

City of Punta Gorda

Paving Program Analysis

Public Works
April, 2014

Inventory

115.5 Miles of Roads

(City Maintained – Excludes County and FDOT)

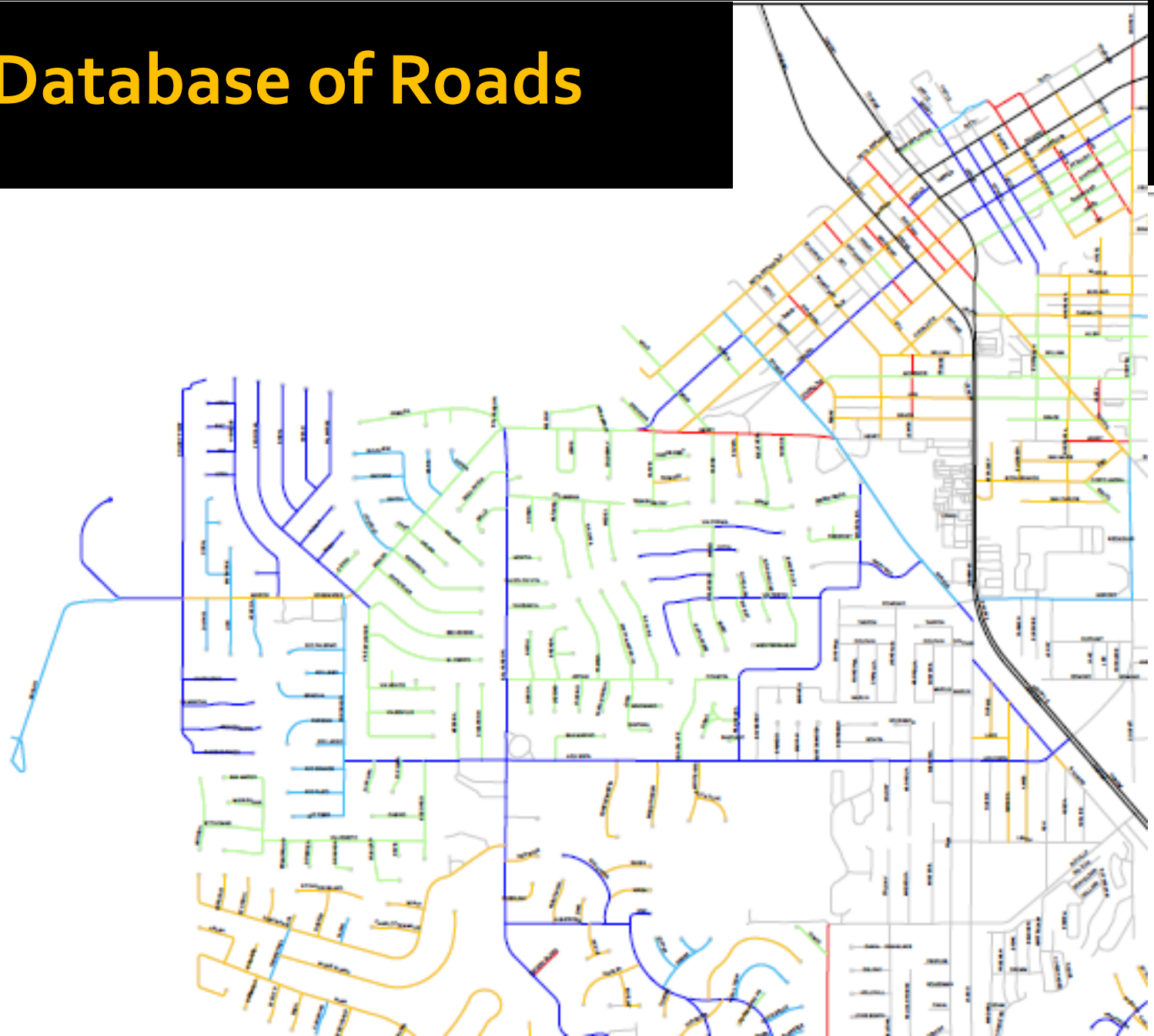
- 2.25 Miles Brick
- 113.25 Miles Asphalt

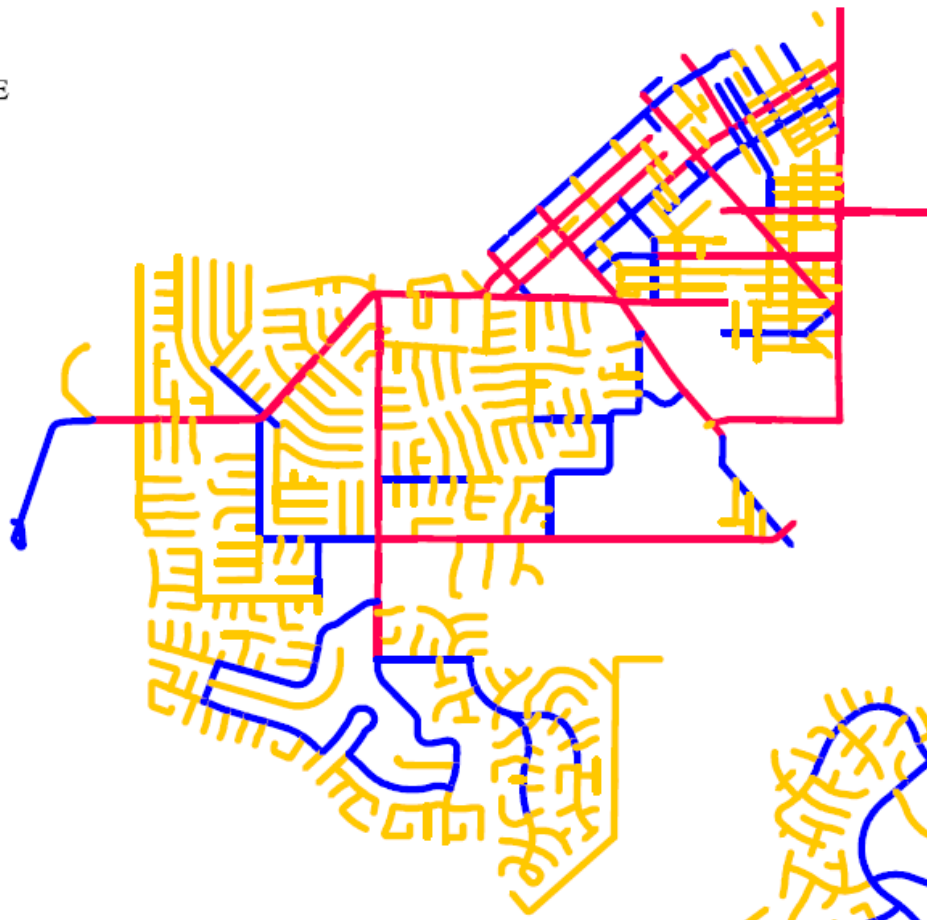
GIS Database of Roads



Legend

- 1970 - 1984
- 1985 - 1993
- 1994 - 2001
- 2002 - 2007
- 2008 - 2013





ROAD CLASSIFICATION for LIFE EXPECTANCY

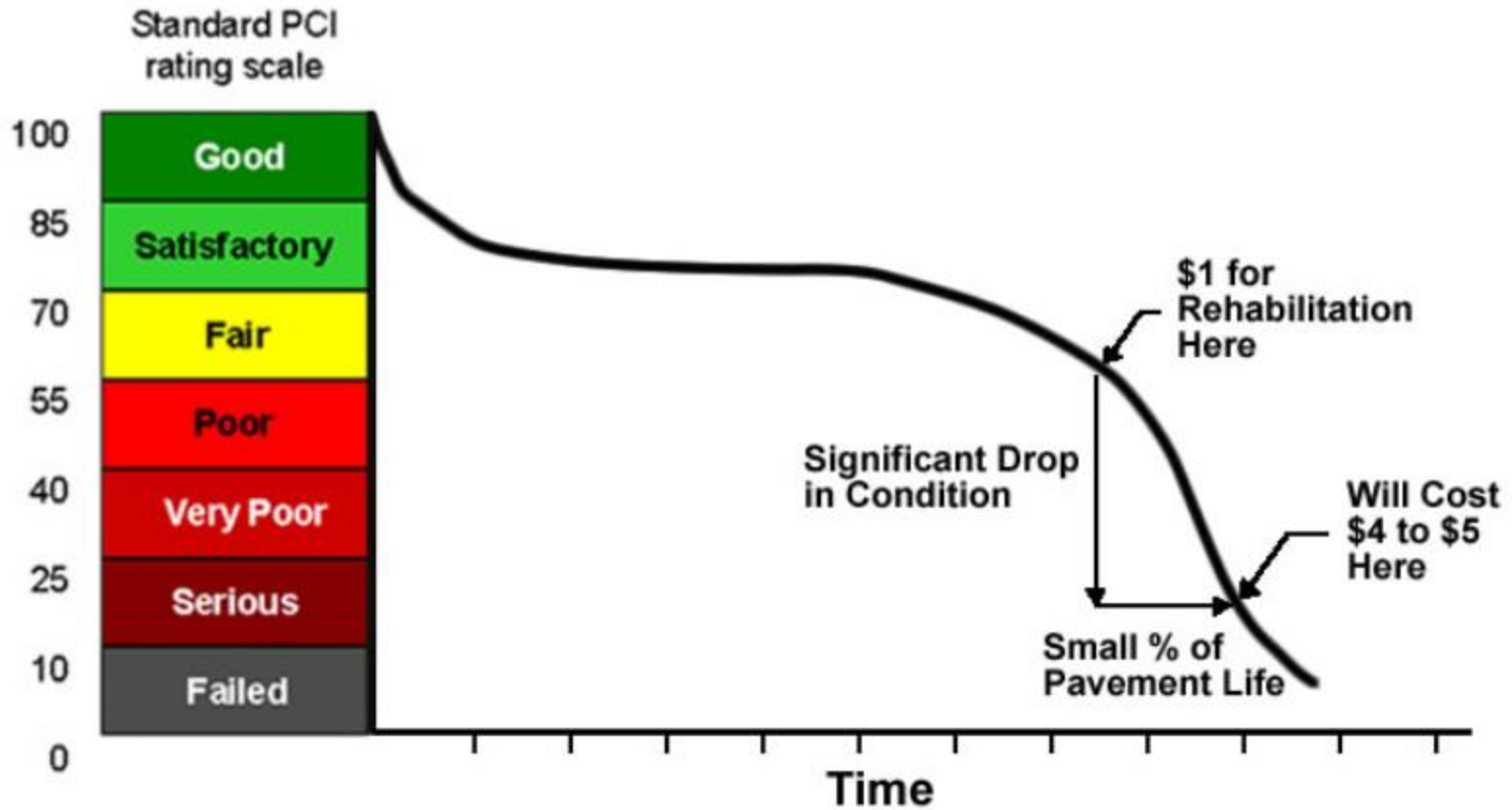


- Residential (63%)
- Minor Collectors (19%)
- Major Collectors (18%)

Pavement Management Systems - PMS

- Levels of Analysis
 - Windshield Survey
 - Detailed Visual Inspection
 - Laser Scanning / Computer Modeling
 - Testing
- Maintenance Strategies
 - Squeaky Wheel
 - Worst First
 - Ahead of the Life Cycle Curve

Life Cycle of Pavement



Maintenance Costs

Resurface 2 Lane Residential Road
\$104,000 per Mile

Resurface 2 Lane Minor Collector Road
\$110,000 per Mile

Resurface 2 Lane Major Collector Road
\$124,000 per Mile

Averages for planning purposes, can vary based on deterioration of road, curbs, striping, pavement width, utility adjustments, etc.

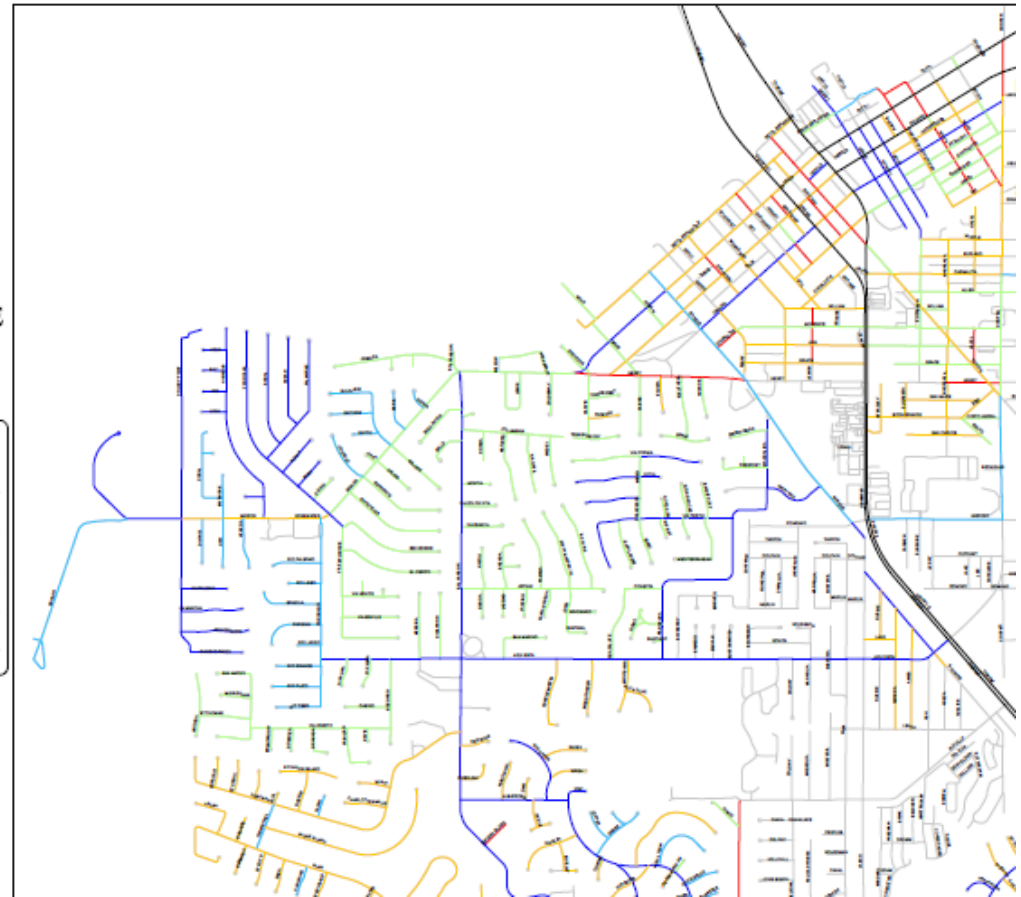
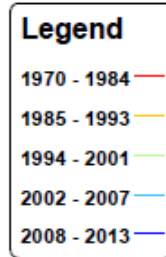
Includes 2 applications of Rejuvenation
(years 1-2 & years 5-7)

Pavement Inventory – Average Age

Residential
14.9 years

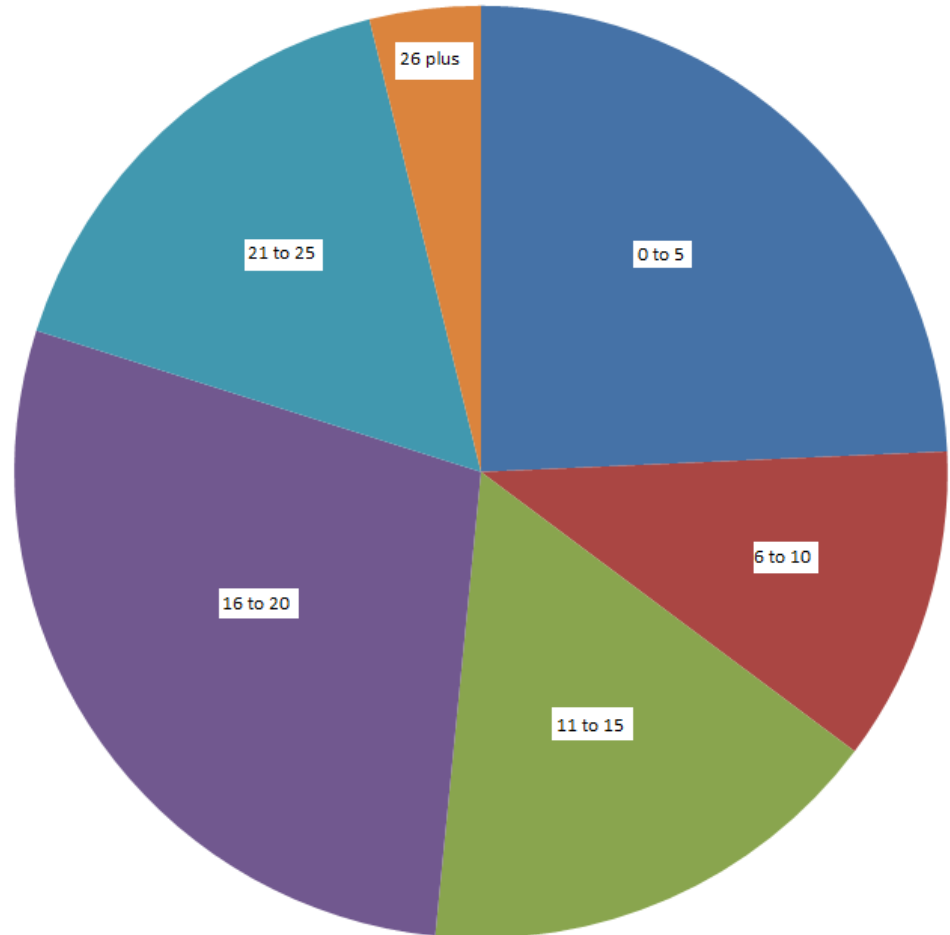
Minor Collectors
11.5 years

Major Collectors
11.7 years



Age of Pavement

YEARS	MILES
0 to 5	27.45
6 to 10	12.34
11 to 15	18.46
16 to 20	32.02
21 to 25	18.36
26 plus	4.35



Rejuvenation – Yes or No?

Road Class	Miles	with Rejuvenation			without Rejuvenation		
		Expctd Life	Maint. cost per MILE	Maint. cost per YEAR	Expctd Life	Maint. cost per MILE	Maint. cost per YEAR
Residential	71.3	23	\$104,000	\$322,615	18	\$80,000	\$317,100
Minor Collector	21.5	20	\$110,000	\$118,346	15	\$86,000	\$123,367
Major Collector	20.4	15	\$130,000	\$176,670	10	\$106,000	\$216,081
Total				\$617,631			\$656,548
		AVG LIFE		AVG COST PER MILE	AVG LIFE		AVG COST PER MILE
		21.2		\$5,502	16.1		\$5,849



Rejuvenation gives us 6% reduction in cost

Life Cycle Cost Analysis – Assumptions

- Residential Street

$\$104,000 \text{ mile} / 23 \text{ Years} = \$4,521 \text{ per year per mile}$

- Minor Collector

$\$110,000 \text{ mile} / 20 \text{ Years} = \$5,500 \text{ per year per mile}$

- Major Collector

$\$130,000 \text{ mile} / 15 \text{ Years} = \$8,666 \text{ per year per mile}$

Life Cycle Cost Analysis

71.3 miles x \$4,521 (Residential)

+

21.5 miles x \$5,500 (Minor Collectors)

+

20.4 miles x \$8,666 (Major Collectors)

Annualized Cost for Road Maintenance

= \$617,500

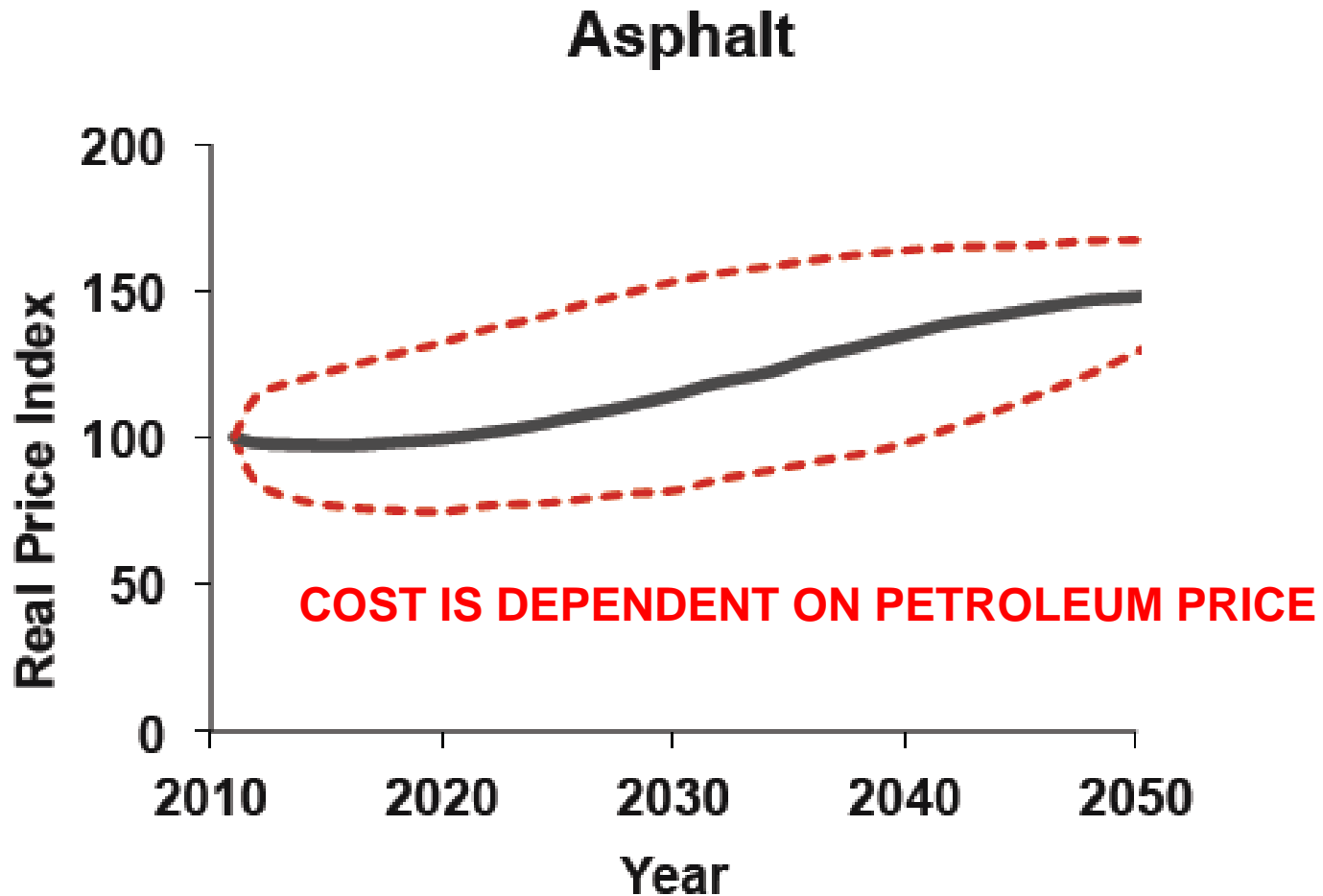
(based on current asphalt pricing)

Miles Per Year to be Resurfaced

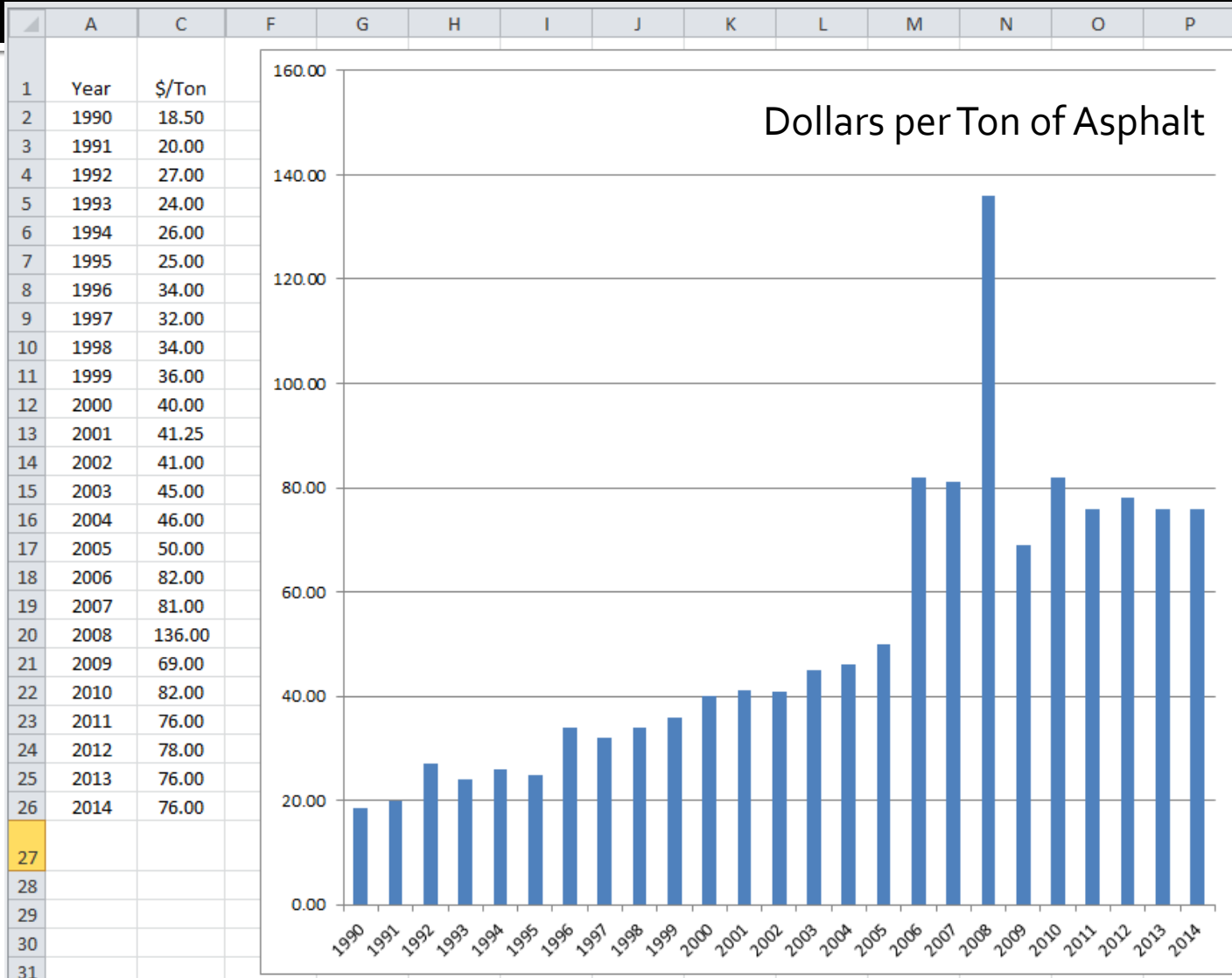
113.25 Total Miles / 21.2 Years Average Life

= 5.35 should be resurfaced each year

Price of Asphalt Predicted to Rise Faster than Inflation



Asphalt Price Over the Years

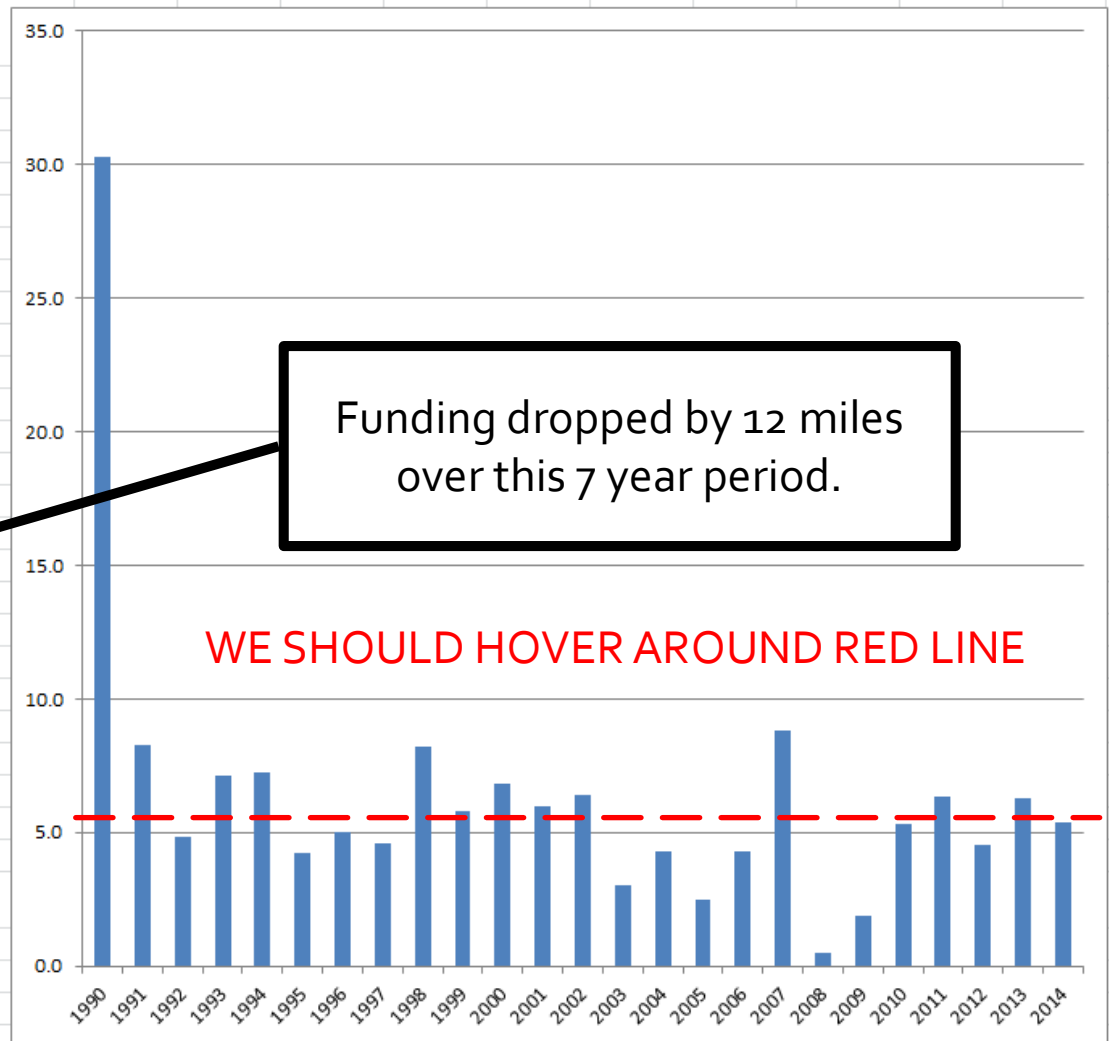


Past Funding Levels



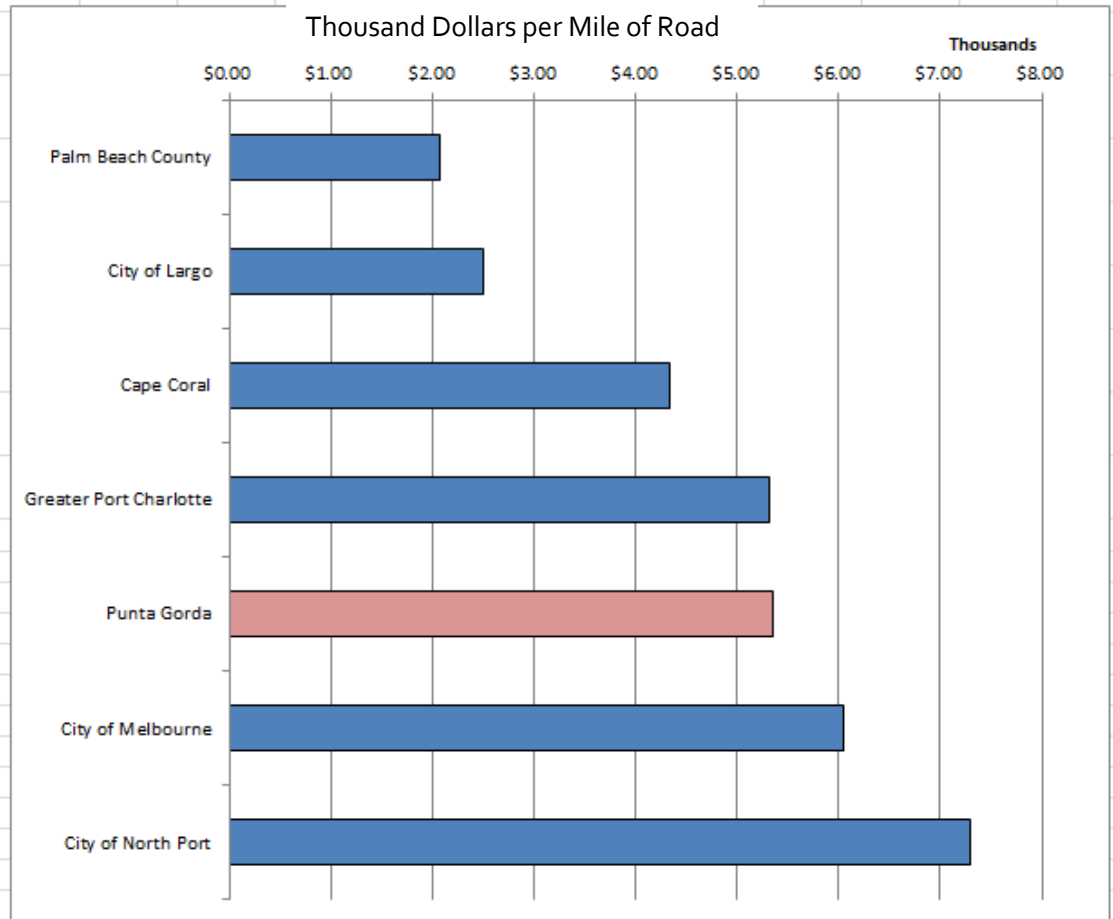
Past Funding Levels

Year	Budget	\$/Ton	\$/Mile	Miles Budgeted
1990	\$822,320	18.50	\$27,133	30.3
1991	\$242,342	20.00	\$29,333	8.3
1992	\$192,515	27.00	\$39,600	4.9
1993	\$249,985	24.00	\$35,200	7.1
1994	\$277,523	26.00	\$38,133	7.3
1995	\$155,530	25.00	\$36,667	4.2
1996	\$249,295	34.00	\$49,867	5.0
1997	\$215,442	32.00	\$46,933	4.6
1998	\$410,760	34.00	\$49,867	8.2
1999	\$305,261	36.00	\$52,800	5.8
2000	\$400,694	40.00	\$58,667	6.8
2001	\$360,881	41.25	\$60,500	6.0
2002	\$385,703	41.00	\$60,133	6.4
2003	\$201,278	45.00	\$66,000	3.0
2004	\$289,810	46.00	\$67,467	4.3
2005	\$182,919	50.00	\$73,333	2.5
2006	\$514,232	82.00	\$120,267	4.3
2007	\$1,047,845	81.00	\$118,800	8.8
2008	\$101,586	136.00	\$199,467	0.5
2009	\$193,625	69.00	\$101,200	1.9
2010	\$640,328	82.00	\$120,267	5.3
2011	\$710,677	76.00	\$111,467	6.4
2012	\$520,475	78.00	\$114,400	4.5
2013	\$700,603	76.00	\$111,467	6.3
2014	\$600,000	76.00	\$111,467	5.4



Funding Level Comparison

Place	Budget	Miles	\$/Mile
Palm Beach County	\$7,000,000	3,377	\$2,072.85
City of Largo	\$350,000	140	\$2,500.00
Cape Coral	\$6,500,000	1500	\$4,333.33
Greater Port Charlotte	\$3,500,000	659	\$5,311.08
Punta Gorda	\$600,000	112.25	\$5,345.21
City of Melbourne	\$1,750,000	289	\$6,055.36
City of North Port	\$6,000,000	822	\$7,299.27



Funding levels can be adjusted but the cost doesn't change

Paving budgets are often first to feel cuts

Funding Cuts – It's Everywhere

SunSentinel

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Palm Beach County road resurfacing on hold

Victim of county budget cuts, roads expected to get bumpier

October 2, 2011 | By Angel Streeeter, Sun Sentinel

There are bumpy roads ahead in Palm Beach County.

To help cover a budget shortfall, the county has stopped resurfacing roads and won't do any routine repaving project in the 2012 fiscal year, either.

Instead, the county will do only emergency road repairs, spending \$500,000 to patch up roads as needed.

That's a dramatic decline from years past, when Palm Beach County spent \$6 million to \$7 million a year resurfacing county roads.

But in 2010, that dropped to \$3 million. In the 2011 fiscal year, the county spent \$400,000 on resurfacing projects before stopping the [program](#) in April to plug budget holes.

This comes as many county roads are about due for a touch up. Many were built in the mid-1990s to early 2000s.




[Drivers](#) now can look forward to more potholes and cracks expected to develop as road maintenance is deferred.

"I don't understand how we're going to get away with not doing this," said Martin Weissman, who lives in the Aberdeen community west of Boynton Beach.

For a few years now, residents there have been asking the county to repave roads in their neighborhood.

They also were part of a larger group lobbying to prevent the county from closing the Palm Beach County Sheriff's [Office](#) substation in their area.

Recommend

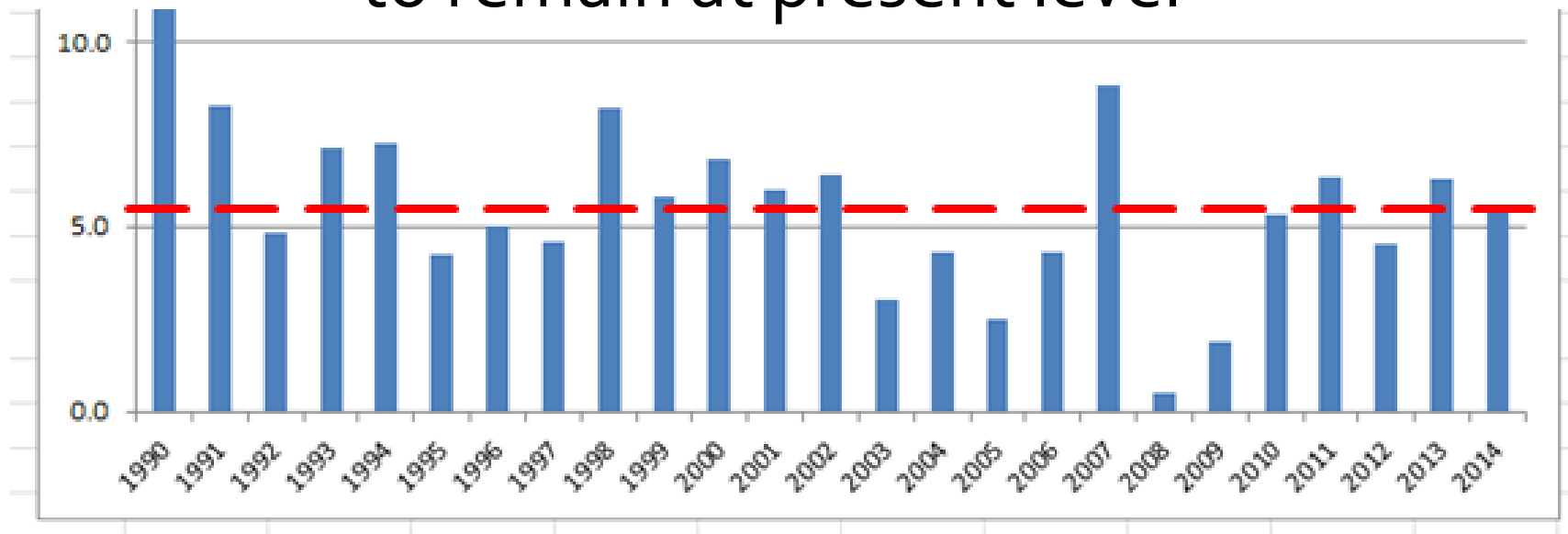
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Recommended Annual Budget

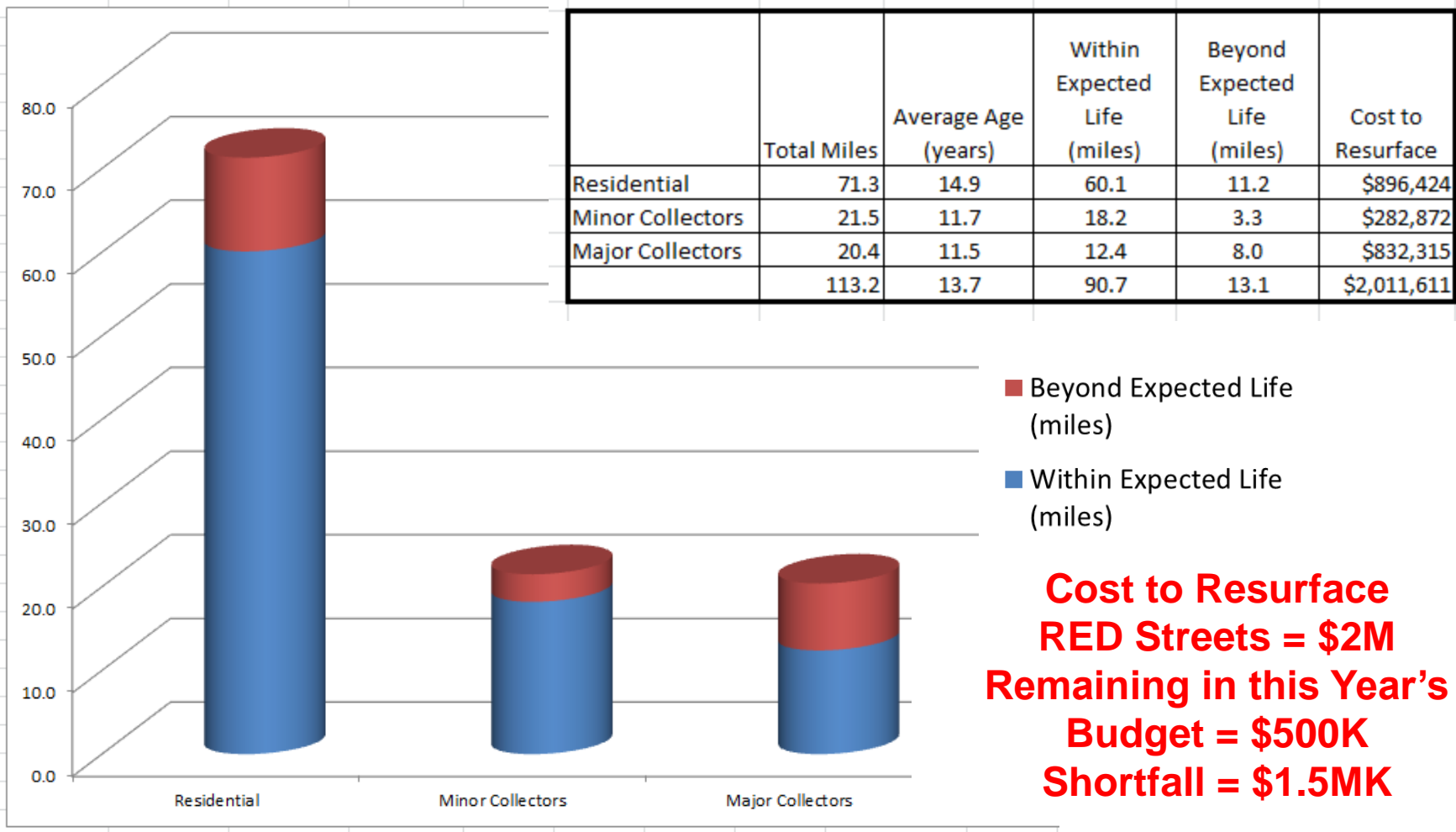
Flat Line Program

Resurfacing & Rejuvenation

\$617,500 Annual Program Cost
to remain at present level



Current Needs



Budget Wish List

- Budget additional \$17,500 annually to meet \$617,500 annualized cost (Flat-line Scenario)
- Phase in additional \$132,500 for foreseeable future years to make up for funding deficit of past years (Suggested Annual budget of \$750,000)
- Revisit funding level annually based on asphalt pricing

Five Years from Now

5 yrs No Change

	Total Miles	Within Expected Life (miles)	Beyond Expected Life (miles)	Funding Deficit
Residential	71.3	59.7	11.6	\$930,293
Minor Collectors	21.5	18.1	3.4	\$293,559
Major Collectors	20.4	12.1	8.3	\$863,762
	113.2	89.9	23.3	\$2,087,613

5 years Aggressive

	Total Miles	Within Expected Life (miles)	Beyond Expected Life (miles)	Funding Deficit
Residential	71.3	63.4	7.9	\$632,448
Minor Collectors	21.5	19.2	2.3	\$199,573
Major Collectors	20.4	14.8	5.6	\$587,218
	113.2	97.3	15.9	\$1,419,238

