



PAVEMENT MANAGEMENT PROGRAM UPDATE

Public Works Department

Mobility and Infrastructure Committee
September 8, 2022

RiversideCA.gov

1

BACKGROUND

- A PMP assesses pavements and proposes treatments through a logical system in the most cost-effective manner .
- A PMP is an iterative process that grows in accuracy as more data is collected.
- On December 20, 2016, City Council approved an agreement with IMS to conduct a citywide pavement analysis.
 - The average Network PCI score was 61 out of 100
 - 13.2% of City streets are in "Excellent" condition (85 to 100)
 - 12.7% of City streets in "Very Poor" and "Poor" Condition (0 to 40)
 - \$24M maintenance budget needed to maintain a PCI of 61



2

RiversideCA.gov

2

BACKGROUND

- On October 6, 2020, City Council approved another agreement with IMS to complete an annual partial network analysis for 5 consecutive years:
 - 1/3 of Arterial Streets analyzed annually
 - 1/4 of Collector Streets analyzed annually
 - 1/5 of Local Streets and Alleys analyzed annually
- Since the inception of the City Measure Z sales tax funding program, City Council has increased the PMP significantly.
- The PMP budget for FY 2022/23 is \$24 million.



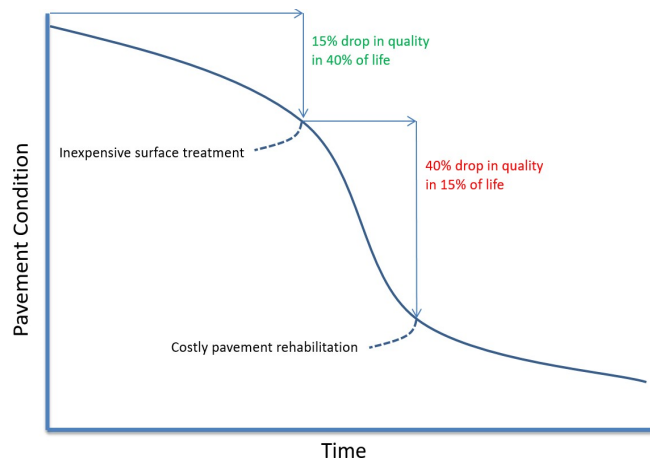
3

RiversideCA.gov

3

PAVEMENT DETERIORATION

- Pavements typically deteriorate rapidly after 40% of its life.
- It is more cost-effective to provide a preventative treatment at 40% than at 55% life.



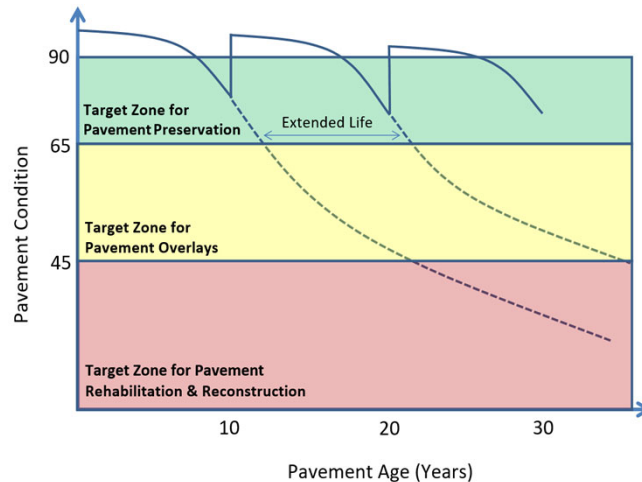
4

RiversideCA.gov

4

PAVEMENT PRESERVATION

A preventative treatment earlier will extend the overall pavement life.



RiversideCA.gov

5

TYPICAL DISTRESSES AND TREATMENTS

PCI values provide an indication of the surface conditions and structural integrity of a pavement.

Condition	Typical Distresses – Treatments	PCI Range
Excellent	Little to No Maintenance – Slurry Seal	85-100
Very Good	Minor Cracking – Slurry Seal	70-85
Good	Minor to moderate cracking – Slurry/Patching/Overlay	60-70
Fair	Extensive Cracking – Patching/Repairs/Overlay	50-60
Marginal	Severe Cracking/Rutting – Repairs/Milling/Overlay	40-50
Poor	Major Severe Cracking/Rutting – Thick Milling/Overlay	25-40
Very Poor	Extensive Failures – Reconstruction	0-25



RiversideCA.gov

6

PAVEMENT DESIGN

- Key parameters that effect pavement design include truck traffic volume and the underlying soil condition.
- Designs that include foundation improvements increase the pavement life but is also more expensive.
- Pavements are engineered to carry truck traffic during their life.
- The City Traffic Index Map is outdated meaning there is more traffic throughout the City.
- Cores collected periodically throughout the City have indicated many streets are under designed.



7

RiversideCA.gov

7

TYPICAL PAVEMENT TREATMENTS

- Slurry Seals: A mixture of water, asphalt emulsion, aggregate (very small, crushed rock), and additives.
- Dense Graded Asphalt Concrete: A mixture of aggregates with an asphalt cement binder which is a highly viscous liquid form of petroleum that acts as a glue.
- Asphalt Rubber Hot Mix: A hot-mixed asphalt pavement containing crumb rubber. The crumb rubber serves as a “modifier” of the liquid asphalt. Its addition gives the liquid asphalt greater viscosity (resistance to flow) and improves other properties which resist reflective cracking and rutting and prolong pavement life.



8

RiversideCA.gov

8

TYPICAL PAVEMENT TREATMENTS

- Cold In-Place Recycling: A train of equipment with a milling machine, mixer and paver. A portion of the existing asphalt is milled, pulverized, mixed, rejuvenated, and placed back on the surface.
- Full-Depth Reclamation: Involves the pulverization of the existing asphalt pavement section in-place and reutilized as a foundation base. A new asphalt surface is then applied on top of this base.
- Fiber Reinforced Asphalt Concrete: A polymer fiber reinforcement is added to conventional asphalt to increase strength and durability including crack resistance, high temperature stability, and to resist premature cracking and rutting.



9

RiversideCA.gov

9

TYPICAL PAVEMENT TREATMENTS

- Asphalt Rubber Aggregate Membrane: Consists of mixing 3/8-inch aggregate rock with a rubberized liquid material comprised of scrap tires and other additives. The membrane resists reflective cracking and water intrusion. This is a cost-effective alternative for reconstruction and other conventional strategies. . The City is utilizing this product extensively as it benefits our budget deficiencies.
- 100% Recycled Hot Mix Asphalt: Manufactured with 100% recycled asphalt material generated from waste collected from construction projects. The product provides a benefit to the environment.



10

RiversideCA.gov

10

CONSTRUCTION CONTRACTORS AND AWARDS

- City construction projects are available to all contractors with the proper license to complete the work.
- Construction contracts are awarded to the lowest responsive bidder as required per the City's formal procurement procedures.
- Construction contractors that manufacture their own asphalt near the City typically can construct projects more cost effectively.
- The City potentially could adopt different procedures to award contracts based on a qualifications-based system and potentially adding some scoring benefit to local City contractors. However, the construction contract amounts will likely increase.



11

RiversideCA.gov

11

POTENTIAL PMP STRATEGY MODIFICATIONS

- Focus on maintaining streets in the "Marginal" PCI range to prevent excessive growth in the City's backlog of street in the "Poor" and "Very Poor" PCI range.
- Increase the preservation treatment on street in the "Good" PCI range to extend the pavement useful life.
- Extend the pavement moratorium from 3 to 5 years.
- Adopt a utility trench cut fee.
- Consider concrete approaches in heavily truck traveled locations.



12

RiversideCA.gov

12

STRATEGIC PLAN ALIGNMENT



Strategic Priority 6 – Infrastructure, Mobility & Connectivity

Goal 6.1 – Provide, expand and ensure equitable access to sustainable modes of transportation that connect people to opportunities such as employment, education, healthcare, and community amenities.

Goal 6.2 – Maintain, protect and improve assets and infrastructure within the City's built environment to ensure enhance reliability, resiliency, sustainability, and facilitate connectivity

Goal 6.4 – Incorporate Smart City strategies into the planning and development of local infrastructure projects.

Cross-Cutting Threads



Community Trust



Fiscal Responsibility



Sustainability & Resiliency



Equity



Innovation



13

RiversideCA.gov

13

RECOMMENDATION

That the Mobility and Infrastructure Committee receive and file an update on the Pavement Management Program.



14

RiversideCA.gov

14