Ways & Means Committee Minutes

Honorable Council
City of Newark, Ohio
April 3, 2014

The Ways and Means Committee met Monday, March 31, 2014 in Council Chambers following the Economic Development Committee, with these members in attendance:

Ryan Bubb, Chair Doug Marmie
Jeremy Blake

We wish to report:

Mr. Bubb- the purpose of tonight's discussion is for our City Engineer Brian Morehead to discuss paving conditions for the upcoming year in the City of Newark and potentially future years. There is no legislation in front of us this evening, it is merely just discussion.

There was a Power Point presentation to go along with his discussion.

Brian Morehead- I am here before you tonight to present some of the information that we gathered a couple of years ago actually with a pavement management system analysis. The results from that are still applicable today. Then I also want to present to you where we have been in the last 20 years funding and mileage wise just to show you how that matches up with what the pavement analysis told us. The goal of a pavement management system is to give a reasonable accurate model of the roadway system then identify strategies to maintain the system to the level that we decide upon.
So the first part of this was to collect the data on the existing streets. The things that you would look at are the pavement distresses (surface condition), pavement roughness/smoothness; those conditions would generally calculate what the overall pavement quality would be. The Surface Distress Index is what we would come up with based on the amount of stresses on the street such as patching, rippling, pot holes, cracks etc… They drove around in a van on all the streets in the city looking for all these types of distresses. They had several cameras and measuring devices on it then cataloged them in a large database.
The pavement that you put down starts out at excellent of course then after about 40% of its' life it starts deteriorating. Then when you get further out the percentage of its' life starts dropping quickly. The idea is to try to keep pavement from getting in the condition where they are dropping on that drastic fall. All of the scanning that we did and the calculation went into what is known as a (PCI) Pavement Condition Index. So when we

look at Newark specifically 77.51% of the streets are ACP, asphalt, concrete and pavement. Another .67% of the streets are actually concrete. Basically 78% of the streets in Newark are residential in nature and 77.1 of them are asphalt. A large percentage of our streets are in a 40-50 range. Basically when you average everything out Newark sits on about a 60 on a PCI index. That is pretty much average of what they saw in other communities. There is also a high percentage that is below that 60 range that start trending down towards the bottom. They found that we have several streets about 14% that are in the poor to very poor range, they are past the point of doing any simple resurfacing or crack sealing or micro surfacing, they are what's known as a reconstruction back log. To maintain our system at 59.5 PCI than IMS tells us that we should be budgeting 2-2.2 million a year. If we want to raise it to 65 than we would be looking at budgeting 3 million a year in order to do that. These numbers don't include inflation, ADA compliance with installing curb ramps and it doesn't include any concrete repairs to curbs or other miscellaneous repairs. It also doesn't include any growth that we may incur.

He then discussed the license plate permissive tax increases and that they basically covered the raise in the cost of asphalt, the cost to pave a mile of road being different based on whether it is a resident street, collector or arterial and then the funding sources that the city has and has used over the last 20 years.

Mr. Marmie- I have noticed that the State of Ohio is being really proactive in clearing trees to make sure that there isn't any shade on the roads because that deteriorates asphalt at a more rapid pace. We have legislation on our books that states no tree should be over our streets. Are there any plans to be more proactive on that? I am assuming that the State of Ohio has figured out that it is it costing them less to do that because they are chopping a lot of trees down.
Brian Morehead- when trees are cleared out they are good for probably 30 years or so. We don't have such a plan. To institute something like that takes money. We send out letter to property owners asking them to trim the trees. Our Traffic Control employees will go out on an as needed basis when stuff needs trimmed around stop signs or a traffic light but a wide spread thing like you are talking about would definitely have to be contracted out.
Mr. **Blake**- Brian just a clarification on your chart, on your local funds, I understand CI is capital improvements, SGT is State Gas Tax, LPPT is license plate permissive tax but what is TI?
Brian Morehead- I don't have a TI fund it must have gotten in there by mistake. One other thing that I didn't mention on there is match. On these ODOT projects we have a match. Sometimes the match is as little as 20% but sometimes as high as 50% it depends upon the amount of funding that we received through LCATS. Back in the earlier days it was pretty much always 80-20, we would pay 20% and could get Federal funding on the 80% side but now with more communities asking for those funds we get what they have in the budget that they can give us. I can't turn down $350,000.00. I have to make use of it somewhere. We scale down the project to make it fit. We have to take advantage of the Federal funding when we can. To have a match quite often I use our license plate

permissive tax because that is deposited monthly and I can project and manage how much the balance is in that account from a year to year basis. With CDBG and capital improvements I don't have that luxury. Our State Gas Tax is now basically going to the operation of the Street and Traffic Control Department.

Director Mauter- Brian I didn't see anything on your report about weight control. Is there anything that we can do to limit the amount of weight that goes does some of these collector and arterial streets to reduce the load on those streets?

Brian Morehead- they evaluated the structural capacity of those streets most of the arterials are built fine, the collectors have issues in places that need to be repaired, the residential streets typically there are a lot of those that don't meet the structural capacity so when you put a lot of heavy traffic on some of the older residential streets they are not built for that. They didn't really address any weight restrictions on the streets. I think that more of our problem over the years has been the traffic volumes as opposed to the loads. Newark has grown quite a bit so we higher volumes. When I first started here about 25 years ago I can remember taking traffic counts on North 21st St south of Deo Drive we were in the 15,000 cars a day range but now we are put to 35,000-40,000. Hopefully we will have more to come in the coming weeks.

Ryan Bubb, Chair

Results of Pavement Management Analysis

CITY OF NEWARK, OHIO

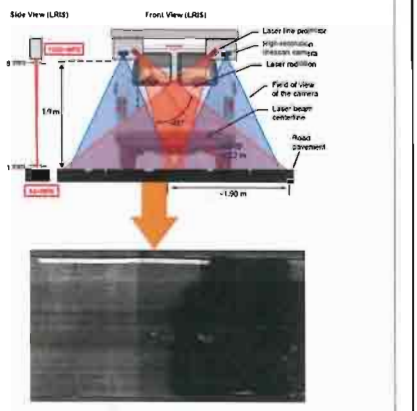
The goal of the Pavement Management System is to give a reasonably accurate model of the roadway system, then identify strategies to maintain the system to the level decided upon by the owner.

Data Collection Activities

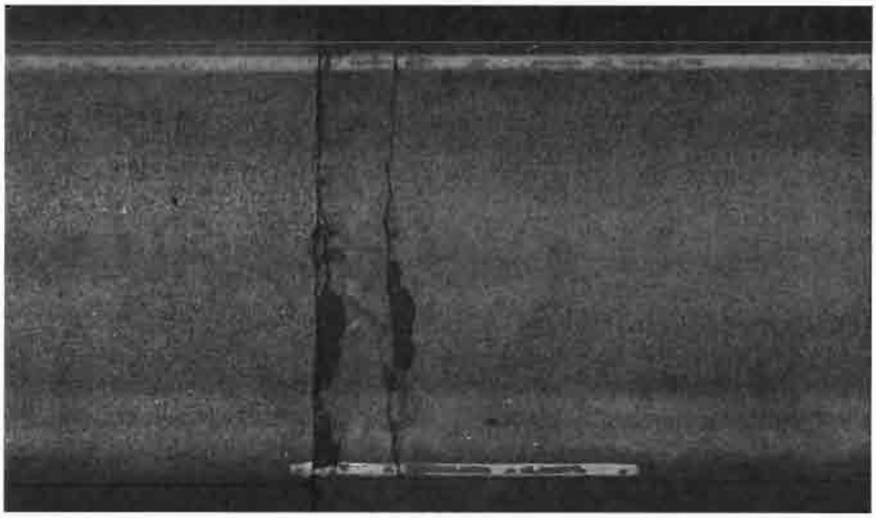
- Pavement Distress (Surface Condition)
- Pavement Roughness/Smoothness Acceptance
- Overall Pavement Quality

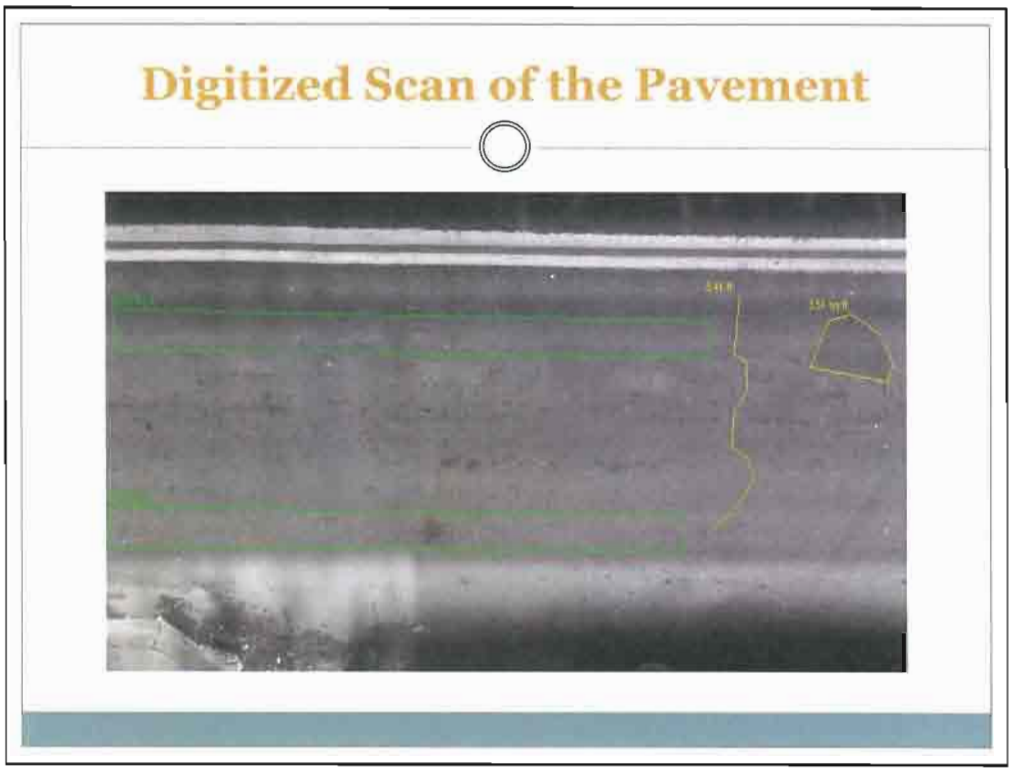
Pavement Distress

- Surface Distress Index (SDI) by street section
- Surface Distress Rating System is a score that takes into account:
  - Patching (ACC)
  - Rippling & Shoving
  - Raveling & Streak
  - Flushing & Bleeding
  - Deformation & Distortions
  - Excessive Crown
  - Progressive Edge Cracking
  - Alligator Cracking
  - Potholes
  - Map Cracking
  - Longitudinal Cracking
  - Transverse Cracks
  - Wheel Track Rutting



Scan of Pavement and its Defects



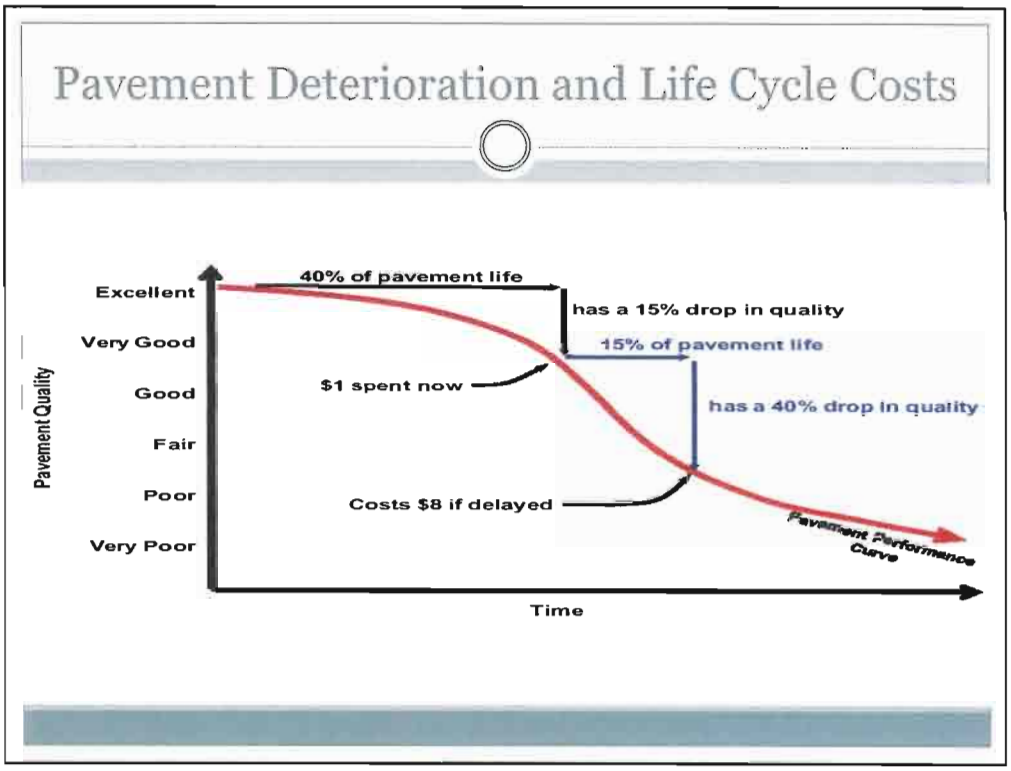


From the roadway scans, can calculate the percentage of the roadway segment needing repairs or having distresses, and the types and severity of the distresses.

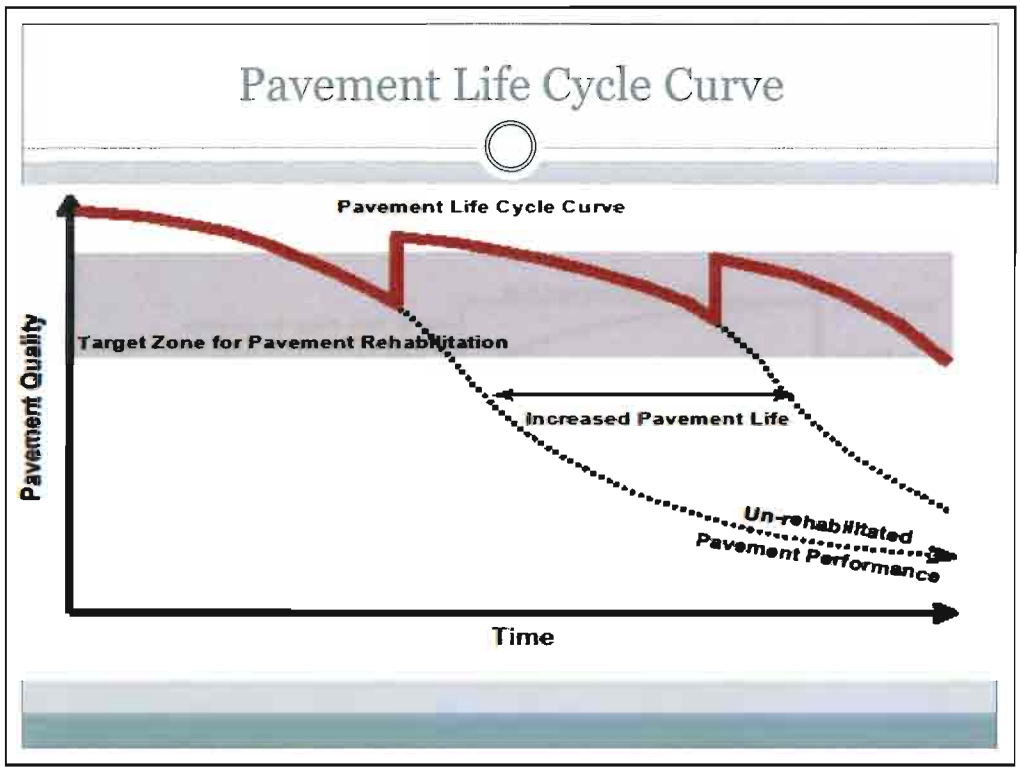
Overall Pavement Quality

- The Overall Pavement Quality can be defined by taking into account the Distress and Roughness.
- Excellent representation of pavement condition to predict the performance accurately.
- Enhances the process of optimizing life cycle costs.

$$PQI = \sqrt{(SDI)(RCI)}$$



For each street, the shape of the curve (rate of deterioration) is dependent on the strength of the roadway structure and the traffic loading.



Gray area is performing maintenance such as crack seals and slurry seals, at much less cost than 1.5" asphalt overlays, which is what begins in the area in white.

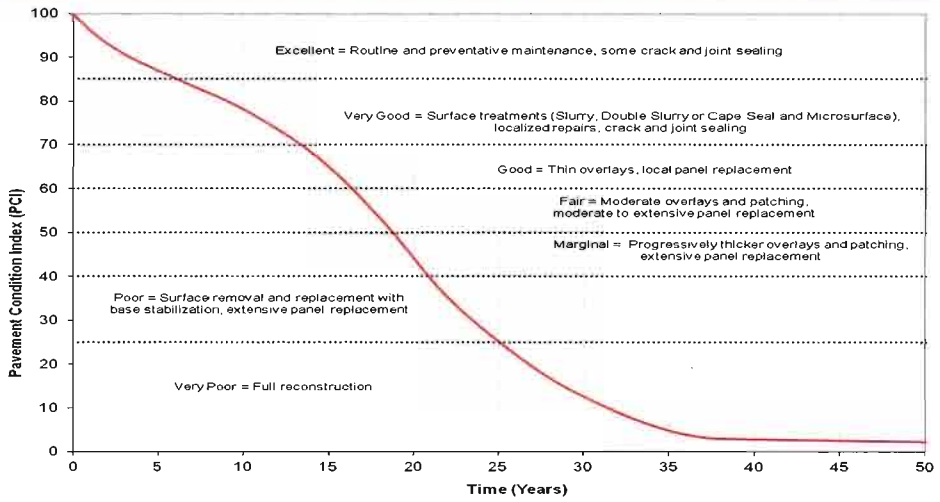
Understanding the PCI Score

Figure 5 – Understanding the Pavement Condition Index Score

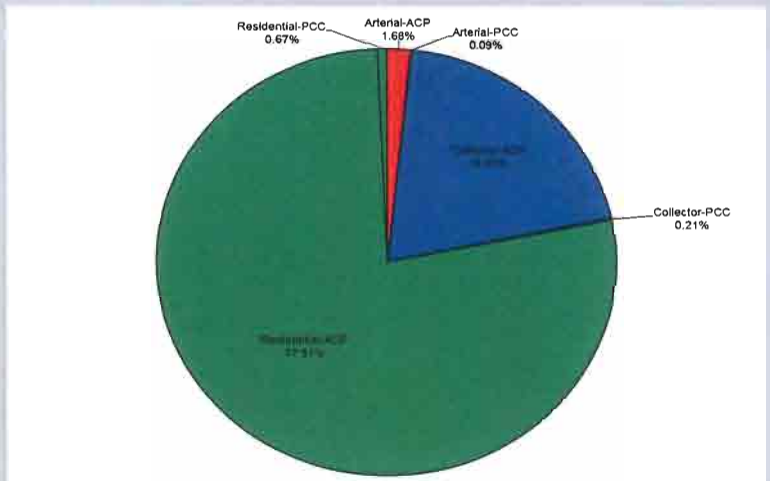
The general idea of what these condition levels mean with respect to remaining life and typical rehabilitation actions is included in the following table:

PCI Range	Description	Relative Remaining Life	Definition
85 – 100	Excellent	15 to 25 Years	Like new condition – little to no maintenance required when new, routine maintenance such as crack and joint sealing.
70 – 85	Very Good	12 to 20 Years	Routine maintenance such as patching, crack sealing with surface treatments such as slurries or microsurfacing.
60 – 70	Good	10 to 15 Years	Heavier surface treatments and thin overlays. Localized panel replacements.
40 – 60	Fair to Marginal	7 to 12 Years	Progressively thicker overlays with localized repairs. Moderate to extensive panel replacements.
25 – 40	Poor	5 to 10 Years	Sections will require very thick overlays, surface replacement, base reconstruction and possible subgrade stabilization.
0 – 25	Very Poor	0 to 5 Years	High percentage of full reconstruction.

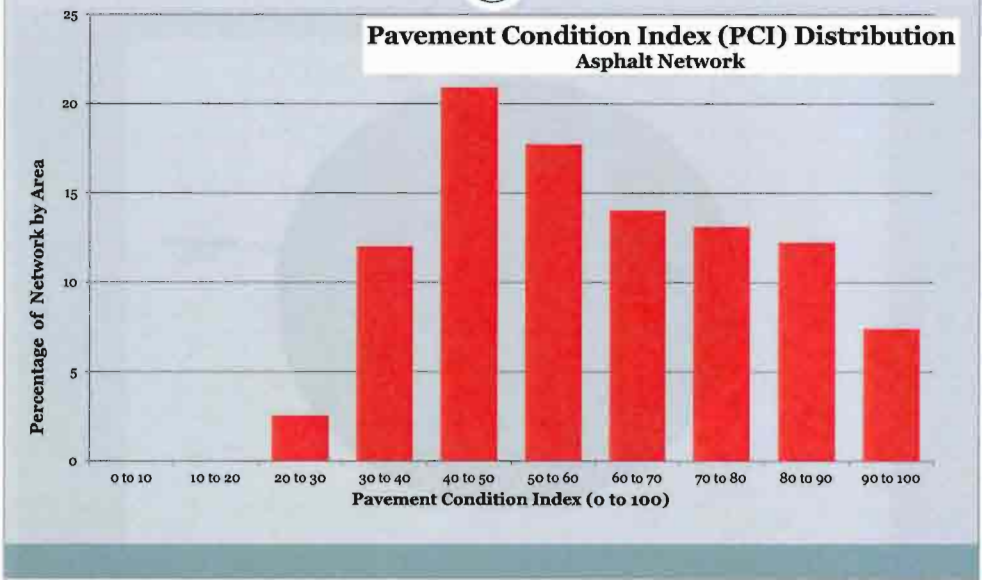
Pavement Condition Index Score

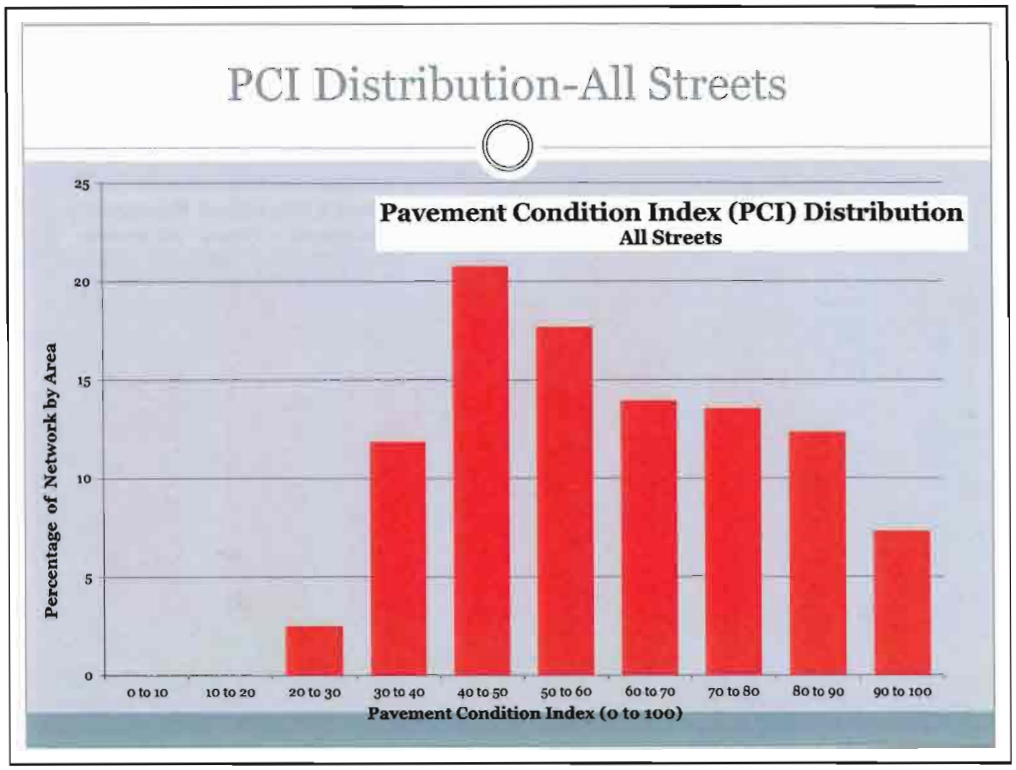


Network Split by Functional Classification

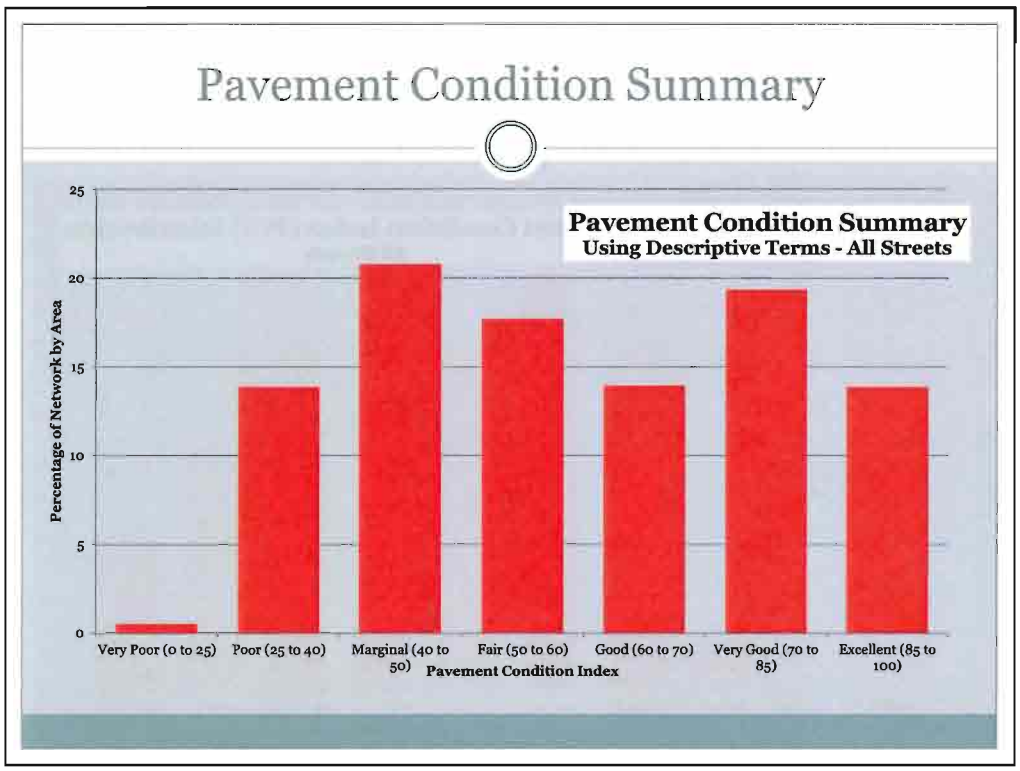


PCI Distribution-Asphalt Network

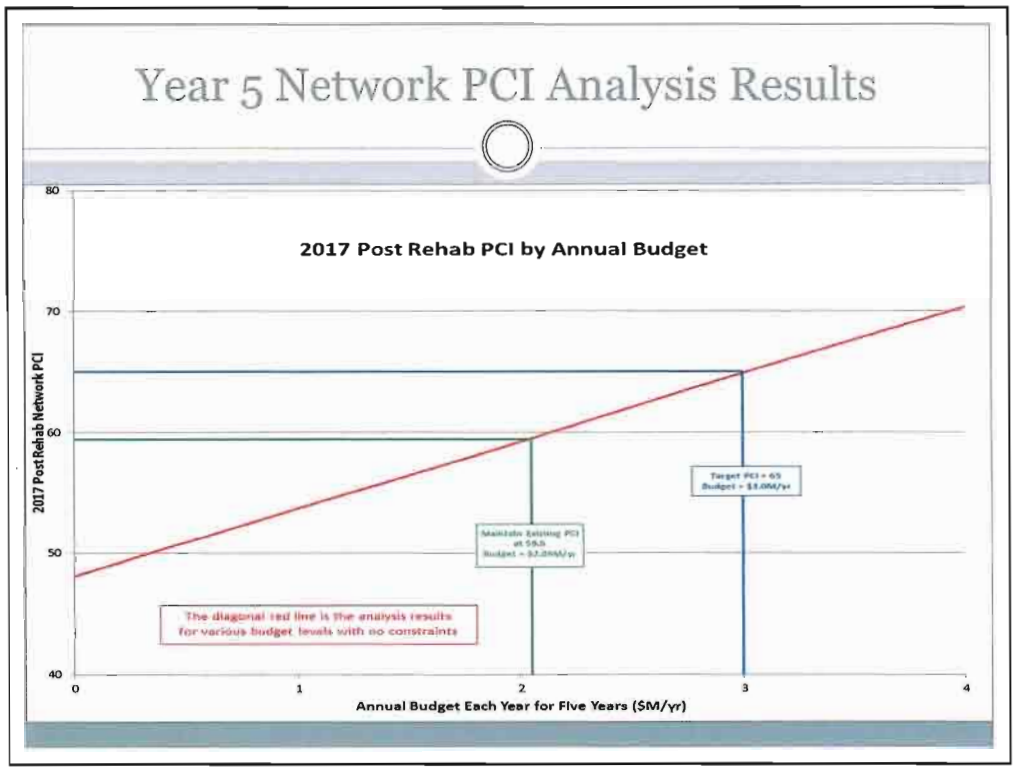




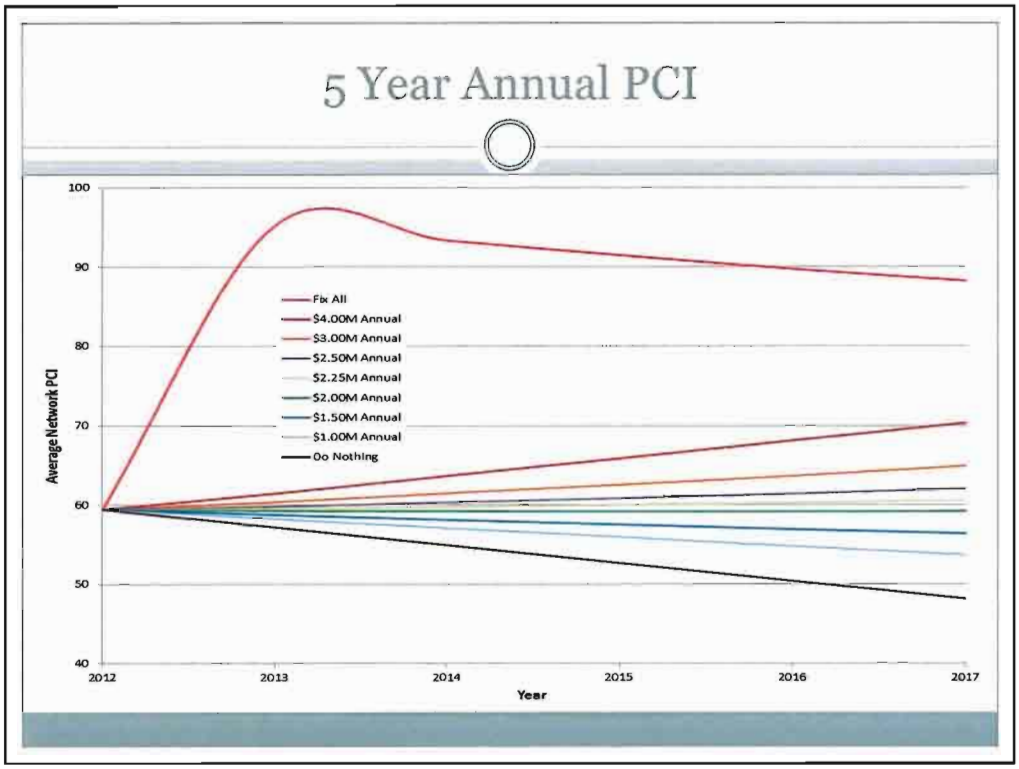
Newark's average System PCI at the time of the study = 60, which is about average according to what IMS has seen in other communities they have studied.



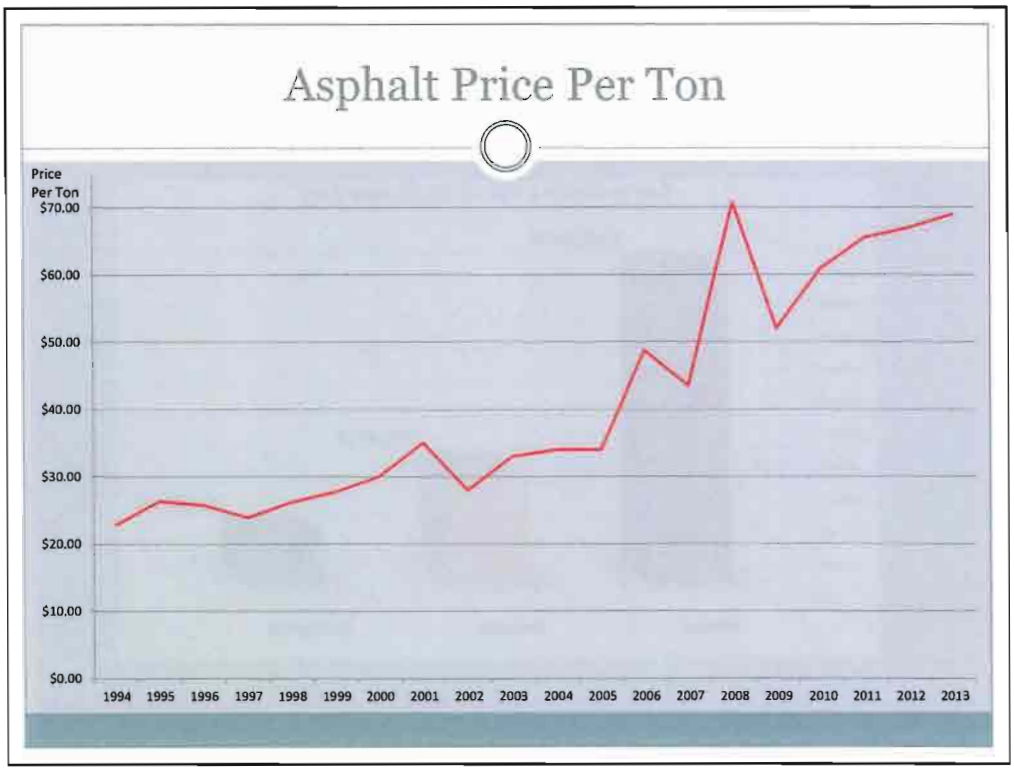
Reconstruction backlog is at 14%, 10% to 12% is ideal, and 20% is unmanageable without annual high levels of investment into the system.



IMS estimated $39M in order to fix all of the system problems they identified. To maintain our system keeping the current PCI at 60 = Steady State. Their estimate to maintain a "steady state system" will require $2.0 to $2.2M annually dedicated to asphalt pavements. To increase the overall system PCI to a target of 65, will require an annual budget of $3.0M.

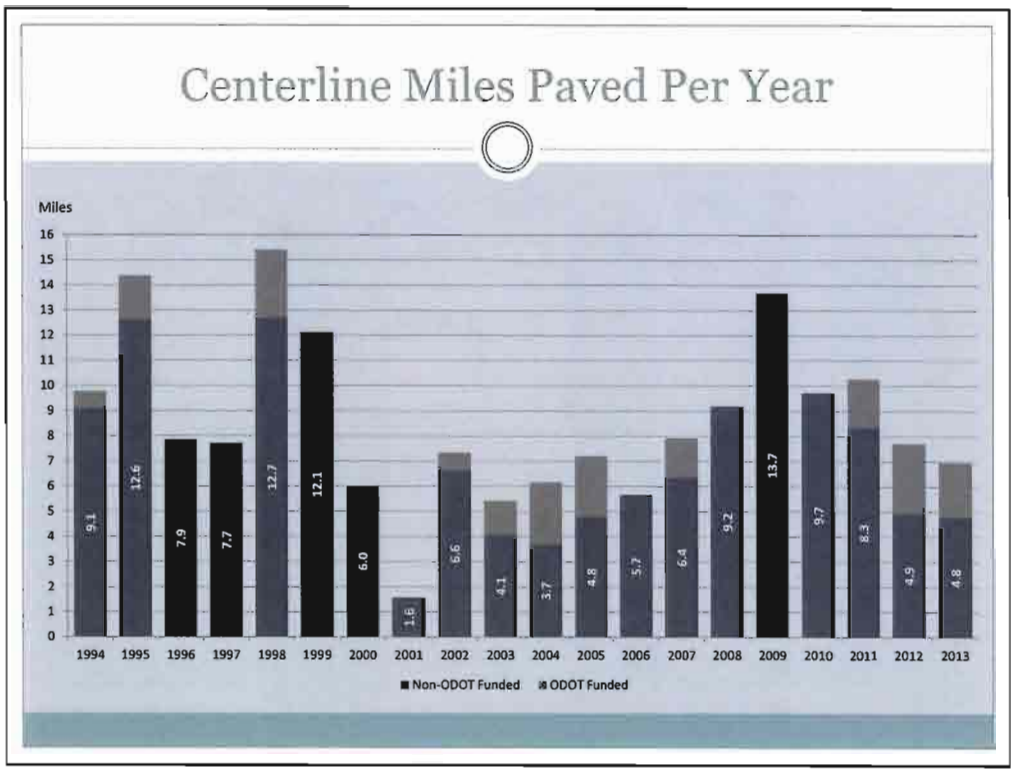


With the help of OPWC, CDBG and Federal Funding through ODOT, we have been close to meeting the "steady state" figures the past few years.
These funding sources cannot be depended upon every year, however.
These costs do not include inflation over time, ADA compliance with curb ramps, or concrete repairs.
No allowance for network growth is included, which is impossible to predict at this time.



In 2008, began collecting the $5 increase in LPPT.
In 2009, began collecting the final $10 increase in LPPT.

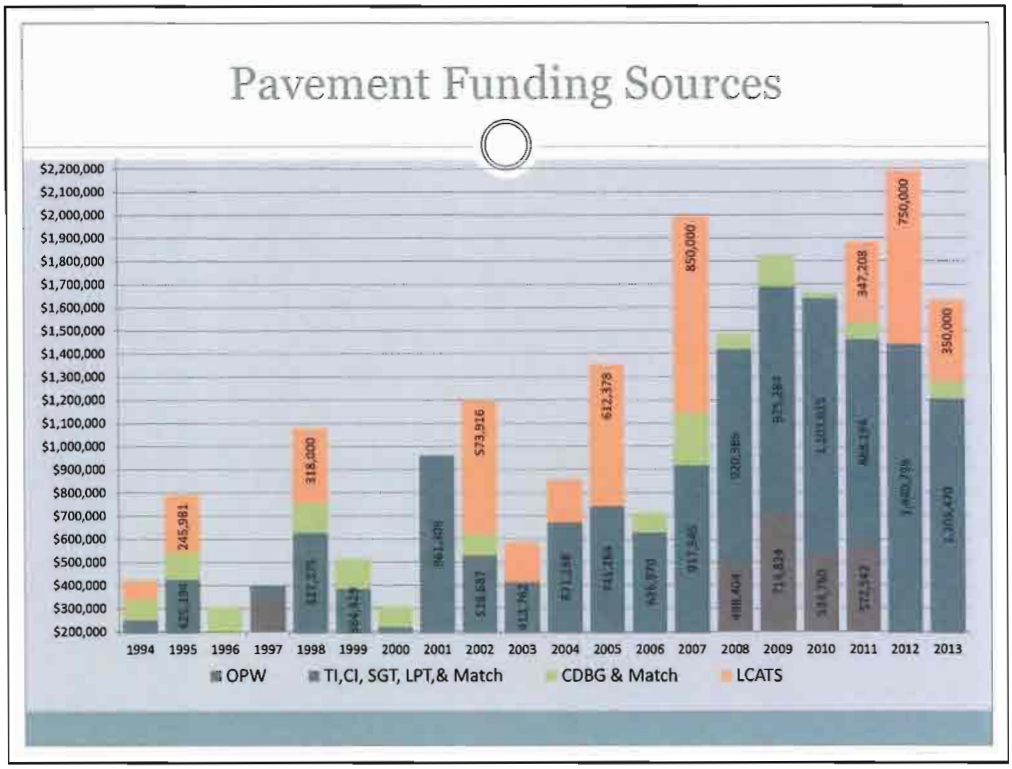
3 times as many miles of collector road could be repaired for the same cost as a mile of arterial road or nearly 6 times as many miles as residential road.



At 220 miles of centerline, if we paved 15 miles of roadway/year, it would take 14.7 years to get back arou

Pavement Funding Sources

Year	CI, SGT, LPPT	CDBG	OPWC	CI, SGT, LPPT Local Match	CDBG Local Match	Federal-LCATS	CI, SGT, LPPT Total incl. Match	CDBG Total incl. Match	Funding Total
1994	$ 215,260.00	$ 89,286.00		$ 34,500.00		$ 81,668.00	$ 249,760.00	$ 89,286.00	$ 420,714.00
1995	$ 350,444.00	$ 119,458.00		$ 74,750.00		$ 245,981.00	$ 425,194.00	$ 119,458.00	$ 790,633.00
1996	$ 128,459.00	$ 177,535.00					$ 128,459.00	$ 177,535.00	$ 305,994.00
1997	$ 55,779.00		$ 342,643.00				$ 55,779.00	$ -	$ 398,422.00
1998	$ 407,074.00	$ 130,189.00		$ 220,301.00		$ 318,000.00	$ 627,375.00	$ 130,189.00	$ 1,075,564.00
1999	$ 384,429.00	$ 128,761.00					$ 384,429.00	$ 128,761.00	$ 513,190.00
2000	$ 219,479.00	$ 87,671.00					$ 219,479.00	$ 87,671.00	$ 307,150.00
2001	$ 961,306.00						$ 961,306.00	$ -	$ 961,306.00
2002	$ 258,306.00	$ 94,243.00		$ 270,381.00		$ 573,916.00	$ 528,687.00	$ 94,243.00	$ 1,196,846.00
2003	$ 201,879.00			$ 211,883.00		$ 170,358.00	$ 413,762.00	$ -	$ 584,120.00
2004	$ 383,311.00			$ 287,827.00		$ 185,537.00	$ 671,138.00	$ -	$ 856,675.00
2005	$ 453,955.00			$ 287,309.00		$ 612,378.00	$ 741,264.00	$ -	$ 1,353,642.00
2006	$ 626,970.00	$ 87,689.00					$ 626,970.00	$ 87,689.00	$ 714,659.00
2007	$ 653,505.00			$ 264,040.00	$ 225,000.00	$ 850,000.00	$ 917,545.00	$ 225,000.00	$ 1,992,545.00
2008	$ 920,385.00	$ 65,581.00	$ 498,404.00				$ 920,385.00	$ 65,581.00	$ 1,484,370.00
2009	$ 975,284.00	$ 136,377.00	$ 714,824.00				$ 975,284.00	$ 136,377.00	$ 1,826,485.00
2010	$ 1,103,615.00	$ 25,000.00	$ 534,760.00				$ 1,103,615.00	$ 25,000.00	$ 1,663,375.00
2011	$ 801,392.00	$ 73,740.00	$ 572,542.00	$ 86,802.00		$ 347,208.00	$ 888,194.00	$ 73,740.00	$ 1,881,684.00
2012	$ 620,462.00			$ 820,337.00		$ 750,000.00	$ 1,440,799.00	$ -	$ 2,190,799.00
2013	$ 748,246.00	$ 76,000.00		$ 457,224.00		$ 350,000.00	$ 1,205,470.00	$ 76,000.00	$ 1,631,470.00
2014	$ -						$ -	$ -	$ -



Without the OPWC and ODOT Federal Funds, we would not be remotely close to meeting the funding levels needed to keep the system from falling into worse condition.