

City of Ann Arbor Pavement Asset Management Update



**PRESENTATION TO
TRANSPORTATION COMMISSION
MAY 9, 2018**

Council Goal: Fix Our Roads



Priority: Repairs/Reconstruction of Roads

Responsible Service Area(s): Public Services

Problem(s): Deteriorated Road Infrastructure

Indicator(s):

- System-wide pavement condition rating
- Miles and area of roadway receiving treatment

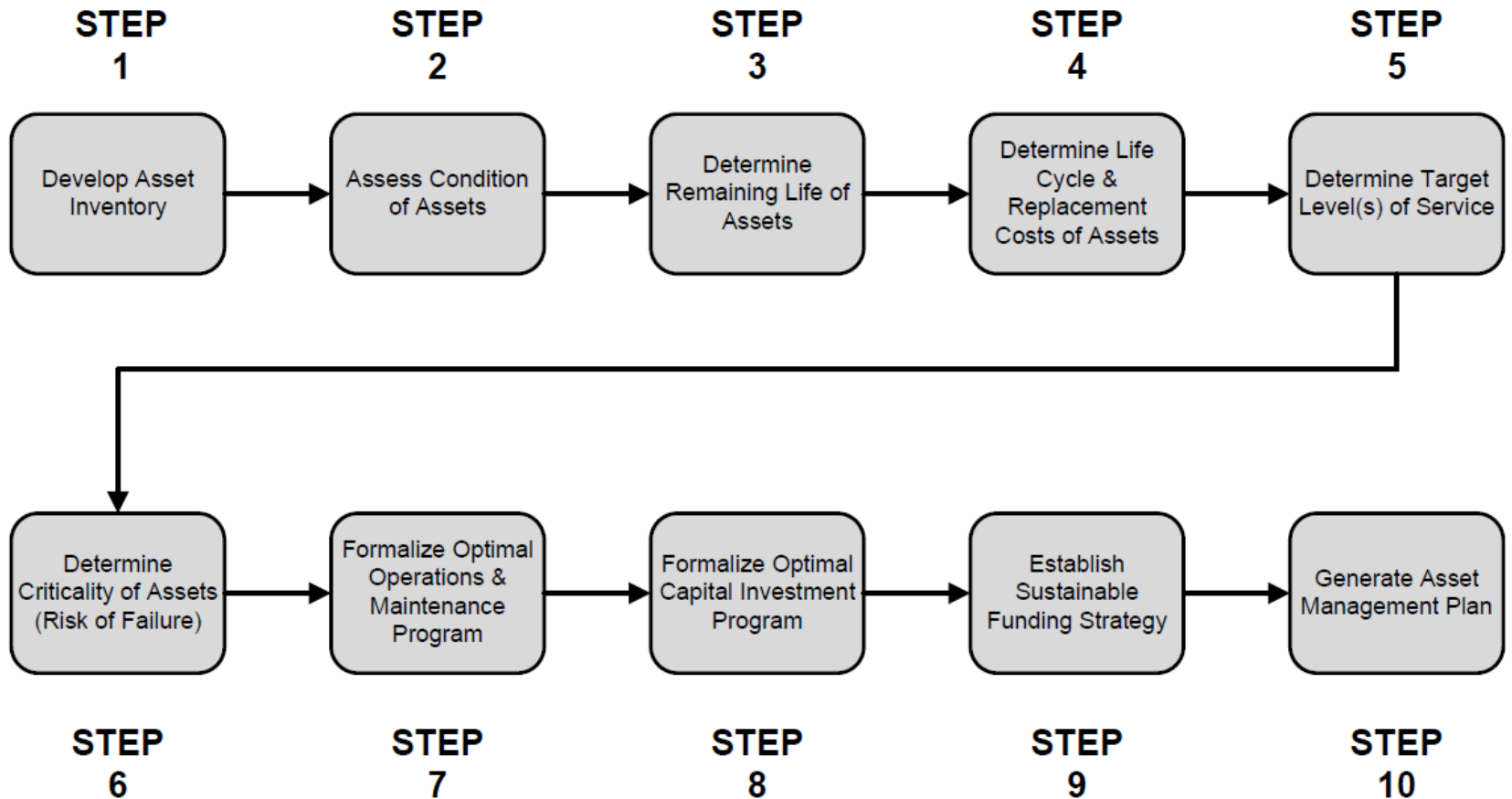
Sustainability Framework Goals Impacted:



- Transportation Options
- Sustainable Systems
- Integrated Land Use

- Human Services
- Safe Community
- Economic Vitality

CITY OF ANN ARBOR ASSET MANAGEMENT PLAN DEVELOPMENT PROCESS



Street Inventory: 2014



Miles of Street by Material and Classification

| Classification | Asphalt | Brick | Gravel | Concrete | Totals |
|-----------------------|----------------|--------------|---------------|-----------------|---------------|
| Major | 94.99 | 0.37 | 0.00 | 3.54 | 98.90 |
| Local | 187.79 | 0.37 | 12.19 | 1.00 | 201.35 |
| Subtotal: | 282.78 | 0.74 | 12.19 | 4.54 | 300.25 |

Figures Exclude Bridge Decks and State Trunklines
Miles Shown Are Centerline Miles

Condition Assessment: PASER Rating System



- **“PASER” is short for Pavement Surface Evaluation and Rating**
- **The Michigan Department of Transportation (“MDOT”) has adopted the PASER system to rate street pavement condition**

Paser Ratings Scale

- Rating 10 – Excellent
- Rating 9 – Excellent
- Rating 8 – Very Good
- Rating 7 – Good
- Rating 6 – Good
- Rating 5 – Fair
- Rating 4 – Fair
- Rating 3 – Poor
- Rating 2 – Very Poor
- Rating 1 – Failed



Source: Adapted From ["Paser Manual:"](#) Transportation Information Center; University of Wisconsin Madison



Ratings Efforts To Date:

- **Consultant TransMap rated all streets in Spring 2014**
- **Staff presented those ratings to City Council**
- **Consultant rated all streets again in June 2017**
- **Results to be covered shortly**



Set Target Level
of Service

- **Staff Recommended LOS by 2025:**
- **Locals = 80% are 7 (Good) or better**
- **Majors = 80% are 7 (Good) or better**

- **At time of 2014 PASER Rating:**
- **Local = 39% are 7 or better**
- **Majors = 45% are 7 or better**



**Key
Paradigm
Shift in 2014:**

**Adding
Capital
Preventive
Maintenance**

- **“The right fix at the right time”** is the pavement asset management mantra
- The City began **expanding its “mix of fixes”** beyond the three basic treatments of Routine Maintenance, Resurfacing, and Reconstruction
- An intermediate fix category called **Capital Preventive Maintenance (“CPM”)** began to be utilized

The “Food Chain” of Fixes



Routine Maintenance: Pothole Repair and Patching



Capital Preventive Maintenance: Crack Sealing



Capital Preventive Maintenance: Road Surface Sealing



Capital Preventive Maintenance: Thin Mill and Fill (Less than 2")



Resurfacing: Replace Paving Surface



Reconstruction: Replace Pavement, Aggregate Base, and follow Complete Streets and Green Streets Policies



Building the Pavement Asset Management Model



Basis of Annual Budget for Model

- Street Millage: \$10,000,000
 - Surface Transportation Funds (STP): \$2,000,000
 - Present Act 51 Capital Maintenance/Other: \$1,000,000
- Total: \$13,000,000

Note: Act 51 largely supports routine maintenance (snow plowing, street sweeping, pavement marking, pothole repair, patching, signs and signals etc.) but is not included in this model which only addresses capital projects.

Established Fixes and Triggers for Treatments



| Treatment: (Position cursor on splitter line above this text to adjust data shown.) | | | | | | |
|---|----------|-------------|-------------|-------|----------|----------|
| Treatment | Type | Min Trigger | Max Trigger | Reset | New Surf | Surface |
| Crack Seal | PM (CPM) | 7 | 7 | 8 | No | \$0.83 |
| Slurry Seal | PM (CPM) | 6 | 6 | 8 | No | \$5.20 |
| Microsurface | PM (CPM) | 6 | 6 | 8 | No | \$5.20 |
| Cape Seal | PM (CPM) | 5 | 6 | 9 | Yes | \$8.40 |
| Mill & Fill - <2" Thick | PM (CPM) | 5 | 5 | 9 | Yes | \$25.00 |
| Resurfacing- Mill & replace $\geq 2"$ & < total) | RH (SI) | 3 | 4 | 9 | Yes | \$52.00 |
| Mill and Fill $> 1.5"$ | RH (SI) | 3 | 4 | 9 | Yes | \$65.00 |
| Rehabilitation (Remove & Replace full depth) | RH (SI) | 2 | 3 | 10 | Yes | \$62.00 |
| Reconstruction (Major) | RC (SI) | 1 | 2 | 10 | Yes | \$170.00 |

Testing Various Asset Management Strategy Models



In the slides that follow:

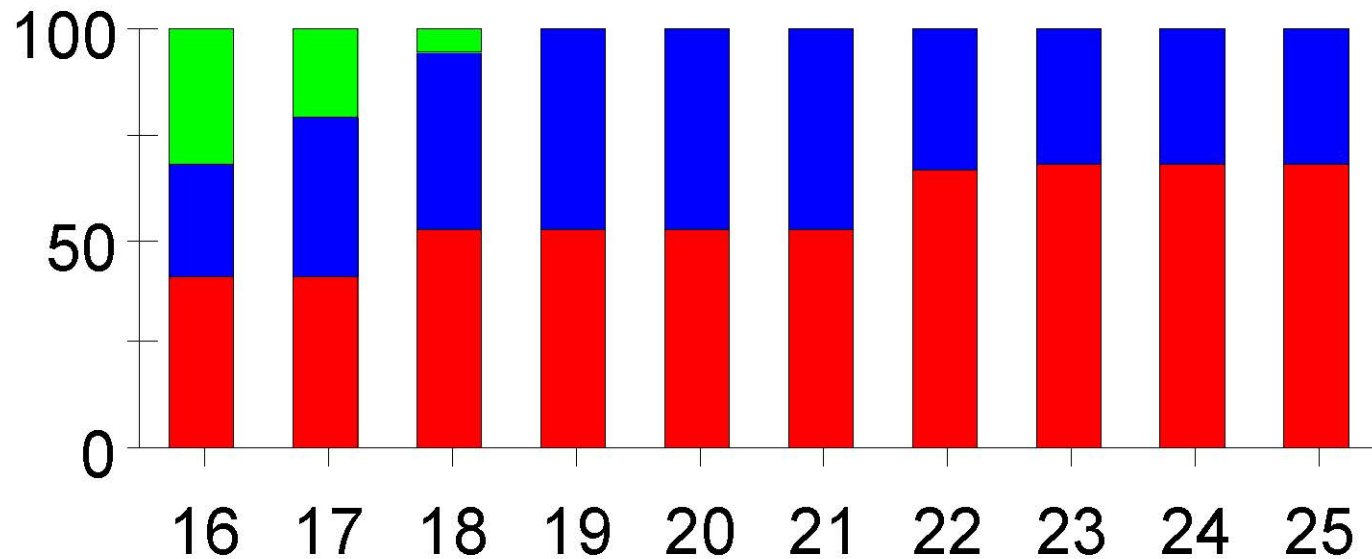
Green = Good

Blue = Fair

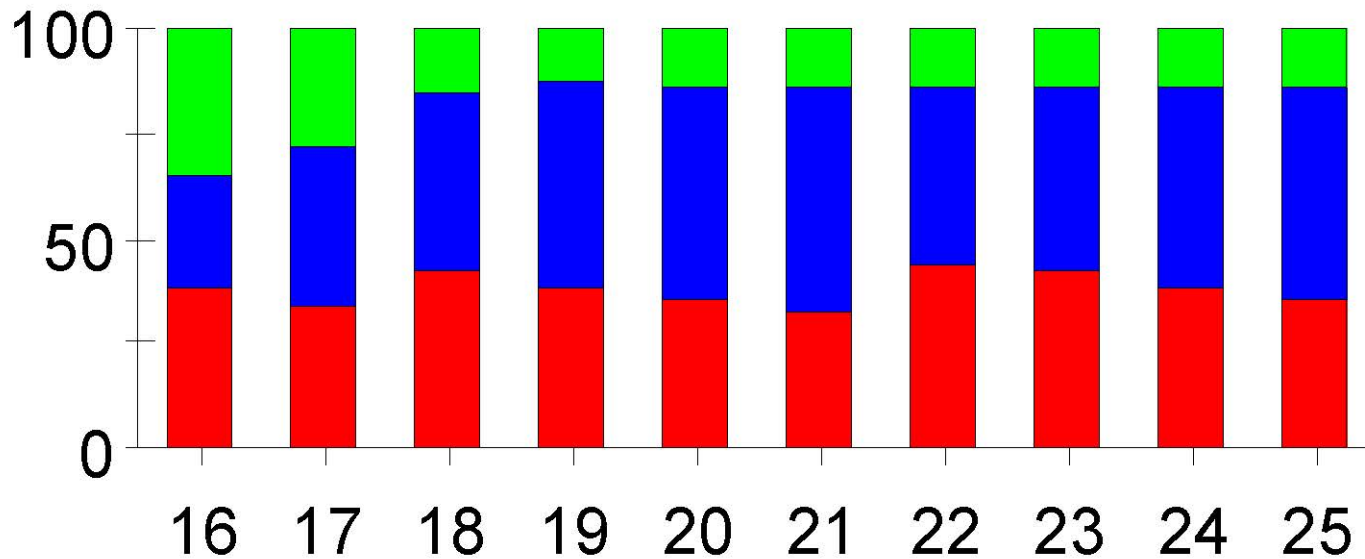
Red = Poor

Models show change from the end of FY 2016 to the end of FY 2025

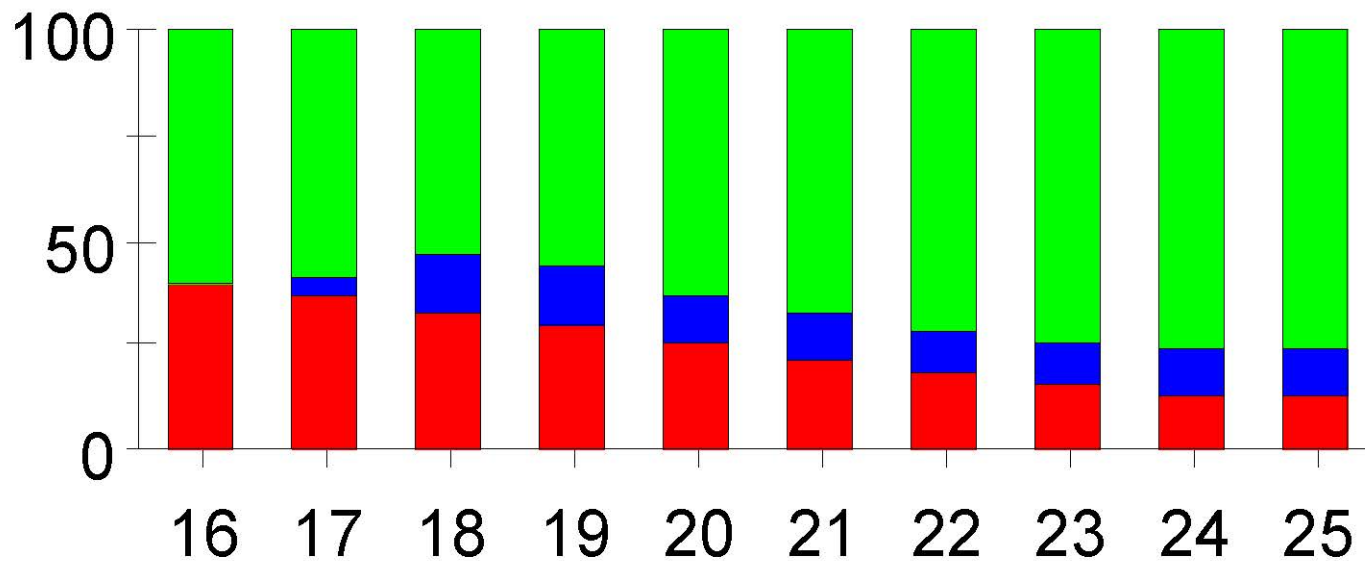
No Capital Spending Strategy



Strategy Through FY14: Resurfacing and Reconstruction with No Capital Preventive Maintenance (CPM): \$13M/Annual



Model Ideal Strategy: \$13M/Annual



Now We Have the Perfect
Strategy....Right?



NOT YET!!!

ADJUSTMENTS NEEDED TO IDEAL MODEL



- **Adjust for committed road projects**
- **Adjust to allow for coordination with utility projects**
- **Adjust to local contracting capacity**
- **Adjust to ease into fixes new to A2**

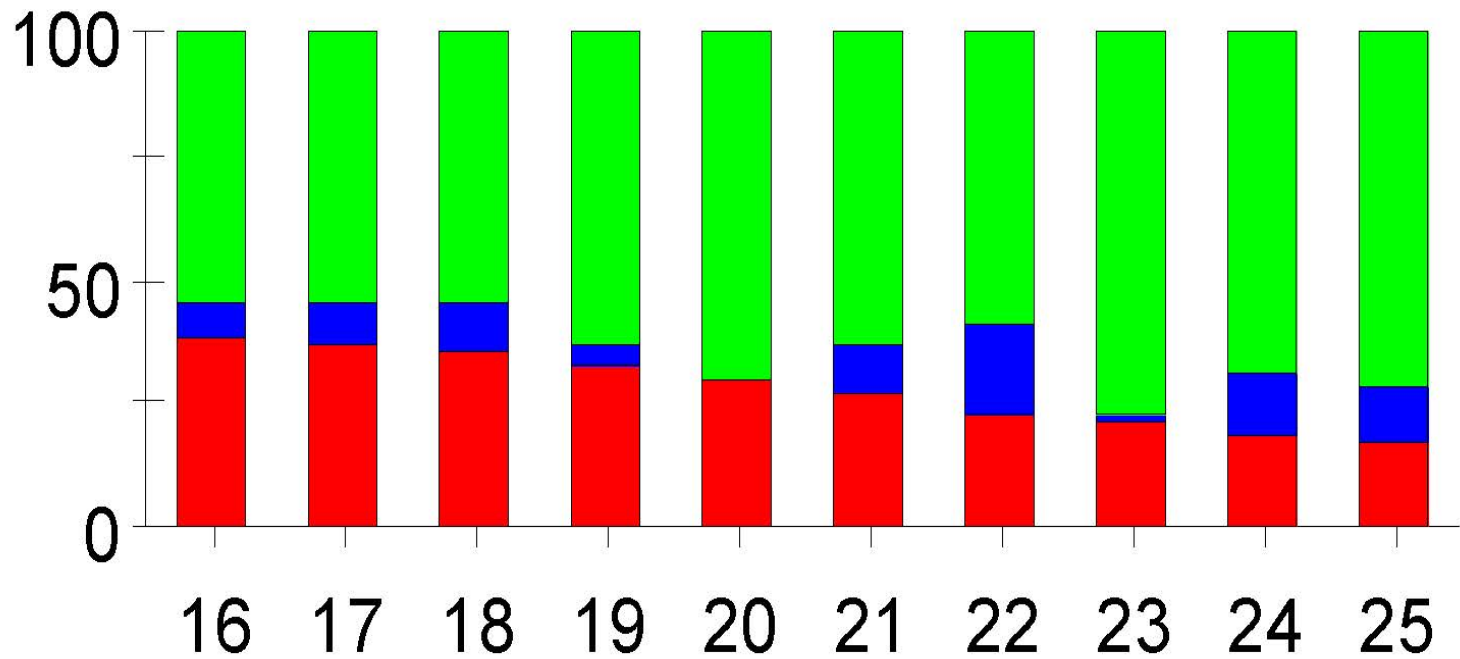
CREATE LOCALLY OPTIMIZED STRATEGY



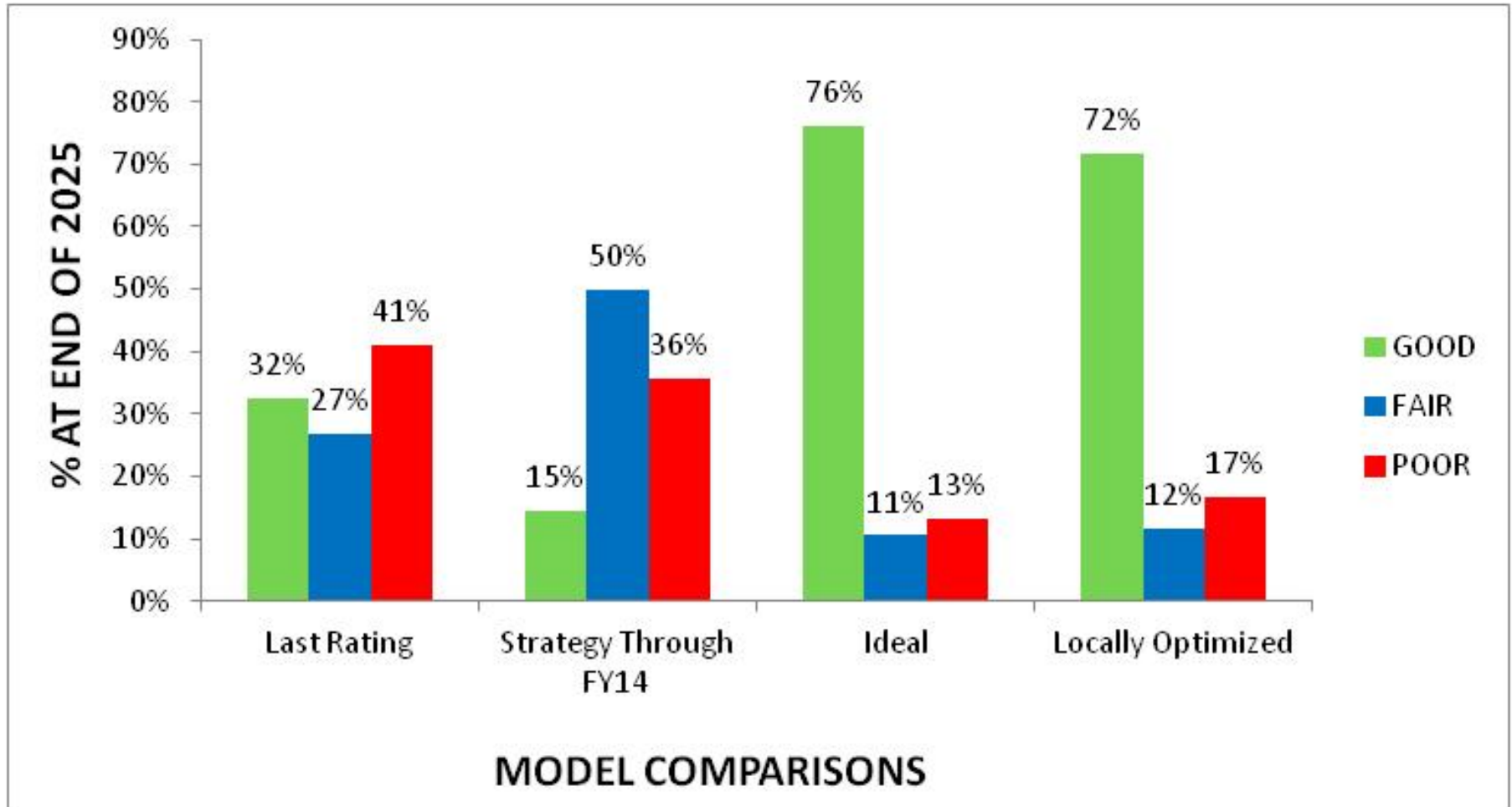
**BE GUIDED BY THE PRINCIPALS OF
THE IDEAL MODEL**

**BUT ADJUST TO LOCAL
CONDITIONS**

Locally Optimized Model: \$13M/Annual



Model Comparisons:



Model Adjustments and Tracking Progress



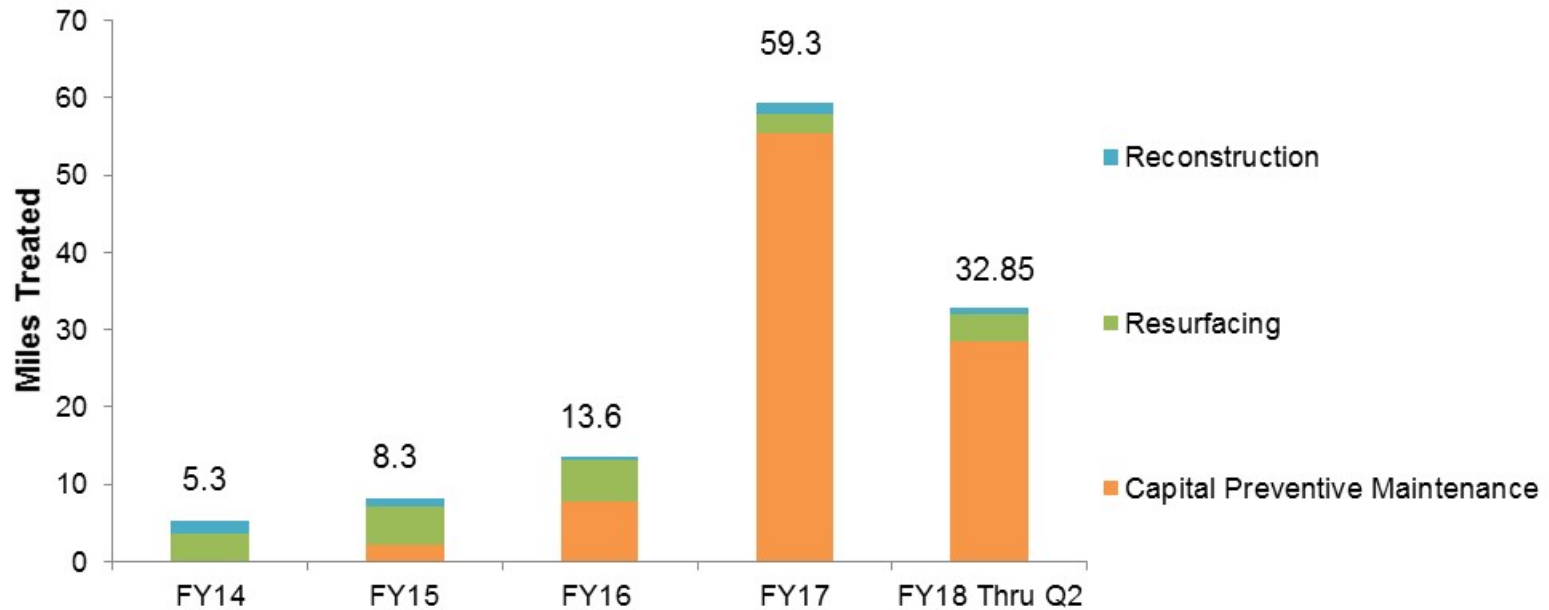
To Assess Progress Towards Target Level of Service:

- Track miles of road treated by treatment type on a quarterly basis
- Obtain PASER ratings every 3 years
- Assess treatment performances based on ratings
- Evaluate global progress towards 10 year target Level of Service
- Adjust model as needed

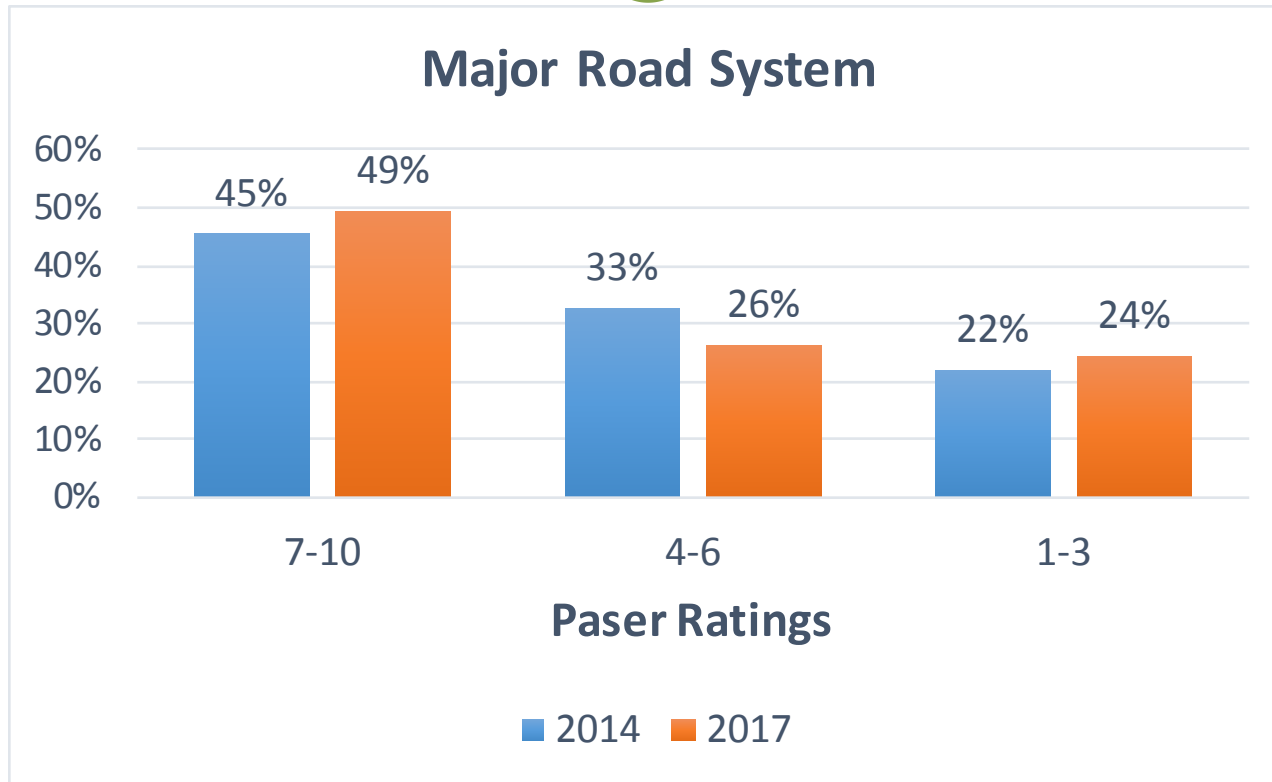
Progress on Miles of Road Treated



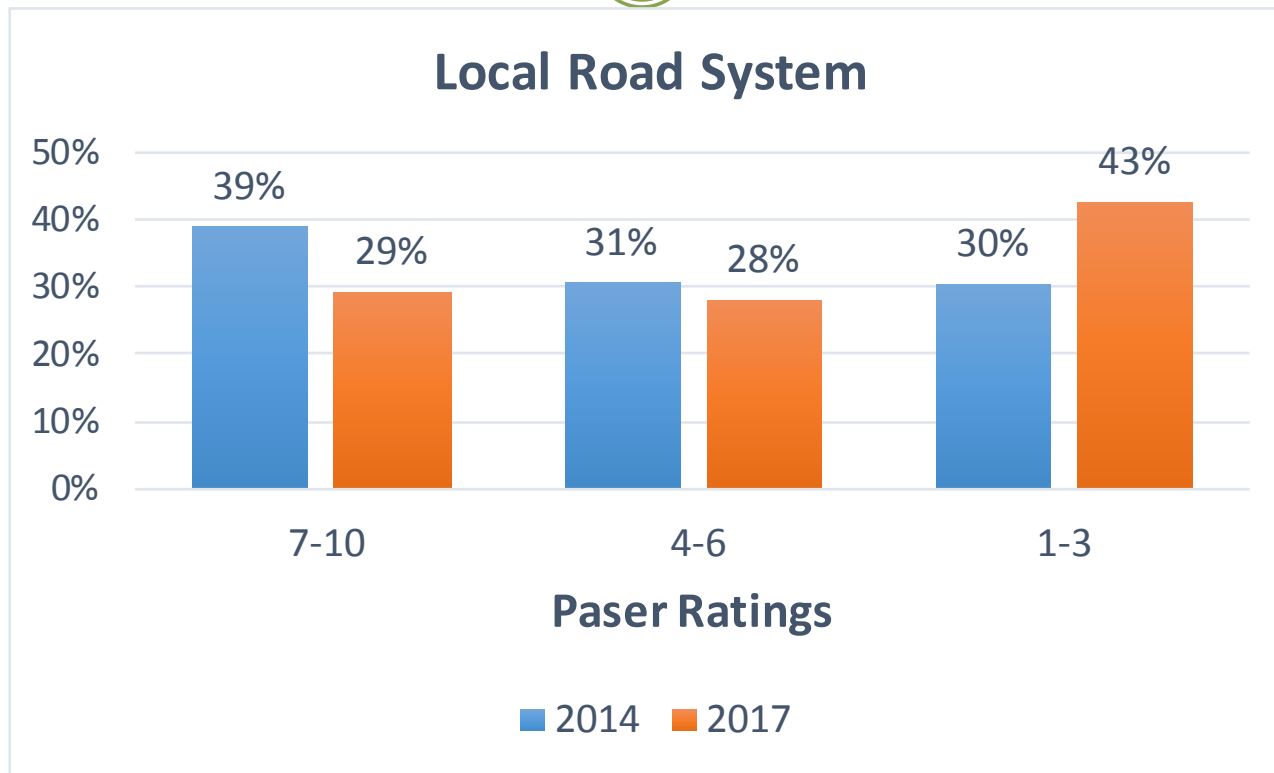
Miles of Road Treated by Treatment Type



PASER Ratings: Major Streets



PASER Ratings: Local Streets



Challenges and Strategies re Local Streets



- Outside funding sources are heavily geared toward Major Streets and yet Local Streets represent about 2/3 of street mileage
- For Local Streets, initial concentration was on crack sealing as a CPM measure; this extends the time during which streets stay at a rating of 7 or above but does not elevate Fair or Poor roads into the target Good category
- Beginning mid-May, a significant project will begin utilizing surface treatments as a new CPM technique for both Major and Local streets; this treatment will elevate streets in Fair condition (ratings of 5-6) to the target Good category (7 or better)
- This project, along with traditional resurfacing, will elevate a significant number of miles of Local streets to the target rating of 7 or better

Questions?



THANK YOU SO MUCH FOR YOUR TIME