Regional Local Road Pavement Preservation
Program Overview

This local roadway pavement preservation overview describes the current conditions of roads and the state of road maintenance in unincorporated Pima County and other jurisdictions in the Tucson metropolitan region and provides information regarding the regional funding approved by the Pima County Board of Supervisors as part of its adopted Fiscal Year (FY) 2017/18 budget.

I. PROPERTY TAX OVERVIEW

The Board adoption of the Final Budget included a road tax categorized in two components for FY 2017/18; base funding ($8,591,671) and accelerated funding ($10,934,854). Appendix A contains maps showing funding information by jurisdiction and supervisorial district.

Base Funding

The first component is base funding where the road tax is actually fiscally neutral due to offsetting reductions of other tax rates. This tax neutral base funding will be distributed to each supervisorial district as shown in Table 1 below. A Transportation Advisory Committee (TAC) will make recommendations to the Board of Supervisors regarding the specific roadways to be repaired using base funding.

Table 1: Base Funding Property Road Tax Repair Revenue by Supervisorial District.

District	Unincorporated Area	Marana	Oro Valley	Sahuarita	South Tucson	Tucson	Total
1	$1,290,121	$225,497	$651,936	$ 0	$ 0	$ 17,341	$2,184,895
2	201,806	0	0	135,811	23,369	1,029,469	1,390,455
3	911,734	311,912	0	25,219	0	564,102	1,812,967
4	886,508	0	0	75,327	0	832,705	1,794,540
5	313,522	0	0	0	0	1,095,292	1,408,804
Totals	**$3,603,691**	**$537,409**	**$651,936**	**$236,357**	**$23,369**	**$3,538,909**	**$8,591,671**

Accelerated Funding

Distribution of the accelerated funding will be determined by the Board based on recommendations from the TAC. The accelerated funding will be distributed between cities, towns and the unincorporated area as shown in Table 2 below.

Table 2: Accelerated Property Tax Road Repair Revenue by City, Town and Unincorporated Area (14-cent tax increase, $10,934,854).

Jurisdiction	% of Assessed Value	Accelerated Property Road Tax Repair Allocation	Debt Issuance and Interest Cost Allocation	Adjusted Accelerated Property Road Tax Repair Allocation
Marana	6.255	$ 683,955	($ 37,530)	$ 646,425
Oro Valley	7.588	829,717	(45,528)	784,189
Sahuarita	2.751	300,798	(16,506)	284,292
South Tucson	0.272	29,733	(1,632)	28,101
Tucson	41.190	4,504,046	(247,140)	4,256,906
Unincorporated Area	41.944	4,586,605	(251,664)	4,334,941
Totals	**100.000**	**$10,934,854**	**($600,000)**	**$10,334,854**

Total Funding

Table 3 below shows the total funding available to each jurisdiction under the base and accelerated programs. The funding is anticipated to total $19.5 million for FY 2017/18.

Table 3: Total Road Repair Revenue by Jurisdiction.

Jurisdiction	Base Funding Allocation	Adjusted Accelerated Property Road Tax Repair Allocation	Total
Marana	$ 537,409	$ 646,425	$ 1,183,834
Oro Valley	651,936	784,189	1,436,125
Sahuarita	236,357	284,292	520,649
South Tucson	23,369	28,101	51,470
Tucson	3,538,909	4,256,906	7,795,815
Unincorporated Area	3,603,691	4,334,941	7,938,632
Totals	**$8,591,671**	**$10,334,854**	**$18,926,525**

Interest and Reimbursable Expenses

To maximize the available funds for the regional local roadway repair program under Pima County's constitutionally restricted expenditure limit, the County intends to fund these costs by issuing Certificates of Participation (COPs). The COPs will be on a three-year repayment schedule because spending long-term debt proceeds is not subject to the constitutionally restricted expenditure limit. Over 95 percent of this debt will be repaid in the first year. A portion of the road tax revenues allocated to the jurisdictions will be used to pay for the jurisdictions' proportionate share of the financing costs (i.e., associated interest and issuance costs). Financial tracking of the program will be performed by the County's Finance Department to provide transparency on the costs and charges to the program.

II. PIMA COUNTY TRANSPORTATION ADVISORY COMMITTEE

The County has various advisory committees that provide advice and make recommendations to the Board of Supervisors. These committees meet under structured Open Meeting Law requirements. The TAC must meet these requirements.

Committee Formation

At FY 2017/18 Tentative Budget adoption, the Board created the 13-member TAC, with each Board member having 2 appointments from their supervisorial district. In addition to the Board appointments, the County Administrator has 3 appointments restricted to individuals with established transportation expertise, including management, finance, engineering or maintenance of transportation systems. The appointments to the TAC are as follows:

- District 1 – Chris DeSimone and Reggie Drout
- District 2 – Dan Eckstrom and Eric Ponce
- District 3 – Rick Price and Amber Smith
- District 4 – Sergio Arellano and Lucretia Free
- District 5 – Dan Castro and Bob Gugino
- County Administrator – John Bernal, Tony Paez, and Curtis Lueck

Committee Responsibilities

The responsibilities of the TAC are expected to include the following:

- Receiving public input
- Selecting a prioritization methodology for Pima County roadways
- Recommending the selection of roads to the Board
- Confirm proposed jurisdictional roadways adhere to funding distribution
- Recommend Year 1 roadway treatments (including approved alternate roadways in the event issues arise with other chosen roadways)
- Other responsibilities outlined in the County Administrator's June 20, 2017 *"Fiscal Year 2017/18 Final Adoption of Overall Pima County Budget"* memorandum (Exhibit 1).

The first priority of the TAC will be to identify and prioritize the recommended Year 1 property tax roadway improvements for consideration by the Board of Supervisors in October 2017.

Committee Schedule

It is anticipated the TAC will develop roadway repair recommendation for Year 1 (FY 2017/18) of the program by October 10, 2017. The recommendations are expected to be forwarded to the Board of Supervisors by October 17, 2017. Given this timeframe, the TAC will be asked at their first meeting to determine their meeting schedule (weekly or biweekly) and durations as needed to achieve this goal.

Pavement preservation recommendations for Years 2 to 5 of the program will be determined by the committee at meetings after October 17, 2017.

Initial Meeting

The first meeting of the committee was held on August 1, 2017. At this meeting, the members took the following actions:

- Selected a Chair and Vice Chairs
- Set their meeting schedule
- Reviewed the current state of roads
- Reviewed the proposed program
- Reviewed repair prioritization methodologies

Communication and Public Outreach

Public input is essential to the success of the program. The Committee will include a call to the audience at the end of their meetings for this purpose. Additional outreach will include the provision of information online through a dedicated website. The website will describe the program, provide work status, announce meetings and provide summaries of the TAC meetings.

The Pima County Department of Transportation (PCDOT) will communicate with residents, property owners, businesses, school districts and emergency services regarding upcoming pavement preservation programs. News releases, social media postings, message boards and door hangers will also be used for advanced notification of pavement repair work. Changes to construction schedules will be emailed and posted on social media and the PCDOT webpage.

The following is the website link for the pavement preservation program and committee activities:

http://webcms.pima.gov/cms/One.aspx?portalId=169&pageId=355530

III. PAVEMENT CHARACTERISTICS AND FACTORS AFFECTING PAVEMENT CONDITION

Asphalt Concrete (AC) is a mixed composite of gravel (coarse) and sand (fine) aggregates bound together with asphalt oil (binder). It is a flexible pavement, distributing the vehicle wheel load down through the layers of a pavement section. A pavement section consists of the AC, a base material layer or layers (an engineered aggregate mixture compacted on top of the subgrade), and the subgrade (the existing ground). All discussions regarding pavement decay that follow assume an engineered pavement section appropriate for the road use and constructed to industry standards.

Pavement Deterioration

AC degrades naturally over time, as shown in Exhibits 1 and 2. AC is weathered by the elements and by traffic using the roadway. As the elements weather the exposed AC, it begins to dry out and loses flexibility due to loss of oil and aggregate material (known as raveling). The material underneath remains flexible, which causes shear stresses to build between the top and bottom of the AC layer and surface cracking begins. When water penetration occurs, the weathering process begins to have more of an effect on the AC. A theoretical pavement condition example is provided in Figure 1 below that depicts the following:

- The purple line indicates a time-based maintenance schedule, where the same treatment is applied over a consistent period of time.
- The yellow-orange line indicates a condition-based maintenance schedule, where a treatment is applied based on the condition of the road, not on a set timeframe. This requires monitoring and the ability to perform the maintenance when necessary. The line in this graph is shown in the Preservation zone, though condition-based maintenance may occur in the Maintenance zone as well. The difference is the cost of the treatment. The longer any maintenance is deferred, the more expensive it becomes to treat a roadway.

- The red line indicates the intervention threshold, where essential maintenance is required to prevent or delay the pavement from reaching a condition where treatment that is more intensive is required.
- The blue line indicates a point where the road condition requires an overlay to replace the surface. Unless more strength is needed in the pavement section, a road should be milled and then paved to provide the same elevation profile. It should be noted that while a mill and overlay provides a new pavement surface, it does not go back to a "10" condition and can reflect cracks, which will require maintenance more quickly than a new road.

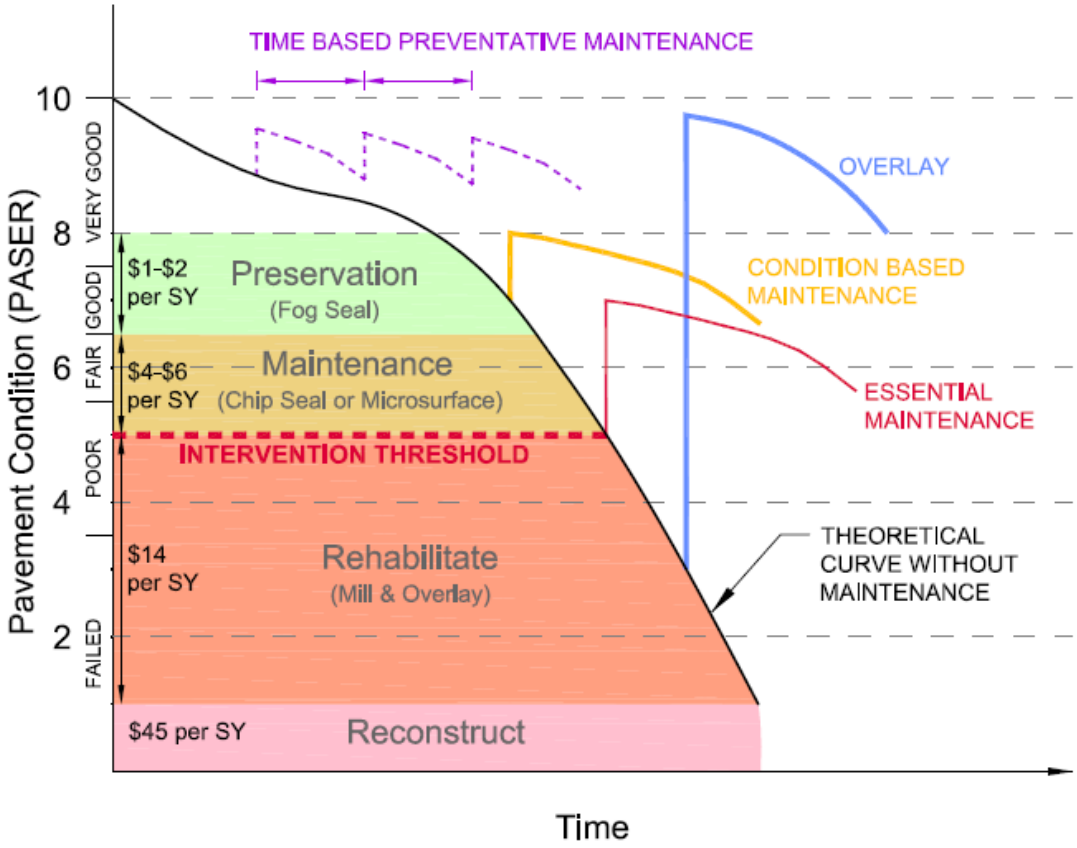


Figure 1: Pavement Condition Curve.

Pavement Maintenance

Regular preventative maintenance over time helps delay the effects of weather and enables the pavement to last longer. Pavement life can be extended with sustained or spot maintenance intrusion. Figure 2 below graphs Pima County's pavement condition curve on roads where pavement preservation occurred.

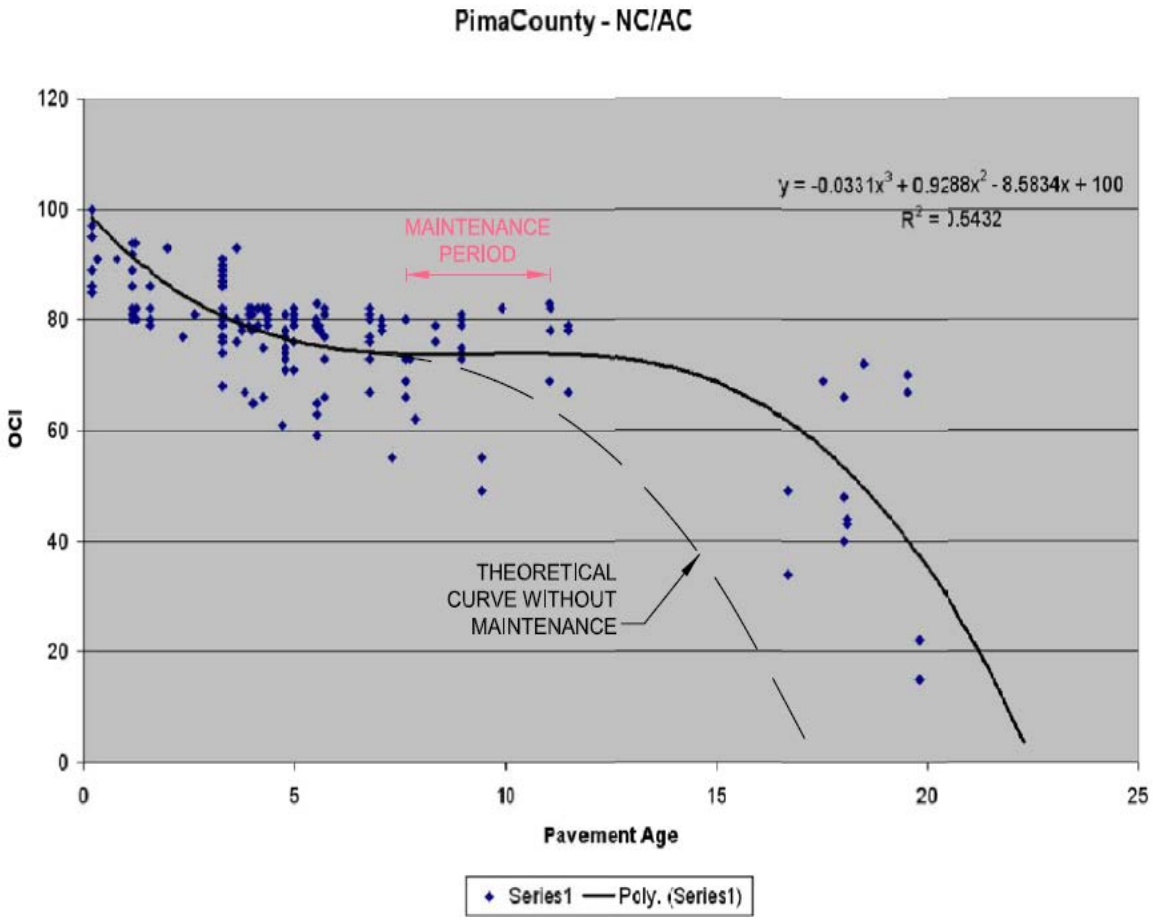


Figure 2: Pima County Pavement Condition Curve

IV. ROADS, CONDITIONS AND REPAIR PROGRAMS

Road networks distribute traffic and generally consist of four types of roads that vary in access control, traffic volume and the geographic nature (rural or urban). These roadway types are freeways/highways, arterials, collectors and local roads. Table 4 below shows there are a total of 2,135 miles of maintained roads in unincorporated Pima County. Of this amount, 1,866 miles are paved and 269 miles are unpaved. The majority of paved roads (1,235 miles) are local roads (either within a subdivision or outside a subdivision). There are 632 miles of arterial and collector roads. The focus of this repair program is local paved roads.

Pima County Existing Conditions

Table 4 also provides information on the condition of the roads: 408 miles (65 percent) of arterial and collector roads are in Poor or Failed Condition. There are 794 miles (64 percent) of local roads in this same Poor or Failed condition. Appendix B shows the pavement ratings of all roads in the unincorporated area by Supervisorial District.

Table 4: Condition, Type, and Treatment Costs for Unincorporated Pima County.

Condition	Arterial	Collector	Local	Total	Treatment Type	Cost Per Mile	Cost
Unrated	2	2	62	66			
Failed	8	109	212	329	Rehabilitation	$246,400	$ 81,065,600
Poor	90	201	582	873	Rehabilitation	211,200	184,377,600
Fair	16	28	119	163	Major Seal Coat	70,400	11,475,200
Good	47	60	102	208	Minor Seal Coat	26,400	5,491,200
Very Good	37	32	158	227	Nothing	0	$0
Totals	**200**	**432**	**1,235**	**1,866**			**$282,409,600**

Total Miles	**2,135**	**Total Paved**	**1,866**
Paved	1,866	Arterial Miles	200
Dirt Miles	269	Collector	432
		Local Miles	1,235

Pima County Roadway Repair Programs

Table 4 includes information on the treatment type and estimated costs to repair paved roads in unincorporated Pima County. There are four general treatment types at varying costs; they are listed in Section IV. The estimated cost to treat all 1,866 miles of paved roads in the unincorporated area is $282.4 million. The estimated cost for reconstruction of all 794 miles of Poor or Failed local roads is $175.2 million.

Arterial/Collector Roadways

Pima County has an existing Arterial/Collector Pavement Preservation Program, funded by Highway User Revenue Funds (HURF) (State gas tax and vehicle licensing fees), that is in the process of procuring bids to provide $6 million in preservation work for 59 miles of arterials and collectors. Arterial and collector roadways are not the focus of this roadway repair program. The Table 4 condition assessment dates from July 2017 and does not reflect improved conditions on the 59 miles of arterial and collector roadways that are now programed for pavement preservation treatment. Treating of these roadways will generally preserve them at their current rating for a longer period.

Local Roadways

Pima County has provided some preservation to local roads when money was available. The creation of the Regional Local Road Pavement Preservation Program enables Pima County the opportunity to affect more of the local roads in a data-driven, systematic process.

Other Jurisdictions' Road Conditions and Repair Programs

The following summarizes the roadway repair programs of the other local jurisdictions. Appendix D contains information provided by each jurisdiction.

Marana

The Town of Marana's Pavement Preservation Program employs a proactive maintenance philosophy, focused on prevention of major rehabilitation or reconstruction. The plan's objective is early surface treatment applications. Table 5 below is a roadway condition table for Marana.

Table 5: Marana Road Miles.

Condition	Arterial	Collector	Local	Total
Unrated/Newly Accepted	0	0	10.17	10.17
Failed	0	0	0	0
Poor	0	0	0.07	0.07
Fair	2.30	27.33	10.72	40.35
Good	4.49	35.64	59.90	100.03
Very Good	12.95	35.74	37.70	86.39
Totals	**19.74**	**98.71**	**118.56**	**237.01**

Oro Valley

The Town of Oro Valley's Engineering staff has worked to develop a program that maintains pavement based on an overall condition index (OCI) rather than repairing pavement based on constituent complaints. There is no committee required, nor a public review process; maintenance is data-driven and supported by the Town Council and the community. Table 6 below is a roadway condition table for Oro Valley.

Table 6: Oro Valley Lane Miles.

Condition	Arterial	Collector	Local	Total
41 - 55 Poor	6	7	29	42
56 - 70 Fair	28	62	127	217
71- 85 Good	35	13	84	132
86 -100 Very Good	16	4	6	26
Totals	**85**	**86**	**246**	**417**

Sahuarita

The Town of Sahuarita utilizes the data collection van to update the ratings information for all of the arterial and collector streets every two years. The Town's pavement preservation program is designed to include not only those roads in the worst condition, but to ensure roads in good condition do not deteriorate. It is the Town's goal to keep all roads at a pavement condition of 5 or greater. Table 7 below is a roadway condition table for Sahuarita.

Table 7: Sahuarita Lane Miles.

Condition	Arterial	Collector	Local	Total
Unrated	0	0	0	0
Failed	0	0	0	0
Poor	0	1	1	2
Fair	11	16	36	63
Good	14	4	18	36
Very Good	7	0	3	10
Total	32	21	58	111

South Tucson

No information provided.

Tucson

The goal of the City of Tucson's Pavement Management Section is to implement a system wide lifecycle pavement preservation program.

In November 2012, voters approved Proposition 409 providing $100 million in bond revenue to be spent over 5 consecutive years, with 85 percent of the proceeds dedicated to specified arterial and collector streets and the remaining 15 percent to be used to improve local streets.

A Bond Oversight Commission (BOC) was established by the City Manager, Tucson Mayor and City Council and charged with the responsibility of monitoring the progress of road improvement and for the selection process for the local street program.

In May 2017, City voters overwhelmingly approved a half-cent sales tax increase over the course of five years beginning July 1, 2017. Of the projected $250 million to be collected under Proposition 101, $100 million will be used for road repair.

In addition to the Propositional programs, the Transportation Department is performing ongoing scheduled maintenance. This includes year-round pothole patching and repair, pavement rejuvenation in the fall, and crack sealing in the winter. Chip-seal and other local street repair programs are realized as funding permits. Table 8 below shows roadway conditions for Tucson.

Table 8: Tucson Centerline Mile Distribution.

Condition	Arterial/ Intersection	Collector	Local	Total
Unrated	0	0	2	2
Failed to Very Poor	13	16	379	408
Poor	100	48	690	838
Fair	24	5	91	120
Good	66	7	85	158
Excellent	97	9	71	176
Totals	299	85	1,318	1,703

V. ROADWAY RATING CLASSIFICATIONS

The following summarizes the roadway condition rating systems used by unincorporated Pima County and other jurisdictions.

Pima County Roadway Rating System

Pima County utilizes the PASER (Pavement Surface Evaluation and Rating) system to evaluate the condition of roads. PASER is a program based on the surface conditions (roughness, potholes etc.) as determined by a regionally funded van that evaluates the arterial/collector roadway conditions. The van operates in all jurisdictions and generally evaluates arterial and collector roads in each jurisdiction every two years. The van does not collect data for local roads. Local roadway conditions are evaluated by a physical survey from a truck. Most local County roads are analyzed every five years.

Table 9 below shows the 5 pavement rating categories. Roadway ratings range from PASER 1 - 2 - 3 (Failed) to PASER 8 -9 -10 Very Good.

Table 9: Pavement Rating as of May 2017.

Very Good (PASER 8 – 9 – 10)
Good (PASER 7)
Fair (PASER 6)
Poor (PASER 4 – 5)
Failed (PASER 1 – 2 - 3)

The status of unincorporated roadways are shown in Table 4 and provided in Appendix B by Supervisorial District.

Other Jurisdictions Roadway Rating Systems

The roadway rating systems used by other jurisdictions, where different from Pima County's, are shown below.

Marana

Uses an OCI rating system. Roadway segments receive a rating of 0 to 100, with 100 being a newly constructed roadway.

Oro Valley

Uses an OCI rating system.

Sahuarita

Uses PASER data collected yearly on arterials and collectors; every two years on local roads.

South Tucson

Uses PASER assisted by Pima County.

Tucson

Uses an OCI rating system.

VI. TREATMENT TYPES

The following summarizes the roadway treatment types used by unincorporated Pima County and other jurisdictions.

Pima County Treatments

Repair/Reconstruct

Repair treatments typically involve replacement of AC, either fully or partially. This type of reconstruction takes place when the AC has failed and the base or subgrade have also failed. Reconstruction is the optimal treatment for Poor or Failed roads and generally includes milling the top approximate two inches of the pavement (down to the base) and replacing with asphalt. This is the most expensive treatment at $211,000 to $246,000 per mile for an average 30-foot wide roadway (width of a typical local road). The cost range is due to whether the base material is exposed by milling the AC off and, if so, whether grading or additional work will be needed prior to adding the overlay.

Preservation

Preservation treatments work to preserve the condition of the AC. The treatments usually raise the condition one or two PASER rating levels, depending on the treatment and initial roadway condition. Typically, these treatments involve a seal coat, which is laying down an asphalt oil/water emulsion that helps renew and seal aged asphalt surfaces. These treatments help seal small cracks or fill surface voids to prevent water from penetrating the AC underneath. These treatments vary in cost from $53,000 per mile for a major seal coat (a chip seal, micro-seal, or micro-surface) to $15,000 for a minor seal coat (a fog seal).

- Major Seal Coats contain aggregate within the emulsion (micro-surface or micro-seal) when they are placed or may have a thin layer of gravel placed on top of the emulsion and rolled (chip seal). They vary from $4 to $9 per square yard depending on the type of binder or emulsion used.
- Minor Seal Coats are generally the emulsion itself spray applied (fog seal) and cost $1 to $2 per square yard.

Americans with Disability Act (ADA) Threshold

The US Department of Justice and Department of Transportation require the installation of new ADA curb ramps or the upgrade of existing ramps to ADA compliance whenever streets, roadways or highways are altered, if street-level pedestrian walkways cross curbs. Ramps are not required if there is not an existing pedestrian walkway with a prepared surface for pedestrian use, or if there is no curb, elevation or other barrier between the street and walkway. Alterations include many types of resurfacing. Figure 3 below, taken from the federal briefing memorandum, identifies which treatments are considered alterations and require ADA curb ramps. No ADA improvements will be funded from the property tax proceeds. If a jurisdiction select roadways requiring ADA improvements, the cost must be funded separately by the jurisdiction.

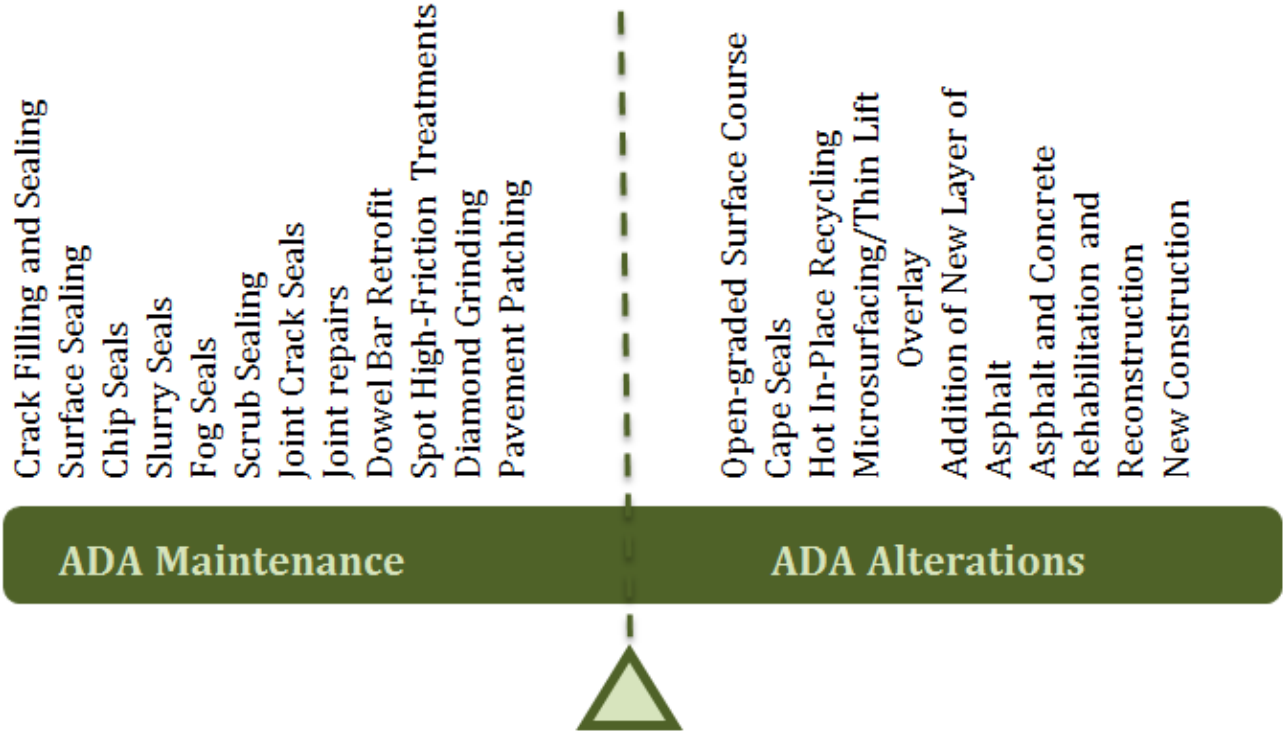


Figure 3: ADA Alterations Requiring Curb Ramps.

<u>Other Jurisdictions' Roadway Treatments</u>

The other jurisdictions generally use the same treatment types with slight variations on specific treatments used. The following summarizes information provided by each jurisdiction regarding their treatment specifications.

Marana

OCI	Treatment Type	Estimated Cost per SY
100 - 70	**Minor:** Crack Seal, Fog Seal, PMM, HA5, PASS Rejuvenator, TRMSS, Green Asphalt, Liquid Road	$0.63 - $2.20
69 - 40	**Moderate:** Slurry Seal, Micro Surface, Chip Seal, Rubber Chip, Scrub Cape, Overlay, Green Asphalt, Liquid Road	$2.70 - $11.00
39 - 0	Full Depth Mill and Overlay Full Reconstruct including base	$12.00 - $30.00

Oro Valley

In addition to treatments used by Pima County, may use Stress Absorbing Membranes (SAM) in conjunction with other treatments methods.

Sahuarita

Pavement Condition Range	Qualified Treatments
10-8	Various Fog Seal Applications
10-7	Crack Seal/Patching/Scrub Seal, Various Fog Seal Applications, Slurry Seal/Micro Surface
7-5	Crack Seal/Patching/Scrub Seal, Slurry Seal/Micro Surface PMRE/CRS-2P Chip Seal, PG-TR Chip Seal Cape Seal (Various), Double Chip Seal (Various), Conventional Overlay
5-3	Crack Seal/Patching/Scrub Seal, Asphalt Rubber Chip/Cape Seal, Double Chip Seal (Various), Three Layer Cape Seal (Various), SAMI/Rubber Modified Overlay, Conventional Overlay, Mill and Fill
3-0	SAMI/Rubber Modified Overlay, Conventional Overlay, Mill and Fill, Reconstruction

South Tucson

Uses the same treatments as Pima County.

Tucson

Treatment Type	Service Life	Description
Cape Seal	10 Years	A cost effective dense pavement treatment used to help seal and bond the cracks in the existing pavement and improve chip retention and smoothness of the driving surface. It is used when the pavement condition has moderate distress and cracks and limited or no rutting. A Cape Seal is ideal for low traffic volume roadways and is the culmination of a chip, surface, and seal coats.
Chip Seal (Surface Seal)	7 Years	A surface treatment in which the pavement is sprayed with asphalt (generally emulsified) and then immediately covered with aggregate and rolled. Chip seals are used primarily to seal the surface of a pavement with non load-associated cracks and to improve surface friction on low volume streets.
Fog Seal (Surface Seal)	3 Years	A light application of slow setting asphalt emulsion diluted with water and without the addition of any aggregate applied to the surface of a bituminous pavement. Fog seals are used to renew aged asphalt surfaces, seal small cracks and surface voids, or adjust the quality of binder in newly applied chip seals.
Mill and Overlay (Structural Overlay)	15 Years	This process removes a defined thickness of the surface of the existing asphalt pavement, and after observed defects are corrected, the same thickness is replaced with new asphalt thereby returning the pavement to a nearly new condition. This is the second most costly pavement treatment option.
Reconstruction	20 Years	Complete design and pavement replacement of an existing failed street.
Seal Coat	3 Years	This treatment is mainly a preventive maintenance procedure applied to the asphalt pavement surface to prevent or delay costly corrective measures. Asphalt seal coats are surface treatments designed to seal and protect the asphalt pavement from harmful environmental conditions such as sunlight, rain, and snow. Surface treatments are also applied to enhance the wearing properties and improve the traction between the pavement and vehicle tires.
Surface Seal	7 Years	This treatment provides a "skim coat" of a restorative product to the existing pavement surface, filling minor cracks and correcting pavement defects such as rutting and raveling when applied.

VII. PRIORITIZATION METHODOLOGY

Typical and recommended methodologies of roadway maintenance prioritization are shown below.

Pima County Methodology (Preservation versus Rehabilitation)

There are two main approaches to prioritization: repair the worst roadways first or maximize the number of miles preserved. Table 10 below shows total miles of roadway that could potentially be treated based on road condition and treatment type. Due to the higher cost of rehabilitation versus preservation or maintenance, fewer miles of roadway could be reconstructed versus preserved.

Table 10: Total Miles Treatable in Unincorporated Pima County.

Condition[1]	Local Road Miles	Improvement Cost Total[2]	Year 1 Disbursement	Total Miles Constructable[3]
Good	102	$ 2,692,800	$8,190,296	102 (G) + 78 (FR) = 180
Fair	118	8,307,200		116 (FR)
Poor	582	122,918,400		38 (PR)
Failed	212	52,236,800		33 (FL)

[1] Good (G), Fair (FR), Poor (PR), Failed (FL)
[2] Cost for each Treatment (per mile): G-$26,000; FR-$70,400; PR-$211,200; FL-$246,400
[3] Assumes all of disbursement would be used per condition

The TAC will be asked to decide on the preferred approach for prioritization. After a prioritization method is selected, additional criteria can be applied to determine which specific roads are chosen. Such criteria may include roadway volume, proximity, width, and the presence of curbs, sidewalks or medians. It is recommended that roadways be considered in groupings of subdivisions rather than randomly treating roadways that are geographically separated.

The TAC may also be presented with an option by neighborhoods for consideration of forming an Improvement District to accept some of the cost burden in order to maximize the overall funding available. If the TAC deems this approach appropriate, it should only be given consideration after roadways are selected for prioritization.

Other Jurisdictions' Prioritization Methodologies

Other jurisdictions have indicated they have established methodologies for roadway prioritization. These approaches are shown below. Additional details are included in the information provided by the jurisdictions in Appendix D.

Marana

Applies a "keep good roads good" philosophy and will repair as necessary.

Oro Valley

Applies a "keep good roads good" philosophy and will repair as necessary.

Sahuarita

Applies a preserve first approach and performs repairs when funds are available.

South Tucson

No additional information provided.

Tucson

Uses a Bond Oversight Committee and strives to achieve a balance between preservation and reconstruction.

VIII. CONTRACTING AND PERFORMING WORK

Project Administration

All of the work performed under this program will be administered by the PCDOT. PCDOT will develop the pavement material specifications, specify roadway limits and bid the work in all five jurisdictions. The County will oversee the construction activities via a right of way use permit within each jurisdiction.

Inspection

The County is available to perform the materials testing and oversee the actual construction, with the local jurisdiction paying for the County's inspection services from their roadway tax revenue allocations. As their option, a jurisdiction may utilize their inspection resources to oversee the construction and perform materials testing. If this option is selected, PCDOT will perform a final quality assurance inspection to verify the quantity and quality of the final product.

Table 11 below shows the anticipated reimbursement as a percentage of the contract amount:

Table 11: Fees Reimbursable to the County from Jurisdictions.

General Administrative (GA) Oversight	Lab Oversight Only	Inspection	Lab Work
1 percent	0.50 percent	4 percent	1 percent

Note: All jurisdictions will incur GA and Lab Oversight at 1.5 percent.

IX. ANNUAL REPORTING AND PROGRAM EVALUATION

Annual End of Fiscal Year Reporting (Fiscal Year Ends July 1)

Pima County staff will develop an annual report at the end of each fiscal year. The report will summarize the roads treated, provide a financial update and address lessons learned or recommendations for the following year.

Program Evaluation

As a new program, all aspects will be evaluated after the first year of implementation. Staff will assess the internal and external aspects of the program, including the coordination with the cities and towns. At a minimum, an evaluation will include the following:

1. Prioritization process for roads and treatments
2. Coordination with cities and towns
3. Procurement process
4. Financial management process
5. Quality of work/quantity of work
6. Appropriateness of selected treatment types
7. Utility coordination
8. Estimated cost versus actual bid prices
9. Effectiveness of project status reporting
10. Public outreach and other public communications

X. TRANSPORTATION FINANCING AND FUTURE FINANCING OPTIONS INFORMATION

Extensive communication has been generated over the past several years regarding the topic of transportation maintenance and funding. This information can be accessed at the web link below:

http://webcms.pima.gov/cms/one.aspx?portalId=169&pageId=39962

Board of Supervisors Memorandum

June 20, 2017

Fiscal Year 2017/18 Final Adoption of Overall Pima County Budget

I. BACKGROUND

I submitted the Fiscal Year (FY) 2017/18 Recommended Budget to the Board of Supervisors on April 26, 2017. The Tentative Budget was adopted by the Board on May 23, 2017 as originally recommended, with the following adjustments:

A. Transportation Property Road Tax

My original recommendation in my April 26, 2017 *Transmittal of the Recommended Fiscal Year 2017/18 Budget* memorandum proposed that all property tax rates remain unchanged from the FY 2016/17 Adopted Budget. I also indicated staff was reviewing a number of potential proposals to present to the Board that, if approved, could provide funding for a local roadway pavement preservation and repair program in the unincorporated area of the County.

In my May 23, 2017 *Amended Tentative Budget Recommendation Regarding Pavement Preservation, Roadway Surfacing and Repair* memorandum to the Board, I discussed the failure of the State to address pavement and road preservation needs on a statewide basis. I also advised the Board the City of Tucson held an election on May 16, 2017 to approve a five-year, one-half percent increase in their sales tax rate to provide $100 million in pavement preservation and repair funds. Tucson voters approved this proposal.

My May 23 memorandum proposed a new funding option to the Board of enacting a new property road tax as permitted by Arizona Revised Statutes (ARS) 28-6712. The property road tax is separate from and a subset of the County's primary property tax rate, but it is added to the overall primary property tax rate for purposes of collection, expenditure limit calculation and for Truth in Taxation Hearing requirements.

The Board tentatively adopted the maximum allowable tax rate for a property road tax of $0.2500 per $100 of net taxable value. Upon final adoption by the Board, this rate would yield $19,526,525 in revenue in FY 2017/18 dedicated only to road repair and pavement preservation of local and neighborhood roads throughout the County. Arterial and collector roads will not be funded by this property road tax. Those roads will have their own separate funding mechanisms as discussed in my earlier memorandum. These funds will be moved to the appropriate arterial and collector road capital projects as they are realized.

The Board also approved the very specific uses and allocation methods of the tax proceeds to the unincorporated area and to cities and towns. Based on the allocation methodology for the tentatively adopted property road tax, $8,190,205 of FY 2017/18 Property Road Tax collections will be allocated to unincorporated Pima County, with the remaining $11,336,320

allocated to cities and towns. Allocations to individual cities and towns within each supervisorial district are also included in my memorandum.

Given the Board action of adopting the Tentative Budget on May 23, I will assume the Board intended for the road tax to be categorized in two components for FY 2017/18; base funding ($8,591,671) and accelerated funding ($10,934,854). The first component is base funding where the road tax is fiscally neutral, or $0.1100 of the property tax increase based on other property tax, both primary and secondary reductions. This tax neutral base funding will be distributed to each supervisorial district as originally proposed in Table 5 (Page 8) of the May 23 communication. These amounts are shown in Table 1 below.

Table 1: Total Property Road Tax Repair Revenue by Supervisorial District (Fiscally Neutral 11 Cents).

District	Unincorporated Area	Marana	Oro Valley	Sahuarita	South Tucson	Tucson	Total
1	$1,290,121	$225,497	$651,936	0	0	$ 17,341	$2,184,895
2	201,806	0	0	$135,811	$23,369	1,029,469	1,390,455
3	911,734	311,912	0	25,219	0	564,102	1,812,967
4	886,508	0	0	75,327	0	832,705	1,794,540
5	313,522	0	0	0	0	1,095,292	1,408,814
Total	**$3,603,691**	**$537,409**	**$651,936**	**$236,357**	**$23,369**	**$3,538,909**	**$8,591,671**

The distribution methodology for the accelerated funding, $0.1400 of the property road tax, will be determined by the Board after staff recommendations as to how best to preserve the existing investment in the transportation system. In addition, the Board will receive recommendations from the new, independent Transportation Advisory Committee for allocation of accelerated funding (see the Transportation Advisory Committee section in this memorandum). This methodology will be presented to the Board at a future public hearing for review, direction and approval. To ensure tax equity with city and town residents, the accelerated funding must also be distributed between cities, towns and the unincorporated area as shown in Table 2 below (excluding issuance and interest impacts).

Table 2: Accelerated Property Tax Road Repair Revenue by City, Town and Unincorporated Area (14-cent tax increase, $10,934,854)

Jurisdiction	Percent of Assessed Value	Accelerated Property Road Tax Repair Allocation
Marana	6.255	$ 683,955
Oro Valley	7.588	829,717
Sahuarita	2.751	300,798
South Tucson	0.272	29,733
Tucson	41.190	4,504,046
Unincorporated Area	41.945	4,586,605
Total	**100.000**	**$10,934,854**

In addition to tentatively adopting this new levy and rate, the Board also tentatively adopted the following reductions to the County's General Fund primary property tax rate and secondary property tax rates to offset $0.1100 of the $0.2500 property road tax in FY 2017/18:

1. Reduce the General Fund primary property tax rate by $0.0800 per $100 of net taxable value.
2. Reduce the Library District secondary property tax rate by $0.0100 per $100 of net taxable value.
3. Reduce the Regional Flood Control District secondary property tax rate by $0.0200 per $100 of net taxable value.
4. Debt Service secondary property tax rate remains unchanged.

The Board also tentatively approved my proposed plan to make the property road tax fiscally neutral in the FY 2018/19 budget, along with levying this tax for possibly a five-year period. At the end of this timeframe, other regional funding alternatives can be considered.

Finally, the Board also directed staff to develop a methodology for determining the local roads that will be preserved and repaired within the individual supervisorial districts and the cities and towns within each district, the order of the repairs, the funds that will be dedicated to each roadway repair, and the final project approval process. The Transportation Advisory Committee section below discusses this methodology.

Transportation Advisory Committee. The County has numerous advisory committees that meet under structured Open Meeting Law requirements. These committees provide advice and counsel to the Board of Supervisors on a variety of subjects ranging from wastewater reclamation, environmental quality, animal care, land use and other important areas where the Board directs public services or establishes local governmental public policy. At the adoption of the Fiscal Year 2017/18 Tentative Budget, the Board asked for my recommendation regarding oversight of a transportation or highway maintenance and pavement program funded by the road property tax. I suggest this would be an appropriate role for an advisory committee. I also suggest such an advisory committee's role could be substantially expanded to include a variety of transportation issues facing the County.

I recommend the Board create a 13-member Transportation Advisory Committee, with each Board member having two appointments from their supervisorial district. The appointments may be from within a city or town in the district, or they may be from the unincorporated area of the district. In addition to the Board appointments, I suggest the County Administrator have three appointments that are restricted to individuals with established transportation expertise, including management, finance, engineering and maintenance of transportation systems. Preferably, the County Administrator's appointments would be retired professionals with substantial background and expertise in transportation.

The Transportation Advisory Committee's responsibilities would be as follows:

1. Make recommendations specifically related to transportation improvements, operation and maintenance in the unincorporated area of Pima County, as well as for transportation improvements, operation and maintenance within incorporated cities and towns where County funds are being spent for these purposes.

2. Make specific recommendations for streets and highways where County funds are spent for street/highway repair or pavement preservation within cities and towns. Such recommendations will be joint recommendations with any city or town transportation advisory committee.

3. Make recommendations on any roadway or highway capacity improvements that utilize any of the following funding sources:

    a. Regional Transportation Authority
    b. Pima Association of Governments
    c. Federal government
    d. Highway User Revenue Funds (HURF)
    e. Pay-as-you-go County HURF

4. Make recommendations regarding the Department of Transportation's annual budget.

5. Make recommendations regarding transportation policy and funding, including factual analysis of funding operation and maintenance claims or activities.

6. Make recommendations regarding other transportation matters as requested by the Board of Supervisors at a public hearing.

It should be noted that in making specific roadway recommendations regarding pavement preservation or repair on highways within cities and towns, the recommendation to the Board for specific funding allocations must be a joint recommendation of the County's Transportation Advisory Committee and any similarly formed citizen committee within a city or town. If a city or town does not have such a committee, the recommendation will be made by the Mayor and Council of that specific city or town.

B. Other Tentative Budget Adjustments Approved by the Board

The Tentative Adopted Budget also included the following changes from my proposed recommended budget of April 26, 2017:

1. General Fund

   a. The Proposed Tentative Adopted Budget includes a $0.0800 reduction in the General Fund primary property tax rate, from $4.2896 to $4.2096. This reduction in rates will reduce General Fund primary property tax revenue by $6,248,890.
   b. $55,756 to fund one-half of the cost of the Adult Probation Community Restitution Program.
   c. $63,285 to fund the salary and benefits costs of one surveillance officer who is part of the Domestic Violence Arrest Team.
   d. $154,500 of funding for seven outside agencies.
   e. $25,000 to fund new Constable training and benefits.
   f. A $6,547,032 decrease in the General Fund Budget reserve from the recommended amount of $56,919,918 to $50,372,886.

Tentative Adopted General Fund expenditures total $576,235,452.
Tentative Adopted General Fund Revenues total $550,053,197.

2. Other County Funds

   a. Transportation Property Road Tax Unit

   i. This unit will be utilized to account for the tentatively adopted property road tax of $0.2500 per $100 of net taxable value. If this primary property tax is levied by the Board, it will yield $19,526,525 in revenues ($8,591,671 in base funding and $10,934,854 in accelerated road repair funding) in FY 2017/18. These revenues will be accounted for within a new Transportation Property Road Tax Unit within the Transportation Fund, kept separate from other Transportation revenues, and dedicated exclusively to pavement preservation and repair of local roads.

   ii. In order to fit the full cost of the local roadway pavement preservation and repair program under Pima County's constitutionally restricted expenditure limit, the County intends to fund these costs by issuing Certificates of Participation (COPs) with three-year repayment schedules because spending long-term debt proceeds is not subject to the constitutionally restricted expenditure limit. A portion of the road tax revenues allocated to the jurisdictions will be used to pay for the jurisdictions' proportionate share of the financing costs (i.e., associated interest and issuance costs).

   iii. $19,526,525 of revenue received in the Transportation Property Road Tax Unit will be transferred to the County's Debt Service Fund. These funds will be dedicated exclusively to the COPs debt payments.

b. Debt Service Fund

The Tentative Adopted Budget includes an additional $17 million over the original recommended Debt Service expenditures to fund the first year of the three-year debt repayment schedule of Transportation Property Road Tax COPs. The remaining funds will be held to make the Year 2 and Year 3 debt repayments.

c. Capital Projects Fund

The Tentative Adopted Expenditure Budget includes $8,190,205 to pay for the costs of the local pavement preservation and repair program in the unincorporated area of the County and $11,336,320 to reimburse cities and towns for the local pavement preservation and repair costs within their boundaries. Both of these projects are funded with proceeds from the issuance of COPs debt net of issuance costs.

d. Fleet Services

Staff recommended that motor pool rates for all categories of vehicles be reduced by $55 per vehicle, per month in the Tentative Adopted Budget. This change in monthly rates will result in a countywide reduction in motor pool charges paid to Fleet Services of $1,000,000 from the Recommended Budget. Departments will be free to reallocate any savings as the result of this change to other supplies and services needs within their budgets.

e. Library District

The Library District's secondary property tax rate includes a reduction from the Recommended Budgeted property tax rate of $0.5153 to a Tentative Adopted Budget property tax rate of $0.5053. The purpose of this $0.0100 reduction in the rate is to offset part of the impact of the proposed new Transportation Property Road Tax. Overall, FY 2017/18 Library District property tax revenues are reduced by $781,062. This reduction in revenues will be absorbed within the District's existing fund balance.

f. Regional Flood Control District

The Regional Flood Control District's secondary property tax rate includes a reduction from the Recommended Budget property tax rate of $0.3335 to a Tentative Adopted Budget property tax rate of $0.3135. The purpose of this $0.0200 reduction in the rate is to offset part of the impact of the proposed new Transportation Property Road Tax. Overall, FY 2017/18 Regional Flood Control District property tax revenues are reduced by $1,425,483 from the recommended amount. This reduction in revenues will be absorbed within the District's existing fund balance.

g. Regional Wastewater Reclamation Fund

At their April 18, 2017 regular meeting, the Board of Supervisors approved three percent increases in Sewer User and Sewer Connection Fees. The Tentative Adopted Budget includes these increased revenues in the amounts of $3,979,461 and $411,857 respectively.

II. PROPOSED CHANGES TO THE TENTATIVE ADOPTED BUDGET

A. General Fund

1. $75,000 increase to the Facilities Management budget for additional operations and maintenance costs associated with the Mulcahey YMCA.

2. An offsetting adjustment of $75,000 to the General Fund Budget Reserve reducing the fund from $50,372,886 to $50,297,886.

III. RECOMMENDATIONS

I recommend the Board of Supervisors take the following actions:

A. Adopt the Fiscal Year 2017/18 final budget amounts and tax rates as set forth in the table below. These amounts and property tax rates are the same as those resulting from the Board's action at the adoption of the Overall Tentative Budget on May 23, 2017 and are reflected in the attached Arizona Auditor General prescribed schedules, including changes described in Section II above.

Fiscal Year 2016/17 Budget	Budget	Tax Rate
Total County Budget	$1,267,072,355	$5.9784
Primary Property Tax:		
General Fund Primary	576,235,452	4.2096
Transportation Road Tax	19,526,525	0.2500
Total Primary Tax Rate		4.4596
Secondary Property Taxes:		
County Free Library District	42,235,325	0.5053
Regional Flood Control District	17,496,778	0.3135
Debt Service	134,790,376	0.7000
Stadium District	5,611,862	------

B. Create a 13-member Transportation Advisory Committee, with each Board member having two appointments from their supervisorial district. The appointments may be from within a city or town in the district, or they may be from the unincorporated area of the district. In addition to the Board appointments, I recommend the County Administrator have three appointments that are restricted to individuals with established transportation expertise, including management, finance, engineering and maintenance of transportation systems.

Respectfully submitted,

C.H. Huckelberry
County Administrator

CHH/mjk – June 7, 2017

Attachments

c: Jan Lesher, Chief Deputy County Administrator
Tom Burke, Deputy County Administrator for Administration
Carmine DeBonis, Jr., Deputy County Administrator for Public Works
Keith Dommer, Director, Finance and Risk Management
Robert W. Johnson, Budget Manager, Finance and Risk Management

APPENDIX A

Map 1 - Base Tax Distribution

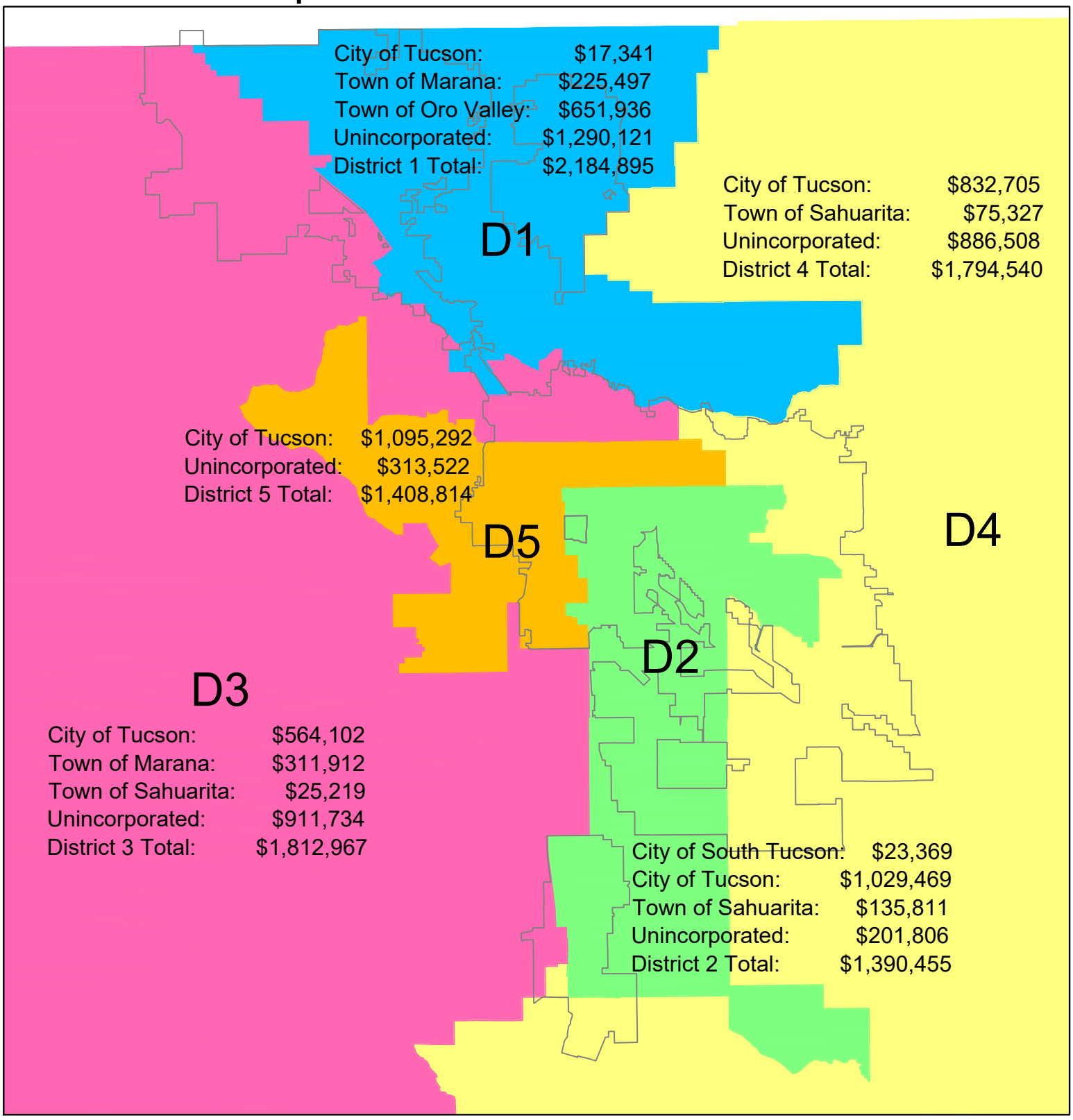


Table 1: Total Property Road Tax Repair Revenue by Supervisorial District (Fiscally Neutral 11 Cents).

District	Unincorporated Area	Marana	Oro Valley	Sahuarita	South Tucson	Tucson	Total
1	$1,290,121	$225,497	$651,936	0	0	$ 17,341	$2,184,895
2	201,806	0	0	$135,811	$23,369	1,029,469	1,390,455
3	911,734	311,912	0	25,219	0	564,102	1,812,967
4	886,508	0	0	75,327	0	832,705	1,794,540
5	313,522	0	0	0	0	1,095,292	1,408,814
Total	**$3,603,691**	**$537,409**	**$651,936**	**$236,357**	**$23,369**	**$3,538,909**	**$8,591,671**

Map 2 - Accelerated Tax Distribution

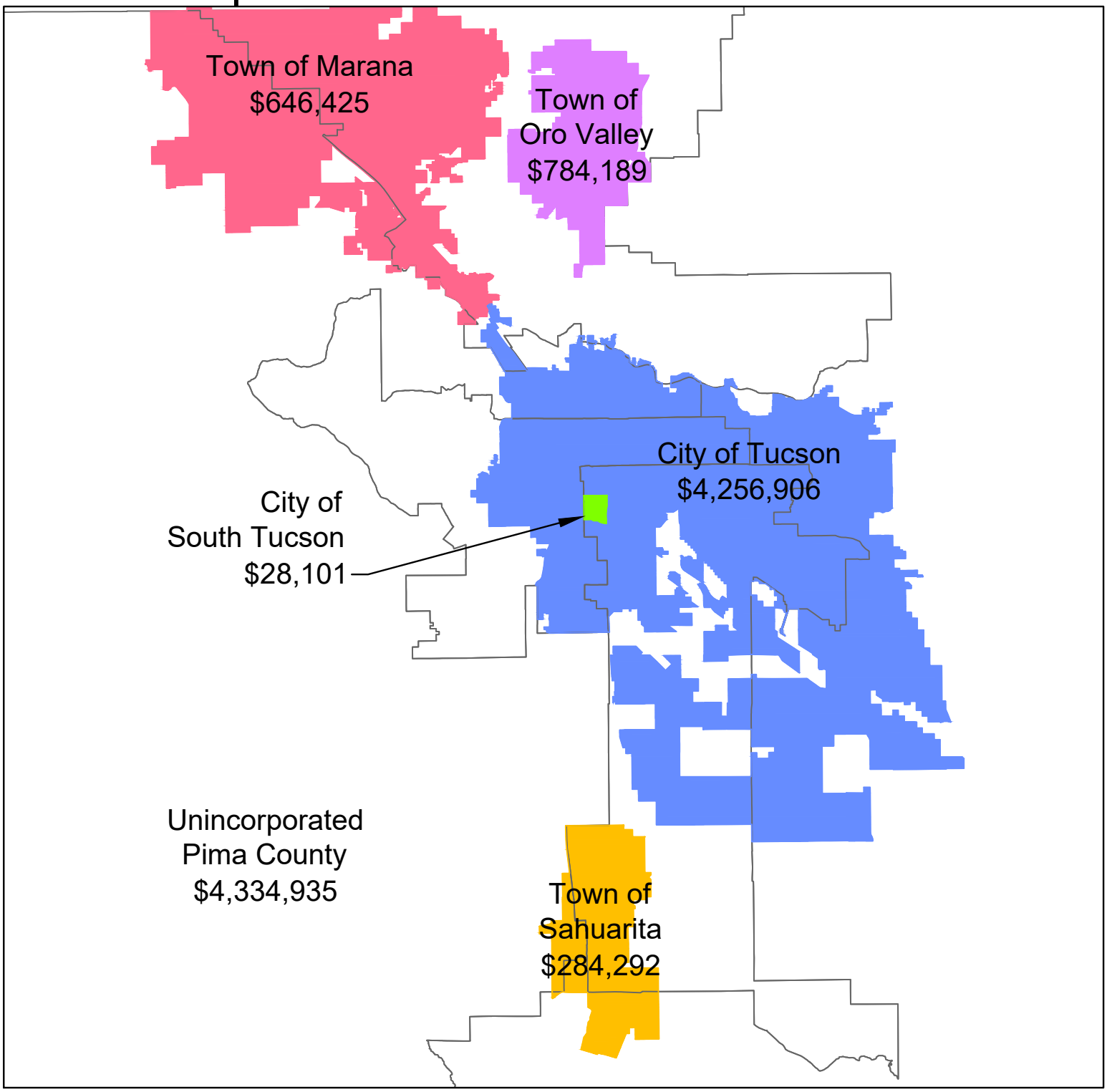
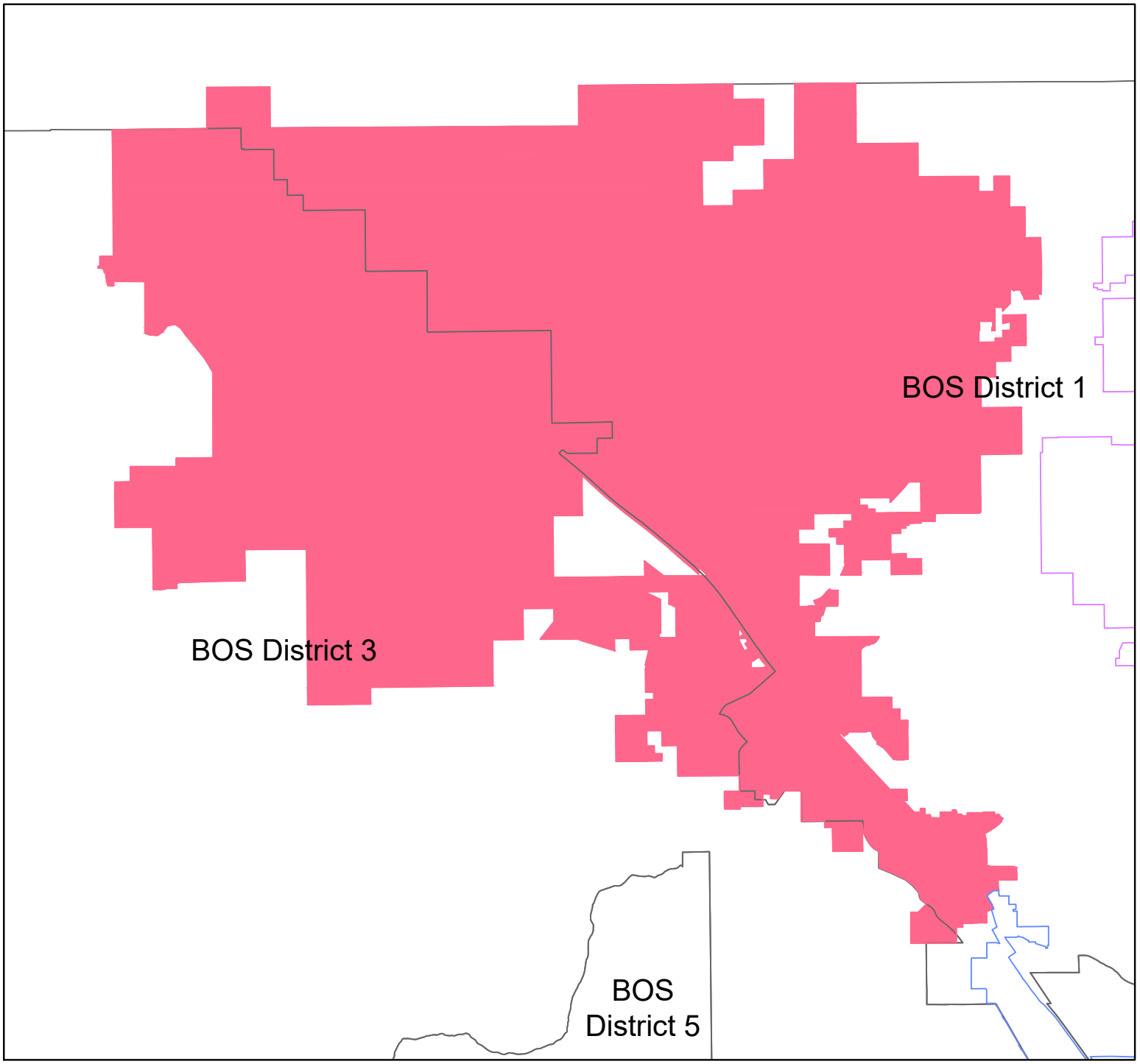


Table 2: Accelerated Funding Property Road Tax Repair Revenue by Jurisdiction

Jurisdiction	Percent of Assessed Value	Accelerated Property Road Tax Repair Allocation	Amount Allocated for Debt Issuance and Interest Costs	Adjusted Accelerated Property Road Tax Repair Allocation
Marana	6.255	$683,955	(37,530)	$646,425
Oro Valley	7.588	$829,717	(45,528)	$784,189
Sahuarita	2.751	$300,798	(16,506)	$284,292
South Tucson	0.272	$29,733	(1,632)	$28,101
Tucson	41.19	$4,504,046	(247,140)	$4,256,906
Unincorporated Area	41.945	$4,586,605	(251,670)	$4,334,935
Total	**100**	**$10,934,854**	**(600,006)**	**$10,334,848**

Marana Distribution



Town of Marana

Base Tax

District 1: $225,497

District 3: $311,912

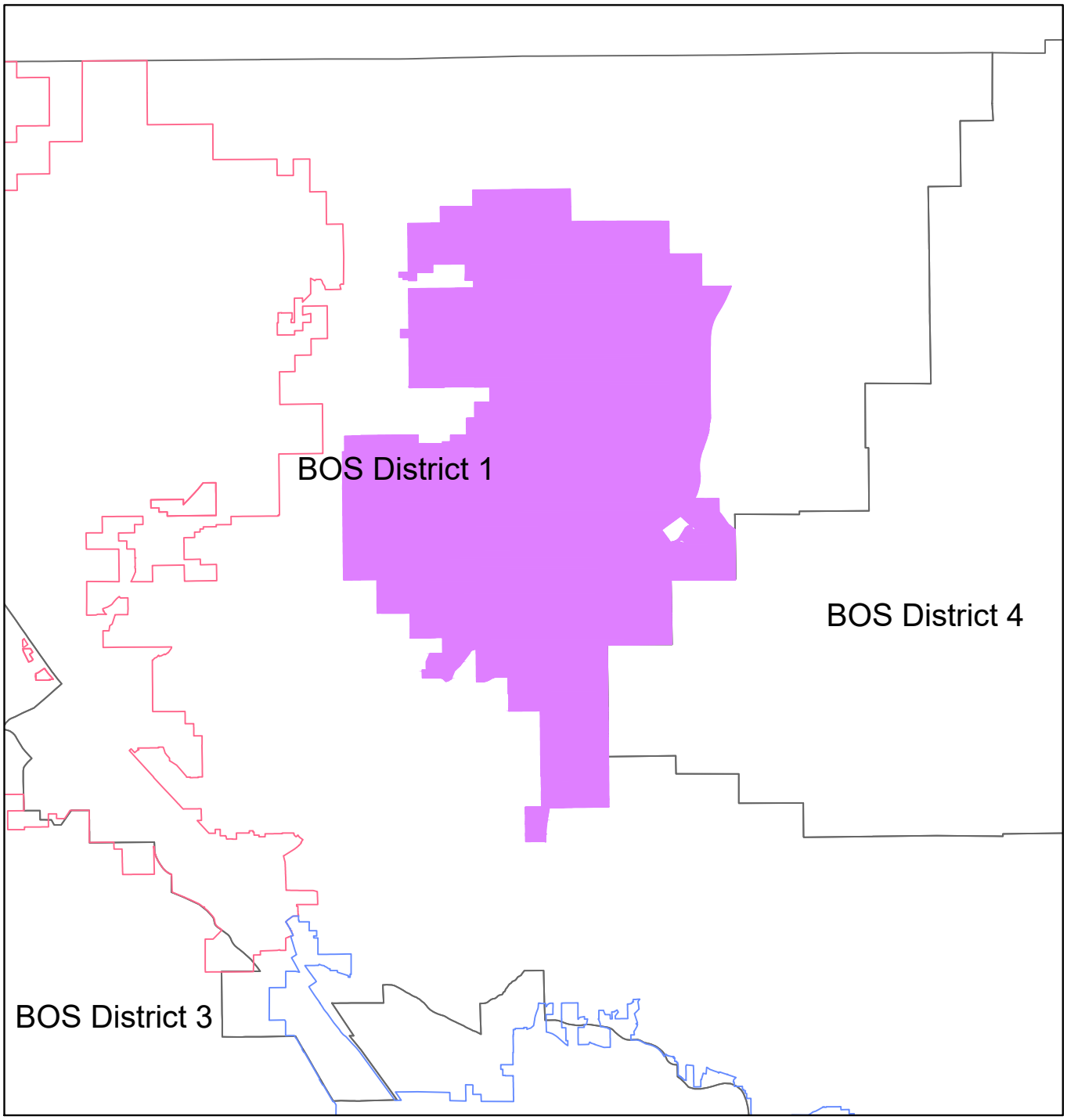
Accelerated Tax

Distribution: $646,425*

Total: $1,183,834

*A proportionate share of the Accelerated Property Tax Road Repair Revenues has been removed to pay financing costs, see Map 2

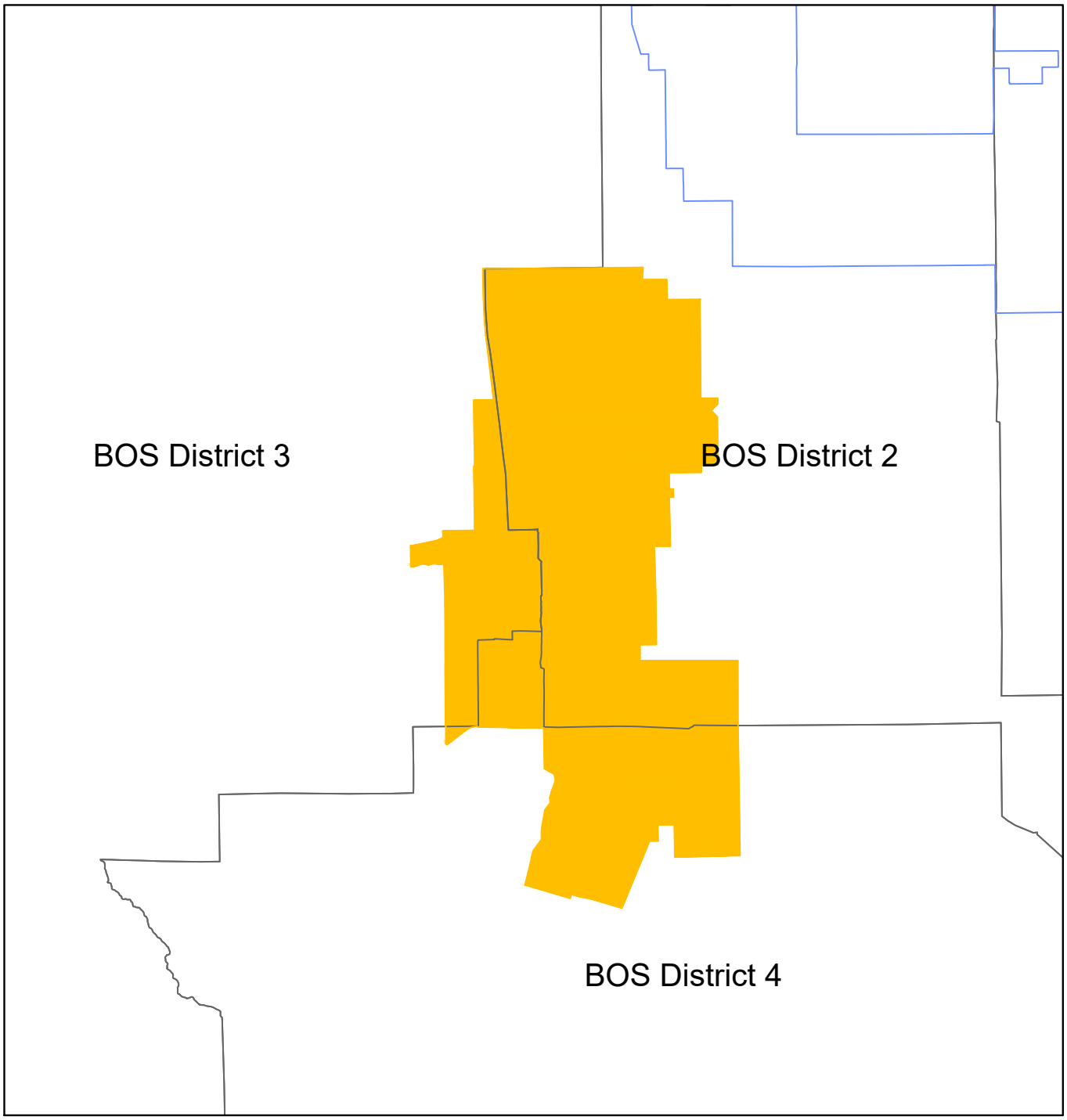
Oro Valley Distribution



Town of Oro Valley
Base Tax
District 1: $651,936
Accelerated Tax
Distribution: $784,189*
Total: $1,436,125

*A proportionate share of the Accelerated Property Tax Road Repair Revenues has been removed to pay financing costs, see Map 2

Sahuarita Distribution

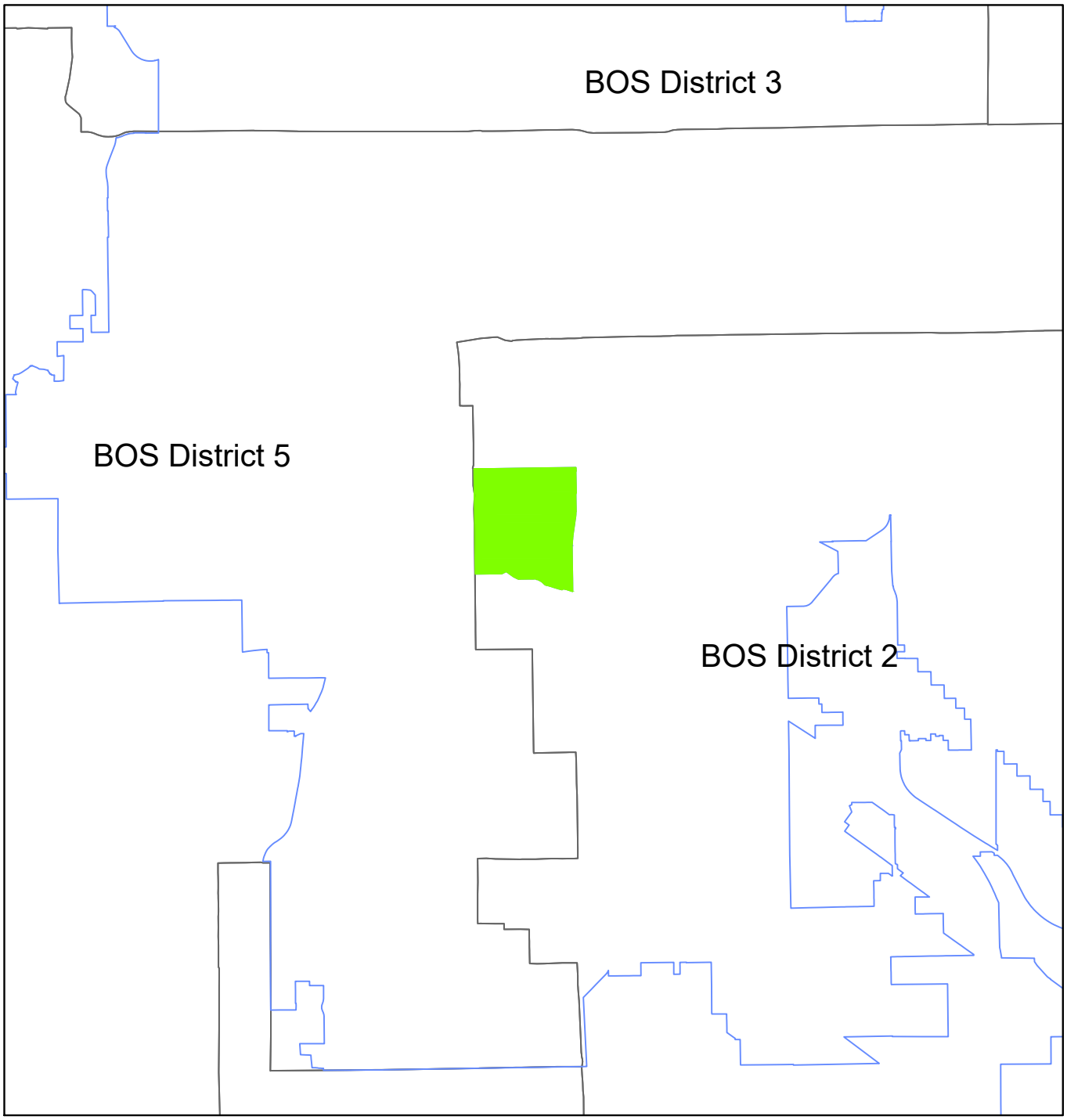


Town of Sahuarita

Base Tax	
District 2:	$135,811
District 3:	$25,219
District 4:	$75,327
Accelerated Tax	
Distribution:	$284,292*
Total:	$520,649

*A proportionate share of the Accelerated Property Tax Road Repair Revenues has been removed to pay financing costs, see Map 2

South Tucson Distribution

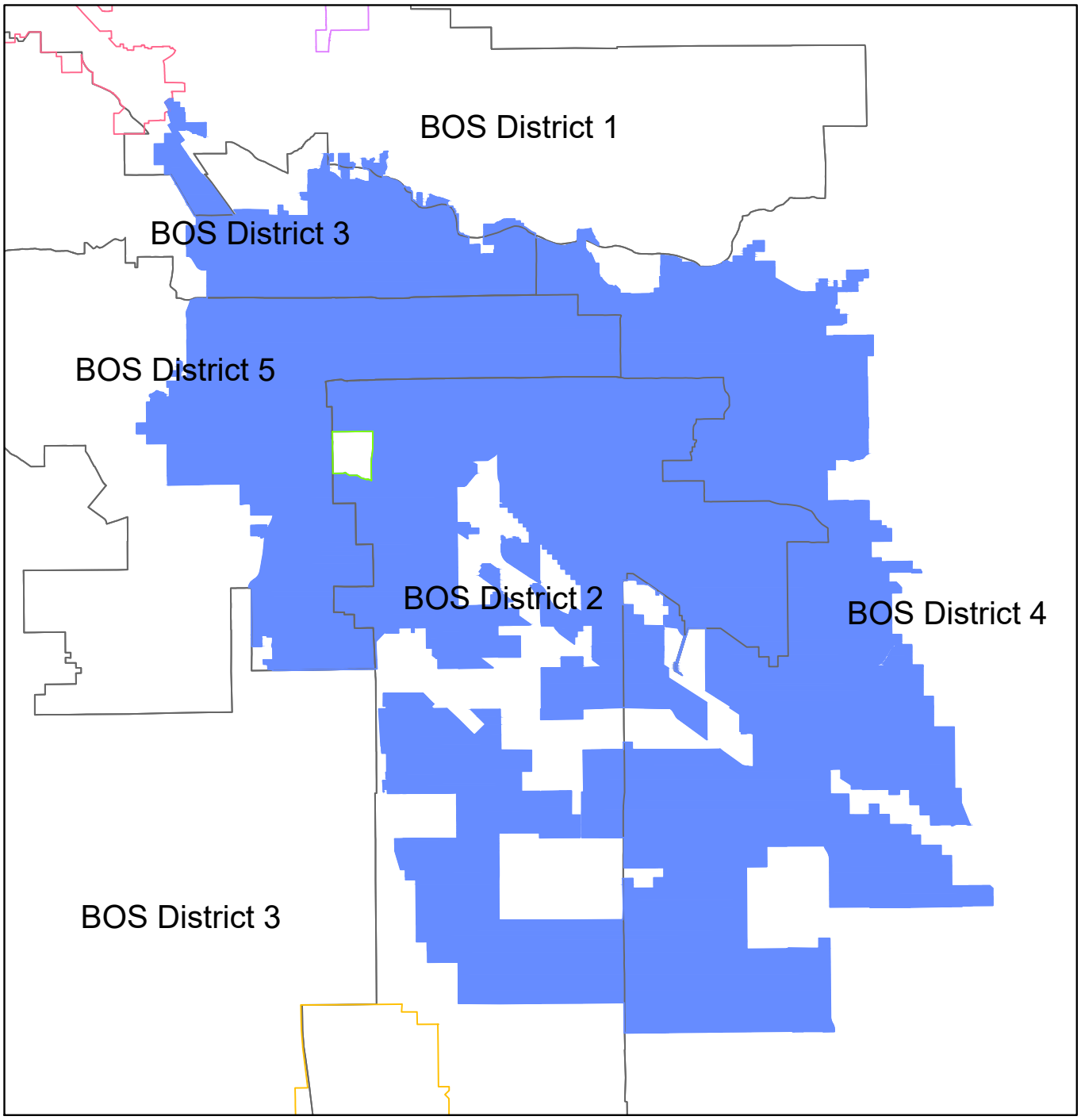


City of South Tucson

Base Tax	
District 2:	$23,369
Accelerated Tax	
Distribution:	$28,101*
Total:	$51,470

*A proportionate share of the Accelerated Property Tax Road Repair Revenues has been removed to pay financing costs, see Map 2

Tucson Distribution

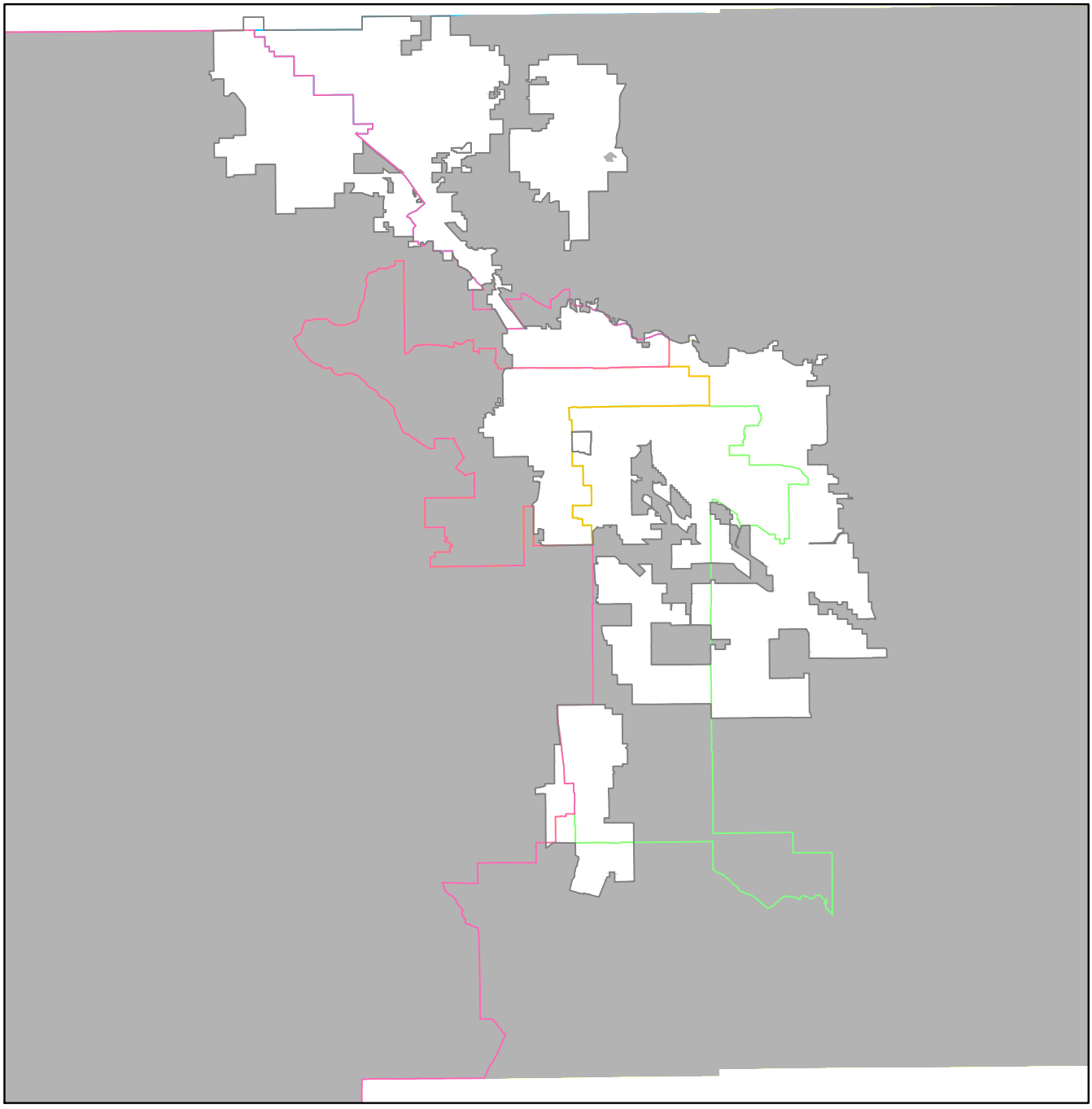


City of Tucson

Base Tax	
District 1:	$17,341
District 2:	$1,029,469
District 3:	$564,102
District 4:	$832,705
District 5:	$1,095,292
Accelerated Tax Distribution:	$4,256,906*
Total:	$7,795,815

*A proportionate share of the Accelerated Property Tax Road Repair Revenues has been removed to pay financing costs, see Map 2

Unincorporated Pima County Distribution



Unincorporated
Pima County

Base Tax	
District 1:	$1,290,121
District 2:	$201,806
District 3:	$911,734
District 4:	$886,508
District 5:	$313,522
Accelerated Tax Distribution:	$4,334,935*
Total:	$7,938,632

*A proportionate share of the Accelerated Property Tax Road Repair Revenues has been removed to pay financing costs, see Map 2

APPENDIX B

Supervisor District	Condition	Arterial	Collector	Local	Combined Total
District 1	VERY GOOD	23	5	25	53
	GOOD	21	2	24	47
	FAIR	8	4	50	62
	POOR	31	36	264	331
	FAILED	1	10	77	88
	UNRATED	0		10	10
District 1 Total		**84**	**58**	**450**	**592**
District 2	VERY GOOD	3	2	13	17
	GOOD	9	6	12	27
	FAIR	3	0	3	6
	POOR	10	3	25	38
	FAILED		3	11	14
	UNRATED	1	0	3	4
District 2 Total		**25**	**15**	**67**	**106**
District 3	VERY GOOD	4	9	52	66
	GOOD	4	18	18	41
	FAIR	2	11	23	35
	POOR	20	91	138	249
	FAILED	3	67	45	114
	UNRATED		0	32	32
District 3 Total		**34**	**196**	**308**	**537**
District 4	VERY GOOD	7	11	62	80
	GOOD	8	31	34	73
	FAIR	3	11	29	43
	POOR	25	56	103	184
	FAILED	2	27	59	89
	UNRATED	0	1	17	18
District 4 Total		**45**	**138**	**304**	**486**
District 5	VERY GOOD	0	4	7	11
	GOOD	4	3	14	20
	FAIR	1	2	13	16
	POOR	4	14	52	71
	FAILED	2	2	20	24
	UNRATED	1		1	2
District 5 Total		**12**	**25**	**107**	**144**
Grand Total		**200**	**431**	**1,235**	**1,866**

APPENDIX C

PIMA COUNTY
TRANSPORTATION

Pavement Treatment Costs

The degree of wear on a road determines the appropriate pavement treatment option. These range from a relatively inexpensive and simple application of asphalt emulsion to a much costlier ground-up reconstruction.

Fog Seal

Expected life: 4 Years
Cost: $1 - $2 per square yard ($35,200 per mile)
A light application of slow setting asphalt emulsion applied to the surface of a bituminous pavement. Fog seals are used to renew aged asphalt surfaces, seal small cracks and surface voids, or adjust the quality of binder in newly applied chip seals.

Chip Seal

Expected life: 7 Years
Cost: $4 per square yard ($70,400 per mile)
A surface treatment in which the pavement is sprayed with asphalt and then covered with aggregate and rolled. Chip seals are used primarily to seal the surface of a pavement with non load-associated cracks and to improve surface friction on low volume streets.

Micro Surface

Expected life: 7 Years
Cost: $5 - $6 per square yard ($105,600 per mile)
This treatment provides a "skim coat" of a restorative asphalt to the existing pavement surface, filling minor cracks and correcting pavement defects such as rutting and raveling when applied.

Mill and Overlay

Expected life: 15 Years
Cost: $14 per square yard ($246,400 per mile)
This process removes a defined thickness of the surface of the existing asphalt pavement, and after observed defects are corrected, the same thickness is replaced with new asphalt thereby returning the pavement to a nearly new condition.
This is the second most expensive pavement treatment option.

Reconstruct

Expected life: 20 Years
Cost: $45 per square yard ($792,000 per mile)
Complete design and pavement section replacement of an existing roadway.

There are 17,600 square yards in a mile of road that is 30 feet wide. Many Local roads are between 32 and 28 feet.

4507 170718 DB

APPENDIX D

Town of Marana

Pavement Preservation

The Town of Marana's Pavement Preservation Program employs a proactive maintenance philosophy, focused on prevention of major rehabilitation or reconstruction. The plan's objective is early surface treatment applications. Instead of applying treatments as a corrective measure, the treatments will be applied while roads are in fairly good conditions. The Town of Marana uses an Asset Management System (AMS) to collect all public infrastructure data, which will then be used to determine the best means to preserve and repair roadways. This integrated preservation and preventative maintenance strategy, if applied long-term, will reduce rehabilitation costs and increase infrastructure life.

Marana's strategy to combat road deterioration begins with the AMS. By recording factors including: age, observable pavement distresses, and the number, and length of cracks: the computer software is able to assign each roadway and Overall Condition Index (OCI). These indexes are gathered in a database, sorted, and prioritized. This prioritization method results in a more efficient use of resources by allocating money where it has the most impact. By tailoring treatment options to the existing surface conditions, products can be chosen to target individual pavement's deficiencies and give the Town the greatest cost to benefit ration. The following are detailed examples representing many of the surface treatments we have at our disposal. Illustrated below, in table A, is a decision matric, employed when determining the most appropriate preventative maintenance treatment.

The Town of Marana's Committee objective is to assess roadways systematically, utilizing technology and staff to its fullest potential. This committee is dedicated to delivering the most economical treatment method needed to restore and preserve the Town's infrastructure. The committee will convene each fall, beginning in early August through September to review critique and assess current roadway conditions. The fall session's purpose is to assemble and prioritize a six year list of pavement preservations and capital improvement projects, as well as to coordinate the current fiscal year's budgeted project. At the conclusion of this session, the committee will draft a report containing pavement preservation and capital improvement project recommendations; outlining a scope and budget for the upcoming fiscal year's proposed projects

Each spring the committee will reconvene to review the progress of the current fiscal year's work, and to review alternative treatment methods. The committee will also evaluate any modifications needed, and /or recommended by the Director of Public Works prior to the end of the current fiscal year. The committee will follow this schedule annually as part of the Pavement Preservation Program.

MARANA AZ
CELEBRATING 40 YEARS

TABLE A

OCI	Treatment Type	Estimated Cost per SY
100 - 70	**Minor:** Crack Seal, Fog Seal, PMM, HA5, PASS Rejuvenator, TRMSS, Green Asphalt, Liquid Road	$0.63 - $2.20
69 - 40	**Moderate:** Slurry Seal, Micro Surface, Chip Seal, Rubber Chip, Scrub Cape, Overlay, Green Asphalt, Liquid Road	$2.70 - $11.00
39 - 0	Full Depth Mill and Overlay Full Reconstruct including base	$12.00 - $30.00

PAVEMENT PRESERVATION PROGRAM

Town of Oro Valley Community Development and Public Works

1. Program Background and Description

For over a decade, the Town of Oro Valley's Engineering staff has worked to develop a program that maintains pavement based on overall condition index (OCI), rather than repairing pavement based on constituent complaints. There is no committee required, nor a public review process; maintenance is data-driven and backed by Town Council and the community.

Pavement Preservation Program (PPP) staff regularly inspect every pavement segment in the Town's public road network. Community Development and Public Works (CDPW) utilizes infrastructure management programs and software, including Cartegraph OMS, to track scheduling of inspections, maintenance and repairs, to measure and track OCI, and to predict deterioration of pavement and other Town assets over time.

Surface treatments are applied to arterial pavement, at minimum, every two years; surface treatments are applied to residential and collector pavement, at minimum, every five years.

2. Public Outreach

The PPP communicates with residents regarding upcoming residential surface treatment projects. Advance notice of upcoming surface treatments is transmitted via postcards, message boards, and door hangers and flyers. Contact information for the Town's project manager and the construction consultant is provided.

Near to construction, posts are made by Engineering staff in multiple areas of the Town's website and email blasts are sent to constituents in order to maximize awareness of construction activity.

3. Annual Approval Process

1. PPP develops a detailed schedule, recommending roads and subdivisions to be treated and type(s) of treatment(s) to be utilized. This schedule includes reasons for specific recommendations and expected impacts to OCI, as well as predicted budgetary requirements.
2. Engineering Division Manager reviews and approves schedule and budget.
3. Town Engineer (and CDPW Director) reviews and approves schedule and budget.
4. Town Council reviews and approves through the CIP budget process.

4. Setting Goals for the Future

As the Town of Oro Valley moves forward, emphasis is placed on improvements in communication via technology. PPP staff plans to increasing shared pavement project information via the Town's website, as well as utilizing email blasts and social media to maximize effectiveness of public outreach efforts. Cartegraph OMS includes features that will allow constituents to report issues online, from vegetation in need of maintenance to a pothole in a segment of pavement.

Improvements in data quantity and quality improve monitoring systems as time progresses. The PPP is committed to using Cartegraph OMS to eventually predict budgetary requirements in order to maintain pavement OCI as efficiently and effectively as possible. Staff continues to carefully gather accurate data, while deactivating irrelevant data.

Public Works Department

Pavement Preservation Practices

This document outlines the procedures typically followed by the Town of Sahuarita in determining the yearly pavement preservation projects.

Pavement ratings are available for 100% of the Town's arterial and collector roads. The Town of Sahuarita utilizes the data collection van to update the ratings information for all of the arterial and collector streets every two years. The most recent update was completed in 2016. Additionally, the Town has compiled rating data for approximately 90% of the Town's residential roads.

The Town performs two rounds of pavement preservation each year. In the fall the Town focuses on residential streets with arterial and collector streets being the primary focus of the spring program. The Town's pavement preservation program is designed to include not only those roads in the worst condition, but to ensure roads in good condition do not deteriorate. Each year approximately 25% of the pavement preservation budget is spent on roads in the "poor" category with treatments designed to bring them at least into a "fair" rating. The remaining budget is spent on roads in the "good" and "fair" categories to ensure they do not degrade further. It is the Town's goal to keep all roads at a pavement condition (OCI) of 5 or greater.

The following chart outlines the types of treatments the Town typically recommends for each pavement condition range:

Pavement Condition Range	Qualified Treatments
10-8	Various Fog Seal Applications
10-7	Crack Seal/Patching/Scrub Seal Various Fog Seal Applications Slurry Seal/Micro Surface
7-5	Crack Seal/Patching/Scrub Seal Slurry Seal/Micro Surface PMRE/CRS-2P Chip Seal PG-TR Chip Seal Cape Seal (Various) Double Chip Seal (Various) Conventional Overlay
5-3	Crack Seal/Patching/Scrub Seal Asphalt Rubber Chip/Cape Seal Double Chip Seal (Various) Three Layer Cape Seal (Various) SAMI/Rubber Modified Overlay Conventional Overlay Mill and Fill
3-0	SAMI/Rubber Modified Overlay Conventional Overlay Mill and Fill Reconstruction

City of Tucson Paving Program

The goal of the City of Tucson's Pavement Management Section (PMS) is to proactively implement a system-wide life-cycle pavement preservation program. Pavement preservation is the planned long-term strategy of timely implementation of cost-effective treatments to an existing roadway system that preserves the system, retards future deterioration and maintains or improves the functional condition of the system; this includes corrective maintenance, routine maintenance, preventive maintenance, and rehabilitation work. Pavement preservation is a critical component of pavement management that preserves the public's investment allowing the pavement to reach its structural design life while providing higher ride comfort and extended pavement service life.

Tucson's PMS has identified and cataloged the Tucson street network into segments that are consistent in age, structure, drainage profile, etc. Each segment is then inspected and receives an Overall Condition Index (OCI) rating of 0-100, with 100 being a newly constructed roadway. The inventory and condition data allows for objective decision-making and selection of maintenance strategy options that maximize the impact of limited funding available.

Proposition 409

In November 2012, voters approved Proposition 409 providing $100 million in bond revenue to be spent over five consecutive years, with 85 percent of the proceeds dedicated to specified arterial and collector streets and the remaining 15 percent to be used to improve local streets.

A Bond Oversight Commission (BOC) was established by the City Manager, Tucson Mayor and City Council and charged with the responsibility of monitoring the progress of road improvement projects to ensure that Proposition 409 bond funds are used only as approved by the voters. Additionally, the BOC was responsible for the selection process for the local street program.

Due to conservative estimates and a favorable bidding environment, the cost of the arterial and collector street repairs authorized by Proposition 409 was less than originally projected resulting in a budget surplus. The Mayor and Council adopted the BOC's recommendation that the "extra" capacity be allocated to repair projects from an expanded list of arterial, collector and local road repair projects.

Proposition 101

In May 2017, City voters overwhelmingly approved a half-cent sales tax increase over the course of five years beginning July 1, 2017. Of the projected $250 million to be collected under Proposition 101, $100 million will be used for road repair.

Approximately 60 percent ($60 million) of the half-cent sales tax revenue will be used for arterial and collector streets specified during the election. The remaining 40 percent ($40 million) allocated for local streets. Consistent with Proposition 409, local streets for repairs would be selected by a citizen's oversight commission, which also would oversee the road work for the half-cent sales tax program.

Annual General Maintenance

In addition to the Propositional programs, the Transportation Department continues to perform on-going scheduled maintenance. This includes year-round pothole patching and repair, pavement rejuvenation in the fall, and crack sealing in the winter. Chip-seal and other local street repair programs are realized as funding permits.