

HERNANDO COUNTY PAVEMENT MANAGEMENT

- What is Pavement Management
- What are the Tools for success
- How does Hernando County Fund this program



What is Pavement Management

Pavement management is a systematic approach to maintaining and optimizing the condition of roadways and paved facilities, ensuring cost-effective maintenance and rehabilitation strategies through the process of planning, evaluating, and implementing maintenance and repair strategies for the roadway. The goal is to optimize pavement conditions over the entire network while considering budget constraints.



The Systematic Approach

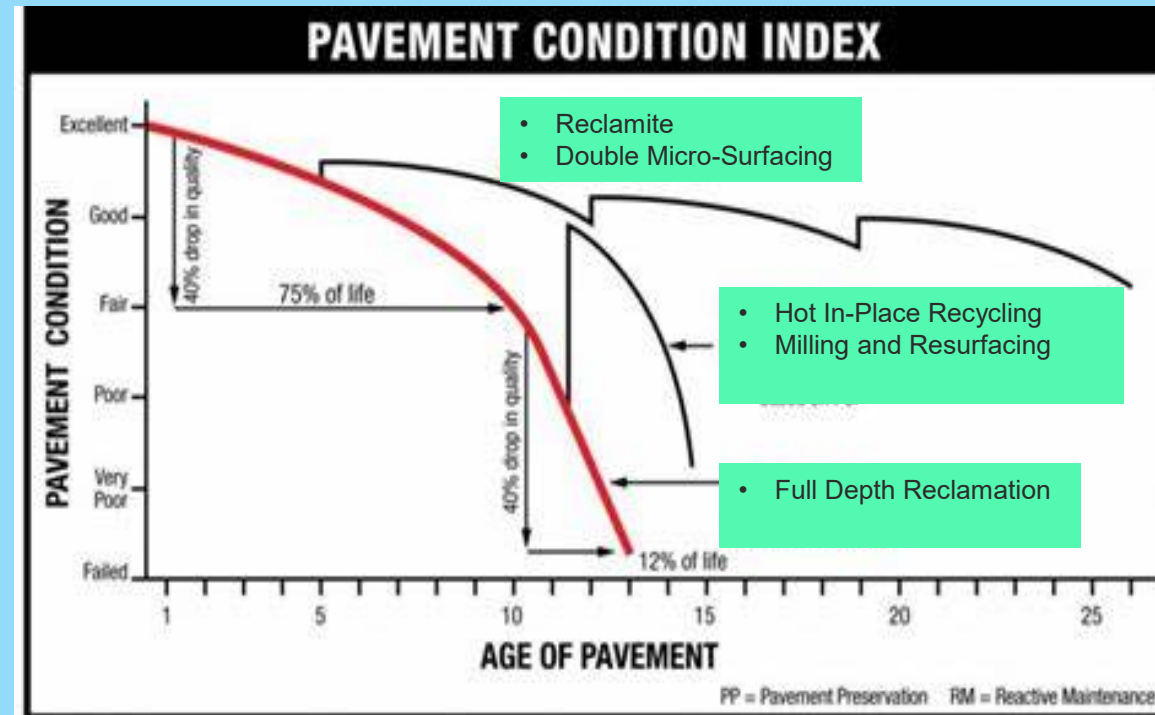
1. Assess Inventory / Pavement Inspection / Condition Assessment

- The first step in creating a pavement management plan is to take inventory of all the roads that are to be included in the plan.
- To understand the condition of each segment, the present pavement distresses are noted. Walking the streets and visually documenting distresses is one of the most detailed methods of capturing the data.
- Once the raw data is recorded, the condition of a pavement section can be quantified using a single number such as a Pavement Condition Index (PCI) value. These numbers are calculated from the amount, type, and severity of the distresses surveyed. The scale is 0 to 100 with 100 as excellent.

The Systematic Approach . . . Cont.

2. Capital Improvement Planning

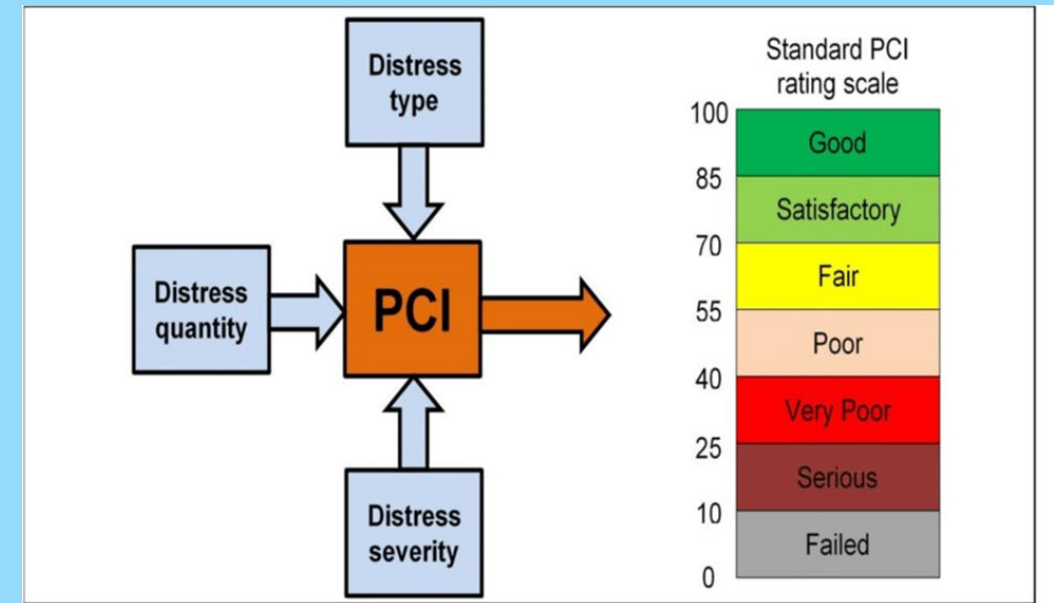
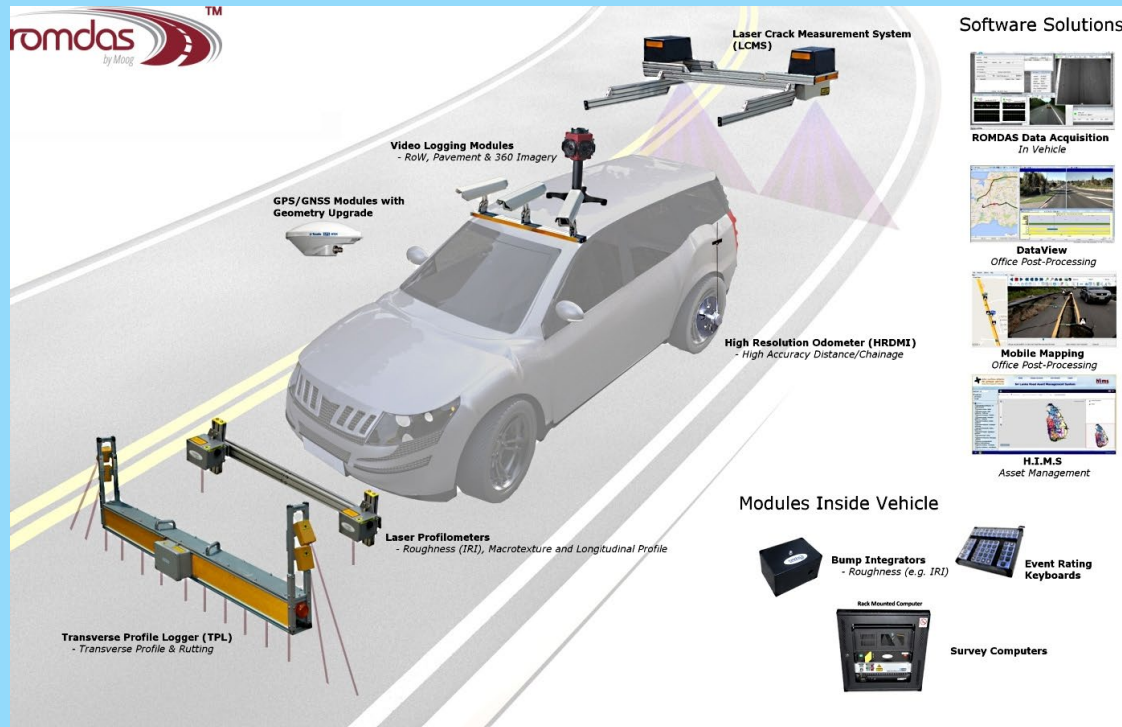
- The condition analysis allows DPW to create a plan that optimizes pavement condition. Results usually include a list of road maintenance and construction projects that should be completed in each of the upcoming years.
- Review budget, find the Right Treatment for the Right Road at the Right Cost.
- Use the Tool Box





THE TOOLBOX

Assess Inventory / Pavement Inspection / Condition Assessment



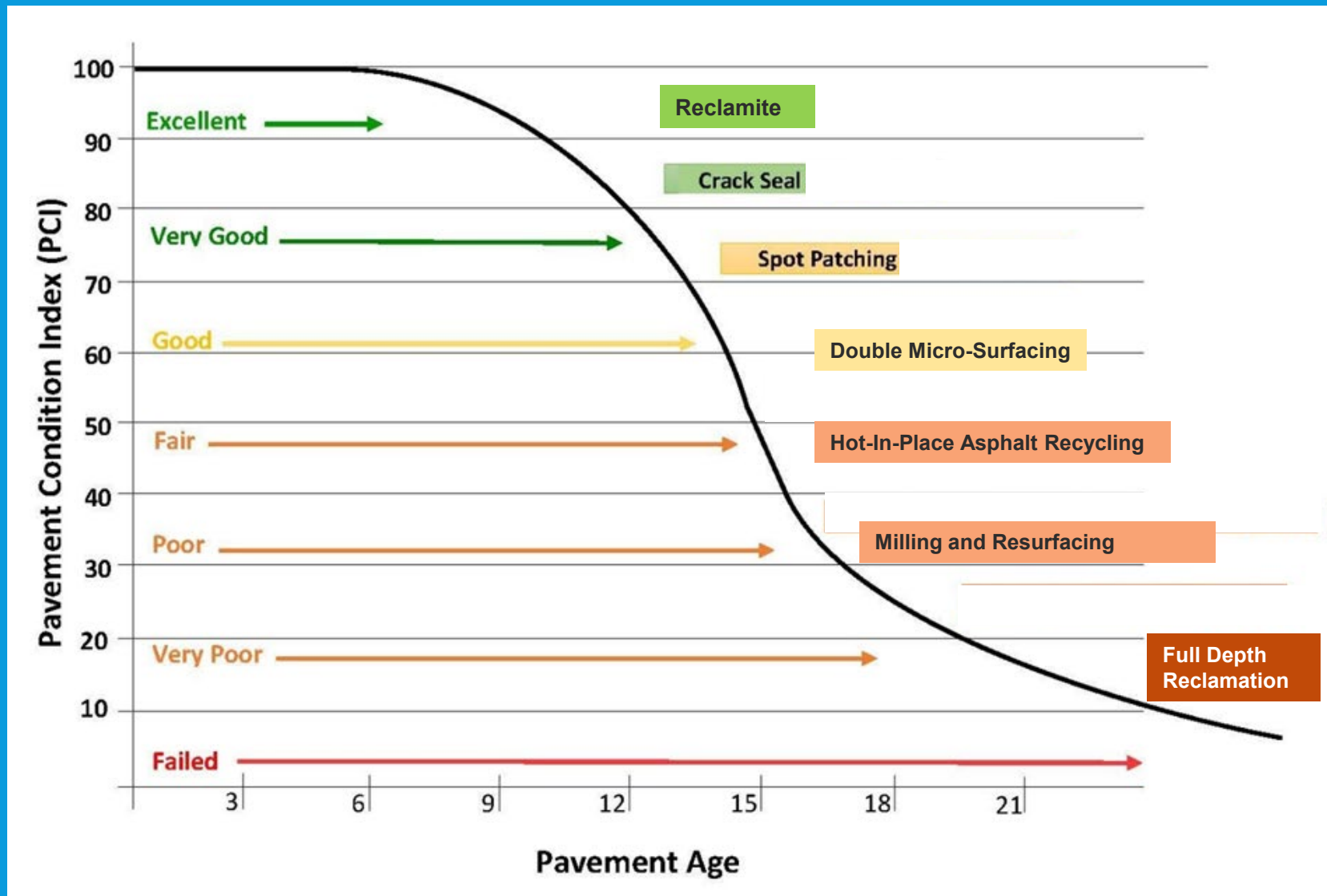
Consultant uses multiple methods to take inventory, inspect and analyze for Distress Type, Severity, and Quantity from this information a Pavement Condition Index Rating is generated.

Example of Pavement Condition Index Report (PCI)

(Full Report Included Package)

ROAD NAME	FROM	TO	LENGTH	WIDTH	RANK	SURFACE	LANES	WORK TYPE	INSPECTION DATE	PCI	CONDITION
1st Isle Dr	Gulf Coast Dr	N dead end	377	20	RESIDENTIAL	ASPHALT	2	Microsurface Double w/ crackseal	01-23-2020	66	FAIR
2nd Isle Dr	Gulf Coast Dr	N dead end	370	20	RESIDENTIAL	ASPHALT	2	Microsurface Double w/ crackseal	03-31-2021	88	VERY GOOD
3rd Isle Dr	Gulf Coast Dr	N dead end	377	20	RESIDENTIAL	ASPHALT	2	Microsurface Double w/ crackseal	03-31-2021	79	GOOD
4th Isle Dr	S dead end	Gulf Coast Dr	378	20	RESIDENTIAL	ASPHALT	2	Microsurface Double w/ crackseal	03-31-2021	90	VERY GOOD
5th Isle Dr	S dead end	Gulf Coast Dr	376	20	RESIDENTIAL	ASPHALT	2	Microsurface Double w/ crackseal	03-31-2021	81	GOOD
6th Isle Dr	S dead end	Gulf Coast Dr	377	20	RESIDENTIAL	ASPHALT	2	Microsurface Double w/ crackseal	04-12-2021	75	GOOD
7th Isle Dr	S dead end	Gulf Coast Dr	375	20	RESIDENTIAL	ASPHALT	2	Microsurface Double w/ crackseal	04-12-2021	77	GOOD
8th Isle Dr	S dead end	Gulf Coast Dr	355	20	RESIDENTIAL	ASPHALT	2	Microsurface Double w/ crackseal	03-31-2021	81	GOOD
A St	Booker T. St	Main St	1,215	18	RESIDENTIAL	ASPHALT	2	Asphalt S-3 110#, w/ OGHM 120#	03-31-2021	72	GOOD
Aaron Ln	Denver Ave	Blythville Road	1,024	20	RESIDENTIAL	ASPHALT	2	Microsurface Double w/ crackseal	03-31-2021	62	FAIR
Abady Ln	Gainsboro Ave	Pendleton Street	530	20	RESIDENTIAL	ASPHALT	2	Asphalt S-3 110#, w/ OGHM 120#	02-06-2022	79	GOOD
Abigail Dr	Thornbery Drive	Bayonne Avenue	5,745	20	RESIDENTIAL	ASPHALT	2	Microsurface Double w/ crackseal	03-31-2021	51	FAIR
Abbeville St	Anchor Avenue	Mariner Blvd	1,689	20	RESIDENTIAL	ASPHALT	2	Overlay - AC Thin	12-03-2019	69	GOOD
Abbott Ave	S of Genter Dr	Coronado Dr	607	20	RESIDENTIAL	ASPHALT	2	Mill & Overlay	03-31-2021	85	VERY GOOD
Abby Ave	Spring Hill Dr	Holbrook Street	1,248	20	RESIDENTIAL	ASPHALT	2	Overlay - AC Thin	12-03-2019	67	FAIR
Abeline Rd	Gate W of Gallagher Ave	Deltona Blvd	487	22	RESIDENTIAL	ASPHALT	2	OGHM 130# w/ S-3 80# LR	02-06-2022	70	GOOD
Abeline Rd	Deltona Blvd	Boyce St	4,446	22	RESIDENTIAL	ASPHALT	2	OGHM 130# w/ S-3 80# LR	03-31-2021	79	GOOD
Aberdeen Ct	S dead end	Shoal Line Boulevard (CR597)	534	17	RESIDENTIAL	ASPHALT	2	Asphalt S-3 110#, w/ OGHM 120#	02-13-2022	81	GOOD
Aberlys St	Sealawn Dr	Toucan Trail	1,339	18	RESIDENTIAL	ASPHALT	2	Overlay S-3 120#	03-31-2021	61	FAIR
Abington Way	Roxburgh Court	Heather Walk Drive	1,070	20	RESIDENTIAL	ASPHALT	2	Asphalt S-3 110#, w/ OGHM 120#	04-12-2021	46	POOR
Acacia Ave	Driftwood Drive	Driftwood Drive	566	24	RESIDENTIAL	ASPHALT	2	Asphalt S-3 110#, w/ OGHM 120#	02-16-2022	47	POOR
Academy Ave	Talbot Circle	Holiday Drive	791	24	RESIDENTIAL	ASPHALT	2	Micro Surfacing	02-13-2022	57	FAIR
Access Rd	River / SR 50	Paul R Steckle Ln	1,306	20	INDUSTRIAL	ASPHALT	2	New Construction - Initial	03-31-2021	52	FAIR
Access Rd	S Home Depot Driveway	Commercial Way	250	24	INDUSTRIAL	ASPHALT	2	New Construction - Initial	03-31-2021	68	GOOD
Access Rd	N Home Depot Driveway	Commercial Way	250	36	INDUSTRIAL	ASPHALT	3	New Construction - Initial	03-31-2021	69	GOOD
Access Rd	S end	Jumper Loop	313	16	RESIDENTIAL	ASPHALT	2	New Construction - Initial	03-31-2021	78	GOOD
Access Rd	Commercial Way	Frontage Rd	321	24	INDUSTRIAL	ASPHALT	2	New Construction - Initial	03-31-2021	79	GOOD
Access Rd	W dead end	Hope Hill Rd	174	12	RESIDENTIAL	ASPHALT	2	Overlay S-3 120#	03-31-2021	90	VERY GOOD
Acorn Cir	Lodge Circle	Spring Hill Dr	1,771	24	RESIDENTIAL	ASPHALT	2	OGHM 130# w/ S-3 80# LR	03-31-2021	68	GOOD
Addison St	Mariner Blvd	Marshall Avenue	1,959	20	RESIDENTIAL	ASPHALT	2	Overlay - AC Thin	12-03-2019	71	GOOD

Applying the Right Treatment/Preservation



Treatment and Preservation Examples

Reclamite Asphalt Rejuvenator

Research determined that asphalt's soluble, more reactive components, are known as maltenes, they degrade when exposed to the heat used in processing asphalt-based formulations, and then further degrade as asphalt is exposed to the oxidizing effects of UV in field installation. This emulsion is a Maltene Replacement for restoring and preserving the durability of asphalt.

- Estimated Cost \$15,000 per Lane Mile



Double Micro-Surfacing

Micro-surfacing is a slurry seal that uses a polymer-modified emulsion binder, a high quality dense graded aggregate, mineral filler, water and other additives, properly proportioned, mixed and spread on a paved surface.

Micro-surfacing is used to retard raveling and oxidation of the pavement, fill non-plastic ruts, reduce the intrusion of water, improve surface friction, and remove minor surface irregularities. After placement, the water "breaks" and evaporates, leaving a hard asphalt /cement /aggregate mixture that is resistant to further compaction or movement.

- Estimated Cost \$57,500 per Lane Mile



Hot In-Place Asphalt Recycling

Hot In-Place Asphalt Recycling is a cost-effective method for repaving worn asphalt pavements. The process involves heating the existing asphalt surface, scarifying it to restore its properties, and then applying a new wearing course. This method not only reduces costs by up to 34% compared to traditional resurfacing methods but also promotes sustainable infrastructure by reusing existing materials.

- Estimated Cost \$195,000 per Lane Mile



Milling and Resurfacing

Milling is one way that you can prepare an area for resurfacing, Resurfacing is the process of laying a new layer of asphalt over a prepared surface. Overall, milling is a cost-effective option for restoring pavement integrity, while resurfacing is a more economical choice for minor repairs.

- Estimated Cost \$400,000 per Lane Mile



Full Depth Reclamation (FDR)

Full depth reclamation, or FDR for short, is a pavement recycling technique that produces a stabilized base by beneficially reusing multiple layers and materials of an asphalt pavement. This technique saves time, money, materials and resources. FDR has been used successfully nationwide, primarily for failures associated with base or subgrade degradation leading to premature failure of the pavement structure, but also for many types of pavement cracking, deep rutting and maintenance patches

- Estimated Cost \$350,000 per Lane Mile

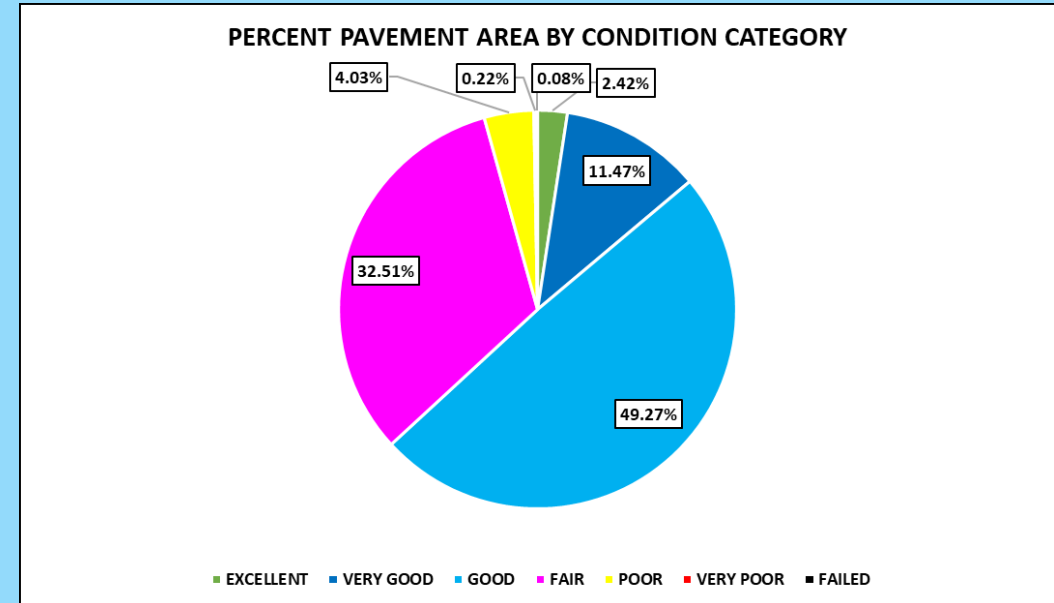


Hernando County – Pavement Condition

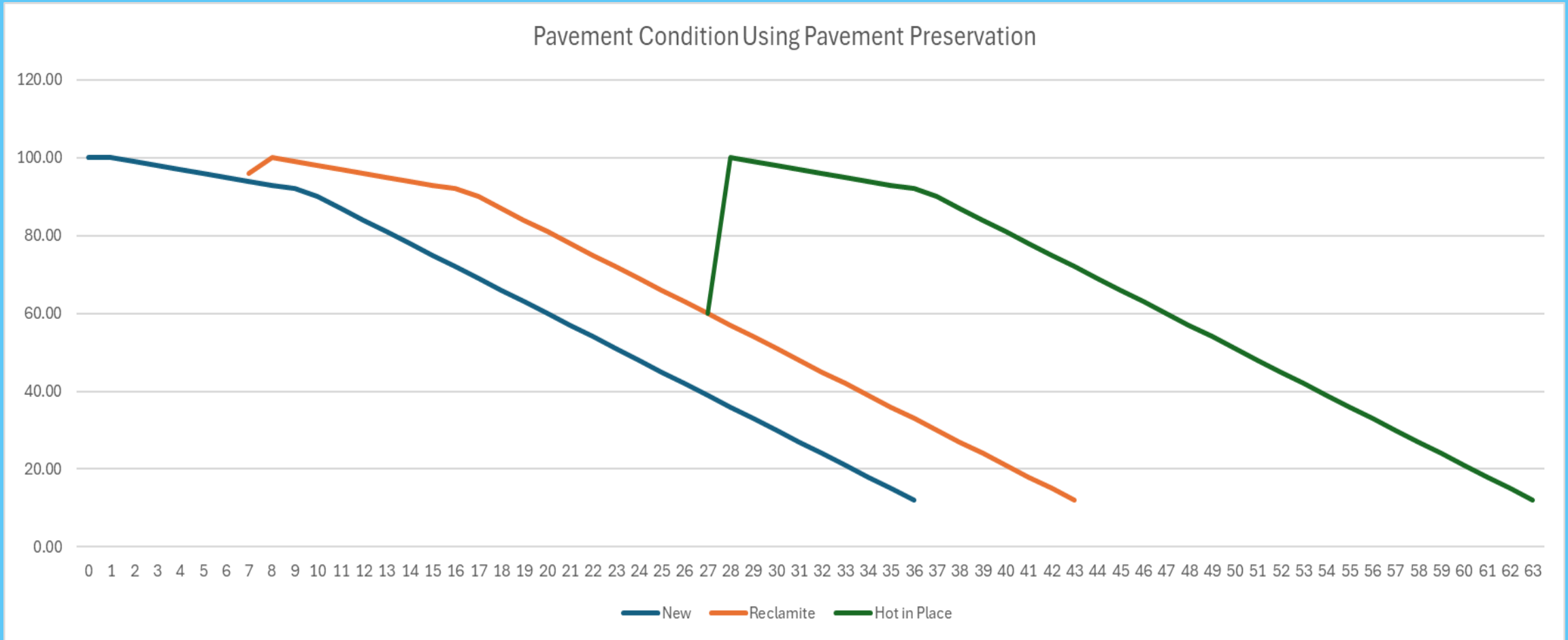
CONDITION CATEGORY	LOW VALUE	HIGH VALUE
EXCELLENT	92	100
VERY GOOD	82	91
GOOD	68	81
FAIR	50	67
POOR	35	49
VERY POOR	20	34
FAILED	0	19

NETWORK CONDITION SUMMARY	
AVERAGE PCI	70
AVERAGE CONDITION	GOOD

CONDITION CATEGORY	SECTIONS	PAVEMENT AREA (SF)	LANE MILES	PERCENT AREA	AVERAGE CONDITION
EXCELLENT	83	3,353,192	53	2.42%	94
VERY GOOD	439	15,910,626	251	11.47%	86
GOOD	1479	68,353,537	1079	49.27%	75
FAIR	974	45,104,846	712	32.51%	60
POOR	129	5,590,727	88	4.03%	45
VERY POOR	16	303,299	5	0.22%	30
FAILED	5	112,188	2	0.08%	14
TOTALS	3125	138,728,416	2,190	100%	



Use of Pavement Preservation

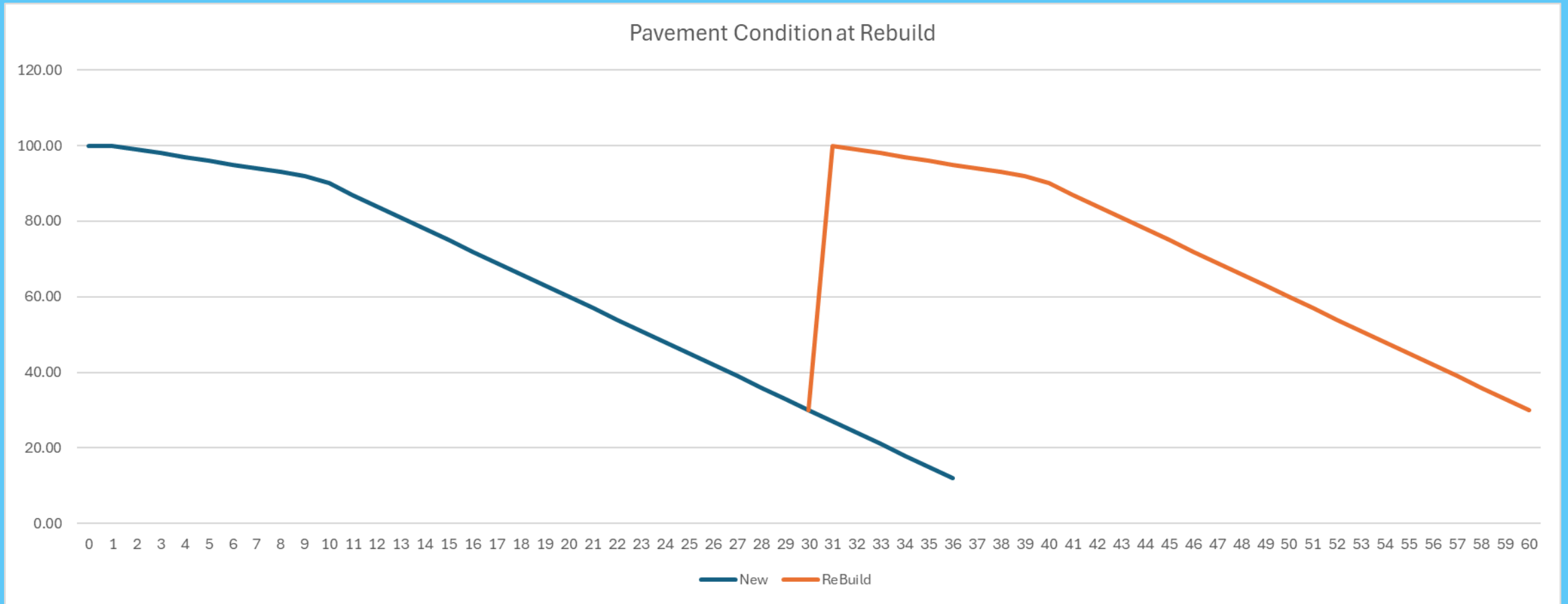


Cost for a mile lane of roadway using preservation method:

- Reclamite applied at year 7, at a cost of \$30,000
- Hot-in-Place Recycling used at PCI condition 60 (Fair), at a cost of \$390,000

Total cost to reach 60 years from original construction = \$420,000

Conventual Roadway Rebuild



Cost for a lane mile of roadway with Conventual Roadway Rebuilding:

- Mill and Resurfacing applied at PCI Condition 30 (Very Poor), at a cost of \$800,000 to reach 60 years

Funding the Pavement Management Program

- The pavement management program is funded by the Gas Tax
- Hernando County receives \$0.15 (15 cents) per gallon of fuel not dependent on the fuel price. The City of Brooksville receives \$0.01 (1 cent) per gallon of fuel from the Municipal Fuel Tax.
- The gas tax funds are made up of 6 different tax each with its own requirements.
 - **Municipal Fuel Tax (\$0.01) – City of Brooksville**
 - **Constitutional Gas Tax (\$0.02)**
 - **County Fuel Tax (\$0.01)**
 - **Local Option Fuel Tax (\$0.06)**
 - **Second Local Option Fuel Tax (\$0.05)**
 - **Ninth Cent Fuel Tax (\$0.01)**

Funding the Pavement Management Program

Constitutional Gas Tax (Fund 1013) - \$0.02 (2-cents)

20% of this tax goes directly to the County and 80% goes to any State issued bonds first and the balance is submitted to the County.

Restricted to: acquisition, construction and maintenance of roads. Maintenance includes periodic (activities large in scope and require a major work effort to restore deteriorated components of the transportation system to a safe and serviceable condition) and routine (minor repairs and associated tasks necessary to maintain a safe and efficient transportation system and includes pavement patching, shoulder repair, cleaning and repair of drainage ditches, traffic signs and structures, mowing, bridge inspection and maintenance, pavement striping, litter cleanup and similar activities) and may include the construction and installation of traffic signals, sidewalks, bicycle paths and landscaping. Funds may be used as matching funds for any federal, state or private grant specifically related to these purposes.

County Fuel Tax (Fund 1015) - \$0.01 (1-cent)

Restricted to: acquisition of rights-of-way, construction, reconstruction, operation, maintenance and repair of transportation facilities, roads, bridges, bicycle paths and pedestrian pathways. Can also be used for the reduction of bonded indebtedness incurred for road and bridge or other transportation purposes.

Funding the Pavement Management Program

Local Option Fuel Tax 1-6 (Fund 1017) - \$0.06 (6-cents)

Restricted to: Transportation-related public transportation operations and maintenance, Roadway and Right-of-Way maintenance, equipment and structures used primarily for storage and maintenance of equipment, drainage, street lighting, traffic signs, traffic engineering, signalization, pavement markings, bridge maintenance/operation, debt service, capital projects (including construction or reconstruction of roads & sidewalks). Revenue is shared with City of Brooksville (5%).

Second Local Option Fuel Tax 1-5 (Fund 1022) - \$0.05 (5-cents)

Restricted to: Transportation expenditures needed to meet the requirements of the capital improvements element of an adopted comprehensive plan or expenditures needed to meet immediate local transportation problems and other transportation-related expenditures that are critical for building comprehensive roadway networks. Construction of new roads, reconstruction or resurfacing of existing paved roads or the paving of existing graded roads are deemed to increase capacity and can be included. Routine maintenance is not an authorized expenditure of these funds. Tax is not authorized for levy on diesel fuel. Revenue is shared with City of Brooksville (5%). Per Hernando County Code Ordinances, Chapter 27, Article II, Sec. 27-18, 2/5 (two-fifths) is dedicated to resurfacing of “local streets”.

Funding the Pavement Management Program

Ninth-Cent Fuel Tax (Fund 1024) - \$0.01 (1-cent)

Restricted to: Per Hernando County Ordinance 2015-10 – Dedicated the proceeds derived from this tax levy to pay for the cost of providing public transportation operations and maintenance. Other allowable expenses include roadway and right-of way maintenance, equipment and structures used primarily for the storage and maintenance of such equipment. Roadway and right-of-way drainage, street lighting, traffic signs, engineering, signalization and pavement markings. Bridge maintenance and operation. Debt service and current expenditures for capital projects, construction or reconstruction of roads and sidewalks.

Revenue

The FY 25 estimated amount available from gas tax for Pavement Management is \$5,960,220

Estimated Cost to for all County Roads to be list as Good

Using a Mill and Resurface preservation the estimated revenue will cover 15 lane miles or 7.5 miles of a 2-lane roadway.

Currently 25 lane miles in the county are poor or worse condition and 712 lane miles are in fair condition.

25 lane miles at \$400,000 per mile (Mill & Resurface) = \$10,000,000

712 lane miles at \$195,000 per mile (Hot in Place Recycling) = \$138,840,000

Total Estimated Cost for all road to be listed as Good Condition or Better = \$148,840,000