2024 Asphalt Pavement Management Program

Public Works Capital Investment Program – Pavement Management
April 15, 2024 City Council Meeting

Overview

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- Maintenance Types
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- Condition Ranges
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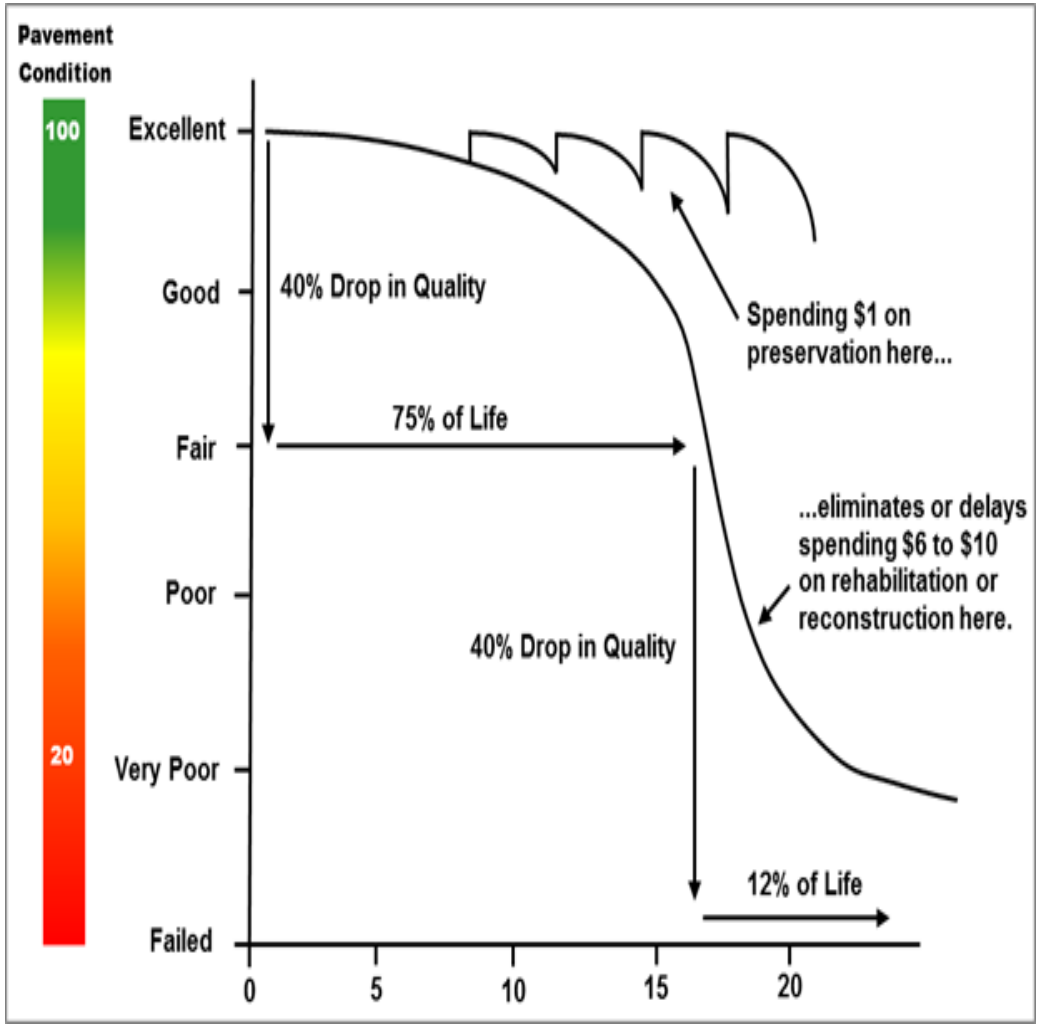
Purpose and Need

- To preserve and extend the useful life of asphalt paved surfaces throughout the City and optimize the available funds to meet the roadway network condition requirements:
  1) Maximize performance and safety standards of City roadways
  2) Minimize overall long-term costs of managing the network roadway system

Principles



- Keep the Good Roads Good!
- Good Roads Cost Money. Poor Roads Cost More!

Maintenance Types

Slurry Seal Application

Micro surfacing Application

Preventive & Preservation:

- Performed to protect the existing pavement through surface treatments
- Extends the service life
- Does not add any structural strength
- Proactive/applied to pavements in good condition

Examples:

1) Slurry Seal
2) Chip Seal
3) Micro surfacing

Maintenance Types

Routine & Reactive:

- Planned; cyclical
- Reactive to problems; performed after a deficiency occurs in the pavement
- Does not extend service life

Crack Sealing/Filling

Examples:

1) Crack sealing/filling
2) Full depth crack repair
3) Joint sealing (concrete)
4) Pothole patching
5) Leveling low spots

Pothole Patching

Maintenance Types

Mill and Overlay

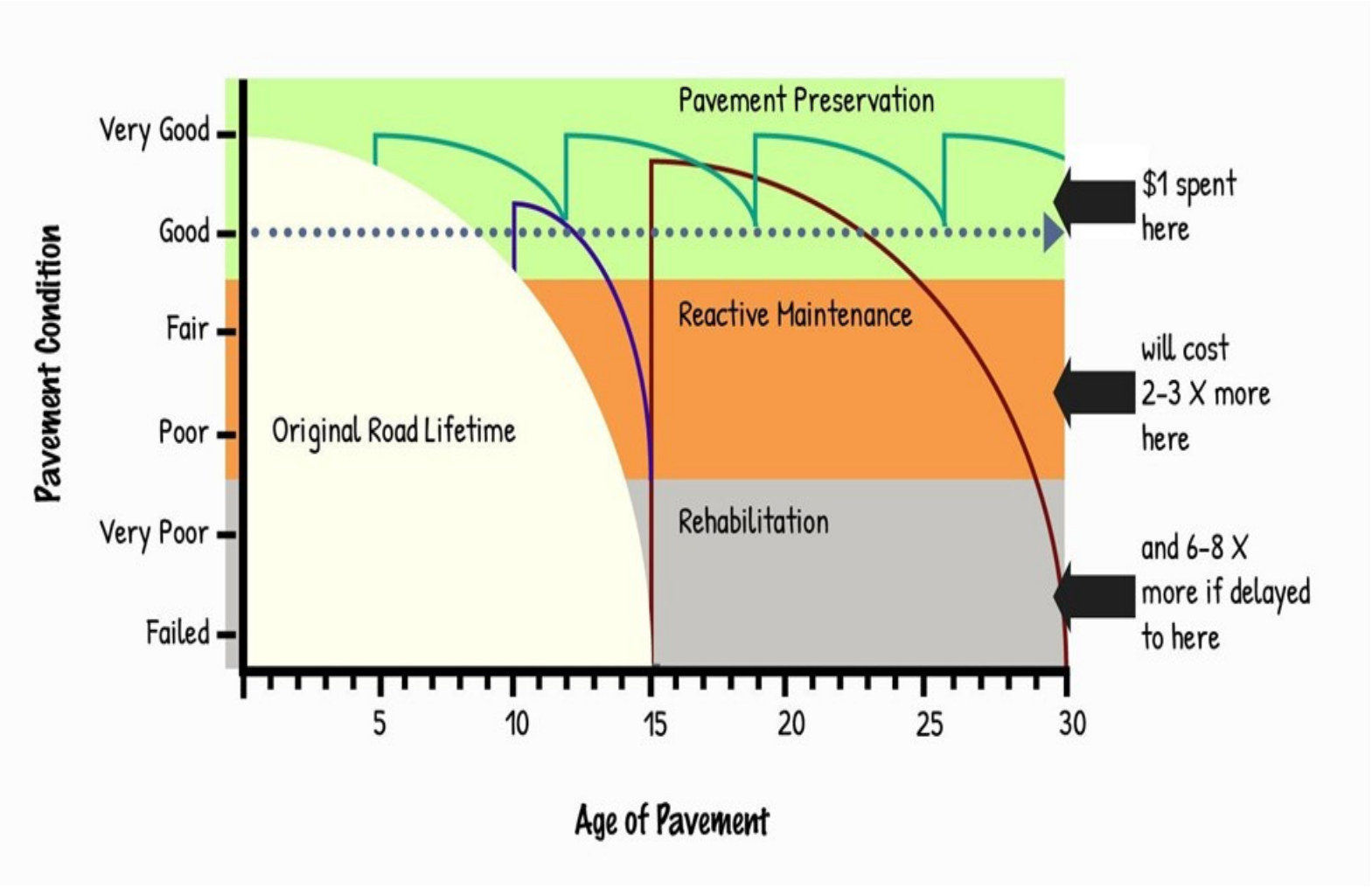
Corrective / Rehabilitation:

- Reactive
- Extends the service life through structural enhancements
- Performed when deficiencies are so significant that preventive maintenance will no longer be effective
- More extensive and more expensive

Examples:

1) Mill and Overlay (Resurfacing)
2) Full Depth Reclamation
3) Hot-in-Place Pavement

Pavement Maintenance Cost Analysis



Process

Figure 1-2 - The Pavement Management Process

1) System Configuration – Identify all roadways, their physical characteristics (length, width, etc.), pavement type, and road classification, then link this information to our GIS map.

2) Data Collection/Field Survey – Condition is assessed based on surface distress (such as cracking, potholes, raveling, etc.) as well as severity (Low, Moderate, High) and is attached to the appropriate road segment along with the pertinent information relating to the roads condition (e.g. number of potholes), square footage and lineal feet of distress (area and length of specific cracking for example).

3) Analysis and Reporting – Provide a quantitative performance score (Pavement Condition Index (PCI)) representing the surface condition of the pavement on a scale of 0 to 100 – the higher the score the better the condition of the roadway.

Typical PCI Condition Ranges

PCI Range	Work Type	Rehabilitation Options
86-100 Good	Rejuvenation	Little or no maintenance E.g. Crack Seal, Reclimite, fog seal
71-85 Satisfactory	Global	Routine Maintenance E.g. Seals such as slurry seal
56-70 Fair	Critical	Non-structural overlay, cape seal
41-55 Poor	Conventional	Structural overlay Overlay, Mill and overlay
26-40 Very Poor	Conventional	Structural Overlay Overlay, Mill and overlay
11-25 Serious	Reconstruction	Reconstruction, rebuild, full depth reclamation
0-10 Failed	Reconstruction	Reconstruction, rebuild, full depth reclamation

- The table above shows typical pavement condition indexes, work type, and recommended rehabilitation options

Type/Condition

- Commerce City has 307.56 miles of paved roads

Roads by Pavement Type					
Pavement Type	# of Segments	Centerline Miles	Area (SY)	% by Mileage	Weighted Average PCI
Asphalt	3,459	295.93	5,974,536	92.6%	78
Concrete	63	11.63	480,084	7.4%	86
Total	3,522	307.56	6,454,620	100%	78

Asphalt Roads by Functional Class					
Functional Class	# of Segments	Centerline Miles	Area (SY)	% by Mileage	Weighted Average PCI
Arterial/ Collector	846	100.48	2,473,841	41.4%	73
Local	2,613	195.45	3,500,695	58.6%	82
Total	3,459	295.93	5,974,536	100%	78

Note: All figures on this page based on 2023 Pavement Management Report by Transmap Corporation

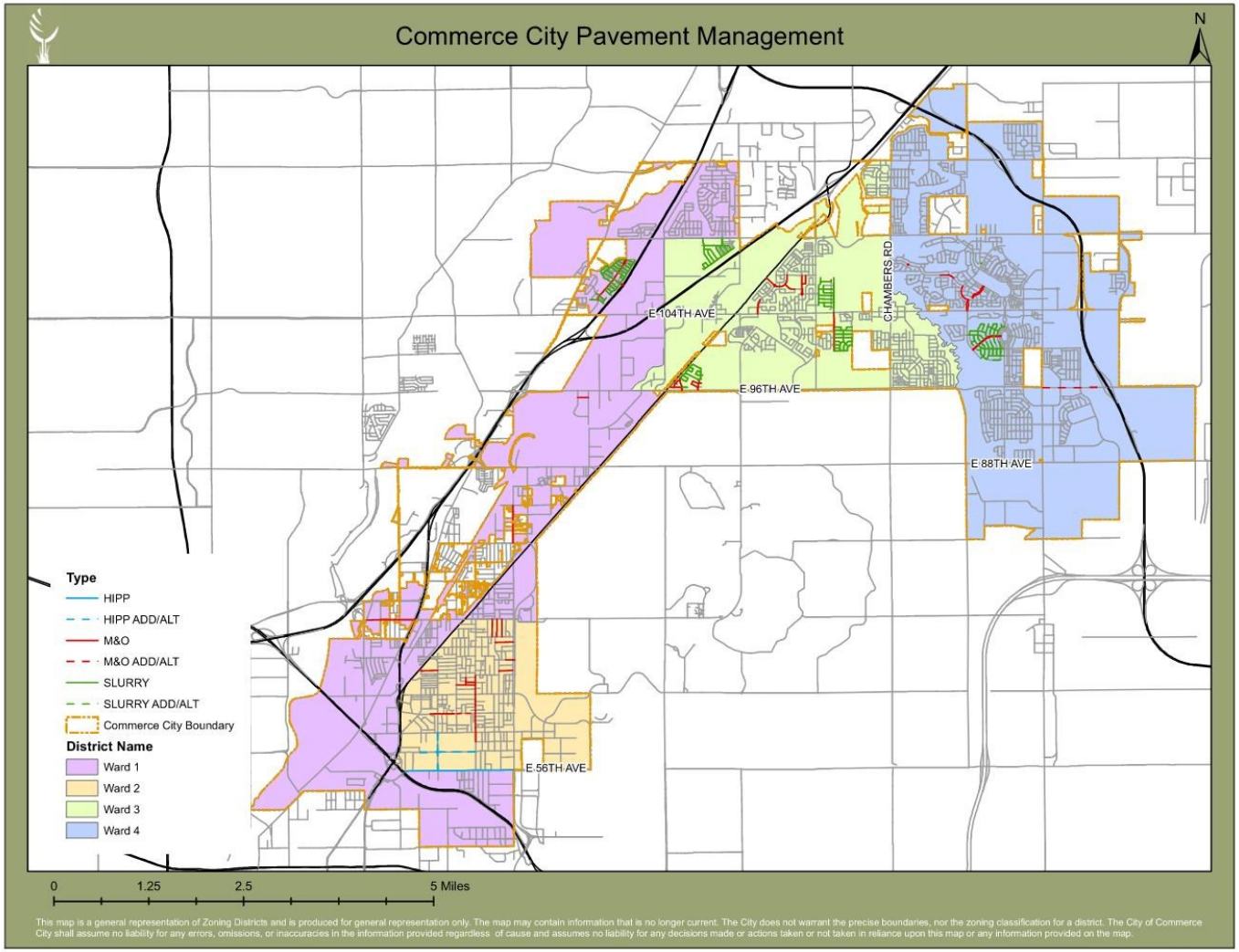
Methodology

- Citywide Pavement Study completed in Summer 2023
- Asphalt roadways were divided into 2,613 segments and then evaluated based on Average PCI, as well as other factors listed below:
  1) Current Traffic Volumes
  2) Roadway Classification
  3) Snow Routes
  4) Proximity to Schools, Transit, Parks, and Commercial Businesses
  5) Economic Development Potential
  6) Coordination with SACWSD Water Line Replacement Schedule

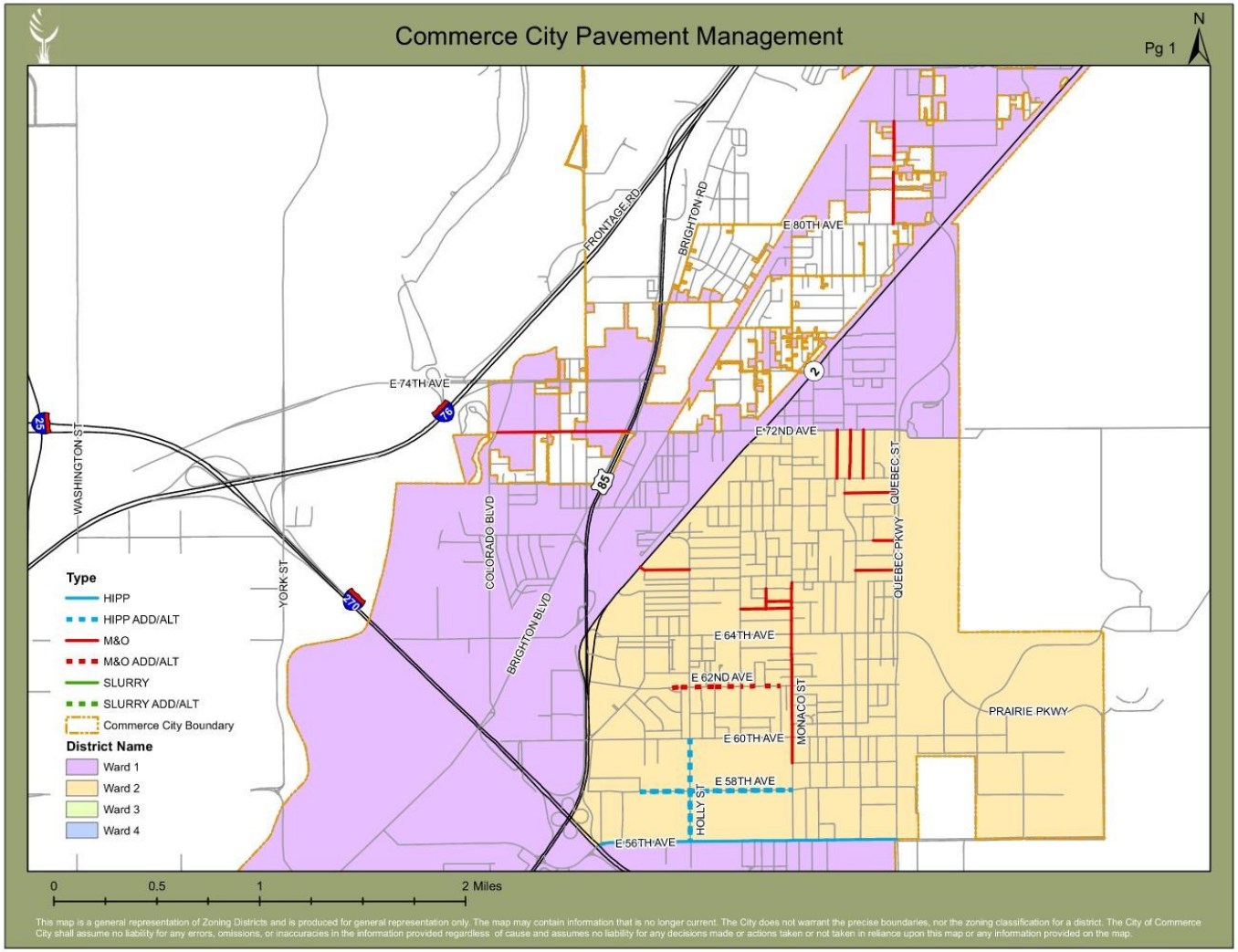
Recommendations

- Crack Sealing/Pothole Repair - Completed continuously by Street Maintenance Division
- Crack Repair - Completed under separate projects/contracts – Approx. $750K
  - Likely locations include; Eagle Creek, Belle Creek, River Oaks, North Range Village, Foxton Village, Reunion, Fronterra Village, Potomac Farms
- Reconstruction Project for Elm Street
  - Elm delayed from last year due to extent of reconstruction, cost, and extensive testing/design requirements. Estimated Start Date Q4/2024, ECD Q3/2025
- Three types of treatment, Hot-in-Place Pavement (HIPP), Slurry Seal, Mill & Overlay
  - HIPP – E 56th Avenue
  - Slurry Seal – Belle Creek, River Oaks, Eagle Creek, North Range Village, Foxton Village (crack repair will precede slurry seal)
  - Mill & Overlay – throughout City (see map)
- Double Chip Seal Existing Gravel Roads (separate contract)
  - E. 112th Ave. from Parkside to Tower
  - Potomac from E. 101st Ave. to E. 96th Ave.
  - Peoria from E. 101st Ave. to E. 96th Ave.

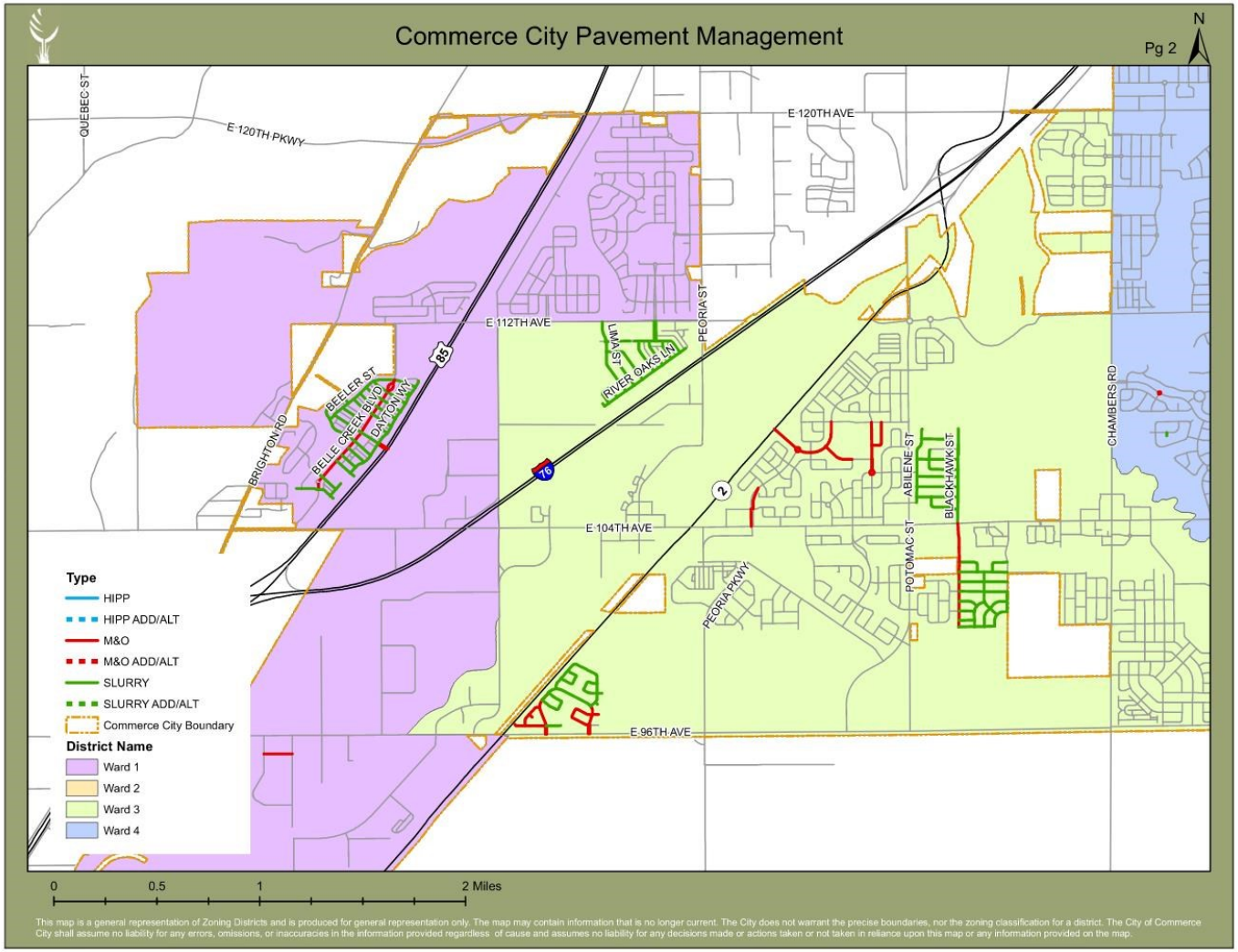
Street Resurfacing Area – Citywide



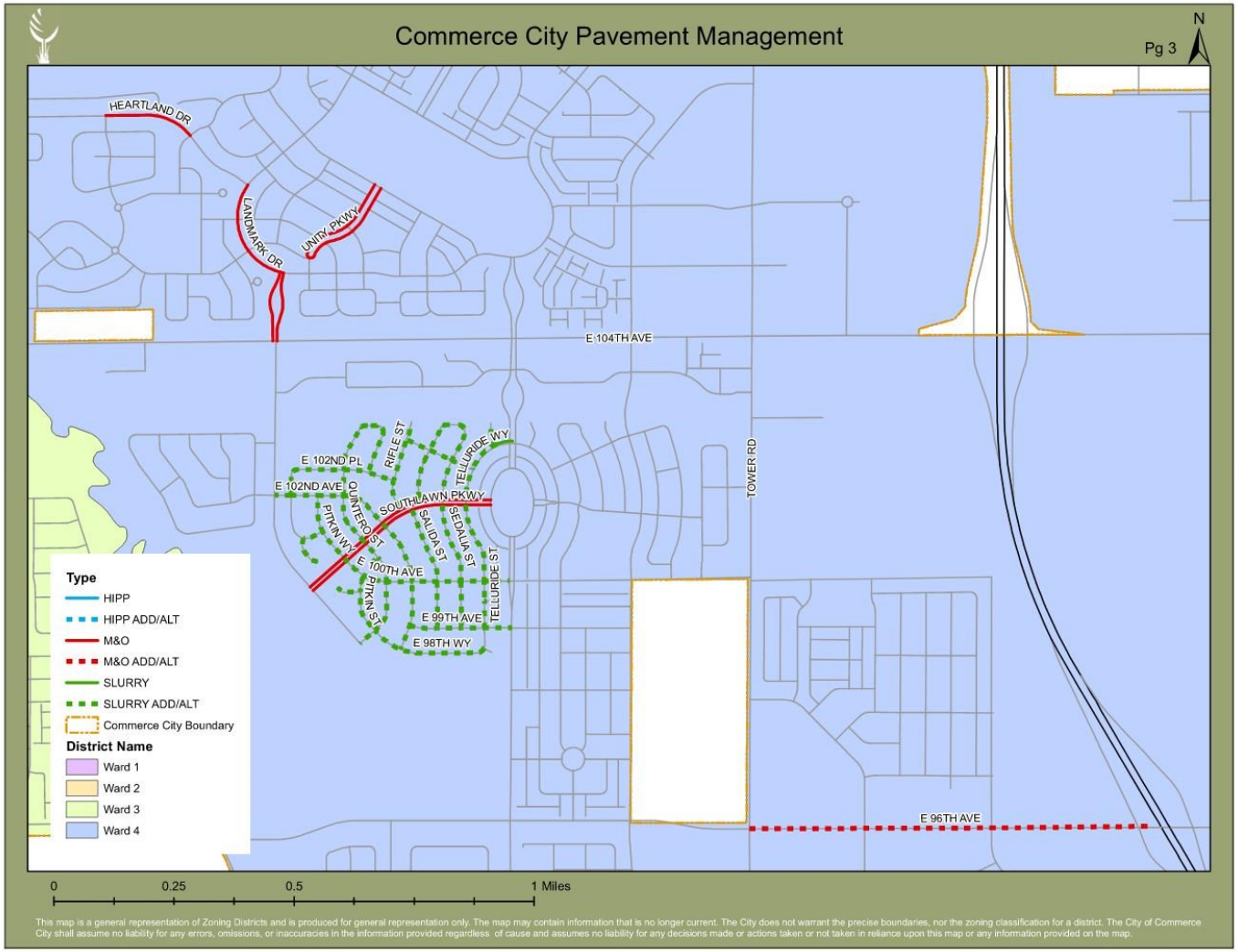
Street Resurfacing Area 1



Street Resurfacing Area 2



Street Resurfacing Area 3



Hot-in-Place Pavement

- E. 56th Ave. from I-270 bridge to Quebec Street

Mill & Overlay Streets

- Eagle Creek Pkwy from E. 96th Ave. to E. 96th Place
- Eagle Creek Pkwy from E. 96th Pl to Ironton Street
- Eagle Creek Pkwy from Joliet Cr to Joliet Cr
- Eagle Creek Parkway from Lansing Cr to Lansing Circle
- Ironton St from E. 96th Place to Eagle Creek Parkway
- Lansing Cir from Eagle Creek Pkwy to Eagle Creek Pkwy
- Blackhawk St from E 100th Avenue to E. 104th Avenue
- Revere Street from E. 104th Avenue to E. 105th Place
- Turnberry Parkway from Highway 2 to E. 108th Avenue
- E. 106th Place from Turnberry Parkway to Vaughn Way
- Wheeling Dr from E. 107th Avenue to E 108th Avenue
- Wheeling St from E. 106th Avenue to E. 108th Avenue
- Heartland Drive from Memphis Street to Nucla Street
- Landmark Drive from E. 106th Avenue to Reunion Drive
- Landmark Dr from E. 104th Avenue to Reunion Parkway
- Unity Pkwy from E. 105th Ave to Parkside Drive South
- Southlawn Pkwy from Landmark Dr to Southlawn Circle
- Widening of the east side of Tower Road north of E. 104th Avenue to E. 106th Avenue per the included plans
- Monaco Street from E. 59th Avenue to E. 66th Avenue
- E. 65th Avenue from Kearney Street to Monaco Street
- E. 65th Place from Leyden Street to Monaco Street
- Leyden Street from E. 65th Avenue to E. 66th Avenue
- E. 66th Place from Olive Street to Quebec Street
- E. 67th Place from Highway 2 to Holly Street
- E. 67th Place from Pontiac Street to Quebec Parkway
- E. 69th Place from Olive Street to Quebec Street
- Newport Street from E. 70th Avenue to E. 72nd Avenue
- Olive Street from E. 70th Avenue to E. 72nd Avenue
- Pontiac Street from E. 70th Avenue to E. 72nd Avenue.
- E. 72nd Avenue from Colorado Blvd to Highway 6&85
- Quebec Street from E. 80th Avenue to E. 82nd Avenue
- Quebec Street from E. 82nd Place to E. 84th Avenue
- Belle Creek Blvd from E. 105th Place to E. 109th Place
- Longs Peak Drive from Dayton Way to Highway 85
- E. 95th Place from Willow Court to Yosemite Street

Slurry Seal Streets

Certain Streets in Subdivisions

- Eagle Creek - north of E. 96th Avenue and east of Highway 2
- North Range Village - Between E. 104th Avenue and E. 107th Avenue, Potomac Street to Blackhawk Street
- Foxton Village - Between E. 100th Avenue and E. 104th Avenue, Blackhawk Street to Sable Blvd
- River Oaks - Between E. 112th Avenue and I-76, Lima Street to Peoria Street
- Belle Creek – E. 106th Avenue to E. 109th Place, Dayton Way to Akron Street

Funding

COST SUMMARY		
Improvement Type	**Bid Cost ($)**	**Note**
Hot-in-Place Pavement	$1,007,086.37	
Mill & Overlay	$2,229,431.38	
Slurry Seal	$448,726.98	
Total	**$3,685,244.73**	

Available Funding Sources:

- 2024 Pavement Management Budget $ 3,500,000.00
- 2023 Pavement Management Budget Carryover $ 247,638.45
- 2024 Core City Infrastructure Improvements $ 160,000.00
- Total Budget $ 3,907,638.45

Note:
Core City Improvements Budget is $260,000. We are proposing to use $160K in Asphalt Pavement Management Program and $100K for the Concrete Flatwork & Repair Project

Funding by Area

FUNDING BY AREA		*% Cost of Total Program*
Core City	**$2,027,720.03**	**55%**
Irondale*	**$107,681.54**	**3%**
Northern Range	**$1,549,543.14**	**42%**
Total	**$3,685,244.73**	**100%**

*NOTE – Anticipated Start of Rosemary Widening Project Q3/2024 – Estimated cost is $7.5M. Anticipated Start of E. 88th Ave., Phase 1 (I-76 to west of O'Brian Canal) Q3/2024 – Estimated cost is $10.5M

Next Steps

- Complete contracting process with contractors
- Begin Work in May
- Complete Work by end of 2024

Commerce CITY

Questions?