

Public Works Infrastructure Management

Louisville Metro
April 26, 2016



Public Works Infrastructure Inventory

Road Classification	Owner		
(centerline miles)	METRO	STATE	Total
Major Arterial	8.81	197.41	206.22
Minor Arterial	121.19	131.03	252.22
Primary Collector	216.14	66.87	283.01
Secondary Collector	140.87	1.52	142.39
Local	1,695.30	16.13	1,711.43



FACILITY	QUANTITY	UNITS	REPLACEMENT VALUE	CONDITION						
PAVEMENT				VG	G	F	P	VP	TBD	
Arterial	422	lane miles	\$429,711,796	6.9%	24.1%	36.9%	23.1%	9.0%		
Collector	732	lane miles	\$744,467,548	13.6%	33.6%	28.8%	18.3%	5.7%		
Local	3,392	lane miles	\$2,042,298,676	14.2%	31.4%	26.8%	17.4%	10.2%		
SIDEWALKS				VG	G	F	P	VP	TBD	
Sidewalks	2,177	miles	\$862,092,000						X	
Curbs (estimated)	3,000	miles	\$421,344,000						X	
BICYCLE NETWORK				VG	G	F	P	VP	TBD	
Bikeways (On road)	115	lane miles	(included in pavement)		100%					
BRIDGES				VG	G	F	P	VP	TBD	
Bridges	411	Ea.	\$197,213,289	33.0%	19.0%	18.0%	19.0%	11.0%		
TRAFFIC SIGNALS				VG	G	F	P	VP	TBD	
Hardware	307	Ea.	\$18,420,000						X	
Controllers	307	Ea.	\$3,070,000						X	
Equipment (flashing beacons, overhead crosswalk, island lights)	110	Ea.	\$1,650,000						X	
ITS Equipment	1	Ea.	\$1,000,000						X	
Fiber Optic/Comm Cables	138	miles	\$72,864,000						X	
STREET SIGNS & MARKINGS				VG	G	F	P	VP	TBD	
Traffic Control	42,687	Ea.	\$2,988,090		87.8%	8.5%	3.7%			
Directional Signs	22,602	Ea.	\$1,582,140		96.0%	3.2%	0.8%			
Warning Signs	11,251	Ea.	\$787,570		89.3%	8.9%	1.7%			
School Signs	1,149	Ea.	\$80,430		95.3%	4.2%	0.5%			
Bus Signs	1,823	Ea.	\$127,610		83.7%	13.8%	2.5%			
Pavement Markings	Inventory unavailable									

Roadway Classifications

Public Works identifies 3 primary classifications of roadway:

- Arterial
 - Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.
- Collector
 - Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.
- Local
 - Consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement.



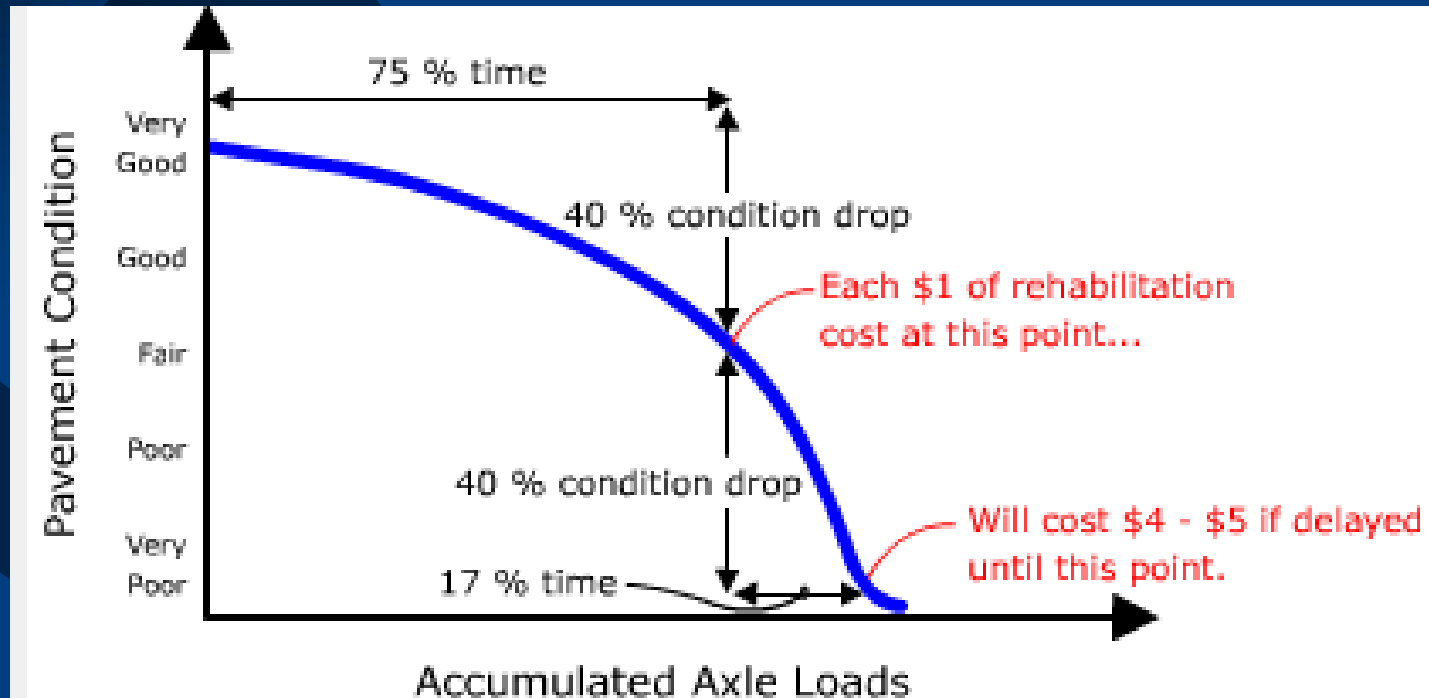
Roadway Classifications

Examples:

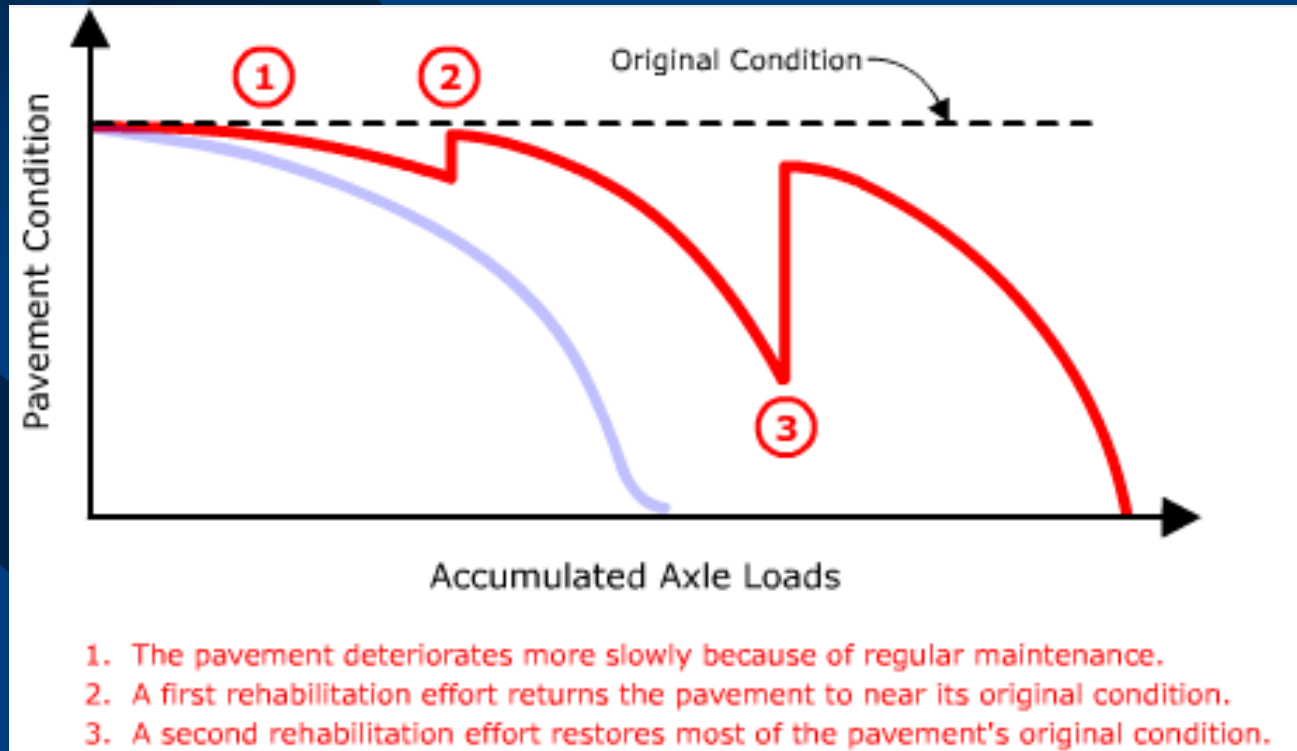
- Arterial
 - Dixie Hwy
 - Bardstown Rd
 - Shelbyville Rd
- Collector
 - Kentucky St
 - Aiken Rd
 - Rangeland Rd
- Local
 - Lake Forest Pkwy
 - Adams Run Rd
 - Longest Ave



Pavement Lifecycle



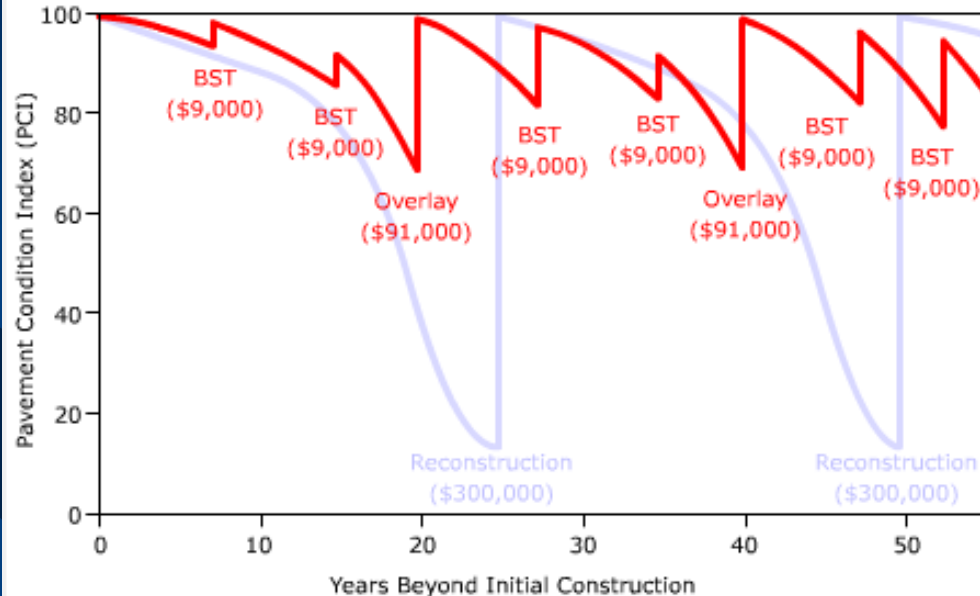
Pavement Lifecycle



Pavement Lifecycle

Effects of Maintenance on a Pavement Life Cycle

Comparisons based on the cost per mile of a 2-lane county road



No Maintenance

Total cost = \$600,000 per lane mile

Maintenance

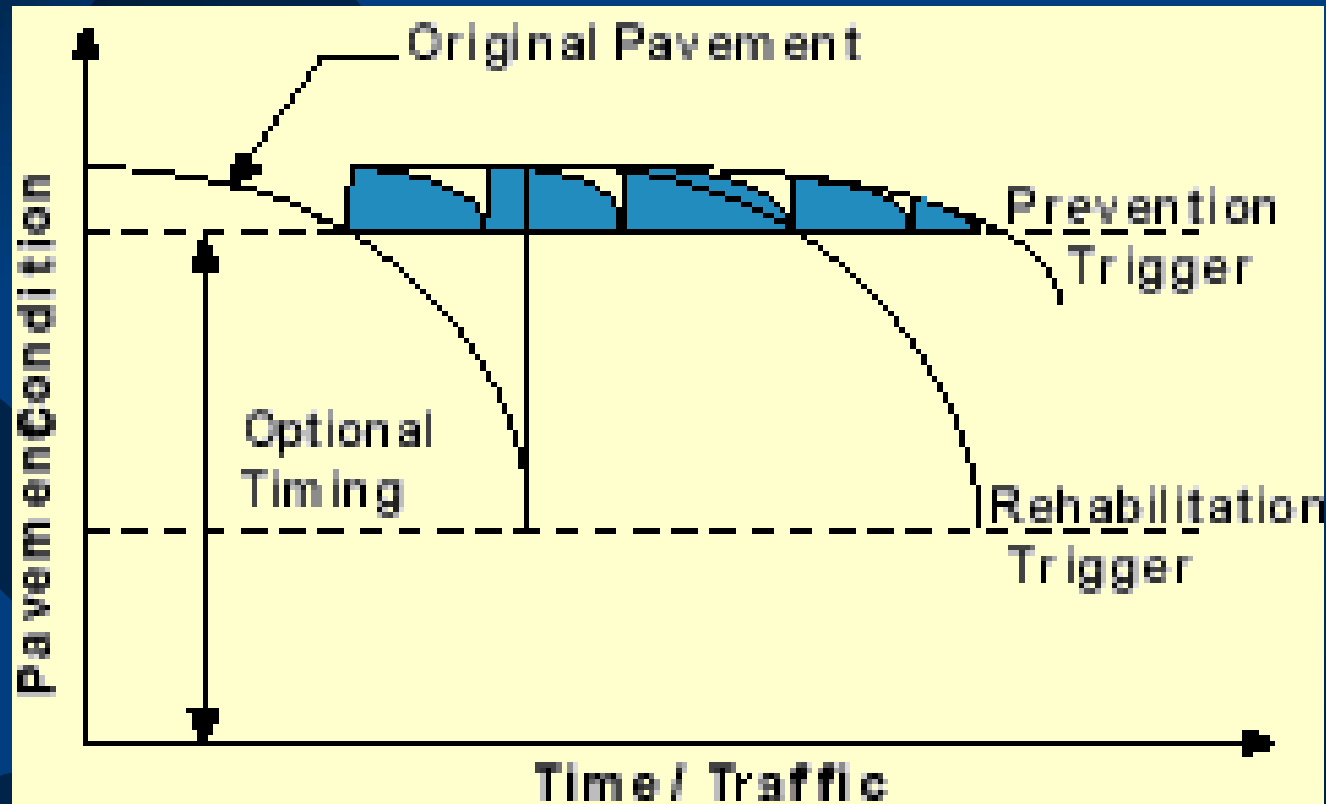
Total cost = \$276,000 per lane mile

Pavement Condition Index (PCI)

A 100-point scale used to indicate relative pavement condition. Similar to the 5-point present serviceability index (PSI).



Pavement Lifecycle



Pavement Maintenance & Rehabilitation

Routine Maintenance:

- Crack sealing
- Pothole repairs

Periodic Maintenance:

- Micro surfacing

Rehabilitation:

- Structural overlay

Reconstruction:

- Design & construct a new roadway



Pavement Maintenance & Rehabilitation

Micro surfacing:

- A mixture of dense-graded aggregate, asphalt emulsions, water, polymer additive, and mineral fillers used to prevent or correct certain deficiencies. (polymer-modified slurry seal)
- Most effective on local classified roads with low traffic volumes.
- Applied at a depth of about 3/8" to 2".
- Lower cost than mill & hot-mix asphalt overlay.



Inspections

Roadway restoration for utility cuts is a continuing problem due to:

- Limited number of staff available for inspections during construction and follow-up warranty period.
- PWA would like to implement an utility cut tracking program to identify responsibility years after restoration has occurred.
- Ord 97.092 requires permittee to warranty the pavement repairs for 5 years.
- Utility companies experimenting with a different compaction method.



Sidewalks

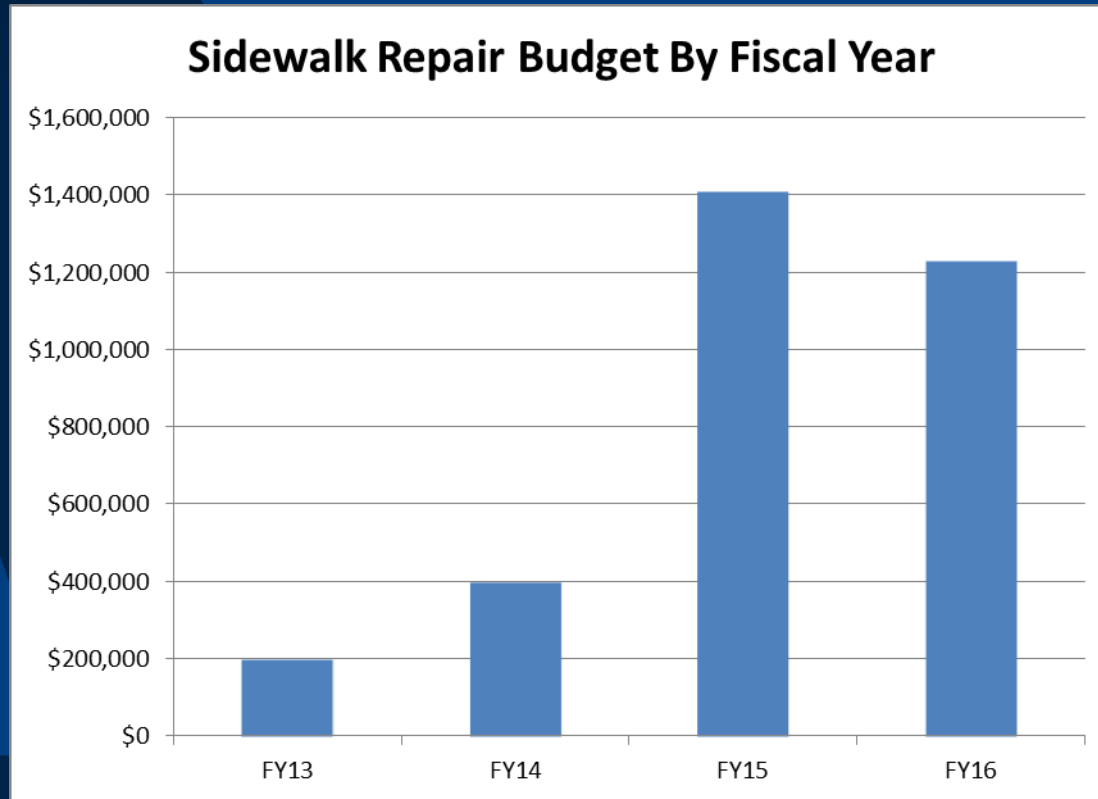
- Sidewalks are inspected and assigned a rank, based on condition, 1 thru 5 with 5 being the worst.
- Currently, just over 1,000 identified locations ranked 4 or 5 in need of repair, with a total cost of about \$9.5M
- In December 2010, Ordinance 253, Series 2010 deleted LMCO 97.112 which shifted the sidewalk maintenance responsibly from the abutting property owner to Public Works.

ORDINANCE NO. 253, SERIES 2010

AN ORDINANCE DELETING SECTION 97.112 OF THE LOUISVILLE/JEFFERSON COUNTY METRO GOVERNMENT CODE OF ORDINANCES ("CODE") AND AMENDING SECTION 97.999(D) PERTAINING TO THE REPAIR OF SIDEWALKS.

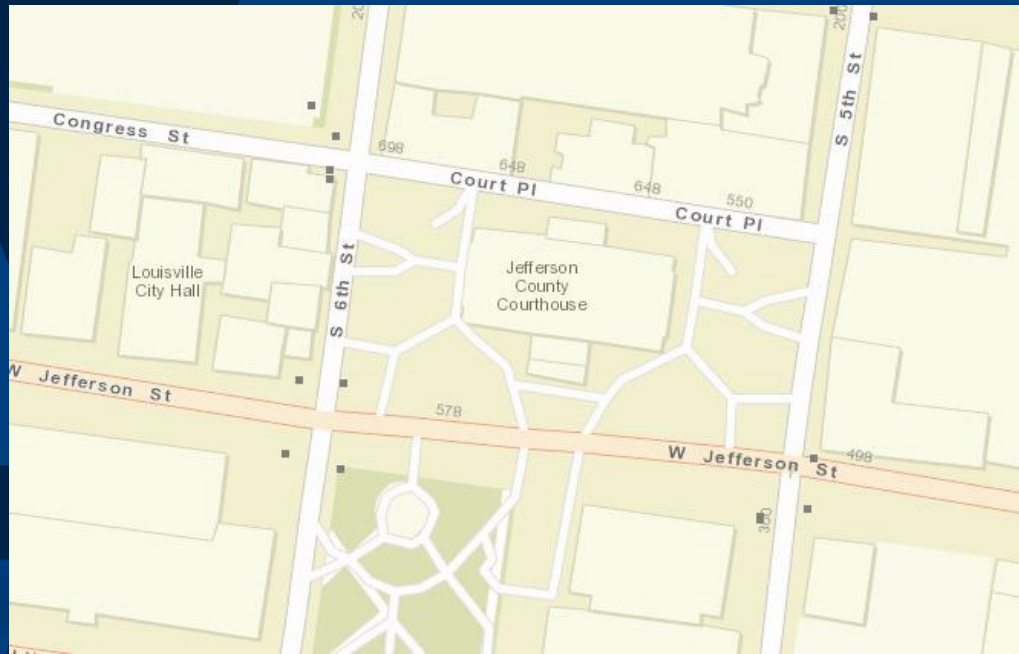


Sidewalk Funding

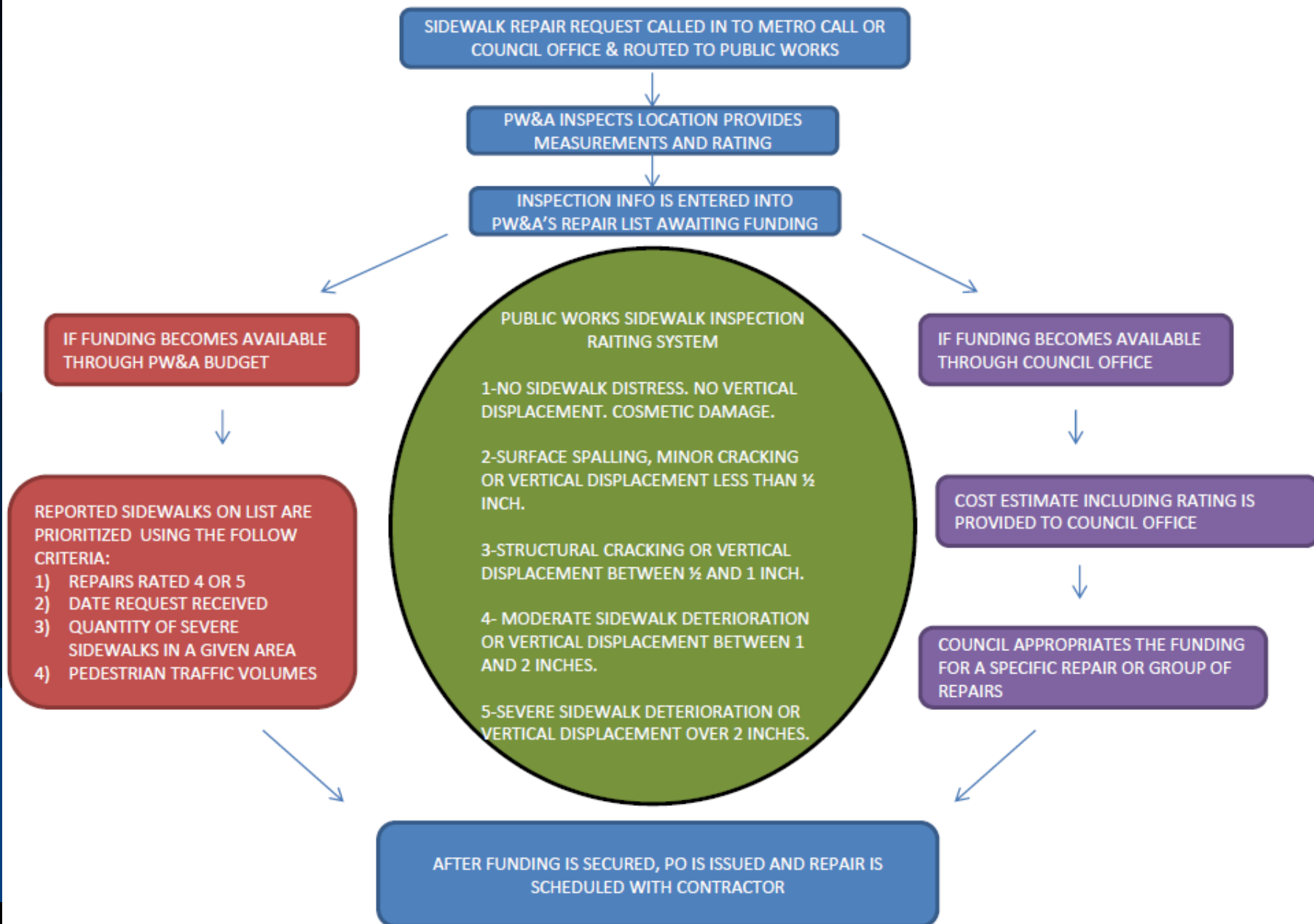


Sidewalks

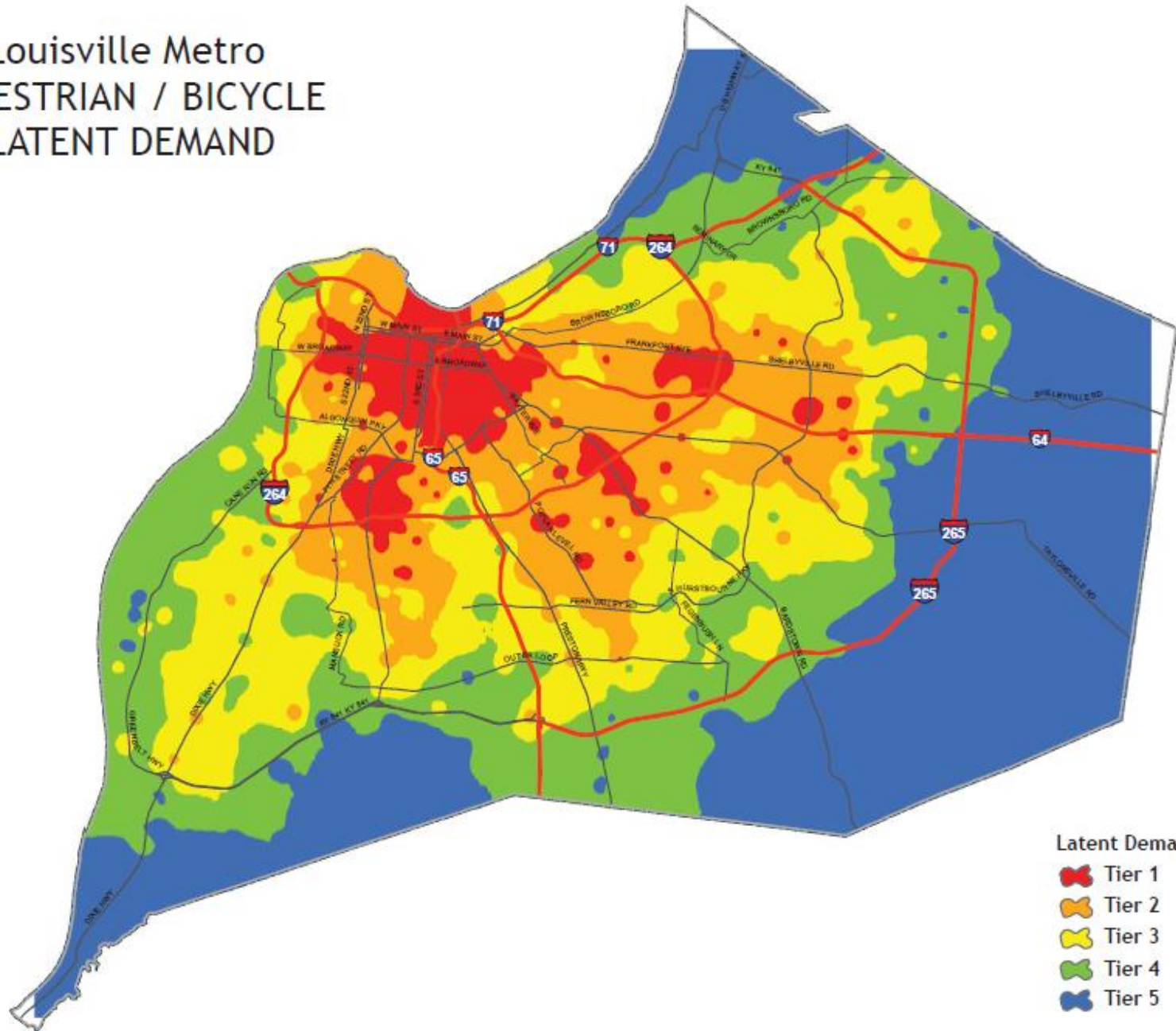
- Obtaining a sidewalk inventory on Collector & Arterial roads as part of the 2015 Pavement Condition Survey.
- Handicap ramp inventory completed with the 2013 Pavement Condition Survey.



PUBLIC WORKS ENGINEERING DEPARTMENT PROCESS FOR PRIORITIZING SIDEWALK REPAIRS REPORTED THROUGH METRO CALL OR THE COUNCIL OFFICE



Louisville Metro PEDESTRIAN / BICYCLE LATENT DEMAND



Latent Demand Zones

-  Tier 1
-  Tier 2
-  Tier 3
-  Tier 4
-  Tier 5