Alachua County, FL
Pavement Management Overview

WHAT IS PAVEMENT MANAGEMENT?

- The directing of the various activities involved in providing and sustaining pavements in a condition acceptable to the traveling public at the least life cycle cost.
- Proper management can dramatically reduce capital expenditures on pavement infrastructure.
- With timely pavement evaluations, an agency can strategize expenditures to balance cost and pavement performance.
- Performing treatments in the right place at the right time is the key to maximizing pavement performance.

WHY IS PAVEMENT MANAGEMENT IMPORTANT?

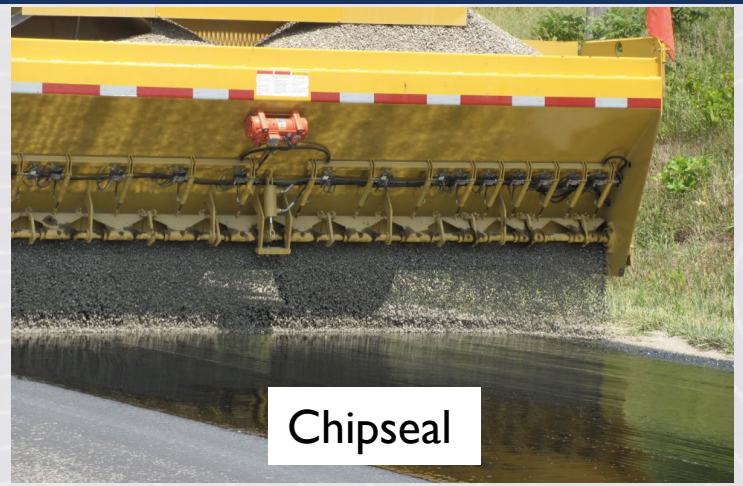
- Pavement network is typically the single largest financial investment for a public agency
- Strategic treatment selection and funding allocation is a complex process
- Identifies the long-term consequences of today's funding decisions
- Provides objective justification for maintaining or increasing pavement funding allocations
- Formalized process provides transparency of budgeting decisions
- Maintains the network at the highest level of service for the traveling public for the funding available

COMPONENTS OF A PAVEMENT MANAGEMENT SYSTEM

- INVENTORY / GIS
- CONDITION DATA
- WORK PLANS
- CONSTRUCTION HISTORY
- TREATMENTS
- DECISION TREES
- PERFORMANCE MODELS
- ANALYSIS & REPORTING

MAINTENANCE TREATMENT EXAMPLES

PRESERVATION TREATMENT EXAMPLES



REHABILITATION TREATMENT EXAMPLES

Asphalt Overlay

Mill/Overlay

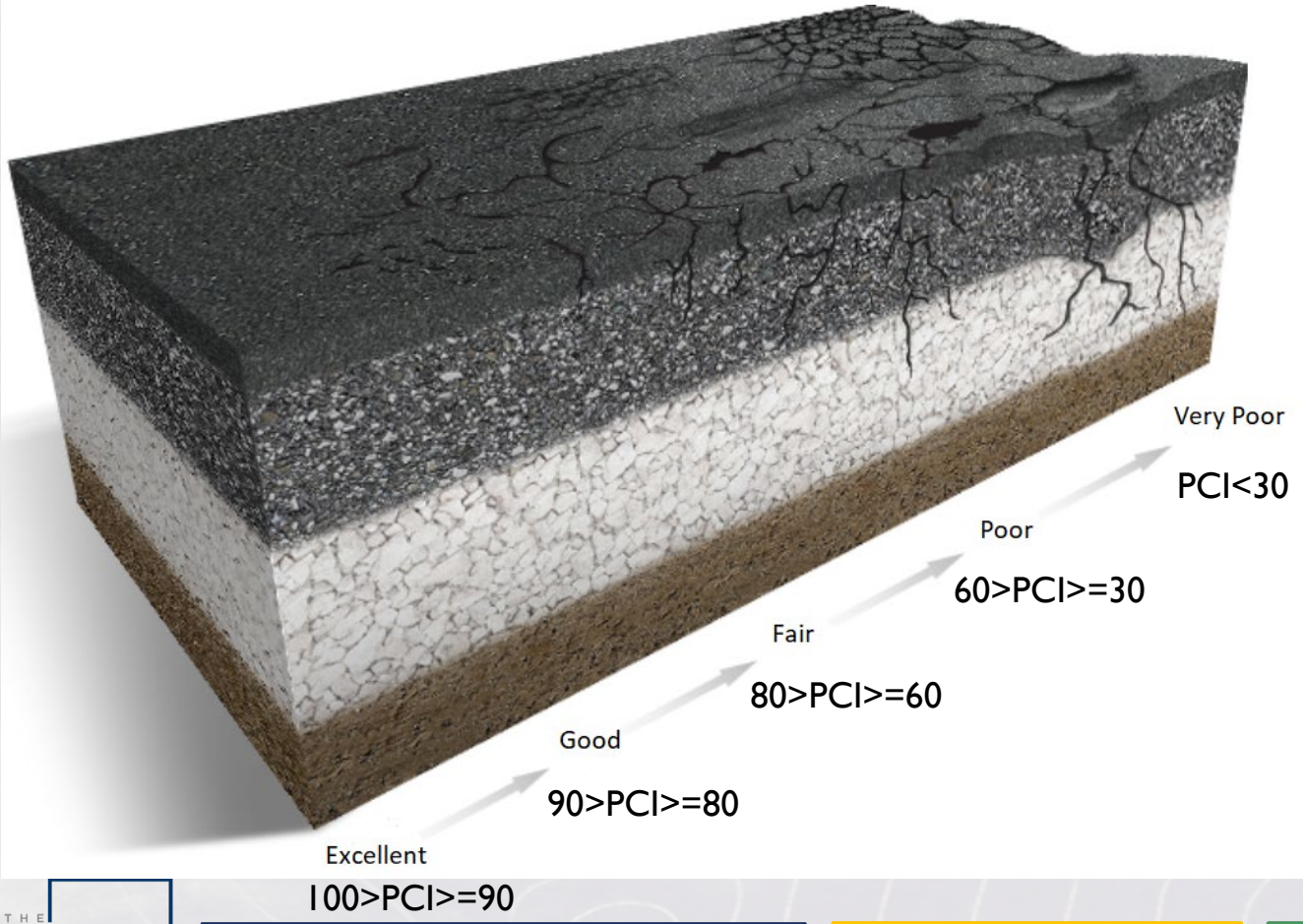
RECONSTRUCTION TREATMENT EXAMPLES

Full Depth Reclamation (FDR)

Cold In-Place Recycling (CIR)

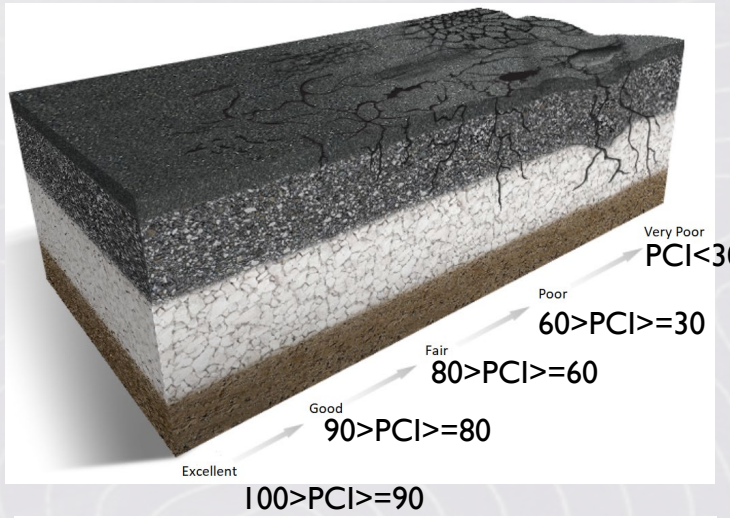
Full Reconstruction (Remove/Replace)

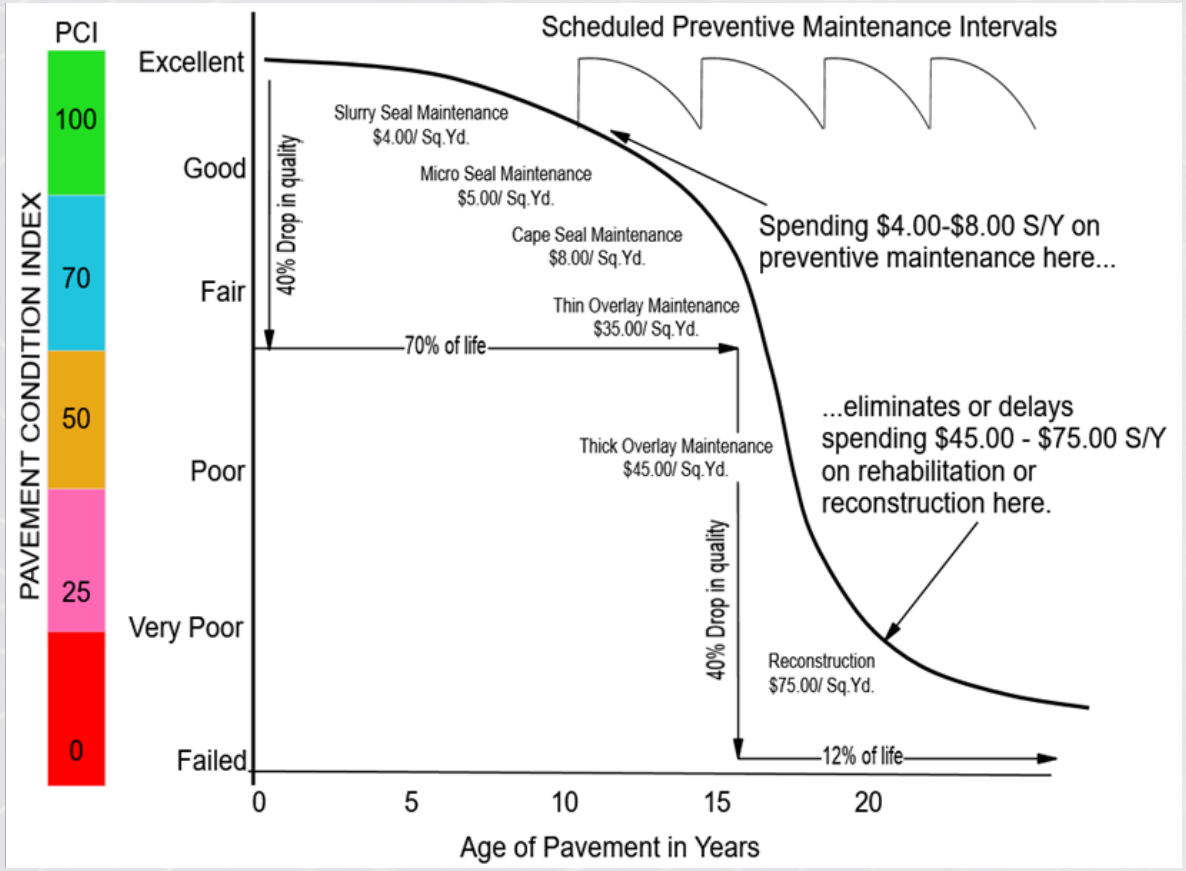
RELATING PAVEMENT CONDITIONS TO COSTS
PAVEMENT CONDITION INDEX (PCI)



Condition	Maintenance Activity	Unit Cost per Square Yard
Good	Crack sealing	$0.65
	Rejuvenator	$1.00
	Preservation	$5.00
Fair	Patching (4” Full-Depth Asphalt)	$44.00
Fair/Poor	Rehab (Minor) (1.5” Mill & Fill)	$48.50
Poor	Rehab (Major) (3.5” Mill & Fill)	$75.00
Very Poor	Reconstruction – FDR	$156.00

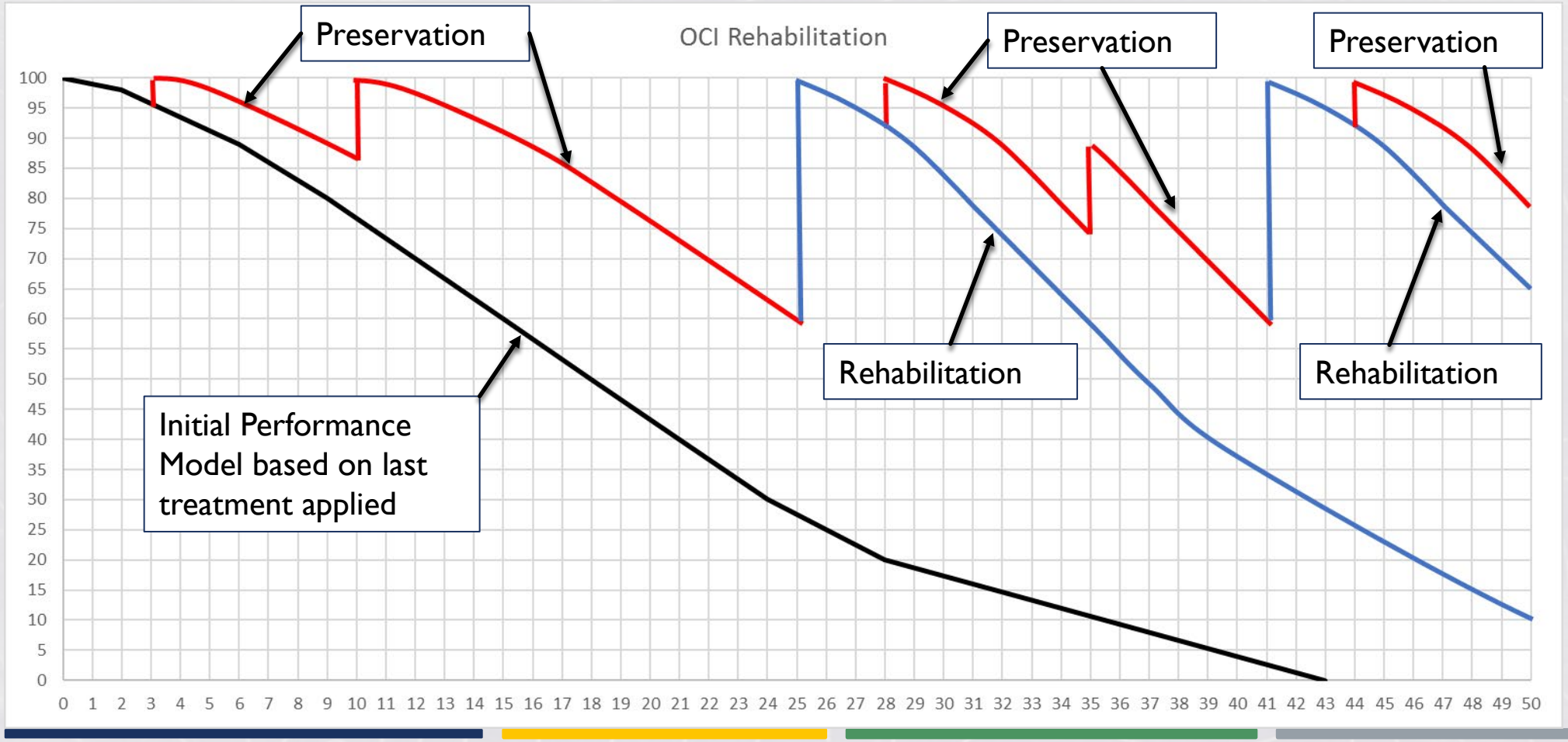
RELATING PAVEMENT CONDITIONS TO COSTS TO PAVEMENT PRESERVATION TREATMENTS





THE KERCHER GROUP

LIFE CYCLE COST EXAMPLE
OPTIMIZED TREATMENT TIMING



COUNTY NETWORK STATISTICS FROM 2020 PAVEMENT CONDITION SURVEY

Network Average PCI = 60.1

Arterial/Collector/Local Average PCI = 57.9

Subdivision Average PCI = 63.9

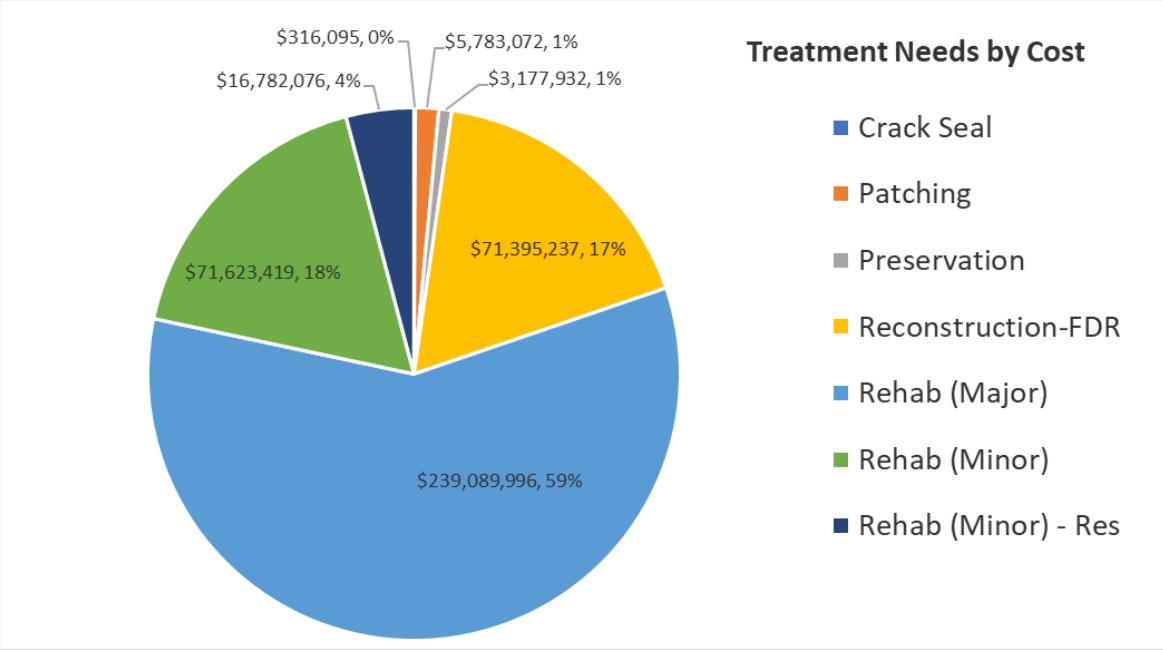
Total Network Lane Miles = 1,423

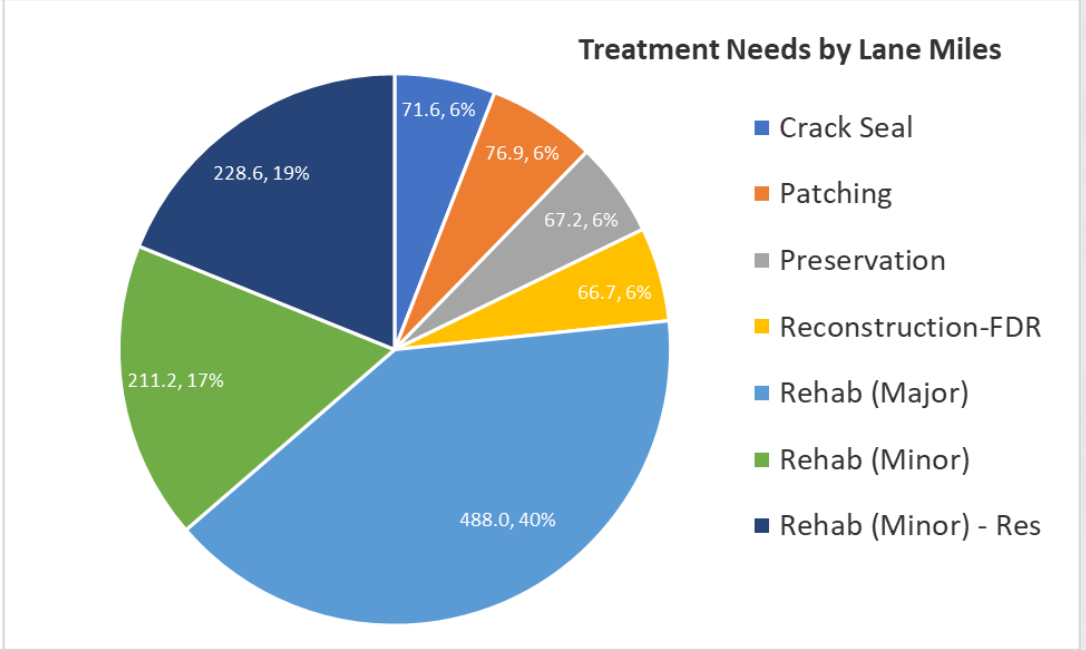
Network Total Backlog = $408,167,827

Per Mile Backlog = $591,548/Mile

Network Replacement Value = $1,531,086,492

Per Mile Replacement Value = $2,218,966/Mile





NW 69TH ST (0.47 MILES)
PCI = 9
TREATMENT = RECONSTRUCTION ($156/SY)
COST = $1,039,584

NW 98TH ST (2.07 MILES)
PCI = 39
TREATMENT = MAJOR REHABILITATION ($75/SY)
COST = $2,188,800

NW 64TH ST (0.35 MILES)
PCI = 64
TREATMENT = MINOR REHABILITATION ($48.50/SY)
COST = $236,550

NW 87TH TER (0.12 MILES)
PCI = 83
TREATMENT = PRESERVATION ($5/SY)
COST = $10,556

PAVEMENT MANAGEMENT SYSTEM
BUDGET ANALYSIS SCENARIOS

1. Unlimited Funding Scenario -- Determine all current network needs
2. Current Practice -- Worst First treatments with all funding going to Higher Traffic Routes
3. $15M/year split by Low Traffic ($2.5M) and High Traffic ($12.5M) starting from Year 2023
4. Maintain Current PCI = 60 -- Maintain current network condition through the end of analysis period.
5. Achieve Target PCI = 70 -- by the end of analysis period.

PAVEMENT MANAGEMENT SYSTEM TREATMENTS AND UNIT COSTS

Maintenance Activity	Unit Cost per Square Yard
Crack sealing	$0.65
Rejuvenator	$1.00
Preservation	$5.00
Patching (4” Full-Depth Asphalt)	$44.00
Rehab (Minor) (1.5” Mill & Fill)	$48.50
Rehab (Major) (3.5” Mill & Fill)	$75.00
Reconstruction – FDR	$156.00

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TOP 10 RECOMMENDED PROJECTS FROM UNLIMITED BUDGET ANALYSIS

Street Name	Begin Location	End Location	Treatment	Project Price	Benefit Cost Ratio
N MAIN ST	16 AV	39 AV	SE - Crack Seal	$21,476.00	873.91
SW 20 AV/SW 24 AV	SW 75 ST	HOGTOWNE CREEK	SE - Preservation	$280,719.00	773.05
SW 87 WAY			SE - Rehab (Minor)	$44,147.00	576.60
NW COUNTY RD 239			SE - Preservation	$410,771.00	566.74
NW 140 ST / NW 143 ST	SR 26	CR 235	SE - Preservation	$1,092,000.00	526.44
HOLDEN PARK RD	US 301	CL	SE - Preservation	$303,319.00	366.70
SW 24 AV	SW 122 ST	SW 75 ST	SE - Rehab (Minor)	$2,060,151.00	269.89
NW/SW 122 ST	SW 24 AV	SR 26	SE - Rehab (Minor)	$1,365,631.00	267.78
NW 98 ST	SR 26	NW 39 AV	SE - Rehab (Major)	$2,188,800.00	260.73
SW 91 ST	SW 24 AV	SW 8 AV	SE - Rehab (Minor)	$571,330.00	228.63

PAVEMENT MANAGEMENT SYSTEM ANALYSIS COMPARISONS

- Needs Analysis Comparison
  - Current Practice – Worst First/High Volume Roads Only (Approx. $4M/Year)
  - Maintain Current Condition (PCI=60) (Budget needed = $31.5M/Year)
  - Achieve Target PCI = 70 (Budget needed = $41.5M/Year)

- Alternative Budget Analysis Comparison
  - Current Practice – Worst First/High Volume Roads Only (Approx. $4M/Year)
  - $15M/Year – High/Low Volume Budget Split but Start in Year 2023

PAVEMENT MANAGEMENT SYSTEM TREATMENTS AND UNIT COSTS

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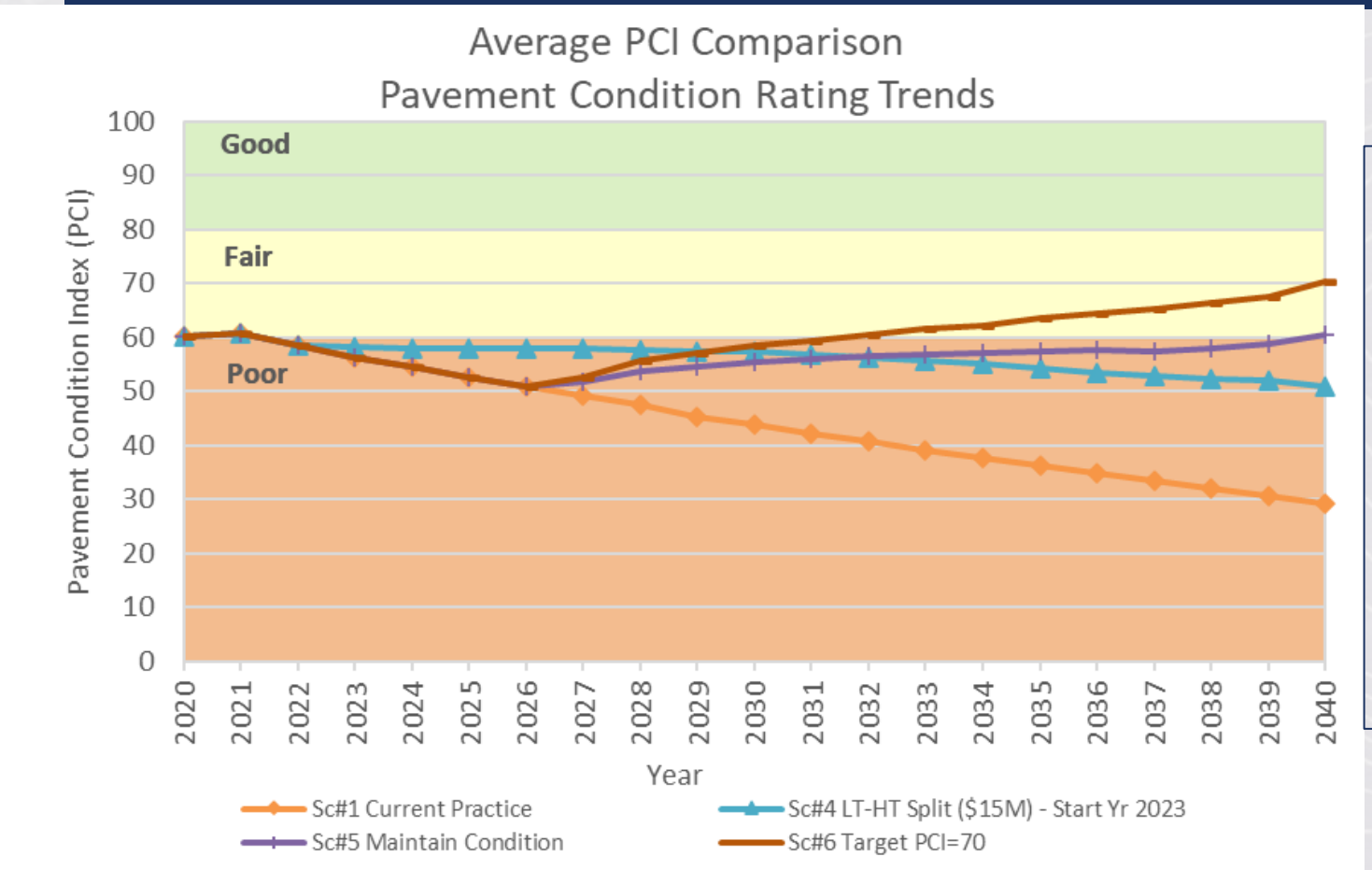
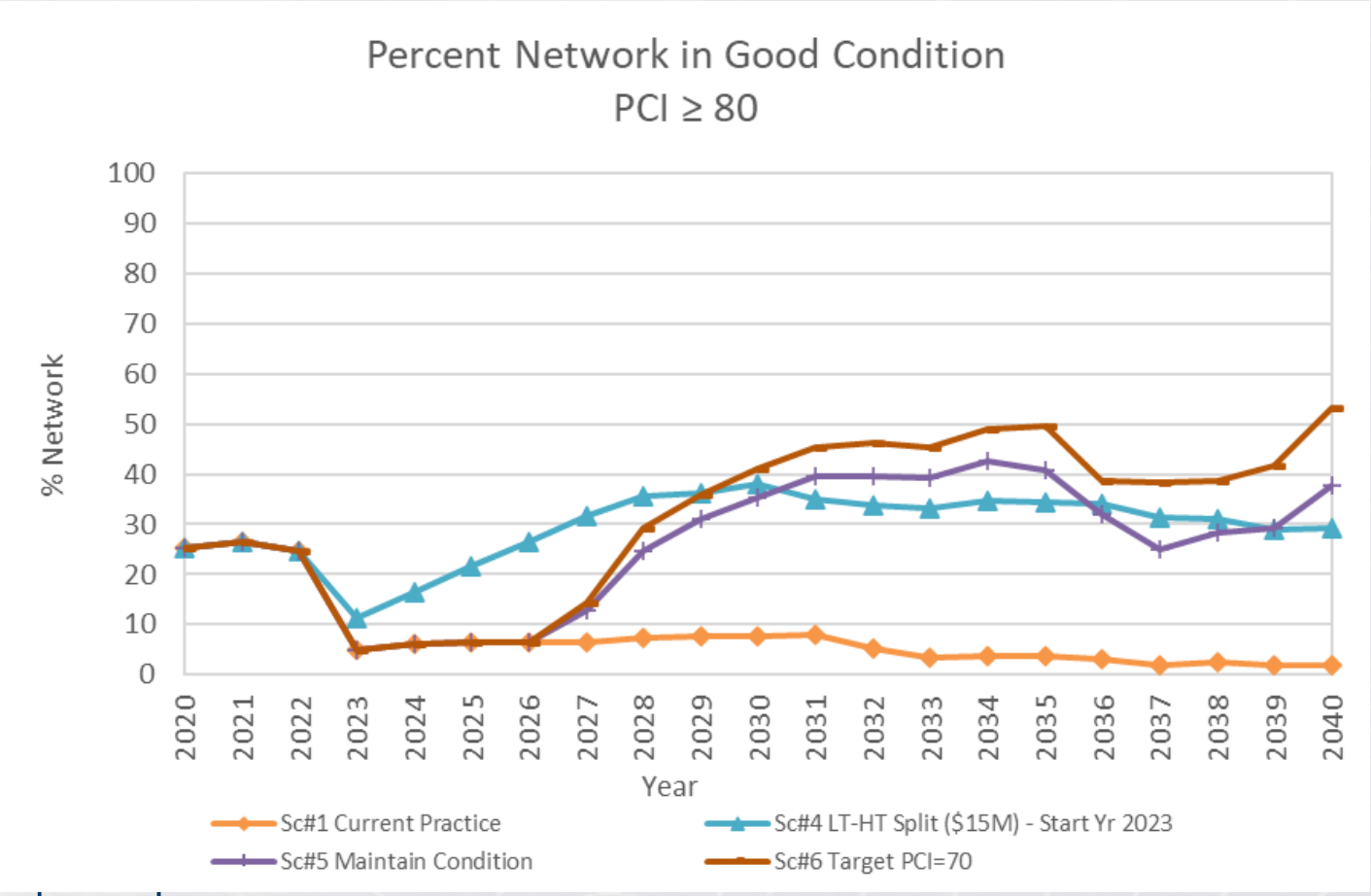
NEEDS ANALYSIS COMPARISON CHANGE IN PCI/YEAR



- **Achieve Target PCI = 70 (Budget needed = $41.5M/Year)**
- **Maintain Current Condition (PCI=60) (Budget needed = $31.5M/Year)**
- **$15M/Year – High/Low Volume Budget Split but Start in Year 2023**
- **Current Practice – Worst First/High Volume Roads Only (Approx. $4M/Year)**

NEEDS ANALYSIS COMPARISON
CHANGE IN % GOOD ROADS/YEAR



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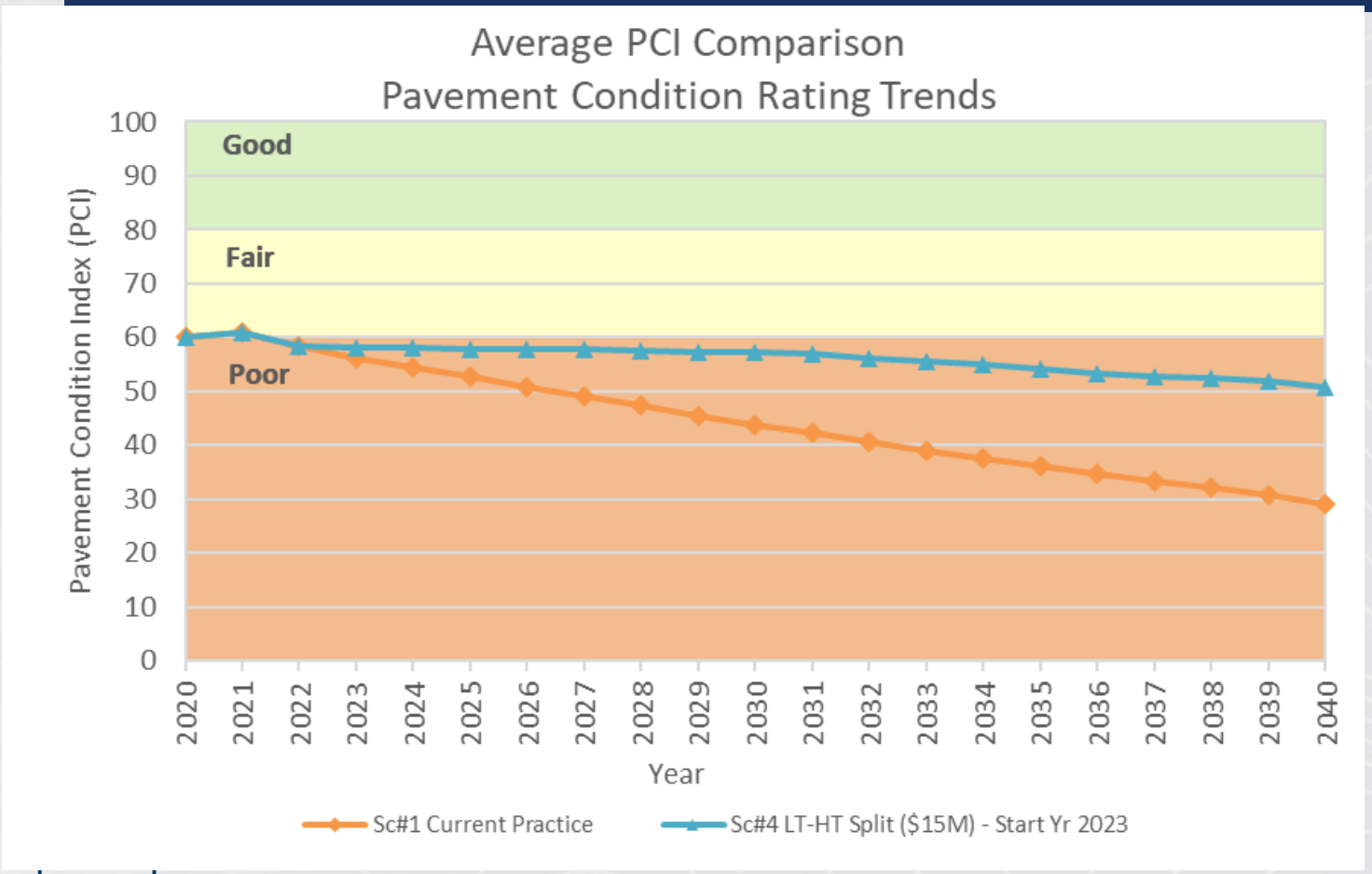
ALTERNATIVE BUDGET ANALYSIS COMPARISON CHANGE IN PCI/YEAR



- $15M/Year – High/Low Volume Budget Split but Start in Year 2023
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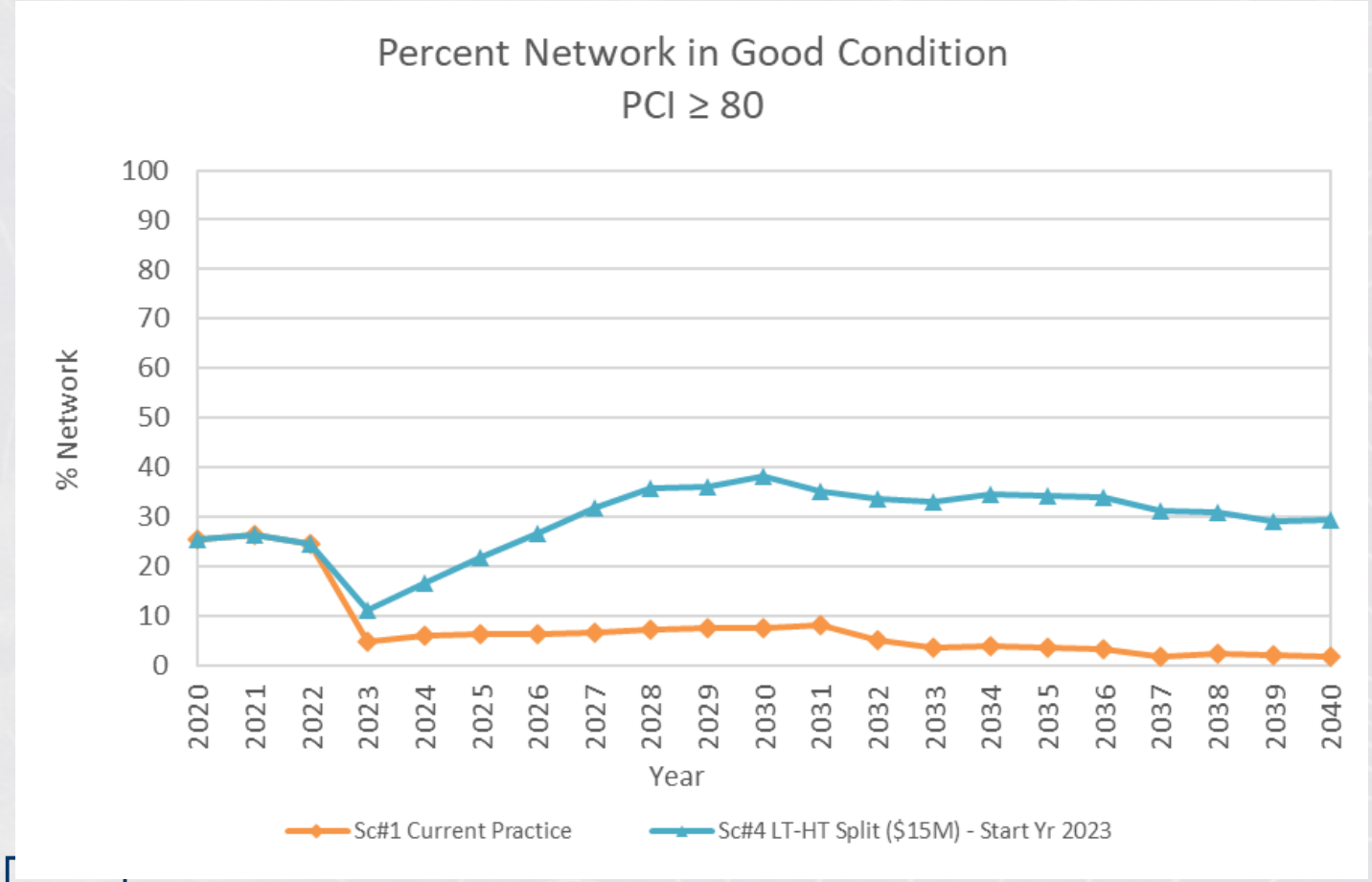
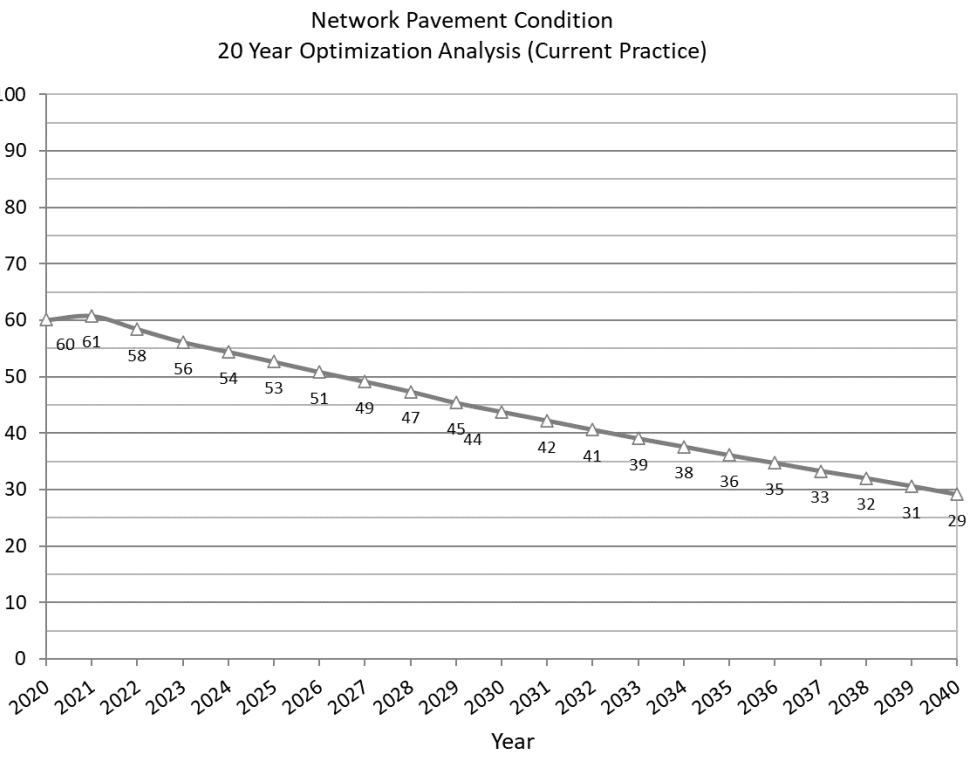
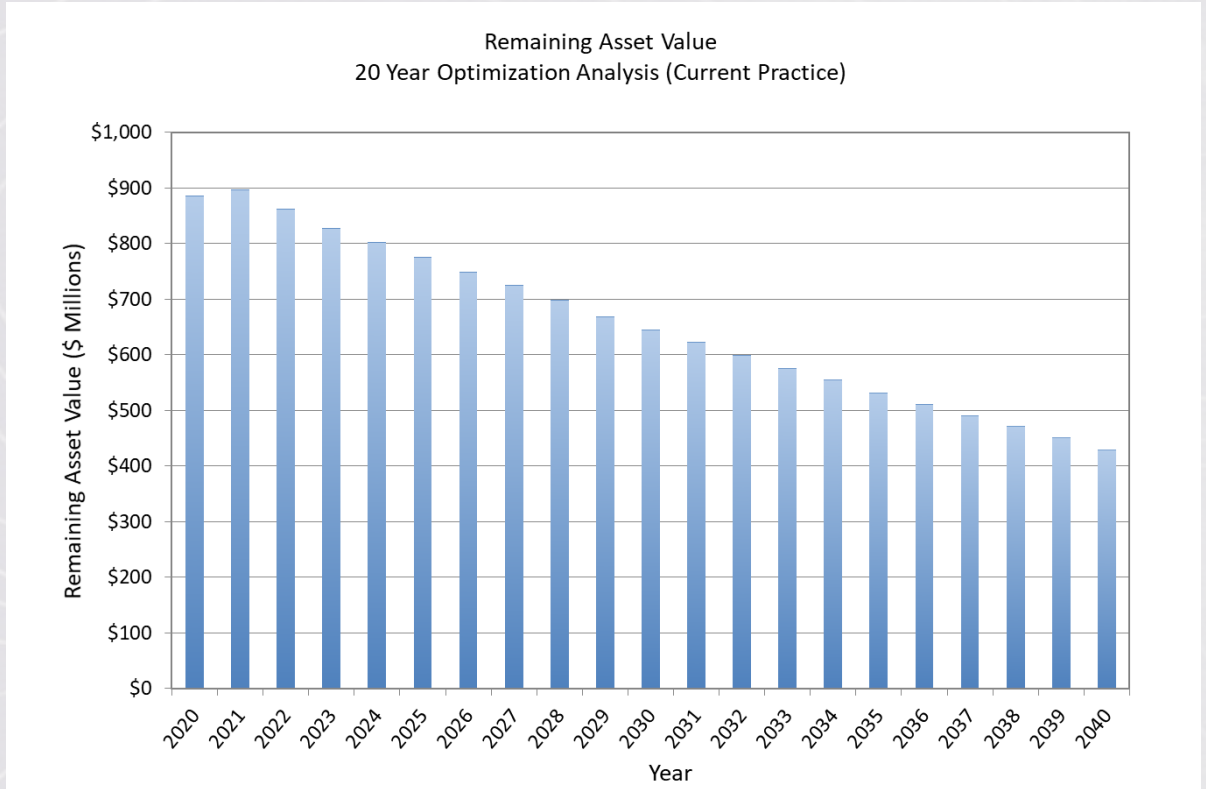
ALTERNATIVE BUDGET ANALYSIS COMPARISON CHANGE IN % GOOD ROADS/YEAR



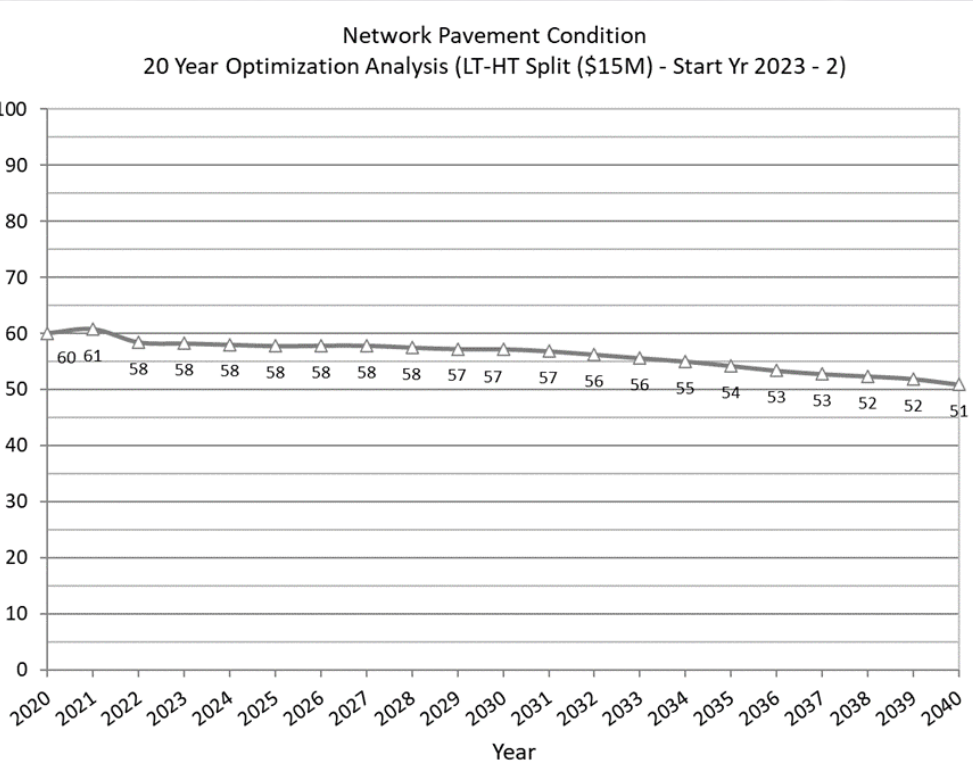
- $15M/Year – High/Low Volume Budget Split but Start in Year 2023
- Current Practice – Worst First/High Volume Roads Only

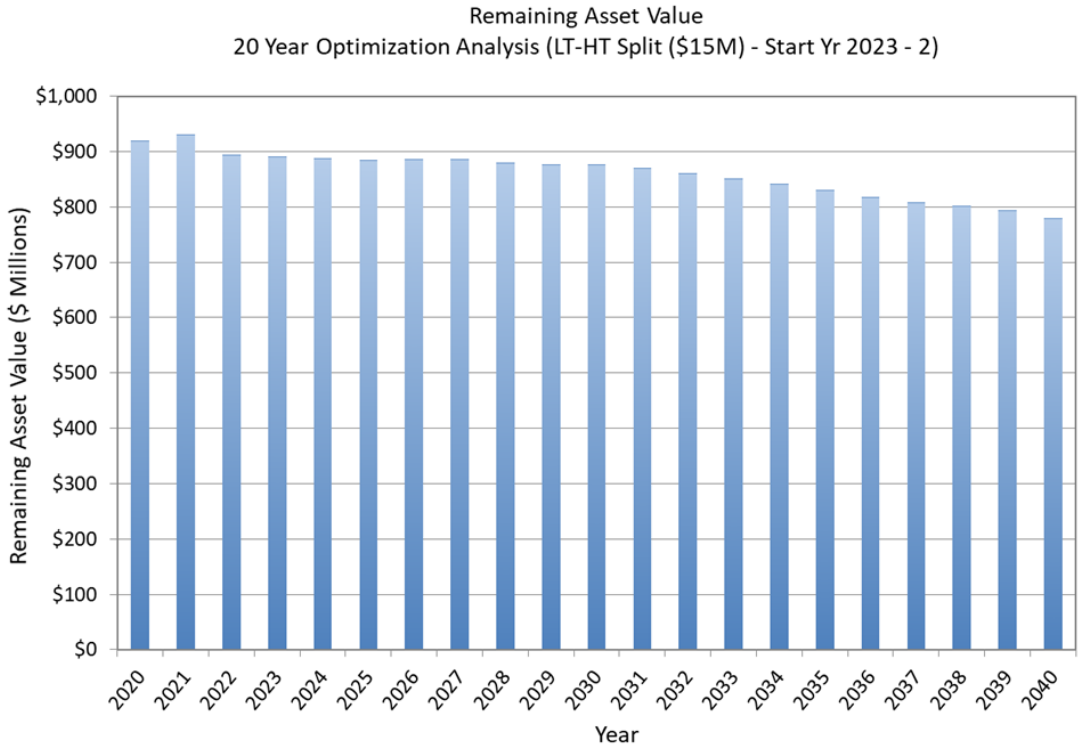
CURRENT PRACTICE – WORST FIRST TREATMENTS WITH ALL FUNDING GOING TO HIGHER TRAFFIC ROUTES



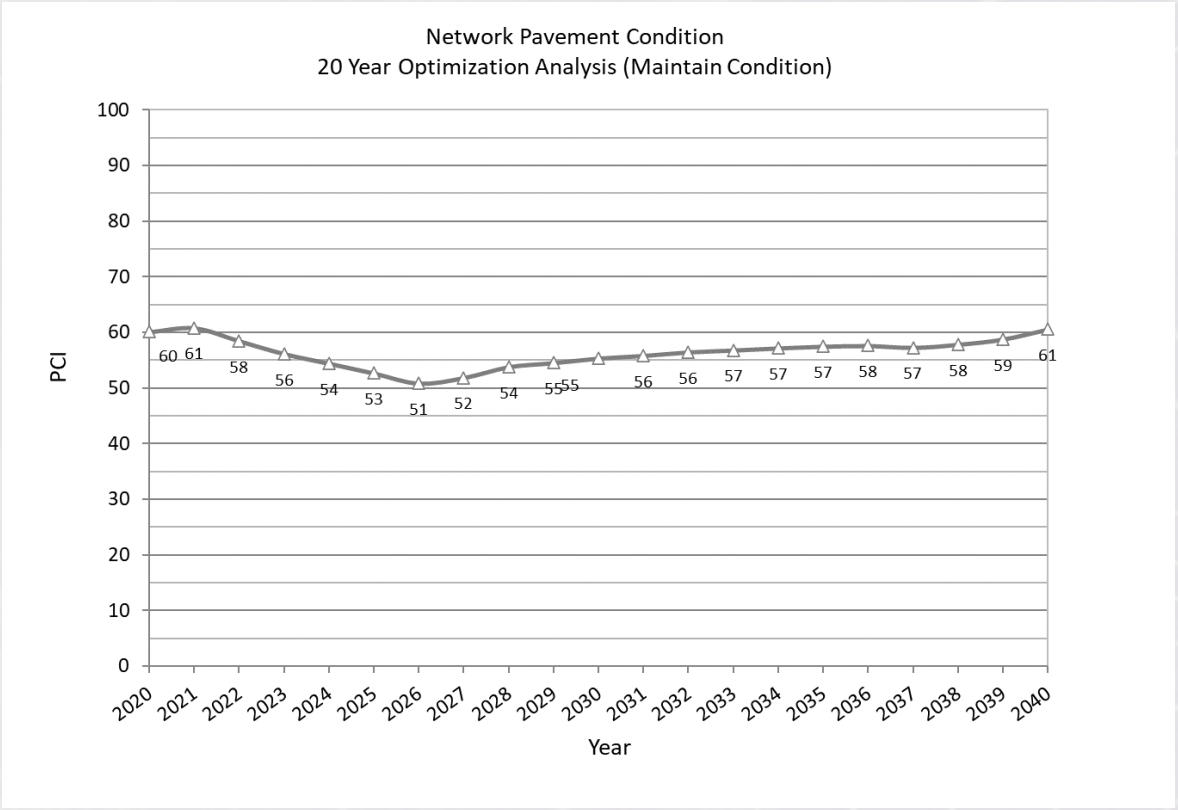


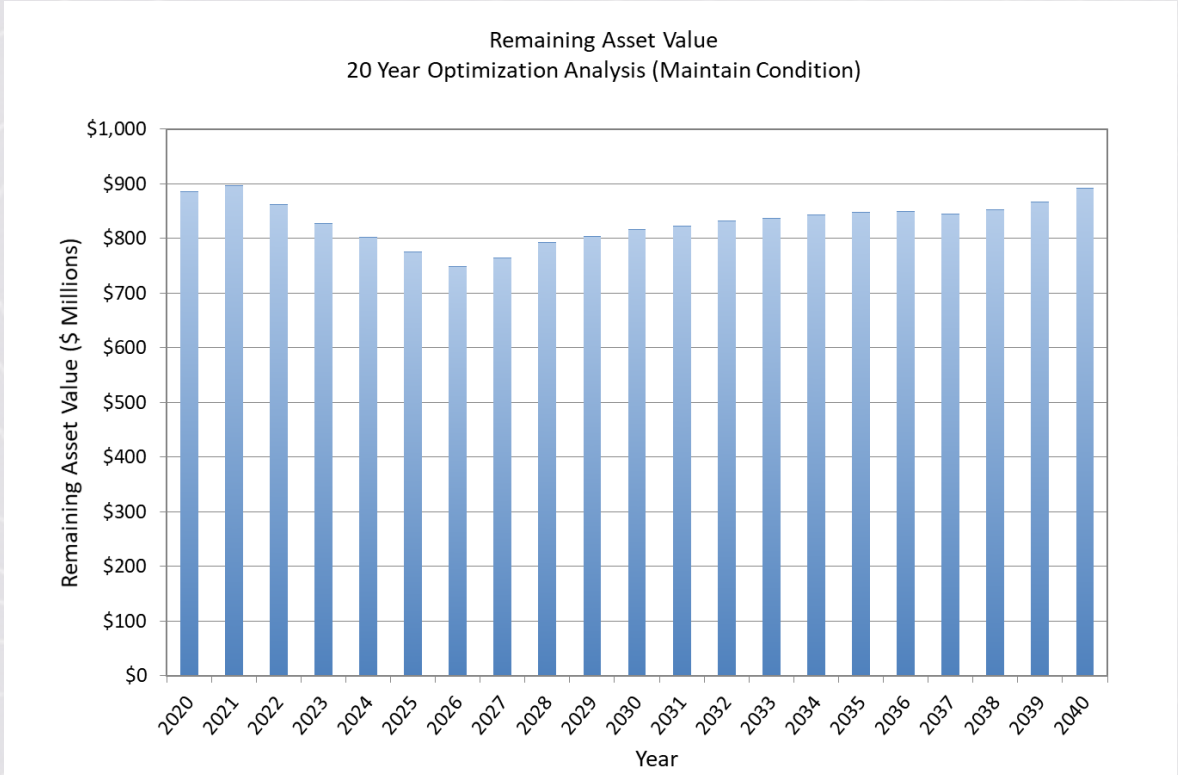
$15M/YEAR SPLIT BY LOW TRAFFIC/SUBDIVISION ($5M) AND HIGH TRAFFIC ($10M) STARTING FROM YEAR 2023



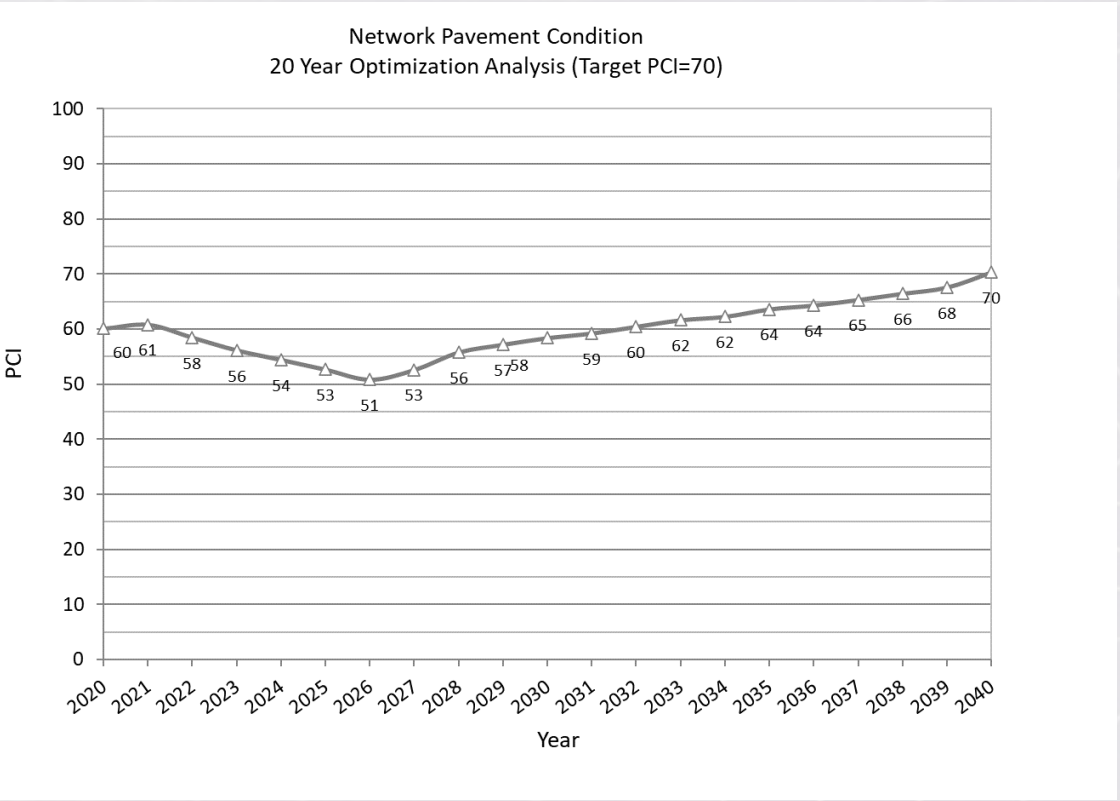


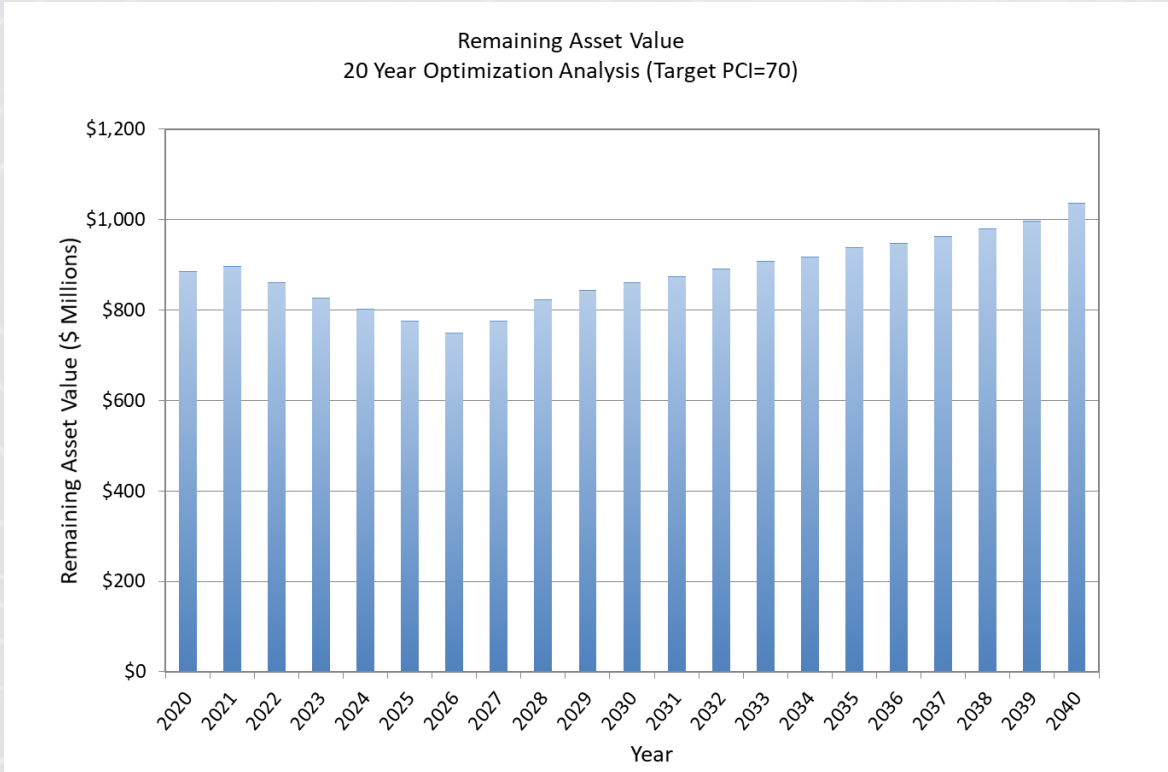
MAINTAIN CURRENT PCI = 60 – MAINTAIN CURRENT NETWORK CONDITION THROUGH THE END OF ANALYSIS PERIOD ($31.5M/YEAR NEEDED)





ACHIEVE TARGET PCI = 70 – BY THE END OF ANALYSIS PERIOD ($41.5M/YEAR NEEDED)





STAFF RECOMMENDATION

With the goal of maintaining approximately 30% of the County Network Roadways in Good Condition (Pavement Condition Index of at least 80%), staff recommends an annual investment of $15,000,000.00 starting on FY 2023 and increasing by at least 4% annually towards Pavement Management Projects (Preservation, Rehabilitation).

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Thank You