HURF Sources and Distribution, FY 2011 ($1.2 Billion, total)

Each of the PAG members relies on their transportation or public works department to determine roadway maintenance needs and submit annual budget requests for approval by their elected officials. There is a recent trend to use local funds and bonds for road maintenance here and throughout the country, because funds from other sources are so limited. [34] Similar to federal funds, the region has little influence over these formula-based allocations.

The State of Arizona taxes motor vehicle fuels and collects a variety of fees for registration and operation of motor vehicles. These collections include gasoline and “use fuel” (i.e., diesel) taxes, motor carrier taxes, vehicle license taxes, motor vehicle registration fees, and other miscellaneous fees. Revenues are deposited in the Arizona Highway User Revenue Fund (HURF)

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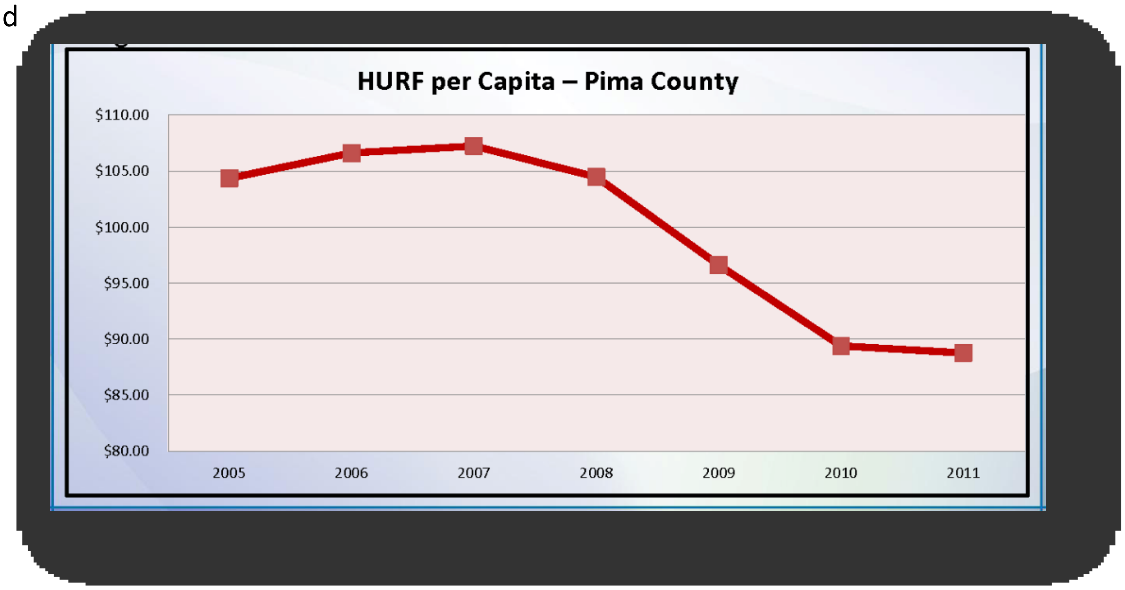
[34] “County to use general funds for roads”, tucsonnewsnow.com, 2012; “Proposition 409 for city street improvements”, http://cms3.tucsonaz.gov/streetbonds; “Taxes, bonds, car tab could pay for Tacoma street repair”, mynorthwest.com, 2012

and are then distributed to the cities, towns and counties and to the State Highway Fund. These taxes represent a primary source of revenues available to the state for highway construction, improvements and other related expenses. Prior analysis by CLA and others shows that buying power of HURF has declined appreciably due to inflation and the Legislature's refusal to increase the state gas tax, among other reasons. The chart below shows in normalized dollars how the fund generates about $88 per capita now compared to about $108 in 2007. This is an 18% decline in purchasing power. When assessed over a longer period, the decline in purchasing power is more than 50%.



Over the past several years, the Arizona legislature diverted some HURF revenue to the Arizona Department of Public Safety, and thus reducing the amount allocated to counties and municipalities. The recent trends in HURF distribution to PAG jurisdictions are shown in the chart below, using FY 2006/07 as the benchmark. HURF was increasing prior to the benchmark year, but afterwards it declines due in part to diminishing income, but mostly due to revenue diversion. This revenue decline has obvious implications on transportation projects at the local level, including maintenance projects.

HURF Bonds and Outstanding Debt Service

Bonds, sold to investors in a public market, are the chief mechanism used by municipalities to finance capital facilities. Such bonds are often called "municipal" bonds even though many are issued by state governments and special purpose districts. Through the State Transportation

Arizona HURF Diversion Analysis FY 2006/07 Benchmark (Pima County)

Arizona HURF - Distribution to Pima County and Municipalities within Pima County								
FY	Pima County	Marana	Oro Valley	South Tucson	Tucson	Sahuarita	Total	Cumulative Loss
2002/03	$37,716,916	$1,043,282	$2,283,594	$422,000	$44,383,949	$249,135	$86,098,874	
2003/04	$39,829,979	$1,092,521	$2,560,691	$442,282	$46,712,006	$261,322	$90,898,801	
2004/05	$41,755,890	$1,141,523	$2,688,528	$461,892	$48,864,152	$273,124	$95,185,109	
2005/06	$43,291,930	$1,254,679	$2,798,398	$473,220	$50,527,993	$351,596	$98,697,815	
2006/07	**$44,565,617**	**$2,067,895**	**$3,031,223**	**$432,071**	**$49,548,012**	**$1,088,363**	**$100,733,180**	(Benchmark)
2007/08	$44,060,131	$2,035,849	$3,002,828	$429,747	$48,966,864	$1,067,285	$99,562,705	($1,170,475)
2008/09	$41,209,550	$1,936,369	$2,855,668	$408,550	$45,965,674	$1,014,642	$93,390,453	($7,342,727)
2009/10	$38,739,414	$1,808,963	$2,667,797	$381,679	$43,086,356	$947,901	$87,632,109	($13,101,071)
2010/11	$38,973,544	$1,869,483	$2,693,145	$384,046	$43,300,823	$1,021,736	$88,242,777	($12,490,403)
							Cumulative Decline Since FY 2006/07	($34,104,676)

Source: Office of Pima County Administrator

Board, counties and cities are authorized to issue HURF bonding if approved at a local election. In November 1997, a $350 million HURF bond authorization was approved by Pima County voters, and this was applied to several capital improvements within Pima County, including some in the incorporated areas. As a result, there is existing debt service that reduces the availability of funds for pavement maintenance activities. Other communities and counties in the state have also pursued HURF bonding, and as a result are repaying the associated debt.

Local debt policies are useful in making decisions about paying for maintenance with either GO or revenue bonds. Bond advisors routinely recommend that jurisdictions adopt debt policies. Such principles should be written in a flexible enough way to allow for the under-funding of infrastructure during hard economic times, although from the public works perspective this might be seen as lack of commitment. [35]

Local Funds

In contrast to federal and state funding, local funds authorized by statute and municipal charter are under the total control of local governments and the electorate. The types of funding available are mainly restricted to sales taxes and primary and secondary property taxes. A recent example is Tucson voters' approval of a property tax funded bond program for street repair. Local agencies cannot impose cents-per-gallon fuel taxes, a sales tax on fuel, and myriad other taxes and fees available in other parts of the country.

This section describes taxes and fees currently authorized by statute; however, many other options could become available if the State Legislature would pass implementing legislation. Additional options will be explored in more detail by staff upon direction of the Regional Council.

Current Local Funds for Transportation

Local funds dedicated to transportation in the PAG region include the RTA's ½¢ sales tax, Proposition 409 road repair revenues, and road impact fees collected by all jurisdictions except South Tucson and Sahuarita. A construction sales tax is levied in Oro Valley, Marana, and

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[35] http://www.lincolninst.edu/subcenters/teaching-fiscal-dimensions-of-planning/materials/elmer-bonds.pdf

Sahuarita and can be used for maintenance if the Town Councils choose to do so. The City of Tucson briefly considered a CST, and Pima County is prohibited from its use. Both the City of Tucson and Pima County use some of their general funds for transportation, especially for transit operations, and occasionally for road maintenance.

Potential Local Funds for Transportation

At the local level, additional revenues for maintenance can be provided by further increasing sales and property taxes within statutory limits.

Pima County General Funds

Pima County currently spends about $13 million on maintenance, all from HURF. The Board of Supervisors authorized some additional funding from reserve. This includes $10 million this fiscal year and $20 million next year.

Improvement Districts and Community Facility Districts

Improvement districts and community facility districts are special taxation districts allowed by statute. A fundamental difference is IDs usually are applied to existing development, whereas CFDs are applied to developing land during the planning process.

The laws for creating IDs are different for counties and municipalities, but both allow maintenance expenditures. The Districts, once formed, have a governing body which is usually the local elected body. ID projects are paid for by property owners of the district, either as a separate levy or as an additional line item on their property tax bill. Cities use IDs more than counties because of the comparative ease of implementation, frequently to add sidewalks and lighting, for maintenance, and to help pay for a portion of adjacent street widening.

In Pima County, for example, the Tucson Country Club Estates neighborhood created a paving and sewer improvement district formed in 1994 for reconstructing the streets, highways and sewers. Property owners spent $4.27 million to improve their streets, highways and sewers. The County notes that this model is available to anyone who wishes to form an improvement district. It requires a majority of the property owners within the district or the owners of 51 percent of the real property within the district to agree to pay for the work. To incentivize the use of improvements districts for street and highway improvements, the County could offer to fund a portion of the costs with the balance paid for by the district. A similar policy could be adopted in the municipalities.

6: RECOMMENDATIONS

Quantify Pavement Conditions in the Region

Using available data from the ARAN van and other resources, prepare an overview of pavement conditions in the region. Make this available for all jurisdictions to aid decision-making about transportation investments.

Recommendation: Provide a regional pavement condition overview, showing various metrics that track the condition of roadways in the region to help make informed investment decisions.

Continue to Investigate Maintenance Needs and Funding Options

This report identifies some of the administrative and funding challenges confronted by PAG members. One of the key issues is identifying funding needed for maintenance and then allocating enough funds during an economic downturn. Both the City of Tucson and Pima County are using general funds for maintenance, which can detract from competing services that must rely exclusively on general funds.

Accordingly, more detailed examinations of immediate, short-term, and long-term maintenance needs and funding is required. We noted during our research that several communities including Tacoma used a task force to examine the options, which also seems appropriate in our region. The RTA could be represented through its CART or TMC. This report and its supporting documents could be used as a resource and starting point for such a task force.

Recommendation: Using this report as a resource, establish a regional task force, perhaps through the PAG Management Committee or TPC, to prioritize maintenance funding options for implementation across the region.

Emphasize Life-Cycle Programming

MAP-21, the new federal transportation legislation emphasizes asset management and fiscal stewardship. The USDOT recognizes that one way to avoid pavement neglect is to integrate maintenance with capital programming and project design. Life-cycle programming for roadway preservation should be considered during the planning and design phase of new

Appendix A: Recommended Reading

1. Regional Asset Management Efforts and a Performance-Based Approach to Local Streets and Roads Funding Allocation, Theresa Romell and Sui Tan, *Metropolitan Transportation Commission, Oakland, California, United States,* Compendium of Papers from the First International Conference on Pavement Preservation, April 2010 http://www.techtransfer.berkeley.edu/icpp/papers/70_2010.pdf

2. State of the System Report FY 2012, Maricopa County, June 2012

   http://www.mcdot.maricopa.gov/technical/eng-manuals/2012-SOS-Report.pdf

3. Asphalt Roadway Rehabilitation Alternatives, A Training Course, Publication Number FHWA-SA-97-048, FHWA
   http://isddc.dot.gov/OLPFiles/FHWA/013560.pdf

4. Maximizing Customer Benefits as the Ultimate Goal of Pavement Management, Paper No. 42 for Presentation and Publication to, Fifth International Conference on Managing Pavements, Seattle, Washington, August 11-14, 2001
   http://pavementmanagement.org/ICMPfiles/2001016.pdf

5. Evaluation of the Cost Benefits of Continuous Pavement Preservation Design Strategies Versus Reconstruction Final Report 491, K.L. Smith, L. Titus-Glover, M.I. Darter, H.L. Von Quintus, R.N. Stubstad, and J.P. Hallin, Applied Research Associates, September 2005, Prepared for Arizona Department of Transportation.
   http://www.azdot.gov/TPD/ATRC/publications/project_reports/PDF/AZ491.pdf

6. Arizona State Senate Issue Brief, Highway Funding and Construction, December 20, 2010, State of Arizona
   http://www.azleg.gov/briefs/Senate/HIGHWAY%20FUNDING%20AND%20CONSTRUCTION.pdf

7. Optimal Timing of Pavement Preventive Maintenance Treatment Applications, NCHRP Report 523, D.G. Peshkin, T.E. Hoerner, K.A. Zimmerman, 2004
   http://onlinepubs.trb.org/Onlinepubs/nchrp/nchrp_rpt_523.pdf

8. Determining Highway Maintenance Costs, NCHRP Report 688, Cambridge Systematics, Inc., 2011
   http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_688.pdf

9. Board of Supervisors Memorandum, Need for Increased Investment in Transportation and Highway Maintenance, April 10, 2012
   http://www.pima.gov/administration/documents/pdfs/bos-increased.transportation.investment_20120328112303_785934.pdf

- Funding cuts have compromised our maintenance schedule.

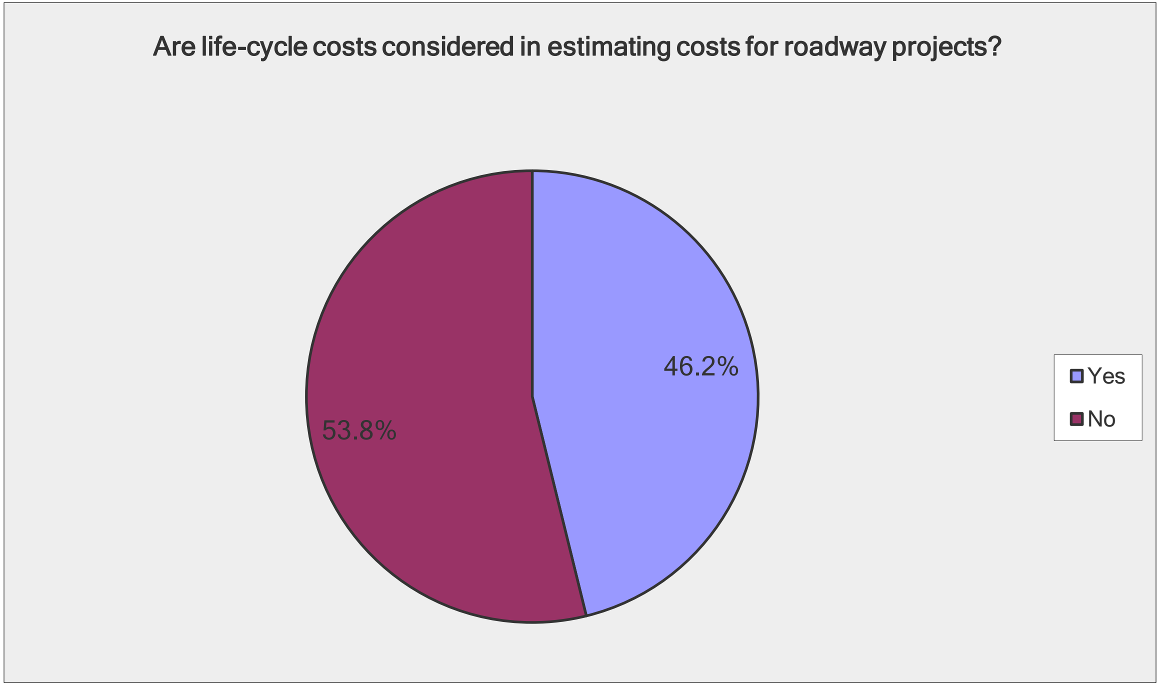
Briefly describe your Pavement Management Program and major funding sources.

- Assistance from PCDOT, COT. Funding- RTA, 12.6, PC Bond
- Currently, problem areas are identified with maintenance foremen and addressed. In the future we will use a PMS (Lucidity) that will be integrated with our GIS. The major funding source comes from our half-cent sales tax.
- We use Lucity as a software to aid in the management of the pavement. Our funding is mostly Highway User Revenue Funding.
- Most of our funding comes from the State allocation of HURF funds. We have revised and updated our pavement preservation program this year 2012 to include a maximum of 4 year rotation on all of our roads. Some roadway sections will get an increase in application rates than others.
- Our major funding sources are, Sales Tax and HURF. We utilize MicroPAV a custom version of the Micropaver software created by the Army Corps of Engineers. Mesa has been a staunch believer in preventative maintenance and cycle treatments relating to the right treatment for the right road at the right time to extend the life cycle of the county roadways.
- The City of Tucson's Pavement Management System (PMS) utilizes methods and philosophies developed by the Army Corps of Engineers (ACE). In particular, the publication Pavement Management for Airports, Roads, and Parking Lots by M. Y. Shahin has been the foundation of this program. Currently, pavement surfaces are rated using a combination of Pavement Condition Index (PCI) scores, International Roughness Index (IRI) measurements, and Photographic Analysis of Asphalt Surfaces and Survey Evaluation Rating (PA^{2}S^{2}ER). PCI inspections (ACE method of analyzing asphalt concrete conditions) are conducted on 10% of all asphalt concrete roadways by measuring and recording 19 different distresses at three severity levels. IRI is measured utilizing an ARAN (Automated Roadway Analyzer) van http://transview.org/aran. PA^{2}S^{2}ER is actually a modified version of the University of Wisconsin-Madison's PASER system http://tic.engr.wisc.edu/Publications.lasso, adapted to be a behind-the-windshield visual survey performed while collecting IRI data with the ARAN. All PCI and PA^{2}S^{2}ER condition data is stored within a historical database. This data has typically been used to track conditions of city streets over time. Major Streets and Routes are updated within the database on a three year cycle, and residential roadways are on a five year cycle. In addition to this data, PMS is tasked with satisfying local regional requirements stipulated by the Highway Performance Monitoring System (HPMS). The City's PMS program is grant funded: 94.3% Federal Highway Administration (FHWA) Surface Transportation Funding (STP) with a 5.7% City of Tucson local-match. It works in conjunction with Pima Associations of Governments (PAG), but is exclusively maintained by the City of Tucson. From PAG's website, "The Regional Pavement Management System provides PAG member agencies with the appropriate tools and data to assess the deterioration of publicly owned roadways and other roadway infrastructure.

Accurate management of the multi-billion dollar roadway infrastructure is essential for allocating and optimizing the impact of available maintenance budgets." Major funding sources: Limited HURF and FHWA when available.

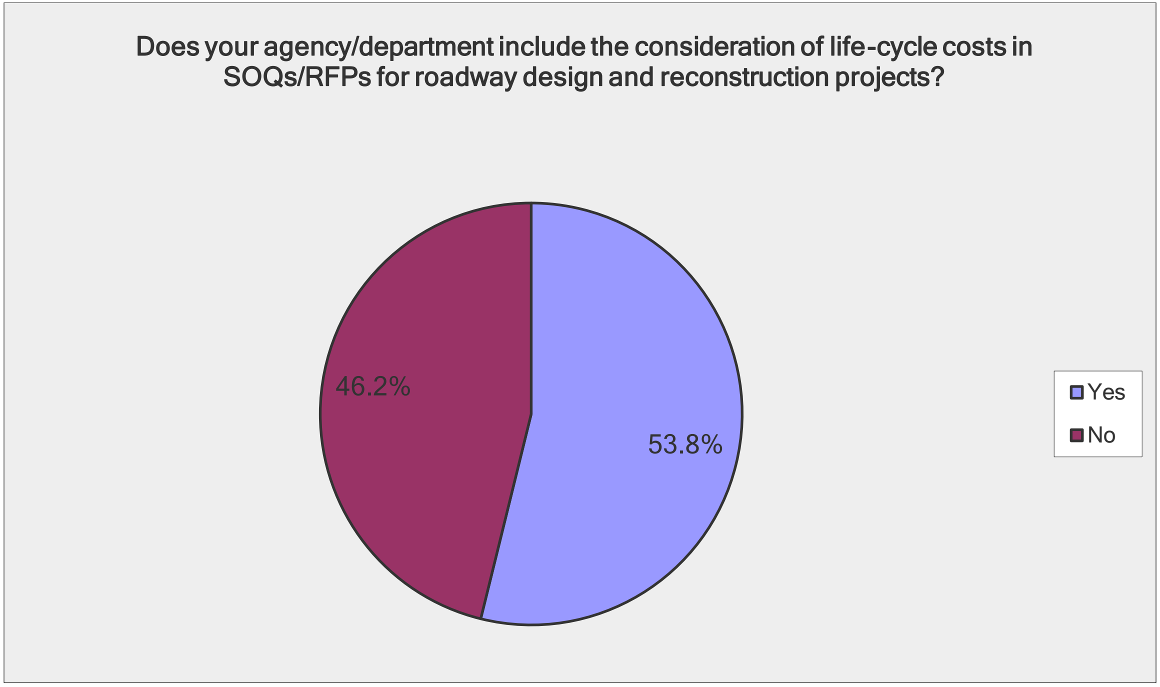
- We use Cartegraph pavement management software and have dedicated staff to manage the program. Our funding sources are construction sales tax and local HURF funds.
- Chandler uses crack seal, Tire Rubber Modified Surface Seal (TRMSS), Slurry Seal, Micro Surface and Mill and Overlay. Major funding sources are HURF, General Fund and Bond Revenue.
- Utilize traditional preventative maintenance measures. HURF only source.
- Our program consists primarily of preventative maintenance applications (seal coat, slurry, microseal, crack seal, chip seal, mill and overlay). CIP is funded primarily through our General Fund (bonds).
- PMP is currently being developed. HURF is the primary source.

Are life-cycle costs considered in estimating costs for roadway projects? Please describe.



- They will be once our PMS is fully online.
- See our pavement management preservation manual.
- Every Capital Improvement Project (CIP) that adds an asset has a maintenance component incorporated in the analysis of the life cycle cost to cover the increase in maintenance costs over the life cycle of the roadway.
- We attempt to budget for O&M costs as a part of our 5 Year Capital Improvement Program, but there are no funds to retain O&M costs in the program.
- We design our new roadways for a 20-year life cycle.
- Cheapest, longest lasting, and most effective treatment is used.

Does your agency/department include the consideration of life-cycle costs in SOQs/RFPs for roadway design and reconstruction projects?



How are pavement preservation project priorities set in your jurisdiction? For example, are your roads in poorest condition dealt with first (through major overlays or reconstruction),or do you maintain good to fair roads to extend their lives first?

- Maintain roads as much as possible
- We don't use just one, but a combination of strategies.
- We attempt to maintain the fair to good roads in a good condition and commit approx. 10% of the available funding to reconstruction.
- The OCI Ratings dictate what roads get treatment first.
- The City of Mesa believes in extending the life cycle of the roadway at the lowest cost possible by implementing preventative maintenance tools early in the life cycle to delay the need for major overlays and reconstruction. This can begin as early as year 2 or 3 of a new pavement with a minimal cost but extending the life cycle 5-10 years.
- The City of Tucson’s Pavement Management System subscribes to the philosophy of keeping good roads good and applying the right treatment to the right road at the right time and right cost. However, due to limited resources and safety concerns, we are not always able to follow this approach.
- We take care of our best roads first unless there is a safety issue.
- Both. Chandler budgets for both pavement preservation and rehabilitation.
- 60% of funding is dedicated to roadways rated good or better. 40% of funding is dedicated to roadways rated poor to failed.

- We extend the better to fair roads as long as we can and hold the failed roads together until we get a windfall of money. Still waiting on the windfall.
- Priority is given to roads based on ADT's.

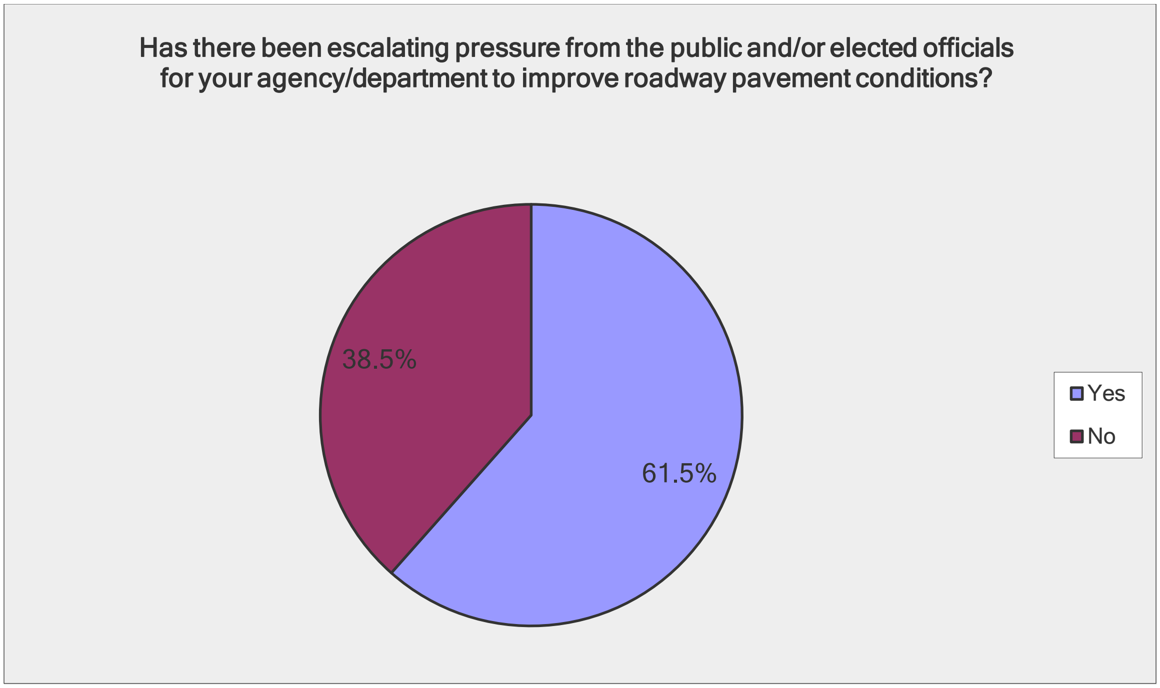
What technical criteria does your jurisdiction use to evaluate pavement condition (e.g., Pavement Condition Index, International roughness Index)?

- PCI
- PCI
- Pavement Condition Index - Better known as "Overall Condition Index" (OCI)
- We currently utilize the Pavement Condition Index in accordance with ASTM D 6433.
- See #2 above. The City's PMS uses three types of technical criteria: Pavement Condition Index (PCI), IRI (International Roughness Index) and Photographic Analysis of Asphalt Surfaces and Survey Evaluation Rating (PA^{2}S^{2}ER).
- We use the USACOE pavement condition index.
- Chandler uses Pavement Quality Index (PQI) based on Stantec's RoadMatrix program. PQI (0 to 100) is a function of Ride Comfort, Surface Distress and Structural Adequacy.
- Staff utilizes Cartegraph Pavement Management software. PCI index are formatted within, types of treatments, history, etc.
- Pavement Quality Index (PQI)
- N/A

What criteria or processes (if any) are used to distribute maintenance dollars?

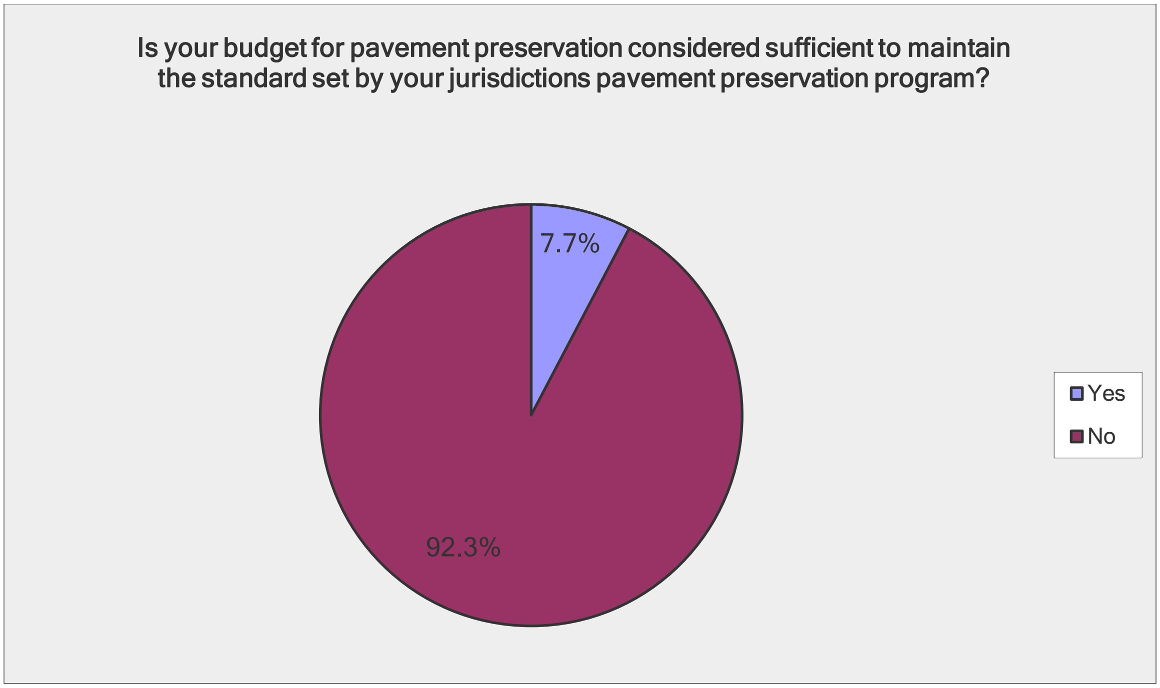
- We are currently implementing a Pavement Management System (Lucidity) to target areas and/or road types for future projects.
- See our pavement management preservation manual.
- We focus our in-house crew projects first, they represent the core functions of the city maintenance program. We then distribute the additional funding based on prioritization of need and overall roadway performance increase.
- Due to budget constraints and lack of a dedicated funding source the City is focusing maintenance dollars primarily on major streets that carry a lot of traffic and safety concerns. There have been efforts for maintenance prioritized by OCI, ADT, age, location, and design.
- We use the OCI, overall condition index, as a means to appropriate funds.
- See answer 5, all are coordinated with PCI.
- We hire a consultant who objectively evaluates the road using a specially designed vehicle. The condition is plugged into a software program that calculates the PQI>

Has there been escalating pressure from the public and/or elected officials for your agency/department to improve roadway pavement conditions? Please explain.



- recent improvements have kept public/elected officials satisfied
- Only to a small degree. The most pressure is to add capacity.
- Public Safety (police and fire) are the priorities.
- We have a great system. The Town of Marana keeps up on our roadway system, so that our constituents do not have to worry about calling in to complain about our roadway system condition.
- The pressure has been focused on economic development areas as opposed to areas that are not performing or in need based upon performance criteria.
- Currently, the City is in the process of soliciting a 5-year General Obligation bond that will allocate $20 million per year towards roadway maintenance and rehabilitation. Please see the following link for more information: http://cms3.tucsonaz.gov/home/announcement/street-maintenance.
- We have educated our elected officials on the importance of pavement management and have their support.
- Only from the public.

Is your budget for pavement preservation considered sufficient to maintain the standard set by your jurisdiction's pavement preservation program?



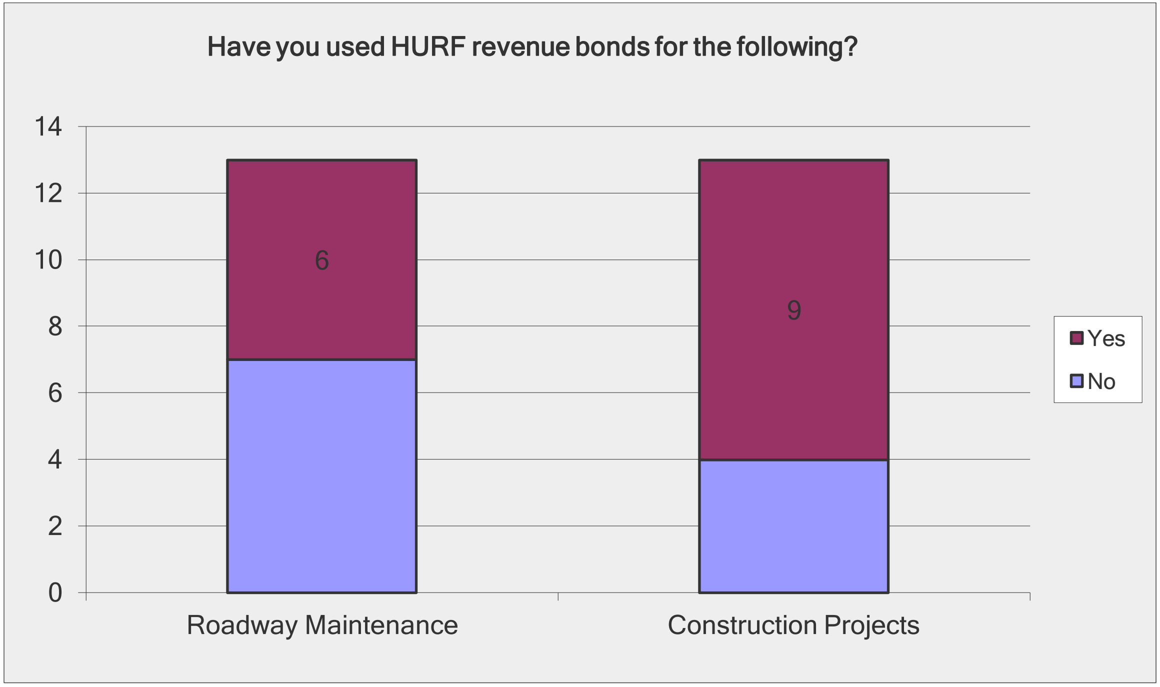
- minimal funding received to maintain standalone program
- For this year and the next yes, but future years no unless revenues increase.
- Even though we have a robust system in place, we are not fully funded. Our program currently is based upon a $2 million a year investment. Currently the Town is only funding $500,000 per year.
- With the decrease in sales tax revenue and HURF, we are still playing catch up to maintian the high quality of roads that Mesa has been expected to deliver. We however are adapting to this change and are attempting to maintain a high standard given the current condition of funding.
- We are responsible for maintaining 1,900 lane-miles of major streets of which 52% are in failed, poor, and fair condition and requires $215 million to bring those streets to a good or better condition. There are 3,500 lane-miles of residential streets of which 86% are in failed, poor, and fair condition and requires over $400 million to bring those streets to an acceptable level.
- WIth less construction sales tax revenue and the reduction of local HURF we have had to use our contingency funds to close the gap. This is not a sustainable practice in the near and long terms.
- Not even close. We need $6-8 million annually and need a lump sum of approx $50 million to get our streets to a PQI of 70.

What are the greatest budgetary challenges to funding pavement preservation?

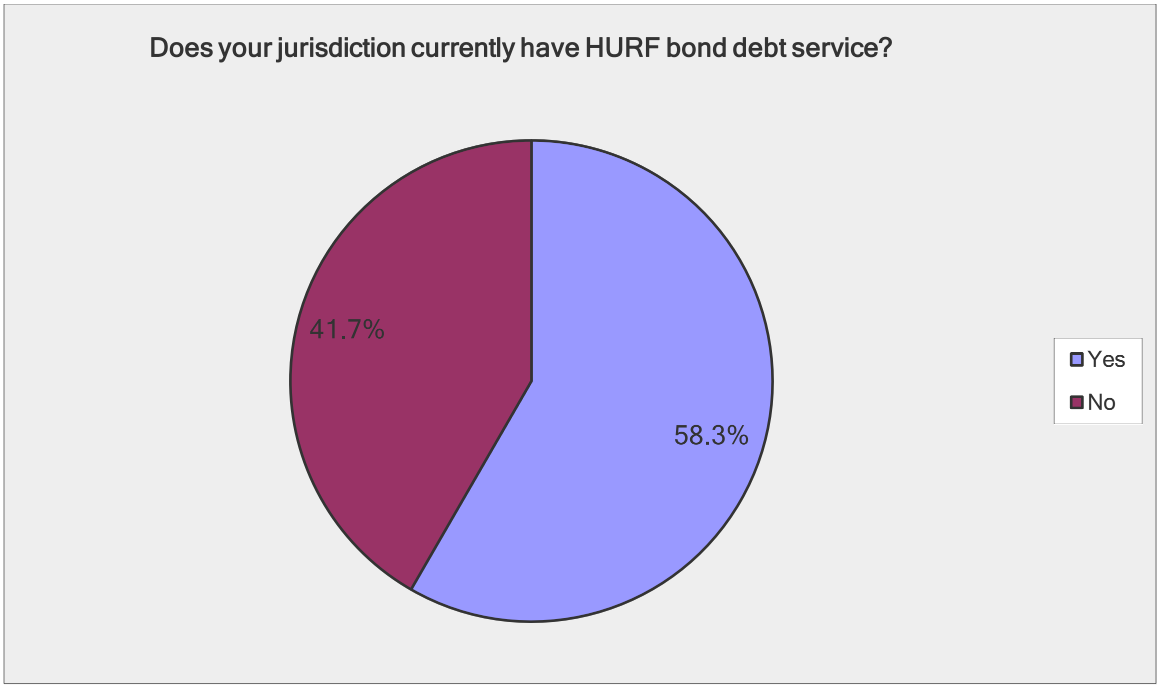
- With a small jurisdiction other priorities come to the forefront.

- Increasing oil and aggregate prices, additional lane-miles added to the system, and flat revenues.
- Competing with other needs for very little money
- Not enough money to cover all the expenses.
- Steady revenue sources and the cost benefit analysis.
- HURF funding to the City has declined 26% since 2008 and City General Fund revenues have dropped dramatically. A new funding source or sources must be identified.
- The poor economy and the HURF sweeps by the State Legislature.
- State of Arizona continues to sweep HURF away from the Cities and Towns to fund DPS.
- Getting elected officials and our Finance Department to understand how critical preventative maintenance is.
- HURF declining

Have you used HURF revenue bonds for the following: Roadway Maintenance, Construction Projects?



Does your jurisdiction currently have HURF bond debt service?



Those that responded indicated that there is a range from 10% to 33% of HURF Revenue is for debt service.

Besides HURF, what other funding sources are used for pavement preservation?

Examples include construction sales tax, improvement districts, special assessments, impact fees, etc.

- Half-cent sales tax.
- No other
- Transportation sales tax (left-over from past - prior to RTA)
- Sales Tax General Obligation Bonds/ Secondary Property Tax
- Limited City General Fund revenues which is generated primarily from sales taxes.
- Construction sales tax
- General Fund and Bond Revenues.
- 2% road tax.
- property tax, bonds
- none

What is the current outlook for pavement preservation funding for the next 20 years for your jurisdiction?

- If and when city sees increase in revenue, tax base, etc. may be able to implement program for time being rely on other funding sources to accomplish goals.

- This is entirely dependent on the economy, so it's anyone's guess.
- We have programmed $2 million annually for expenditure.
- Under funded
- If the market and economy stabilizes the current sales tax will meet our needs, but the referendum expires in 20 years. If the economy and market do not turn around then we will need to re-evaluate how we approach our program.
- Not very good. However, if the proposed $100 million GO bond election passes in November 2012, it would fund next 5 years.
- If we do not find consistent funding sources the long term outlook for our pavement management program is questionable.
- There is a planned one time increase in rehabilitation funds for the next five years (FY 12/13 to FY 16/17). Maintenance funding will remain the same.
- Bleak. The citizens will not accept another tax or fee to pay for government operations. The State must restore funding road maintenance funds.
- Unless our funding is drastically improved our outlook is very, very bleak.
- about $500K/yr

Please provide any other comments or links to relevant documents. - Open-Ended Response

- http://cms3.tucsonaz.gov/home/announcement/street-maintenance.
- For every dollar spent on pavement management today saves $6 to $10 in the future.
- HURF was established for the maintenance of roadways. However, in 1999 the state passed a new law to fund the enforcement of traffic laws. Thus, relieving the states responsibility to fund DPS. Today, DPS is now fully funded by HURF.

FHWA PRIMER ON ROAD MAINTENANCE