

Pavement Management Program

2013 Street Maintenance Program



City of Lawrence
PUBLIC WORKS

Executive Summary

1/15/2013

Presented by

Mark Thiel

Assistant Director Public Works

Program Overview

- Start of current program 2005
- 812.5 Lane miles of City streets
 - Up 1.5 lane miles from 2011
- Cycle 1 complete Oct. 2005 - 299 center-line miles
- Cycle 2 complete Oct. 2009 – 319.5 center-line miles
- Cycle 3, Phase 3 complete (80%) or 261 Center-line miles
- PCI – Pavement Condition Index
 - Is a numerical value (0 to 100) assigned based on the visual street condition and ride. 100 represents a pavement with no visible distresses

Pothole Reduction

- Pothole numbers over the past several years have been greatly reduced
 - Pavement Management Program success - balanced use of rehabilitation & preventative maintenance methods
 - Continued use of patching methods (injection patching & mill/patch)
 - Fewer freeze thaw cycles

Pothole comparison 2012 / 2011

Potholes					2012
Potholes reported on Hotline & phone					210
Potholes reported on Wufoo (on-line reporting)					110
Total Reported					320
Number of holes patched					6,041.00
Tons of Hot mix used					448.51
Tons of cold mix used					87.25
Yards of Durapatch used					292.50
Pounds of Crack Sealer used					92,390.00

Potholes					2011
Potholes reported on Hotline & phone					468
Potholes reported on Wufoo (on-line reporting)					207
Total Reported					675
Number of holes patched					12,575
Tons of Hot mix used					664.15
Tons of cold mix used					164.05
Yards of Durapatch used					251.00
Pounds of Crack Sealer used					63,273.00

PCI Goals

- Prevent / slow down further deterioration
- Establish a maintenance plan
- Critical points (preventative to rehabilitation work)
 - Arterial 65
 - Collector 60
 - Residential 55
- Cycle 1 - 31.5% in “fair to poor” range
- Cycle 2 - 29.8% in “fair to poor” range
- Cycle 3 – 19.5% in “fair to poor” range
- “fair to poor” suggests not a good candidate for preventative maintenance – should consider rehabilitation / possible reconstruction in some cases

Average PCI

- The overall PCI
 - Cycle 1 = 69.0
 - Cycle 2 = 70.28
 - Cycle 3, Phase 1,2,&3 = 75.46
- Positive movement of PCI average
- Curb and Gutter condition does not impact street PCI; however, steady increase from fair/poor to “good” condition (+2.5% change in Cycle 2 to 3, +10.6% change Cycle 1 to 3)

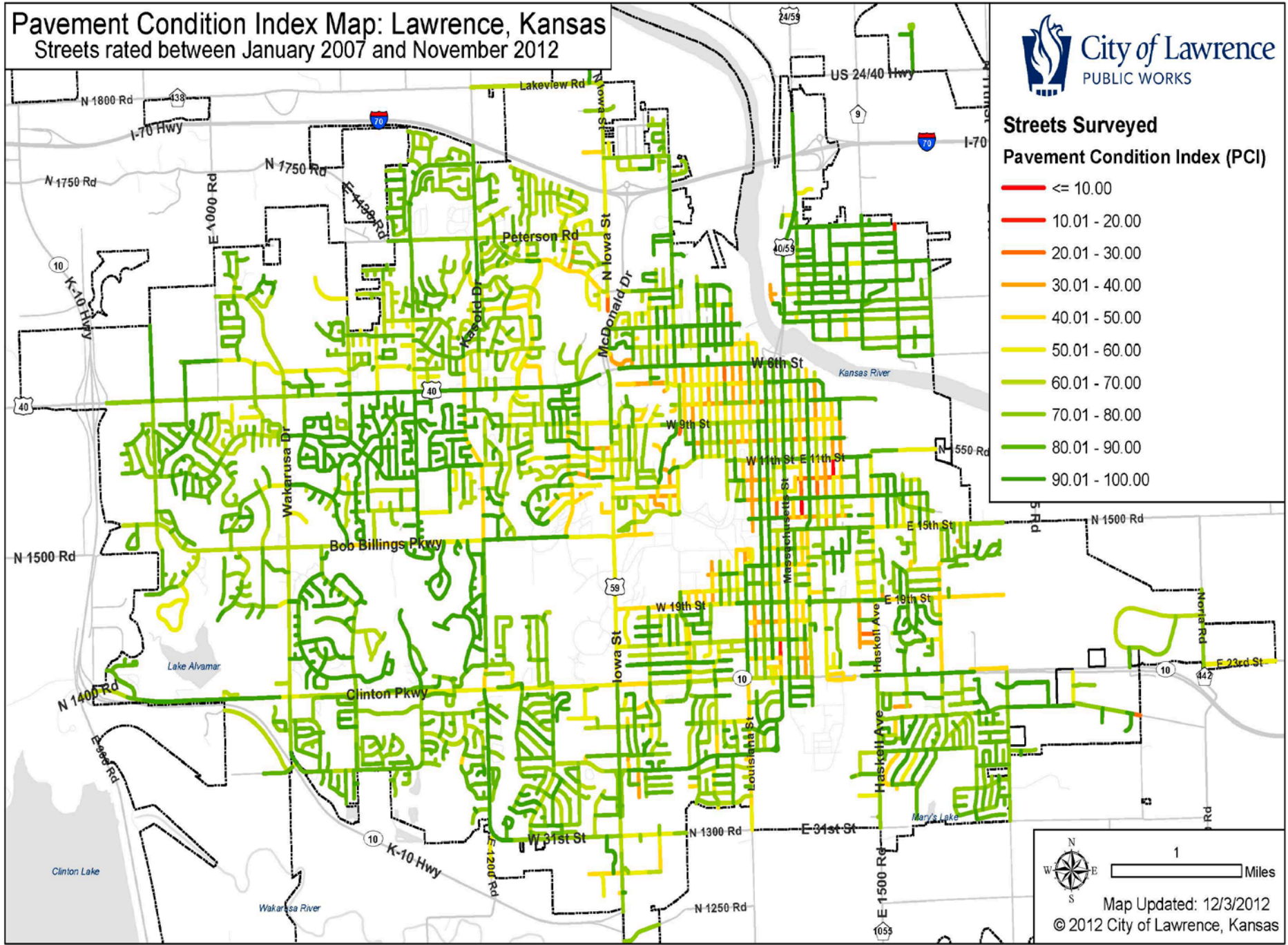
Pavement Condition Index Map: Lawrence, Kansas

Streets rated between January 2007 and November 2012



Streets Surveyed Pavement Condition Index (PCI)

- █ <= 10.00
- █ 10.01 - 20.00
- █ 20.01 - 30.00
- █ 30.01 - 40.00
- █ 40.01 - 50.00
- █ 50.01 - 60.00
- █ 60.01 - 70.00
- █ 70.01 - 80.00
- █ 80.01 - 90.00
- █ 90.01 - 100.00



Map Updated: 12/3/2012
© 2012 City of Lawrence, Kansas

Brick Streets

- We have 23 lane miles of brick streets
 - Various condition. (exposed brick, overlaid)
- In the past four years have completed
 - 4 blocks of restoration (Ohio & New York)
- 2013 plan
 - 800 block of Pennsylvania
- 2014 Plan
 - 2100 block of Vermont

Brick Street Maintenance Planning

- We are developing a plan to add more maintenance
- During 2013 will begin meeting with stakeholders
 - Residents, Historical review, NA's, others
- Basic premise
 - Restore brick streets where residential homes face the street
 - Convert others to Asphalt or Concrete
 - While waiting for restoration perform basic maintenance, such as overlay or patching
- There will be exceptions to any final plan

Maintenance Programs Contracted



Maintenance Programs

In- House



POTHOLE PATCHING



What Is A Pothole? While several factors contribute to the creation of potholes, they are distresses in the pavement that can create a failure of the pavement. This failure causes the pavement material to crumble and create a void in the pavement.

Why Does The City Patch Potholes? Pothole patching is not considered preventative maintenance. It is a temporary repair to restore the roadway to a safe driving condition.

Can I Report A Pothole? Yes. You can report a pothole to the city through our **pothole hot-line, 832-3456** or through the city's web site.

www.lawrenceks.org

What Information Should I Have When I Report A Pothole? The more information we have the better we are able to make a speedy repair. Information such as the exact address, location, and size of the hole.

Why Is My Contact Information Needed When Reporting A Pothole? Information you provide is kept confidential and we encourage your reporting. Sometimes we need to contact you to get more information to provide better service.

How long Does It Take To Repair A Pothole Once It Gets Reported? The city has a goal of repairing reported potholes within 48 hours. In addition, we have crews out regularly looking for potholes throughout the year.

How Many Potholes Does The City Repair Annually? This is highly dependent upon a variety of factors such as the severity of winters. For example, in 2012 the city patched 6,041 potholes. Additionally, in 2011 the city patched 12,575 potholes, 30,472 potholes in 2010, 12,898 potholes in 2009, and 18,449 potholes in 2008.

PAVEMENT MANAGEMENT

What is the Pavement Management Program? It is a management tool used to analyze, rate, and determine future maintenance needs for streets and curb and gutters. Two rating cycles of inventory for the Pavement Management Program have been completed, the first in 2005 and the second in 2009. Currently, city staff is working on the third cycle with the goal of updating 25% of the street inventory annually. Summary data are compiled, analyzed, and utilized as the basis for the annual street maintenance program planning of both in-house and contracted work.

What is a PCI? The PCI or Pavement Condition Index is a rating from 0 to 100. It is a numerical value assigned based on the visual street condition and ride. A rating of 100 represents a pavement surface with no visible distresses.

How Many Lane Miles Of Streets Are In Lawrence? We have 812.5 lane-miles of streets and growing each year.

What do you consider an unacceptable street rating? Typically, a street segment is considered to be in "fair to poor" condition when the PCI drops below 65 for arterials, 60 for collectors, and 55 for residential streets. Unacceptable (fair to poor condition) streets generally are not good candidates for preventive maintenance work. The Pavement Management Program showed 19.47% of the city streets rated as "fair to poor" at the end of the third quarter of Rating Cycle 3.

What Is My Street's PCI? You can find your PCI rating by calling 832-3123 or by accessing www.lawrenceks.org/city_maps

Ratings and Conditions	Cycle 1	Cycle 2	Cycle 3
Average PCI rating (based on street center-line length):	69.00	70.28	75.46
% of pavement w/ PCI rating of acceptable or above:	(68.46)	(70.19)	(80.53)
(Overall)			
Arterial	60.23	55.69	70.86
Collector	70.10	72.84	79.67
Residential	71.71	76.13	85.89
% of curb and gutter rated as:			
Good	53.37	61.50	63.99
Fair	32.06	29.53	27.18
Poor	14.57	8.97	8.84

MAINTAINING OUR FUTURE



A GUIDE TO STREET MAINTENANCE IN LAWRENCE, KANSAS



City of Lawrence
PUBLIC WORKS

City of Lawrence
6th E 6th Street
Lawrence, Kansas

CRACK SEALING



What Is Crack Sealing? A key preventative maintenance technique where small cracks are filled with a rubberized asphalt product creating thick "snake like" lines on the street. Sealing the cracks helps prevent water from getting into the street pavement and causing potholes.

Which Streets Are Sealed? Streets that are planned for microsurfacing are typically crack sealed. Streets constructed or overlaid 3 to 5 years ago are also cracked sealed. In addition, streets are also selected by using our pavement management program which finds streets that are in generally good condition with minimal cracking. Our street crews also seal the edges of existing asphalt patches.

How Often Are Streets Sealed? Typically we try to seal streets every 5 to 8 years.

Can I Drive On Crack Sealing? Yes. After the street is crack sealed, soapy water is applied to cool and cure the rubberized crack sealant. Due to hot weather in the summer, crack sealing is typically done in the spring or fall when the weather is cooler.

Will I Receive Notice From The City Prior To Work Beginning? No. This maintenance does not affect property owners for a lengthy time. While there will be traffic disruptions during this work it is only for a short period.

How Much Crack Sealing Is Done Each Year? While this depends on budget, typically the city seals about 100 lane-miles of roadways each year based on the 2006 through 2012 yearly average.

CURB REPLACEMENT

What Is Curb & Gutter Replacement? The process of removing deteriorated curb and replacing with new. As curbs deteriorate they can create problems with drainage. This also can lead to roadway problems.

Which Curbs Are Replaced? Often the roadway adjacent to the curb sections are in good shape and do not require replacement. In this case only the curbs are replaced. Determination of which curbs are to be replaced come from an evaluation of the curbs. Curbs are then rated and prioritized for replacement based on location and/or available budget.

Can I Report A Bad Curb? Yes. You can call the Street Division to report a bad curb **832-3031**. The curb will be evaluated and placed on a list which prioritizes replacement based on condition, location, and order in which the request was received.

What Happens To My Yard Once The Curb Is Replaced? The city will restore the disturbed areas once the project is completed.

What If I Have Items In The Right Of Way, Such As A Sprinkler System? If you are notified of an upcoming project we do ask that if you have any items in the right of way, such as a sprinkler or fence, that you notify Public Works. This way we can minimize or eliminate any damage to your property.

Will I Receive Notice From The City Prior To Work Beginning? Yes. You will be notified prior to the start of the project by either the city or its contractor.

How Much Curb & Gutter Is Replaced Each Year? From 2006 through 2012 the city replaced an average of 6 to 7 miles of curb and gutter per year.



MICROSURFACING



What Is Microsurfacing? Microsurfacing is a preventative street sealing technique that uses a pre-mixed slurry of rock, polymer asphalt binders, cement, and filler materials to seal the entire roadway at a depth of about 3/8th of an inch. It is applied over the top of the pavement.

Where Is Microsurfacing Used? Microsurfacing applications are used on residential, collector, and some arterial streets. It is applied using specialized equipment.

Why Did My Street Get Microsurfaced Instead Of Overlayed? Once a pavement section is determined to need preventative maintenance we then have to select the most cost effective method for the condition of the pavement. Microsurfacing is applied to pavements that are generally in good shape, but need more sealing and patching than a typical crack sealing project would provide. The cost to microsurface (plus asphalt patching) is \$5.00 to \$7.00 per square yard as compared to \$14.00 to \$16.00 per square yard for a typical 2" mill & overlay (plus pavement patching).

Will I Receive Notice From The City Prior To Work Beginning? Yes. General notice to the area. While there will be traffic disruptions during this work it is only for a short time. Microsurfacing can be driven on in about two hours.

Will I Need To Move My Car Off Of The Street? Yes. As with many of our maintenance projects we will need you to find an alternative spot to park your car. This will enable us to properly perform maintenance and reduce the possibility for damage to your car.

How Much Microsurfacing Is Done Each Year? From 2007 through 2012 the city averaged 26 lane-miles of microsurfacing per year.

MILL & OVERLAY

What Is A Mill & Overlay? A mill & overlay removes the top 2 to 3 inches of pavement and replaces it with new hot mixed asphalt. The milling removes the old deteriorated pavement surface and creates a rough surface for the new pavement to bond with the old pavement.

Why Does The City Mill & Overlay Streets? As a street ages, it is necessary to remove and replace the top layer of asphalt. This will extend the life of the pavement 10 to 15 years.

Is There Any Other Work That Is Done When The Street Is Overlayed? Yes. Once the old pavement has been milled we will make repairs to any part of the old pavement that is in poor condition prior to the overlay. We will often replace bad curbs during this process.

Does The City Overlay Concrete Streets? Yes. It is possible to mill concrete streets, but typically a thin 1 to 2 inch overlay is applied directly to the surface of the existing concrete street. It is not a common practice for the city to overlay concrete streets.

Will I Receive Notice From The City Prior To Work Beginning? Yes. The city or its contractor will give you written notice prior to the milling. You will also receive a second notice prior to the overlay. You will be asked to not park your vehicles on the road during both processes.

How Much Mill & Overlay Is Done Each Year? From 2006 through 2012 the city averaged 24 lane-miles of overlay per year.



Contact Public Works - 832-3123

2012 Summary As-Built Map & Number Summary

Work Type	Contracted Maintenance - 2012
Mill & Overlay	22.0 lane-miles
Microsurfacing/ Patching	32.6 lane-miles
Concrete Rehab Patching	6,533 Square Yards (As of Nov. 2012)
Curb & Gutter	19,354 Linear Feet (As of Nov. 2012)
ADA Ramps	45 Ramps
Work Type	Internal Street Maintenance - 2012
Crack Sealing	92,390 lbs
Potholes Patched	6,041 potholes (536 tons + 293 SY Durapatch)
Concrete Patching	1352 Cubic Yards (~ 7,000 Square Yards)
Curb & Gutter	6,145 Linear Feet
ADA Ramps	29 Ramps

2012 Comprehensive Street Maintenance Program As-Built

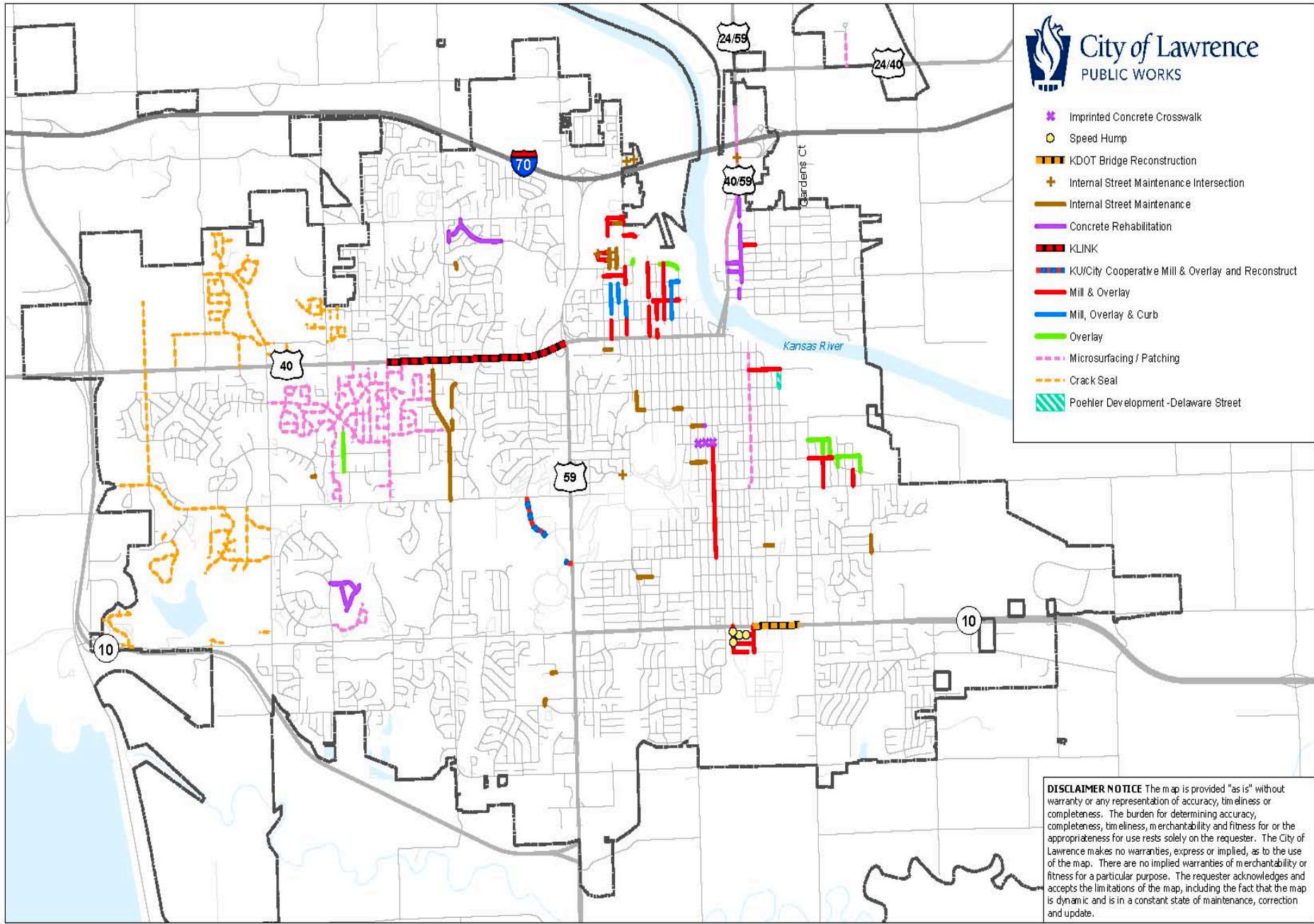


0 0.5 1
Miles

Updated: 12/26/2012



- Imprinted Concrete Crosswalk
- Speed Hump
- KDOT Bridge Reconstruction
- Internal Street Maintenance Intersection
- Internal Street Maintenance
- Concrete Rehabilitation
- KLINK
- KU/City Cooperative Mill & Overlay and Reconstruct
- Mill & Overlay
- Mill, Overlay & Curb
- Overlay
- Microsurfacing / Patching
- Crack Seal
- Poehler Development - Delaware Street



DISCLAIMER NOTICE The map is provided "as is" without warranty or any representation of accuracy, timeliness or completeness. The burden for determining accuracy, completeness, timeliness, merchantability and fitness for or the appropriateness for use rests solely on the requester. The City of Lawrence makes no warranties, express or implied, as to the use of the map. There are no implied warranties of merchantability or fitness for a particular purpose. The requester acknowledges and accepts the limitations of the map, including the fact that the map is dynamic and is in a constant state of maintenance, correction and update.

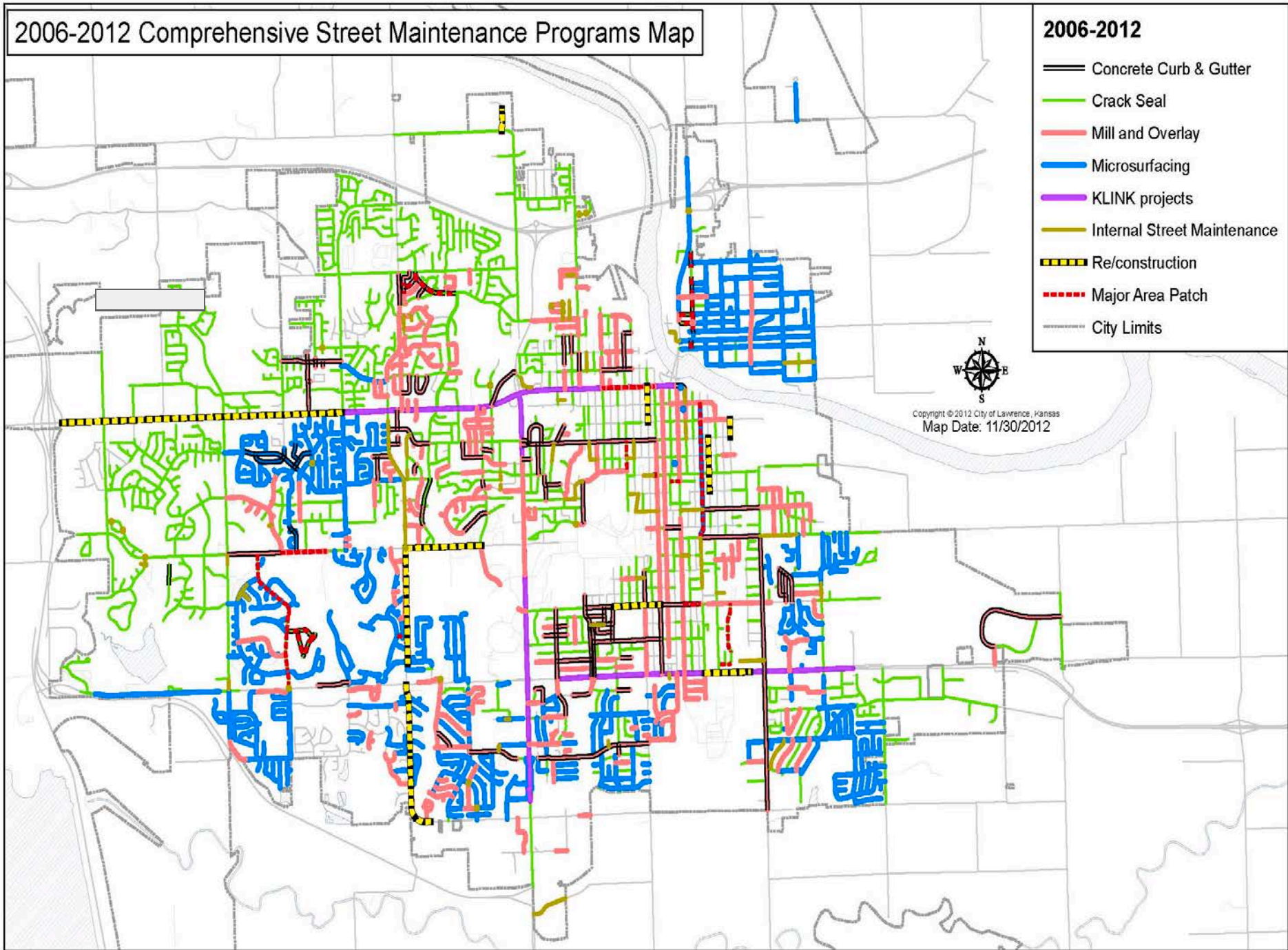
2006-2012 Comprehensive Street Maintenance Programs Map

2006-2012

- Concrete Curb & Gutter
- Crack Seal
- Mill and Overlay
- Microsurfacing
- KLINK projects
- Internal Street Maintenance
- Re/construction
- Major Area Patch
- City Limits



Copyright © 2012 City of Lawrence, Kansas
Map Date: 11/30/2012

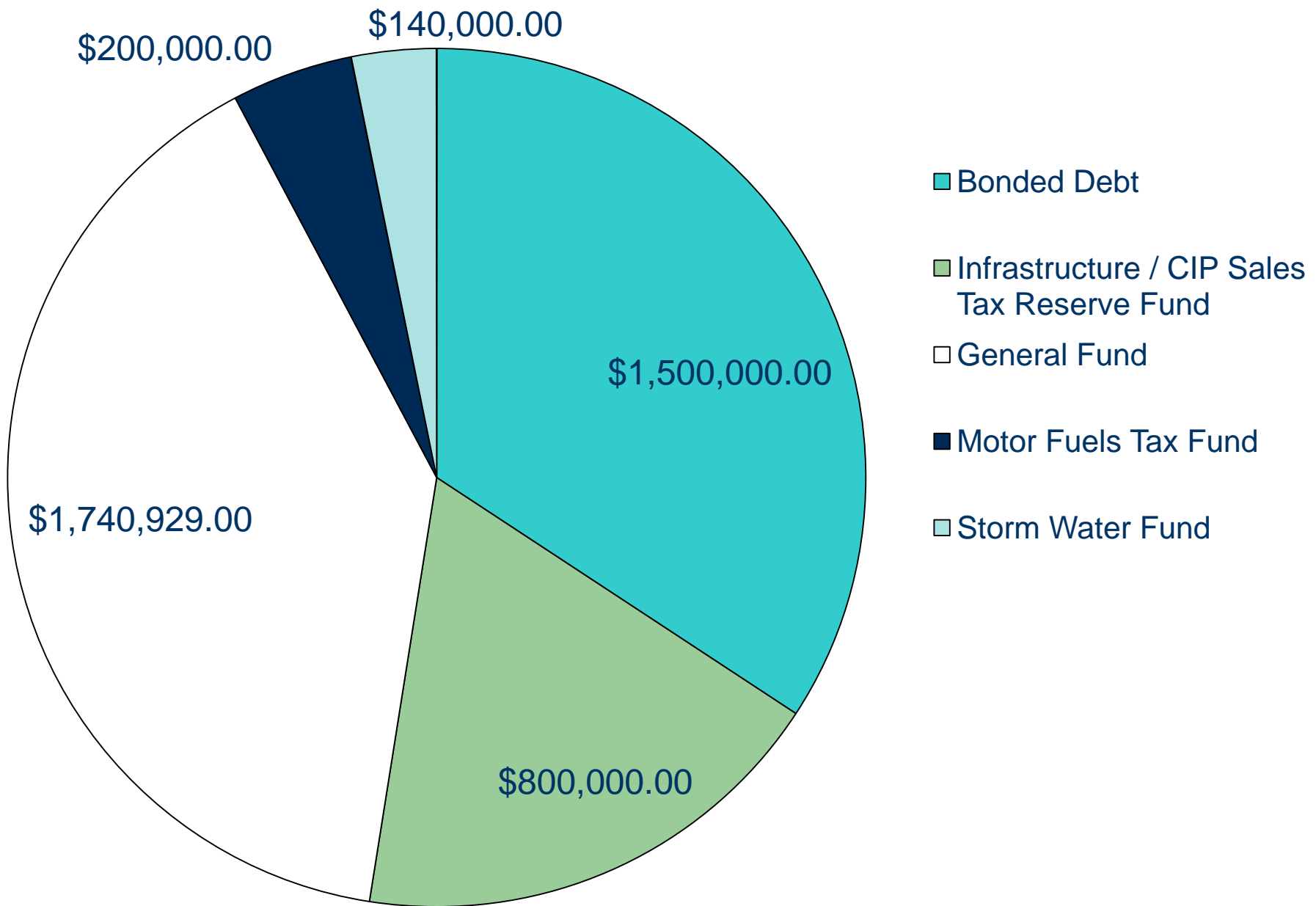


Summary of Program

- Average PCI *increased by 7.37%* from Cycle 2 through Cycle 3
 - Indicates program is moving in a positive direction toward sustainability
 - Good decisions are being made
- Deterioration rates are slowing/ stabilizing, overall average of +3.37 (incline) of comparable street segments from Cycle 2 to Cycle 3 to date.
- The overall percentage of “fair to poor” streets has continued to decline

2013 Program

- In August 2012 commission approved \$4.38 million
- Verified by Budget Manager
- Projects selected using
 - Pavement management database (PCI's)
 - Constituent concerns
 - Known problem areas
 - Coordination with other projects / agencies
 - Utilities, development, new construction (coordination/ phasing with other projects)
 - Bicycle advisory committee review of plan (based on BAC recommendations - planned inclusion of shared use paths, bicycle lanes on BBPW & Wakarusa Dr)
 - Incorporation of Complete Street Elements (ADA ramps, crosswalks, bicycle lanes)
 - Selection of diverse locations throughout the city



2013 Contracted Street Maintenance Budget by Fund

Complete Street Elements

- **Bicycle Advisory Committee – Recommendations**
 - Bob Billings Pkwy – Shared use path construction
 - Wakarusa Dr – Bike lanes included in plan
- **ADA Ramps – Remove/replace & new installation with various reconstruction and maintenance projects**
- **Imprinted Concrete Crosswalks – 19th & Barker and Harvard & Monterey Way**

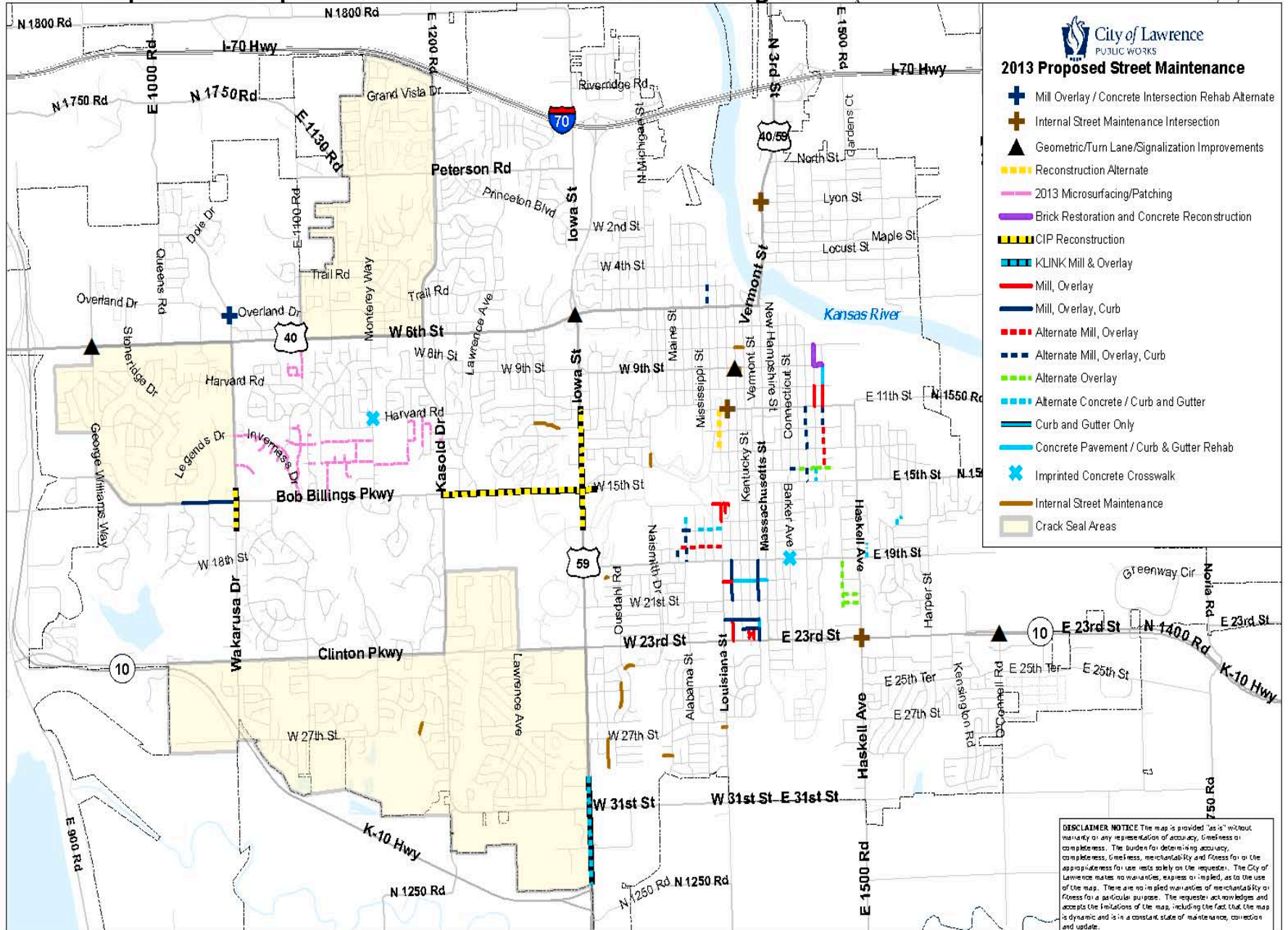
Complete Street Elements “CIP”

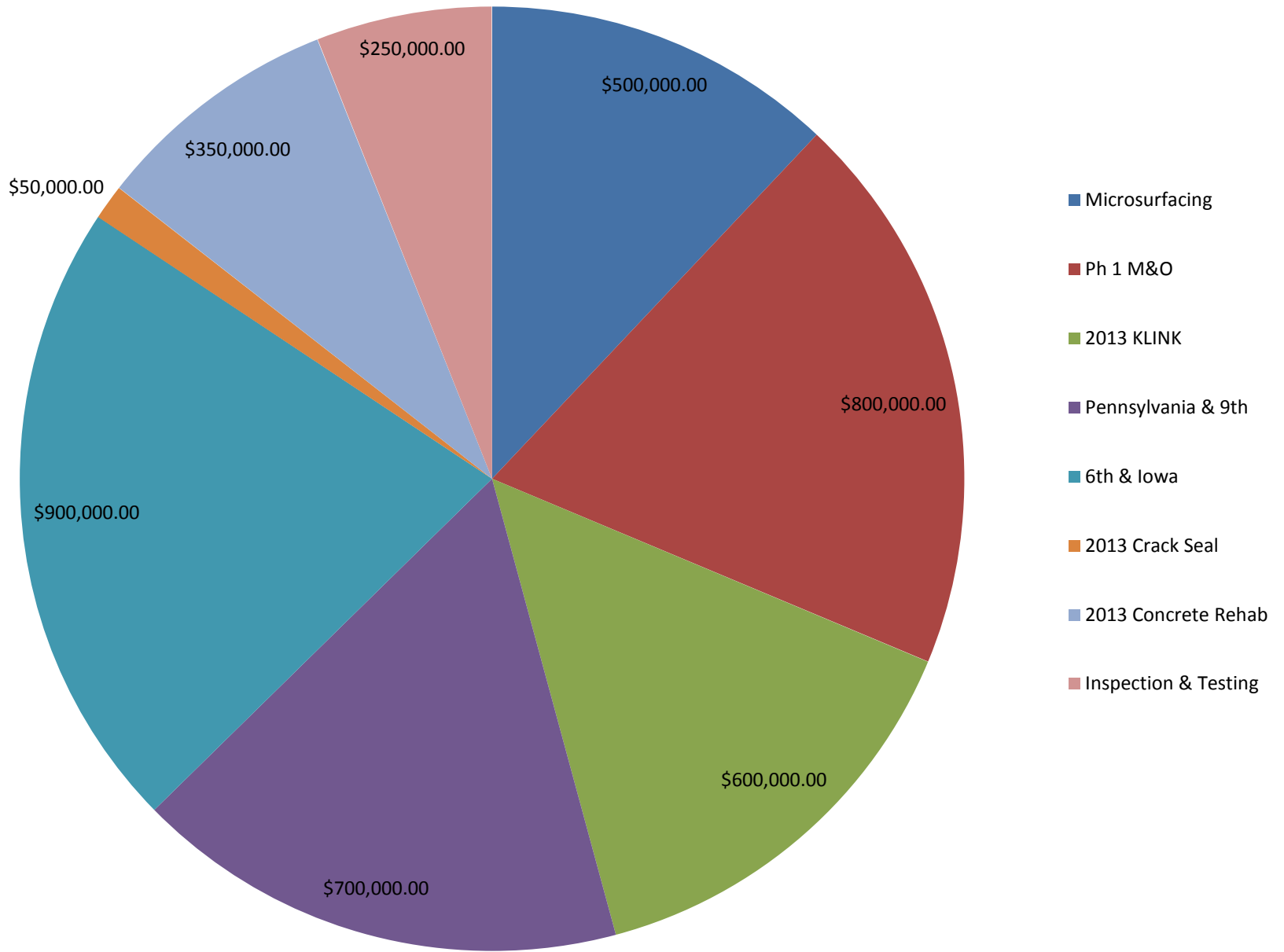
- Iowa St Reconstruction/ 6th & Iowa Intersection -
 - Widening, Additional turn lanes throughout, Additional sidewalk
- Bob Billings Pkwy -
 - Shared use path
- Wakarusa -
 - Bike Lanes, 6’ Sidewalks both sides
- 9th & Tennessee -
 - Additional turn lanes, Bike lanes
- 23rd & O’Connell -
 - Additional turn lanes

2013 Program Projects

- Crack Sealing (In-House), Wide Joint Sealing, Polymer Patching
- Microsurfacing/ Patching
- Concrete Rehabilitation (In-House and Contracted)
- Mill, Overlay, Curb & Gutter– one phase
- KLINK - Iowa St, 29th to south City Limit
- Reconstruction –
 - Iowa St, Harvard to Irving Hill Overpass
 - Bob Billings Pkwy, Iowa to Crestline & Kasold to Crestline
 - Wakarusa Dr, north & south of Bob Billings Pkwy
 - Brick Restoration/ Concrete Reconstruct – 8th/9th Pennsylvania
- Intersections – Geometric/ Signalization/ Turn Lanes
 - 23rd & O'Connell
 - 9th & Tennessee
 - 6th & George Williams Way
 - 6th & Iowa
- Other projects
 - Imprinted Crosswalks
 - In-house projects
 - \$96,000 incentive for early completion of the intersection of 15th & Iowa. (\$6k / day prior to Aug 15th)

2013 Proposed Comprehensive Street Maintenance Program





2013 Street Maintenance Budget Allocation by Project

2013 Major Capital Projects

- Pennsylvania (8th to 9th) Brick
- 9th (Delaware to Pennsylvania) Concrete
- 9th & Tennessee – Turn Lane
- Iowa (29th south to city limits) mill and overlay
- Wakarusa & BBP Concrete
- BBP (Crestline to Kasold)
- Iowa (Harvard to Irving Hill Rd) Concrete
- 23rd & O'Connell Signalized intersection

2013 Major Capital Projects

- Farmland Road additions
- 31st St. extension (Haskell to O'Connell)
- 6th & Iowa Turn Lane
- 9th & Michigan Geometric improvements
- 9th & Kentucky Signal
- Cross Walk striping
- Road striping
- 2013 Street Maintenance Program

Public Communication

- Public Meetings
- Mass mailings
- Open houses
 - Next one February 13th at City Hall 4:30 pm to 5:30 PM
- Water Billing insert
- Message boards
- Project advance notice signs

Message boards and Signs



Water bill insert – 32,000 mailings



1. Iowa Street (Harvard to Irving Hill Overpass) – Concrete Reconstruction – Feb. to Nov. 2013
2. Wakarusa Drive (Research Pkwy to Oread West) – Concrete Reconstruction – Summer 2013
3. Bob Billings Pkwy., Eastbound Lanes (Kasold to Crestline) – Pavement Reconstruction – Summer 2013
4. W. 6th Street & Iowa Street – Addition of a Turn Lane – Summer 2013
5. Iowa Street (29th St. to city limits) – Mill & Overlay – Summer 2013
6. W. 9th Street & Tennessee Street – Turn Lane, Signal Improvements – Summer 2013
7. 800 Block of Pennsylvania – Brick Reconstruction/Restoration & E. 9th Street (Pennsylvania to Delaware) – Concrete Reconstruction – March to September 2013
8. E. 23rd Street & O'Connell – Intersection Improvements – January to May 2013

PAVING

45

PAVING

SUNRAY

929

Questions?

