

Road Infrastructure Investments

What is the Goal for Town Road Infrastructure

- Develop a long term sustainable **Maintenance** and **Repair** program
- Determine an **Equitable Funding** mechanism
- **Identify the Order of Improvements** for residents
- **Monitor the Progress** with modifications

Program for Determining Road Infrastructure Improvements

PAVER 7.01 Program

This program is a decision making tool for the development of cost effective maintenance and repair alternatives for roads and streets, parking lots, and airfields. PAVER™ provides you with many important capabilities, including:

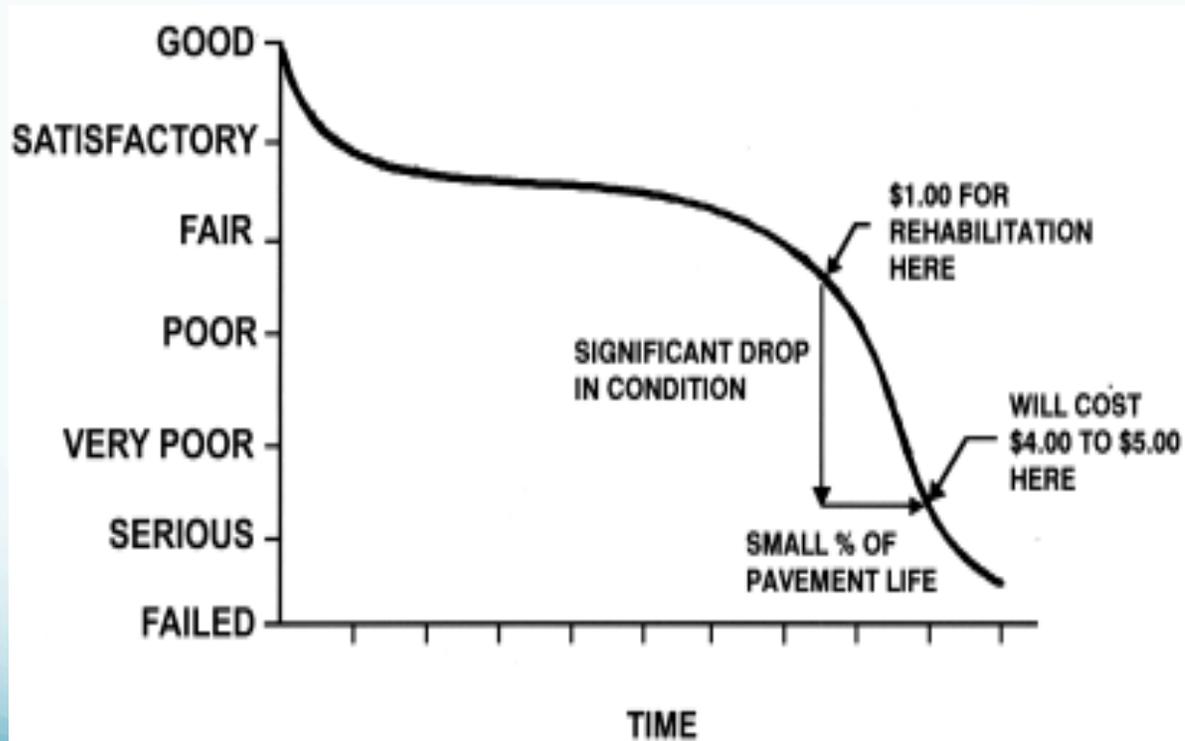
- ♣ Pavement network inventory
- ♣ Pavement condition rating “Pavement Condition Index = PCI”
- ♣ Development of pavement condition deterioration models (Family Curves)
- ♣ Determination of present and future pavement condition (Condition Analysis)
- ♣ Determination of maintenance and repair (M&R) needs
- ♣ Analyzing the consequence of different budget scenarios with inflationary and degradation factors (Work Planning)
- ♣ Project Formulation

The Rating System

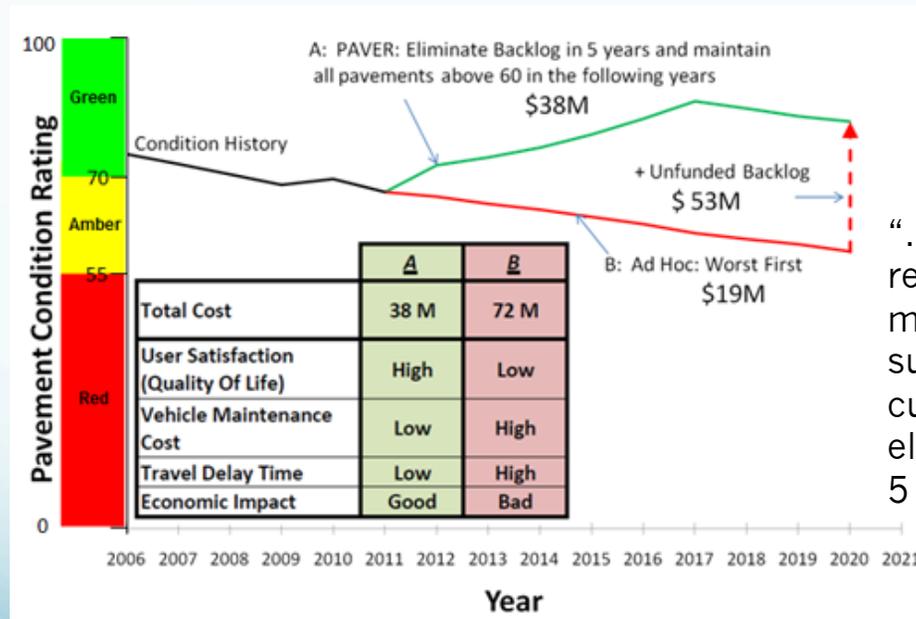
CONDITION	RANGE	GRADE
Good	86 - 100	A
Satisfactory	71 - 85	B
Fair	56 - 70	C
Poor	41 - 55	D+
Very Poor	26 - 40	D
Serious	11 - 25	F
Failed	0 - 10	F

PCI = Pavement Condition Index

Managing Road Investments

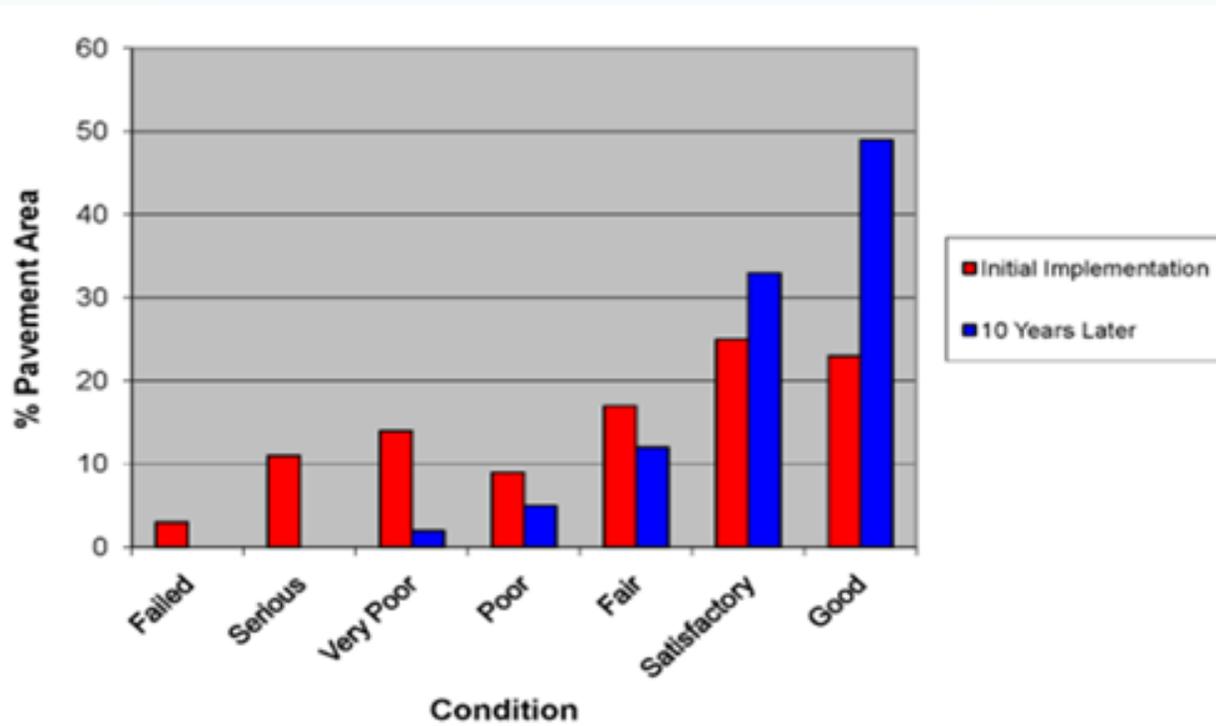


Determining the Investment



“...how much funding is required to meet management objectives such as maintaining current PCI or eliminating backlog in 5 years.”

History of Road Investments



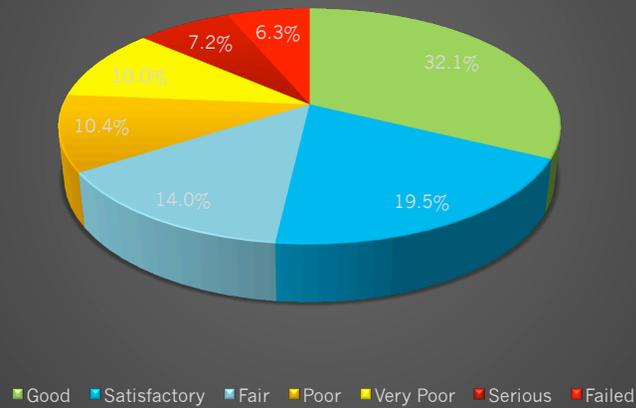
Road Variables Not Accounted and Assumptions made

- Drainage (closed or open systems, non-existent)
- Drainage Soils (type of soils; gravel, sandy, clay, etc.)
- Road Base (composition of materials; depth, quality)
- Pavement Thickness
- Pedestrian Sidewalks (location to major centers)
- Age of Road (past chronology, will provide going forward)
- Historical Issues (flooding, snow removal)
- Staff Observations (comments)
- Potential Grant Assistance for road improvements
- Other

The paving program is a tool to assist in the decision making process. It is not the exclusive determination.

Cumulative Road Ratings (all roads)

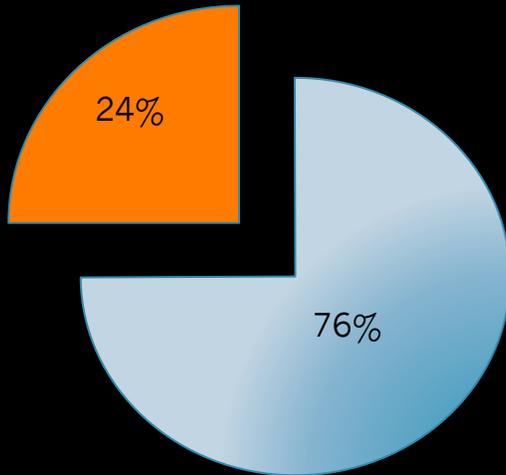
2014 PCI Roadway Ratings: Cumulative



CONDITION	RANGE	GRADE
Good	86 - 100	A
Satisfactory	71 - 85	B
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Must Preserve and Selectively Improve

Current Summary of Roads



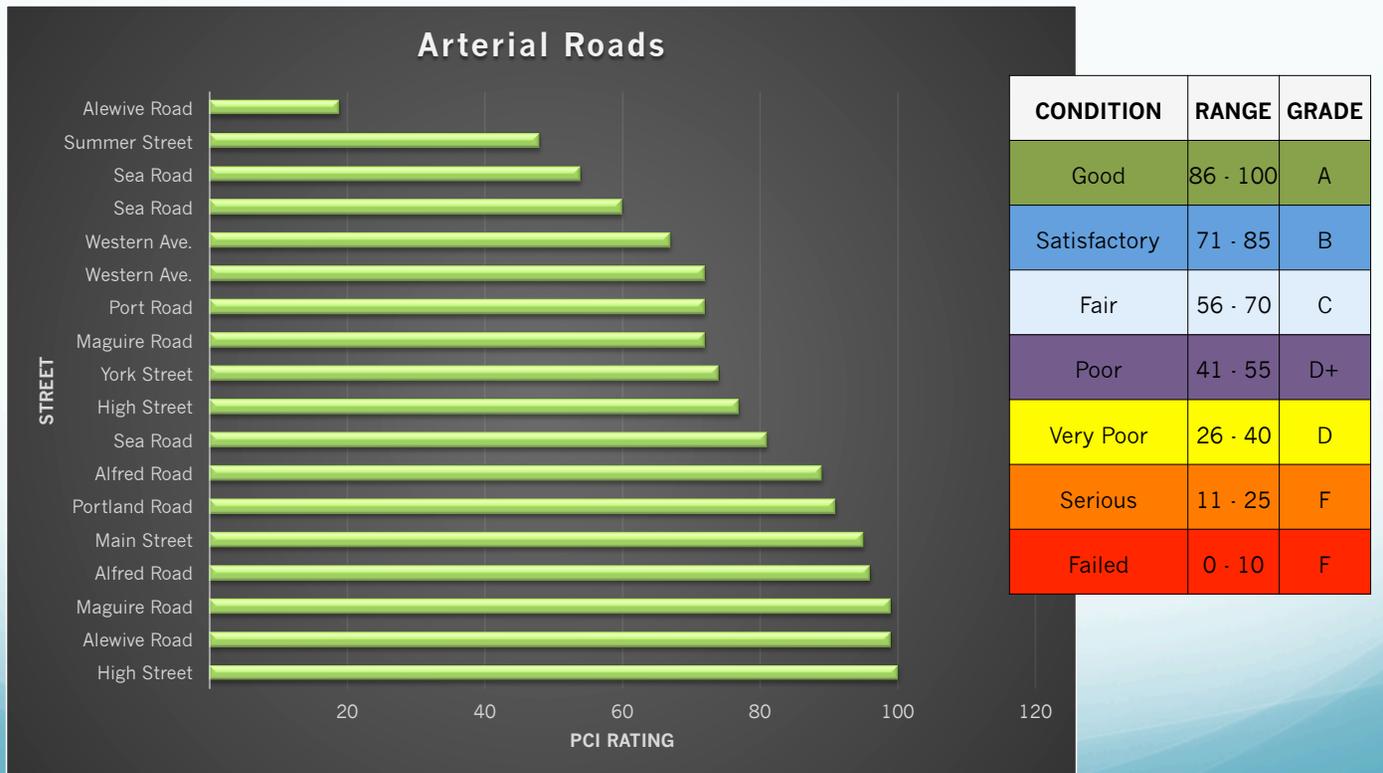
Must Preserve/Improve Condition

Good	32.1	= A
Satisfactory	19.5	= B
Fair	14.4	= C
Sub Total	66%	
Poor	10.4	= D+
	76%	

Selectively Improve

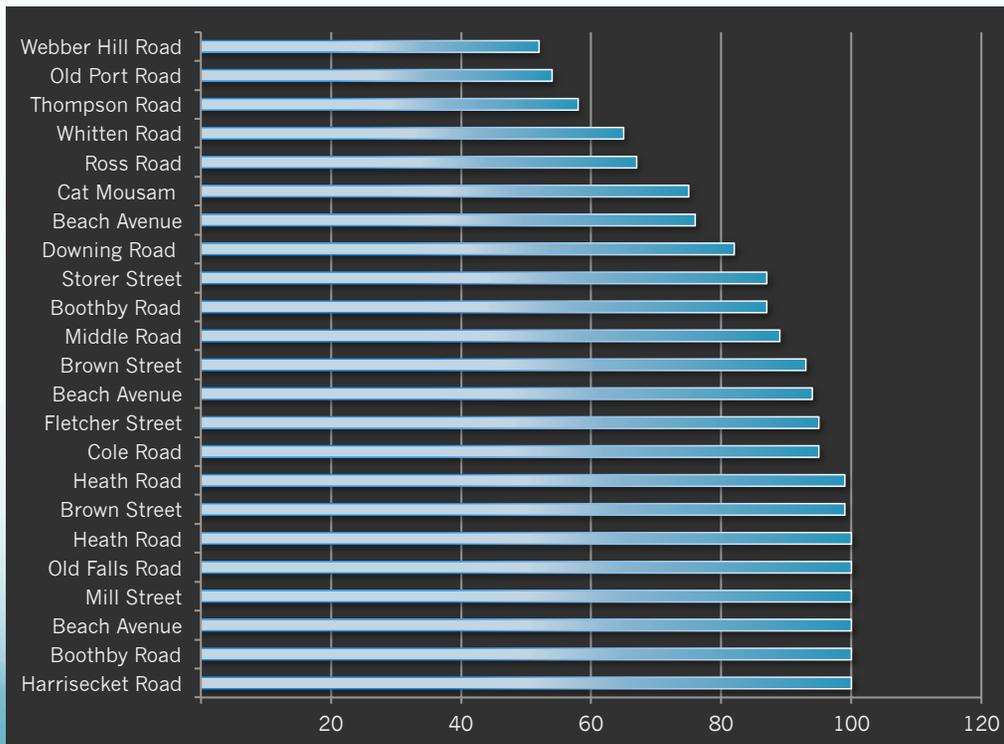
Very Poor	10
Serious	7.2
Failed	6.3
	24%

Arterial Roads (high-capacity urban road)



Collector Roads

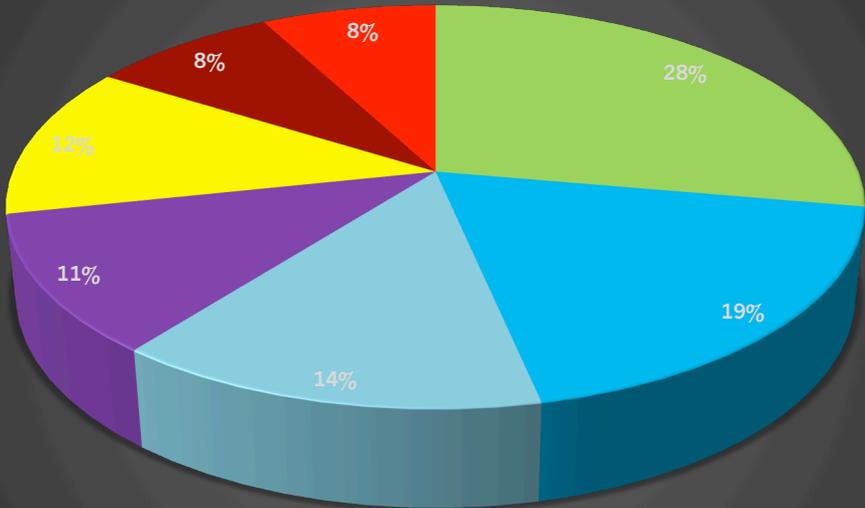
(low to moderate capacity road that moves traffic from local streets to arterial roads)



CONDITION	RANGE	GRADE
Good	86 - 100	A
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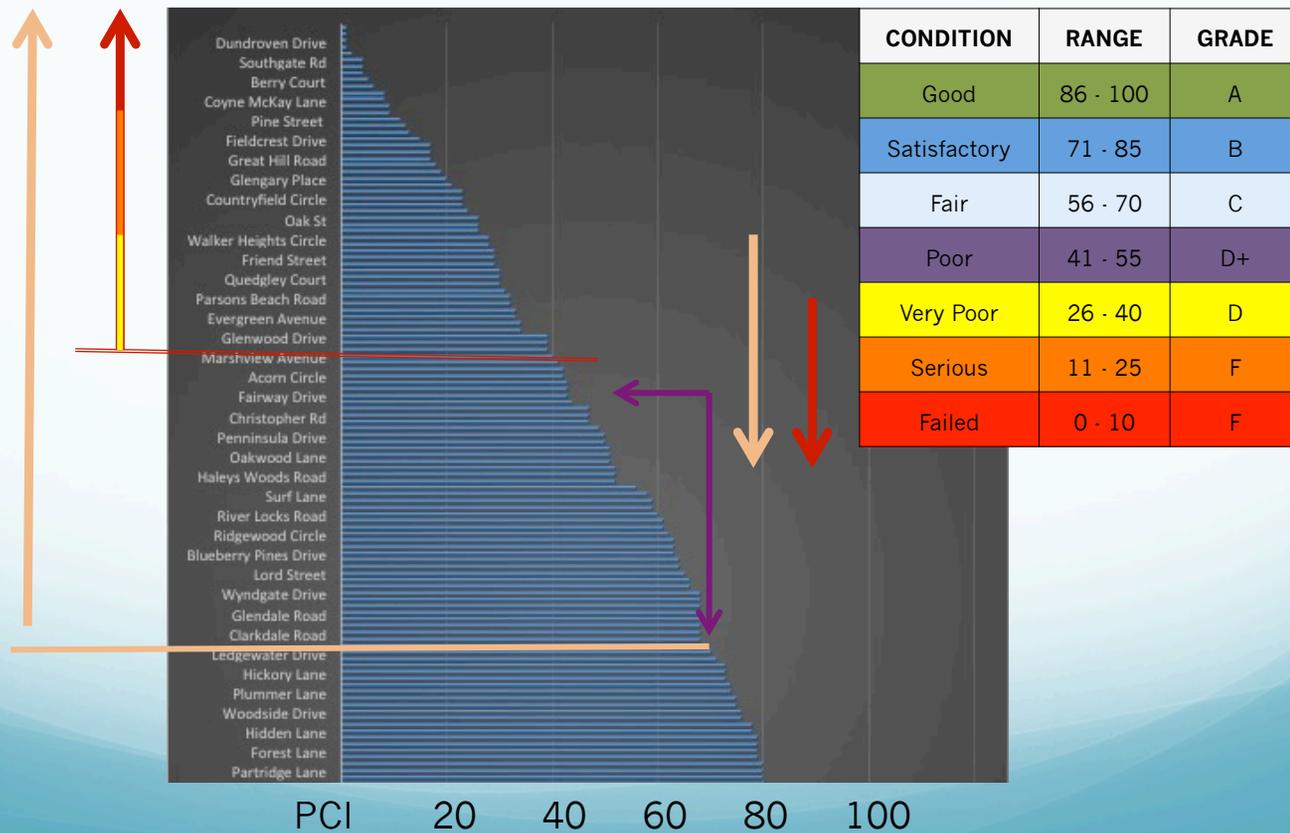
Rural Roads (low traffic roads)

2014 PCI Roadway Ratings: Rural

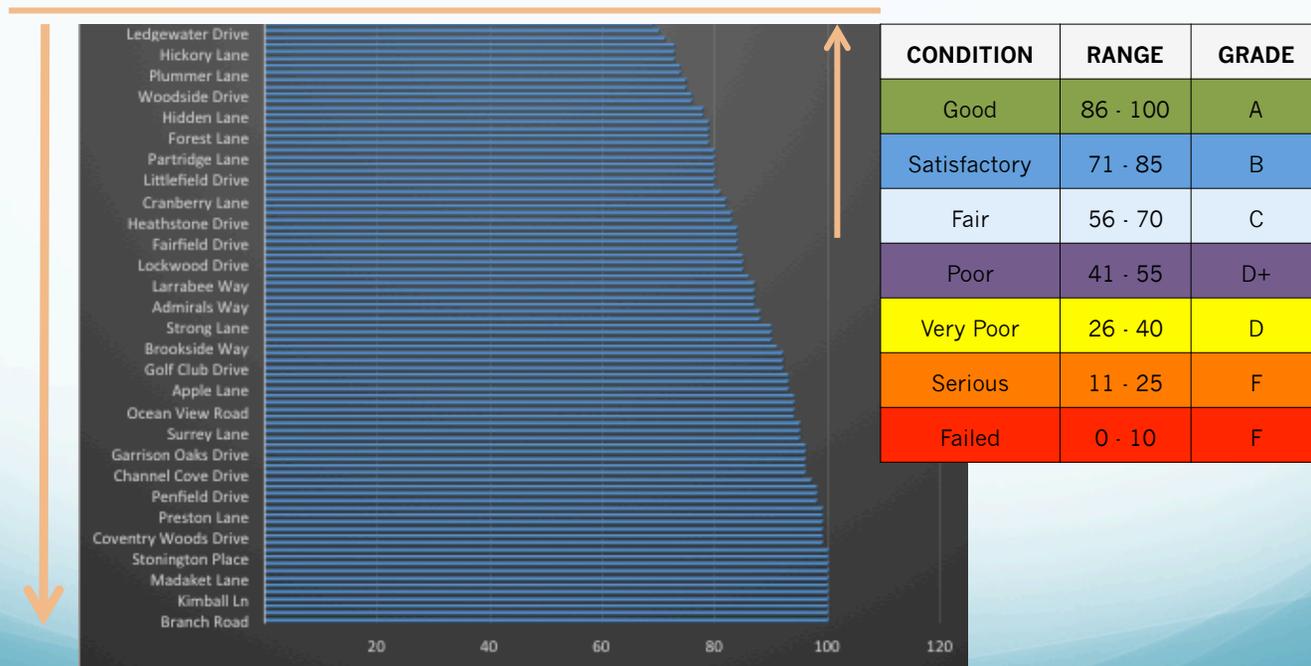


CONDITION	RANGE	GRADE
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Rural Roads (low traffic roads)



Rural Roads (low traffic roads)



Complete Listing of All Road Ratings

NAME	RATING	NAME	RATING	NAME	RATING	NAME	RATING	NAME	RATING
Beach Avenue	100	Apple Lane	93	Beach Avenue	76	Sea Road	54	Lords Point Road	24
Mill Street	100	Settlers Way	93	Rivers Edge Drive	76	Old Port Road	54	Bruen Place	23
Old Falls Road	100	Shape Drive	92	Woodside Drive	76	Webber Hill Road	52	Countryfield Circle	23
Heath Road	100	Golf Club Drive	92	Cat Mousam	75	Birchwood Street	52	Meadow Drive	23
Boothby Road	100	Linden Ave	92	Greenwood Drive	75	Haleys Woods Road	52	Holland Rd	21
Harrisecket Road	100	Winter Street	92	Wood Pond Lane	75	Swan Street	52	Glangary Place	20
Branch Road	100	Portland Road	91	York Street	74	Carriedale Lane	51	Alewive Road	19
Commons Lane	100	Brookside Way	91	Plummer Lane	74	Oakwood Lane	51	Rosewood Circle	19
Elm Street	100	Patterson Drive	90	Wiggins Pond Lane	74	Warrens Way	51	Factory Pasture Lane	18
Kimball Ln	100	Spring Street	90	Canterbury Circle	73	Longwood Road	50	Great Hill Road	17
Livewell Drive	100	Strong Lane	90	Hickory Lane	73	Peninsula Drive	50	Hammond Road	17
Lockwood Drive	100	Alfred Road	89	Portage Way	73	Maple Avenue	49	Woodhaven Drive	17
Madaket Lane	100	Middle Road	89	Maguire Road	72	Summer Street	48	Fieldcrest Drive	15
Penfield Drive	100	Carriage Lane	88	Fort Road	72	Bayberry Avenue	47	Curtis Court	13
Remington Way	100	Mere Ln.	88	Western Ave.	72	Christopher Rd	47	Depot Street	12
Stonington Place	100	Boothby Road	87	Clearbrook Crossing	71	Colonial Drive	47	Pine Street	11
Wakefield Drive	100	Storer Street	87	Ledgewater Drive	70	Dane Street	44	Chase Hill Road	9
Maguire Road	99	Admirals Way	87	Mastwood Lane	69	Fairway Drive	43	Fort Lane	9
Alewive Road	99	Durrells Bridge Road	87	Boundary Way	68	Merrifield Drive	43	Coyne McKay Lane	8
Brown Street	99	Gendron Lane	87	Clarkdale Road	68	Spiller Drive	43	Lincoln Street	8
Heath Road	99	Larrabee Way	87	Constitution Rd.	68	Acorn Circle	42	Barnard Street	6
Cold Spring Lane	99	Mechanic Street	86	Eagle Rock	68	Parsons Street	42	Berry Court	5
Coventry Woods Drive	99	Garden Street	85	Glendale Road	68	High Street	41	Christensen Lane	4
Green St	99	Lockwood Drive	85	Penwood Drive	68	Larboard Lane	41	Russell Farm Road	4
Old Alewive Road	99	School Lane	85	Sylvan Circle	68	Marshview Avenue	40	Southgate Rd	4
Preston Lane	99	Deer Run	84	Wyndgate Drive	68	Birch Road	39	Dutcher Lane	2
Rivers Bend Drive	99	Fairfield Drive	84	Western Ave.	67	Devonshire Lane	39	Autumn Circle	1
Day Street	98	Florence Circle	84	Ross Road	67	Glenwood Drive	39	Dundroven Drive	1
Penfield Drive	98	Tideview Terrace	84	Hall Street	66	Ridge Avenue	34	Friend Street	1
Quail Run	98	Heathstone Drive	83	Woodland Avenue	66	Smithwood Road	34	Whippoorwill Circle	1
Harding Way	97	Westwoods Rd	83	Whitten Road	65	Evergreen Avenue	33		
Alfred Road	96	Downing Road	82	Lord Street	65	Wells Court	33		
Channel Cove Drive	96	Clubhouse Drive	82	Hovey Street	64	Hillside Street	32		
Cottagewood Rd	96	Cranberry Lane	82	Tanglewood Drive	64	Parsons Beach Road	32		
Emmons Road	96	Sea Road	81	Blueberry Pines Drive	63	Oak Bluff Road	31		
Garrison Oaks Drive	96	Arbor Crossing	81	Michele Lane	63	Intervale Road	30		
Wentworst Avenue	96	Laurel Circle	80	Sedgewood Drive	63	Quedgley Court	30		
Main Street	95	Littlefield Drive	80	Ridgewood Circle	62	Water Street	30		
Cole Road	95	Maria Lane	80	Mid Way	61	Bourne Street	29		
Fletcher Street	95	Mousam Ridge Road	80	Park Street	61	Friend Street	29		
Balsam Lane	95	Partridge Lane	80	Sea Road	60	Valley Avenue	29		
Surrey Lane	95	Railroad Avenue	80	River Locks Road	60	Saward Street	28		
Winnow Hill Road	95	Days Mill Rd	79	Caly Hollow Rd	59	Walker Heights Circle	28		
Beach Avenue	94	Forest Lane	79	Pinewood	59	Grove Street	26		
Harris Lane	94	Pleasant Street	79	Thompson Road	58	Longview Terrace	26		
Ocean View Road	94	Twine Mill Road	79	Surf Lane	58	Oak St	26		
Post Office Square	94	Hidden Lane	78	Perkins Lane	56				
Winding Brook Drive	94	Walker Road	78						
Brown Street	93	High Street	77						

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Report Data for Roads

ROADS	DESCRIPTION	ESTIMATED COST AND STATUS	PCI RATING BEFORE	PCI RATING AFTER
Bayberry 1	Major Below Critical	\$ 277,885	42.91	100
Boothby 2	Major Below Critical	\$ 564,009	32.64	100
Factory 1	Major Below Critical	\$ 473,849	13.89	100
Woodhaven 1	Major Below Critical	\$ 343,199	12.72	100
Southgate 1	Major Below Critical	\$ 262,664	0	100
Summer 1	Major Below Critical	\$ 1,023,444	43.66	100
Beach 1	Do Nothing		95.48	95.48
Beach 2	Do Nothing		71.64	71.64
Beach 3	Do Nothing		89.64	89.64
Berry 1	Major Below Critical	\$ 46,149	0.85	100
Birch Rd 1	Major Below Critical	\$ 116,611	34.8	100

Various Applications of Road Improvements

- **Rebuild/Reconstruct** (minor or major box cuts)
- **Reclaim** (no concrete –grind and overlay)
- **Major Preventative** (with concrete applied to Arterial and Collectors roads as necessary, overlay only)
- **Minor Preventative** (Selective “Surgical” repair, no concrete in base-overlay depending on PCI rating)

Policy Questions & Program Parameters

What is the level of acceptable drivability on the roads.
A-B-C-D

What is the acceptable level for Arterials, Collectors
or Rural roads. A-B-C-D

Overall PCI Target = 70%(?) and level of funding

Integration of funding; State, Utilities, TIF Districts
(how do these affect the rating for improvements)

Staff review and incorporation of non-accounted
variables and assumptions.

Economic Factors Affecting Data – inflation, road deterioration

Quality of Data - Yearly updates

How much work can be accomplished within a year?

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What are Some Examples of Road Ratings and Cost?

100-96 PCI		90-86 PCI		80-76 PCI		70-66 PCI	
Mill Street	A	Mechanic Street	A	Pleasant Street	B	Penwood Drive	C
Boothby Road	A	Storer Street	A	Walker Road	B	Ross Road (No-corner)	C
Kimball Ln	A	Alfred Road	A	Beach Avenue	B	Whitten Road	C
Wakefield Drive	A	Admirals Way	A	Western Ave	B	Park Street	C

95-91 PCI		85-81 PCI		75-71 PCI	
Cole Road	A	Sea Road	B	Clearbrook Crossing	B
Fletcher St	A	Garden Street	B	Portage Way	B
Main Street	A	Westwoods	B	York Street	B
Beach Avenue	A	Arbor Crossing	B	Rivers Edge Drive	B

CATEGORY	TOTAL	YEARS	COST PER YEAR
100 PCI	\$29,285,957	5	\$5,877,191
90 PCI	\$29,709,049	5	\$5,941,809
85 PCI	\$29,709,049	5	\$5,941,809
80 PCI	\$28,862,865	5	\$5,772,573
75 PCI	\$20,104,678	5	\$4,001,975
70 PCI	\$14,884,738	5	\$2,976,947
65 PCI	\$9,874,204	5	\$1,197,484
Currently at 62 point average			

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Road Paving Funding Options

Town Budget

- From reserves or surplus
- From tax rate increase
- Improvement monies from development
- Impact fees (bicycle)

TIF areas where applicable

Local Agency Sharing (KSD and KKWWD)

MDOT Funding

- MPI (municipal participatory program 50/50)
- Sidewalk (sidewalks to school program)
- Trails (trail, recreation fund)

What is the Mil Rate Impact?

CATEGORY	TOTAL	YEARS	COST PER YEAR	Mil Rate No Bonding	Mil Rate Bonding 10 year	Total Mil Rate Increase at 5 years
100 PCI	\$29,285,957	5	\$5,877,191	\$2.94	\$0.037	\$1.83
90 PCI	\$29,709,049	5	\$5,941,809	\$2.97	\$0.037	\$1.85
85 PCI	\$29,709,049	5	\$5,941,809	\$2.97	\$0.037	\$1.85
80 PCI	\$28,862,865	5	\$5,772,573	\$2.89	\$0.36	\$1.79
75 PCI	\$20,104,678	5	\$4,001,975	\$2.00	\$0.25	\$1.24
70 PCI	\$14,884,738	5	\$2,976,947	\$1.49	\$0.18	\$0.93
65 PCI	\$9,874,204	5	\$1,197,484	\$0.60	\$0.07	\$0.37
Currently at 62 point average						

Comparable Community

- City of Saco Center Lane miles 125
- Kennebunk Center Lane miles 112
- Saco Invested \$4.9 million over 4 years (2010 to 2014) to move the PCI from 65 to 71, their target was a PCI of 75 (note this did not include state grants and improvements within the compact zone of \$1.7MM)
- Since they have reached their objective in 2015 Saco has an operational line item budget of \$800,000 for paving. Additionally, the Council often approves one other capital item each budget session ranging 100K to 200K.

How to Proceed (policy)

- **Determine a simple Policy for roads**
 - **Choose a level of road acceptability PCI 60%, 70% 80%** (The annual commitment to maintain the roads upon selecting a desired service level ranges from \$800K to \$1.4 million.)
 - **Choose time frame (number of years) for improvements** (higher PCI or longer length = more money)
 - **Budget funding for improvements then ongoing sustainability**
 - **Determine range allocation of funds for Maintenance Repair and Reconstruction** (Allocation of funding; Important to Preserve = 30% Maintenance 40% Repair with balance going of 30% applied to Selectively Improve)
 - **Larger expenditures (over 1.5MM to 2.0MM) for road improvements could be difficult to accomplish with vendors in one year, additionally to much disruption on roads is difficult for residents**

Or

Consider an Alternative Improvement Program for the first 3 years similar to Saco

(this allows for further data verification, "tweaking" of variables, program modification)

- **Fund \$1,100,000 for three years** (Allocation of funding; Important to Preserve = 30% Maintenance 40% Repair with balance going of 30% applied to Selectively Improve)
- **Fund additional \$ 500,000 for three years** for "Surgical" selective improvements
- **Total investment over 3 years is \$4.8 million, which equals 30 cents or 10 cents per year on the mil rate.** (The annual commitment to maintain the roads upon selecting a desired service level ranges from \$800K to \$1.4 million.)
- **Objective over three years is to stabilize roads and bring the overall average rating up 7 to 10 points**

END