

**CITY OF HUDSON, OHIO
FIVE YEAR PLAN - CAPITAL IMPROVEMENT SUMMARY**

Project Codes: 1=Mandated 2=Necessary 3=Desirable 4=Includes grant funding and/or timing impacted by grant funding 5= Return on Investment

Project Code	2017	2018	2019	2020	2021	Unfunded	Total
Street & Sidewalk Construction Fund							
Annual Reconstruction/Resurfacing Program	2	\$1,100,000	\$1,100,000	\$1,125,000	\$1,125,000	\$1,150,000	\$5,600,000
Annual Concrete Program	2	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$1,250,000
Annual Striping Program	2	\$165,000	\$170,000	\$175,000	\$180,000	\$185,000	\$875,000
Annual Crack Sealing	2	\$75,000	\$85,000	\$90,000	\$95,000	\$100,000	\$445,000
Sidewalk Connectivity Plan	3	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$500,000
Total Annual Street & Sidewalk Construction Program		\$1,690,000	\$1,705,000	\$1,740,000	\$1,750,000	\$1,785,000	\$8,670,000
Street & Sidewalk Individual Projects - Financed							
Barlow Rd Improvements - Construction (Financed 20 yr bond)	1	\$800,000					\$800,000
Total Street & Sidewalk Individual Projects - Financed		\$800,000	\$0	\$0	\$0	\$0	\$800,000
Street Improvement Projects - Pay as you go							
Prospect/SR 91 Reconstruction (AMATS) (Bid \$1.46 M) (Grant \$1.2 M)	1	\$260,000					\$260,000
SR 91 Turn Lanes (V. View, Herrick, Hines H.) Final Design (AMATS)	1	\$320,000					\$320,000
SR 91 Turn Lanes (V. View, Herrick, Hines H.) R/W (AMATS)	1		\$75,000				\$75,000
SR 91 Turn Lanes (V. View, Herrick, Hines H.) Constr (AMATS) (Cost 3.55 M) (Grant 2.8 M)	1			\$750,000			\$750,000
Seasons Rd Interchange Signal Project (50% split w/Stow) (purchase poles/arms)	2	\$50,000					\$50,000
Citywide Guardrail Replacement Program	2	\$125,000	\$125,000				\$250,000
Manor Drive resurfacing	2	\$100,000					\$100,000
DT Phase 2 - 1st & Main Downtown Post-Development Traffic Study	2		\$75,000				\$75,000
City Wide Traffic Signal System recounting and modeling	2			\$75,000			\$75,000
Barlow Road/Young Road Intersection Design	3			\$60,000			\$60,000
Stow & Ravenna Road Intersection Project (Study)	3			\$50,000			\$50,000
SR 303/SR 91 Preliminary Design (AMATS)	4				\$150,000		\$150,000
SR 303/SR 91 Final Design (AMATS)	4				\$350,000		\$350,000
SR 303/SR 91 RW Design & Construction (AMATS)	4				\$500,000		\$500,000
SR 303 West Downtown Corridor Imp. (SR 91 to Boston Mills) - Lane Reconfigure. Design	3					\$150,000	\$150,000
Hines Hill Grade Separation (Final Design) (Needs State or Fed. Funding)	3					\$800,000	\$800,000
Oviatt Street Connector (Oviatt St. to SR 91 - Design). (Needs State or Fed. Funding)	3					\$750,000	\$750,000
Hines Hill Grade Separation (Construction) (Needs State or Fed. Funding)	3					\$8,000,000	\$8,000,000
Total Street Improvement Projects - Pay as you go		\$855,000	\$75,000	\$950,000	\$185,000	\$0	\$12,765,000

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Project Code	2017	2018	2019	2020	2021	Unfunded	Total
TOTAL STREET & SIDEWALK PROJECTS							
	\$3,345,000	\$1,780,000	\$2,690,000	\$1,935,000	\$1,785,000	\$10,700,000	\$22,235,000
Other Sources of Funding							
State Highway Improvement Fund (202)	\$65,000	\$65,000	\$65,000	\$65,000	\$65,000		\$325,000
Permissive Auto Capital (401)	\$245,000	\$245,000	\$245,000	\$245,000	\$245,000		\$1,225,000
Debt Proceeds	\$800,000						\$800,000
Total Other Sources of Funding	\$1,110,000	\$310,000	\$310,000	\$310,000	\$310,000	\$0	\$2,350,000
TOTAL STREET & SIDEWALK FUND CHARGE	\$2,235,000	\$1,470,000	\$2,380,000	\$1,625,000	\$1,475,000	\$10,700,000	\$19,885,000

What Elected and Appointed Local Officials Need to Know *About*

Funding & Maintaining Pavement Maintenance

John G. Calvert

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What Elected and Appointed Local Officials Need To Know About Pavement Maintenance

Elected and appointed officials in today's government face many trials and tribulations in the process of performing the responsibilities that accompany their positions. The struggle to balance wants and needs with available funding seems to be never ending.

superior(s). Many city managers and administrators are advising all department heads to submit reduced budgets. As such, department leaders may believe it to be potentially detrimental to them if they made such a request.

And one more possible and very real reason for officials to not provide adequate funding for pavement maintenance could be attributed to a total lack of knowledge and/or understanding of pavements and how they age and deteriorate with time.

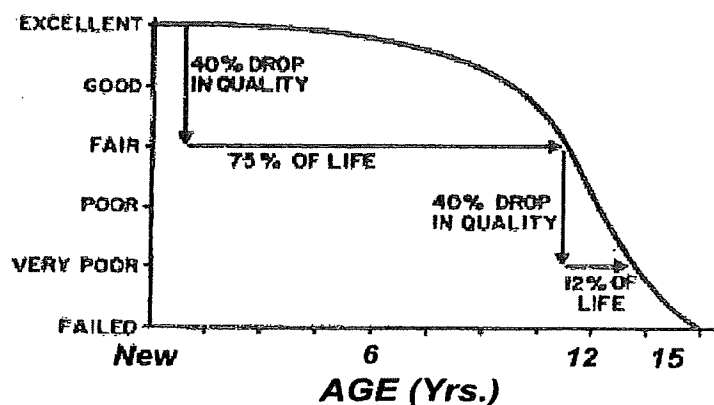
This is to be expected considering that most elected officials and city managers typically have no formal experience, education or training in pavement maintenance. They should have confidence in and expect their public works leaders and highway maintenance managers to provide them with background information in this area. However, it is quite common to find public works directors and engineers that actually have no real knowledge in the area of pavement maintenance as well. Many engineers I have known openly admit that they have no experience in this area and acknowledge that their college engineering courses did not address pavement maintenance in depth, but rather focused more on roadway and pavement design and construction.

As such, there are ten basic but critical things that elected and appointed officials need to know about pavement maintenance and the consequences for failing to provide adequate annual funding for it.

1. Pavements begin aging and deteriorating the day they are constructed or applied.
2. On the average, most asphalt pavements have a cost-effective useful life of 15 years. Some will have a cost-effective life of only 10 to 15 years while others may have 15 to 20 years depending on design, structure, traffic volumes and weights and climate. This does not mean that pavements will completely fail after 12 to 15 years, although some do. It means that after that age the cost of performing routine maintenance on the pavement will greatly, but unnecessarily increase as the pavements develop more extensive cracking, pot holes, and other defects. Typically pavements remain in excellent to fair condition for the first five or six years of their life. Then after approximately 6 years they begin to exhibit cracking and loss of fine aggregates from the surface. Their condition slowly changes from excellent to fair over the first 11 or so years, then the condition dramatically deteriorates over the next 5 to 7 years as noted on the graph at the top of the following page.

3. In order to keep up with the average rate of deterioration, most independent agencies such as Typical Asphalt Pavement Deterioration Curve be resurfaced

CONDITION



A survey conducted by the City of Oak Ridge in 2002 indicated that the average per cent of total miles resurfaced annually by the cities surveyed was approximately 4.5%. This amount equates to a 22 year resurfacing cycle, which means those cities are not keeping up with the rate at which pavements deteriorate. A 22 years cycle would result with the overall average condition of the pavements getting worst each year meaning more costly resurfacing and repair techniques would be required.

One of the cities surveyed averaged resurfacing only 1.6% of its streets annually. This means that the city was on a 62 year resurfacing cycle. That city has approximately 400 centerline miles of streets and therefore should have had approximately \$1.4 Million in annual resurfacing funds and should have been resurfacing 26 or so miles each year. Instead that city only had an average of \$500,000 in its annual resurfacing budget was falling behind on and essentially neglecting nearly 20 miles per year. Since the survey, the city has apparently seen the light of its errors and indicated it plans to spend \$3.2 million over the next two years on resurfacing. To avoid future borrowings, the city will need to commit to budgeting of \$1.6 Million per year every year afterwards or it will find itself in the same predicament within the next 5 to 10 years. It is good that this city's leaders have stepped up to the plate as their past practice might have otherwise been seriously frowned upon by upcoming GASB 34 guidelines and auditors.

The problems with proper pavement maintenance are not limited to the state of Tennessee. In fact, the Federal Highway Administration and the Federal Pavement Preservation task force has launched a new initiative referred to as Right Treatment for the Right Pavement at the Right Time. In essence they have acknowledged the problems with pavement maintenance by many city, county and state highway agencies across the nation and the fact that historically inadequate funding has been a major force behind the problem. Both agencies are trying to educate and emphasize to cities and counties the availability of cost effective preventive maintenance strategies that can greatly aid in addressing the problems of aging and deteriorating pavements.

So, in summary what can cities do to protect and maintain their costly road and street infrastructure?

First of all, its elected and appointed officials should use the noted formula to determine if the city has adequate funding for street resurfacing and preventive maintenance activities. If they don't meet the formula's calculation, they have no choice but to increase their budgets in a manner that meets that requirement, preferably the sooner the better, like within 1 to 3 years.

The cities should implement the use of an Enhanced Pavement Maintenance Program (EPMP) that uses a wide variety of both **preventive and corrective** maintenance activities rather than just a conventional 1.5" overlay.

The EPMP should include such activities as:

- **Preventive maintenance** activities including the use of:
 - Penetrating asphalt rejuvenators in years 1 to 5 of a pavement's life.
 - Restorative seals, slurry and micro-thin (1/2-inch) resurfacing for pavements 8 to 10 years old.
 - Crack filling and/or sealing on pavements 8 to 10 years old or older

Elected and appointed city officials and city department heads and leaders should remember they are all on the SAME TEAM. It is all of their professional responsibilities to protect and adequately maintain their taxpayers public-owned roads and streets and other infrastructure. It is also their responsibility to provide sufficient funding and planning to ensure proper maintenance is provided, even when doing so might cause moderate to severe increases in funding levels and tax rates.

Their knowledge and understanding of the pavement deterioration process and maintenance strategies will allow them to properly educate or advise citizens of the reasons behind their decision making process.

The elected officials have the ultimate and last decision when it comes to providing adequate funding for pavement maintenance. They can choose to ignore the situation in order to prevent tax increases (possibly in an attempt to insure reelection) or they can step up to the plate and do what is necessary. They need to remember during budget preparation that the pavement maintenance dollar they cut or save today will cost their taxpayers of tomorrow three to four dollars, if not more.

The old saying of "pay me now or pay me later" is right on when it relates to pavement maintenance, however, a truer version now might be "Pay me a \$1 today or Pay me \$5 later".

About The Author

John Calvert has over 30 years experience in municipal government and public works. He is a graduate of Middle Tennessee State University and retired from the City of Oak Ridge as Public Works Division Manager in 2003 after 28 years of service. He joined the staff of Pavement Technology, Inc. in July 2003 as technical consultant for the company where he meets and works with local and state public works and highway officials across the nation. He also serves as Director of the Tennessee Public Works Institute and Administrator of the Tennessee Chapter of the American Public Works Association.

He has been a speaker and presenter on pavement maintenance at APWA national and state conferences and served as APWA's Speaker on Pavement Preservation for its 2007 nationwide live webcast on Pavement Maintenance. He has also taught pavement maintenance classes for the UTAH LTAP and UTAH League of Cities "Road School", the University of Tennessee TTAP (LTAP) Office and the National Center for Pavement Preservation funded by the FHWA. He has written various articles for Tennessee Public Works Magazine, the APWA Reporter national magazine and other associations.

