



# PASER - PAVEMENT CONDITION RATING

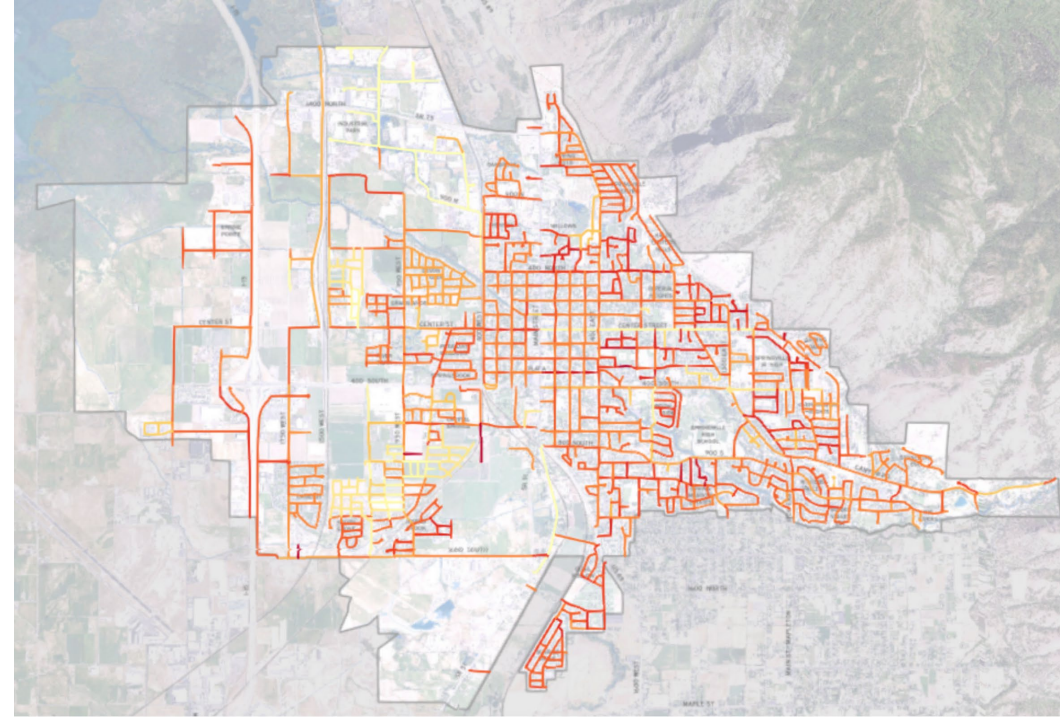
CITY COUNCIL WORK SESSION

APRIL 13, 2024



# ROADWAY MANAGEMENT PLAN

1. Inventory all local roads and streets.
2. Periodically evaluate the condition of all pavements.
3. Use the condition evaluations to set priorities for projects, select alternative treatments and establish budgets.





# PASER PAVEMENT CONDITION RATING

## Pavement A Surface Evaluation Rating

- PASER uses visual inspection to evaluate pavement surface conditions.
- Rates on a 1-10 scale (10 being the best)

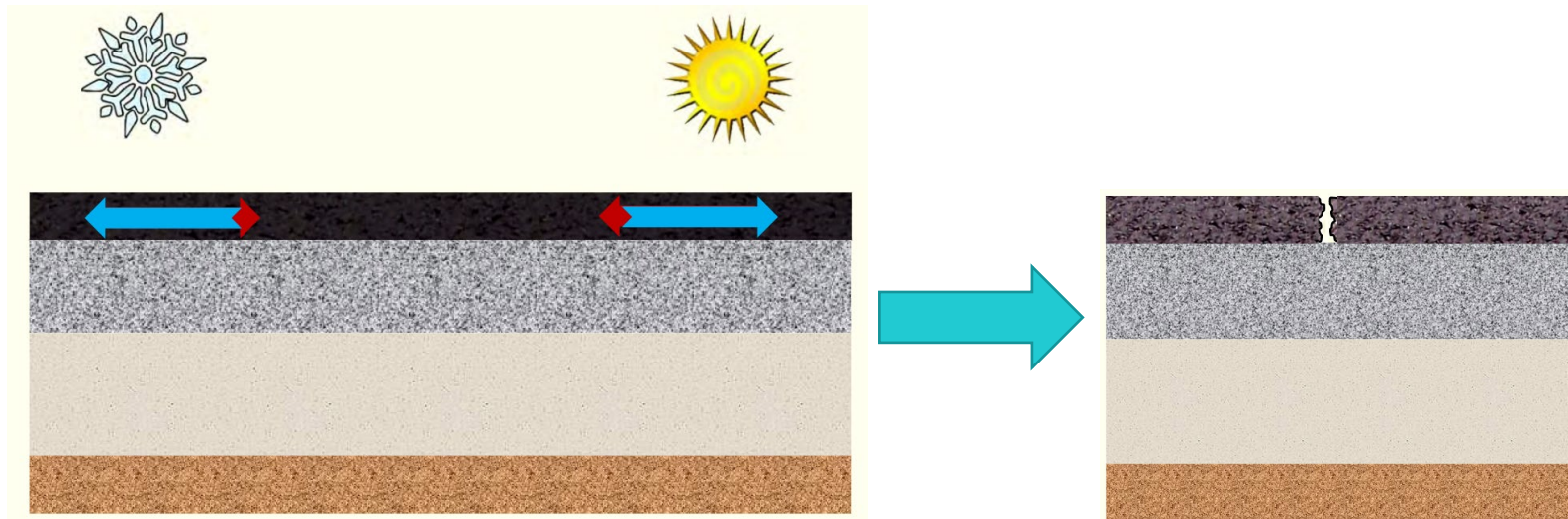
Quality	Rating	Treatment (Asphalt)
Excellent	9-10	No Maintenance Required
Good	7-8	Crack Sealing and Minor Patching
Fair	5-6	Preservation Treatments (Non-Structural)
Poor	3-4	Structural Renewal (Overlay)
Failed	1-2	Reconstruction

- Easy to teach and train people on



# CAUSES OF PAVEMENT DETERIORATION (1)

- Deterioration has 2 general causes:
  - due to weathering and aging,
    - as pavement ages it hardens,
    - Weather causes thermal expansion and contraction
  - the asphalt binder and fine aggregate may begin to wear away

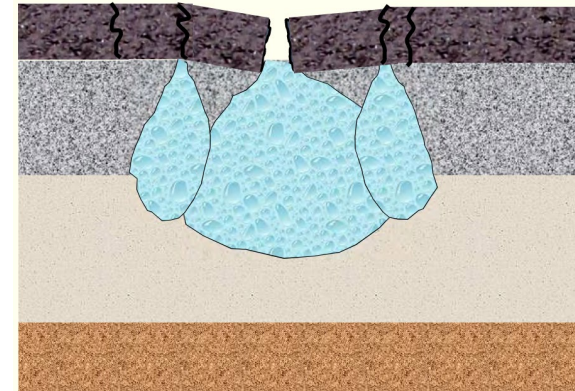
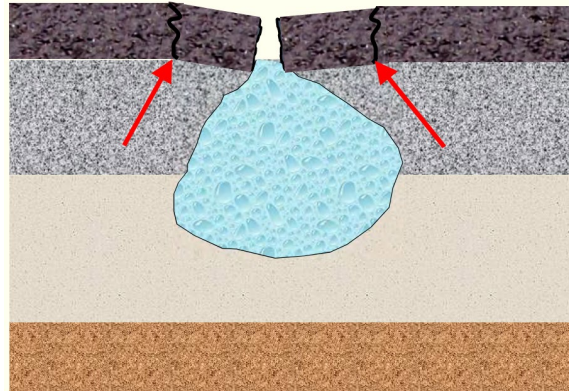
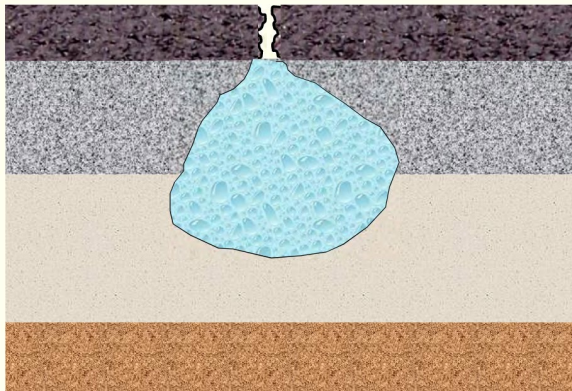
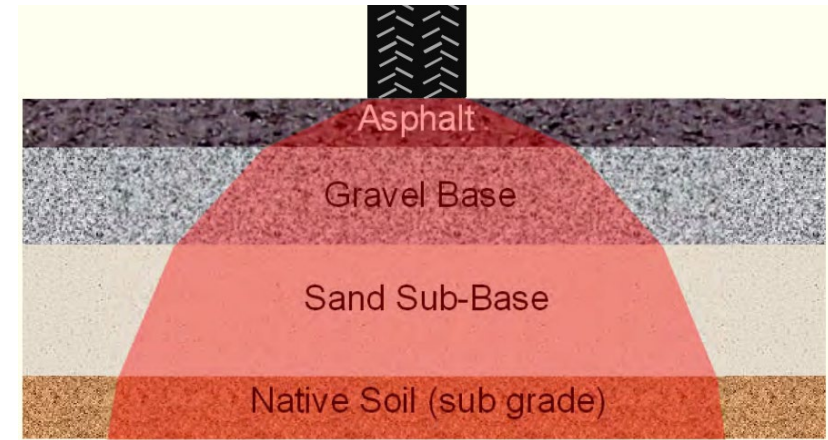






# CAUSES OF PAVEMENT DETERIORATION (2)

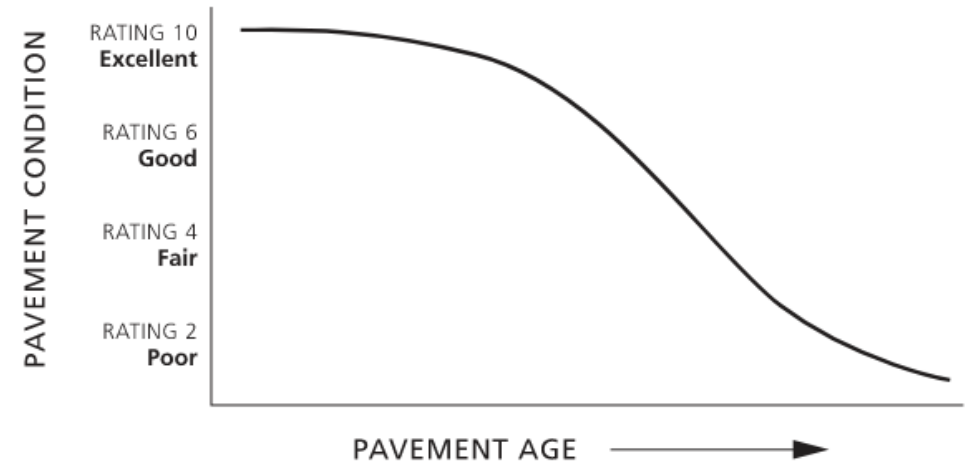
- Deterioration has 2 general causes:
  - structural caused by repeated traffic loadings





# DETERIORATION

- Rate of deterioration is effected by:
  - **Environment**
    - Freeze - Thaw cycle
  - **Traffic loading conditions**
    - Truck traffic is the worst
    - 1 truck trip (5-axle semi) = 2500 car trips
  - **Original construction quality**
    - Increased Recycled Asphalt (RAP) in asphalt mixes
    - Less oils → reduce rutting → more brittle
  - **Pavement maintenance procedures**



In addition to indicating the surface condition of a road, a given rating also includes a recommendation for needed maintenance or repair. This feature of the rating system facilitates its use and enhances its value as a tool in ongoing road maintenance.

## RATINGS ARE RELATED TO NEEDED MAINTENANCE OR REPAIR

<b>Rating 9 &amp; 10</b>	No maintenance required
<b>Rating 8</b>	Little or no maintenance
<b>Rating 7</b>	Routine maintenance, cracksealing and minor patching
<b>Rating 5 &amp; 6</b>	Preservative treatments (sealcoating)
<b>Rating 3 &amp; 4</b>	Structural improvement and leveling (overlay or recycling)
<b>Rating 1 &amp; 2</b>	Reconstruction



# PASER - AC DISTRESS

- Focuses on 4 major categories of AC distress:
  - Surface defects
  - Surface deformation
  - Cracks
  - Patches and potholes





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Raveling



Flushing or Bleeding



Polishing





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Slippage



Frost Heave



Rutting



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Edge Cracking



Shear Cracking



Alligator Cracking





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  - Patches and potholes



Pot Holes



Patches

# Surface Rating - 10 (EXCELLENT)

New Construction – No maintenance required.





# Surface Rating - 9 (EXCELLENT)

Recent Overlay. Like new. – No maintenance required.



# Surface Rating - 8 (VERY GOOD)

Recent Overlay showing longitudinal or transverse cracks. All cracks are tight or sealed. Little or no maintenance required







# Surface Rating - 7 (GOOD)

First signs of aging. Maintain with routine crack filling.



# Surface Rating - 6 (GOOD-FAIR)

Shows signs of aging. Sound structural condition.



Beginning stages of block cracking caused by shrinking and hardening of the asphalt over time.



# Surface Rating - 5 (FAIR)

Roads are still in good structural condition but clearly need sealcoating or overlay.



# Surface Rating - 4 (FAIR-POOR)

Roads show first signs of needing an overlay.  
Severe surface raveling which should no longer be sealed.







# Surface Rating - 3 (POOR)

Will require select structural repair prior to milling and resurfacing



# Surface Rating - 2 (VERY POOR)

Severely deteriorated. Normally needs reconstruction.



Severe alligator cracking over 75% of surface (criteria is 25%). Potholes, patches, and rutting.





# Surface Rating - 1 (FAILURE)

Pavement has failed. Requires reconstruction

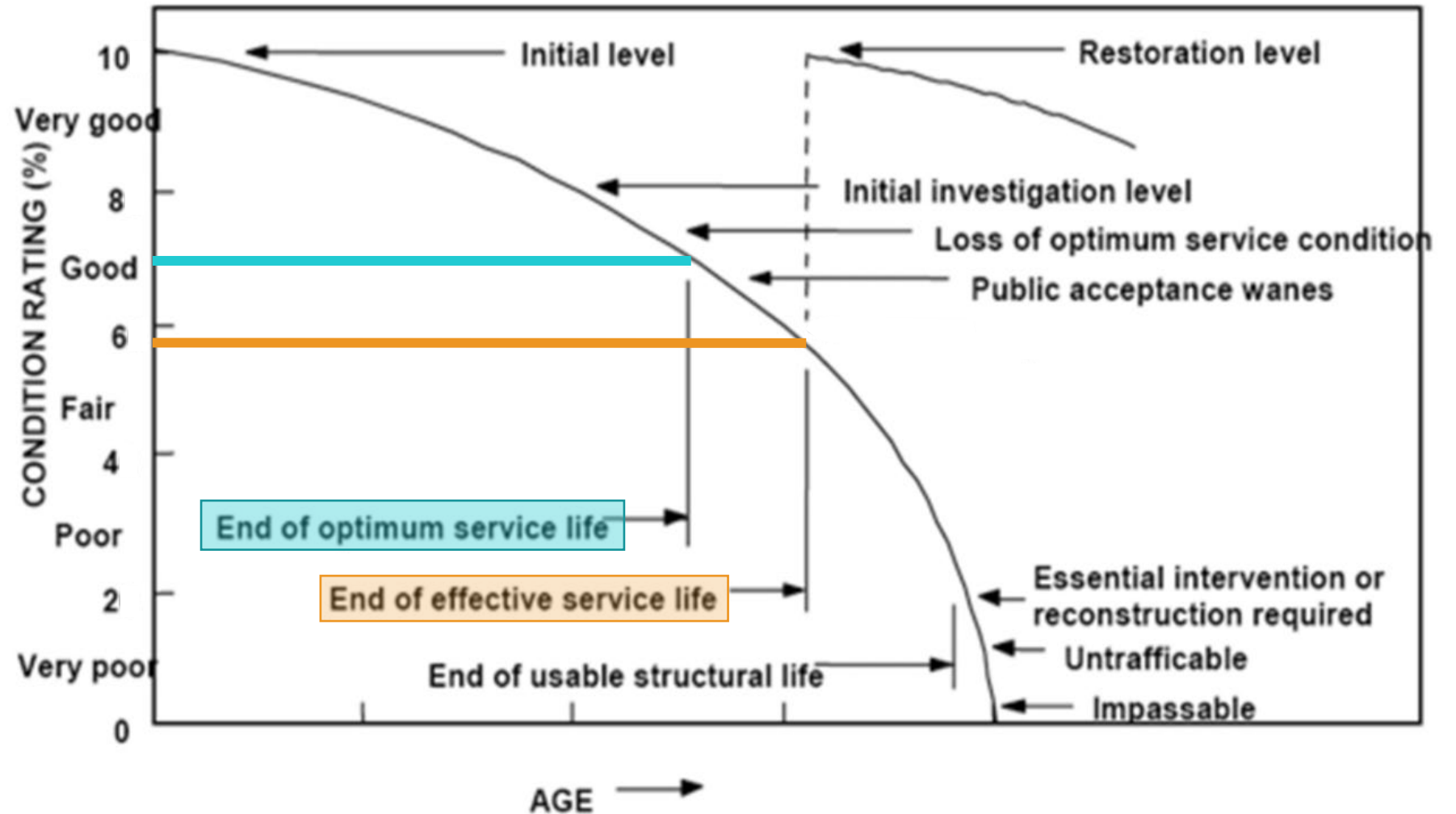


Severe alligator cracking, potholes and patches. Pavement has FAILED.



# LOS

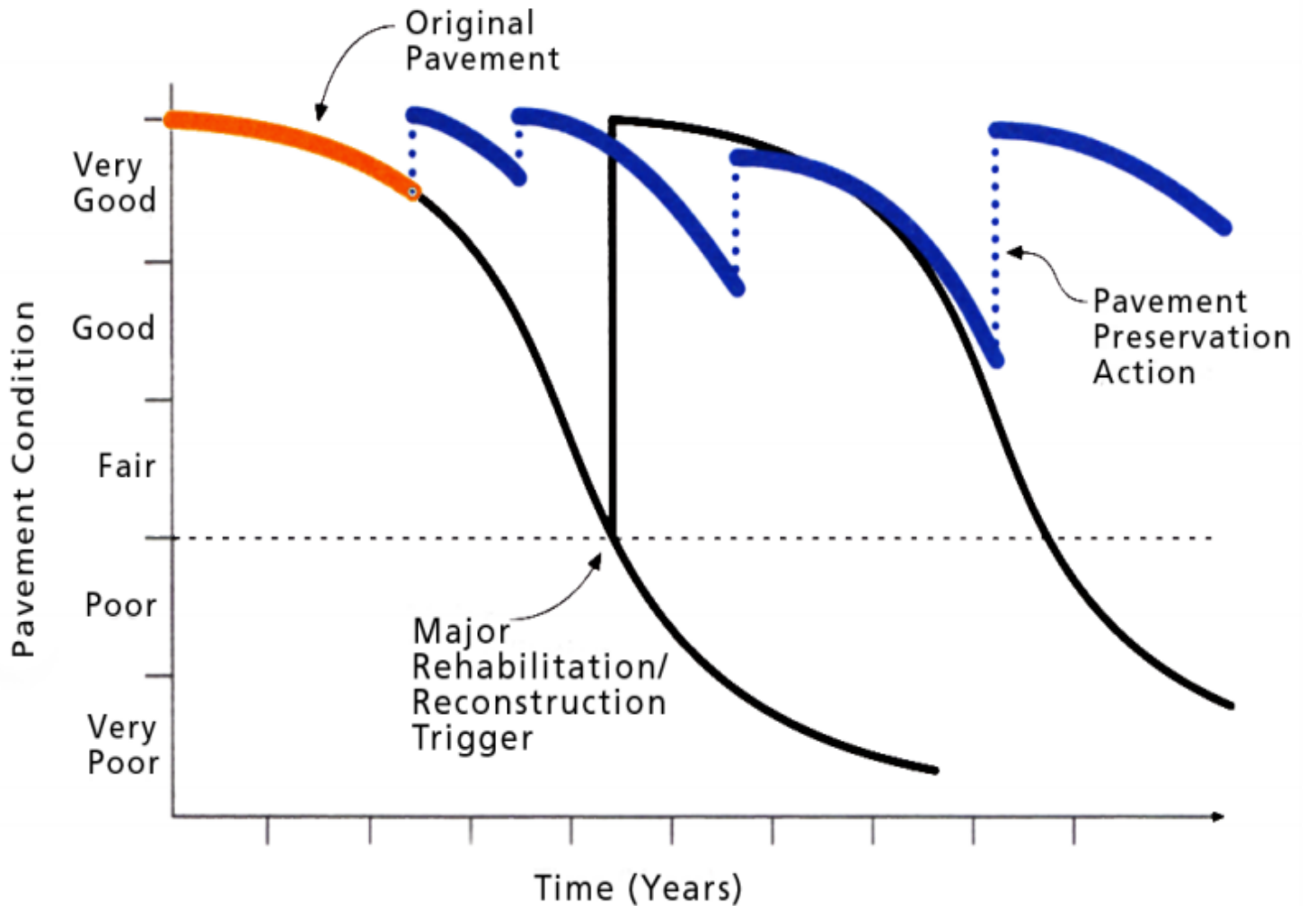
- Where do we want Springville Roads?
- What is the LOS we want to establish
- Better roads cost \$





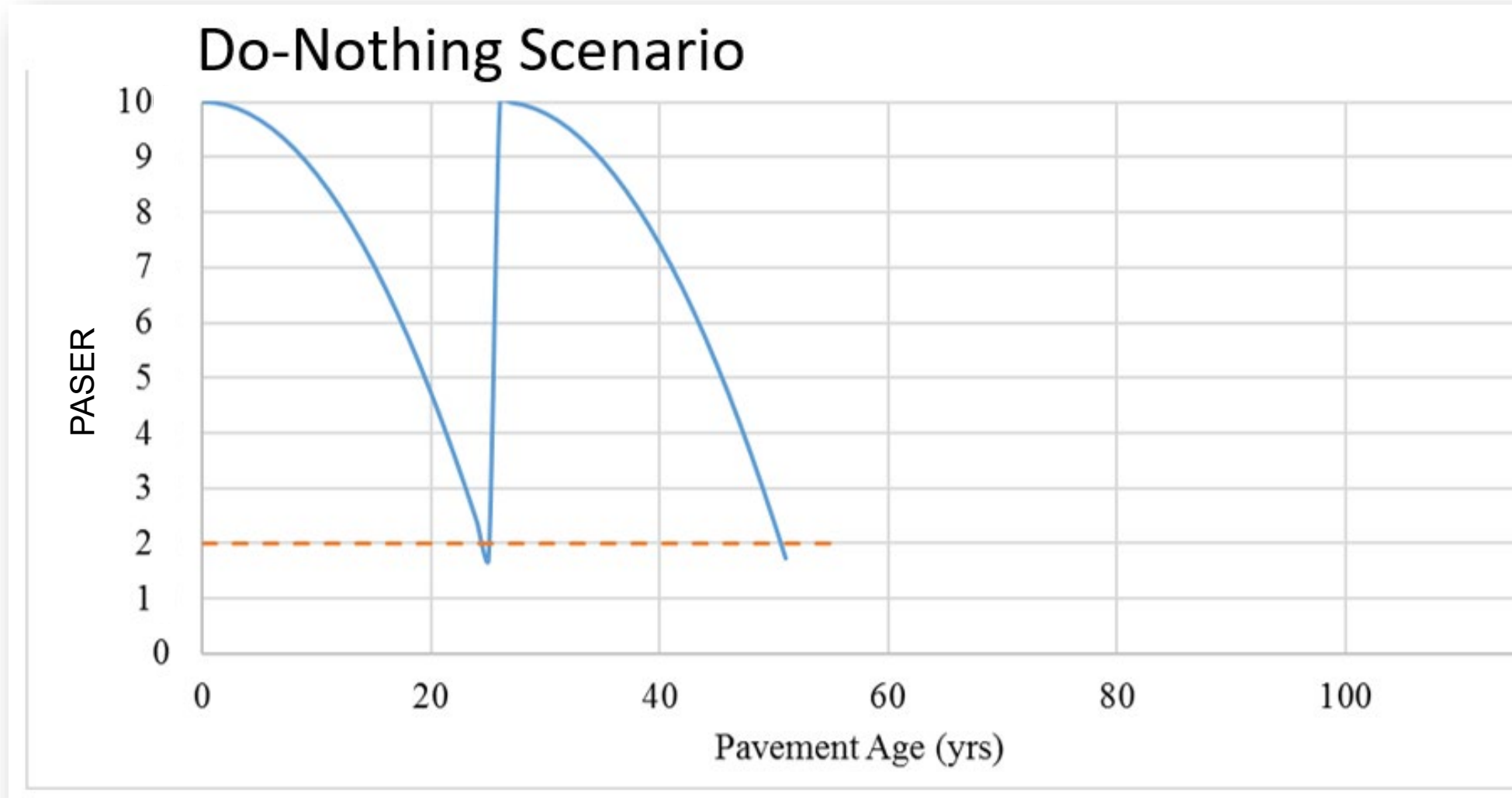
# PAVEMENT MANAGEMENT

- Treatment Philosophy :
  - Keep good roads good
  - Good roads and major roads receive maintenance priority
  - Higher rated cost less to maintain





# PRESERVATION SCHEDULE







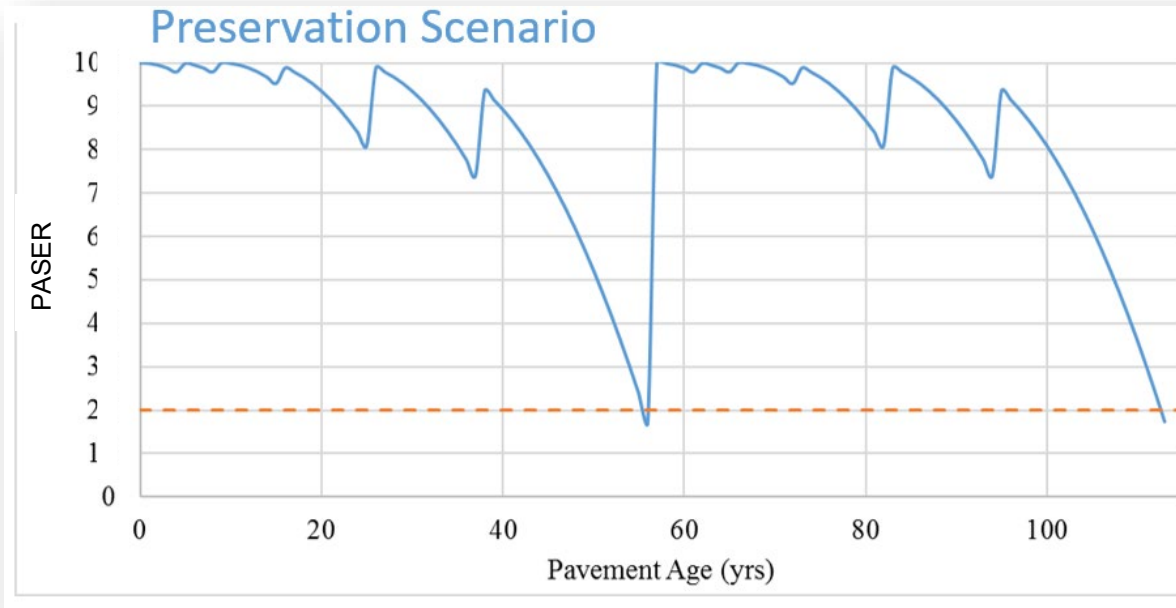
# PRESERVATION SCHEDULE

Treatment	Pavement Service Life Extension (yr) by PASER Value at Time of Treatment		
	>8	6 to 8	4 to 6
Crack Seal	3-4	2-3	1-2
Chip Seal	7-9	5-7	3-5
Microsurfacing Type III	5-7	4-6	3-5
Mill and Fill	9-11	7-9	5-7

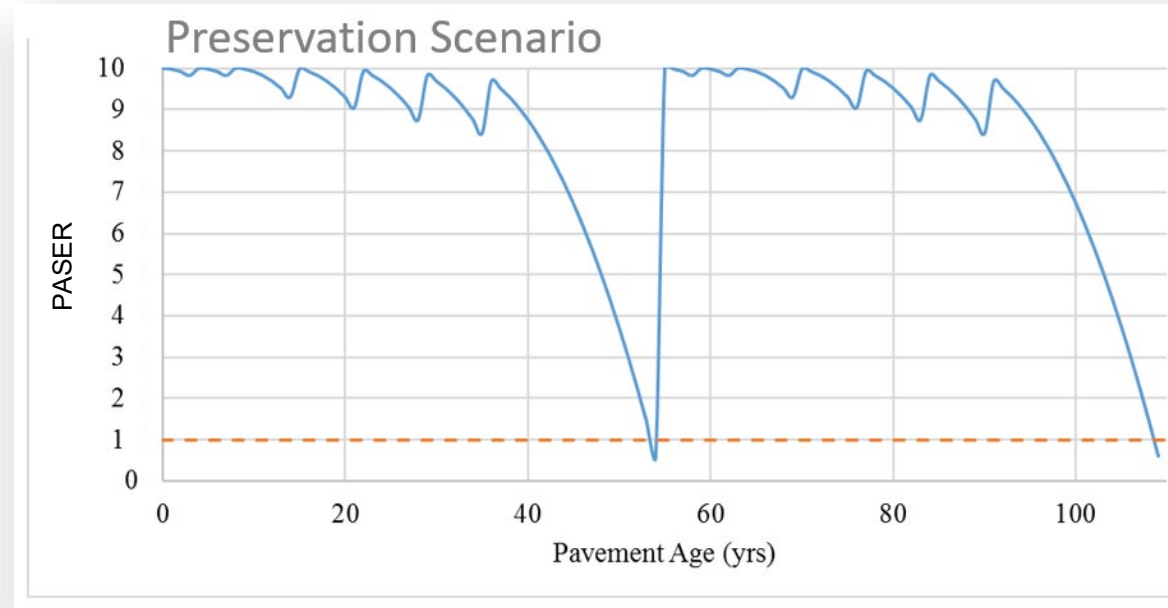


# PRESERVATION SCHEDULE

Commercial Roads



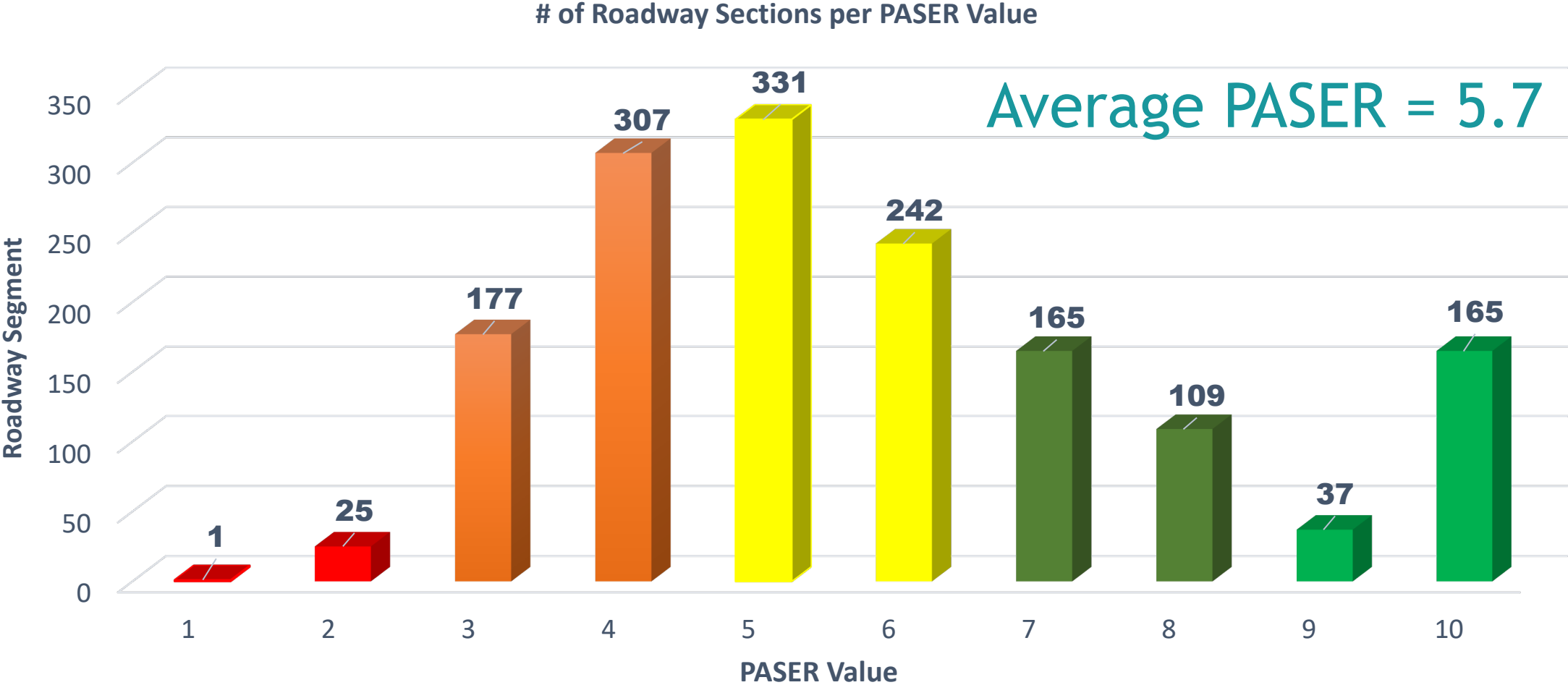
Residential Roads





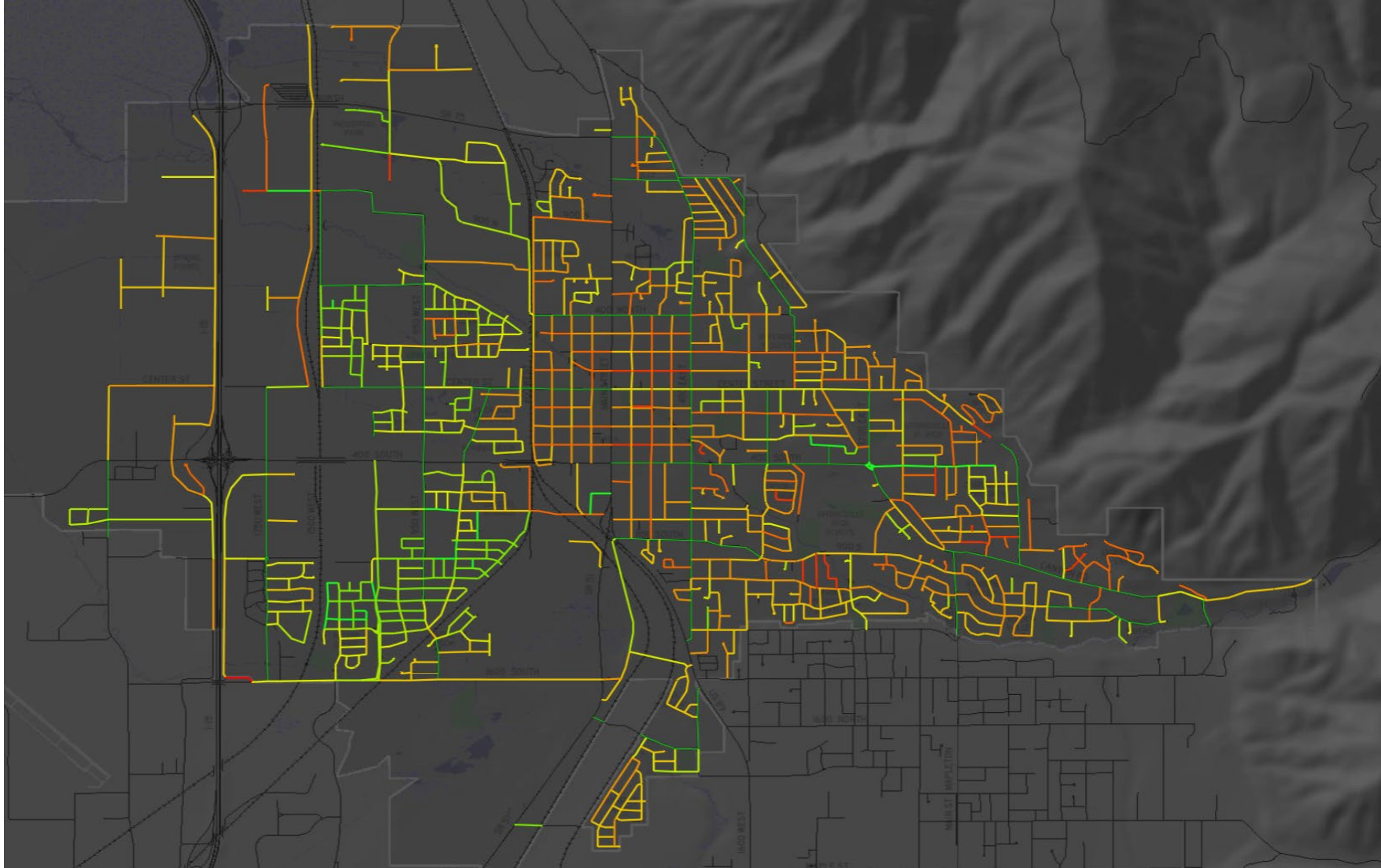


# 2024 PASER CITY WIDE RATINGS SUMMARY





# PASER INVENTORY MAP







# PASER INVENTORY MAP

<https://informedstreets.com/pims/#>



# QUESTIONS?



## Excellent/Very Good

Surface Rating	Visible Distress*	General condition/treatment measures
10 Excellent	None.	New construction.
9 Excellent	None.	Recent overlay. Like new.
8 Very Good	No longitudinal cracks except reflection of paving joints. Occasional transverse cracks, widely spaced (40' or greater). All cracks sealed or tight (open less than 1/4").	Recent sealcoat or new cold mix. Little or no maintenance required.

\* Individual pavements will not have all of the types of distress listed for any particular rating. They may have only one or two types.

## Good

Surface Rating	Visible Distress*	General condition/treatment measures
7 Good	Very slight or no raveling, surface shows some traffic wear. Longitudinal cracks (open 1/4") due to reflection or paving joints. Transverse cracks (open 1/4") spaced 10' or more apart, little or slight crack raveling. No patching or very few patches in excellent condition.	First signs of aging. Maintain with routine crack filling.
6 Good	Slight raveling (loss of fines) and traffic wear. Longitudinal cracks (open 1/4"–1/2"), some spaced less than 10'. First sign of block cracking. Sight to moderate flushing or polishing. Occasional patching in good condition.	Shows signs of aging. Sound structural condition.





## Fair

Surface Rating	Visible Distress*	General condition/treatment measures
<b>5</b> Fair	Moderate to severe raveling (loss of fine and coarse aggregate). Longitudinal and transverse cracks (open 1/2") show first signs of slight raveling and secondary cracks. First signs of longitudinal cracks near pavement edge. Block cracking up to 50% of surface. Extensive to severe flushing or polishing. Some patching or edge wedging in good condition.	Surface aging. Sound structural condition. Needs sealing or thin non-structural overlay (less than 2")
<b>4</b> Fair	Severe surface raveling. Multiple longitudinal and transverse cracking with slight raveling. Longitudinal cracking in wheel path. Block cracking (over 50% of surface). Patching in fair condition. Slight rutting or distortions (1/2" deep or less).	Significant aging and first signs of need for strengthening. Would benefit from a structural overlay (2" or more).

## Poor-Failed

Surface Rating	Visible Distress*	General condition/treatment measures
<b>3</b> Poor	Closely spaced longitudinal and transverse cracks often showing raveling and crack erosion. Severe block cracking. Some alligator cracking (less than 25% of surface). Patches in fair to poor condition. Moderate rutting or distortion (1" or 2" deep). Occasional potholes.	Needs patching and repair prior to major overlay. Milling and removal of deterioration extends the life of overlay.
<b>2</b> Very Poor	Alligator cracking (over 25% of surface). Severe distortions (over 2" deep) Extensive patching in poor condition. Potholes.	Severe deterioration. Needs reconstruction with extensive base repair. Pulverization of old pavement is effective.
<b>1</b> Failed	Severe distress with extensive loss of surface integrity.	Failed. Needs total reconstruction.