

# CITY OF CHOWCHILLA PAVEMENT MANAGEMENT PROGRAM

JULY 10, 2018



# WHAT IS A PAVEMENT MANAGEMENT PROGRAM (PMP)?

- A SYSTEM FOR COLLECTING, ANALYZING, MAINTAINING, AND REPORTING PAVEMENT DATA TO ASSIST IN FINDING THE MOST COST-EFFECTIVE STRATEGIES FOR MAINTAINING PAVEMENTS IN A SERVICEABLE MANNER OVER A GIVEN TIME PERIOD.
- NOTE THE “TO ASSIST” IN THE ABOVE DEFINITION; PMP PROVIDES GUIDANCE, COUNCIL/STAFF MAKE DECISIONS.
- OBJECTIVE OF PMP IS TO PROVIDE USEFUL DATA TO HELP MAKE CONSISTENT, COST-EFFECTIVE, AND DEFENSIBLE DECISIONS REGARDING PAVEMENT PRESERVATION

# SELECTED PMP SOFTWARE

- STREETSAVER
- DEVELOPED BY METROPOLITAN TRANSPORTATION COMMISSION (SAN FRANCISCO BAY AREA)
- USED BY ALL CITIES AND COUNTIES IN SAN FRANCISCO BAY AREA AND OVER 300 PUBLIC AND PRIVATE ORGANIZATIONS NATIONWIDE
- EASE OF USE
- CAN BE USED FOR INVENTORY OF OTHER STREET COMPONENTS (SIGNS, SIDEWALKS, ETC.)

# PMP DEVELOPMENT

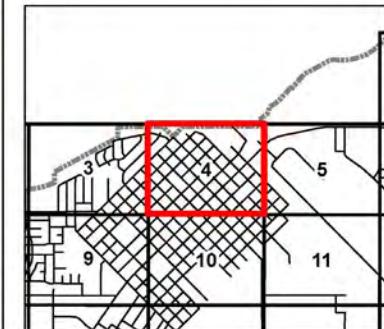
- 1) GIS MAPPING: CREATE MAPS AND BREAK STREETS INTO UNIQUES SEGMENTS; TYPICALLY INITERSECTION TO INTERSECTION;
- 2) FIELD INSPECTION: EACH STREET SEGMENT IS VISUALLY INSPECTED AND THE TYPE, SEVERITY, AND QUANTITIY OF SPECIFIC PAVEMENT DISRESSES/FAILURES ARE DOCUMENTED;
- 3) DATA INPUT: THE DATA COLLECTED IS ENTERED INTO PMP SOFTWARE, IN ADDITION TO STREET GEOMETRY (LENGTH, WIDTH, ETC.), STREET CLASSIFICATION, AND PREVIOUS MAINTENANCE AND REHABILITATION HISTORY (IF AVAILABLE);
- 4) PAVEMENT CONDITION INDEX (PCI): PMP SOFTWARE COMPUTES PCI FOR EACH STREET SEGMENT BASED ON DISTRESSES/FAILURES PRESENT. PCI IS A NUMERICAL VALUE (0-100) WHICH IS USED TO RATE PAVEMENT CONDITION;
- 5) ANALYSIS: PMP SOFTWARE IS USED TO ANALYZE VARIOUS SCENARIOS TO DETERMINE BEST STRATEGY FOR PAVEMENT MANAGEMENT

# GIS MAPPING



## Pavement Management System

Sheet 4



A scale bar labeled "Feet" with markings at 0, 300, and 600.

 Yamabe & Horn  
Engineering, Inc.

Document Path: F:\2017\17-350\GIS17-350 Chowchilla Street Saver Sheets.mxd

# FIELD INSPECTION



# DATA INPUT/PCI CALCULATION

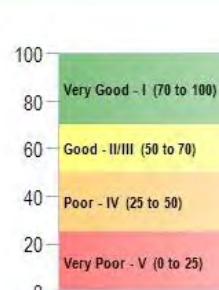
- DATA INPUT: PAVEMENT TYPE, DISTRESSES/FAILURES, SEGMENT WIDTH, SEGMENT LENGTH, STREET CLASSIFICATION, PRIOR MAINTENANCE/REHABILITATION (IF AVAILABLE), PAVEMENT AGE (IF AVAILABLE)
- TOTAL CENTERLINE MILES: 59.6
- CURRENT OVERALL PCI: 65
- 74% IN VERY GOOD/GOOD CONDITION; 26% IN POOR/VERY POOR CONDITION
- STATEWIDE AVERAGE PCI IS 65 (2016 STATEWIDE LOCAL STREETS AND ROADS NEEDS ASSESSMENT)

# DATA INPUT/PCI CALCULATION

## CITY OF CHOWCHILLA

## Executive Performance Summary

Run Date: 6/11/2018



Current PCI 65

\*Current PCI

As of 6/11/2018



### Network Inventory

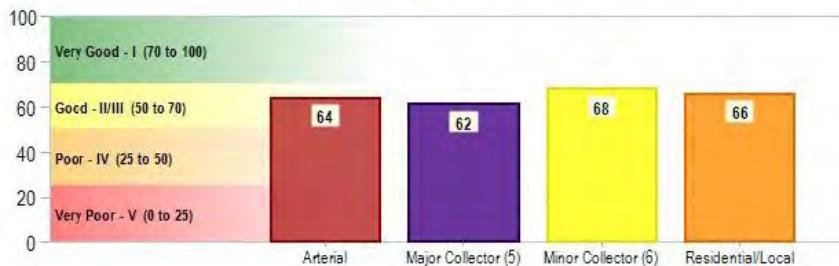
Area: 0.4  
(square miles)

Miles: 62.9

Lane Miles: 125.8

Sections: 613

### \*Current PCI by Functional Class

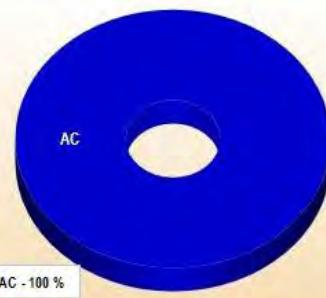


### Remaining Service Life (years)

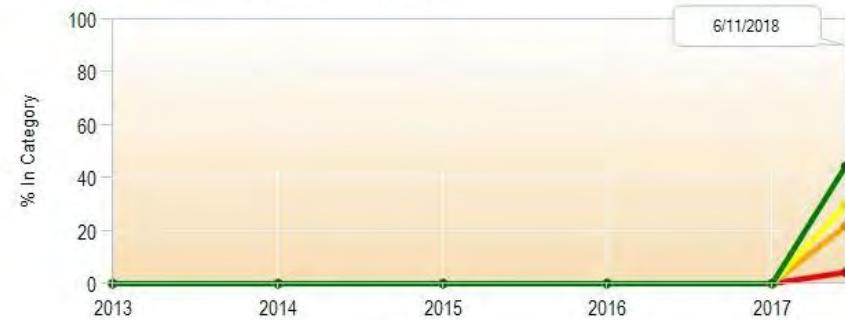
+10.4  
From 12/31/2017



### Surface Type



### Historical Network Condition Trends



# PCI MAP



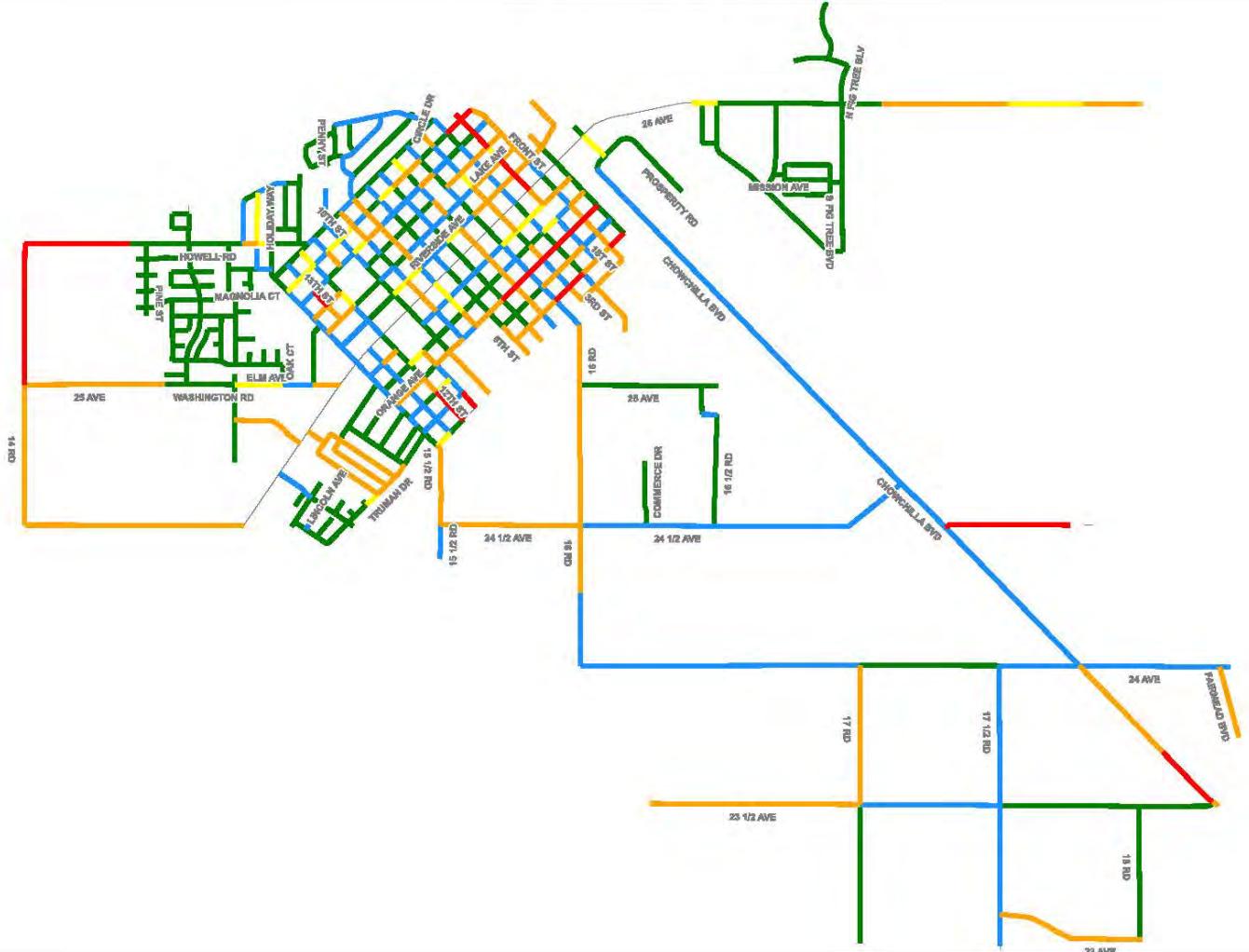
CITY OF CHOWCHILLA  
130 S. SECOND STREET  
CHOWCHILLA, CA 93610

## Current PCI Condition

Printed: 6/11/2018

### Feature Legend

- Category I - Very Good
- Category II - Good (Non-Load)
- Category III - Good (Load)
- Category IV - Poor
- Category V - Very Poor



# PCI MAP



CITY OF CHOWCHILLA  
130 S. SECOND STREET  
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### Feature Legend

- Category I - Very Good
- Category II - Good (Non-Load)
- Category III - Good (Load)
- Category IV - Poor
- Category V - Very Poor

## Current PCI Condition

Printed: 6/19/2018



# PAVEMENT MANAGEMENT BUDGET

- IN ORDER TO ESTABLISH AVAILABLE FUNDING FOR PROJECTS, REVIEWED CITY'S EXISTING FUNDING SOURCES
- GAS TAX (HUTA), MEASURE T, RSTP, SB1 (NEW GAS TAX), & OVERHEAD ALLOCATIONS (SEWER, WATER, & SOLID WASTE)
- DEDUCTED FUNDS USED FOR STREETS O&M, TRANSIT, & NON-PAVEMENT RELATED PROJECTS (I.E. SIDEWALKS, PLANNING, ETC.)
- 10-YR AVERAGE AVAILABLE FUNDING OF \$960,000/YR
- IF SB1 IS REPEALED, AVAILABLE FUNDING DROPS TO \$395,000/YR

# ANALYSIS - DEFINITIONS

- PREVENTATIVE MAINTENANCE (PM): COST-EFFECTIVE TREATMENTS THAT PRESERVE THE EXISTING PAVEMENT & SLOW DETERIORATION (I.E. SLURRY SEALS, CAPE SEALS, & THIN OVERLAYS)
- REHABILITATION: STRUCTURAL ENHANCEMENTS THAT EXTEND THE SERVICE LIFE AND/OR IMPROVE LOAD CAPACITY OF PAVEMENT (I.E. THICK OVERLAY, PULVERIZE & OVERLAY, & FULL RECONSTRUCTION)
- DEFERRED MAINTENANCE: MAINTENANCE THAT IS NECESSARY TO MAINTAIN PAVEMENT IN OPTIMAL CONDITION BUT IS DEFERRED DUE TO FUNDING CONSTRAINTS
- ANALYSIS PERIOD: 10 YEARS

# ANALYSIS – BUDGETARY NEEDS

- FIRST ANALYSIS TO PROVIDE “BIG PICTURE” FOR THE SYSTEM
- NO FUNDING CONSTRAINTS, PROVIDES TOTAL COST OVER ANALYSIS PERIOD REQUIRED TO BRING SYSTEM UP TO OPTIMAL CONDITION W/ NO DEFERRED MAINTENANCE
- TYPICALLY NOT A REALISTIC MANAGEMENT APPROACH
- TOTAL COST: \$37.8M (\$3.78M/YR AVERAGE)
- 2027 OVERALL PCI: 85
- % PREVENTATIVE MAINTENANCE: 21%

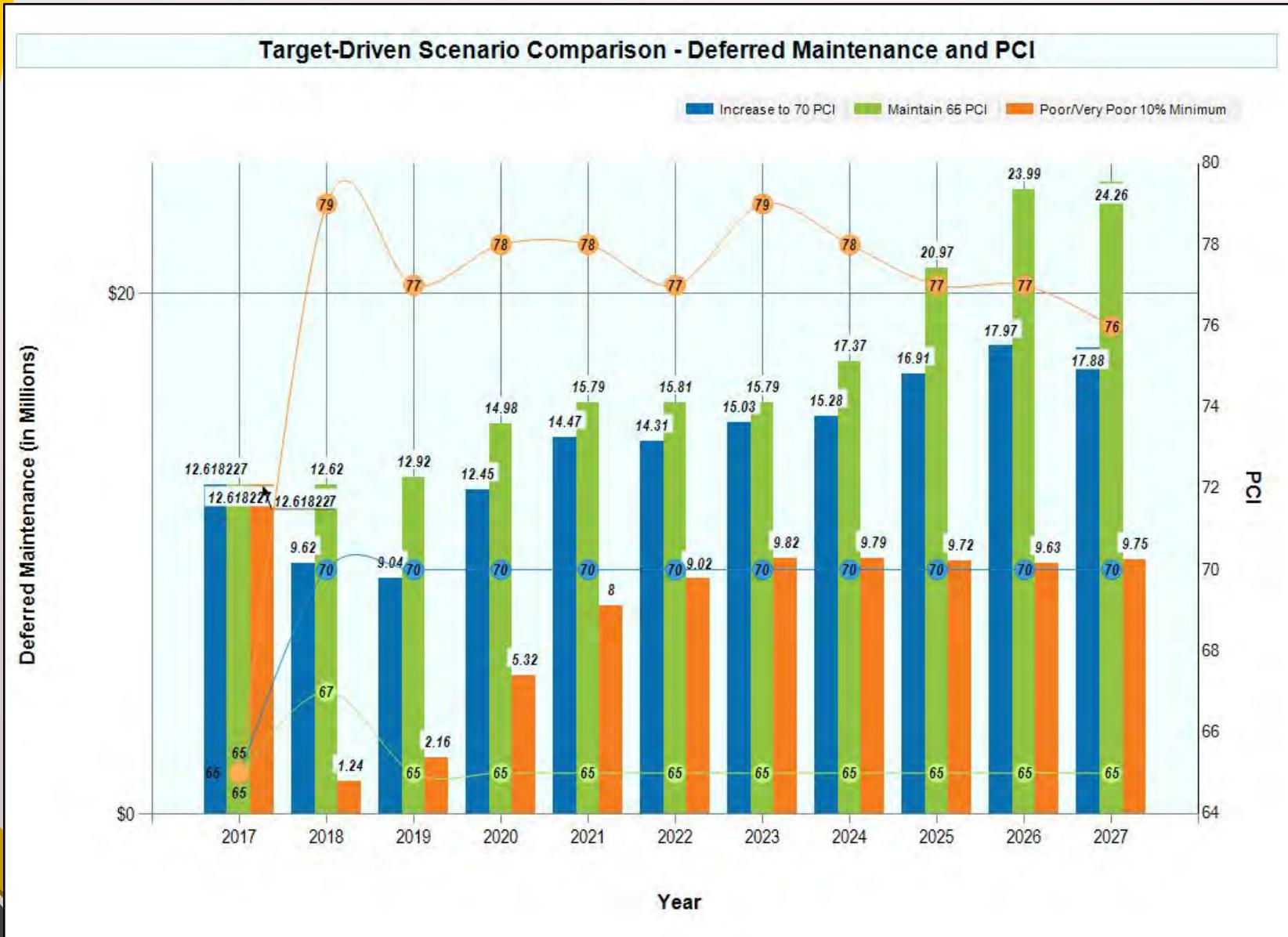
# ANALYSIS – TARGET-DRIVEN

- TARGET-DRIVEN SCENARIOS ARE BASED ON UNCONSTRAINED FUNDING AND A DESIRED GOAL (I.E. OVERALL PCI OF 70, MAXIMUM 10% OF STREETS IN POOR CONDITION, ETC.)
- PROVIDE DECISION-MAKERS WITH VALUABLE INFORMATION REGARDING WHAT IS REQUIRED TO ACHIEVE DESIRED GOAL
- OFTEN NOT FEASIBLE UNLESS ADDITIONAL FUNDING IS ALLOCATED TO PAVEMENT PROJECTS
- 3 TARGET-DRIVEN SCENARIOS WERE ANALYZED

# ANALYSIS – TARGET-DRIVEN

- 1) SCENARIO #1 – MAINTAIN CURRENT OVERALL PCI OF 65**
  - TOTAL COST: \$20.2M (\$2.02M/YR AVERAGE)
  - DEFERRED MAINTENANCE: \$24.3M
- 2) SCENARIO #2 – OVERALL PCI OF 70 (“VERY GOOD” LEVEL)**
  - TOTAL COST: \$24.2M (\$2.42M/YR AVERAGE)
  - DEFERRED MAINTENANCE: \$17.9M
- 3) SCENARIO #3 – MAXIMUM 10% OF STREETS IN POOR/VERY POOR CONDITION**
  - TOTAL COST: \$28.9M (\$2.89M/YR AVERAGE)
  - DEFERRED MAINTENANCE: \$9.8M
  - 2027 OVERALL PCI: 76

# ANALYSIS – TARGET-DRIVEN



# ANALYSIS – BUDGET-DRIVEN

- BUDGET-DRIVEN SCENARIOS ARE BASED ON USER-ESTABLISHED FUNDING AMOUNT AND % SPLIT BETWEEN PREVENTATIVE MAINTENANCE AND REHABILITATION PROJECTS
- REAL-LIFE PICTURE OF WHAT CAN BE DONE WITH AVAILABLE FUNDING RESOURCES
- FOR SMALL, RURAL MUNICIPALITIES, IT IS OFTEN DIFFICULT TO MAINTAIN THE STREET SYSTEM AT THE CURRENT OVERALL PCI DUE TO LACK OF AVAILABLE FUNDING RESOURCES
- GOAL IS TO ACHIEVE BEST BALANCE BETWEEN OVERALL PCI & DEFERRED MAINTENANCE
- 4 BUDGET-DRIVEN SCENARIOS WERE ANALYZED
- AVERAGE ANNUAL FUNDING: \$960,000/YR

# ANALYSIS – BUDGET-DRIVEN

## 1) SCENARIO #1 – 15% PM/85% REHABILITATION

- 2027 OVERALL PCI: 53
- DEFERRED MAINTENANCE: \$31.7M

## 2) SCENARIO #2 – 20% PM/80% REHABILITATION

- 2027 OVERALL PCI: 54
- DEFERRED MAINTENANCE: \$31.4M

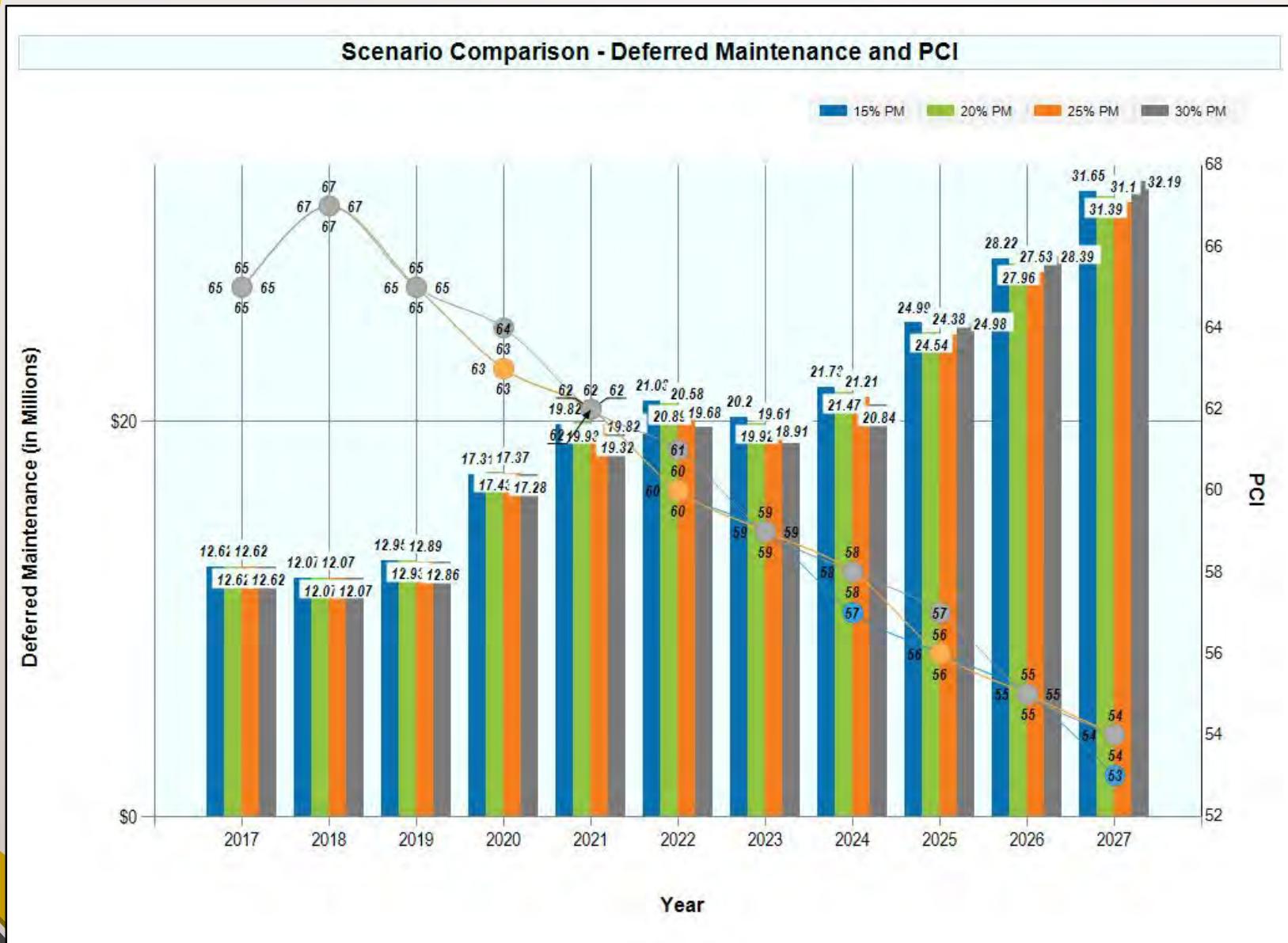
## 3) SCENARIO #3 – 25% PM/75% REHABILITATION

- 2027 OVERALL PCI: 54
- DEFERRED MAINTENANCE: \$31.1M

## 4) SCENARIO #4 – 30% PM/70% REHABILITATION

- 2027 OVERALL PCI: 54
- DEFERRED MAINTENANCE: \$32.2M

# ANALYSIS – BUDGET-DRIVEN



# SUMMARY & RECOMMENDATION

- BUDGETARY NEEDS: \$37.8M
- AVAILABLE FUNDING: \$9.6M (\$3.95M W/O SB1); \$960,000 ANNUALLY
- TARGET-DRIVEN SCENARIOS ANALYZED REQUIRE MINIMUM AVERAGE FUNDING OF \$2.02M/YR; NOT FEASIBLE WITHOUT ADDITIONAL SIGNIFICANT FUNDING SOURCE
- BUDGET-DRIVEN SCENARIO ANALYSIS RESULTS SHOW ONLY MINOR DIFFERENTIATION
- STAFF RECOMMENDATION: UTILIZE 20% PM/80% REHABILITATION BUDGET-DRIVEN SCENARIO
  - AVERAGE ANNUAL FUNDING SPLIT: \$192,000 PM/\$768,000 REHABILITATION
  - 2027 OVERALL PCI: 54; DEFERRED MAINTENANCE: \$31.4M
  - PER BUDGETARY NEEDS ANALYSIS, OPTIMAL % PM IS 21%
  - DUE TO SIGNIFICANT AMOUNT OF STREETS IN NEED OF REHABILITATION, NEED TO KEEP % OF FUNDING FOR REHABILITATION HIGHER
  - COMMON SPLIT BETWEEN PM & REHABILITATION

# QUESTIONS?

