

# Pavement Management Program

## *2012 Street Maintenance Program*



City of Lawrence  
PUBLIC WORKS

## *Executive Summary*

12/13/2011

Presented by

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Assistant Director Public Works

# Program Overview

- Start of current program 2005
- 811 Lane miles of pavements
  - Up 6 lane miles from 2010
- Cycle 1 complete Oct. 2005 - 299 center-line miles
- Cycle 2 complete Oct. 2009 – 319.5 center-line miles
- Cycle 3, Phase 2 complete (52%) or 167 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 / expansion
  - New patching method (injection patching)
  - Fewer freeze thaw cycles

# PCI Goals

- Prevent further deterioration
- Establish a maintenance plan
- Critical points
  - 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 – 22.75% in “fair to poor” range
- “fair to poor” means not a good candidate for preventative maintenance – suggests rehabilitation

# Average PCI

- The overall PCI
  - Cycle 1 = 69.0
  - Cycle 2 = 70.28
  - Cycle 3, Phase 1 & 2 = 74.32
- Positive movement of PCI average
- Curb and Gutter condition does not impact the PCI for streets

# Pavement Condition Index Map: Lawrence, KS

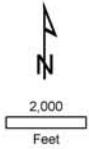


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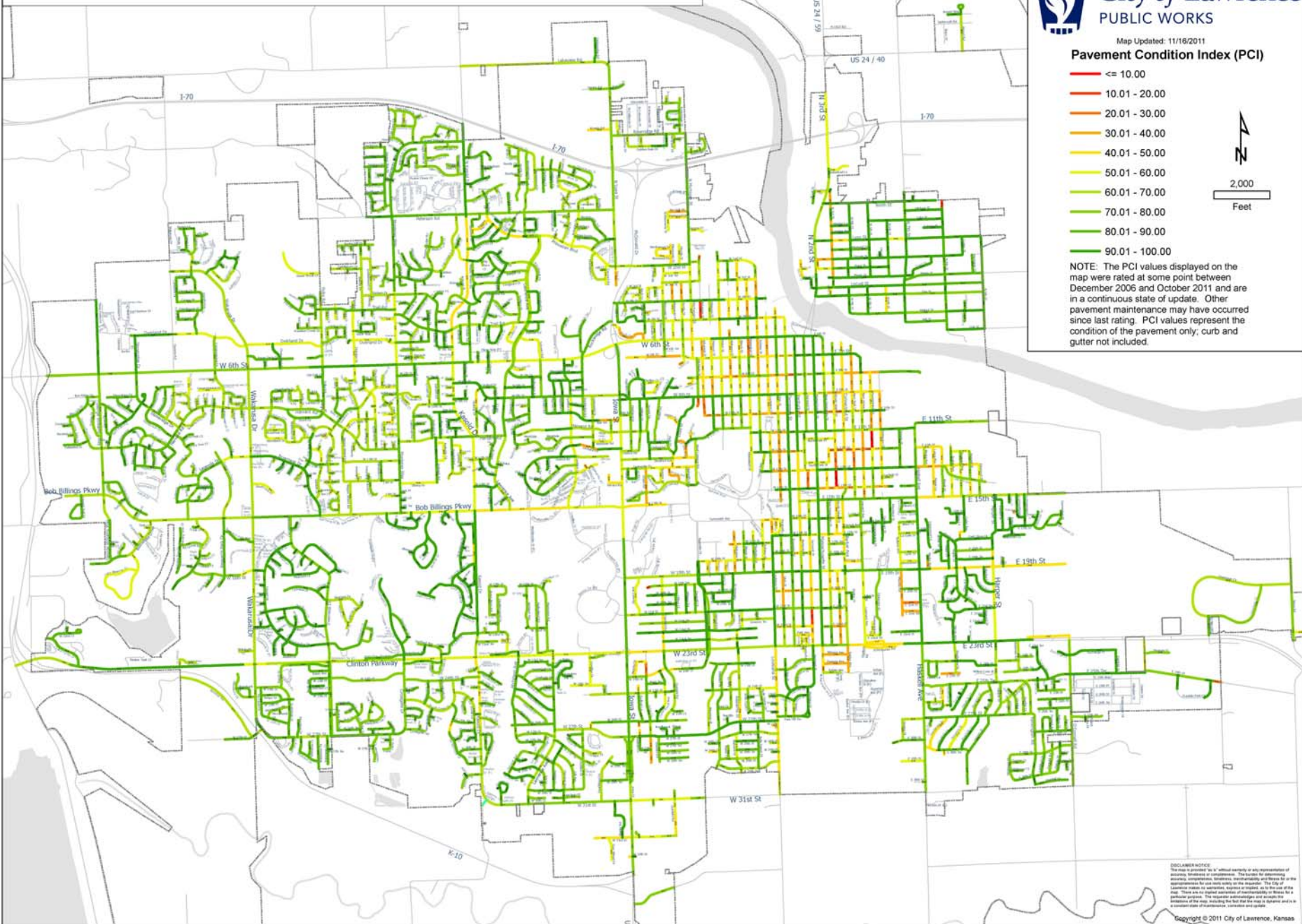
Map Updated: 11/16/2011

## 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



NOTE: The PCI values displayed on the map were rated at some point between December 2006 and October 2011 and are in a continuous state of update. Other pavement maintenance may have occurred since last rating. PCI values represent the condition of the pavement only, curb and gutter not included.



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# Deterioration Rates

- Shows progress of program
- Broken down by pavement type
- “-” indicates decline in PCI
- “+” indicates a incline in PCI

# Deterioration Rates

## by pavement type

TABLE 1 – Comparison of Cycle 3 - 1st & 2nd Quarters (Phases)  
Comparable Segments w/ Full Cycle 2 Deteriorations Rates

Pavement Type	Street Classification	C2- Full Cycle Deterioration Rate	C3- Ph.1 (Only) Deterioration Rate	C3- Ph.1&2 (Combined) Deterioration Rate
Flexible (Asphalt) w/ No Past Overlay	Arterial	-2.60	+6.23	+2.67
	Collector	-1.84	+1.43	-0.96
	Residential	-1.18	+6.78	+2.74
Flexible (Asphalt) w/ Past Overlay	Arterial	-2.66	-0.09	+0.85
	Collector	-1.00	-1.32	+0.62
	Residential	+2.28	+2.09	+8.16
Composite (Asphalt over Concrete/Brick)	Arterial	+1.58	+35.89	+14.62
	Collector	+0.86	+13.33	+20.84
	Residential	+0.72	+5.27	+8.62
Rigid (Concrete)	Arterial	-0.93	-3.67	-4.23
	Collector	-0.21	+3.99	+2.79
	Residential	-0.35	-0.49	-0.36



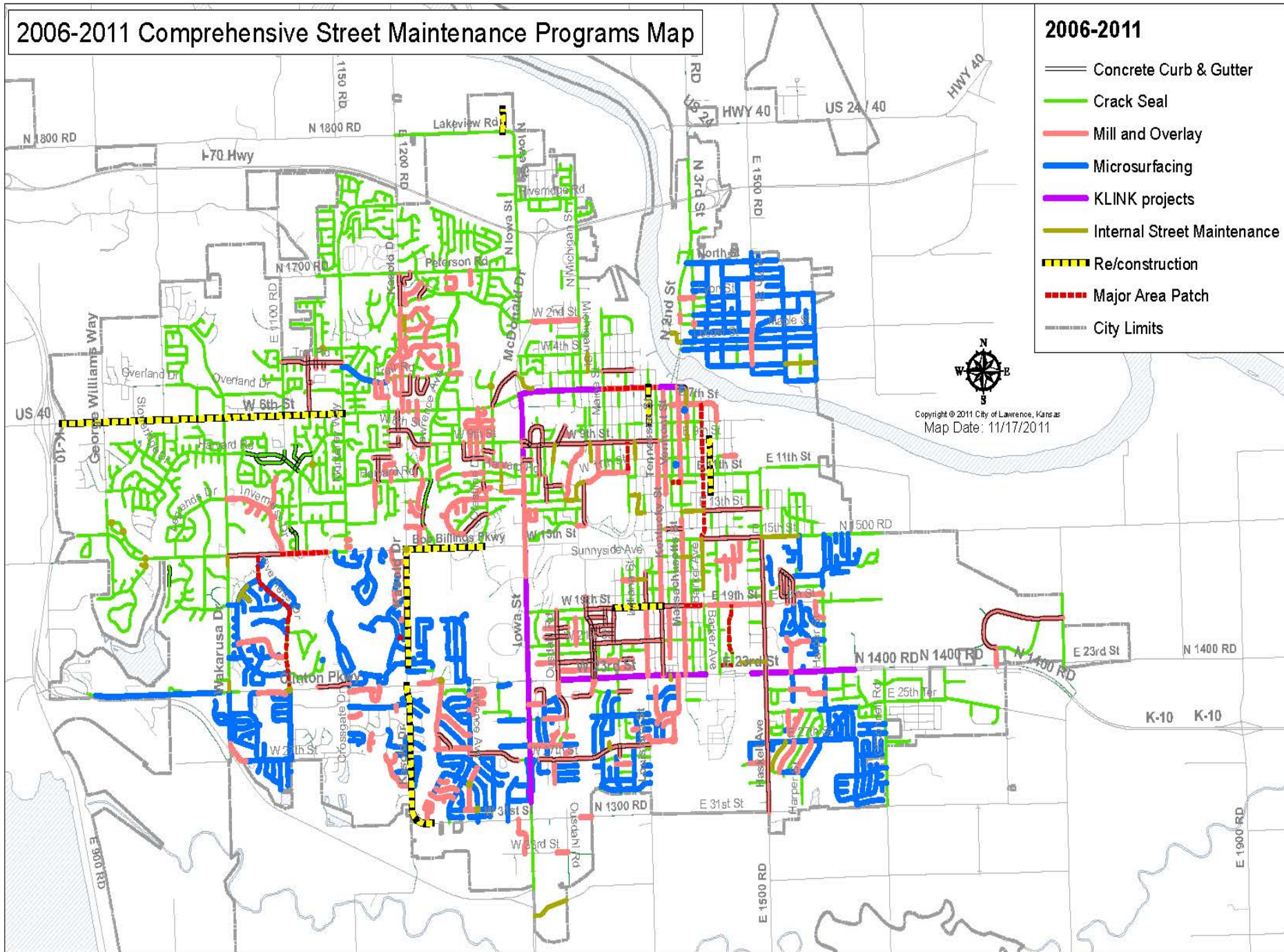
# 2006-2011 Comprehensive Street Maintenance Programs Map

**2006-2011**

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



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Map Date: 11/17/2011



# **Performance Audit:**

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**“City Using Pavement Data to Improve Streets”**

**July 2011**

# Performance Audit:

- The city raised the standard for construction of new streets in 2003, and analysis of those streets shows that streets built to the new standard perform better
- Public Works monitors and revises specifications for building and maintaining streets.
- Objective pavement data guides decisions about where and how the city maintains streets.

# Concrete Specification Verification Testing

- January 2011 city revised it's concrete specification – allowing the use of KDOT mix designs – after two years testing and review.
- October 2011 city hired and independent laboratory to test Penny's & MCM's mix design allowed by specification.
- Initial results were good.
- Final results pending.



# Maintenance Programs Contracted



# Maintenance Programs

## In- House



# Summary of Program

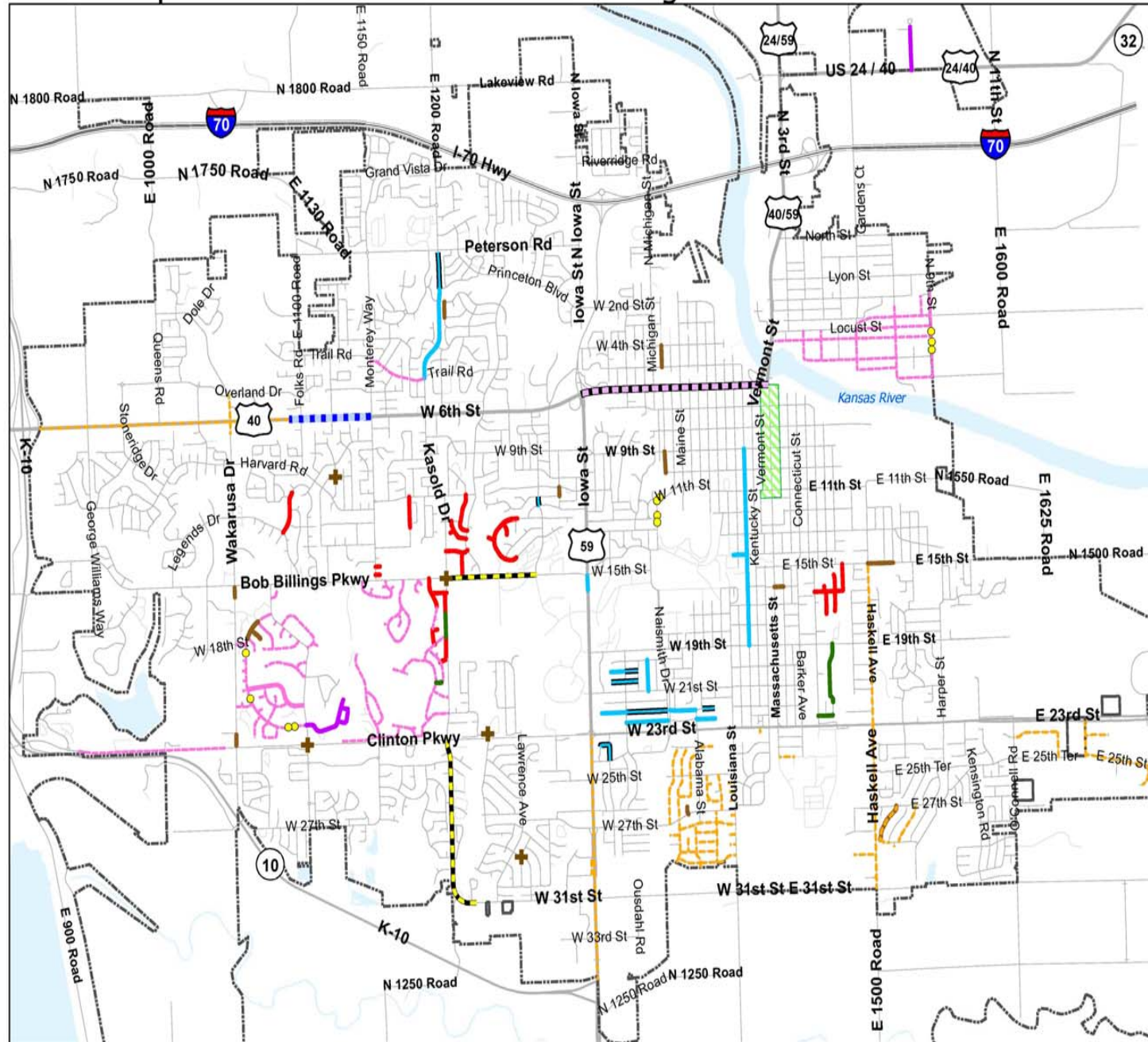
- Average PCI increased by 5.75% from cycle 2 thru cycle 3
  - Indicates program is moving in a positive direction toward sustainability
  - Good decisions are being made
- Deterioration rates are slowing
- The overall percentage of “fair to poor” streets has declined

# 2011 Summary As-Built Map & Number Summary

- Mill & Overlay 29.0 Mi
- Micro Surface 33.8 Mi
- Asphalt Patching 5772 Tons
- Concrete Patching 3,737 SY
- Pot Holes Patched 10,901
- Crack Sealing 36 Mi
- Curb and Gutter 22598 LF
- ADA Ramps 55 Ramps



# 2011 Comprehensive Street Maintenance Program



- Speed Cushions/Humps
- + Internal Intersection
- Asphalt Area Patching
- Internal Street Maintenance
- Crack Sealing Program
- Microsurface Program
- Mill & Overlay (part of MS Program)
- - - CIP 2011
- - - KLINK 2011
- - - Street Widening & Geometric Improvement
- Phase 1, Mill and Overlay
- Phase 2, Mill and Overlay
- Phase 2, Mill, Overlay, Curb & Gutter
- Concrete Rehab (contracted)
- - - Miscellaneous Concrete Repairs

Updated: 11/16/2011



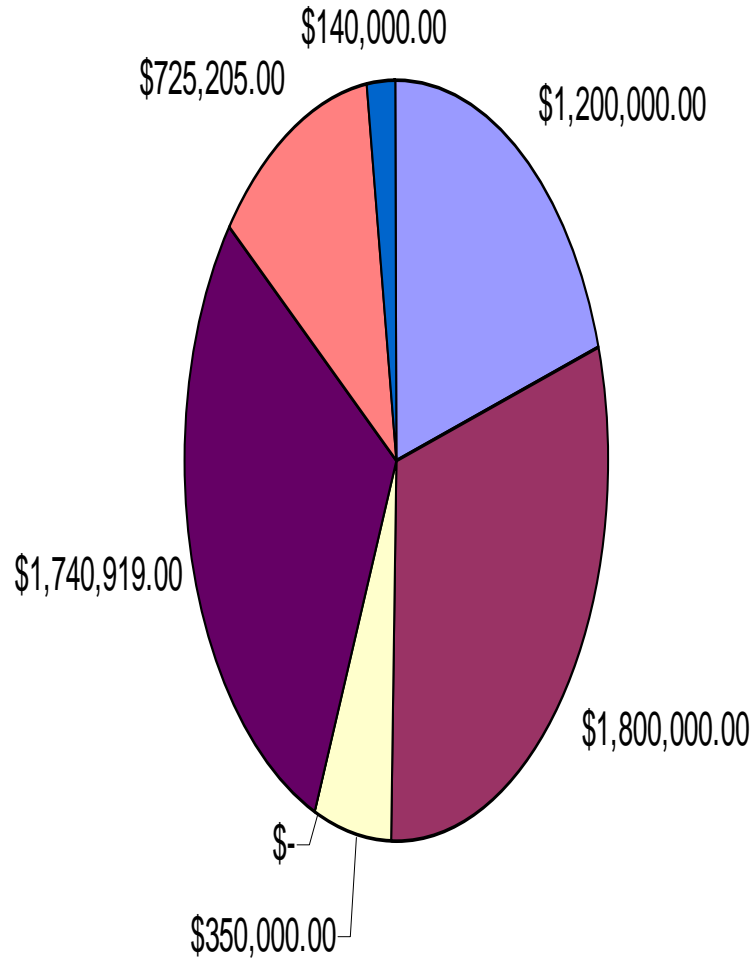
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# 2012 Program

- In August 2011 commission approved \$4.96 million
- Based on program needs program will receive an additional \$1.0 million from Infrastructure Sales Tax
- 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
    - Bicycle advisory committee review of plan
    - Incorporation of Complete Street Elements
  - Selection of diverse locations throughout the city

# 2012 Budget by Fund

**\$5,956,124**



- Bonded Debt
- Infrastructure / CIP Sales Tax Reserve Fund
- Sales Tax Reserve Fund
- CIP Reserve Fund
- General Fund
- Motor Fuels Tax Fund
- Storm Water Fund

# Complete Street Elements

- Bicycle Advisory Committee – Recommendations
  - Microsurface Monterey Way - Bike Lanes
    - Issue with on street parking will need to be resolved
  - Microsurface Connecticut – 12<sup>th</sup> to 19<sup>th</sup> - Bike Lanes
    - Issue with on street parking will need to be resolved

# Complete Street Elements

## “CIP”

- 23<sup>rd</sup> St. Bridge
  - Sidewalks both sides, Connection to multi-use path, Trail head, Illuminated
- KLINK – 6<sup>th</sup> St. (Bluff Dr. to Monterey Way)
  - Bus lane, Right turn lane at Kasold, Sidewalk SW corner Kasold and 6<sup>th</sup>
- Wakarusa
  - Bike Lanes, 6' Sidewalks both sides

# Traffic Calming “Speed Humps” 2011 potential projects

- Massachusetts, south of 23<sup>rd</sup>
- Winona
- Both areas will need HRC approval

# 2012 Program Projects

- Crack Sealing (In-House), Wide Joint Sealing, Polymer Patching
- Microsurfacing
- Concrete Rehabilitation (In-House and Contracted)
- Overlay –
  - Phase I
  - Phase II
- Infrastructure sales tax
  - North 2<sup>nd</sup> & North 3<sup>rd</sup> microsurfacing
  - Connecticut (6<sup>th</sup> to 15<sup>th</sup>) microsurfacing
  - Kentucky (9<sup>th</sup> to 19<sup>th</sup>) mill and overlay
- KLINK
  - 6<sup>th</sup> St. Iowa & Monterey Way
- Other projects
  - Downtown parking lot microsurface
  - Poehler Project
  - Wakarusa (Oread West to Corporate Center Dr) CIP
  - Bob Billings Parkway (West of Wakarusa)
  - In-house projects



# 2012 Pavement Management Program Project Time Lines

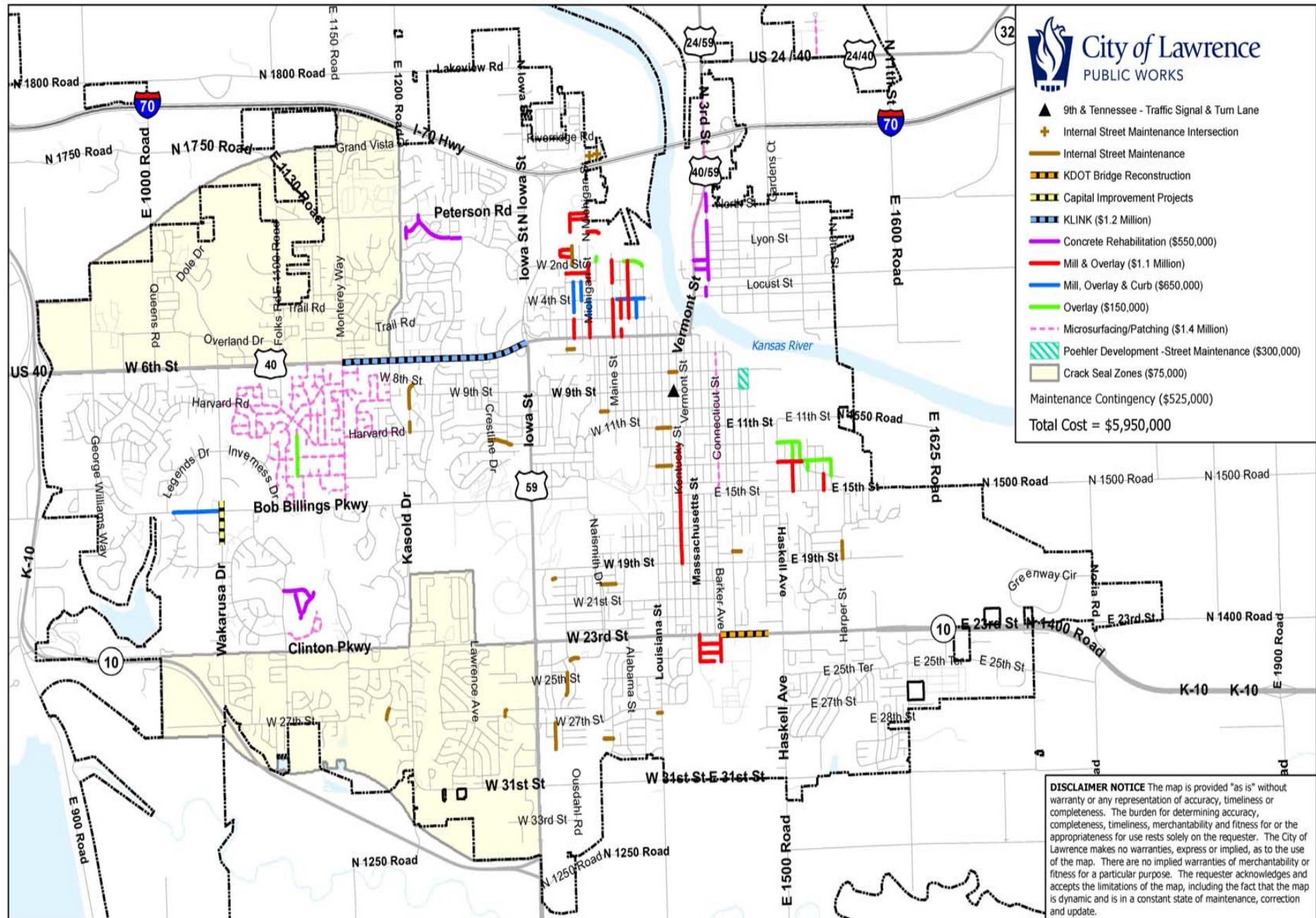
Project	Design Review Date	Set Bid Date	Bid Date	Award Date	Start Work Date	Completion Date	Remarks
<b>Contracted</b>							
Microsurface/Patching	Jan	Jan/Feb	Feb	Feb	Mar/Apr	July/Aug	Start work will depend on temperatures.
Overlay Program Phase 1	Jan/Feb	Feb	Mar	Mar	Apr	July/Aug	Start work will depend on temperatures.
Concrete Rehab	Feb	Mar	Mar/Apr	Apr	Apr/May	July/Aug	
Overlay Program Phase 2	Mar	Apr	May	Apr/May	May	Sept/Oct	
KLINK - 6th, Iowa to Monterey Way	Dec	Mar	Apr	May	May	Aug	This project will be completed in phase due to it's length
Wakarusa / Bob billings Pkwy- CIP	Jan	Apr	May	May	June	Aug	
Poehler							Street Maintenance - \$300k designated funding
Cycle 3 PCI - Phase 3					Nov 2011	October 2012	Phase 3 is 25% (third quarter) of the total street sections
<b>In- House</b>							
Crack seal					May	August	Start work will depend on temperatures. This years crack sealing will be done in-house with seasonal employees
Concrete Rehab					August	August	Juna Dr.
Incidental Concrete Patching for Overlay Phases					Mar/ Apr	May/June	
West 11th St					May/June	May/June	Intersection from Ohio alley to Tenn.
6th St Terr.					July	July	Paving
Johnson St					July	July	Paving
West 13th St					July	July	Paving Tenn to Mass
Princeton Blvd.					August	August	Base repair and patching
Mill and patch on concrete					July	July	Redbud Lane,W27th Terr,Cedarwood Ave, W24th St, W28th Ct, W28 Pl
Parking lot at Street Office					October	October	
Valley Gutter Repair					August	September	Peterson and Crestline, Bobwhite, Legends and Wakarusa

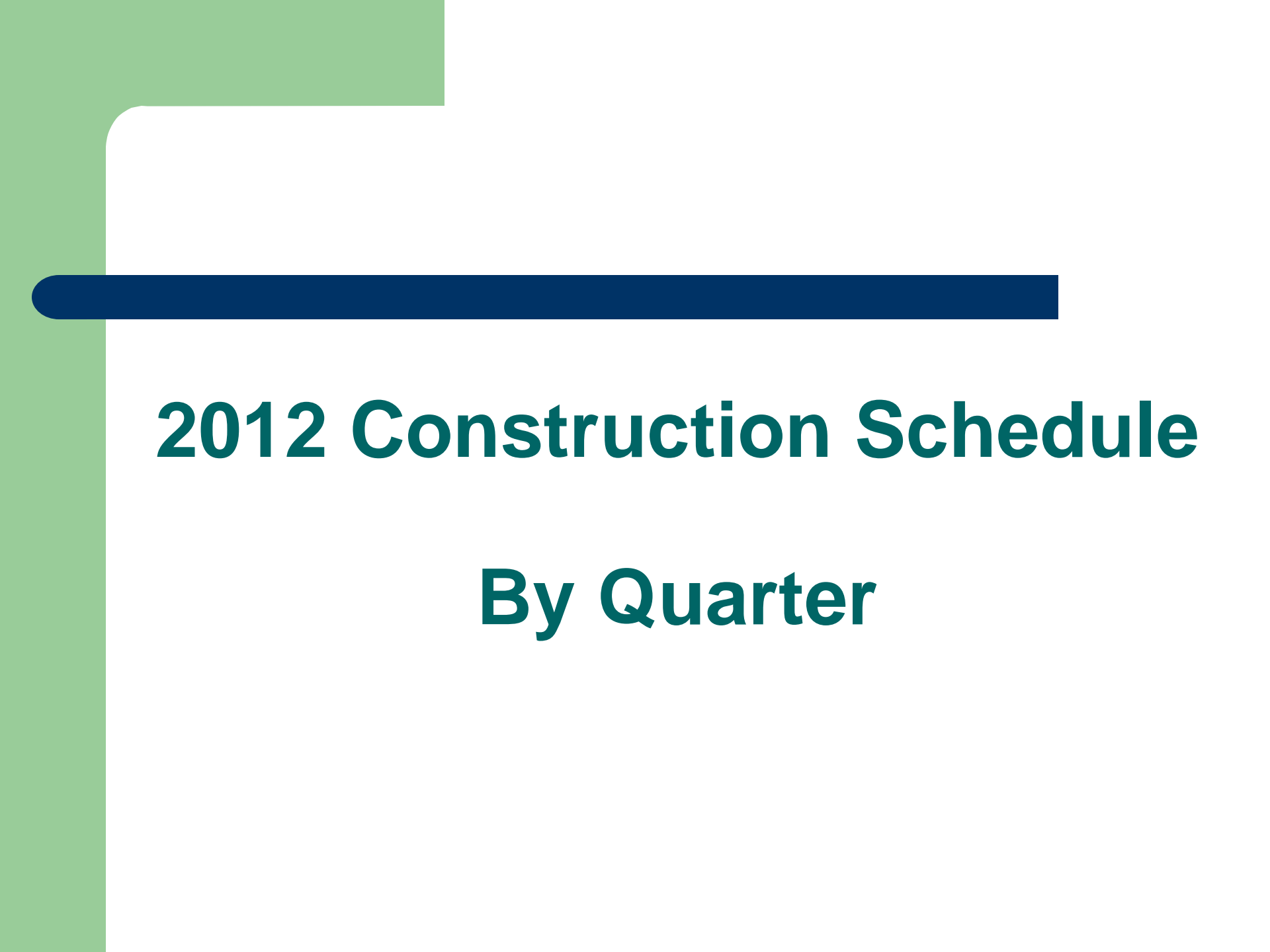


# 2012 Proposed Comprehensive Street Maintenance Program

0 0.5 1 Miles

Updated: 11/17/2011





# **2012 Construction Schedule**

## **By Quarter**

 KDOT  
 Public Works  
 Utilities



0      0.5      1  
Miles



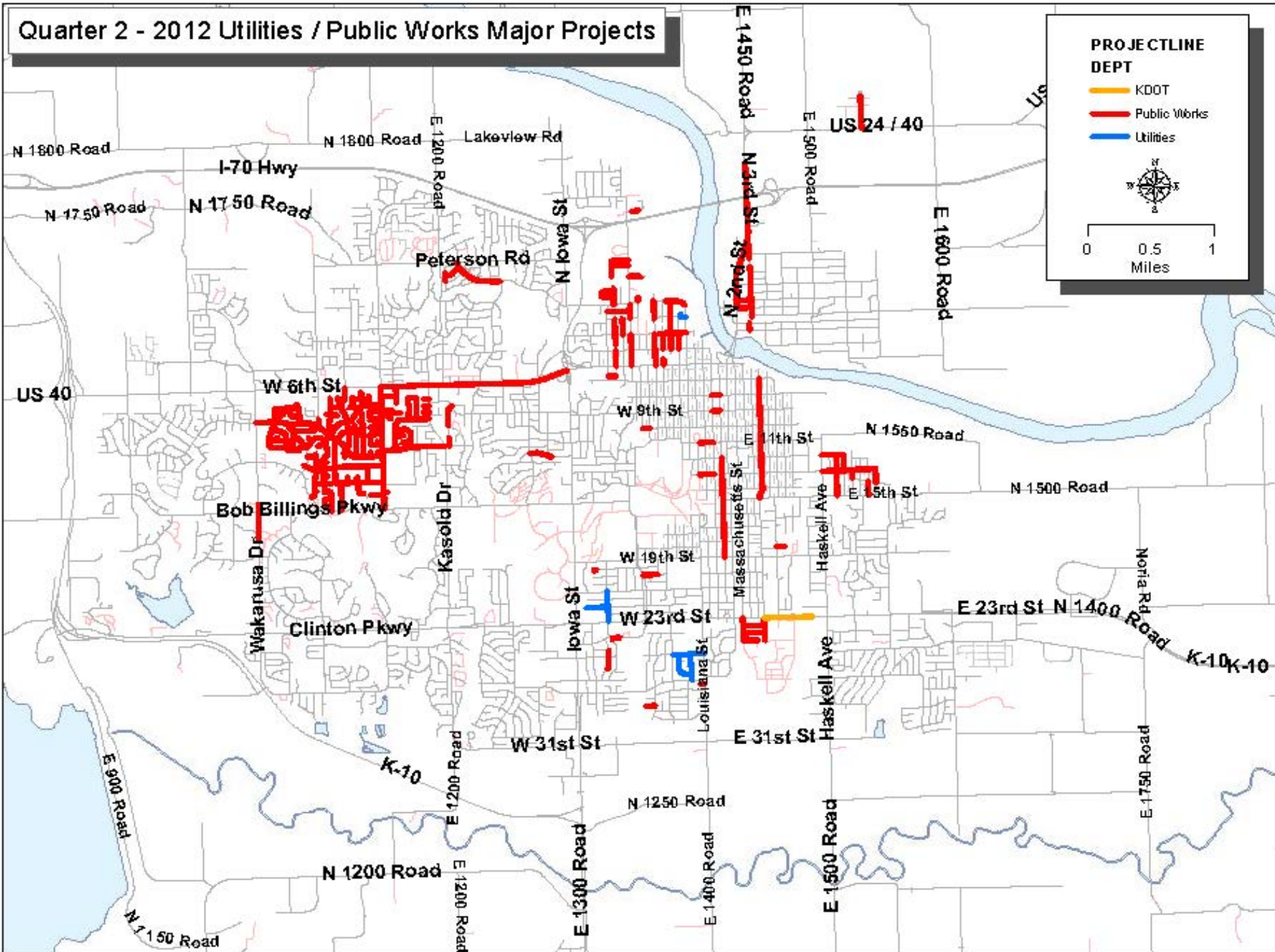
# Quarter 2 - 2012 Utilities / Public Works Major Projects

## PROJECTLINE DEPT

- KDOT
- Public Works
- Utilities



0 0.5 1  
Miles



**Quarter 3 - 2012 Utilities / Public Works Major Projects**

**PROJECTLINE DEPT**

- KDOT
- Public Works
- Utilities

0 0.5 1 Miles

 KDOT  
 Public Works  
 Utilities

0 0.5  
Miles



**Quarter 4 - 2012 Utilities / Public Works Major Projects**

This map displays major project locations in Des Moines, IA, categorized by department:

- KDOT (Yellow):** Projects include improvements on E 1450 Road near N 3rd St and W 23rd St.
- Public Works (Red):** Projects are located along various streets including Peterson Rd, Clinton Pkwy, W 31st St, and E 1500 Road.
- Utilities (Blue):** Projects are situated at intersections such as Lakeview Rd, W 9th St, Haskell Ave, and E 1500 Road.

The map includes a legend, a north arrow, and a scale bar indicating distances up to 1 mile. Key roads shown include I-70 Hwy, US 40, US 24 / 40, and numerous local streets like N 1800 Road, N 1750 Road, W 6th St, Bob Billings Pkwy, Kasold Dr, W 9th St, W 19th St, W 23rd St, W 31st St, E 1200 Road, E 1300 Road, E 1400 Road, E 1500 Road, E 1600 Road, E 1750 Road, N 1200 Road, N 1500 Road, N 1550 Road, N 1400 Road, K-10, and Noria Rd.

PROJECTLINE  
DEPT

 KDOT

Public Works

## Utilities



0      0.5      1  
Miles

# What's New

- Microsurfacing - Arterials
- In-House crack sealing continuing
  - 2011 cost saving to program \$70K
- Street Patching
  - Polymer patching
  - Spray injection patching
  - Concrete patching

# Questions?

