does not include work such as:

- Drainage Improvements
- Roadside Safety Maintenance & Improvements
- Street Light/Traffic Signal O&M

2/1/2012

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TARGET MAINTENANCE CYCLE

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- 27.99 Total Township Road Maintenance Miles*
- 7-Year Maintenance Cycle = 4.00 miles of road per year
- 10-Year Maintenance Cycle = 2.80 miles of road per year
- Current Liquid Fuels Funding is sufficient to only address about 1 mile of road per year with surface treatments and no reconstruction, which translates into a 21-Year Maintenance Cycle, which is unsustainable
- 4.65 miles of new road will be dedicated soon, raising road mile maintenance levels to 4.66 and 3.26 miles for seven and ten year maintenance periods respectively



BASIC MAINTENANCE FUNDING GAP

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Beyond the basic funding challenge to bring all roads up to a maintenance condition is the issue of funding basic maintenance – this should be a priority.

The Numbers

Township Road Miles	27.99
2012 Liquid Fuels Disbursement	\$117,793
Liquid Fuels Funding per Road Mile	\$4,208
Seven-Year Liquid Fuels Funding per Road Mile*	\$34,265
Est. Seven-Year Maintenance Cost per Road Mile**	\$107,900
Seven-Year Maintenance Funding Deficit per Road Mile	\$73,635
Annualized Maintenance Funding Deficit per Road Mile	\$10,519.31
Total Annual Maintenance Funding Deficit (27.99 miles)	\$294,435.49

* Assume 4% annual increase in Liquid Fuels Disbursements

** Assume use of High Performance Oil & Chip Specification



THE REALITY OF BASIC ROAD REPAIR COSTS

02

- \$85K/mile = cost to maintain a good road every 7 to 10 years
- \$1.2M to \$1.7M/mile = road reconstruction cost!
- Current funding levels cannot maintain roads fast enough to prevent continued degradation of the road network
- For each 500 feet of road reconstructed, 2.15 miles of good road will fall into disrepair because of deferred maintenance
- **CONCLUSION:** stop reconstruction projects and focus on surface treatment maintenance until funding stream for reconstruction can be established



FUNDING

02

- **Liquid Fuels Funding** = \$4,200 per road mile for 2012 (An important funding source but inadequate to meet needs)
- **Taxes:** We are under-investing in our local infrastructure – Township revenues should minimally cover basic road maintenance costs
- **Bonding/Bank Loans** should be considered for reconstruction projects to spread the cost over a number of years



Comprehensive Road Maintenance Strategy



- Save as much as possible with road surface treatments
- Suspend major road reconstruction for three (3) years while a financing plan can be determined
- Commit to regular annual maintenance schedule
- Annually address other issues such as safety and drainage
- Equip and maximally utilize Township Road Department
- Create comprehensive, GIS-based infrastructure inventory to better manage all aspects of UNT's road network



ROAD MAINTENANCE STRATEGY ISSUES TO RESOLVE

03

- Surface treatment selection criteria to balance cost vs. appearance and rideability for bicyclists and rollerbladers
- How to use Liquid Fuels Carry-Over: We recommend using to accelerate road maintenance at Farmview and Tewksbury developments as well as for equipment purchase
- Need political commitment to create an infrastructure improvement fund that will not be used for other purposes, especially to make-up annual budget short falls



04

Liquid Fuels Budget Proposal



LIQUID FUELS FUNDING HISTORY & PROJECTIONS

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LIQUID FUELS DISTRIBUTIONS		
\$107,258	2010	
\$112,810	2011	5.2% increase
\$117,793	2012	4.4% increase
\$122,793	2013 anticipated	
\$127,793	2014 anticipated	
\$132,793	2015 anticipated	
\$137,793	2016 anticipated	

2012 LIQUID FUELS BALANCE	
\$262,310	2011 Carryover - Use as Capital Fund Base
\$117,793	2012 Distribution



PROPOSED LIQUID FUELS BUDGET DISTRIBUTION

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2012 BASELINE BUDGET		
117,793.00 2012 Liquid Fuels Disbursement		
10%	11,779.30	CAPITOL/CONTINGENCY FUND
5%	5,889.65	ROAD SAFETY
8%	9,423.44	DRAINAGE
0%	0.00	ROAD RECONSTRUCTION
77%	90,700.61	ROAD MAINTENANCE
100%	117,793.00	

This budget allotment presumes a strategy of aggressively saving the good roads in the township with less costly surface treatments. This budget also stresses the need to fund all areas of road maintenance so we do not end up with a huge, unfunded maintenance cost in the future. The high cost of road reconstruction needs to be addressed through a separate funding source.



Recommendations for Stretching the Road Dollars



STRETCH LIQUID FUELS FUNDING

- Use Liquid Fuels Funding to pay for non-capital improvement projects to the greatest extent possible
- Qualifying expenditures include: salt and equipment purchases; street light electricity, and traffic signal O&M costs
- Dedicate General Funds that would have been used for the above listed purposes to a dedicated transportation network improvement fund

GENERAL FUND TO LIQUID FUELS EXPENDITURES	
Salt	\$7,200
Street Lights	\$48,500
Traffic Signal	\$850
Total	\$56,550



MAXIMIZE FUNDING – REDUCE PAVED ROAD AREA

05

- Require new roads to meet Liquid Fuels requirements for inclusion in funding calculation without exception – one-time impact fees are not sustainable
- Consider restrictions on new road dedications in future development projects and push POA O&M
- Reduce overall pavement area by adopting Traditional Neighborhood Design principles to reduce road widths of existing and future roads
- Convert low volume country roads, dead ends, and alleys to Driving Surface Aggregate (DSA) roads



ROAD MAINTENANCE PROGRAM PRESENTATION

END

QUESTIONS